

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

HEAVY USE AREA PROTECTION

(Acre)

CODE 561

DEFINITION

The stabilization of areas frequently and intensively used by people, animals or vehicles by establishing vegetative cover, by surfacing with suitable materials, and/or by installing needed structures.

PURPOSES

This practice may be used as a part of a conservation management system to support one or more of the following purposes.

- Reduce soil erosion
- Improve water quantity and quality
- Improve air quality
- Improve aesthetics
- Improve livestock health

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to urban, agricultural, recreational or other frequently and intensively used areas requiring treatment to address one or more resource concerns.

FEDERAL, STATE AND LOCAL LAWS 1/

Design and construction activities shall comply with all federal, state, and local laws, rules, and regulations governing activities in or along streams, pollution abatement, health, and safety. The owner or operator

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shall be responsible for securing all required permits or approvals and for performing all planned work in accordance with such laws and regulations. NRCS employees are not to assume responsibility for procuring these permits, rights, or approvals, or for enforcing laws and regulations. NRCS may provide the landowner or operator with technical information needed to obtain the required rights or approvals to construct, operate, and maintain the practice.

Permits may be required from the following agencies:

- 1. West Virginia Department of Health***
- 2. West Virginia Department of Agriculture***
- 3. West Virginia Department of Environmental Protection***

PLANNING CONSIDERATIONS

Consideration will be given to the location, distance, and gradient to streams, sinkholes, and well heads; depth to bedrock; aquifer flow characteristics; animal traffic patterns; animal density; type of maintenance equipment; proximity to neighbors; prevailing winds; visual effects; and operation and maintenance costs.

NRCS, WV

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Note: Bold italics - Information added or changes made in the National Conservation Standard by WV.

CRITERIA

General Criteria Applicable to All Purposes

All planned work shall comply with Federal, state, and local laws and regulations.

Safety of the users shall be incorporated into the design of the heavy use area protection.

Field Investigation. *A full investigation of the topography of the site, soil conditions, runoff considerations and degree and type of usage shall be made before a specific plan is prepared for the area.*

Design Load. The design load will be based on the type of traffic, (vehicular, animal, or human) anticipated on the heavy use area. The minimum design load for areas that support vehicular traffic will be a wheel load of 4000 lbs.

Foundation. All site foundations shall be evaluated for soil moisture, permeability, texture and bearing strength in combination with the design load and anticipated frequency of use.

A base course of gravel, crushed stone, other suitable material and/or geotextile shall be provided on all sites with a need for increased load bearing strength, drainage, separation of material and soil reinforcement. Natural Resources Conservation Service (NRCS), National Engineering Handbook (NEH), Parts 642 and 643 (formerly, NEH, Section 20) and AASHTO M-288 (latest edition) provide guidance in quality specification and geotextile selection.

Unless otherwise specified, the minimum thickness of the base course shall be six inches of gravel, crushed stone, or other suitable materials. The material in place may be used if it has adequate drainage and bearing capacity. Geotextile shall be used for soil separation if necessary.

An impervious barrier shall be provided on sites with a porous foundation (high permeability rate), where there is a need to protect ground water from contamination.

Foundation preparation shall consist of removal and disposal of soil and other material that are not adequate to support the design loads.

Surface treatment. The surface treatment shall meet the following criteria:

Bituminous Pavement. The thickness of the pavement course, the kind and size of aggregate, the type of proportioning of bituminous materials, and the mixing and placing of these materials shall be in accordance with Department of Transportation criteria for the expected loading.

Asphalt shall meet the requirements of West Virginia Department of Transportation, Division of Highways, Standard Specifications Roads and Bridges, Section 401 or 402. Choose a mix type appropriate for the surface application.

Asphalt. The thickness of an asphalt course, the kind and size of aggregate, the type of proportioning of bituminous materials, and the mixing and placing of these materials shall be in accordance with standard highway practice for the expected loading. The minimum thickness of asphalt wearing course shall be two to four inches for access areas.

Bituminous/asphalt pavement shall not be considered for animal feed pads or waste storage facilities.

