

## **Wetland Crossings**

### **Description**

For the purpose of this BMP, wetland crossings are structures or methods used to cross a wetland. Wetland crossings may be above or below the surface of the wetland. The type of crossing may vary with respect to length, width, height, and construction design, depending on the purpose of the crossing and the environmental and physical attributes of the wetland.

Wetland crossings generally require a permit under the Goemaere-Anderson Wetland Protection Act. Wetland crossings may be permitted where: there is a dependency on their use at a given location; there are no feasible and prudent upland alternatives or less damaging wetland alternatives to crossing at the desired location; and where the crossing will not result in adverse impacts to the wetland.

### **Other Terms Used to Describe**

Boardwalk  
Car Path/Foot Path  
Decking  
Fill Path  
Platforms  
Wood Chip Paths

### **Pollutants Controlled and Impacts**

These structures minimize soil disturbances and reduce the potential for erosion to occur. In addition, structures which do not impede surface or ground water movement (i.e. boardwalks or equalization culverts) will reduce: the potential for creating backwater areas; the likelihood that the installed structure will fail; and impacts to groundwater recharge and discharge areas.

### **Application**

#### **Land Use**

Use this BMP whenever wetlands need to be crossed.

#### **Soil/Topography/Climate**

Methods of installation and materials for the crossing will vary depending upon the soils, topography and climatic conditions during installation and throughout the expectant life of the crossing.

Chemical and physical attributes of the wetland soils may shorten the life expectancy of various materials when placed underground and when periodically saturated. Saturated and sometimes unstable/unconsolidated soils may also dictate the use of alternate installation methods.

### When to Apply

Construction should be undertaken and completed during drier periods of the wetland. If the area is constantly saturated, installation and construction activities may be required to be done on equipment mats to prevent compaction of the soils.

Conditions of State of Michigan permits may restrict construction during time periods critical to various wildlife or aquatic resources associated with the wetland.

### Where to Apply

Wetland crossings will be authorized only in those areas where a crossing is needed to gain access, where there are no feasible and prudent alternatives (potentially including easements across uplands on adjacent parcels), and where the crossing will not unacceptably impact the wetland resource. Generally speaking, crossings should be made at the narrowest possible point of the wetland or in the area of the wetland determined by the MDNR to be least environmentally damaging.

### **Relationship With Other BMPs**

The areas around bridges and culverts may need to be stabilized using Slope/Shoreline Protection.

### **Specifications**

**Wetland crossings should normally be designed by registered professional engineers.**

#### **General Planning Considerations:**

A site evaluation should be conducted to determine the best site for constructing the crossing.

1. The area should have a minimal potential for erosion of the disturbed land cover.
2. The area should be such that various types of crossings can be consolidated into a lesser number of crossings.
3. Avoid areas which have highly saturated wetland soils or habitat deemed important or critical to wildlife.

#### **Above-Ground Crossings:**

For most uses, crossing a wetland can be done above-ground. The MDNR prefers the use of **open-pile boardwalks** to cross wetlands, not only because they provide access from one upland area to another (or to a watercourse) with minimal impact to the wetland, but also because they allow users to come into better contact with wetlands. Boardwalks provide for free water movement and require a minimal amount of disturbance to the surface of the wetland. See Exhibit 1.

Unlike boardwalks, fill paths and roadways tend to impede the natural surface flows in a wetland and act as dam-like structures. Fill paths and roadways are not recommended for use by the Department unless absolutely necessary. See Exhibit 2.

1. Use open-pile structures to minimize impacts to the wetland resources. See the Watercourse Crossings BMP for the use of wood preservatives, where applicable.

2. Use structures that do not impede surface or groundwater flow.
3. Use structures that do not require placement of fill within the wetland or sensitive areas.
4. Use structures that do not require placement of fill within floodplains or floodways of a watercourse.
5. Provide proper stabilization of all fill slopes.
6. In the past, fill paths and roadways required removal of the unstable wetland soils before placement of additional fill. The placement of geotextile fabrics over the wetland surface can eliminate the need for excavation of these wetland soils and related additional fill into the wetland.

**Temporary Above-Ground Crossings:**

Temporary crossings may be authorized to provide access for larger equipment needed for the initial construction of the project area. These temporary structures must be removed upon completion of the needed work, and the crossing site must be restored to its original condition. Permits are required for temporary crossings in jurisdictional wetlands.

1. If possible, plan to work when the ground is frozen to decrease impacts to the wetland area.
2. If it is necessary to work when the ground is not frozen, utilize construction mats or similar measures to minimize impacts, including compaction.
3. Post project restoration should reverse soil compaction, and should include stabilizing and replanting the site if vegetation has been destroyed.

