ACEC – INDOT
BRIDGE INSPECTION COMMITTEE

MEETING NO. 4 MINUTES

August 4, 2009

The meeting was called to order at 9:10 a.m. by Mike Cox. Those in attendance were:

Jim Mickler	INDOT, Greenfield District
James Yapp	INDOT, Greenfield District
Bill Dittrich	INDOT, Planning and Production Division
Stephanie Yager	Indiana Association of County Commissioners
Bill Williams	Monroe County Highway Director/Engineer
Michael Cox	Beam, Longest and Neff, L.L.C.
Mike Obergfell	USI Consultants, Inc.
Mike Garlich	Collins Engineers, Inc.
Adam Post	United Consulting Engineers & Architects
Drew Storey	Inspect Tech
Jon Sera	Butler, Fairman and Seufert, Inc.

A meeting agenda had previously been distributed and the following items were discussed.

1. Mike Cox started off the meeting with a brief overview of the agenda.

2. The minutes of the previous meeting were approved as written and will be posted on INDOT's website.

3. Bill Dittrich discussed the status of bridge inspections and compliance issues. Currently there are four counties not in compliance. A few of those were due to contract issues resulting in late starts to the field work. In April of this year, there were twenty-plus counties that were in non-compliance. Bill stated that he gave each of them a call before issuing a federal funding suspension and was able to resolve all issues.

4. Bill Dittrich discussed implementation of the scour plans-of-action. Bill passed around a letter that was distributed to the counties and the bridge inspectors following this meeting (see attachment). The letter was reviewed by the group and there were a few suggestions for revisions. Bill Dittrich asked for help in distributing the letter out to everyone. Keith Hoernshmeyer has approved the plan-of-action form that will have to be filled out for each scour-critical bridge. Bill Williams noted that all counties have been made aware of the plan-of-action requirements, but he felt that implementation would be difficult. Bill Williams questioned who will be doing the monitoring and what the trigger event is. Bill Dittrich stated that he will try to clarify when data should be updated and who can update the data. Bill stated that a bridge can be closed by the person doing the monitoring and that the person doing the monitoring doesn't have to be a bridge inspection team leader. A bridge inspection team leader would be required to reopen the bridge. Mike Obergfell would like to see contracts modified for on-call services including scour-critical or damage inspections. Bill Dittrich stated that by requiring a team leader to reopen bridges, contracts will have to be adjusted to cover additional inspections. Supplemental contracts will have to be implemented for now and there is no standard supplemental

agreement. Bill Dittrich will leave it up to the consultants to ask for a supplement. He stated that all consultants are entitled to receive payment for this work, but counties may have issues coming up with the 20% matching funds. The group discussed ways of helping INDOT to get the information out to all the counties in a timely manner.

5. Bill Dittrich mentioned that webinars are available for the inspection and load rating of gusset plates. The first webinar was on September 3rd and space was very limited. Many in the group felt that this would be good information for all team leaders, and that additional host locations should be provided if possible.

6. Mike Cox asked Jim Mickler if there is anything that could be done to help speed up the INDOT District inspection report approval process in Inspect Tech. He stated that there are still some errors popping up in the program that have to be fixed for each report and permission issues are still occurring. Mike Obergfell questioned whether he should have to approve all of his team leader's reports. He felt that he would be obligated to check each and every item in that situation. Bill Dittrich explained that the reason for the approval process is to be able to approve corrections made by several different people. Mike Cox passed around an abbreviated draft QC/QA document (see attachment). These procedures should clarify and shorten the review process. The group agreed that the in-house QC approval process should be clarified before Inspect Tech is rolled out on the county level.

7. Bill Dittrich gave an update on Inspect Tech rollout status. INDOT has given Inspect Tech a supplemental contract to continue work on the database. Gerald Nieman doesn't want to switch to county level Inspect Tech until he is sure that a Federal tape can be made. Bill passed out what he had laid out for the Toll Road inspections to include, which is similar to the county level inspections. Bill will closely follow the process for Toll Road rollout with county-wide rollout. Bill explained that there will be guidelines that will back up the inspectors filling out the required data (see attachment). He would also like Inspect Tech to add wearing surface condition to the deck-condition rating. Mike Obergfell recommended that everyone in the group go to the web viewer to test out the software before the next meeting. The web address is https://myweb.in.gov/INDOT/bridges/login.aspx and the username is acec with the password of bridges09. Mike and Bill recommended that viewers use the test bridges tab. Stephanie Yager questioned the need for increased cost due to software use on the county level. Bill Dittrich pointed out that INDOT is still trying to get up to speed on changes in federal regulations from back in 2005. The new software will be able to create a database that is able to handle additional data required to maintain bridge files. Federal requirements are driving increased cost. Mike Obergfell felt that after 4 years, bridge inspection costs should go back down once the bridge files have all been created. Mike and Stephanie recommended that LTAP hold training for new software. Bill noted that $3900 will be good for a lifetime license for the Inspect Tech software.

8. Mike Garlich stated that most bridge inspection manual sections have been sent to INDOT. Bill Dittrich has given most sections a quick review. Bill would like members of this group to give the manual a thorough review. Bill suggested that small groups be formed to review each section. Volunteers will be requested at the next quarterly meeting of this group for the review process. Bill stated that more content needs to be added to the load rating section. Mike Obergfell suggested that load rating

liability be included as a topic at the meeting of this group. Mike Cox will draft a memo for Bill's approval and provide it to the group at the next meeting.

9. Mike Cox briefly discussed the draft QC/QA procedures. There would need to be two team leaders for each inspection project. One of the team leaders would not be involved in the actual inspections, but would perform a quality control review. Mike suggested that there would be 30 days allowed for data review by INDOT and 30 days for report review by INDOT. Mike noted that these time frames would probably affect the standard inspection agreement. Several members of the group questioned the need for review of the written reports since they are based directly from the data previously approved by INDOT. It was also suggested that most of INDOT's review would not be necessary following the implementation of Inspect Tech software. Bill Dittrich felt that only after the implementation of the software would this become evident.

10. Bill Dittrich reported to the group that the next bridge inspection training class would probably be held after the first of the year. The refresher class is not readily available to all those needing to get in. Classes all over are filled to capacity. Bill Dittrich suggested that he might have to suspend the refresher criteria if more classes can not become available in the near future.

The next meeting for the ACEC - INDOT Bridge Inspection Committee is scheduled for 9:00 a.m. Wednesday, November 4th, 2009, at the Indiana State Police Museum.

Individuals are invited to comment on items presented in these minutes and/or submit additional topics for discussion at the next meeting. Please e-mail comments to Jon Sera at jsera@bfsengr.com.

This meeting was adjourned at 1:00 p.m.

Prepared by,

BUTLER, FAIRMAN and SEUFERT, INC.

c: Attendees

INDIANA DEPARTMENT OF TRANSPORTATION

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August 4, 2009

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To: County Engineers
County Road Supervisors
County Bridge Inspection Consultants

From: Bill Dittrich W.T.D.
INDOT Bridge Inspection Engineer

Subject: Meeting Federal Requirements of: Creating Scour Plan of Actions and the Monitoring of Scour Critical Bridges during flood events.

The attached FHWA Memorandum entitled: *National Bridge Inspection Standards – Scour Evaluations and Plans of Actions for Scour Critical Bridges,* requires that all County Bridges that are classified as Scour Critical have a documented Scour Plan of Action, by November, 2009. This deadline is fast approaching. Currently 62 Counties have bridges classified as Scour Critical, (a total of 668 bridges in all).

The FHWA has notified INDOT that not meeting the November, 2009 deadline will be an NBIS compliance issue and will result in the suspension of Federal Bridge Funds.

This letter is meant to provide some guidance on how to meet the requirements of the FHWA Memorandum.

First, an official list of Scour Critical Bridges has been developed. These bridges must either have:
1. A Scour Monitoring Plan of Action (POA) developed (by a bridge inspection team leader), or
2. *Documentation produced by a licensed engineer bridge inspection team leader and forwarded to INDOT for inclusion into the Bridge File, which verifies that the bridge is not Scour Critical. This will include completing all appropriate sections of the new ACCESS Table described below.* ^

Second, the minimum requirements of a Scour/Monitoring Plan of Action have been developed, which identify three main areas that must be documented. These are:
1. Pre-Flood Actions,
2. During Flood Actions, and
3. Post-Flood Actions.

Third, an ACCESS Table has been created in the existing County NBI Data Base that includes Plan of Action and Monitoring Data for each Scour Critical Bridge. The data in this table will be used to track the actions on the Scour Critical Bridges and Monitoring Actions, such as:

1. Dated channel cross-section drawings to track channel movement and/or degradation.
2. Trigger elevations to be marked on or at the bridge site and rainfall intensities that trigger monitoring.
3. *A Hydraulic Model proving that the bridge is or is not Scour Critical.* ^
4. *Bridge Plans or Construction Documents which can verify the foundation types are not Scour Critical.* ^
5. Verification that "Designed Scour Countermeasures" have been placed, and are working properly.
6. Names and/or titles of personnel that will monitor a bridge during and after a flood event*.

7. Bridge/Road closure plan developed and detour route(s) determined.
8. The long term solution(s) to correct the scour vulnerability, (countermeasures, rehab, replacement, other).

* The County shall determine, with advice from their Bridge Inspection Consultant, who is best suited to conduct the Pre-Flood, During Flood, and Post-Flood inspections/monitoring. This shall be clearly described in the Scour POA.

The Counties working with their Inspection Consultants shall maintain the information in the ACCESS Table, and forward changes to INDOT in a timely manner; after a flood event, or if/when changes occur to the bridge site. This maintenance of data shall be done using the ACCESS Table or in the new Bridge Inspection Data Base/Application, once it is made available for use by the Counties/Consultants.