Concrete. The quality and thickness of concrete and the spacing and size of reinforcing steel shall be appropriate for the expected loading.

The quality and thickness of concrete and the spacing and size of reinforcing steel shall be appropriate for the expected loading and in accordance with the requirements in practice standard Waste Storage Facility (313), Slabs on grade section.

Other Cementitious Materials. Soil cement, roller compacted concrete, and coal combustion by-products (flue gas desulfurization sludge and fly ash) may be used as surface material if designed and installed to withstand the anticipated loads and surface abrasion.

Aggregate. A fine or coarse aggregate surface shall be a minimum 2-inches thick.

Other. Surfacing materials, such as cinders, tanbark, bark mulch, brick chips, shredded rubber and/or sawdust, shall have a minimum layer thickness of 2 inches.

Structures. All structures shall be designed according to appropriate NRCS standards and

specifications or Engineering Handbook recommendations.

Fabricated concrete and wood framed structures shall be designed in accordance with the requirements in practice standard Waste Storage Facility (313).

Sprays and artificial mulches. When utilizing sprays of asphalt, oil, plastic, manufactured mulches, and similar materials, the manufacturer's recommendations for application shall be incorporated into the design.

Drainage and erosion control. Provision shall be made for surface and subsurface drainage, as needed, and for disposal of runoff without causing erosion or water quality impairment. Provision shall be made to exclude unpolluted run-on water from the treatment area. All treatment areas shall be shaped to prevent ponding of water.

Vegetative Measures. Liming, fertilizing, soil preparation, seeding, mulching, sodding and vegetation management shall be according to the planned use and appropriate conservation practice standard in the local technical guide. If vegetation is not appropriate, other measures shall be used to accomplish the intended purpose.

Additional Criteria for Feed Pads Utilized by Livestock

The treated area shall extend an appropriate distance from facilities such as portable hay rings, water troughs, feeding troughs, mineral boxes and other facilities where livestock concentrations cause resource concerns.

NRCS conservation practice standards Critical Area Planting, Code 342; Fencing, Code 382; Prescribed Grazing, Code 528A; Filter Strip, Code 393; Wastewater Treatment Strip, Code 635; or Use Exclusion, Code 472 shall be used as companion practices, when needed, to meet the intended purpose of the heavy use area protection.

Provisions shall be made to collect, store, utilize and/or treat manure accumulations and contaminated runoff in accordance with appropriate conservation practice standards.

This practice is intended to be a planned component of a Comprehensive Nutrient

Management Plan (CNMP), a Waste Management Plan (WMP), a Animal Feeding Operation Plan (AFO) or a Concentrated Animal Feeding Operation Plan (CAFO), which addresses all practices needed to improve water quality from areas being frequently and intensively utilized by livestock.

Surface Area for Livestock Feeding Pads

The size of the heavy use area feed pad shall be based on the following;

Where cattle are confined and have access to a protected loafing area (i.e. barn or shelter) or where the area is being used strictly as a feeding pad, 50 to 75 square feet per animal. This accounts for feed areas, hay rings, etc.)

Where full-grown cattle are confined and do not have access to a protected loafing area, 125 to 175 square feet per animal shall be used. This accounts for feed areas, hay rings, etc.)

Where other types of livestock or conditions are involved, consult appropriate literature, such as the Mid West Plan Service guide, Beef Housing and Equipment Handbook; Planning Guide, 1987 edition, for sizing requirements.

Additional space and consideration should be given to cow/calf operations and to calf operations when additional separation of areas may be necessary for health, feeding or watering needs.

Livestock Feeding Pads

Winter feed pad manure shall be properly managed and regularly scrapped into a covered Waste Storage Facility (313).

Summer feed pad manure shall be frequently scrapped and applied to the fields according to the Waste Utilization Standard - 633 and Nutrient Management Standard -590.

Feed pads shall be placed out of the 25 yr. floodplain or be protected from inundation.

