NRCS Natural Resources Conservation Service

# Critical Area Planting

***WV Conservation Practice Job Sheet*** ***Code 342***


## DEFINITION

Critical area planting consists of planting vegetation on highly erodible or critically eroding areas. Examples of critical areas are on woodland access roads, dams, dikes, diversions, grassed waterways, mine spoil, levees, cuts, fills, borrow areas, surface-mined areas, road banks, and denuded or gullied areas where vegetation is difficult to establish by normal planting methods.

## PURPOSE

Rarely does one conservation practice provide the treatment needed for all of our natural resources. Critical area planting is a component of conservation management systems. A conservation management system is a combination of conservation practices and management that achieves a level of treatment for our soil, water, air, plant, and animal resources while also meeting the objectives of the land user. In addition to critical area planting, additional conservation practices are often needed.

This practice is applied as part of a conservation management system to support one or more of the following:

- Stabilize areas with existing or expected high rates of soil erosion by water.
- Restore degraded sites that cannot be stabilized through normal methods.

## CONDITION WHERE PRACTICE APPLIES

Critical area planting applies on highly erodible or critically eroding areas. These areas usually cannot be stabilized by ordinary conservation treatment and management; and if left untreated can cause severe erosion or sediment damage. Examples include: small concentrated flow areas, dams, dikes, levees, cuts, fills, surface mined areas and denuded or gullied areas where vegetation is difficult to establish by usual planting methods.

## CRITERIA

- Species selected for seeding or planting shall be suited to current site conditions and intended uses.
- Species selection should be based factors including: Climate, soil condition and pH, slope, wetness of the site, plant characteristics, resistance to diseases and the ability to achieve an adequate density to address the problem within an appropriate time frame and permit suitable uses with ordinary management activities.
- Utilize seed that is of high quality and meets state minimum standards or is certified.
- The timing of site preparation, seedbed preparation, fertilization, planting, and mulching should be done at a time and manner that best

ensures survival and growth of the selected species.

- Any necessary federal, state, and local permits must be obtaining prior to implementation of this practice.
- Erosion must be reduced or maintained at acceptable levels.
- All tillage operations should be performed on the contour to the extent possible.
- Livestock must be controlled or excluded to allow for the establishment and maintenance of the desired vegetative cover.
- Additional practices such as water control and sediment retention structures may be required for control of excessive erosion or sedimentation.
- Additional information may also be found in the *West Virginia Sediment and Erosion Control Manual for Developing Areas*.

## Site Preparation

When conventional planting is proposed (normally on slopes with a 3:1 ratio or flatter), the area should be graded or shaped to permit the safe use of equipment associated with the establishment of vegetation and maintenance.

The soil surface should be roughened lightly to a depth of 3 inches by heavy equipment or suitable farm tillage implements just prior to seedbed preparation.

If feasible, no-till seeding may also be used.

Slopes steeper than 3:1 will normally need to be planted by hand, or with a hydroseeder. The slope surface should be left in a loose, friable, and slightly roughened condition. If additional roughness is desired, stair-step grading, grooving, furrowing, or tracking may be required by heavy equipment. Grooves or furrows should be at least two inches deep. However, tracking may cause severe surface compaction, and may not be as effective as other forms of roughening. On clayey soils, use this method only if there is no other alternative.

Grading of slopes should be performed only to the extent necessary to ensure stability.

Any surface debris that may interfere with conventional cover establishment or maintenance operations should be removed.

## Topsoil

Wherever feasible topsoil should be salvaged, stockpiled and utilized. Topsoil should not be added to slopes steeper than a 2:1 unless good bonding can be achieved.

It should also be added to sites where adverse soil properties or conditions exist which will prevent the successful establishment and where it can be applied properly and safely. It should be free of trash, stumps, roots, large rocks, noxious weeds, toxic substances, etc.