Updated information shall be added to the ACCESS Table by a bridge inspection team leader and submitted to INDOT within one week of a flood event that triggers monitoring, based on the Scour Plan of Action.

Fourth, all Scour Critical Bridges shall be investigated, by the County's Inspection Consultant, to gather the data required for the ACCESS Table and to develop a Monitoring Plan. If this investigation determines that the bridge is not Scour Critical, documentation shall be required for the Bridge File, and appropriate sections of the ACCESS Table shall be completed and submitted to INDOT, (see item #2 of First Requirement).

Fifth, the following tasks shall be completed for each Scour Critical Bridge:
1. A comprehensive Scour Monitoring Plan (POA) developed,
2. Monitoring triggers (either water surface elevations, a County flood warning, or rainfall intensities *) determined,
3. Trigger water surface elevations marked on each bridge,
4. Channel cross sections taken,
5. A file developed for monitoring personnel which shall contain the POA, channel cross-sections, and other monitoring documents, and
6. Any local or consultant personnel involved with the monitoring or closing of a scour critical bridge shall be adequately trained and made aware of their duties as described in the POA. Those personnel involved in monitoring or closing a scour critical bridge shall document their findings for each triggered flood event.

* The following website can be used to track the rainfall intensity in the general area of a particular bridge, if the rainfall intensity is used to trigger monitoring: http://dipper.nws.noaa.gov/hdsc/pfds/orb/in_pfds.html

Local personnel, if properly trained, can conduct the scour monitoring that is described in a scour Plan of Action. However, if a scour critical bridge is closed due to a flood event, then it can only be re-opened if a bridge inspection team leader conducts a scour inspection and gives his approval.

^ Sixth, to remove any of the 668 bridges identified from the monitoring requirements, one or more of the following must be documented (by a licensed engineer bridge inspection team leader) in the ACCESS Table. In addition, INDOT's Bridge Inspection Engineer must concur that the documents are sufficient to remove the monitoring requirement. INDOT's Bridge Inspection Engineer shall note his concurrence in the ACCESS Table.
1. Bridge Plans or Construction Documents are produced which can verify the foundation types are not Scour Critical.
2. A Hydraulic Model is developed proving that the bridge is not Scour Critical.
3. The bridge has been replaced or totally removed.
4. Properly designed scour countermeasures have been installed and are working as designed.

The ACCESS Table shall be provided to each County Inspection Consultant that INDOT's Bridge Inspection Unit has as the Bridge Inspection Consultant of record as of July, 2009. It is expected that this Consultant will be the one that works with the County to investigate each Scour Critical Bridge, develop a Plan of Action, develop a Monitoring plan/process, complete the ACCESS Table, and then submit the completed ACCESS Table to INDOT along with any other pertinent documents for inclusion into the NBI Data Base and Bridge File. These shall be submitted to INDOT by November 15,

2009, in order to be in compliance with the NBIS, and not have Federal Bridge Funds suspended. Completion and submittal of the ACCESS tables implies the POA's have been developed and implemented in accordance to this letter.

For Counties with a large number of Scour Critical Bridges the above described work may require a supplement to the existing inspection contract. This work should be eligible for 80% Federal Bridge Funds, just like the original contract. Counties that are (or will soon be) advertising or selecting a new Inspection Consultant for a new four year inspection contract, should (in most cases) still use their existing Inspection Consultant to conduct this work.

Finally, all Indiana Counties are receiving this letter, even if they do not currently have any Scour Critical Bridges. The reasons for this are:

1. Due to constantly changing conditions of bridges and waterways, an existing bridge may have its scour vulnerability change, which would then require it to have a Scour Plan of Action and a Monitoring Plan.

2. A second FHWA Memorandum on Bridges with Unknown Foundation Types has been issued which requires foundations to be determined; or to change these bridges to Scour Critical Bridges. The deadline for this requirement is November, 2010. In the case where a bridge is changed from Unknown Foundation to Scour Critical, a Plan of Action and a Monitoring Plan shall be required.

As of July 2nd, 2009, there were 867 County Bridges with Unknown Foundation Types, in 42 Counties. Inspection Consultants have been making good progress in determining the foundations of these types of bridges. The total has been reduced from 1120 bridges in 46 Counties on February 14, 2009.

This letter is not intended to answer all of the questions that will arise on how to proceed with this work, but to get the process started. The Indiana ACEC Bridge Inspection Committee will help to clarify technical issues on developing the Plan of Actions. Contract issues should be directed to the INDOT District Local Program Coordinators. NBIS questions should be directed to INDOT's Central Office Bridge Inspection Unit.

Part of the 2009 NBIS review that will be conducted by the FHWA later this year will be to review the Scour Plan of Actions and Scour Monitoring on INDOT and County Bridges.

cc:
Keith Hoernschemeyer – FHWA Bridge Engineer
INDOT District Local Program Coordinators
Jodi Coblentz – INDOT
John Jordan – INDOT
Bruno Canzian – INDOT
Stephanie Yeager – Indiana Association of Indiana County Commissioners
Indiana ACEC Bridge Inspection Committee Members

Attachments:
List of Counties with Scour Critical Bridges and number of Scour Critical Bridges per County.
List of Scour Critical Bridges.
Scour Plan of Action Requirements
County Scour Critical Bridge ~ Monitoring Form
January 4, 2008 FHWA Memorandum entitled: *National Bridge Inspection Standards – Scour Evaluations and Plans of Actions for Scour Critical Bridges.*
January 9, 2008 FHWA Memorandum entitled: *Technical Guidance for Bridges over Waterways with Unknown Foundations.*

Number of Scour Critical Bridges in Counties with Scour Critical Bridges.
Data as of: 7-02-2009

County #	County Name	Number of Bridges that are Scour Critical
03	Bartholomew	21
04	Benton	2
05	Blackford	1
06	Boone	1
07	Brown	19
08	Carroll	27
11	Clay	2
12	Clinton	4
13	Crawford	6
14	Daviess	16
15	Dearborn	7
16	Decatur	90
18	Delaware	13
19	Dubois	2
20	Elkhart	7
21	Fayette	3
23	Fountain	8
26	Gibson	51
27	Grant	4
28	Greene	18
29	Hamilton	6
30	Hancock	2
31	Harrison	1
32	Hendricks	1
38	Jay	22
39	Jefferson	3
40	Jennings	1
42	Knox	12
46	LaPorte	7
47	Lawrence	3
48	Madison	3
49	Marion	4
51	Martin	6
52	Miami	2
53	Monroe	15
54	Montgomery	4
55	Morgan	2
56	Newton	3
59	Orange	12
61	Parke	2
62	Perry	13
63	Pike	11
65	Posey	6
67	Putnam	11
68	Randolph	72
69	Ripley	32
70	Rush	10
72	Scott	3
73	Shelby	2
74	Spencer	7
71	St. Joseph	11
75	Starke	1
77	Sullivan	54
78	Switzerland	5
80	Tipton	2
84	Vigo	2
86	Warren	4
87	Warrick	3
88	Washington	2
89	Wayne	2
90	Wells	1
91	White	1
Total Number of Bridges		**668**

