



BRIDGE ADVISORY
Construction & Technology Division
Bridge Operations Section

BRIDGE ADVISORY NUMBER: BA-2010-01

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SUBJECT: Tidal Waterways – Guidance for Coding Federal Bridge Inventory Item 113

ISSUED BY: MDOT Bridge Operations Engineer

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MDOT Bridge Advisory [BA-2009-04](#) provides guidance and information to properly code the National Bridge Inventory - Item 113, Scour Critical bridges. Item 113 - Code “T” is defined as: Bridge over “tidal” waters that have not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections until an evaluation is performed (“Unknown” foundations in “tidal” waters should be coded U.)

HEC 18² provides guidance for doing hydraulic evaluations for tidal waterways and it includes the following definitions:

Tidal scour: Scour at bridges over tidal waterways, i.e., in the coastal zone.

Tidal Waterway: A generic term which includes tidal inlets, estuaries, and bridge crossings to islands or between islands, inlets to bays, crossings between bays, tidally affected streams, etc.

Tides, Astronomical: Rhythmic diurnal or semi-diurnal variations in sea level that result from gravitational attraction of the moon and sun and other astronomical bodies acting on the rotating earth. Also, daily tides.

Significant “tides” are associated with ocean coastal zones. Tidal action on the great lakes or inland lakes is much less than that found on ocean coastal zones and therefore these tides are not expected to produce flow that could produce significant scour.

A code of “T” for Item 113 indicates that the bridge has “not been evaluated for scour,” and therefore a bridge coded “T” does not meet the Federal requirement that all bridges must be evaluated for scour.

As of the writing of this bridge advisory, MDOT’s bridge data base has some bridges that are coded “T” for tidal water. These bridges need to be evaluated for scour as described in [MDOT BA 2008-04](#) and FHWA Technical Advisory T 5140.23 – Evaluating Scour at Bridges¹. Some bridges may have been coded ‘T’ because the bridge crosses a body of water that is not flowing such as a lake or pond. If the hydraulic assessment concludes that there will be no flow or the flow will not

be great enough to produce significant scour to produce instability of the bridge foundations during the service life flood event, the bridge should be coded '8'. Other codes for Item 113 may also be appropriate dependent upon the bridge and waterway characteristics.

¹[FHWA Technical Advisory T 5140.23, Evaluating Scour at Bridges](#), dated October 28, 1991.

²[HEC 18, Evaluating Scour at Bridges](#), Fourth Edition.