The sub-layer below the topsoil should be scarified to a depth of about 3 inches and the stockpiled topsoil spread evenly over the area

## Seedbed Preparation

All required seedbed preparation should be performed just prior to, and in conjunction with planting. If rainfall occurs between the initial seedbed preparation and the planting, the site may need to be reworked.

Seedbed preparation may not be required on newly disturbed areas. If needed, firm the seedbed with a cultipacker or other suitable implement prior to broadcasting seed and/or plants to insure good seed to soil contact and to prevent seeds or plants from being deeply buried.

Where site conditions will not permit normal seedbed preparation, loosen the soil surface by tracking and/or back-blading with a bulldozer or other suitable earthmoving equipment.

Sites which prohibit the use of conventional equipment should be prepared in such a manner that the soil surface remains in a loose and friable condition. This may be accomplished with heavy equipment during, and as a part of site preparation.

Soil disturbance can also be accomplished with the use of a chain harrow, hand tools, or similar equipment. When hydroseeding, seedbed preparation may not be necessary if adequate site preparation was performed.

On sites where the use of conventional equipment is proposed, prepare a proper seedbed by disking, harrowing, or using other suitable tillage implements.

Incorporate lime and/or fertilizer into the top 3 to 6 inches of the soil as a part of the seedbed preparation. If hydroseeding, incorporate the appropriate amount of lime and/or fertilizer in the slurry mix.

## Soil Amendments

Soil fertility and pH level should be amended to the needs of the plant species planned.

Application of all soil amendments should be based on recommendations from a qualified soil testing laboratory, such as the West Virginia University Soils Testing Laboratory. Soil samples should be collected from the area to be seeded.

If a sample is not feasible or practical, an all-inclusive fertilizer recommendation may be used as shown in Table 1.

| Species | N (lbs/ac) | $P_2O_5$ (lbs/ac) | $K_2O$ (lbs/ac) | Example Recommendation (per acre) |
|---|---|---|---|---|
| **Cool Season Grass** | 40 | 80 | 80 | 400 lbs. 10-20-20 |
| **CS Grass & Legume** | 30 | 60 | 60 | 300 lbs. 10-20-20 |
| **Temporary Cover** | 40 | 40 | 40 | 200 lbs. 19-19-19 |

**Table 1.** Acceptable fertilization recommendation in absence of a soil test.

## Mulching

Refer to the conservation practice standard (484) Mulching and/or associated job sheet for information regarding the use and application of various kinds of mulch.

Depending on site conditions, additional protective measures may be deemed necessary. Examples include jute mesh, silt fences, bale barriers, and soil stabilization blankets or mats. Refer to the West Virginia Sediment and Erosion Control Handbook for Developing Areas for more information.

# OPERATION AND MAINTENANCE

The planting should be inspected at least twice in the establishment year and then at least annually. Evaluate the site within several months of seeding. If the stand is uniform but too thin (50 to 80% ground cover), apply additional seed during the next optimum seeding period with a no-till drill, grain drill, or hydroseeder as site conditions dictate. Sites with an establishment rate of less than fifty percent (50%) should be reseeded in accordance with the original planting plan. Determine the reasons for planting failure and corrective measures should be incorporated into the remedial planting.

The planting must be restored and protected from adverse impacts such as vehicular and pedestrian traffic, pest infestations, pesticide use on adjacent lands, livestock damage and fire.

Vegetation damaged by machinery, herbicides, or erosion should be repaired promptly.

The area must be protected from livestock grazing until the vegetation is well established and the site is stabilized.

If soil moisture becomes critically deficient, irrigate the site if practical and feasible.

Weed competition must be controlled by mowing or with herbicides. Use caution when spraying chemicals on lands that are adjacent to the site.

Replacement of failed vegetation should be continued until the area progresses to a fully functional condition.

For forage, manage and maintain according to the standard and specifications for (528) Prescribed Grazing or (511) Forage Harvest Management. Occasional grazing and/or haying may benefit the stand.

Soil amendments should be applied as required to maintain ground cover density at the desired level (usually 90% or greater). Application of soil amendments will be based upon soil testing laboratory recommendations. At a minimum, test the soil at least once every five years or more often if indicated by periodic inspections of the practice.