List of 668 Scour Critical County Bridges

Data as of: 07-02-2009

RECORD KEY	8c_BRNO	3	CO_NAME	6	7	27c	43_system	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
0300003	00001	03	Bartholomew	BEAR CREEK	CR 500 SOUTH	1920	SPT	5	N	4	0000	1999	2	A
0300020	00020	03	Bartholomew	LITTLE SAND CREEK	CR 50 NORTH	1935	PCBB	5	N	6	1988		2	A
0300024	00026	03	Bartholomew	CLIFTY CREEK	CR 850 EAST	1910	STT	5	N	7	1982		2	A
0300026	00028	03	Bartholomew	LITTLE SAND CREEK	CR 900 EAST	1980	PCBB	5	N	6	0000		2	A
0300041	00045	03	Bartholomew	BRANCH DUCK CREEK	CR 425 NORTH	1930	RCA	4	N	6	1968		2	A
0300046	00050	03	Bartholomew	DUCK CREEK	CR 850 NORTH	1915	RCGT	4	N	6	0000		2	A
0300053	00057	03	Bartholomew	LITTLE HAW CREEK	CR 945 NORTH	1930	ESB	4	N	5	0000		2	A
0300055	00059	03	Bartholomew	DUCK CREEK	CR 1000 EAST	1930	PCBB	5	N	6	1992		2	A
0300062	00066	03	Bartholomew	HAW CREEK	CR 900 EAST	1968	SB	5	N	6	0000		2	A
0300064	00068	03	Bartholomew	LITTLE HAW CREEK	CR 750 NORTH	1970	SB	6	N	6	0000		2	A
0300078	00081	03	Bartholomew	TOUGH CREEK	CR 600 NORTH	1935	SB	4	N	4	0000		2	A
0300101	00107	03	Bartholomew	BRUSH CREEK	CR 125 SOUTH	1940	PCBB	5	N	6	1991		2	A
0300118	00127	03	Bartholomew	SAND BRANCH	CR 900 SOUTH	1930	SB	5	N	6	0000		2	A
0300215	00132	03	Bartholomew	THOMPSON SLOUGH	CR 1000 SOUTH	1970	MPAUF	N	7	5	0000		2	L
0300133	00149	03	Bartholomew	DRIFTWOOD RIVER	TANNEHILL Rd	1966	CSB	4	N	7	0000		2	A
0300138	00165	03	Bartholomew	BRANCH WOLF CREEK	CR 600 WEST	1915	RCS	4	N	6	0000		2	A
0300160	00188	03	Bartholomew	BR. EAST FORK WHITE CRK.	CR 400 WEST	1970	CSB	4	N	5	1993		2	A
0300174	00202	03	Bartholomew	EAST FORK WHITE CREEK	CR 450 SOUTH	1980	PCBB	5	N	7	0000		2	E
0300180	00211	03	Bartholomew	BRANCH WHITE CREEK	CR 725 WEST	1925	SB	4	N	5	0000		2	A
0300201	00278	03	Bartholomew	DENIOS CREEK	CR 400 SOUTH	1974	MPAUF	N	5	4	0000		2	L
0300222	00295	03	Bartholomew	M. HALL DITCH	CR 450 EAST	1980	PCBB	6	N	6	0000	1997	2	I
0400016	00027	04	Benton	BIG PINE CREEK DITCH	CR 500 E	1945	RPG	3	N	4	0000	0000	2	A
0400044	00060	04	Benton	BIG PINE CREEK	NO Rd EXISTS	1910	RPG	3	N	6	1965	0000	2	A
0500021	00023	05	Blackford	Big Lick Creek	CR 100E	1955	SB	6	N	7	0000	2000	2	O
0600156	00232	06	Boone	GOLDSBERRY CREEK	RAY Rd(ABANDONED)	1920	SB	3	N	6	0000	0000	3	A
0700001	00001	07	Brown	LICK CREEK	LICK CREEK Rd	1920	SB	6	N	8	0000	1997	2	A
0700010	00012	07	Brown	BEAN BLOSSOM CREEK	GATESVILLE Rd	1970	PCIB	6	N	8	0000	0000	2	O
0700011	00014	07	Brown	BEAN BLOSSOM CREEK	HELMSBURG Rd	1959	CRCS	6	N	9	0000	0000	2	O
0700012	00015	07	Brown	BEAN BLOSSOM CREEK	BEAN BLOSSOM Rd	1940	SB	5	N	8	0000	0000	2	O
0700016	00021	07	Brown	BEAN BLOSSOM CREEK	SPRUNICA Rd	1975	PCBB	7	N	9	0000	0000	2	O
0700025	00033	07	Brown	NORTH FORK SALT CREEK	GREEN VALLEY Rd	1915	SPT	3	N	5	0000	0000	2	A
0700026	00036	07	Brown	NORTH FORK SALT CREEK	BOND CEMETERY Rd	1908	STT	0	N	4	0000	0000	2	H
0700031	00042	07	Brown	GRAVEL CREEK	ELKINSVILLE Rd	1910	SPT	5	N	6	0000	1997	2	A
0700032	00043	07	Brown	MIDDLE FORK SALT CREEK	ELKINSVILLE Rd	1984	SB	5	N	9	0000	1997	2	A
0700042	00061	07	Brown	BR BEAN BLOSSOM CREEK	NORTH SHORE DRIVE	1935	RCS	6	N	6	1955	0000	2	A
0700047	00094	07	Brown	BR OF EAST FK SALT CREEK	HOOVER Rd	1931	SB	6	N	8	0000	0000	2	A
0700057	00104	07	Brown	HAMILTON CREEK	MT NEBO Rd	1935	SB	5	N	6	0000	0000	2	A
0700061	00109	07	Brown	INDIAN CREEK	BEAR CREEK Rd	1935	SB	7	N	4	0000	0000	2	A
0700064	00112	07	Brown	EAST BR SWEETWATER CREEK	MT MORIAH Rd	1925	SB	6	N	8	0000	0000	2	A
0700065	00114	07	Brown	N FK BEAN BLOSSOM CREEK	TURNER Rd	1925	CSB	5	N	9	2007	2000	2	A
0700067	00116	07	Brown	LICK CREEK	GREEN VALLEY Rd	1930	SB	5	N	6	0000	0000	2	A
0700070	00121	07	Brown	MT LIBERTY CREEK	VALLEY BRANCH Rd	1984	PCBB	5	N	9	0000	0000	2	O
0700076	00128	07	Brown	E FK BEAN BLOSSOM CREEK	GATESVILLE Rd	1969	PCIB	8	N	8	0000	0000	2	O
0700093	00147	07	Brown	GRAVEL CREEK	GRAVEL CREEK Rd	1979	SB	4	N	8	0000	0000	2	A
0800001	00002	08	Carroll	OLD ERIE CANAL	WASHINGTON ST	1901	SA	6	N	5	0000	1998	3	O
0800020	00024	08	Carroll	BRANCH OF WILDCAT CR	PRINCE WILLIAM RD	1977	PCBB	8	N	6	2003		3	A
0800026	00036	08	Carroll	BACHELOR RUN	CR 300 EAST	1931	ESB	5	N	6	0000		3	A
0800030	00039	08	Carroll	WILDCAT CREEK	CR 50 EAST	1870	TCB	7	N	6	1999		3	O
0800036	00048	08	Carroll	BACHELOR RUN	CR 150 SOUTH	1965	PCBB	5	N	7	0000		3	A
0800037	00049	08	Carroll	RIDENOUR DITCH	CR 400 EAST	1984	PCBB	8	N	6	0000		3	O
0800124	00050	08	Carroll	BRANCH LITTLE DEER CR	CR 100 NORTH	1987	PCBB	8	N	7	0000		3	O
0800045	00065	08	Carroll	LITTLE DEER CREEK	CR 300 NORTH	1978	PCBB	7	N	6	0000		3	O
0800058	00081	08	Carroll	PAINT CREEK	CR 150 EAST	1905	SPT	4	N	4	0000		3	O
0800064	00087	08	Carroll	DEER CREEK	MERIDIAN Rd	1930	SPT	6	N	6	2007		3	O
0800066	00089	08	Carroll	BACHELOR RUN	CR 350 NORTH	1969	PCBB	7	N	7	0000		3	O
0800075	00098	08	Carroll	ROCK CREEK	CR 100 EAST	1966	PCBB	7	N	7	0000		3	O
0800081	00108	08	Carroll	RATTLESNAKE CREEK	CR 925 WEST	1969	PCBB	7	N	6	0000		3	O
0800087	00114	08	Carroll	RATTLESNAKE CREEK	TOWPATH Rd	1900	PCBB	4	N	5	1962		3	A

