

Technical Note Notification

No. 01
May 2022

Technical Note 01

1. Clarification of Bridge and Culvert Definitions

TN Commentary: The definition of *Bridge* and *Culvert* as defined in Bridge Inspection Guidance Document (BIGD) Section 1.6.1 shall be amended to include the following language to provide clarification that tunnel-like structures or rigid frames shall be classified as bridges.

- *Bridge* – A structure, including supports, erected over a depression or an obstruction such as water, a highway, or a railway; having a track or passageway for carrying traffic or other moving loads; and having an opening measured along the centerline of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches or extreme ends of openings for multiple boxes. *A rigid frame, including a cut-and-cover structure, shall be considered a bridge, regardless of what the structure is named in the plan set, so long as the structure is not hydraulically designed to carry solely water; see Culvert. Such a structure shall also be evaluated to ensure that it does not meet requirements to be considered a tunnel; see Tunnel.* It may also contain multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening; see *Culvert*. Any bridge meeting this definition needs to be inspected and load rated per NBIS.
- *Culvert* – A type of structure which is designed hydraulically to take advantage of submergence to increase water carrying capacity. Culverts are usually covered with embankment and are composed of structural material around their entire perimeter. **Culverts shall only carry water.** A culvert is considered a bridge and needs to be inspected and load rated per the **NBIS** if any of the following conditions are met. Whether a culvert has a floor or not does not matter when determining if a culvert is considered a bridge or not.
 - The culvert has a hydraulic opening greater than 20 feet as measured along the center of the roadway.
 - A grouping of culverts with a total length greater than 20 feet as measured along the roadway centerline, and where the clear distance between openings is less than half the smaller contiguous opening.

2. Clarification of NBI Item 33 (Bridge Medians)

TN Commentary: The BIGD included state-specific guidance on how to code NBI Item 33 (Bridge Median) on culverts. State-specific guidance on how to code NBI Item 33 on bridges is being provided. The revised Section 7.3.5 is included below.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

7.3.5 Bridge Medians (NBI Item 33)

According to the Coding Guide, the type of median shall be coded as open, closed with no barrier, closed with a mountable barrier or without a median all together. The type of medians on *bridges and culverts shall be coded according to the* following codes:

- (0) **No median** for *an Asset ID which carries either* one-way traffic or two-way traffic with no median (separated by a double yellow line or center turn lane).
- (1) **Open median** for *twin, “sister”, or parallel Asset IDs* located side by side sharing the same Asset ID where two-way traffic is physically separated by barriers (e.g. guardrail). *This may apply if the two decks of a single Asset ID are physically separated by an open median. This code is rare.*
- (2) **Closed median** (no barrier) for *an Asset ID which carries* two-way traffic *and the traffic is physically separated* (typically by vegetation or concrete medians) without permanent, non-mountable barriers. Engineering judgment should be used to determine if the median is capable of supporting traffic, and if not, then a repair recommendation should be made to the structure owner to add a barrier (e.g., guardrail).
- (3) **Closed median** with non-mountable barriers for *an Asset ID which carries* two-way traffic and separated by one or more non-mountable barriers.

Applicable notes include the *following* regarding the coding of NBI Item 33. Permanent barriers shall be considered non-mountable if they are greater than 6” in height (and mountable if 6” or less). There may be other cases where engineering judgment by the load rater or the BITL is necessary, for instance where overlays are in place or may be placed in the future. Median vegetation (i.e. trees, shrubs, etc.) should not be considered a permanent, non-mountable barrier. Barriers (e.g. guardrails) shall be continuous on both sides to be considered coded as “3”.

3. Shared Elements on Separate Asset IDs

TN Commentary: Language will be added to Section 7.2.5.7 to provide state-specific element guidance on how to deal with elements that may be shared by two Asset IDs. This is typical on bridges with connecting viaduct and/or ramps.

*In the event two Asset IDs share a common element, for example an end bent or a bridge joint, element quantities and condition states for shared elements shall **NOT** be counted for both Asset*

Technical Note Notification

No. 01
May 2022

Technical Note 01

IDs. When determining what Asset ID should include the shared element, the inspector shall use the following hierarchy to determine which Asset ID will include the shared element.

- 1. Route hierarchy, see Appendix M (ramps are considered below main arterials)*
- 2. The longer structure in terms of the bridge length (NBI 49)*
- 3. Lower Asset ID Number*

*In addition to element data, inspection notes and repair recommendations shall only be included in the inspection report for the Asset ID that includes the shared element in its element data. A note regarding the shared common element(s) shall be included in the BEGTD on the inspection report for both bridges sharing the element under the **Miscellaneous** heading. Figure 7.2.5.7 provides example language.*

Miscellaneous Notes:

ASSET ID 5231 AND ASSET ID 5232 SHARE THE COMMON ELEMENTS LISTED BELOW. INSPECTION NOTES, QUANTITIES AND CONDITION STATES OF SHARED COMMON ELEMENTS ARE INCLUDED IN ELEMENT DATA FOR ASSET ID 5231 ONLY (5231 IS MAIN ARTERY, 5232 IS RAMP).
- REINFORCED CONCRETE COLUMN (205)
- REINFORCED CONCRETE PIER CAP (234)
- POURABLE JOINT SEAL (301)

Figure 7.2.5.7 Language for Asset IDs Sharing Common Elements

4. Discrepancies between Labeling Diagrams and Bridge Documents

TN Commentary: Inspectors shall follow member naming conventions or identification, bridge orientation and cardinal direction on the labeling diagrams included in the Bridge File when reporting inspection findings. Section 5.2.1.3.1 will be revised to provide guidance on any discrepancies:

To promote uniformity in reporting inspection data, all bridge components shall be oriented using the standard conventions included on the labeling diagram outlined in Chapter 5 of the LRGD and applicable Load Rating Technical Notes. In the event of discrepancies between the labeling diagram and other bridge documents such as previous inspection reports, the labeling diagram shall supersede other documents. It shall be noted under the **Miscellaneous** heading if the orientation is changing from historic records.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

*For SCDOT performed inspections, the inspector shall notify the BMO via email if the labeling diagram is missing, incorrect or does not follow the plans. In addition, a note shall be included in the BEGTD on the inspection report under the **Miscellaneous** heading if the labeling diagram is missing, incorrect or does not follow the plans. Figure 5.2.1.3.1 provides example language. The BMO will review the labeling diagram to determine if a revision is warranted then correct the labeling diagram or direct a consultant to correct the diagram.*

Miscellaneous Notes:

(BITL NAME) INFORMED SCDOT BMO THAT THE LABELING DIAGRAM INCLUDED IN THE BRIDGE FILE IS (MISSING, INCORRECT OR DOES NOT FOLLOW THE PLANS).

Figure 5.2.1.3.1 Language for Labeling Diagrams which are Missing, Incorrect or Different from Plans (SCDOT Inspections Only)

*For consultant performed inspections, the consultant shall correct the labeling diagram and perform the inspection using the correct labeling diagram. The corrected labeling diagram shall be uploaded to the Bridge File according to the LRGD and BFP. In addition, a note shall be included in the BEGTD on the inspection report under the **Miscellaneous** heading if the labeling diagram was corrected. Figure 5.2.1.3.2 provides example language.*

Miscellaneous Notes:

(BITL NAME) FROM (CONSULTANT NAME) HAS REVISED THE LABELING DIAGRAM SINCE THE PREVIOUS THE LABELING DIAGRAM INCLUDED IN THE BRIDGE FILE WAS NOTED AS (MISSING, INCORRECT OR DOES NOT FOLLOW THE PLANS). A REVISED LABELING DIAGRAM WAS USED FOR THIS INSPECTION AND THE REVISED LABELING DIAGRAM HAS BEEN UPLOADED TO THE BRIDGE FILE.

Figure 5.2.1.3.2 Language for Corrected Labeling Diagrams (Consultant Inspections Only)

5.3.8.11 Assumed Bridge Orientation

*For all bridges, the BITL shall enter his or her assumed bridge orientation in the BEGTD on the inspection report under the **Miscellaneous** heading. The stated assumed bridge orientation shall include Bent or Barrel Direction (i.e. West to East, South to North, etc.), Inventory Route*

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

Direction (i.e. West to East, South to North, etc.), Superstructure Member and/or Pile Numbering Direction (if applicable) (i.e. West to East, South to North, etc.), Stream Flow Direction (if applicable) (i.e. West to East, South to North, etc.) and Asset ID Placard Bent Location (i.e. Bent 1, Barrel 1, etc.). Figure 5.3.8.11.1 provides example language for Asset ID 1518 in Kershaw County.

Miscellaneous Notes:

BENTS ARE NUMBERED FROM SOUTH TO NORTH.
INVENTORY ROUTE IS SOUTH TO NORTH.
PILES ARE NUMBERED WEST TO EAST.
STREAM FLOW IS WEST TO EAST.
ASSET ID IS AT SOUTHEAST CORNER.

Figure 5.3.8.11.1 Language for Assumed Bridge Orientation

*If the assumed orientation is different during the subject inspection than the orientation used in the previous two routine inspections, the inspectors shall note the changed assumed orientation included in the BEGTD on the inspection report under the **Miscellaneous** heading. Figure 5.3.8.11.2 provides example language. If the assumed orientation used during the subject inspection is the same as the two previous routine inspections, a note is not required.*

Miscellaneous Notes:

THE ASSUMED ORIENTATION FOR THIS BRIDGE INSPECTION IS DIFFERENT THAN THE HISTORICAL ORIENTATION OF THE BRIDGE ACCORDING TO THE PREVIOUS INSPECTION REPORTS.
PREVIOUS ROUTINE INSPECTION ORIENTATION (DATED XX/XX/XXXX):
BENTS ARE NUMBERED FROM X TO X AND INVENTORY ROUTE IS X TO X
PENULTIMATE ROUTINE INSPECTION ORIENTATION (DATED XX/XX/XXXX):
BENTS ARE NUMBERED FROM X TO X AND INVENTORY ROUTE IS X TO X

Figure 5.3.8.11.1 Change in Assumed Bridge Orientation

5. Placement of Asset ID Number Placards on Bridges

TN Commentary: Language will be added to Section 5.2.1.3.1:

Technical Note Notification

No. 01
May 2022

Technical Note 01

*Inspectors have informed the BMO that several bridges (mostly secondary and county structures) have historic member numbering in the opposite direction from the labeling diagram. All district maintenance personnel, including inspectors, and consultants under contract with SCDOT shall use structure orientation included in the labeling diagram. **If incorrect, the use of historic and incorrect member numbering shall immediately stop.***

TN Commentary: The following revisions to the BIGD are needed to promote uniformity across the state.

5.4.3.6 Asset ID Number Placement on Bridge

An Asset ID Number placard shall appear on all bridges. If a bridge does not have an Asset ID Number posted or if it has an incorrect number posted, it shall be replaced.

Any member of *district or county maintenance or consultant inspectors* may place *or move* an Asset ID Number placard on bridges. The district bridge inspectors *and consultant PMs* shall discuss the importance of the placement of the Asset ID Number placard on the bridge. *Placards shall be* located at the Bent 1 end (for bridges) or at Barrel 1 (for culverts) per direction from the *BMO* to assist with bridge orientation. *To promote uniformity, the BMO has directed the Asset ID Number placards be placed adjacent to Bent 1 or Barrel 1, preferably on the right side when looking upstation. If the placard was incorrectly placed, the Asset ID Number placard may be placed or moved by any member of district or county maintenance or by consultant inspectors. If consultants move or install an Asset ID Number placard, the BITL shall add a note stating what was done in the BEGTD on the inspection report under the **Miscellaneous** heading.*

Consultant inspectors shall move incorrectly placed Asset ID Number placards. If consultants discover an Asset ID Number placard missing on a bridge *and they are unable to install one*, the consultant shall recommend the placard be installed using Attachment 5.6, the Repair Recommendations Form *as a Priority C (or “C Flag”).*

While correct locations of Asset ID Number placards are confirmed by members of district or county maintenance or by consultant inspectors, the additional actions shall be performed immediately.

- Any piles requiring repair (replacement, splice, stud-up, etc.) shall be marked in the field with chalk, paint or tape by both district inspectors and consultant inspectors.*

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

Attachments 5.18 and 5.27 are updated to include the confirmation that the piles are marked in the field (by both district inspectors and consultant inspectors).

- *Attachment 5.6 is updated to include two checkboxes for consultant inspectors to indicate their assumed bridge orientation. One checkbox shall be used if the consultant's assumed orientation is in the opposite direction from the historic orientation of the bridge.*
- *Assumed orientation by the inspector shall be included in the BEGTD on the inspection report under the **Miscellaneous** heading; the inspection report shall include:*
 - *Bent or Barrel Direction (i.e. West to East, South to North, etc.)*
 - *Inventory Route Direction (i.e. West to East, South to North, etc.)*
 - *Superstructure Member Numbering Direction (i.e. West to East, South to North, etc.)*
 - *Stream Flow Direction (i.e. West to East, South to North, etc.)*
 - *Asset ID Placard Bent Location (i.e. Bent 1, Barrel 1, etc.)*

5.4.3.7 Asset ID Number Placement on Non-NBI Bridge

Asset ID Number placards shall appear on all non-NBI bridges. Per Section 2.3.3, culverts and pipes which are not considered bridges are the responsibility of the RME and shall be inspected as part of the roadway work in accordance with ED 8. *The requirements of Section 5.4.3.6 shall also apply to non-NBI bridges.*

TN Commentary: Language will be added to Section 8.6:

If inspectors recommended repair to piles, the piles shall be field marked with paint, chalk or tape, regardless if the Asset ID Number placard is present. Confirmation of field marking shall be indicated on Attachments 5.18 and 5.27 (if used).

TN Commentary: Language will be revised in Appendix O:

General Bridge – Repair Recommendation Examples

Repair Recommendation – Priority C – “C Flags”

- *Missing, incorrect, incorrectly placed, or illegible Asset ID placards (when consultant inspectors are unable to correct) (Consultant Inspections Only),*

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

6. Limitations of BIO and the Use of the Miscellaneous Heading

TN Commentary: Given the limitations of text input in BIO, the BIGD and this Technical Note recommend language to be added in the BEGTD on the inspection report under the **Miscellaneous** heading. Following the implementation of BrM, this information will be transmitted into specific data fields. For now, continue to place information under the **Miscellaneous** heading. To aid inspectors, see below for all recommended language with blank text for your use as needed. All recommended language does not have to be used for every report but is included as a possible reference. Some but not all recommended language for the **Miscellaneous** heading is displayed on Pages 9 and 10.

