The Nebraska Department of Natural Resources inspects dams in accordance with the following statutes:

Neb. Rev. Stat. § 46-1648

In making any investigation or inspection necessary to enforce or implement the Safety of Dams and Reservoirs Act, the department or its representatives, upon reasonable notice, may enter upon private property of the dam and reservoir owner as necessary. Such right of entry shall extend to all employees, surveyors, or other agents of the department in the official performance of their duties, and such persons shall not be liable for prosecution for trespass when performing their official duties.

Neb. Rev. Stat. § 46-1664

(1) *The department shall inspect dams for the purpose of determining their safety. The normal inspection frequency shall be annually for high hazard potential dams, biennially for significant hazard potential dams, and every five years for low hazard potential dams and every five years or more for minimal hazard potential dams. The department may vary the inspection frequency of some sites based on an evaluation of the site performance history. The department may conduct additional inspections at any time. If serious safety concerns are found by the department during the inspections, the department shall require the owner to conduct tests and investigations sufficient for the department to determine the condition of the dam. After review of the tests or investigations, the department may require modification, removal, or breach of the dam or alteration of operating procedures to restore or improve the safety of the dam and may require installation of instrumentation to monitor the performance of the dam.*

This brochure is intended to inform owners of small earthen dams about the Nebraska Department of Natural Resources Dam Safety inspections. It is not intended as a complete maintenance manual.

Proper safety procedures should be observed when performing maintenance as some activities may be hazardous.

If you have further questions about your dam, please contact the Department of Natural Resources main office or one of our field offices:

Nebraska
Department of Natural Resources (Main Office)
Engineering Section and Dam Safety
301 Centennial Mall South, 4th Floor
Lincoln, NE 68509
(402) 471-2363

Bridgeport Field Office
729 Main Street
Bridgeport, NE 69336
(308) 262-1930

Cambridge Field Office
622 Patterson
Cambridge, NE 69022
(308) 697-3730

Lincoln Field Office
301 Centennial Mall South
Lincoln, NE 68509
(402) 471-3005

Norfolk Field Office
601 East Benjamin Ave., Suite 101
Norfolk, NE 68701
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Ord Field Office
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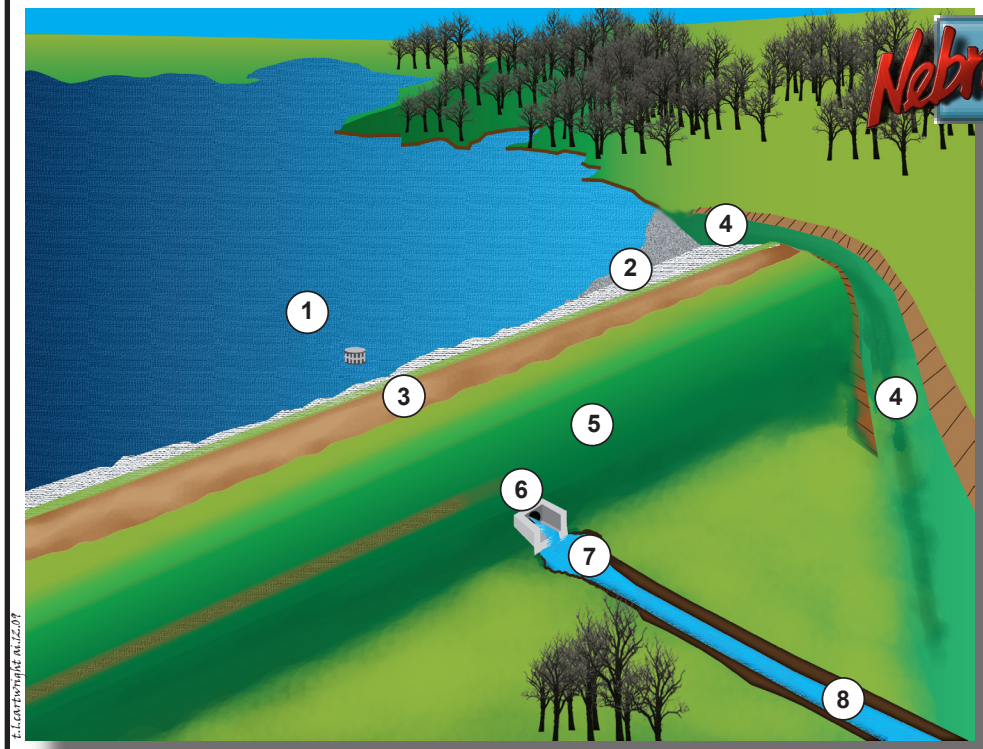
Safety and Maintenance