List of 668 Scour Critical County Bridges

Data as of: 07-02-2009

RECORD KEY	8S_BRNO	3	CO_NAME	6	7	27a	43_english	60_RATING	62_RATING	71_WATERWAY	106a	106b	113e	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
0800092	00120	08	Carroll	BRIDGE CREEK	CR 200 NORTH	1939	PCBB	8	N	7	2006		3	O
0800093	00121	08	Carroll	DEER CREEK	CR 300 NORTH	1898	STT	6	N	6	0000	1995	3	A
0800094	00122	08	Carroll	WABASH RIVER	BICYCLE BRIDGE RD	1982	KCSG	6	N	8	0000		3	F
0800100	00125	08	Carroll	ROBINSON BRANCH	OLD SR 25	1939	CTB	5	N	4	0000		3	O
0800126	00129	08	Carroll	ROBINSON BRANCH	CR 600 WEST	1960	SB	3	N	6	0000		3	O
0800102	00134	08	Carroll	ROCK CREEK	CR 50 WEST	1965	PCBB	7	N	6	0000		3	A
0800105	00142	08	Carroll	WABASH RIVER	CR 250 WEST	1938	CCTB	6	N	5	2003		3	O
0800107	00144	08	Carroll	LITTLE ROCK CREEK	CR 1025 NORTH	1930	SA	6	N	5	0000		3	O
0800127	00152	08	Carroll	LAKE FREEMAN CANAL	QUIETWATER RD	1999	PCBB	8	N	8	0000		3	A
0800113	00153	08	Carroll	BACHELOR RUN	CR 250 SOUTH	1910	ESB	6	N	6	0000	2004	3	A
0800118	00160	08	Carroll	PAINT CREEK	CR 300 EAST	1952	ESB	6	N	6	0000		3	A
0800119	00161	08	Carroll	BURNETTS CREEK	TOWPATH RD	1840	MAUF	N	5	5	0000		3	B
0800129	00502	08	Carroll	RYAN APPLETON DITCH	CR 750 NORTH	1940	ESB	5	N	5	0000		3	O
1100130	00157	11	Clay	Knob Creek	CR 700 E	1915	RCG	3	N	4	0000	0000	3	A
1100137	00164	11	Clay	Muddy Branch	CR 800 E	1940	RCS	3	N	4	0000	0000	2	A
1200042	00036	12	Clinton	S Fork WILDCAT Creek	CR 950W	1925	RCAUF	N	4	4	0000	2007	2	A
1200077	00078	12	Clinton	SWAMP Creek	CR 400N	1923	RCAUF	N	3	4	0000	0000	3	A
1200089	00093	12	Clinton	KILMORE Creek	CR 1250E	1923	RCARS	4	N	7	1982	0000	3	A
1200091	00095	12	Clinton	KILMORE Creek	CR 1150E	1923	RCAUF	N	3	5	0000	0000	3	A
1300022	00029	13	Crawford	SLICK RUN	PILOT KNOB Rd	1935	SB	4	N	5	1989	1995	2	A
1300041	00077	13	Crawford	OTTER CREEK	HATFIELD Rd	1935	SB	2	N	6	1975	0000	2	O
1300050	00099	13	Crawford	OTTER CREEK	OLD FELKER Rd	1928	SB	3	N	2	0000	0000	2	A
1300055	00109	13	Crawford	DOG CREEK	BEAN LANE	1928	SB	3	N	6	1996	0000	2	O
1300088	00134	13	Crawford	REASOR BRANCH	ZELLER Rd	1940	SB	3	N	4	0000	0000	2	O
1300089	00135	13	Crawford	BRUSHY CREEK	MOUNT STERLING RD	1960	SB	3	N	5	0000	0000	2	O
1400007	00020	14	Daviess	Weaver Ditch	CR 1600N	1986	PCBB	7	N	6	0000	0000	2	O
1400009	00023	14	Daviess	VERTREES Ditch	CR 700E	1940	RCS	5	N	7	0000	1993	2	A
1400185	00030	14	Daviess	HAYES Ditch	CR 800E	1976	MPAUF	N	7	6	0000	0000	3	A
1400017	00035	14	Daviess	HAYES Ditch	CR 700E	1935	SB	6	N	6	1981	1993	2	O
1400189	00090	14	Daviess	Branch of FIRST Creek	CR 1400N	1977	MPAUF	N	7	6	0000	0000	2	A
1400049	00092	14	Daviess	NORTH Fork PRAIRIE Creek	CR 1200E	1910	SB	6	N	4	1977	0000	2	O
1400063	00108	14	Daviess	Branch of SMOTHERS Creek	CR 1000N	1993	PCB	7	N	7	0000	0000	2	A
1400066	00113	14	Daviess	BARNES Branch	CR 875N	1990	PCB	7	N	4	0000	0000	3	A
1400191	00118	14	Daviess	NORTH Fork PRAIRIE Creek	CR 700E	1992	SRRFC	7	N	7	0000	0000	2	O
1400113	00173	14	Daviess	EAGAN Ditch	CR 350N	1990	PCBB	5	N	6	0000	0000	2	O
1400137	00220	14	Daviess	Branch of PRAIRIE Creek	CR 250N	1988	RCS	7	N	7	0000	1993	2	A
1400203	00303	14	Daviess	Branch of EAGANDitch	CR 350E	1986	SB	7	N	4	0000	0000	2	A
1400206	00307	14	Daviess	DITCH to PRAIRIE Creek	CR 300W	1991	PCB	7	N	7	0000	1993	2	A
1400314	00314	14	Daviess	Branch of VEALES Creek	CR 300S	1940	PCB	8	N	6	1997	0000	3	A
1400315	00315	14	Daviess	WEST Fork SUGAR Creek	CR 600S	1940	SG	5	N	4	1998	0000	3	A
1400319	00319	14	Daviess	Branch of FIRST Creek	CR 1600N	1940	PCB	8	N	4	2002	0000	3	A
1500004	00005	15	Dearborn	BR. OF LAUGHERY CREEK	LAUGHERY CREEK Rd	1920	CRCG	4	N	4	0000	0000	2	A
1500006	00009	15	Dearborn	HAYES BRANCH	SANGAMAW Rd	1975	CSB	5	N	2	0000	0000	2	A
1500065	00072	15	Dearborn	EAST FORK TANNERS CREEK	ST. PETERS Rd	1940	RCG	5	N	6	1970	0000	2	A
1500069	00076	15	Dearborn	LITTLE JAMISON CREEK	JAMISON Rd	1940	RCG	4	N	5	1993	0000	2	A
1500070	00077	15	Dearborn	TAYLOR CREEK	WOLIUNG Rd	1917	RCGT	5	N	6	0000	0000	2	A
1500103	00210	15	Dearborn	BRANCH OF HOGAN CREEK	CROSS Rd	1960	RCAUF	N	4	3	0000	0000	2	A
1500108	00215	15	Dearborn	BRUSH FORK TANNERS CREEK	BRUSH FORK Rd	1999	CRCS	5	N	4	0000	0000	2	A
1600002	00002	16	Decatur	CLIFTY CREEK	CR 421N	1935	CRCA	5	N	6	0000	2002	3	A
1600001	00006	16	Decatur	SAND CREEK	CR 300 N	1992	PCBB	5	N	5	0000	0000	3	A
1600005	00011	16	Decatur	COBBS FORK SAND CREEK	CR 200S	1940	CTB	7	N	7	0000	0000	3	A
1600006	00015	16	Decatur	BRANCH MUDDY FORK SAND	CR 250S	2000	SB	8	N	7	0000	0000	3	O
1600007	00016	16	Decatur	WYALOOSING CREEK	CR 1100S	1972	PCBB	4	N	5	0000	0000	3	C
1600008	00017	16	Decatur	WYALOOSING CREEK	CR 700W	1969	CPCBB	5	N	3	0000	2007	3	F
1600010	00019	16	Decatur	FLATROCK RIVER	CR 750N	1904	STT	3	N	7	0000	1997	3	C
1600012	00022	16	Decatur	POND BRANCH	CR 700W	1975	PCBB	6	N	7	0000	0000	3	A
1600013	00023	16	Decatur	CLIFTY CREEK	CR 700W	1890	SA	7	N	7	1992	1988	3	A
1600017	00027	16	Decatur	BUCK RUN	CR 240NW	1975	PCBB	5	N	5	0000	0000	3	A

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RECORD KEY	8b_BRNO	3	CO_NAME	6	7	27a	43_englishTYPE	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
1600020	00030	16	Decatur	POND BRANCH	CR 200N	1930	PCBB	7	N	8	1990	0000	3	A
1600023	00034	16	Decatur	NORTH BR CLIFTY CREEK	CR 650N	1980	MPAUF	N	7	4	0000	0000	3	L
1600024	00035	16	Decatur	BRANCH FLATROCK RIVER	CR 350W	1994	PCBB	8	N	8	0000	0000	3	O
1600029	00040	16	Decatur	BRANCH OF CLIFTY CREEK	CR 400N	1925	PCBB	6	N	6	1990	0000	3	A
1600033	00045	16	Decatur	MUDDY FORK SAND CREEK	CR 100W	1899	SA	5	N	4	0000	0000	3	C
1600034	00046	16	Decatur	MIDDLE FORK CLIFTY CREEK	CR 225E	1890	SA	5	N	4	0000	1988	3	C
1600037	00049	16	Decatur	BR MIDDLE FORK CLIFTY CR	CR 640N	1994	PCBB	6	N	7	0000	0000	3	A
1600042	00054	16	Decatur	SAND CREEK	CR 200E	1975	PCBB	5	N	7	0000	0000	3	C
1600192	00055	16	Decatur	RIGHTHAND FORK-SALT CRK	CR 550N	1984	MPAUF	N	5	5	0000	0000	3	L
1600045	00057	16	Decatur	SOUTH BR CLIFTY CREEK	CR 400E	1975	PCBB	5	N	7	0000	0000	3	C
1600047	00059	16	Decatur	FORK OF SALT CREEK	CR 300N	1965	CRCS	7	N	7	0000	0000	3	O
1600050	00063	16	Decatur	MUDDY FORK SAND CREEK	CR 120E	1979	PCBB	4	N	6	0000	0000	3	A
1600052	00065	16	Decatur	SOUTH BR CLIFTY CREEK	CR 200E	1979	PCBB	6	N	6	0000	0000	3	A
1600054	00070	16	Decatur	SALT CREEK	CR 50N	1915	SG	4	N	6	0000	0000	3	A
1600055	00071	16	Decatur	SALT CREEK	CR 950E	1930	RCS	5	N	4	0000	0000	3	A
1600057	00073	16	Decatur	FORK SALT CREEK	CR 150N	1910	RCA	6	N	6	0000	0000	3	A
1600184	00074	16	Decatur	SALT CREEK	CR 850E	1976	MPAUF	N	6	5	0000	1993	3	L
1600194	00076	16	Decatur	COBBS FORK	CR 500E	1999	SB	8	N	8	0000	0000	3	A
1600058	00077	16	Decatur	FORK OF TUB CREEK	CR 850E	1935	PCBB	6	N	7	1988	0000	3	A
1600059	00078	16	Decatur	TUB CREEK	CR 300S	1994	SB	8	N	6	0000	0000	3	A
1600195	00079	16	Decatur	TRIBUTARY TO TUB CREEK	CR 850 E	2004	MPAUF	N	8	7	0000	0000	3	L
1600061	00080	16	Decatur	SALT CREEK	CR 1000E	1895	SA	3	N	5	0000	0000	3	C
1600069	00089	16	Decatur	LOST FORK SAND CREEK	CR 180E	1890	SA	4	N	4	0000	1999	3	C
1600072	00092	16	Decatur	BRANCH COBBS FORK SAND	CR 300E	2000	SB	8	N	8	0000	0000	3	A
1600073	00093	16	Decatur	COBBS FORK SAND CREEK	CR 300E	1986	MPAUF	N	2	4	0000	0000	3	L
1600074	00094	16	Decatur	COBBS FORK SAND CREEK	CR 600S	1920	RCS	3	N	3	0000	0000	3	A
1600076	00096	16	Decatur	LOST FORK SAND CREEK	CR 300S	1996	PCBB	4	N	5	0000	0000	3	A
1600077	00097	16	Decatur	VERNON FORK MUSCATATUCK	CR 300S	1995	SB	5	N	7	0000	0000	3	A
1600079	00099	16	Decatur	LOST FORK SAND CREEK	CR 60E	1993	PCBB	7	N	7	0000	0000	3	A
1600081	00101	16	Decatur	SQUARE RUN	CR 820S	1985	PCBB	5	N	6	0000	0000	3	A
1600084	00105	16	Decatur	SQUARE RUN	CR 250E	1899	SA	6	N	7	1999	0000	3	C
1600086	00107	16	Decatur	VERNON FORK MUSCATATUCK	CR 550E	1916	PCBB	7	N	5	1986	2002	3	A
1600092	00114	16	Decatur	MUDDY FORK SAND CREEK	CR 220SW	1890	SA	5	N	4	0000	1986	3	C
1600093	00115	16	Decatur	SAND CREEK	CR 500S	1915	STT	4	N	7	0000	0000	3	C
1600094	00116	16	Decatur	SAND CREEK	CR 400S	1890	SA	4	N	5	0000	1996	3	C
1600095	00117	16	Decatur	MUDDY FORK SAND CREEK	CR 400S	1899	SA	6	N	8	1992	0000	3	C
1600097	00119	16	Decatur	FALL FORK CLIFTY CREEK	CR 700W	1992	PCBB	7	N	8	0000	0000	3	A
1600098	00120	16	Decatur	FALL FORK CLIFTY CREEK	CR 550W	1920	RCS	5	N	4	0000	2005	3	A
1600099	00122	16	Decatur	FALL FORK CLIFTY CREEK	CR 350W	1994	PCBB	8	N	8	0000	0000	3	O
1600100	00123	16	Decatur	FALL FORK CLIFTY CREek	CR 450W	1925	RCS	5	N	4	0000	0000	3	A
1600107	00131	16	Decatur	CLIFTY CREEK	CR 200S	1912	CSG	5	N	5	0000	0000	3	A
1600108	00132	16	Decatur	MIDDLE FORK CLIFTY CREEK	CR 200S	1992	PCBB	6	N	6	0000	0000	3	A
1600110	00134	16	Decatur	BR FALL FORK CLIFTY CR	CR 600W	1890	SA	4	N	5	0000	0000	3	C
1600111	00135	16	Decatur	BR FALL FORK CLIFTY CR	CR 480S	1885	SA	8	N	6	2000	0000	3	C
1600112	00136	16	Decatur	BR FALL FORK CLIFTY CR	CR 750W	1925	RCA	4	N	5	0000	0000	3	A
1600113	00137	16	Decatur	BR FALL FORK CLIFTY CR	CR 700W	1890	SA	3	N	3	0000	1995	3	C
1600114	00138	16	Decatur	BR FALL FORK CLIFTY CR	CR 700W	1890	MPAUF	N	7	3	1987	0000	3	L
1600115	00139	16	Decatur	FALL FORK CLIFTY CREEK	CR 600S	1974	PCBB	7	N	6	0000	2005	3	C
1600117	00141	16	Decatur	FALL FORK CLIFTY CREEK	CR 1000W	1923	RCA	4	N	6	0000	0000	3	A
1600119	00143	16	Decatur	BEAR CREEK	CR 900W	1979	PCBB	3	N	6	0000	0000	3	A
1600187	00144	16	Decatur	WYALOOSING CREEK	CR 580W	1984	MPAUF	N	7	4	0000	0000	3	L
1600123	00148	16	Decatur	BEAR CREEK	CR 850S	1975	PCBB	5	N	6	0000	0000	3	A
1600124	00149	16	Decatur	BEAR CREEK	CR 850S	1975	PCBB	5	N	7	0000	0000	3	T
1600125	00150	16	Decatur	BEAR CREEK	CR 850S	1984	PCBB	4	N	4	0000	0000	3	A
1600128	00153	16	Decatur	MILLSTONE CREEK	CR 1150S	1930	RCS	3	N	4	0000	1994	3	A
1600129	00154	16	Decatur	WYALOOSING CREEK	CR 600W	1994	PCBB	7	N	6	0000	0000	3	A
1600130	00155	16	Decatur	WYALOOSING CREEK	CR 600W	1975	PCBB	5	N	3	0000	0000	3	C
1600135	00163	16	Decatur	RATTAIL CREEK	CR 1400S	1925	RCA	4	N	5	0000	0000	3	A

