

# Minor Bridge Definition - and Levels of Inspection

## Definitions

### NBIS Structure

Any structure that meets the Federal criteria for inclusion in the NBIS inspection program.

### Minor Bridge Structure

Any structure that meets the definition of a Minor Bridge as defined below, but does NOT qualify for inclusion in the NBIS inspection program (is not a NBIS Structure), is a Minor Bridge. There are structures that fit the criteria for both programs as the NBIS measure of length (Item 49) adjusts the length so as to be measured along the traveled way, while the Minor Bridge measure does not. If so, they are NBIS Structures and do NOT qualify for the Minor Bridge program.

### Non-CombIS Structure

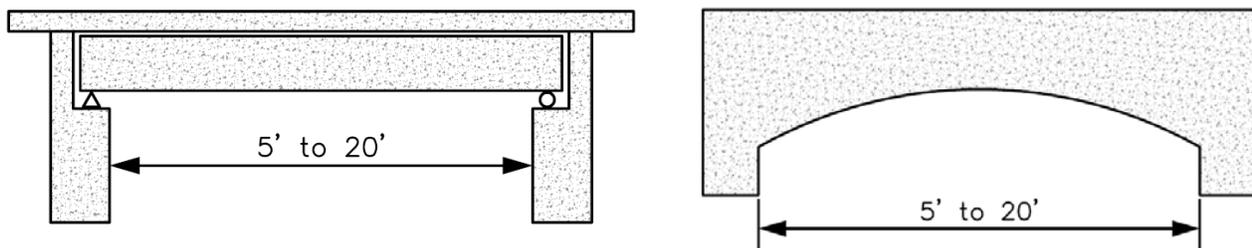
Any structure that does not meet the definition of either a NBIS Bridge or Minor Bridge.

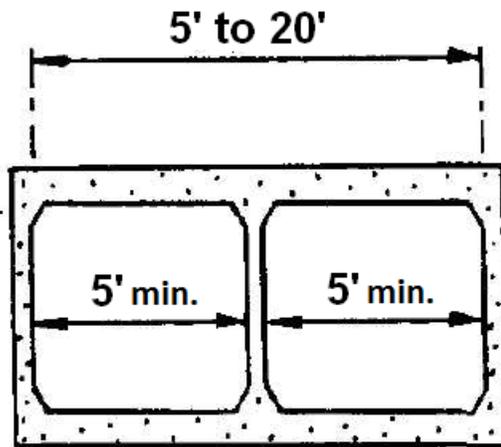
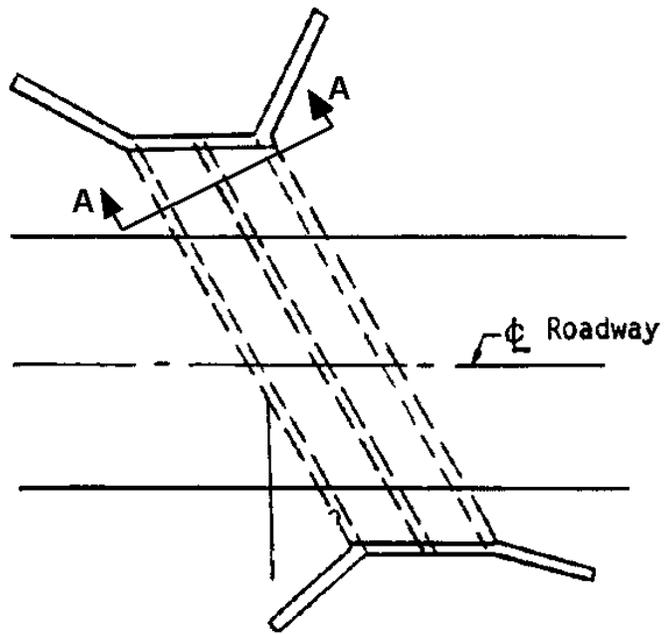
### Minor Bridge (formerly often called a Culvert by NJDOT)

For the purposes of this program a “minor bridge” is defined as a structure including supports erected over a depression or an obstruction, such as water or a roadway, and having a passageway for carrying traffic or other moving loads, and having an **opening measured perpendicular to the flow of water** (or equivalent measure) of 5 feet to 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes. It may also include multiple pipes where the clear distance between openings is less than half of the smaller contiguous opening (see below). **Each and every opening considered must measure at least 5 feet horizontally.**

## Effective Minor Bridge (Culvert) Width

Is the width of the structure, as described above and as illustrated below. This measure is the basis for determining whether a structure is included in the Minor Bridge program or not (see the following examples).