Technical Note Notification

No. 01
May 2022

Technical Note 01

BIGD Section

Miscellaneous Notes (APPLICABLE TO ANY INSPECTION TYPES)

Section 5.3.8.7

Weather (Cloudy, Rain, Sunny, Windy or Snow) and Temperature (XX°F). Include on all inspection reports. Acceptable format:

CLOUDY, 56°F.

Section 5.4.4.1.1

Inspection Team and Date of Inspection XX/XX/XXXX. Include on all inspection reports. Acceptable format:

**BITL: (BITL NAME)
ASSISTANT INSPECTOR(S): (NAME(S))
INSPECTION DATE: 08/02/2021**

Section 5.3.8.11

Assumed Bridge Orientation. Include on all inspection reports. Acceptable format:

**BENTS ARE NUMBERED FROM SOUTH TO NORTH.
INVENTORY ROUTE IS SOUTH TO NORTH.
PILES ARE NUMBERED WEST TO EAST.
STREAM FLOW IS WEST TO EAST.
ASSET ID IS AT SOUTHWEST CORNER.**

Section 4.10

Inspection frequency change (inspection type) from XX months to XX months or inspection type removed. State reason. Acceptable format:

ROUTINE INSPECTION FREQUENCY (NBI 91) CHANGED FROM 24 MONTHS TO 12 MONTHS. NBI CONDITION FOR DECK LOWERED TO 4.

Section 5.4.3

Consultant inspector placed or moved Asset ID sign. Acceptable format:

PER BIGD SECTION 5.4.3, CONSULTANT BITL PLACED/MOVED ASSET ID SIGN AT BENT 1.

Section 7.2.5.7

Some bridges share elements, and these shared elements shall not be counted in both bridges. Shared or common elements shall be included in this section. Acceptable format:

ASSET ID 5231 AND ASSET ID 5232 SHARE THE COMMON ELEMENTS LISTED BELOW. INSPECTION NOTES, QUANTITIES AND CONDITION STATES OF SHARED COMMON ELEMENTS ARE INCLUDED IN ELEMENT DATA FOR ASSET ID 5231 ONLY (REASON).

- REINFORCED CONCRETE COLUMN (205)
- REINFORCED CONCRETE PIER CAP (234)
- POURABLE JOINT SEAL (301)

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

BIGD Section

Miscellaneous Notes (APPLICABLE TO SOME INSPECTION TYPES, REF. CHPT 5)

Section 5.3.8.11

Inspection Orientation has changed. Acceptable format:

THE ASSUMED ORIENTATION FOR THIS BRIDGE INSPECTION IS DIFFERENT THAN THE HISTORICAL ORIENTATION OF THE BRIDGE ACCORDING TO THE PREVIOUS INSPECTION REPORTS.

PREVIOUS ROUTINE INSPECTION ORIENTATION (DATED 04/25/2020):

BENTS ARE NUMBERED FROM SOUTH TO NORTH AND INVENTORY ROUTE IS NORTH TO SOUTH

PENULTIMATE ROUTINE INSPECTION ORIENTATION (DATED 04/18/2018):

BENTS ARE NUMBERED FROM SOUTH TO NORTH AND INVENTORY ROUTE IS NORTH TO SOUTH

Section 5.4.4.9.1

Special or Non-Frequency Inspection Type Performed on (Date XX/XX/XXXX) (Pin Inspection, Pin and Hanger Inspection, Intermediate Fatigue Inspection, Maintenance Inspection, Damage Inspection, Scour Inspection, Safety Inspection, etc.). Acceptable format:

SPECIAL INSPECTION PERFORMED ON 08/02/2021. LANGUAGE IN THE FOLLOWING TEXTUAL SECTIONS IS APPLICABLE FOR THIS SPECIAL INSPECTION:

- BENTS AND/OR PIERS.

ALL OTHER TEXTUAL SECTIONS ARE NOT APPLICABLE.

Section 7.3.8

Vertical and lateral clearance. See BIGD 7.3.8. State roadway types and clearances with no space in BIO. If not possible to verify vertical or lateral clearance, state reason. State when BITL will return to bridge to measure clearances. Acceptable format:

VERTICAL/LATERAL CLEARANCES

DIVIDED HIGHWAY

VERTICAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8

VERT CL NB/EB (54B)

-AT LEFT (15'-9")

-AT RIGHT (15'-5")

VERT CL SB/WB (54C)

-AT LEFT (15'-8")

-AT RIGHT (15'-11")

LATERAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8

LAT CL AT RIGHT (55B)

-EB LANE TO BENT (9'-0")

-WB LANE TO BENT (10'-0")

LAT CL AT LEFT (56)

-EB LANE TO BARRIER (7'-0")

-WB LANE TO BARRIER (6'-0")

Technical Note Notification

No. 01
May 2022

Technical Note 01

7. Required Inspection and Photographs of Posting Signs

TN Commentary: Language will be revised in Section 5.3.5.1:

All inspection notes regarding approach bridge signs, bridge end signs, load posting signs (*including at bridge and approach warning*) and other signs shall be placed in BEGTD on the inspection report under the **Traffic Signs** heading.

TN Commentary: Language will be revised in Section 5.3.8.4:

The BITL shall review the current load rating documentation of the structure to be inspected so as to obtain any recommended posting for the structure. The BITL shall verify the actual weight posting for the structure *on signs at the bridge and advanced warning signs* and compare it to the recommended weight posting contained in the load rating documentation.

TN Commentary: Language will be added to Section 5.4.4.2:

Photographs of at bridge posting or weight limit signs are required to be taken during all routine inspections, in addition, photographs shall be taken:

- *During a bridge's inventory inspection*
- *Following the installation of new sign(s), including photographs during a maintenance inspection*

The above requirements are applicable to the posting or weight limit signs at the bridge which could be a maximum of six signs to be photographed. These signs include R-12-6-48 and R-12-7-48 (legal loads), and R-12-9-36 (EV weight limit) at both ends of the bridge.

Some bridges will also have advance warning signs. Inspectors should confirm advanced warning signs are in place. Photographs of advanced warning signs are recommended to be taken and included in the inventory photo folder or an inspection report, but photographs of advanced warning signs are not required.

TN Commentary: Language will be revised in Section 5.4.4.2:

Other **possible** inspection photographs are listed below (list is not all-inclusive); they **may be required**:

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

- Posting or Weight Limit Sign(s) *including legal load and EV signs, at the bridge only. Photographs of advanced posting or weight limit sign(s) are recommended but not required.*

TN Commentary: Language will be revised in Section 5.9:

√	Photograph	Notes	BIGD Ref.
	Posting/Weight Limit Sign	Photo of <i>at-bridge</i> signage	5.4.4.2

8. NBI Item 41 – Traffic Status “R”

TN Commentary: Language will be revised in Section 7.3.6:

- (R) Posted for other special, load-capacity restriction, *including:*
- *reduction in speed (to reduce impact),*
 - *reduction in the number of lanes in use on the bridge (i.e., two lane bridge to a one lane bridge or a limited access bridge which may be closed off by fences or bollards),*
 - *limitation on the number of vehicles on the bridge or,*
 - *restriction on commercial vehicles (such as trucks restricted on parkways).*

9. NBI Item 27 – Year Built and NBI Item 106 – Year Reconstructed

TN Commentary: Language will be added in new sections: Section 7.3.13 and Section 7.3.14:

7.3.13 Year Built (NBI Item 27)

NBI Item 27 denotes the date of construction of the oldest surviving original element of the present bridge when it was installed at the bridge site, whether that oldest element is a part of the deck, superstructure or substructure. NBI Item 27 shall be the actual year the bridge was built and/or opened to traffic. For phased construction, NBI Item 27 shall be the year in which the first phase was completed, and the bridge could carry traffic. Engineers and inspectors shall not code NBI Item 27 as “0” if the year build is unknown.

NBI Item 27 does not reflect the original construction date of any reused structural element, which was not originally built as part of the present bridge that is being inventoried, but which was relocated from its original site and incorporated into the present structure. For example, if

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

an older bridge superstructure was moved from its original location and installed on new abutments built in 2021, NBI Item 27 is coded 2021.

Engineers and inspectors shall provide a best estimate if the year built is unknown; do not assign a default value such as “1900” but engineers and inspectors should approximate to the closest decade, i.e., 1910 or 1920.

NBI Item 27 does not reflect the construction date of any earlier bridge on the site, if no identifiable structural element of that earlier structure can be shown to exist as part of the present bridge. For example, a new integral abutment bridge structure was built in 2021. The existing bridge was demolished except for the abutments that retain earth but do not provide structural support to the new structure; NBI Item 27 shall be coded 2021.

For an element to be considered a part of a bridge structure, it must provide structural support, which, if removed, may cause the bridge structure to collapse. This situation may not always be evident, especially with integral abutment bridges, which are built to span over existing abutments that are retained but do not provide structural support.

7.3.14 Year Reconstructed (NBI Item 106)

For the purposes of coding NBI Item 106, reconstruction work will include any major bridge work that retains and incorporates any structural element of the existing bridge into the new bridge. The most recent year when reconstruction work was completed will be coded in Item 106. Maintenance type work is not considered as reconstruction work. A list of maintenance type work is included in the Coding Guide.

For reference, there are several types of bridge projects as defined in the SCDOT Bridge Design Manual which are considered reconstruction work including bridge widening, deck replacement, superstructure/substructure element replacement, rehabilitation or repair (except maintenance type work), superstructure replacement, bearing replacement and seismic retrofit.

Any work to a structural element that increases its load carrying capacity from the original design will be considered a reconstruction, and the date that this work was done will be coded as NBI Item 106. For example, adding cover plates to a bridge to increase its capacity qualifies as a reconstruction, while adding cover plates to replace section loss due to deterioration does not.

If a bridge structure is replaced in its entirety so that no structural elements of the original bridge structure is incorporated into the new structure, the date the new bridge was constructed

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

will be coded in NBI Item 27 and NBI Item 106 will be coded "0000", even if portions (such as historic bridge railing) of the original bridge were reused for non-structural purposes.

10. Asset ID Retirement for Bridges Transferring to Private Ownership

TN Commentary: Bridges may transfer ownership from a public entity to a private entity, and therefore, SCDOT may retire the Asset ID to remove it from the inventory so long as the bridge does not cross an SCDOT maintained roadway. To document this process, language will be revised in Section 5.4.3.8:

To retire an Asset ID, the inspector shall use Attachment 5.1 to retire the old Asset ID Number and, *if needed*, request a new Asset ID Number. Asset ID Numbers shall be retired only if *a bridge is closed to traffic permanently (with no plans to reopen), a bridge has ownership transferred from a public entity to a private entity, or a bridge is demolished. An Asset ID may not be retired if the bridge crosses an SCDOT Owned roadway.*

If the retirement of an Asset ID has an associated inspection or if an inspection prompted the retirement of an Asset ID, the inspection must still be documented with a report in BIO and the Bridge File. To document the inspection which took place along with the retirement of the Asset ID, the completed Attachment 5.1 shall be attached to the inspection report when submitted. *An example of documentation in an associated inspection report could be a photograph of the bridge behind a gate or not publicly assessable. If the ownership transfer of a bridge to private entity is prompting the retirement of an Asset ID, correspondence documenting the ownership change shall be submitted along with Attachment 5.1 and maintained in the Bridge File.*

11. Requirement for Bridge Rail and Approach Guardrail on H-10 and H-15 Bridges

TN Commentary: Per the November 17, 2010 SCDOT Memorandum (added as Appendix S) regarding "Maintenance of Guardrail on H10 and H15 Bridges", the following sections are revised to include inspection and maintenance requirements for bridge and/or approach rail on bridges designed for H-10 or H-15 loading. Language will be added in Section 5.3.1.6:

Specific requirements regarding the inspection, rating and evaluation of bridge barrier, railings and approach railing on bridges designed for H-10 or H-15 loading are detailed in Figure 5.3.1.6.

TN Commentary: Language will be added in Section 5.3.1.7:

Technical Note Notification

No. 01
May 2022

Technical Note 01

Specific requirements regarding the inspection, rating and evaluation of approach railing on bridges designed for H-10 or H-15 loading are detailed in Figure 5.3.1.6.

TN Commentary: The following language will be added to Section 7.1.1.3 to address NBI Item 36 for Non-NHS Bridges that do not have bridge railings and bridge railings are not required.

Specific requirements regarding the inspection, rating and evaluation of bridge barrier, railings and approach railing on bridges designed for H-10 or H-15 loading are detailed in Figure 5.3.1.6. As stated in Table 7.1.1.3, NBI Item 36 shall be coded as “N” if the safety feature is not required.

TN Commentary: Language will be added in Section 7.2.5.1:

Specific requirements regarding the evaluation of bridge barriers or railings on bridges designed for H-10 or H-15 loading are detailed in Figure 5.3.1.6. If an inspector determines barrier/railing is not required, no barrier or railing element shall be coded. A missing barrier or railing which is required shall be coded as Condition State 4 for the length of barrier or railing missing using the “Damage (7000)” defect if no other defects apply.