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RECORD KEY	8I_BRNO	2	CO_NAME	6	7	27a	43_emptor	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
1600136	00164	16	Decatur	TURNOVER CREEK	CR 1250S	1930	SB	6	N	5	1993	1998	3	A
1600137	00165	16	Decatur	MILLSTONE CREEK	CR 1250S	1920	ESB	4	N	4	0000	0000	3	C
1600138	00166	16	Decatur	FORK OF SAND CREEK	CR 220SW	1994	SB	5	N	5	0000	0000	3	O
1600140	00169	16	Decatur	PENTHER CREEK	CR 1100S	1983	MPAUF	N	7	6	0000	0000	3	L
1600141	00170	16	Decatur	ROCK CREEK	CR 1100S	1920	ESB	3	N	3	0000	0000	3	A
1600142	00171	16	Decatur	ROCK CREEK	CR 150W	1998	PCBB	6	N	4	0000	0000	3	A
1600143	00172	16	Decatur	ROCK CREEK	CR 200W	1975	PCBB	3	N	4	0000	2001	3	A
1600151	00180	16	Decatur	JORDAN CREEK	CR 150E	1890	SA	5	N	4	0000	0000	3	C
1600152	00181	16	Decatur	SQUARE RUN	CR 950S	1996	PCBB	6	N	8	0000	0000	3	A
1600153	00182	16	Decatur	PENTHER CREEK	CR 60E	1994	PCBB	8	N	7	0000	0000	3	O
1600154	00183	16	Decatur	PENTHER CREEK	CR 900S	1985	PCBB	7	N	6	0000	0000	3	A
1600157	00186	16	Decatur	POND BRANCH	CR 240NW	1975	MPAUF	N	6	4	0000	1991	3	L
1600158	00188	16	Decatur	MUDDY FORK SAND CREEK	CR 240NW	1890	SA	4	N	4	1995	0000	3	C
1600171	00212	16	Decatur	BRANCH FALL FORK CLIFTY	CR 500W	1930	SB	7	N	5	0000	0000	3	A
1600175	00215	16	Decatur	GAS CREEK	KESSLER BOULEVARD	1997	PCBB	7	N	8	0000	0000	3	A
1600182	00233	16	Decatur	MILLSTONE CREEK	POPLAR St	1997	SB	5	N	4	0000	0000	3	A
1600183	00234	16	Decatur	MILLSTONE CREEK	WEST St	1971	RCS	7	N	6	0000	0000	3	A
1600176	00235	16	Decatur	GAS CREEK	NORTH St	1930	PCBB	5	N	6	1990	0000	3	C
1600177	00236	16	Decatur	GAS CREEK	CENTRAL Ave	1930	ESB	5	N	5	0000	0000	3	A
1600180	00239	16	Decatur	GAS CREEK	WASHINGTON St	1935	RCS	5	N	6	0000	0000	3	C
1600202	00240	16	Decatur	GAS CREEK	BARACHEL LANE	1975	PCBB	7	N	7	0000	0000	3	O
1600186	00251	16	Decatur	BEAR CREEK	CR 800W	1978	MPAUF	N	5	7	0000	0000	3	L
1800002	00002	18	Delaware	PIPE CREEK	CR 950 N	1920	PCBB	3	N	5	1975	0000	3	O
1800196	00016	18	Delaware	BIG LICK CREEK	CR 1275 N	1960	MPAUF	N	0	4	0000	0000	2	L
1800201	00053	18	Delaware	EAGLE BRANCH CREEK	CR 300 W	1983	PCBB	6	N	6	0000	0000	3	E
1800091	00109	18	Delaware	WILLIAMS CREEK	CR 456 W	1970	PCBB	8	N	6	0000	0000	3	E
1800115	00135	18	Delaware	BELL CREEK	CR 400 S	1961	CRCS	4	N	5	0000	0000	3	G
1800118	00138	18	Delaware	YORK PRAIRIE CREEK	CR 750 W	1983	CRCS	7	N	7	0000	0000	3	O
1800136	00161	18	Delaware	WHITE RIVER	CR 170 S	1902	STT	3	N	7	0000	2005	3	O
1800157	00194	18	Delaware	NO NAME CREEK	CR 200 W	1960	MPAUF	N	4	4	0000	0000	3	L
1800519	00196	18	Delaware	NO NAME CREEK	CR 200 W	1960	MPAUF	N	6	6	0000	0000	3	L
1800164	00204	18	Delaware	WILLIAMS CREEK	CR 200 W	1930	ESB	3	N	5	1975	0000	3	O
1800170	00213	18	Delaware	NO NAME CREEK	CR 325 W	1938	PCBB	6	N	5	1984	1991	3	O
1800173	00244	18	Delaware	MUNCIE CREEK	INDIANA Ave	1940	KSB	5	N	6	1987	0000	3	O
1800179	00502	18	Delaware	BUCK CREEK	GHARKEY St	1961	CRCS	6	N	7	0000	0000	3	O
1900015	00019	19	Dubois	MILL CREEK	PORTERSVILLE Rd	1964	RCS	6	N	8	0000	0000	3	A
1900033	00041	19	Dubois	DILLON CREEK	CUZCO-NORTON Rd	1960	PCB	7	N	5	0000	0000	2	A
2000015	00127	20	Elkhart	Christina Creek	CR 4	1967	PCBB	5	N	8	0000	0000	2	A
2000023	00141	20	Elkhart	Baugo Creek	CR 3	1964	PCBB	6	N	8	0000	0000	2	A
2000027	00145	20	Elkhart	Baugo Creek	CR 26	1959	PCBB	7	N	6	1979	0000	2	A
2000042	00168	20	Elkhart	Pine Creek	CR 19	1959	PCBB	7	N	7	1986	1990	2	A
2000087	00256	20	Elkhart	Baugo Creek	CR 36	1959	PCBB	4	N	6	0000	0000	2	A
2000117	00309	20	Elkhart	Swoveland Ditch	CR 19	1960	PCBB	5	N	7	1985	0000	2	A
2000131	00326	20	Elkhart	Elkhart River	CR 127	1963	PCBB	6	N	8	0000	0000	2	A
2100020	00025	21	Fayette	WILLIAMS CREEK	CR 300 NORTH	1938	MPA	4	N	7	0000	0000	3	O
2100086	00043	21	Fayette	BRANCH OF WILLIAMS CREEK	WILLIAMS Rd	1976	MPAUF	N	4	6	0000	0000	3	L
2100087	00082	21	Fayette	VILLAGE CREEK	CR 150 EAST	1950	MPAUF	N	3	3	0000	0000	3	L
2300021	00023	23	Fountain	MILL CREEK	CR 300 WEST	1967	PCBB	4	N	7	0000	0000	2	F
2300085	00108	23	Fountain	TURKEY RUN	CR 325 EAST	1920	RCA	3	N	4	0000	0000	2	O
2300087	00110	23	Fountain	DRY RUN	CR 425 EAST	1910	RCS	4	N	6	0000	0000	2	O
2300090	00116	23	Fountain	GRAHAM CREEK	CR 100 NORTH	1955	SB	5	N	5	0000	0000	3	O
2300110	00140	23	Fountain	BIG SHAWNEE CREEK	CR 140 EAST	1930	RCA	4	N	6	0000	0000	3	O
2300116	00149	23	Fountain	OPOSSUM HOLLOW	CR 600 EAST	1910	RCB	3	N	4	0000	0000	2	O
2300157	00169	23	Fountain	DRY RUN	OLD US 41	1924	RCB	4	N	6	0000	0000	2	O
2300134	00205	23	Fountain	BRANCH OF DRY RUN	CR 250 EAST	1920	RCS	4	N	6	0000	0000	2	O
2600009	00016	26	Gibson	MCCARTY DITCH	BLAIR Rd	1963	SDT	3	N	4	0000	0000	2	A
2600012	00019	26	Gibson	MCCARTY DITCH	CHERRY GR. Rd	1977	SB	4	N	7	0000	0000	2	A
2600014	00022	26	Gibson	HULL DITCH	BINGHAM Rd	1941	SB	4	N	6	2005	0000	2	A