Watering facilities shall not be placed on feeding pads that are designed for less than 100% confined feeding operations. Water may be placed within 100-200 feet of the feed area to encourage movement from the feed pad back to the pasture. Good footing and

animal trail and/or access lanes should be provided from the feed pad to the watering area and pasture.

Feeding pads shall be protected from surface flow.

Feed Pads shall be designed to keep manure and waste within facility. Wooden or concrete curbs a minimum of 8 inches high shall be installed on all pads to control runoff. If a waste water treatment strip will be used to treat the contaminated surface runoff, then a slotted wooden curb or 3" pvc pipe evenly spaced every 10' or less in the curb on the side of the waste treatment area. This is to prevent solids from entering the waste treatment area. However, if another type of solid separating system is use, than one side of the facility may be left un-curved to allow sheet flow onto a waste treatment area provided the solids are removed prior to overland flow treatment.

Uncovered Winter Feed Pad

Uncovered winter feed pads shall be limited to 10 animal units/24 hour period unless a WSF is designed to manage the manure runoff according to CPS 313-Waste Storage Facility.

Uncovered feed pads designed for winter usage should be placed on the contour.

Covered Winter Feed Pad

Covered/roofed feed pads for winter usage should have good animal access lanes to the facilities.

Watering facilities may be inside the feed pad for units that are designed for 100 % confinement.

Encourage multiply feed pads to reduce heavy use of access areas and adjoining lots. Limit feed pads to 40 animal units or less if the animals are not 100% confined.

Fencing. Fencing may be needed to confine livestock, control access to the stabilized pad, or separate animals from filter areas, where vegetation requires protection. Follow conservation practice standard Fence (382) for the planning, design, and construction of fencing.

Runoff Treatment. Surface runoff will be controlled in accordance with applicable standards (diversion, roof runoff management, etc.) to minimize overland flow onto, and through, the heavy use area. Runoff from the stabilized area will not discharge directly into drainage ways, streams, or other bodies of water. Store contaminated runoff from the area in accordance with standard Waste Storage Facility (313), or treat runoff using applicable standards. Wastewater Filter areas shall be designed according to CPS Wastewater Treatment Strip-635 and shall be protected from solids deposition by curbing, catch basins, or other appropriate installations).

Base Course. All areas to be paved shall have a 6-inch base course of gravel, crushed stone, or other suitable materials. The base course for concrete may be as detailed in standard Waste Storage Facility (313).

Surface Treatment. Concrete is strongly recommended for concentrated confinement areas. Other surface materials may be used for stabilized feeding pads but consider the type of equipment that will clean the area and long term maintenance issues.

- 1. Concrete. The quality and thickness of concrete and the spacing and size of reinforcing steel shall be appropriate for the expected loading and in accordance with the requirements in standard Waste Storage Facility (313).*
- 2. Gravel. When using stone as a surface treatment, the type of animal and the size of the stones should be considered. There is the possibility that certain sized stones may embed themselves into the animals' hooves and may result in abscesses. This concern primarily exists when the heavy use area is adjacent to a paved area, such as a concrete barnyard.*

The minimum thickness for a gravel surface shall be 3 inches on top of the required 6-inch base course. Consideration of the surface layer gradation should be made to be compatible with the animal type and the operation and maintenance of the heavy use area.

4. Other. If other surfacing materials are used, such as cinders, tanbark, or sawdust, the minimum thickness shall be 6 inches.

Additional Criteria for Areas Utilized for Recreation

The treated area shall be conducive to the overall recreation area and aesthetically blend with the general landscape and surroundings.

Plants, landscaping timbers, traffic control measures, wooden walkways, etc. shall be evaluated for effectiveness, aesthetics and accessibility as covered by the Americans with Disabilities Act.

CONSIDERATIONS

When stabilizing heavily used areas consider adjoining land uses and the proximity to residences, utilities, cultural resource areas, wetlands or other environmentally sensitive areas, and areas of special scenic value.

For heavy use areas conducive to protection by vegetation, consideration must be given to the effect(s) of treading and/or miring. The vegetative species selected should tolerate and persist under heavy use conditions. If practicable, consider increasing the size of the area and/or establishing a rest/non-use period to allow plant recovery and increase vigor.