TN Commentary: Language will be revised in Appendix O:

Critical Finding Examples

- Bridge railing is missing, damaged, deteriorated or no longer can contain and/or redirect vehicles for bridges designed for loads higher than H-15 and bridges designed for H-10 or H-15 loads which are part of the NHS,

Barrier Rail or Guardrail

Barrier Rail or Guardrail Repair Recommendations – Priority A – “A Flags”

- *Bridge railing is missing, damaged, deteriorated or no longer can contain and/or redirect vehicles for bridges (not part of the NHS) designed for H-10 or H-15 loads and a barrier is or was in place,*

TN Commentary: Figure 5.3.1.6 will be added in Section 5.3.1.6:

Technical Note Notification

No. 01
May 2022

Technical Note 01

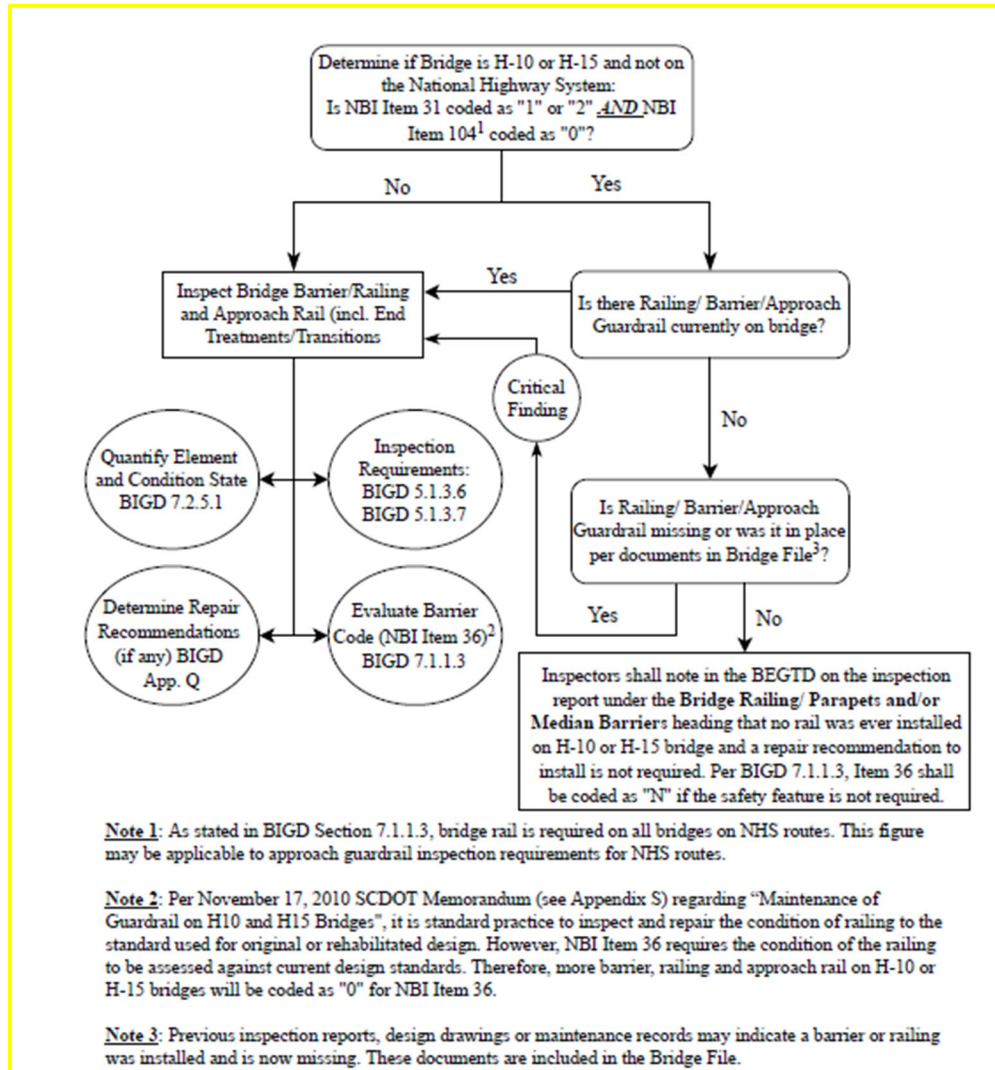


Figure 5.3.1.6 Requirements for Barriers, Rail or Approach Rail on Bridges Designed for H-10/H-15 Loads

12. Beam Repairs / Saddles / Element Length

TN Commentary: All superstructure beam elements are quantified and assessed by linear foot. If beams have repairs or have saddles, the length of the application condition related to the

Technical Note Notification

No. 01
May 2022

Technical Note 01

repair or saddle shall only be the length of the repair or deficiency. Language will be revised in Section 7.2.5.6:

In addition, only the length of the element with the defect *or the length of the element bearing on the saddle* shall be coded according to this section and not the entire length of the member. The applicable length may be as short *as* 1 linear foot.

13. Request for Increased Frequency of Detailed Channel Surveys

TN Commentary: Language will be added to Section 5.3.4.1:

Basic channel surveys are performed during routine inspections and some other inspection types at varying frequencies. Detailed channel surveys are performed during underwater inspections which have frequencies up to 60 months and some other inspection types at varying frequencies. See Section 4 for a list all inspection types.

If a BITL recommends more frequent channel surveys but does not recommend increasing the frequency of already scheduled (NBI or non-NBI) inspections, a special inspection may be scheduled to more frequently perform channel surveys more frequently. Factors which may warrant more frequent channel surveys include bridge scour criticality and channel condition rating; see Section 4.7. Special inspections to take channel surveys can include either a basic channel survey or detailed channel survey depending on the channel.

*If more frequent basic channel surveys are recommended as part of special inspections, inspectors shall schedule the special inspection in BIO and note in the BEGTD on the inspection report under the **Miscellaneous** heading that a special inspection is being scheduled to perform more frequent basic channel surveys.*

If more frequent detailed channel surveys are recommended as part of special inspections, inspectors shall complete the CIRF (Attachment 4.1) to request special inspections which may include more frequent detailed channel surveys.

TN Commentary: Language will be revised in Section 4.7:

During a *scheduled* inspection, a BITL may recommend special inspections before the next *scheduled* inspection. A special inspection should be scheduled when:

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

2. Channel degradation or channel movement is progressing at a rate which warrants inspection more frequently than 24 months *or 60 months for underwater inspections. A BITL may recommended more frequent channel surveys which are performed as special inspections; see Section 5.3.4.1.*

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

14. HMMS Work Activity Code for Approach Barrier

TN Commentary: SCDOT utilizes HMMS Work Activity Code 610 for repairs to guardrail approaching a bridge and HMMS Work Activity Code 807 for repairs to bridge rail, transitions, bridge approach guardrail and end treatments. The use of the correct HMMS Work Activity is important as it determines barrier responsibility for any repairs.

Language will be revised in Section 8.9.2:

Table 8.9.2 HMMS Work Activity Codes

HMMS Work Activity Code	Type of Deficiency (Suggested)	HMMS Work Activity Code	Type of Deficiency (Suggested)
102	Settlement Repair/Repair Asphalt	801	Any Curb/Sidewalk Repair on Bridge
202	Erosion /Washout Under the Caps	802	Any Concrete Parapet Repair
203	Erosion /Washout Around the Four Corners/Repair Flumes	803	Repair Any Beams and Truss Members / Reinforced Concrete Diaphragms
401	Mowing, Hand Trimming & Remove Vegetation from Bridge	805	Clean/Repair Expansion Joints
407	Remove Trash on or around Bridge	806	Clean, Paint or Repair Bearings / Repair Saddles
407	Remove Trash from Channel	807	Repair Headwalls
408	Tree Removal from Bridge or Channel	807	Fender Repair
408	Remove Vegetation from Channel	807	Install Temporary Bridge
409	STORM USE ONLY	807	Maintain Temporary Bridge
504	R.C. Medians, Curbs, Sidewalks Not on Bridge	807	Remove Temporary Bridge
603	Signs, Temporary	807	Clean/Clear Scuppers
603	Bridge End Markers/Load Restriction	807	Repair Guardrail/Bridge Rail/Post on Bridge only*
603	Any Sign Repair or Replacement	807	Clean and Paint Steel Beams
610	Any Approach Rail Repair/Installation*	807	Scour/Build-up at Culvert and Bridge Piles
613	Crash Attenuator Repair/Replacement	809	Repair Spalls in Piles/Caps/Paint Clean Steel H-Pile
801	Any Deck Repair and Clean/Paint Exposed Rebar		

* HMMS Work Activity Code 610 shall be used for approach guardrail away from the bridge, under the bridge or guardrail in general. HMMS Work Activity Code 807 shall be used for the

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

approach guardrail from the bridge including the end treatment or from the bridge to a length 75 feet from the bridge per Section 5.3.1.7.

TN Commentary: Similarly, if the end treatment is over 75 feet from the bridge, it is not subject to the bridge inspection. This requirement is already listed in Section 7.1.1.3.4. Language will be added to require NBI Item 34D is coded at "N" for end treatments over 75 feet from the bridge.

Language will be revised in Section 7.1.1.3.4:

The ends of approach guardrail shall be flared, buried, shielded (by means of an impact attenuator), or made to break away. Buried guardrail ends are only acceptable on secondary routes and local roads (TL-2). If the end of an approach guardrail is buried, it must extend outside the lateral clear zone limits before turning down so as not to launch an errant vehicle. The end treatment shall not be inspected if it is over 75 feet from the bridge. *If the approach guardrail is over 75 feet, NBI Item 36D shall be coded as "N".*

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

15. Clarification of NBI Item 10 (Inventory Route Minimum Clearance)

TN Commentary: SCDOT will no longer collect three data points for NBI Item 10. BIO currently collects NBI Items 10A, 10B and 10C. 10B and 10C shall be coded as "99.99". 10A shall be coded as prescribed in BIGD Section 7.3.1. In addition, Figure 7.3.1 will be replaced with the three figures below. Additional over and under clearances used for OSOW are collected with NBI Items 53 and 54. Inspectors may need to perform multiple measurements to determine what to code 10A but only one number will be reported.

Language will be added to Section 7.3.1:

The minimum clearance for a 10-foot width of the pavement (or traveled part of the roadway which may include paved shoulders) where the clearance is the greatest shall be recorded and coded. This information is used to safely route vehicles with loads that exceed legal size limitations. For bridges that have been restricted on the roadway approaches, code the vertical restriction over the bridge deck, not the approach restriction.

In BIO, inspectors shall code 10A as prescribed above, and only one data point shall be taken for each inventoried route. Inspectors shall code "99.99" for 10B and 10C.

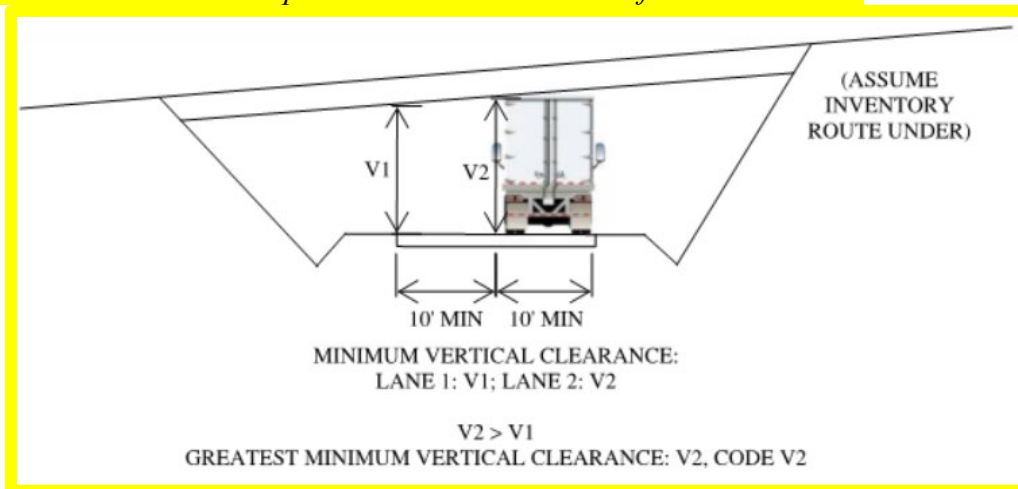


Figure 7.3.1.1 Inventory Route Minimum Clearance – Under Route, Single Barrel (NBI Item 10)

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

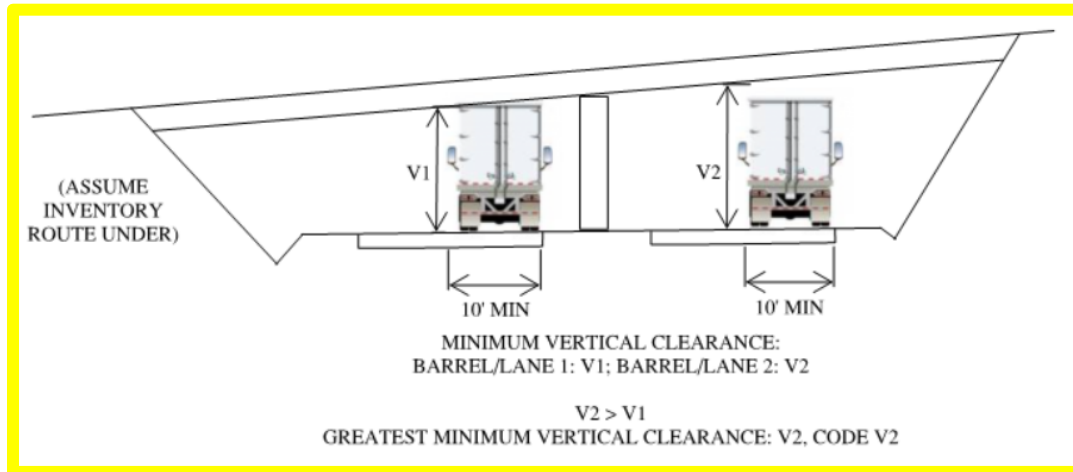


Figure 7.3.1.2 Inventory Route Minimum Clearance – Under Route, Double Barrel (NBI Item 10)

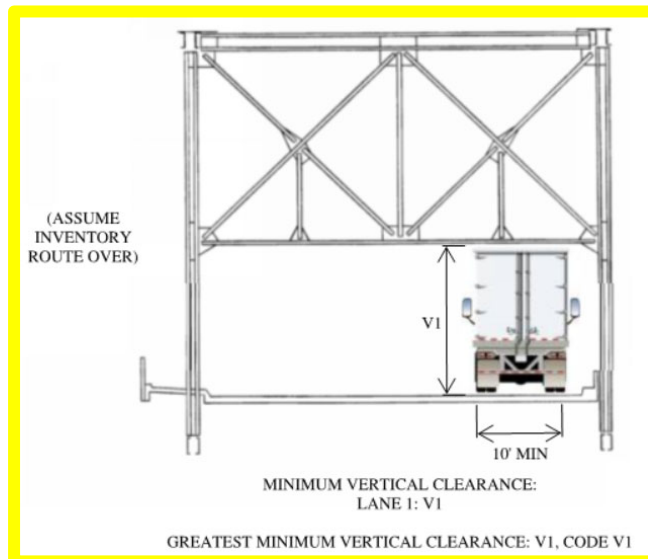


Figure 7.3.1.3 Inventory Route Minimum Clearance – Over Route (NBI Item 10)

Technical Note Notification

No. 01
May 2022

Technical Note 01

16. Clarification on Limits of Evaluation of NBEs

TN Commentary: Language will be added to Section 7.2:

Inspectors shall only determine deficiencies for elements they can inspect or observe. Some elements or a quantity of some elements may no longer be visible or may be covered. Inspectors shall not assume element condition of hidden or buried elements after construction.

17. Inspecting Closed Bridges and Removing Closed Bridges from the Inventory

TN Commentary: Section 2.3.10 will be added to address policy regarding the inspection of closed bridges and the process to remove closed bridges from the inventory.