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RECORD KEY	8I_BRNO	3	CO_NAME	6	7	27a	43_english	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
2600016	00024	26	Gibson	DITCH TO PATOKA RIVER	D. STORMONT Rd	1980	SB	5	N	6	0000	0000	2	A
2600017	00025	26	Gibson	OLD MCCARTY DITCH	BURKETT Rd	1972	SB	6	N	4	0000	0000	2	A
2600018	00026	26	Gibson	BLAIR DITCH	BURKETT Rd	1971	PCBB	5	N	5	0000	1995	2	A
2600043	00067	26	Gibson	INDIAN CREEK	CARITHERS Rd	1965	SB	4	N	4	0000	0000	3	A
2600046	00070	26	Gibson	MORROW LATERAL	SADDLE CLUB Rd	1968	SB	5	N	6	0000	0000	2	A
2600058	00085	26	Gibson	YELLOW CREEK	MT. TABOR Rd	1900	RCA	3	N	4	1968	0000	2	A
2600065	00098	26	Gibson	HIGGINBOTHAM DITCH	CR 450S	1974	SB	4	N	5	0000	0000	2	A
2600080	00116	26	Gibson	DRAINAGE DITCH	E. LEGIER Rd	1972	SB	5	N	7	0000	0000	2	A
2600083	00119	26	Gibson	BRANCH TO MUDDY FORK	OSBORNE Rd	1939	SB	3	N	5	0000	0000	2	A
2600088	00124	26	Gibson	MUDDY FORK DITCH	KEUSTER Rd	1985	SB	5	N	5	0000	0000	2	A
2600090	00126	26	Gibson	INDIAN CREEK	TAFT TOWN Rd	1969	SB	4	N	4	0000	0000	3	A
2600093	00129	26	Gibson	INDIAN CREEK	J. CARITHERS Rd	1976	SB	5	N	6	0000	0000	3	A
2600094	00130	26	Gibson	PIGEON CREEK	WHITE Rd	1974	SB	4	N	7	0000	0000	2	A
2600106	00147	26	Gibson	KELLEE BR W. FORK KEG CR	CR 350S	1960	SB	5	N	6	0000	0000	2	A
2600108	00150	26	Gibson	WEST FORK OF KEG CREEK	SEED TICK Rd	1902	SB	4	N	6	1985	0000	2	A
2600110	00156	26	Gibson	KEG CREEK	OATSVILLE Rd	1925	SB	5	N	4	1983	0000	2	A
2600308	00158	26	Gibson	BRANCH LOST CREEK	N. KING Rd	1964	SB	5	N	5	0000	0000	2	A
2600114	00161	26	Gibson	FRANCISCO LATERAL #1	MARION KING Rd	1920	RCA	5	N	4	1969	0000	2	A
2600116	00163	26	Gibson	WEST FORK OF KEG CREEK	JOHN RHENFF Rd	1969	SB	2	N	6	0000	0000	2	A
2600117	00164	26	Gibson	EAST FORK KEG CREEK	CR 950E	1974	SB	3	N	6	0000	0000	2	A
2600130	00179	26	Gibson	EAST FORK OF KEG CREEK	CREEK Rd	1935	SB	4	N	6	0000	0000	2	A
2600146	00203	26	Gibson	BARREN CREEK	COOK Rd	1939	SB	2	N	5	0000	0000	2	A
2600163	00222	26	Gibson	LOEFLER DITCH	CR 500W	1901	SB	4	N	4	1982	0000	2	A
2600166	00226	26	Gibson	BR. OF W. FORK PIGEON CK	J.E. JOYCE Rd	1930	SB	4	N	4	1981	0000	2	A
2600170	00232	26	Gibson	MCGARY DITCH	W.H. MEADE Rd	1971	SB	4	N	5	0000	0000	2	A
2600171	00235	26	Gibson	WEST FORK PIGEON CREEK	GENUNG Rd	1954	PCBB	5	N	4	1975	0000	2	D
2600172	00236	26	Gibson	JORDAN CREEK	GUALENTY Rd	1971	SB	5	N	5	0000	0000	2	A
2600178	00245	26	Gibson	TOOPS DITCH	CR 200E	1930	SB	5	N	4	0000	0000	2	A
2600180	00248	26	Gibson	PIGEON CREEK	STUNKEL Rd	1970	SB	5	N	4	0000	0000	2	A
2600186	00261	26	Gibson	BRANCH OF PIGEON CREEK	D. BUSING Rd	1973	SB	5	N	4	0000	0000	2	A
2600189	00264	26	Gibson	HURRICANE CREEK	EPPERSON Rd	1968	SB	4	N	5	0000	0000	2	A
2600192	00267	26	Gibson	PIGEON CREEK	CR 750S	1910	SB	5	N	5	1982	0000	3	A
2600196	00271	26	Gibson	WILDERMAN LATERAL	TOWNSHIP LINE Rd	1975	SB	5	N	4	0000	0000	2	A
2600197	00272	26	Gibson	SMITH FORK	W. MARTIN Rd	1976	SB	5	N	6	0000	0000	2	A
2600203	00278	26	Gibson	HALFMOON DITCH	CR 750S	1968	SB	4	N	5	0000	0000	2	A
2600205	00280	26	Gibson	SMITH FORK	H. CHRISTOPHER Rd	1992	SB	4	N	7	0000	0000	2	F
2600222	00302	26	Gibson	DONOHUE CREEK	V. LEMMERD Rd	1900	SB	5	N	7	1970	0000	2	A
2600223	00303	26	Gibson	SMITH FORK	LEMMERD Rd	1971	SB	5	N	6	0000	0000	3	A
2600234	00318	26	Gibson	BRANCH TO JORDAN CREEK	OWENSVILLE Rd	1976	SB	4	N	5	0000	0000	2	A
2600235	00319	26	Gibson	BRANCH TO JORDAN CREEK	OWENSVILLE Rd	1976	SB	5	N	4	0000	0000	2	A
2600237	00321	26	Gibson	MEUSES CREEK	YEAGER Rd	1920	SB	5	N	6	1983	0000	2	A
2600247	00338	26	Gibson	GOOSE CREEK	CR 625N	1962	SB	3	N	4	0000	0000	2	A
2600249	00340	26	Gibson	TRIPPET DITCH	STEELMAN CHAPEL RD	1964	SB	4	N	5	0000	0000	2	A
2600255	00355	26	Gibson	HURRICANE CREEK	CREVELE Rd	1969	SB	4	N	4	0000	0000	2	A
2600259	00359	26	Gibson	BRANCH HURRICANE CREEK	KIEL Rd	1901	SB	5	N	4	1984	0000	2	A
2600263	00364	26	Gibson	BRANCH OF PIGEON CREEK	NORDHORN Rd	1920	RCA	4	N	4	1970	0000	2	A
2600281	00400	26	Gibson	DITCH TO WHITE RIVER	CR 450W	1966	CSB	5	N	4	0000	0000	2	A
2600037	00513	26	Gibson	MOSIER DITCH	J. STEPHENSON Rd	1971	SB	4	N	5	0000	0000	2	A
2700049	00072	27	Grant	TRIBUTARY TO LUGAR CREEK	300 E. BETHLEHAM R	1952	CSB	3	N	3	0000	0000	2	A
2700059	00083	27	Grant	BRANCH OF WALNUT CREEK	CR 300 EAST	1955	PCBB	5	N	7	1986	1995	2	A
2700181	00189	27	Grant	TAYLOR CREEK	CR 900 WEST	1931	RCS	5	N	5	0000	0000	2	A
2700791	00791	27	Grant	BOOTS CREEK	14th St	1976	PCBB	5	N	5	1998	0000	2	A
2800002	00008	28	Greene	RICHLAND CREEK	CR 1000 EAST	1899	PCBB	5	N	5	1969		2	C
2800010	00016	28	Greene	BRANCH BEECH CREEK	CR 200 NORTH	1950	SB	4	N	5	0000		2	A
2800023	00031	28	Greene	INDIAN CREEK	CR 35 NORTH	1905	PCB	6	N	5	1989		2	A
2800037	00049	28	Greene	CLIFTY CREEK	CR 750 EAST	1899	SRRFC	4	N	5	1985		2	A
2800038	00050	28	Greene	CLIFTY CREEK	CR 130 SOUTH	1945	SB	3	N	4	0000		2	A
2800041	00057	28	Greene	MITCHELL BRANCH	CR 1250 EAST	1950	SB	5	N	4	0000		2	A