**Below-Ground Crossings:**

Utility crossings, above ground lines, cables and/or pipelines are all possible methods of below-ground crossings. The MDNR prefers the use of drilling and boring utility lines. This method reduces the likelihood of erosion, as well as disturbance of the bottom substrates which typically occurs with both the plow-in and trenching methods.

1. Localize utility crossings to one location, and/or encase several utilities into one casing. (See Exhibit 3).
2. Below-ground crossings must be designed and installed so as not to drain or adversely impact the wetland.

**Maintenance**

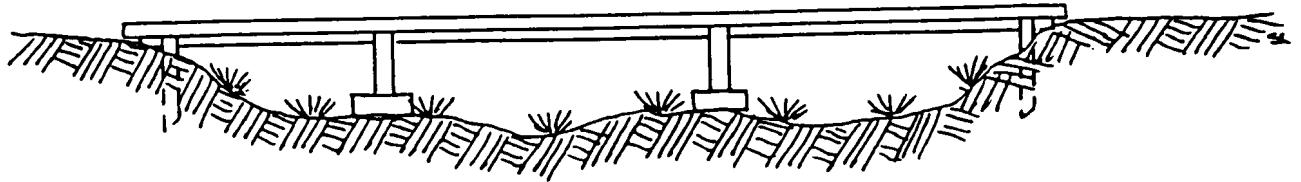
Annual inspections following spring runoff are important to ensure that there is no erosion, nor deterioration or failure of the structures associated with the crossing.

## Exhibits

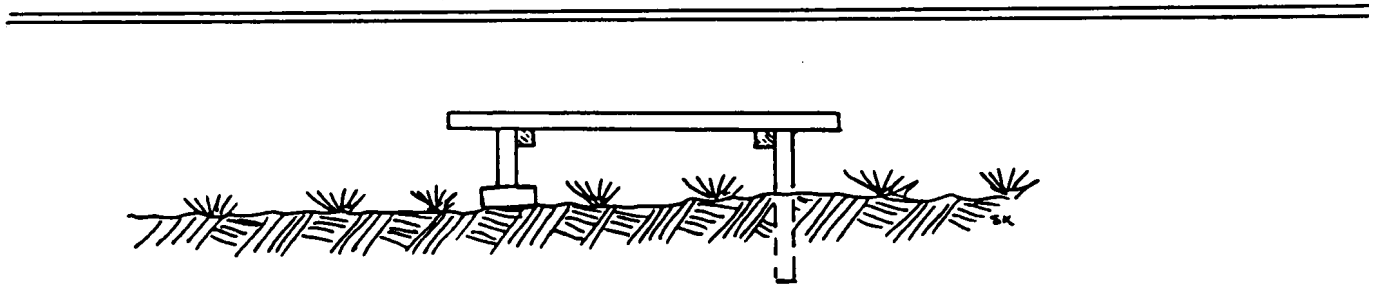
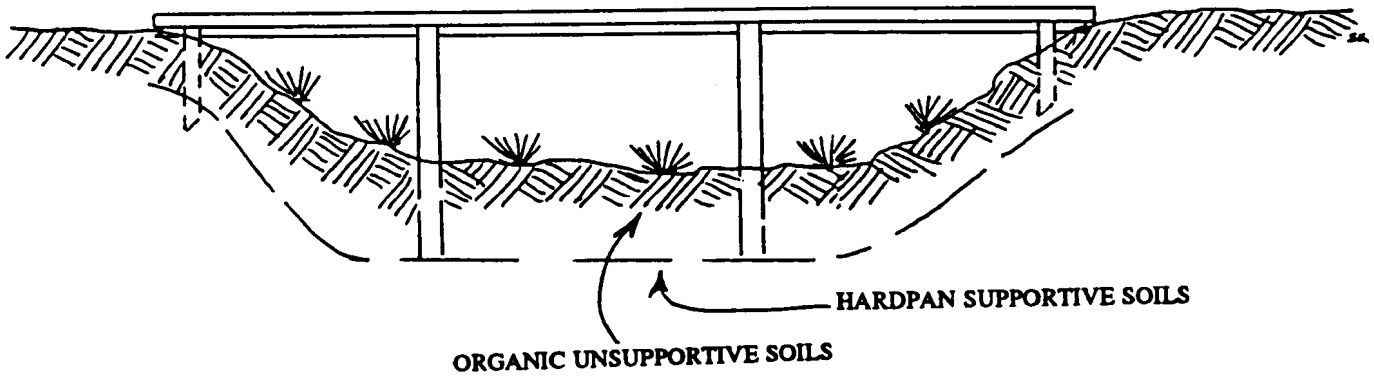
- Exhibit 1: Typical Boardwalk. Construction Project Evaluation Manual. Michigan Department of Natural Resources, Land and Water Management Division.
  