2.3.10 Inspecting Closed Bridges and Removing Closed Bridges from the Inventory

2.3.10.1 Discovery of Closed Bridges

If a bridge owner informs SCDOT that a bridge is closed to traffic, NBI Item 41 (Traffic Status) shall be coded to “K” in BIO with a copy of correspondence from the bridge owner attached in BIO when the status is changed. The correspondence shall also be saved in the Bridge File. While bridge owners are encouraged to contact the DBIS when a bridge is closed, inspectors may discover a closed bridge when they arrive for a field inspection. In this case, the scheduled inspection shall still take place. However, when the inspection report is completed after the inspection, NBI Item 41 (Traffic Status) shall be coded to “K”.

2.3.10.2 Coordination with Bridge Owners for Closed Bridges

After the discovery of a closed bridge, the DBIS shall attempt to contact the bridge owner and inquire about its status. If a consultant inspector discovers a closed bridge, he or she shall contact the DBIS regarding the closed bridge within 3 calendar days from the completion of the scheduled inspection.

If the bridge is closed and awaiting repairs or complete replacement, the bridge shall remain in the inventory with NBI Item 41 coded to “K” as the bridge is closed to all motor vehicle traffic.

The closed bridge shall receive inspections per Section 2.3.10.3. For Municipality/County Owned Bridges, Attachment 2.3 shall be completed by the DBIS. This letter informs the bridge

Technical Note Notification

No. 01
May 2022

Technical Note 01

owner that the bridge will not have a complete inspection until the work is completed. Attachment 2.3 also requires the bridge owner to inform SCDOT if the bridge is reopened.

If the bridge is closed and has no plan for repair or replacement, it may be removed from the inventory by retirement of the Asset ID. See Section 2.3.10.4 for SCDOT owned bridges and Section 2.3.10.5 for Municipality/County Owned Bridges.

2.3.10.3 Inspecting Closed Bridges

The inspections of closed bridges must document that the bridge is properly closed to vehicles and, when required, pedestrians as well. The inspection reports for closed bridges must include a confirmation that the bridge is still closed to traffic. This confirmation includes the photographic documentation that barricades, barrier, fences, or other objects are in place and secure thus preventing traffic from crossing the structure. The inspections of closed bridges shall also include evaluation of any portion of the bridge that is open to pedestrian traffic. During this inspection, inspectors may perform a brief visual inspection and update the NBI condition codes accordingly, but it is not required. The NBI condition tracking assists with asset/funding management or prioritization of future projects. Inspection reports for closed bridges do not require bridge element level data and sketches.

All closed bridges in the inventory shall have an inspection at a frequency not to exceed twenty-four months unless they are non-NBI bridges. A more frequent inspection interval may be assigned to the bridge if needed to ensure public safety. The frequency of a closed bridge inspection may be increased due to the following:

- *Local knowledge of the bridge,*
- *Bridge is open to pedestrians, or*
- *Structural element deterioration conditions could affect public safety of individuals that use the facility underneath the structure or the facility itself.*

2.3.10.4 Removal of SCDOT Owned Bridges from Inventory

The removal process for SCDOT Owned bridges from the inventory is outlined in ED-44. The process to retire an Asset ID is discussed in Section 5.4.3.8. Requirements to reopen a previously closed bridge are included in Section 8.4.1. An Asset ID may not be retired if the bridge crosses an SCDOT Owned roadway.

Technical Note Notification

No. 01
May 2022

Technical Note 01

2.3.10.5 Removal of Municipality/County Owned Bridges from Inventory

If the municipality or county owner communicates in writing to SCDOT that the bridge is closed with no plans to reopen, it may be removed from the inventory. The process to retire an Asset ID is discussed in Section 5.4.3.8. An Asset ID may not be retired if the bridge crosses an SCDOT Owned roadway. Correspondence from the bridge owner indicating the bridge is closed and will not be reopened to traffic shall be placed in the Bridge File when the Asset ID is retired.

If the municipality or county owner is not communicating with SCDOT and the bridge has had NBI Item 41 coded to "K" for at least five years, the bridge may be removed from the inventory by retiring the Asset ID. If SCDOT retires an Asset ID and removes a Municipality/County Owned Bridge from the inventory without any correspondence from the owner, Attachment 2.8 shall be sent to the bridge owner from SCDOT to notify the owner that the bridge has been removed from the state's inventory.

It is the responsibility of the bridge owner to notify SCDOT of any changes in bridge status which may warrant bridge inspections and/or bridge load ratings, regardless if a municipality or county owner is not communicating with SCDOT.

TN Commentary: Language will be revised in Section 2.3.2:

The following attachments to this BIGD are applicable to the release of inspection findings to municipalities or counties to take appropriate measures to safeguard the public:

- Attachment 2.1 – Municipality-County Bridge Inspection Report Release Letter (No Repair Recommendations and No Critical Findings)
- Attachment 2.2 – Municipality-County Bridge Inspection Report Release Letter with Repair Recommendations (No Critical Findings)
- Attachment 2.3 – Municipality-County Bridge *Receiving Closed Bridge Inspection* Letter
- Attachment 2.4 – Municipality-County Bridge Critical Finding Memorandum
- Attachment 2.5 – Municipality-County Bridge Critical Finding Reminder Memorandum
- Attachment 2.6 – Municipality-County Bridge Critical Finding Action Taken by SCDOT
- Attachment 2.7 – Municipality-County Bridge Inventory List and Status
- *Attachment 2.8 – Municipality-County Bridge Removed from Inventory Letter*

Technical Note Notification

No. 01
May 2022

Technical Note 01

18. Use of BIO for Maintenance Inspections

TN Commentary: Per Sections 4.8.1 and 8.9.4, maintenance inspections are performed to check the status of a completed repair. See Section 5.4.4.9.2 for the specific requirements for reporting following a maintenance inspection. The use of BIO is not required unless the NBI information changes or the new posting sign is verified after the evaluation of the bridge during a maintenance inspection. Figure 5.4.4.9.2 will be added to illustrate reporting requirements for maintenance inspections.

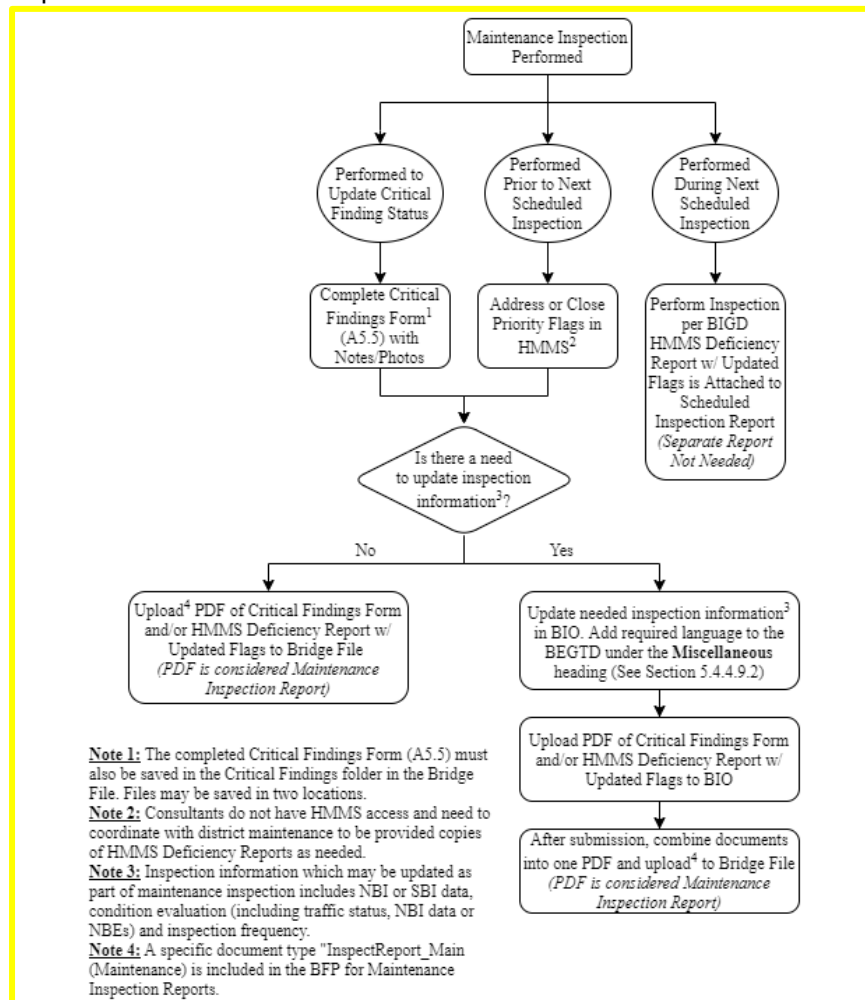


Figure 5.4.4.9.2 Reporting Requirements for Maintenance Inspections

Technical Note Notification

No. 01
May 2022

Technical Note 01

19. Inspection Scheduling Impacts from Water Level or Access Constraints

TN Commentary: Several bridges span waterways which have significant variations in water level based on seasonal or tidal factors. SCDOT prefers to inspect these bridges during low water. By inspecting during low water, inspectors are visually able to see more of the structure and the need for an underwater inspection may be eliminated. Other bridges may have varying access restrictions which make inspecting the bridge during a specific time of year more efficient. Section 4.10.4 will be added:

4.10.4 Consideration of Time of Year for Inspection Effectiveness

*After performing an inspection and determining an inspection at a different time of year would be more effective, the BITL may update the frequency to a specific number of months to change the time of year the bridge would be inspected next. If the BITL changes the frequency of future inspections, this change and a reason for the change shall be noted in the BEGTD on the inspection report under the **Miscellaneous** heading. Acceptable reasons for this change can include water level, traffic patterns, seasonal impacts, etc. Inspection intervals shall not exceed the allowable frequencies listed in Table 4.0.*

20. Additional Clearance Measurement Examples

TN Commentary: Additional examples for clearance measurements are bring presented in this Technical Note. The two additional examples are for a bridge over multiple roadways and for a bridge over a railroad. Section 7.3.8 will be revised:

BIO contains fields for NBI Item 54A, NBI Item 54B, NBI Item 54C, NBI Item 55A, NBI Item 55B and Item 56. Until modifications are made, the inspector shall code *measurements in the BIRF according to Section 7.3.8*. Other measurements with no place in the BIRF shall be entered in the BEGTD on the inspection report under the Miscellaneous heading.

Section 7.3.8 is divided into subsections for the various type of crossings. Each section includes a step-by-step approach to measure and document clearances. Sections also include examples.

- *Section 7.3.8.5 – Multiple Roadways*
- *Section 7.3.8.6 – Railroad*
- *Section 7.3.8.7 – Roadways and Railroads*

Technical Note Notification

No. 01
May 2022

Technical Note 01

The subsections generally discuss roadways under roadways but occasionally a railroad will be under a roadway. In these instances, similar clearance measurements shall be taken. Vertical clearance measurements under a bridge shall be taken to the top of the rails. Lateral clearance measurements shall be taken from the centerline of the tracks. *See Section 7.3.8.6 for an example for clearances for a bridge over a railroad.*

TN Commentary: Sections 7.3.8.5, 7.3.8.6 and 7.3.8.7 will be added:

7.3.8.5 Multiple Roadways



Example Bridge: Asset ID 4065 carries S-10-894 over I-26 and S-2463/Harvey Ave in North Charleston (District 6)

- Route Over: S-10-894 (EB/WB)
- Routes Under: I-26 and S-10-2463 (NB/SB)
- Divided Highway and Non-Divided Highway
- Bent Between Travel Directions and Routes

Figure 7.3.8.5-1 Asset ID 4065

1. Travel Direction

Travel direction is critical to determine prior to performing clearance measurements.

Example Bridge: As stated above, the route over (S-10-894) is an east to west route. The routes under (I-26 and S-10-2463 (Harvey Ave)) are north to south routes.

2. Features Under Bridge

NBI Item 54A and NBI Item 55A shall be to describe the feature under the bridge, either a roadway (H), railroad (R) or another type of feature (N) such as a waterway, sidewalk without a highway, or land. For NBI coding, the roadway with the higher hierarchy shall be coded for NBI Items. SCDOT's hierarchy is established in Appendix M.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

***Example Bridge:** There are multiple features under this bridge. According to SCDOT's hierarchy (see Appendix M) the interstate takes precedence over the county route. Therefore, the interstate is used to for coding, thus NBI Item 54A and 55A shall be coded as H.*

3. Vertical Clearance Measurements

To determine the minimum vertical clearance, determine the high spot on the roadway and the low spot on the superstructure. If unsure, take several measurements from the travel way (travel lanes only, excluding the shoulder) beneath the structure to the lowest superstructure restriction or appurtenance (signs, utilities, etc.) attached to the inventoried bridge.

For multiple divided roadways with two-way traffic, up to two vertical clearance measurements may be taken and recorded for each travel direction for each roadway: one to the left and one to the right. If the roadway has a crown, the distance from the crown to the superstructure may be the minimum vertical clearance and not the measurements to the left and to the right.

*NBI Item 54B (vertical clearance for northbound or eastbound) shall be recorded as the minimum of the vertical clearance of the NORTHBOUND or EASTBOUND travel lanes. All vertical clearance measurements shall be entered in the BEGTD on the inspection report under the **Miscellaneous** heading. For NBI coding in BIO, the minimum clearance shall be coded according to the Coding Guide.*

*NBI Item 54C (vertical clearance for southbound or westbound) shall be recorded as the minimum of the vertical clearances of the SOUTHBOUND or WESTBOUND travel lanes. All vertical clearance measurements shall be entered in the BEGTD in the inspection report under the **Miscellaneous** heading. For NBI coding in BIO, the minimum clearance shall be coded according to the Coding Guide.*

Record 99.9 when the clearances are 100 feet or greater.