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RECORD KEY	8b_BRNO	3	CO_NAME	6	7	27a	43_WIDTH	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
2800063	00089	28	Greene	STONE BRANCH	CR 725 SOUTH	1935	SB	3	N	4	0000		2	A
2800073	00108	28	Greene	RICHLAND CREEK	CR 175 SOUTH	1907	STT	0	N	4	0000		2	A
2800074	00110	28	Greene	PLUMMER CREEK	CR 150 EAST	1910	SPT	4	N	4	0000	2000	2	A
2800079	00118	28	Greene	KELLY BRANCH	CR 440 NORTH	1945	KSB	3	N	4	0000		2	A
2800089	00126	28	Greene	BRANCH WHITE RIVER	CR 100 SOUTH	1950	CSB	4	N	5	0000		2	A
2800107	00149	28	Greene	MUD CREEK	CR 1500 WEST	1935	SB	3	N	3	0000		2	A
2800150	00213	28	Greene	BRANCH FIRST CREEK	CR 200 WEST	1940	ESB	4	N	7	0000		2	A
2800159	00229	28	Greene	BUCK CREEK	CR 50 NORTH	1945	SB	5	N	6	0000		2	A
2800160	00230	28	Greene	HAMILTON DITCH NORTH	CR 1200 WEST	1905	SPT	0	N	5	0000		2	A
2800168	00240	28	Greene	FOUR MILE CREEK	CR 400 SOUTH	1915	SPT	4	N	5	0000		2	A
2800182	00301	28	Greene	CAMP CREEK	CR 500 NORTH	1945	SB	3	N	5	0000		2	A
2800188	00306	28	Greene	INDIAN CREEK	CR 90 NORTH	1950	SB	6	N	5	2000		2	A
2900062	00068	29	Hamilton	DUCK CREEK	281st St EAST	1945	SB	5	N	6	0000	0000	2	A
2900120	00133	29	Hamilton	STONY CREEK	186th St EAST	1916	RCRF	3	N	4	0000	0000	2	A
2900134	00147	29	Hamilton	COOL CREEK	161st St EAST	1940	RCG	5	N	4	0000	0000	2	A
2900136	00149	29	Hamilton	KIRKENDALL CREEK	156th St EAST	1950	RCRF	5	N	5	0000	0000	2	A
2900224	00150	29	Hamilton	STONY CREEK	UNION CHAPEL Rd	1915	SB	6	N	4	1998	0000	2	A
2900138	00151	29	Hamilton	STONY CREEK	CUMBERLAND Rd	1916	CRCRF	5	N	5	0000	0000	2	A
3000150	00030	30	Hancock	NAMELESS CREEK	CR 100 N	1985	RCS	5	N	5	0000	0000	2	E
3000295	00059	30	Hancock	BUCK CREEK	CR 200 N	1975	PCBB	5	N	4	0000	1993	2	A
3100034	00055	31	Harrison	INDIAN CREEK	LICKFORD BRIDGE RD	1920	SPT	6	N	6	2008	0000	3	C
3200235	00025	32	Hendricks	J.W. PHILLIPS DITCH	WHITELICK DRIVE	1974	MPA	2	N	4	0000	0000	3	L
3800190	00008	38	Jay	Wabash River	CR 700E	1950	STT	7	N	5	0000	2005	3	O
3800193	00009	38	Jay	Overflow of Wabash River	CR 750E	1972	PCBB	6	N	5	0000	0000	3	O
3800214	00011	38	Jay	Schindler Creek	CR 650E	2005	PCBB	8	N	7	0000	0000	3	O
3800187	00014	38	Jay	J.J. Adams Ditch	CR 800N	1972	PCBB	5	N	4	0000	0000	3	O
3800175	00062	38	Jay	Limberlost Creek	CR 850E	1927	RCA	7	N	4	0000	0000	3	O
3800094	00094	38	Jay	Wenry Ditch	CR 400W	1940	SB	5	N	6	0000	0000	3	O
3800040	00146	38	Jay	Mclaughins Ditch	CR 600E	1960	PCBB	5	N	6	1966	0000	3	O
3800073	00155	38	Jay	Golf Brook	CR 200S	1968	PCBB	7	N	8	0000	0000	3	O
3800081	00157	38	Jay	Butternut Creek	CR 200S	1970	PCBB	6	N	7	0000	1993	3	O
3800132	00169	38	Jay	Brooks Creek	Como Rd	1909	PCBB	7	N	6	1979	2007	3	O
3800056	00183	38	Jay	Salamonie River	CR 700E	1971	PPCS	4	N	5	0000	0000	3	O
3800064	00194	38	Jay	Little Salamonie River	CR 400S	1969	PCBB	5	N	7	0000	0000	3	O
3800077	00195	38	Jay	Butternut Creek	CR 450S	1976	PCBB	5	N	5	0000	0000	3	O
3800078	00196	38	Jay	Butternut Creek	CR 400S	1971	PCBB	7	N	6	0000	1993	3	A
3800065	00211	38	Jay	Lawson Ditch	CR 500S	1971	PCBB	2	N	6	0000	0000	3	O
3800066	00214	38	Jay	Little Salamonie River	CR 500S	1970	PCBB	7	N	6	0000	0000	3	O
3800072	00225	38	Jay	Branch Of Lawson Ditch	Boundary Pk	1970	PCBB	4	N	7	0000	0000	3	O
3800068	00226	38	Jay	Branch Of Lawson Ditch	CR 650S	1970	PPCS	4	N	5	0000	0000	3	O
3800004	00240	38	Jay	Halfway Creek	CR 700S	1970	PCBB	5	N	6	0000	0000	2	F
3800017	00256	38	Jay	Days Creek	Como Rd	1969	PCBB	5	N	7	0000	0000	3	O
3800012	00257	38	Jay	Beason Fox Ditch	CR 800S	1930	SB	5	N	6	0000	0000	3	O
3800212	00604	38	Jay	Redkey Run	George & High Sts.	1933	RCS	5	N	6	0000	0000	3	O
3900096	00001	39	Jefferson	CROOKED CREEK	FIFTH St	1935	RCA	3	N	6	0000	0000	3	A
3900101	00006	39	Jefferson	CROOKED CREEK	WEST St	1975	PCBB	8	N	7	0000	1993	3	O
3900047	00093	39	Jefferson	W FK INDIAN-KENTUCK CR	CR 950N	1976	PCBB	5	N	7	0000	0000	3	A
4000006	00006	40	Jennings	NETTLE CREEK	CR 660 NORTH	1940	PCBB	4	N	4	1985		3	A
4200143	00017	42	Knox	POND CREEK	WHEATLAND Rd	1930	SB	4	N	4	1988	1999	3	A
4200161	00066	42	Knox	BRANCH OF ROBERSON DITCH	LONG Rd	1945	SB	5	N	3	0000		3	A
4200272	00130	42	Knox	MARIAH CREEK	OLD U.S. 41	1960	PCBB	5	N	8	0000		2	A
4200004	00165	42	Knox	BUSSERON CREEK	OIL FIELD Rd	1895	STT	3	N	7	0000		2	A
4200100	00212	42	Knox	KESSINGER DITCH	BLACK Rd	1920	SRRFC	5	N	6	1993		2	A
4200265	00265	42	Knox	FRICK DITCH	CR 800S	1920	SB	5	N	4	1990		2	A
4200038	00272	42	Knox	VIEKE DITCH	BULLDOG Rd	1955	SG	5	N	5	0000		3	A
4200062	00306	42	Knox	VIEKE DITCH	CLAIRE Rd	1950	SG	5	N	5	1999		3	A
4200119	00308	42	Knox	MUDDY RUN	ALTHOFF Rd	1940	SB	5	N	4	1987		2	A
4200054	00333	42	Knox	WILSON CREEK	RIDGLEYVILLE Rd	1950	SB	5	N	2	0000		2	A