- Exhibit 2: Fill Path/Road. Construction Project Evaluation Manual. Michigan Department of Natural Resources, Land and Water Management Division.
  
- Exhibit 3: Utility Crossing. Construction Project Evaluation Manual. Michigan Department of Natural Resources, Land and Water Management Division.

**Exhibit 1**

**Typical Boardwalk**



**CROSS SECTIONAL VIEW (no scale)**

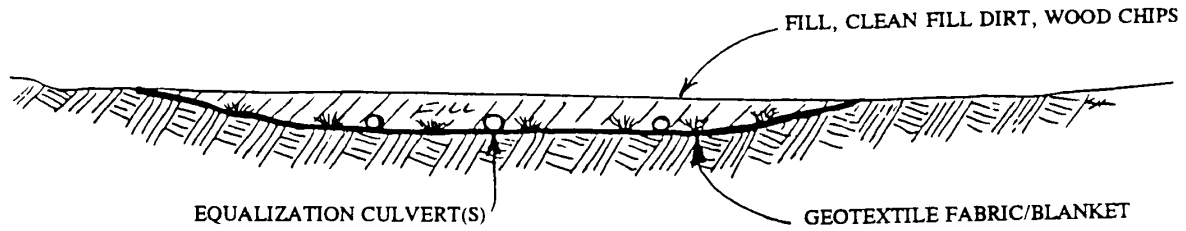


**END VIEW--BOTH STYLES SHOWN (no scale)**

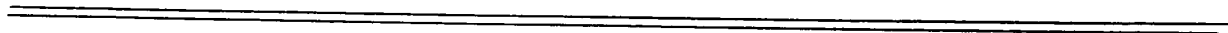
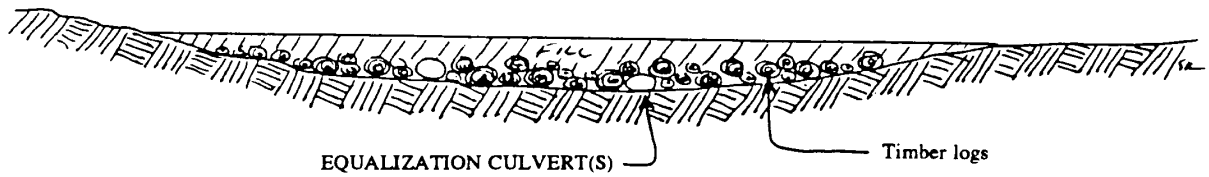
Source: Construction Project Evaluation Manual. MDNR, Land and Water Management Division.

Exhibit 2

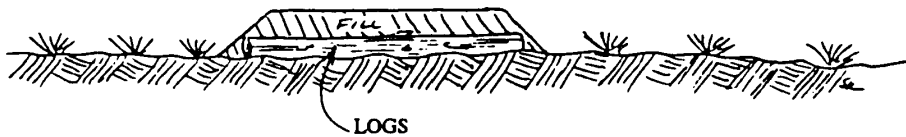
Fill Path/Road



CROSS-SECTIONAL VIEW (no scale)