***Example Bridge:** Six vertical clearance measurements are taken, two for each travel direction along the left and right edges of the travel lanes on all routes. There are multiple features under this bridge. The minimum clearances are on S-10-2463 (Harvey Ave) and are used to code NBI Item 54B and 54C. All six measurements are placed in BEGTD's **Miscellaneous** heading. This example assumes there is no crown and the high point would be at the left or at the right sides of the roadway.*

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

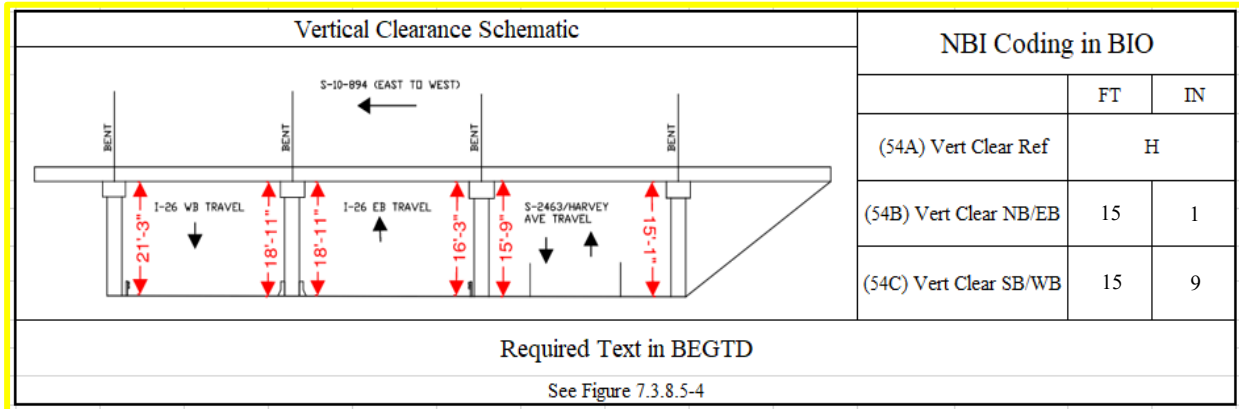


Figure 7.3.8.5-2 Vertical Clearance Schematic, Coding and Text Requirement for Multiple Roadways

4. Lateral Clearance Measurements

Lateral clearance measurements shall be taken from the left and right edge lines of the roadway (excluding shoulders, turn lanes, acceleration or deceleration lanes) in the travel direction to the nearest substructure unit, rigid barrier, oncoming traffic lane or toe of slope that is steeper than 1 to 3 (vertical to horizontal). Reinforced concrete and masonry traffic safety features are considered rigid barriers: metal and timber railings are not considered rigid barriers.

For divided, two-way traffic, two clearance measurements shall be taken and recorded for each travel direction, one to the left and one to the right. Measurements shall be taken and recorded for each roadway.

NBI Item 55B (lateral clearance at right) shall be recorded as the minimum of the lateral clearance at right measurements performed in both travel directions for each roadway. All lateral clearance at right measurements shall be entered in the BEGTD on the inspection report under the **Miscellaneous** heading. For NBI coding in BIO, the minimum clearance shall be coded according to the Coding Guide.

NBI Item 56 (lateral clearance at left) shall be recorded as the minimum of the lateral clearance at left measurements performed in both travel directions. All lateral clearance at left measurements shall be entered in the BEGTD on the inspection report under the **Miscellaneous** heading. For NBI coding in BIO, the minimum clearance shall be coded according to the Coding Guide.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

Example Bridge: For I-26, there are 21'-4" from the edge of the eastbound edge line to the right of the concrete column of the bent and 22'-0" from the edge of the westbound edge line to the right to the concrete column of the bent. The flexible guardrail is not considered. There are 5'-5" from the edge of the eastbound edge line to the left to the concrete barrier and 4'-9" from the edge of the westbound edge line to the left to the concrete barrier. All measurements are placed in the BEGTD's **Miscellaneous** heading. There are multiple features under this bridge. According to SCDOT's hierarchy (see Appendix M) the interstate takes precedence over the county route. Therefore, the two controlling distances from the interstate are used to for coding, thus NBI Item 55B is coded as 21'-4" and NBI Item 56 is coded as 4'-9".

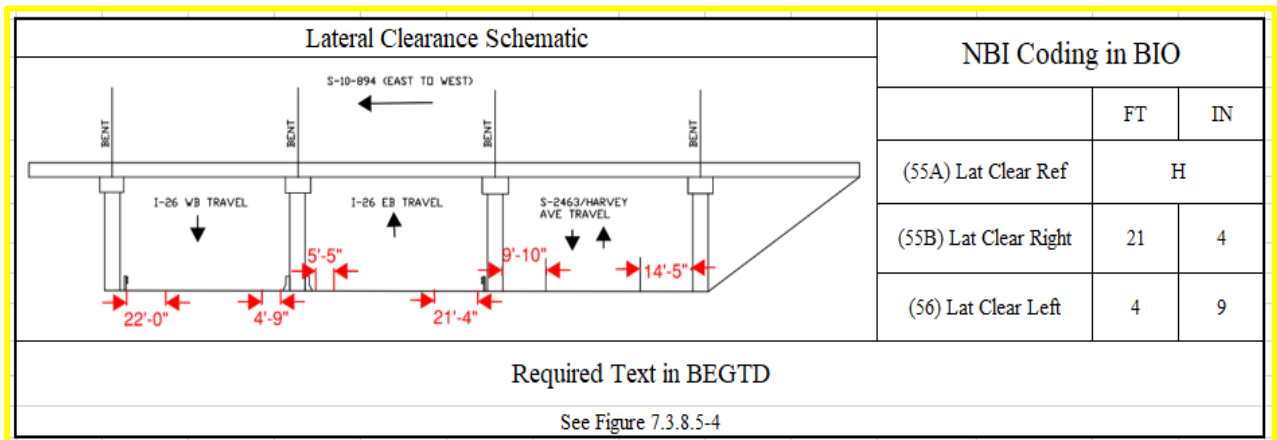


Figure 7.3.8.5-3 Lateral Clearance Schematic, Coding and Text Requirement for Multiple Roadways

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

MULTIPLE ROADWAYS:

DIVIDED HIGHWAY
VERTICAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8

VERT CL OVER I-26 EB (54B):
-AT LEFT (18'-11")
-AT RIGHT (16'-3")
VERT CL OVER I-26 WB (54C):
-AT LEFT (18'-11")
-AT RIGHT (21'-3")

DIVIDED HIGHWAY
LATERAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8

LAT CL AT RIGHT (55B):
-I-26 EB LANE TO BENT (21'-4")
-I-26 WB LANE TO BENT (22'-0")
LAT CL AT LEFT (56):
-I-26 EB LANE TO BENT (5'-5")
-I-26 WB LANE TO BENT (4'-9")

NON-DIVIDED HIGHWAY
VERTICAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8

VERT CL OVER HARVEY AVE (54B):
-AT LEFT: (15'-9")
-AT RIGHT (15'-1")

NON-DIVIDED HIGHWAY
LATERAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8

LAT CL AT RIGHT (55B):
-HARVEY AVE RIGHT EDGE TO BENT (14'-5")
-HARVEY AVE LEFT EDGE TO BENT (9'-10")

Figure 7.3.8.5-4 Required Text in BIO for Multiple Roadways

7.3.8.6 Railroad



Example Bridge: Asset ID 715 carries SC-61 over CSXT RR in North Charleston (District 6)

- *Route Over: SC-61 (NB/SB)*
- *Route Under: CSXT RR*
- *Non-Divided Railroad with Two-Way Traffic*
- *Tracks Not Separated by Bent*

Figure 7.3.8.6-1 Asset ID 715

Technical Note Notification

No. 01
May 2022

Technical Note 01

1. Travel Direction

Travel direction is critical to determine prior to performing clearance measurements. For the context of clearances, assume an orientation for the railroad rails.

Example Bridge: As stated above, the route over (SC-61) is a north to south route. The route under the bridge is railroad (CSXT RR). Assume there is a NB track and SB track for the purpose of determining underclearances.

2. Feature Under Bridge

NBI Item 54A and NBI Item 55A shall be to describe the feature under the bridge, either a roadway (H), railroad (R) or another type of feature (N) such as a waterway, sidewalk without a highway, or land.

Example Bridge: The feature under this bridge is a railroad, therefore NBI Item 54A and 55A shall be coded as R.

3. Vertical Clearance Measurements

To determine the minimum vertical clearance, use the top of the railroad tracks and the low spot on the superstructure.

NBI Item 54B shall be recorded for the minimum vertical clearance. All vertical clearance measurements shall be entered in the BEGTD on the inspection report under the **Miscellaneous** heading.

NBI Item 54C shall be recorded as 0 if the railroad under is non-divided. Record 99.9 when the clearances are 100 feet or greater or no restriction exists above the roadway.

Example Bridge: Two measurements are taken and recorded from the top of the rails to the bottom of the superstructure, one for each track. The vertical clearance of the northbound track is 22'-3" and the vertical clearance of the southbound track is 22'-3". Both measurements are placed in BEGTD's **Miscellaneous** heading. NBI Item 54B is coded as 22'-3" and NBI 54C is coded as 0 since the railroad under is non-divided.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

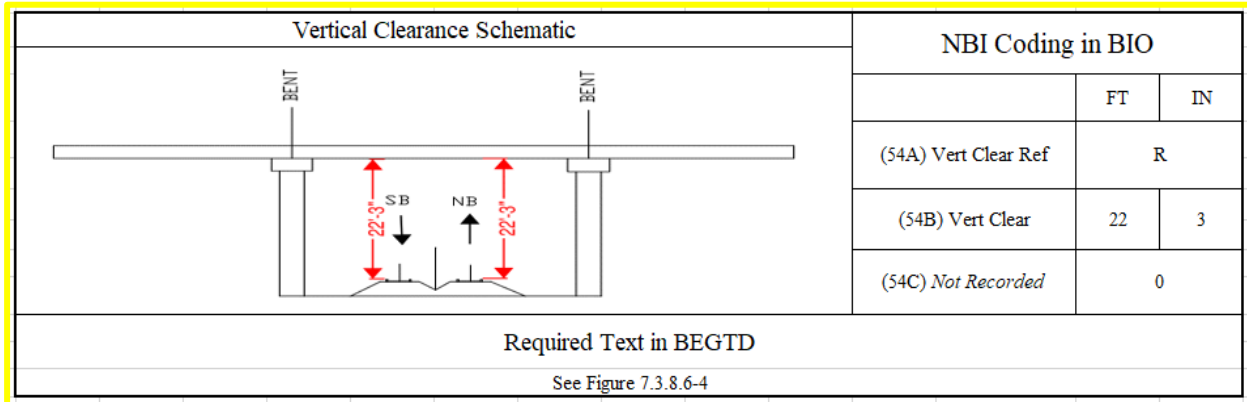


Figure 7.3.8.6-2 Vertical Clearance Schematic, Coding and Text Requirement for a Railroad

4. Lateral Clearance Measurements

Lateral clearance measurements shall be taken from the centerline of the tracks in the travel direction to the nearest substructure unit, rigid barrier, oncoming traffic lane or toe of slope that is steeper than 1 to 3 (vertical to horizontal). Reinforced concrete and masonry traffic safety features are considered rigid barriers; metal and timber railings are not considered rigid barriers.

For railroad traffic, two clearance measurements shall be taken and recorded; one to the right and one to the left. Per the Coding Guide, only the critical (or lower) dimension shall be recorded in the BIRF for a railroad and it shall be coded under NBI 55B. NBI 56 shall be 0 for a railroad under a bridge. All lateral clearance measurements shall be entered in the BEGTD on the inspection report under the **Miscellaneous** heading according the railroad orientation assumed.

Example Bridge: Field measurements indicate there is 12'-3" from the centerline of the right track to the concrete column of the bent, and there is 12'-2" from the centerline of the left track to the concrete column of the bent. Both measurements are placed in BEGTD's **Miscellaneous** heading. NBI Item 55B is coded as 12'-2" and NBI Item 56 is coded as 0.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

Lateral Clearance Schematic		NBI Coding in BIO		
		FT	IN	
		(55A) Lat Clear Ref	R	
		(55B) Lat Clear Right	12	2
		(56) Lat Clear Left	0	
Required Text in BEGTD				
See Figure 7.3.8.6-4				

Figure 7.3.8.6-3 Lateral Clearance Schematic, Coding and Text Requirement for a Railroad

<p>Miscellaneous Notes:</p> <p>NON-DIVIDED RAILROAD VERTICAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8</p> <p>VERT CL (54B): -NB TRACK (22'-3") -SB TRACK (22'-3")</p> <p>NON-DIVIDED RAILROAD LATERAL CLEARANCE MEASUREMENTS PER BIGD 7.3.8</p> <p>LAT CL AT RIGHT (55B): -NB TRACK CL TO BENT (12'-2") -SB TRACK CL TO BENT (12'-3")</p>

Figure 7.3.8.6-4 Required Text in BIO for a Railroad

7.3.8.7 Roadways and Railroads

*The requirements of the previous sections shall be followed for Asset IDs over a combination of roadways and railroads. All measurements are placed in BEGTD's **Miscellaneous** heading. For NBI coding in BIO, the clearances for the roadway with the higher hierarchy shall be used.*

Technical Note Notification

No. 01
May 2022

Technical Note 01

SCDOT's hierarchy is established in Appendix M. The clearances for the railroad shall not be used for NBI Coding in BIO.

21. End Bent Element Quantities

TN Commentary: End bents composing of timber piles in front of timber planking shall include both timber pile/column elements and the timber abutment elements. Page L-29 in Appendix L includes an example of how these end bents shall be quantified.

22. Environmental

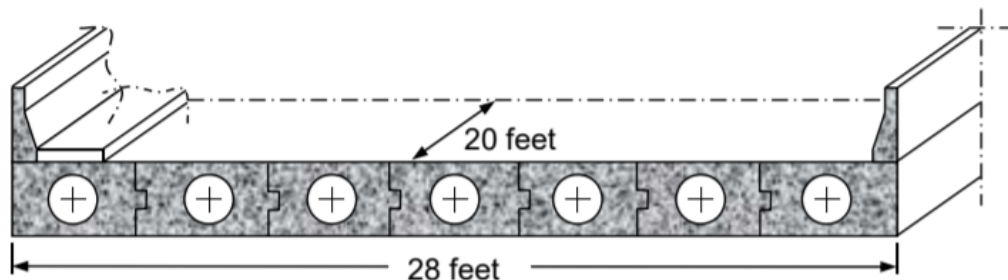
TN Commentary: BIO does not allow inspectors to update the environmental factors for conditions states as included in Section 7.2.5.4. At this time, inspectors do not need to update factors.

23. Correction in Appendix L – Element Guide

TN Commentary: See the correction below to Page L-47 of Appendix L, the Supplemental Guide for Element-Level Condition States.