# of Small Earthen Dams



Note: *Individual dams vary in design and not all dams have the same features.*

1. **Intake Structure and Reservoir**
2. **Upstream Embankment**
3. **Crest**
4. **Auxillary Spillway**
5. **Downstream Embankment**
6. **Conduit and Outlet**
7. **Plunge Pool**
8. **Outlet Channel**

Safety and Maintenance of Small Earthen Dams

Nebraska

The Department of Natural Resources makes periodic inspections of dams in Nebraska in accordance with Section 46-1664 of the Safety of Dams and Reservoirs Act.

- **Uncontrolled livestock grazing or vehicle ruts** on dams and in spillways can diminish grass cover and create paths and bare areas which are easily eroded. Excessive erosion on any part of an earthen dam embankment can lead to dam failure. A healthy grass cover is the preferred method of preventing soil erosion. All eroded areas should be repaired and a healthy grass cover re-established.

- **Trees on the dam** should be removed for several reasons. First, trees tend to inhibit the growth of grasses that stabilize the soil and prevent soil erosion. Second, large trees uprooted from high winds can cause the loss of significant sections of a dam. Third, trees make it difficult to inspect the dam and identify problems such as cracks, slides, rodent holes, and seepage areas. Finally and most importantly, one of the leading causes of dam failure is “piping” along the root systems of trees. Once a flow path through the dam is created, these small pipes can rapidly increase in size and lead to sudden failure of the dam.

- **Seepage on the downstream embankment** can be observed as year-round wetness, springs, or boils. Water-loving plants such as cattails, reeds, or moss are also associated with excessive seepage. If left uncontrolled, excessive seepage can erode the embankment and result in dam failure. Seepage should be monitored, especially during periods of high reservoir levels. Contact the Nebraska Department of Natural Resources if there is an increase in seepage or if cloudy flow is observed.

- **Burrowing animals** can create holes in the dam embankment which can act as pathways for seepage and eventually weaken the structural integrity of the dam. After the rodents are removed, the recommended method of back-filling the burrow is with a slurry mixture of water, 90 percent earth and 10 percent cement. All entrances should be tamped with well-compacted earth and the vegetation reestablished. Dens and burrows should be eliminated without delay because damage from just one hole can lead to dam failure.

- **Blocked intake structures, outlet pipes or spillways** can raise reservoir water levels and adversely affect the normal flow of water. If water is not allowed to pass through the dam as designed, flooding and excessive seepage, erosion or failure may result. The intake, outlet and spillway should be kept clear of debris and other obstructions. Beaver dams, fallen trees, sedimentation, and debris are common causes of blocked intake and outlet channels.

- **Modifications to the dam** such as intake pipe extensions and fish screens can become easily clogged and lead to increased wave erosion and water pressure on the upstream dam embankment; increase the frequency of water flowing through the auxiliary spillway; and cause overtopping of the dam, all of which can result in dam failure. If considering modifications to your dam, consult with Nebraska Department of Natural Resources to determine if the modifications may affect the dam’s safety.

- **New development downstream** may change the hazard potential classification of a small dam. Dams with a high potential to cause damage or loss of life in the event of failure are classified as High Hazard Potential Dams and are subject to stricter standards and inspection schedules. If new development is occurring on the floodplain downstream from your dam please contact the Nebraska Department of Natural Resources.