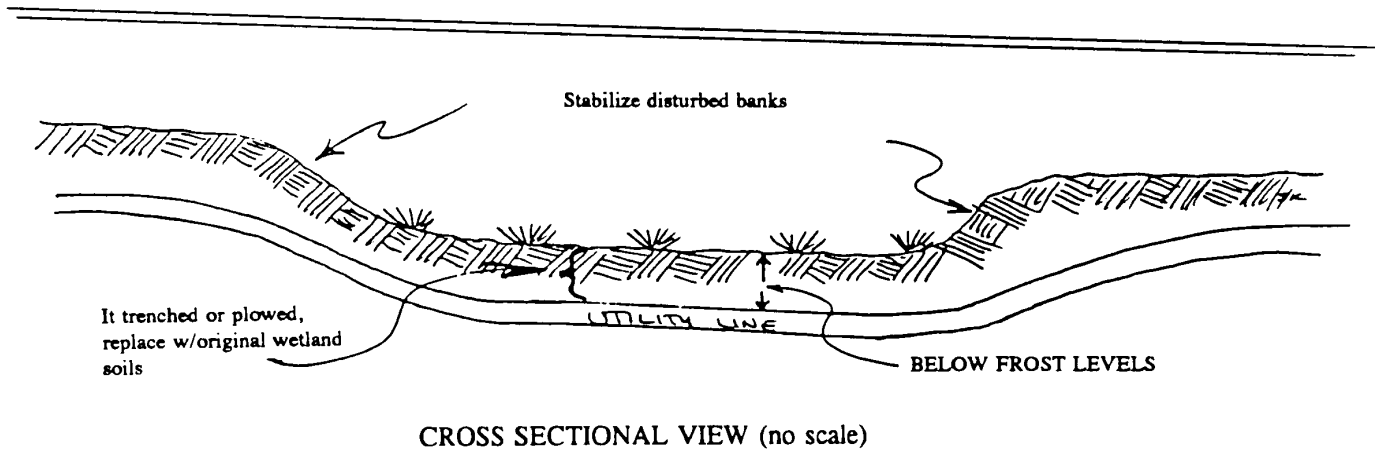
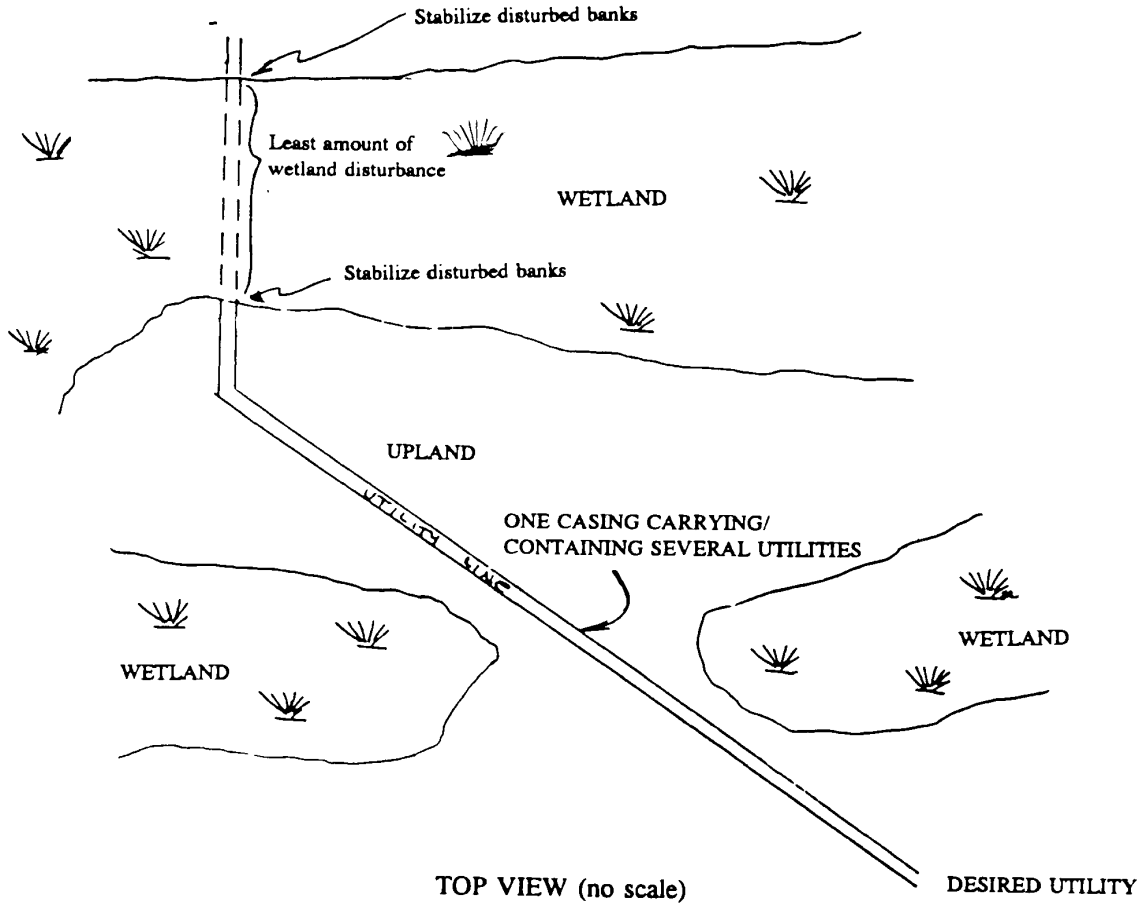
END VIEWS (no scale)



Source: Construction Project Evaluation Manual. MDNR, Land and Water Management Division.

### Exhibit 3

### Utility Crossing



Source: Construction Project Evaluation Manual. MDNR, Land and Water Management Division.