STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation
DT1698 4/2017

☐ **Stream Crossing** ☐ **Box Culvert** ☐ **Box Culvert Extension:** ☐ Right
☐ **Other:** _____ ☐ Left

For guidance see: **http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/survey.aspx**

Design Project ID	Construction Project ID	Highway (Project Name)		
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City		
PS&E Date	Letting Date	County		
New Structure Number	Existing Structure Number	Section	Town	Range
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On				mph	
Feature Under ☐ Waterway:		☐ Other:			
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:			

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site: ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)
Ft.	Ft./Ft.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☐ No	Ft.	☐ Yes ☐ No	Ft.	☐ Yes ☐ No

Specify Wing Location(s) for Beam Guard Attachment	Specify Clear Zone Width When Beam Guard Not Used on Culvert
Specify Wing Location(s) for Surface Drain Anchors	Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES	NO	
☐	☐	Project Is in Flood Hazard Area (FIS Mapped Floodplain)
☐	☐	Structure Will be Constructed to Accommodate Traffic Staging
☐	☐	Temporary Structure Required
☐	☐	Riprap Required
☐	☐	Structural Approach Slab
☐	☐	Lighting Required: Bolt Circle Diameter _____ inches
☐	☐	Traffic/Lighting Staff been Notified for Review
☐	☐	Conduit in Parapet: Diameter _____ Number _____
☐	☐	Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☐	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 4)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☐	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☐	Structure will Remain in Service, Purpose: _____

Removal
- ☐ Normal Removal
- ☐ Removal With Minimal Debris
- ☐ Removal With Capture System

Existing Structures

STRUCTURE DATA		UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)				
Highway, Railroad, Path, or Structure Name				
Year Built				
◊ Latitude				
◊ Longitude				
‡ Distance from Proposed Site in Miles				
Number of Spans				
Clear Span *(Between Inside Faces of Substructure Units)* Lengths Along C.L. Rdwy/Track				
Sidewalk:	Right Side Clear Width			
	Left Side Clear Width			
Roadway Width on Structure Between Curbs				
Superstructure Type				
Abutment Type(s)				
Pier Type(s) and Width(s)				
Is Structure Supported on Piles?				
Condition:	Superstructure Rating (NBI)			
	Substructure Rating (NBI)			
	Sufficiency Rating (NBI)			
Skew:	Stream			
	Structure			
* Elevation	Finished Grade			
+ +	Low Chord			
Character of Material in Stream Bed				
Does Drift Pass Satisfactorily (Y/N/no record)				
Does Ice Pass Satisfactorily (Y/N/no record)				
Evidence of Damage From Floating Debris				
Streambed Scour Visible (Y/N) ℗	Provide Additional Details on Page 5			
Streambank Scour Visible (Y/N) ℗				
† Recorded High Water Elevation - Date				
** Observed High Water Mark Elevation ℗				
History of Flooding over Roadway (Date or Frequency)				
Abutment Slope Washout From:	Stream Flow ℗			
	Roadway Drainage ℗			
Low Water Elevation				
º Ordinary High Water Mark				
Observed Water Elevation				
Streambed Elevation				
Water Surface Elevation	Date	1500' Upstream ‡	At Site	1500' Downstream ‡

℗ Provide labeled photograph.
* Use same vertical datum for all structures within 1500' of existing structure.
** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.
+ + Take these elevations at the same location.
† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.
º If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."
‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.
◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			
Barrel Width Perpendicular to Walls			
Allowable High Water			
Floor: Concrete, Earth, Silted			
If Silted Indicate Depth of Silt in Barrel			
Elevation:	Inlet	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	Discharge	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	For Structures with Concrete Aprons:		
	At Beginning of Upstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
	At End of Downstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
Condition℗:	Wingwalls		
	Barrel		

Attach Sketch

℗ Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design or consultant review and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
If aesthetic level 2 or higher is indicated, you must suggest particular requirements such as railing type, pier shape, new aesthetic option (type I,II or III), special form liners, stain/paint color (federal color number), etc. See Bridge Manual Chapter 4 for updated information. Also include coordination that is yet to be made. If applicable, provide B-##-### for example structures in the area that are similar to proposed or desired; attach an exhibit for reference. Contact BOS with questions.

Structural Approach Slabs:
If requested, provide justification for their inclusion. See Bridge Manual Chapter 12.11.

Proposed Structure (& Future Expansion):
Discuss proposed size and type of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc. Anticipated future expansion of bridge may have impacts to profile grade, consider vertical clearance requirement.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction. Especially important for staged construction or current structure that remains in service during construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing; provide sketches of staging.

Traffic Barrier:
Discuss barrier locations, type and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss proposed sidewalks, multi-use paths, separation barriers, medians, wildlife passages, etc.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/utility will be on the proposed structure describe who will be servicing it, number and size of conduits needed and any other pertinent information. Justification for placing utilities on proposed structure and means of attaching.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR (e.g. AOP, etc.).

For Structure Designers Use Only
Proposed Box Culvert

Aprons	Type	Elevations
Inlet		
Outlet		
Openings - Number	Clear Span at Right Angles to Axis of Box	Inside Height of Box
Slope of Channel at Culvert		

All Proposed Structures

Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:		

Drainage Area	_____	Sq. Mi.	Q (100)	_____	cfs	**Existing Bridge**		
High Water (100)	_____	Ft.	Q (Struct.)	_____	cfs	High Water (100)	_____	Ft.
Velocity	_____	Ft/Sec.	Q (Rdwy.)	_____	cfs	**Regulatory High Water**		
Waterway Area	_____	Sq. Ft.	Q (Suple. Struct.)	_____	cfs	_____		Ft.
Scour Code	_____					Source FIS	_____	

Erosion Control	**Temporary Structure**	**Overtopping Frequency (If>100Yrs.-NA)**
Q_2 = _____ cfs.	Q _____ Yr. _____ cfs.	Q _____ Yr. _____ cfs.
HW_2 = _____ Ft.	High Water _____ Ft.	High Water _____ Ft.
	Min. A (BR) _____ Sq. Ft.	