Heavy use area protection effects on the water budget, especially on volumes and rates of runoff, infiltration, and transpiration due to the installation of less pervious surfaces should be considered in the selection of surfacing materials.

The transport of sediments, nutrients, bacteria, organic matter from animal manures, oils and chemicals associated with vehicular traffic, and soluble and sediment-attached substances carried by runoff should be considered in selection of companion conservation practices.

If the purpose of the heavy use area protection is improvement of water quality, the heavy use area should be (re)located as far away from the waterbody or watercourse as possible. Any work in and/or discharges near streams, wetlands or waterbodies may require a permit from the US Army Corps of Engineers, state

water quality (permitting) authority, or local authority.

The size of heavy use areas utilized by livestock is dependent on the landowner's operation including type and number of animal, confinement periods, and/or the intended use. The size of treatment areas can range from 30 square feet per animal in partial-confinement to 400 square feet per animal in total confinement to 4000 or more square feet for animal exercise areas. Heavy use protection areas should be kept as small as practicable.

When surface treatments such as bark mulch, wood-fiber or other non-durable materials are used for short-term livestock containment areas, consideration should be given to vegetation of the affected area with a cover crop.

For areas with aggregate surfaces that will be frequently scraped, consideration should be given to the use of concrete or cementitious materials to lessen the recurring cost of aggregate replacement.

PLANS AND SPECIFICATIONS

Plans and specifications for heavy use area protection shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include construction plans, drawings, job sheets or other similar documents. These documents shall specify the requirements for installing the practice, including the kind, amount and quality of materials to be used.

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE GENERAL SPECIFICATIONS**

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OPERATION AND MAINTENANCE

An Operation and Maintenance (O&M) plan shall be prepared for and reviewed with the landowner or operator. The plan shall specify that the treated areas and associated practices are inspected annually and after significant storm events to identify repair and maintenance needs.

The O&M plan shall detail the level of repairs needed to maintain the effectiveness and useful life of the practice.

For livestock operations, the O&M plan for heavy use areas may be included as a part of the overall waste management plan. Periodic removal and management of manure accumulations will be addressed in the O&M plan.

The O&M plan must complement the waste utilization plan. Items that should be part of the plan are:

1. ***Periodic inspections, at least annual.***
2. ***Maintenance of the area by weed control or surface sealing.***
3. ***Repair of deteriorating areas.***
4. ***Repair of surface areas by replacement of lost gravel, repaving holes, regrading paving material.***
5. ***Maintenance of vegetation, where required, by fertilization, liming, or reseeding.***
6. ***Scrape the surface as needed to remove excess manure and/or sediment and place in a designated location.***

7. ***Inspect inlets and outlets of pipes and culverts and remove any obstructions.***
8. ***Maintain surface flow onto designated (if required) filter or waste water filter areas and remove accumulated solids, reconstruct drainage, etc.***
9. ***Any clearing and grubbing necessary to install heavy use area protection shall be done in accordance with the plans and specifications. All materials shall be disposed of by burying, burning, or removal from the site.***
10. ***All required smoothing, grading, or leveling shall be completed prior to the start of the surfacing operations. The subgrade shall be compacted by 3 passes of the construction equipment to attain a firm foundation for the surfacing materials.***
11. ***The area shall be constructed to the line, grade, and section shown on the plans.***
12. ***All materials shall be inspected by NRCS personnel.***
13. ***Paving and surfacing shall conform to the construction specifications for Access Road (560), Recreation Trails and Walkways (568) or Waste Storage Facilities (313).***
14. ***Hot mix bituminous surfacing materials shall not be placed on wet subgrade. All surfacing materials shall be placed and finished to the lines and grades shown on the plans.***
15. ***Construction operations shall be carried out in a manner such that erosion, air,***

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*and water pollution will be minimized
and held within legal limits.*

- 16. *The job shall be completed in a skillful
manner and present a finished
appearance when completed.***