PRESTRESSED CONCRETE CLOSED WEB/BOX GIRDERS

Element 104 is for both voided and unvoided Prestressed Concrete Girders/Slabs. These slabs should be coded as Element 104 - Prestressed Concrete Closed Web/Box Girders. A top flange Element is also needed. If there is a separate wearing surface it must also be coded so the riding surface can be assessed. Where the girders are not spread and the traffic rides directly on the structural element, regardless of the wearing surface, evaluation of the top flange is considered with element 15- Prestressed Concrete Top Flange or 16-Reinforced Concrete Top Flange. This configuration will NOT typically have a separate deck element. *Since there is no wearing surface in the example below, Element 510 is not needed.*



Element #	Element Name	Quantity
104	Prestressed Concrete Closed Web/Box Girders	140 LF (7 x 20)
15	Prestressed Concrete Top Flange	560 SF (20 x 28)

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

24. Tapered Wearing Surface Thickness

TN Commentary: While most bridges have uniform wearing surface, some bridges have wearing surfaces that taper at the curb line. A tapered or thinning wearing surface is not the maximum wearing surface. For bridges with a tapered or thinning wearing surface, the maximum wearing surface shall be approximated. Section 5.3.1.9.1.1 has been updated to provide clarification. Curb reveal measurements shall still be taken as required in Section 5.3.1.9.1.1 for all bridges with curbing.

5.3.1.9.1.1 Measuring Wearing Surface Thickness

If the wearing surface is measured directly, it shall appear in the BEGTD on the inspection report under the **Decks and/or Slabs** heading. If the wearing surface is inconsistent across the bridge, the deepest wearing surface thickness shall be recorded. Wearing surface thickness is critical to determine dead load applied to the bridge. *Wearing surface thickness on bridges with uniform wearing surfaces across the bridge from curb to curb can be determined using curb reveal measurements as detailed in Section 5.3.1.9.1.1. If the wearing surface varies, tapers at the curbs or is non-existent at the curbs, the maximum wearing surface thickness shall be approximated as required above; the wearing surface shall not be recorded as 0.*

25. Approach Spans

TN Commentary: NBI Item 44 (Approach Span Type) and NBI Item 46 (Number of Approach Spans) shall be coded according to the *Coding Guide*. SBI Item 308 (Approach Span Length) is no longer being recorded. Per the *Coding Guide*, spans are considered approach spans when the material type or design load is different from the main span. Changing span length, beam size or the number of beams in a span does not mean the span is an approach span if the material and design type is the same as the main span.

26. Initial Inspections and SI&A Data

TN Commentary: Additional guidance is being provided to deal with initial inspections and when bridge data may or may not be available. These situations should be rare, and inspectors can discuss with the BMO for any assistance with data needs. Section 4.1.6.2 is being added to provide clarification on these infrequent situations. It is critical for inspectors to submit the request for a load rating as soon as possible in these situations.

4.1.6.2 Data for Initial Inspections

Technical Note Notification

No. 01
May 2022

Technical Note 01

Most initial inspections occur after an Asset ID is created, after some SI&A data is available and after the initial load rating is performed. However, there may be instances where an Asset ID is not yet available, some SI&A data is unknown, and the initial load rating has not yet been performed. In these instances, inspectors shall still complete the inspection using any known data as a reference point. An Asset ID can be requested using Attachment 5.1. SI&A data can be collected in the field and requested from RDS or the BMO.

If an initial load rating has not been performed, inspectors shall immediately use Attachment 3.1 to request a load rating. The BMO will assist in coordinating the load rating and providing rating factors. In addition, it is not acceptable to submit an inspection report with NBI Item 63 and/or NBI Item 65 as “5 - No rating analysis or evaluation performed.” without written direction from the BMO. The BMO may allow an inspector to enter “0.01” in BIO for NBI Item 64 and/or NBI Item 66 until a load rating is performed and updated rating factors are provided and input into BIO.

27. Clarification on NBI Item 50 (Sidewalk Width)

TN Commentary: Additional guidance is being provided regarding what must be collected for NBI Item 50 (Sidewalk Width). A new section (Section 7.3.15) is being added to provide guidance.

7.3.15 Sidewalk Width (NBI Item 50)

For the purposes of coding NBI Item 50, the width of the sidewalk or curbing on a bridge shall be collected. The width of the sidewalk or curbing shall be determined in the field and shall be measured from the face of bridge rail to the face of curb. Record 0.0 when the face of the curb does not extend beyond the face of the bridge rail. Do not record this item when there is no curb or sidewalk. Any width over 0.1 feet (1 inch) shall be measured and recorded. When a defined longitudinal joint exists between the curb and the sidewalk, such as a granite curb and concrete sidewalk, measure the width from the face of bridge rail to the face of the granite curb.

See Figures 7.3.15-1 through 7.3.15-6 for clarification on measuring NBI Item 50 on bridges throughout the state.

NBI Item 50A is for the left sidewalk and NBI Item 50B is for the right sidewalk. Left and right are determined based on the direction of the inventoried route carried by the bridge as stated on the labeling diagram and orientation of the bridge looking upstation.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

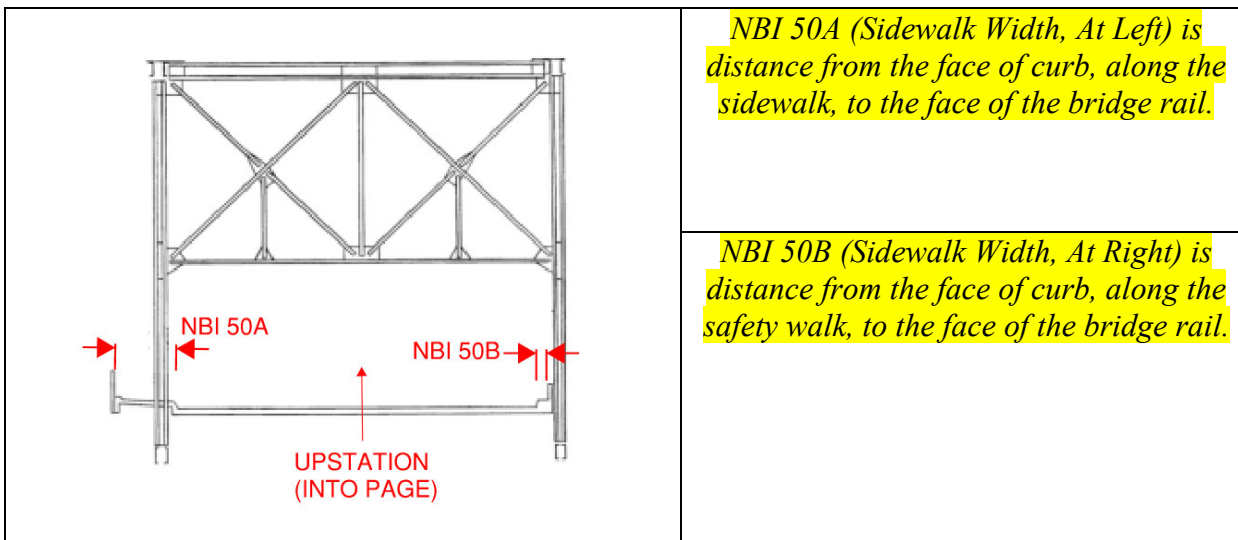


Figure 7.3.15-1 Schematic Through Truss Bridge with Sidewalk/Curb on Both Sides

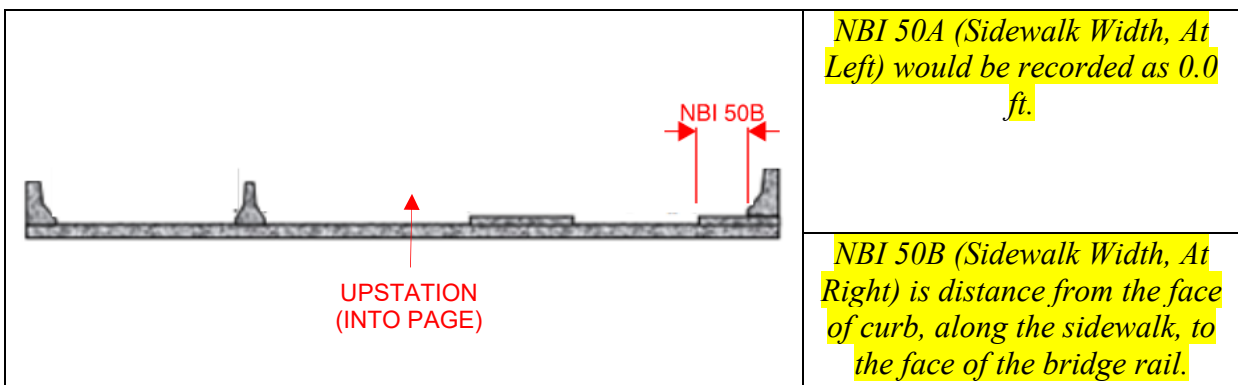


Figure 7.3.15-2 Schematic Bridge with Sidewalk on One Side

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

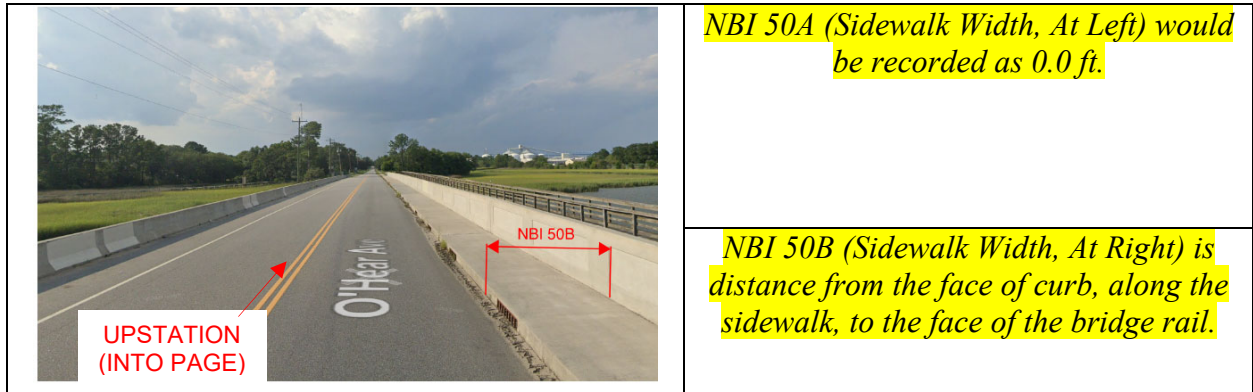


Figure 7.3.15-3 Bridge with Sidewalk on One Side (Asset ID 4064)

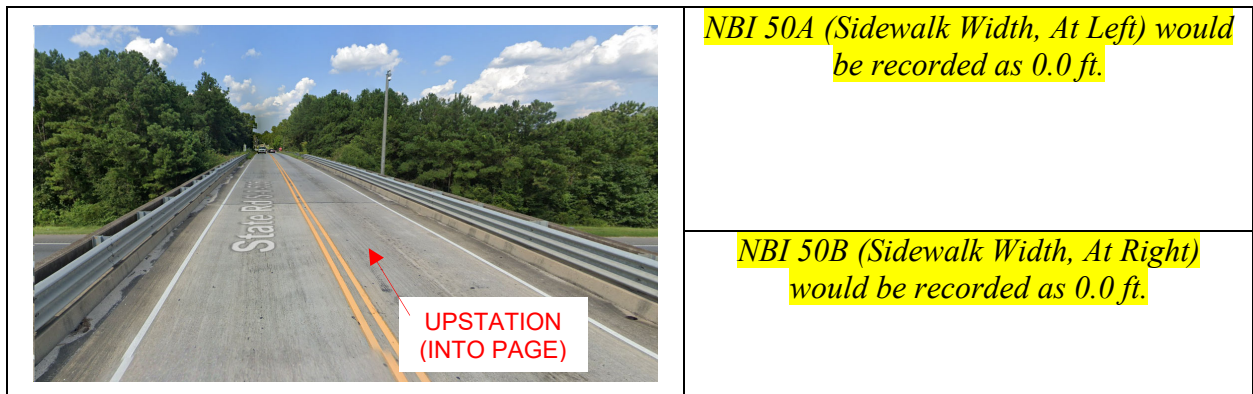


Figure 7.3.15-4 Bridge Without Curb or Sidewalk (Asset ID 3604)

**Technical Note
Notification**

No. 01
May 2022

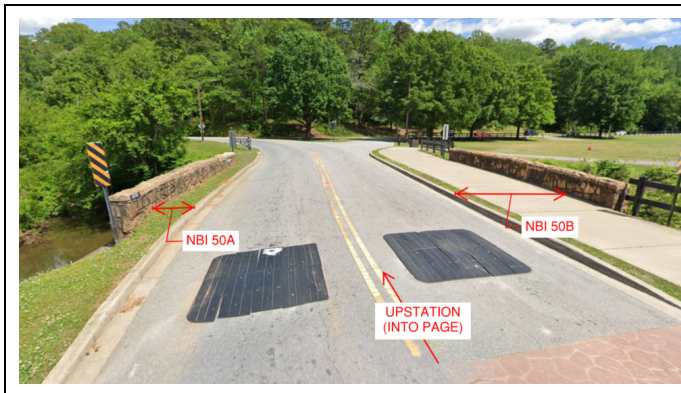
Technical Note 01



NBI 50A (Sidewalk Width, At Left) is distance from the face of curb, along the sidewalk, to the face of the bridge rail.

NBI 50B (Sidewalk Width, At Right) is distance from the face of curb, along the sidewalk, to the face of the bridge rail.

Figure 7.3.15-5 Bridge Without Curb or Sidewalk (Asset ID 2301)



NBI 50A (Sidewalk Width, At Left) is distance from the face of curb, along the grass area, to the face of the bridge rail.

NBI 50B (Sidewalk Width, At Right) is distance from the face of curb, along the sidewalk and grass area, to the face of the bridge rail.

Figure 7.3.15-6 Bridge with Grass/Curb and Sidewalk (Asset ID 1722)

28. Clarification on NBI Item 108 (Wearing Surface/Protection System)

TN Commentary: Additional guidance is being provided regarding what must be collected for NBI Item 108 (Wearing Surface Protective Coating). A new section (Section 7.3.16) is being added to provide guidance.

7.3.16 Wearing Surface Protective Coating (NBI Item 108)

Technical Note Notification

No. 01
May 2022

Technical Note 01

NBI Item 108 consists of three sub items consisting of Item NBI 108A: Type of Wearing Surface, NBI Item 108B: Type of Membrane, and NBI Item 108C: Deck Protection. NBI Item 108 is collected to determine the system (if any) in place to protect the bridge's deck.

