



## Operation & Maintenance Plan Lined Waterway or Outlet (Code 468)

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Landowner/Operator:

Date:

NRCS Service Center:

Conservation District:

Practice Location:

Tract/Field ID:

(Lat/Long or UTM Coord, or Sec/TS/R)

### Expected Lifespan

The minimum expected lifespan of this practice is at least 15 years.

A properly operated and maintained **Lined Waterway or Outlet** is an asset to your property. The purpose of this practice is to prevent erosion and improving runoff water quality resulting from concentrated surface flow and reducing potential safety hazards such as flooding and preventing formation of large gullies. The life of the practice can be assured and usually extended by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation and maintenance to maintain satisfactory performance. The following are some requirements to help you develop a good operation and maintenance program.

### Safety

1. Do not allow livestock access to lined waterway or outlet. Livestock could slip on lining injure feet on the lining material. Install and maintain fences to control livestock access when adjacent fields are used for pasture. Repair or replace damaged fences and gates as soon as possible. Keep gates closed at all times.
2. Keep machinery away from steep-sloped ridges. Keep equipment operators informed of all potential hazards.

### Operation

1. Avoid excessive travel on any portion of the waterway that will damage or destroy the vegetative cover or the lining. Do not use as a roadway.
2. Avoid using waterways as turn-rows during tillage and cultivation operations.
3. Avoid crossing the waterway that with heavy equipment that will damage or destroy the vegetative cover and the lining. Minimize damage to waterway by not cross waterway when it is wet. Also, lift tillage equipment and turn off chemical application equipment when cross a waterway.
4. Inspect waterways and outlets regularly, especially following heavy rain events. Repair lining and reseed damaged areas immediately. Remove deposition of sediment.
5. Avoid use of herbicides that would be harmful to the vegetation or pollinating insects in and adjacent to the waterway area.
6. Control noxious weeds

### Inspection

1. Periodically inspect the waterways and outlets, especially after major storm events.
2. Inspect waterways and outlets for settlement and damage to the lining.
  - a. Repair spalls, cracks and weathered areas in concrete surfaces.
  - b. Replace weathered or displaced rock riprap to its original grade.
  - c. Make other repairs as necessary.

### Maintenance

1. Maintain vigorous growth of desirable vegetation along the sides of the lined waterway and around the perimeter of the lined outlet. Reseed barren and eroded areas as soon as they are recognized. Mow vegetation at least once per year.

2. Remove accumulated deposition of sediment from the waterway or outlet.
3. Remove all foreign debris that may reduce capacity or hinder system operation.
4. Remove any obstructions or blockages of spillways, trash racks or pipe inlets.
5. Replace weathered or displaced rock riprap used for the lining.
6. Eradicate or otherwise remove all burrowing animals. Immediately repair any damage caused by their activity.
7. Immediately repair any damage caused by vandalism, vehicular traffic, or livestock access to any part of the lining waterway or outlet.
8. Remove woody vegetation from the perimeter of the waterway or outlet.

#### Operation, Maintenance and Inspection Costs

1. It is estimated that the annual time to routinely inspect and make minor repairs to your Lined Waterway or Outlet will be:
  - a. Inspection = 2 hours/year/1000 feet of waterway
  - b. Minor Repairs = 2 hours/year/1000 feet of waterway
  - c. Mowing Perimeter = 2 hours/year/1000 feet of waterway
  - d. Major repairs to damage caused by major storm event will require extra time and materials.
2. Most maintenance, such as mowing, replacing riprap, removing wood vegetation, etc. can be accomplished using common farm machinery. Occasional damage, caused by major storm events may require heavy construction equipment to make the necessary fixes.

#### **Specific Site Requirements**