Maintenance practices and activities are not to disturb cover during the primary nesting period from March 15 -July 15 for grassland species. Activities may occur during this period only in the establishment year.

To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds should be done on a "spot" basis to protect forbs and legumes that benefit native pollinators and other wildlife.

Additional operation and maintenance requirements may be required to be developed on a site-specific basis to assure performance of the practice as intended.

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# Specifications

## 342 Critical Area Planting - WV Job Sheet

Site-specific requirements are listed on the specification sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide and the Critical Area Planting practice standard (342). Information on this job sheet is considered to be part of the conservation plan.

| | | |
|---|---|---|
| **Client:** | **Farm #:** | A no-till drill is available from this Conservation District office: ☐ **YES** ☐ **NO** |
| **Field(s):** | **Tract #:** | |
| **Designed By:** | **Date:** | Phone: (_____)_____ |

| **Purpose** (check all that apply) | |
|---|---|
| ☐ Stabilize areas with existing or expected high rates of soil erosion by water | ☐ Restore degraded sites that cannot be stabilized through normal methods |

| **Seeding Type** (check all that apply) | |
|---|---|
| ☐ Temporary Cover Seeding | ☐ Permanent Seeding |

| **Layout** | **Field _____** | **Field _____** | **Field _____** |
|---|---|---|---|
| **Total Area Planted** (acres) | | | |
| **Site Slope** [1] | | | |
| **Site/Seedbed Preparation Method** [2] | | | |
| **Site/Seedbed Preparation Treatment Date** | | | |
| **Species for Temporary Cover** | | | |
| **Rate** (lbs/acre) | | | |
| **Temporary Cover Method of Establishment** [3] | | | |
| **Temporary Planting Date** | | | |
| **Species for Permanent Cover** | | | |
| **Rate** (lbs/acre) | | | |
| **Permanent Cover Method of Establishment** [3] | | | |
| **Permanent Planting Date** | | | |
| **Supplemental Nutrients for Establishment** (N, $P_2O_5$ and $K_2O$ lbs/acre) | | | |
| **Lime** (tons/acre) | | | |
| **Topsoil Salvage** [4] | | | |
| **Livestock Exclusion is Required** [5] | | | |

[1] Indicate the approximate site slope. **NOTE:** Machinery should only be operated on slopes flatter than 3:1.

[2] List the site/seedbed preparation method to be used: **Farm Equipment, Heavy Equipment, Hand,** or **Other.** Refer to the "Site Preparation" section of this job sheet for specific instructions.

[3] Identify how the vegetation is to be established: **Hydroseed**, **No-Till Drill** or **Conventional** (Includes disked or hand established and broadcast methods).

[4] Indicate whether topsoil is present and feasible to be salvaged, stockpiled and utilized. **NOTE:** Topsoil should not be added to slopes steeper than a 2:1 unless good bonding to the sub-layer can be achieved.

[5] Refer to (472) Use Exclusion or associated job sheets for more information.

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If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

Refer to the conservation plan map for locations

**Additional Notes, Specifications, Operation and Maintenance Requirements, etc.**

Follow the procedures and methods for Operation and Maintenance as outlined in this job sheet. Livestock will be excluded from the stand until well established. Evaluate the site within three months of the initial seeding. If the stand is uniform but too thin (50 to 80% ground cover), apply additional seed during the next optimum seeding period with a no-till drill, grain drill, or hydroseeder as site conditions dictate. Sites with an establishment rate of less than fifty percent (50%) will be reseeded in accordance with the original planting plan. Regular application of lime and fertilization according to soil test may be required after the stand is established. Refer to other job sheets such as (484) Mulching, *WV Sediment and Erosion Control Handbook for Developing Areas* or other conservation practices as indicated for more information. **Additional Notes:**

**For more information concerning this practice contact:**

_____ **at** _____





Clear Form