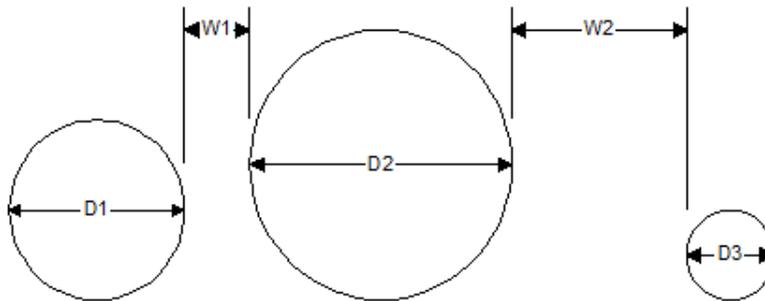




SECTION A-A

## How to Determine if Multiple Pipes Are to be Included

### Definition of Included Openings



FHWA Culvert Inspection Manual - July 1986

Section 3-1.1 e. - Multiple Barrels

"The span or opening width of multiple barrel culverts includes the distance between barrels as long as that distance is less than half the opening width of the adjacent barrels."

For the above example,

$$W1 < (D1)/2 \quad W2 > (D3)/2$$

Therefore, the total span width for this example is:  $D1 + W1 + D2$

For the above situation, dimensions are to be reported as follows:

**Effective Minor Bridge Width** =  $D1 + W1 + D2$  (where  $D1$  and  $D2$  are each  $\geq 5'$ )

There is an unusual situation that may be encountered that require special consideration. This is when there are 2 or more parallel pipes in one common headwall - each pipe qualifying on its own to be a Minor Bridge, but the pipes are too far apart to be measured as one length as described above. In this situation the pipes will be considered as one structure, and dimensions are to be reported as follows (using  $D1$  &  $D2$  above as examples):

**Effective Minor Bridge Width** =  $D1 + \frac{1}{2}D1 + D2$

# Levels of Inspection of Minor Bridges

These are the general guidelines for when we expect a structure to be inspected.

## Full (Regular) Inspection

### Pipes:

Inspect the following:

Minimum Opening: 5' wide x 4.5' tall (above any silt)

Standard for all situations (including confined space and only one end open) is there be at least 3 feet of freeboard (see note 4)

### Other openings (rectangular, etc.):

Inspect the following:

Minimum Opening: 5' wide x 4.0' tall (above any silt)

(Note: Excessive silt can be reason to not inspect)

Standard for all situations (including confined space and only one end open) is there be at least 3 feet of freeboard (see note 4)

## NOTES:

1. For all situations, beware of localized scour due to intersecting pipes.
2. A photo is required from center of structures entered for inspection.
3. Photos clearly showing the issue (range poles are to be included in the photo where possible) are also required when a structure was identified for full inspection, but full inspection was not possible.
4. If, due to a rain event or high tide, the structure is too full of water to inspect, then the inspector is to return at a time when the structure can be inspected. Situations where a structure will always be too full to inspect without the use of a diver are to be determined during the inventory process wherever possible so the appropriate Part 2 (Inspection) scope can be determined.

## Visual (Limited Regular) Inspection

If, as a result of the inventory effort or prior cycle inspection, it is determined (based on the above criteria) that a structure cannot be safely inspected then a Visual Inspection is to be performed.

Visual inspection consists of completely documenting the condition of an existing minor bridge with the exception that no portion of the structure is entered. Instead, the structure is visually examined from each end, with any visible distress, constraints, or concerns documented to the extent possible.