



S-101PT10

**Category of bridge in S-101
(France)**

Agenda Item S-101PT10-07.6

S-101PT10 – 13-15 June 2023 – Brest, France



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BACKGROUND

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- In S-101 Edition 1.1.0, **category of bridge** is an Enumerate attribute with a multiplicity (0,1) (or (1,1) when the bridge is over navigable water).
- It allows the same 12 possible values than S-57 attribute CATBRG.
- These values are inconsistent as they provide information of different natures.
- It is proposed to review the data model for feature **Bridge** to remove inconsistencies.

Note : this paper has been prepared with the IENHG and IHO Secretariat (Jeff).



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ANALYSIS (1/5)

A few examples:

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Swing bridge



Lifting bridge



Bascule bridge



Pontoon bridge



Drawbridge



Transporter bridge



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ANALYSIS (2/5)

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Category of bridge values classification:

- 1: fixed bridge: **distinction fixed vs opening**
- 2: opening bridge: **distinction fixed vs opening**
- 3: swing bridge: **Category of opening bridge**
- 4: lifting bridge: **Category of opening bridge**
- 5: bascule bridge: **Category of opening bridge**
- 6: pontoon bridge : **Category of opening bridge**
- 7: drawbridge: **Category of opening bridge**
- 8: transporter bridge : **Bridge construction** (To be considered as a fixed bridge (Ref. ENCWG8 (Dec. 2022))
- 9: footbridge: **Bridge function**
- 10: viaduct: **Bridge construction**
- 11: aqueduct: **Bridge function**
- 12: suspension bridge: **Bridge construction**
- 13: bridge arch: **Bridge construction**. Attribute value for S-401 only at this stage.



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ANALYSIS (3/5)

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It is proposed to review the data model for feature **Bridge**:

- ✓ Create a new Boolean attribute **opening bridge**
- ✓ Create a new Enumeration attribute **bridge construction** (0,1)
- ✓ Create a new Enumeration attribute **bridge function** (0,*)
- ✓ Replace attribute **category of bridge** by **category of opening bridge** and review the allowable attribute values.

S-101 Geo Feature: Bridge (BRIDGE)				
Primitives: Curve, Surface, None				
Real World	Paper Chart Symbol	ECDIS Symbol		
S-101 Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
bridge construction	(CATBRG)	1 : arch 2 : viaduct 3 : pontoon bridge 4 : suspension bridge 5 : transporter bridge	EN	0,1
bridge function	(CATBRG)	1 : vehicular 2 : rail 3 : pedestrian 4 : aqueduct	EN	0,*

category of opening bridge	(CATBRG)	1 : fixed bridge 2 : opening bridge 3 : swing bridge 4 : lifting bridge 5 : bascule bridge 6 : pontoon bridge 7 : drawbridge 8 : transporter bridge 9 : footbridge 10 : viaduct 11 : aqueduct 12 : suspension bridge	EN	0,1 [†]
opening bridge	(CATBRG)		BO	0,1 [†]



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ANALYSIS (4/5)

DGEG guidance would be modified as hereafter:

- ✓[†] For bridges encoded over navigable water, the attribute **opening bridge** is mandatory.
The attribute **category of opening bridge** is mandatory if **opening bridge** = *True*.

- If it is required to encode a pontoon bridge where a pontoon section may be temporarily be removed or rotated so as to allow the passage of vessels, this must be done using a **Bridge** feature, with attributes **bridge construction** = 3 (pontoon bridge), **opening bridge** = *True* and **category of opening bridge** = Empty (null).
- If it is required to encode a distance mark that is included on or associated with a bridge, this must be done using the feature **Distance Mark** (see clause 8.9).
- In navigable water, bridge supports must be encoded, where possible, using a **Pylon/Bridge Support** feature (see clause 6.11), with attribute **category of pylon** = 4 (bridge/pylon tower) or 5 (bridge pier).
- It is not mandatory to encode roads or railways on bridges.

6.5.2 Examples of Encoding Common Bridge Types

OPENING BRIDGE

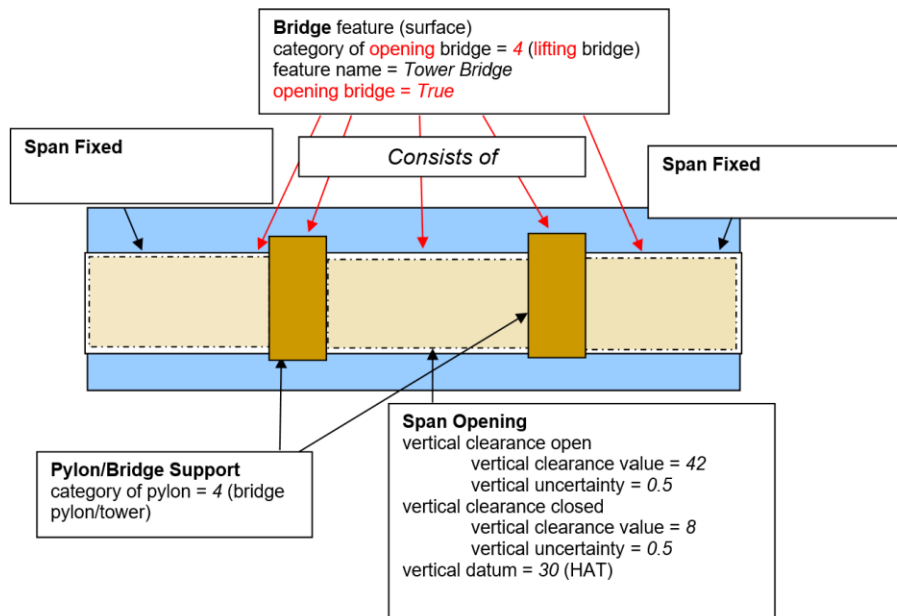


Figure 6.2 - Opening bridge - Example



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ANALYSIS (5/5)

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Additional changes

- DCEG to be reviewed (refer to original paper)
- S-101 Portrayal Catalogue: reallocate symbology for opening bridge to attribute opening bridge in place of category of bridge.
- Review definition for:
 - Pontoon bridge: *“An opening floating bridge supported by pontoons.”*
 - Drawbridge: *“A type of movable bridge in which the deck can be moved aside or backwards to open a gap to allow ships to pass through”.*



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RECOMMENDATIONS

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The S-101PT10 is invited to:

- DCEG to be reviewed (refer to original paper)
- S-101 Portrayal Catalogue: reallocate symbology for opening bridge to attribute opening bridge in place of category of bridge.
- Review definition for:
 - Pontoon bridge: *“An opening floating bridge supported by pontoons.”*
 - Drawbridge: *“A type of movable bridge in which the deck can be moved aside or backwards to open a gap to allow ships to pass through”.*



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HSSC-14, Denpasar, Bali, Indonesia - Hybrid Event, 16 – 19 May 2022