It may not be possible to determine what systems (if any) are in place on existing bridges. Inspectors may determine if a membrane or a deck protective system is in place by reviewing the existing plans. If multiple systems are used, then the most predominant (frequent) system will be coded in NBI Item 108.

If the bridge has a deck, NBI Item 108A, NBI Item 108B and NBI Item 108C cannot be coded as "N".

7.3.16.1 Wearing Surface (NBI Item 108A)

Selections to code NBI Item 108A include options for wearing surfaces on bridges. The wearing surface on a bridge provides a surface for traveling vehicles and protects the top of the deck element from abrasion and wear. The wearing surface on a bridge can be removed and relaid several times over a bridge's lifespan.

NBI Item 108A shall be coded according to reflect the predominant material present on the existing wearing surface at the time of the inspection. For example, if the original wearing surface according to the existing plans states that it will be comprised of a bituminous concrete wearing surface, but at the time of the inspection, the wearing surface has more than 50% of the wearing surface area patched with concrete patches, then the predominant wearing surface material shall be coded as a concrete wearing surface.

Where there are multiple layers of wearing material of various types on the structure, code the top or the exposed layer. The following codes are overlays except codes 2 (Integral Concrete), 7 (Timber) and 8 (Gravel). If an application is placed separately from the time the deck is placed and if it is considered as a structural component and a part of the structural deck system, it will not be considered an overlay.

The type of wearing surfaces on bridges shall be coded according to the following codes:

- (1) Monolithic Concrete (concurrently placed with structural deck)*
- (2) Integral Concrete (separate non-modified layer of concrete added to structural deck)*
- (3) Latex Concrete or similar additive*

Technical Note Notification

No. 01
May 2022

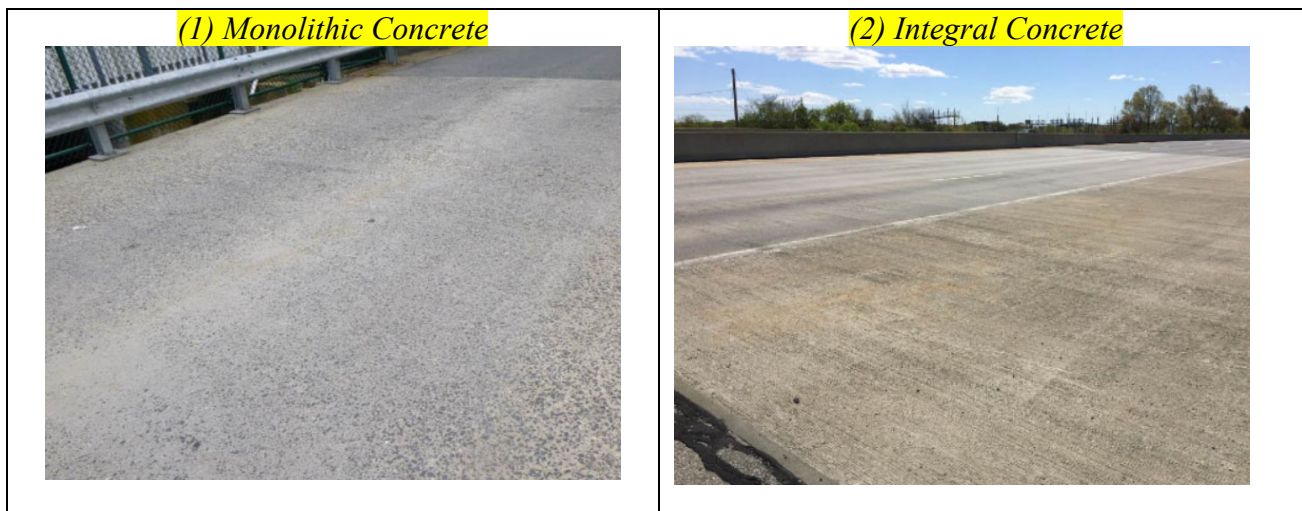
Technical Note 01

- (4) Low Slump Concrete
- (5) Epoxy Overlay
- (6) Bituminous
- (7) Wood or Timber
- (8) Gravel
- (9) Other
- (0) None (no additional concrete thickness or wearing surface is included in the bridge deck)

Photographs of examples for coding wearing surface (NBI 108A) are included in Table 7.3.16.1. Photographs are just examples and field conditions may vary.

For Open Steel Grid Decks, code "0" for wearing surface.

Table 7.3.16.1 Coding Examples for Wearing Surface (NBI 108A)



**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

Table 7.3.16.1 Coding Examples for Wearing Surface (NBI 108A) (continued)

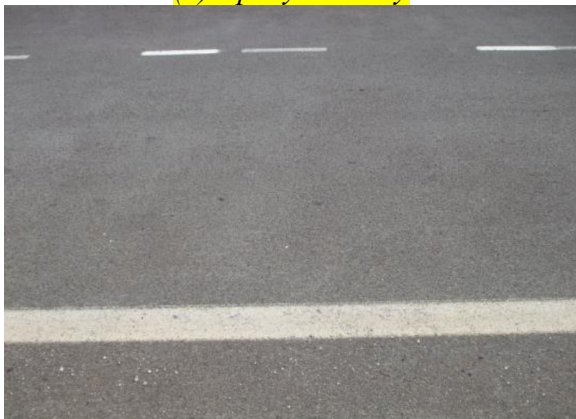
(3) Latex Concrete or Similar Additive



(4) Low Slump Concrete



(5) Epoxy Overlay



(6) Bituminous





**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

Table 7.3.16.1 Coding Examples for Wearing Surface (NBI 108A) (continued)

<p><i>(7) Wood or Timber</i></p> 	<p><i>(8) Gravel</i></p> 
<p><i>(0) None (No Overlay, Bare Deck)</i></p> 	<p><i>(N) Not Applicable (No Deck)</i></p> 

7.3.16.2 Type of Membrane (NBI Item 108B)

NBI Item 108B includes options for protective membranes on bridge decks. Membranes are typically used between the wearing surface and the deck and typically provide a barrier to stop water and other contaminants from infiltrating the deck. Membranes are normally applied to the top surface of a deck during construction or rehabilitation.

Technical Note Notification

No. 01
May 2022

Technical Note 01

The type of membranes on bridges shall be coded according to the following codes:

- (1) Built-Up
- (2) Preformed Fabric
- (3) Epoxy
- (8) Unknown
- (9) Other
- (0) None

If an inspector does not know if a membrane is applied, the inspector shall assume that no membrane is applied and NBI Item 108B shall be coded as “0”. If NBI Item 108B is coded as “8” (Unknown), the inspector is stating that a membrane is applied but it unknown what type. If NBI Item 108B is coded as “9” (Other), the inspector is stating that a membrane is applied and it is known what type but it is not an option listed in the Coding Guide.

7.3.16.3 Deck Protective System (NBI Item 108C)

Lastly, some decks have built-in systems to protect the deck from deterioration. NBI Item 108C includes options the various systems that can be employed to protect bridge decks.

The type of deck protective systems on bridges shall be coded according to the following codes:

- (1) Epoxy Coated Reinforcing
- (2) Galvanized Reinforcing
- (3) Other Coated Reinforcing
- (4) Cathodic Protection
- (5) Polymer Impregnated
- (6) Internally Sealed
- (7) Unknown
- (8) Other
- (0) None

If an inspector does not know if a deck protective system is in use, the inspector shall assume that no system is in place and NBI Item 108C shall be coded as “0”. If NBI Item 108C is coded as “8” (Unknown), the inspector is stating that a deck protective system is in use but it unknown what type. If NBI Item 108C is coded as “9” (Other), the inspector is stating that a deck

Technical Note Notification

No. 01
May 2022

Technical Note 01

protective system is in place and it is known what type but it is not an option listed in the Coding Guide.

29. Tidal Status on Attachments

TN Commentary: Previously, inspectors were to record the time of inspection and the tidal status under the Miscellaneous heading. Attachments 5.7 and 5.21 have been revised to include form locations to input the date and time of inspection and the tidal status. Inspectors must record the date and time of inspection and tidal status for all bridges over tidal waterways on either Attachment 5.7 or Attachment 5.21. Section 5.3.8.8 is being revised accordingly.

Language will be revised in Section 5.3.8.8:

The BITL shall include the date, time *and tide status* on the Scour Stream Ground Profile, Culvert Profile Sketch Sheet or detailed channel survey (underwater inspections only). The BITL shall approximate tide status from the options below. *Low and high tides are considered the lowest and highest elevations of water; slack tide is considered when there is no current or weak current.*

- Falling Tide
- Low Tide
- Rising Tide
- High Tide
- Slack Tide

30. Vertical Clearance

TN Commentary: Clarification is being provided on SCDOT's policy regarding the posting of vertical clearance signs. The following sections are being revised. Language will be revised in Section 5.3.8.2:

Requirements for coding vertical clearances (NBI Item 54) are included in Section 7.3.8.

Requirements for posting for vertical clearances are listed below. SCDOT vertical clearance sign procedure is derived from the latest FHWA Manual for Uniform Traffic Control Devices (MUTCD) and SCDOT's supplemental MUTCD. When vertical measurements taken in the travel way are 17'-0" or less, then vertical clearance signs will be required.

Technical Note Notification

No. 01
May 2022

Technical Note 01

For a bridge to be considered properly clearance posted, an “At Bridge” vertical clearance sign must be either within visible distance of the structure or attached to the structure and be erected facing each direction of traffic. SCDOT’s supplemental MUTCD requires “At Bridge” the vertical clearance signs for bridges crossing the interstate system to be centered over the centerline of the roadway.

If there is an intersecting street between *an advance vertical clearance* sign and the bridge, an additional sign should be erected immediately adjacent to the bridge. These additional signs should be in place for the bridge to be considered properly posted.

When the inspection team field verifies the vertical clearance, the team shall verify the placement of any *vertical* clearance signs in the field during the inspection. Note if any of the required signs (advance or “At Bridge” signs) are missing, then the BITL shall note the missing signs (including the location) as a repair recommendation *Priority A (or “A Flag”) if the vertical clearance is 17’-0” or below.*

Photographs of existing vertical clearance signs shall be taken during all routine inspections and the first inspection after the sign is installed if the inspection is not a routine inspection.

Requirements for clearance signs are included in SCDOT’s supplement to the MUTCD (W12-2 and OHB Series Signs). These requirements shall be reviewed by inspectors. The sign posting terms are defined as:

- “At Bridge” Clearance Posting Signs: Signs erected immediately in advance of, or on the bridge being clearance posted.
- Advance Clearance Posting Signs: Signs placed at approach road intersections or other points where a vehicle which exceeds the clearance posted limits must detour or turn around.

TN Commentary: Language will be revised in Appendix O:

General Bridge – Repair Recommendation Examples

Repair Recommendation – Priority A – “A Flags”

- *Missing, incorrect or illegible vertical clearance signs when the field measured vertical clearance is 17’-0” or less,*

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

31. Inspection Scheduling and Frequency

TN Commentary: Additional guidance and procedures are added to assist with bridge inspection schedules. From the list of bridge inspections that are due the following month, DBIS and consultant Project Managers will use spreadsheets to indicate completed inspections. SCDOT HQ will review these spreadsheets to monitor the progress of inspection assignments.

Language will be added to Section 4.10:

SCDOT policy is to inspect all bridges within their established frequency. The responsibility for performing inspections within their established frequencies has been delegated to the appropriate DBIS or consultant Project Manager (PM). Table 4.0 at the beginning of this chapter summarizes the inspections and the related inspection frequencies. The BMQE monitors the conformance of inspection dates with the required inspection intervals.

If a bridge inspection is completed out of frequency, the procedure in Section 4.10.3 shall be followed.

The DBIS or consultant PM is allowed to move bridges within an established frequency (i.e. forward or earlier) for a number of reasons, for example, water flow conditions, access restrictions, special requests, etc.

The DBIS is required to evaluate the upcoming workload from month to month in their district and request consultant services to help, when needed, to meet the frequencies. When scheduling inspections, the DBIS must take into account the type of inspections required. *Each month, the BMO sends a list of bridge inspections due the following month to the district inspection teams and the assigned consultant inspection teams.* Consultant PMs are also required to review their own workload and communicate any concerns with the BIPM. *Consultant PMs will also use the monthly bridge inspection list to create two spreadsheets, one for consultant inspections and one for SCDOT inspections. These spreadsheets will be saved in a specified location for all parties to access. At the beginning of each week, the DBIS and the consultant PM will indicate on the spreadsheets which structures were inspected during the previous week. The BMO will review the spreadsheets after three weeks of completed inspections each month to check the progress that has been made on inspection assignments. If progress is not adequate, the BMO will check in with the consultant or district inspection teams to determine how inspection schedules will be met or if unusual circumstances warrant an inspection delay.*

Language will be added to Section 4.10.3:

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

If unusual circumstances cause inspection delays, they shall be properly documented and approved. For any out-of-frequency occurrence, Attachment 4.3 shall be used. Attachment 4.3 requires the BIPM to sign the attachment noting out-of-frequency occurrence. At a minimum, FHWA must acknowledge receipt of the form. FHWA may not approve the out-of-frequency occurrence. In some instances, FHWA may approve an out-of-frequency occurrence. This approval may be granted depending on circumstances, but advanced notice is required, and sufficient reasoning is needed. An example of a reason for an out-of-frequency occurrence which gets approval from FHWA would be if the bridge is not accessible due to an unforeseen weather event.

**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

32. Updated List of Appendices

TN Commentary: Appendix F has been updated with TN01. Appendix S is being added to the BIGD; see the updated list of appendices below.

List of Appendices	
Appendix Letter	Name of Appendix
<u>A</u>	Code of Federal Regulations (CFR), 23 CFR 650, Subpart C
<u>B</u>	SCDOT District Map
<u>C</u>	Bridges with Complex Components
<u>D</u>	Border Bridges
<u>E</u>	Bridges with Underwater Inspections
<u>F</u>	Bridges with Fracture Critical Members (FCMs)
<u>G</u>	Scour Critical Bridges
<u>H</u>	AASHTO Detail Categories for Fatigue
<u>I</u>	South Carolina Railroad Map and List
<u>J</u>	Supplemental Guide for Structure Inventory & Appraisal Data
<u>K</u>	Supplement Guide for NBI Condition Ratings
<u>L</u>	Supplement Guide for Element-Level Condition States
<u>M</u>	Coding Guide for NBI Items 06 and 07
<u>N</u>	Average Daily Traffic Count Formulas & Example Calculations
<u>O</u>	Example Critical Findings and Repair Recommendations
<u>P</u>	Common Inspection Shorthand and Abbreviations
<u>Q</u>	Critical Security Bridges
<u>R</u>	Underwater Inspection Guidance Document
<u>S</u>	Memorandum Regarding Maintenance of Guardrail on H10 and H15 Bridges

<p>Technical Note Notification No. 01 May 2022</p>	<p>Technical Note 01</p>
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33. Updated List of Attachments

TN Commentary: In order help inspectors and engineers confirm the correct version of BIGD Attachments are being used, the tracking method for attachment versions is being revised as part of this Technical Note. All attachments have been updated with the new tracking method. Following the release of this Technical Note, attachments with the updated tracking method shall be the only attachments used. The list of attachments below replaces any previously released list.

On each attachment, the month of release of the attachment is included for example “MAR2022” for March 2022. In addition to the month, a version counter is also included if more than one version of an attachment is released in a month. The first version released each month will include the “V1” annotation, the second version (if one is released) will include the “V2” annotation. The decimal counting of versions previously used is being discontinued.

Inspectors are to review the instruction pages included in the attachments; the instruction pages include commentary on some revisions which have been made as part of this Technical Note. Attachments with significant updates include:

- Attachment 5.5, Critical Findings Form
- Attachment 5.7, Scour Stream Ground Profile
- Attachment 5.21, Culvert Profile Sketch Sheet
- Attachment 5.24, Closed Bridge Re-opening Form
- Attachment 5.28, Bridge-Specific Inspection Procedure Template
- Attachment 9.7, Bridge Inspection Quality Assurance Form

List of Attachment Files			
Attachment No.	Name of Attachment File	Version	Page Count
ROUTINE INSPECTION (NO WATERWAY)			
5.20	Photograph Form Instructions	MAR2022 V1	2
	Photograph Form		1
5.25	Bridge Inspection QC Form Instructions	MAR2022, V1	1
	Bridge Inspection QC Form (SCDOT Inspection)		1
	Bridge Inspection QC Form (Consultant Inspection)		1
ROUTINE INSPECTION OF BRIDGE (OVER WATERWAY)			
5.7	Scour Stream Ground Profile Instructions	APR2022, V1	2
	Scour Stream Ground Profile		2
ROUTINE INSPECTION OF CULVERT			
5.21	Culvert Profile Sketch Sheet Instructions	MAY2022, V1	2
	Culvert Profile Sketch Sheet		1
INSPECTION FOR DECK			
5.11	Deck Sketch Sheet Instructions	MAR2022, V1	1
	Deck Sketch Sheet (Panel Deck by Panel Number)		1
	Deck Sketch Sheet (Panel Deck by Panel Number, non-visual)		1
	Deck Sketch Sheet (Panel Deck by Bay Number)		1
	Deck Sketch Sheet (Flat Slab)		1

Copies of the Bridge Inspection Guidance Document and related Technical Notes can be obtained from the SCDOT Bridge Maintenance Office website at the [SCDOT Bridge Inspection Guidance page](#).

Technical Note Notification

No. 01
May 2022

Technical Note 01

List of Attachment Files			
Attachment No.	Name of Attachment File	Version	Page Count
INSPECTION FOR SUPERSTRUCTURE			
5.26	Blank Inspection Sketch Sheet Instructions	MAR2022, V1	1
	Blank Inspection Sketch Sheet		1
5.12	Prestressed Concrete Member Deterioration Sketch Sheet Instructions	MAR2022, V1	1
	Prestressed Concrete Member Deterioration Sketch Sheet (Cored Slab)		1
	Prestressed Concrete Member Deterioration Sketch Sheet (Beam)		1
5.13	Reinforced Concrete Member Deterioration Sketch Sheet Instructions	MAR2022, V1	1
	Reinforced Concrete Member Deterioration Sketch Sheet (Tee Beam)		1
	Reinforced Concrete Member Deterioration Sketch Sheet (Slab)		1
5.14	Steel Member Deterioration Sketch Sheet Instructions	MAR2022, V1	1
	Steel Member Deterioration Sketch Sheet		1
5.15	Rigid Frame Deterioration Sketch Sheet Instructions	MAR2022, V1	1
	Rigid Frame Deterioration Sketch Sheet (Concrete)		1
	Rigid Frame Deterioration Sketch Sheet (Steel)		1
INSPECTION FOR SUBSTRUCTURE (WITH PILES)			
5.18	Pile Section Sketch Sheet Instructions	APR2022, V1	1
	Pile Section Sketch Sheet (Vertical Orientation)		1
	Pile Section Sketch Sheet (Horizontal Orientation)		1
INSPECTION FOR SUBSTRUCTURE			
5.17	Bent Cap and Bearing Sketch Sheet Instructions	MAR2022, V1	1
	Bent Cap and Bearing Sketch Sheet (Single Bent Cap)		1
	Bent Cap and Bearing Sketch Sheet (Plan View (Bents/Caps))		1
	Bent Cap and Bearing Sketch Sheet (Plan View (Caps/Saddles))		1
	Bent Cap and Bearing Sketch Sheet (Eight Pile Bent Sketch)		1
	Bent Cap and Bearing Sketch Sheet (Seven Pile Bent Sketch)		1
	Bent Cap and Bearing Sketch Sheet (Six Pile Bent Sketch)		1
	Bent Cap and Bearing Sketch Sheet (Five Pile Bent Sketch)		1
Bent Cap and Bearing Sketch Sheet (Four Pile Bent Sketch)	1		
OTHER ATTACHMENTS			
3.2	Exemption for BITL Status Form Instructions	MAR2022, V1	1
	Exemption for BITL Status Form		1
5.24	Closed Bridge Re-opening Form Instructions	MAR2022, V1	1
	Closed Bridge Re-opening Form		1
OTHER INSPECTION FORMS			
4.5	Scour Inspection (Post Storm Inspection) Form Instructions	MAR2022, V1	1
	Scour Inspection (Post Storm Inspection) Form		1
5.8	Damage Inspection Form Instructions	MAR2022, V1	1
	Damage Inspection Form		2
5.9	Steel Superstructure Damage Inspection Form Instructions	MAR2022, V1	3
	Steel Superstructure Damage Inspection Form		2
5.10	Concrete Superstructure Damage Inspection Form Instructions	MAR2022, V1	2
	Concrete Superstructure Damage Inspection Form		2
5.16	Fracture Critical Member (FCM) Inspection Form Instructions	MAR2022, V1	1
	Fracture Critical Member (FCM) Inspection Form		1

Copies of the Bridge Inspection Guidance Document and related Technical Notes can be obtained from the SCDOT Bridge Maintenance Office website at the [SCDOT Bridge Inspection Guidance page](#).

Bridge Inspection Guidance Document



Technical Note Notification

No. 01
May 2022

Technical Note 01

List of Attachment Files			
Attachment No.	Name of Attachment File	Version	Page Count
OTHER INSPECTION FORMS (continued)			
5.19	Textual Data – Written Description Form Instructions	MAR2022, V1	1
	Textual Data – Written Description Form		1
5.22	Bridge Joint Sketch Sheet Instructions	MAR2022, V1	2
	Bridge Joint Sketch Sheet		1
5.23	AASHTO Element Table Worksheet Instructions	MAR2022, V1	1
	AASHTO Element Table Worksheet		1
INSPECTION PREPARATION AND PROCEDURES			
5.1	Bridge Data Form for SCDOT Road Data Services (RDS) Instructions	MAR2022, V2	1
	Bridge Data Form for SCDOT Road Data Services (RDS)		1
5.2	Request for Bridge Preparation Prior to Inspection Instructions	MAR2022, V1	1
	Request for Bridge Preparation Prior to Inspection (Word Document)		2
	Request for Bridge Preparation Prior to Inspection (PDF)		2
5.3	Railroad Flagging Service Form Instructions	MAR2022, V1	1
	Railroad Flagging Service Form		1
5.4	Inspection Access, Procedures and Equipment Form Instructions	MAR2022, V1	1
	Inspection Access, Procedures and Equipment Form		2
5.28	Bridge-Specific Inspection Procedure (BSIP) Template Instructions	MAR2022, V1	1
	BSIP Template Fracture Critical Member (Blank) (Word Document)		2
	BSIP Template Fracture Critical (w/ Instructions) (Word Document)		3
	BSIP Template Underwater (Blank) (Word Document)		2
	BSIP Template Underwater (w/ Instructions) (Word Document)		2
	BSIP Template Complex Components (Blank) (Word Document)		2
BRIDGE ASSESSMENT FOLLOWING INSPECTION (NON-CRITICAL FINDINGS)			
3.1	Load Rating Request Form Instructions	MAR2022, V1	1
	Load Rating Request Form		1
4.1	Consultant Inspection Request Form (CIRF) Instructions	MAR2022, V1	1
	Consultant Inspection Request Form (CIRF)		1
4.2	Bridge Scour – Item 113 Re-evaluation Form Instructions	MAR2022, V1	1
	Bridge Scour – Item 113 Re-evaluation Form		1
4.3	Inspection Out-of-Frequency Form Instructions	MAR2022, V1	1
	Inspection Out-of-Frequency Form		1
4.4	NDT Request Form Instructions	MAR2022, V1	1
	NDT Request Form		1
CRITICAL FINDINGS AND REPAIR RECOMMENDATIONS			
5.5	Critical Findings Form Instructions	MAY2022, V1	2
	Critical Findings Form		2
5.6	Repair Recommendations Form Instructions	MAR2022, V3	2
	Repair Recommendations Form (PDF)		2
	Repair Recommendations Form (Spreadsheet)		N/A
5.27	Stud-up Pile Repair Planning Form Instructions	MAR2022, V1	1
	Stud-up Pile Repair Planning Form		1

Copies of the Bridge Inspection Guidance Document and related Technical Notes can be obtained from the SCDOT Bridge Maintenance Office website at the [SCDOT Bridge Inspection Guidance page](#).

Bridge Inspection Guidance Document



Technical Note Notification

No. 01
May 2022

Technical Note 01

List of Attachment Files			
Attachment No.	Name of Attachment File	Version	Page Count
MUNICIPALITY-COUNTY BRIDGES – CORRESPONDENCES			
2.1	Municipality-County Bridge Inspection Report Release Letter (No Repair Recommendations and No Critical Findings) Instructions	MAR2022, V1	1
	Municipality-County Bridge Inspection Report Release Letter (No Repair Recommendations and No Critical Findings) (Word Doc)		1
	Municipality-County Bridge Inspection Report Release Letter (No Repair Recommendations and No Critical Findings) (PDF)		1
2.2	Municipality-County Bridge Inspection Report Release Letter (Repair Recommendations) Instructions	MAR2022, V1	1
	Municipality-County Bridge Inspection Report Release Letter (Repair Recommendations) (Word Document)		1
	Municipality-County Bridge Inspection Report Release Letter (Repair Recommendations) (PDF)		1
2.3	Municipality-County Bridge Receiving Closed Bridge Inspection Letter Instructions	MAR2022, V2	1
	Municipality-County Bridge Receiving Closed Bridge Inspection Letter (Word Document)		1
	Municipality-County Bridge Receiving Closed Bridge Inspection Letter (Repair Recommendations) (PDF)		1
2.4	Municipality-County Bridge Critical Finding Memorandum Instructions	MAR2022, V1	1
	Municipality-County Bridge Critical Finding Memorandum (Word Doc)		1
	Municipality-County Bridge Critical Finding Memorandum (PDF)		1
2.5	Municipality-County Bridge Critical Finding Reminder Memorandum Instructions	MAR2022, V1	1
	Municipality-County Bridge Critical Finding Reminder Memorandum (Word Document)		1
	Municipality-County Bridge Critical Finding Reminder Memorandum (PDF)		1
2.6	Municipality-County Bridge Critical Finding Action Taken by SCDOT Instructions	MAR2022, V1	1
	Municipality-County Bridge Critical Finding Action Taken by SCDOT (Word Document)		1
	Municipality-County Bridge Critical Finding Action Taken by SCDOT (PDF)		1
2.7	Municipality-County Bridge Inventory List and Status Instructions	MAR2022, V1	1
	Municipality-County Bridge Inventory List and Status (Word Document)		2
	Municipality-County Bridge Inventory List and Status (PDF)		2
2.8	Municipality-County Bridge Removed from Inventory Letter Instructions	MAR2022, V2	1
	Municipality-County Bridge Removed from Inventory Letter (Word Doc)		1
	Municipality-County Bridge Removed from Inventory Letter (PDF)		1

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**Technical Note
Notification**

No. 01
May 2022

Technical Note 01

List of Attachment Files			
Attachment No.	Name of Attachment File	Version	Page Count
QUALITY			
9.1	Inspection Team Qualification Tracking Log Instructions	MAR2022, V1	1
	Inspection Team Qualification Tracking Log (Spreadsheet)		N/A
9.2	Field Review Quality Form Instructions	MAR2022, V1	1
	Field Review Quality Form		2
9.3	Independent Inspection Check Form Instructions	MAR2022, V1	1
	Independent Inspection Check Form		5
9.4	District Quality Meeting Form Instructions	MAR2022, V1	1
	District Quality Meeting Form		1
9.5	Quality Control Tracking Spreadsheet Instructions	MAR2022, V1	1
	Quality Control Tracking Spreadsheet (Spreadsheet)		N/A
9.6	Quality Assurance Tracking Spreadsheet Instructions	MAR2022, V1	1
	Quality Assurance Tracking Spreadsheet (Spreadsheet)		N/A
9.7	Bridge Inspection QA Form Instructions	MAR2022, V1	3
	Bridge Inspection QA Form (SCDOT Inspection)		1
	Bridge Inspection QA Form (Consultant Inspection) (Spreadsheet)		N/A
9.8	Consultant QC Plan Review Checklist Instructions	MAR2022, V1	1
	Consultant QC Plan Review Checklist		1

As part of continuing efforts to improve the bridge inspection practices, Technical Note 02 (TN02) is currently being drafted and may include updates related to:

1. Updates to the BIGD Regarding Changes to the NBIS
2. Updates to Priority A and Priority B Flags
3. Inventory Photograph Form Requirements
4. Damage Inspection Frequency
5. Timber Pile Inspection and Load Rating Recommendation
6. Deep Water Situations
7. Off-Frequency or One-Time Underwater Inspections

Please direct any questions concerning the above to the Bridge Inspection Program Manager or other representatives at the Bridge Maintenance Office.