List of 668 Scour Critical County Bridges

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RECORD KEY	ID_BRNO	3	CO_NAME	6	7	27A	43_eng/sm	60_RATING	62_RATING	71_WATERWAY	106a	106b	113d	113e
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
4200069	00337	42	Knox	LONG POND	RIDGLEYVILLE Rd	1945	SB	5	N	4	0000		2	A
4200290	00405	42	Knox	BRANCH OF SNAPP CREEK	BRUCEVILLE Rd	1960	PCBB	6	N	7	0000		2	A
4600008	00014	46	LaPorte	Trail Creek	CR 400N	1951	RCS	4	N	5	0000	0000	2	A
4600009	00018	46	LaPorte	W Branch of Trail Creek	CR 875W	1946	PCBB	4	N	2	1987	0000	2	A
4600030	00054	46	LaPorte	Branch of Topper Ditch	CR 1025W	1965	PCBB	4	N	5	0000	0000	2	A
4600069	00158	46	LaPorte	Hunsley Ditch	Old US 30	1930	RCG	6	N	5	0000	0000	2	A
4600106	00189	46	LaPorte	Machler Ditch	CR 2300S	1982	PCBB	6	N	7	0000	0000	2	A
4600135	00277	46	LaPorte	Trail Creek	CR 400N	1976	RCS	5	N	7	0000	0000	3	E
4600136	00278	46	LaPorte	E Branch of Trail Creek	CR 600W	1938	PCBB	6	N	4	1992	0000	2	A
4700011	00036	47	Lawrence	S FORK LEATHERWOOD CREEK	LOCUST RD	1992	PCBB	6	N	6	0000	1993	3	O
4700125	00100	47	Lawrence	SALT CREEK	OLD STATE RD 158	1906	STT	3	N	6	0000		3	C
4700102	00135	47	Lawrence	LEATHERWOOD CREEK	SOUTH I ST	1959	CSB	4	N	4	0000	1999	3	A
4800163	00601	48	Madison	LITTLE DUCK Creek	South M St	1930	RCAUF	N	4	7	0000	2001	2	A
4800169	00607	48	Madison	BIG DUCK Creek	South A St	1935	RCA	3	N	7	1981	0000	2	A
4800172	00610	48	Madison	BIG DUCK Creek	North C St	1940	RCA	3	N	5	0000	0000	2	A
4900608	0108L	49	Marion	BUSHES Run	MARSH Rd	1993	RCS	7	N	3	0000	0000	3	E
4900037	0801F	49	Marion	EAGLE Creek Reservior	56TH St	1956	PCBB	5	N	8	1984	0000	3	G
4900147	1808L	49	Marion	FALL Creek	39TH St	1925	RCA	2	N	5	0000	0000	3	K
4900656	4614L	49	Marion	LITTLE BUCK Creek	ORINOCO Dr	1965	PCB	5	N	8	0000	1995	3	G
5100006	00022	51	Martin	SULPHUR CREEK	MT. OLIVE RD	1890	SPT	5	N	4	1993	0000	3	C
5100011	00034	51	Martin	SEED TICK CREEK	TOMMY CRANE RD	1967	PCB	3	N	7	0000	0000	3	A
5100024	00049	51	Martin	BEAVER CREEK	DEEP CUT LAKE RD	1921	SPT	6	N	6	1995	0000	3	C
5100030	00059	51	Martin	BOGGS CREEK	JOE HART RD	1913	SPT	4	N	4	1993	0000	3	C
5100034	00067	51	Martin	FRIENDS CREEK	CHARLIE BUTCHER RD	1910	SPT	6	N	3	1992	0000	3	A
5100040	00073	51	Martin	LOST RIVER	RUSK RD	1890	SPT	3	N	4	0000	0000	3	C
5200021	00027	52	Miami	WEESAU CREEK	CR 750 N	1930	CRCS	2	N	4	1983	0000	3	A
5200025	00033	52	Miami	STREAM 1 EEL RIVER	CR 150 W	1930	RCAUF	N	3	5	0000	0000	3	A
5300125	00002	53	Monroe	GRIFFY Creek	BUSINESS 37N	1940	RCA	7	N	8	0000	0000	2	O
5300004	00006	53	Monroe	Branch of BUCK Creek	Old SR 37N	1998	PCBB	8	N	8	0000	0000	2	D
5300024	00033	53	Monroe	JACKS DEFEAT Creek	MT TABOR Rd	1965	SB	4	N	5	0000	0000	2	O
5300035	00046	53	Monroe	BEANBLOSSOM Creek	KINSER Pike	1964	PCBB	4	N	5	0000	0000	3	S
5300044	00062	53	Monroe	Branch of RICHLAND Creek	GARRISON CHAPEL Rd	1965	PCBB	7	N	7	0000	0000	2	O
5300067	00090	53	Monroe	Branch of POPCORN Creek	POPCORN Rd	1986	PCBB	7	N	6	0000	0000	2	O
5300068	00091	53	Monroe	POPCORN Creek	POPCORN Rd	1987	PCBB	7	N	6	0000	0000	2	O
5300069	00092	53	Monroe	LITTLE INDIAN Creek	ROCK EAST Rd	1988	PCBB	7	N	8	0000	0000	2	O
5300074	00097	53	Monroe	CLEAR Creek	KETCHAM Rd	1974	PCIB	7	N	8	0000	0000	2	O
5300141	00153	53	Monroe	STOUT Creek	ACUFF Rd	1990	RCAUF	N	7	8	0000	0000	2	O
5300091	00182	53	Monroe	Br of JACKS DEFEAT Creek	Old SR 46	1930	RCS	6	N	6	0000	0000	2	O
5300092	00183	53	Monroe	Branch of RICHLAND Creek	OARD Rd	1965	PCBB	6	N	7	0000	0000	2	O
5300113	00626	53	Monroe	Br of N Fork SALT Creek	FRIENDSHIP Rd	1986	PCBB	6	N	6	0000	0000	2	O
5300115	00630	53	Monroe	BABY Creek	BABY CREEK Rd	1994	RCBUF	N	7	6	0000	0000	2	L
5300107	00905	53	Monroe	JORDAN RIVER	ALLEN St	1930	RCB	4	N	8	0000	0000	2	C
5400058	00072	54	Montgomery	BRANCH OF WALNUT CREEK	CR 450 EAST	1998	RCBUF	N	6	8	0000	0000	3	L
5400108	00142	54	Montgomery	BRANCH OF SUGAR CREEK	CR 250 SOUTH	1970	CRCS	4	N	6	0000	0000	3	A
5400167	00237	54	Montgomery	HONEY CREEK	MAIN St	1985	PCBB	3	N	7	0000	0000	2	A
5400197	00512	54	Montgomery	SUGAR CREEK	LAFAYETTE Ave	1925	RCA	4	N	6	1950	0000	2	O
5500059	00067	55	Morgan	BRANCH LAMBS CREEK	BIG HURRICAINE Rd	1925	RCGT	3	N	5	0000		3	A
5500120	00144	55	Morgan	MCCRACKEN CREEK	WHITE LICK Rd	1912	PCBB	3	N	5	1987		2	A
5600100	00159	56	Newton	GUSHWA DITCH	CR 1100 SOUTH	1950	SB	0	N	2	0000	0000	0	A
5600130	00199	56	Newton	COUNTY DITCH	CR 1700 SOUTH	1965	SB	5	N	6	0000	0000	2	O
5600114	000K3	56	Newton	KENT DITCH	KENT St (OLD 41)	1930	RCG	4	N	7	0000	0000	2	A
5900106	00023	59	Orange	Buffalo Creek	CR 150 N	1920	RCS	4	N	6	0000	0000	2	A
5900022	00032	59	Orange	Lick Creek	CR 425 W	1940	RCS	3	N	2	0000	0000	3	A
5900026	00036	59	Orange	Carters Creek	CR 550 N	1935	ESB	5	N	4	0000	0000	3	A
5900116	00057	59	Orange	Branch French Lick Creek	CR 450 S	1967	SB	5	N	4	1971	0000	3	A
5900047	00064	59	Orange	Bran Upper Sulphur Creek	CR 240 S	1920	SPT	5	N	2	0000	2003	3	A
5900051	00069	59	Orange	Log Creek	CR 225 W	1936	SB	3	N	3	1975	0000	2	A
5900060	00080	59	Orange	Patoka River	CR 600 S	1922	SB	4	N	2	0000	0000	2	A

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Data as of: 07-02-2009

RECORD KEY	8b_BRNO	3	CO_NAME	6	7	27a	43_english	60_RATING	62_RATING	72_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisal	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
5900068	00096	59	Orange	Hogs Defeat Creek	CR 675 S	1922	SB	4	N	3	0000	0000	3	A
5900072	00105	59	Orange	Bacon Creek	CR 90 E	1922	SB	3	N	3	0000	0000	3	A
5900078	00136	59	Orange	Cane Creek S	CR 500 S	1958	SB	2	N	4	0000	1989	2	A
5900084	00144	59	Orange	Youngs Creek	CR 550 S	1935	SB	5	N	5	0000	0000	3	A
5900109	00159	59	Orange	Branch of Dillon Creek	CR 375 S	1974	PCBB	6	N	6	0000	1989	3	F
6100091	00106	61	Parke	N Branch OTTER Creek	CR 700E	1900	RCG	5	N	4	0000	0000	3	A
6100129	00176	61	Parke	ROARING Creek	CR 350E	1995	PCBB	8	N	6	0000	0000	3	A
6200017	00021	62	Perry	Deer Creek	CR 5	1972	SB	6	N	5	0000	1999	2	A
6200036	00063	62	Perry	Tige Creek	CR 90	1940	PCB	5	N	4	1993	0000	2	A
6200105	00083	62	Perry	Hurricane Creek	CR 196	1915	SPT	1	N	4	0000	0000	1	A
6200053	00097	62	Perry	Branch of Oil Creek	CR 38	1945	PCB	5	N	5	1997	0000	2	A
6200054	00098	62	Perry	Oil Creek	CR 119	1948	SPT	6	N	4	0000	0000	3	A
6200066	00114	62	Perry	Lutgring Branch Kraus Ck	CR 16	1925	SB	5	N	5	1965	0000	3	A
6200083	00131	62	Perry	Little Deer Creek	CR 19	1960	SB	5	N	6	0000	0000	2	A
6200087	00135	62	Perry	Branch of Poison Creek	CR 7	1940	SB	6	N	6	2001	0000	2	A
6200088	00136	62	Perry	Poison Creek	CR 7	1940	CSB	4	N	5	0000	0000	2	A
6200089	00137	62	Perry	Little Oil Creek	CR 133	1963	SB	6	N	7	0000	0000	3	O
6200090	00138	62	Perry	Little Oil Creek	CR 133	1960	SB	5	N	4	0000	0000	3	O
6200100	00148	62	Perry	Winding Branch	CR 447	1940	SG	4	N	6	1983	0000	2	A
6200110	00160	62	Perry	Jubin Creek	CR 40	1950	SB	5	N	6	1979	0000	2	A
6300003	00004	63	Pike	HARBIN CREEK	CR 975 W	1986	SRRFC	5	N	3	0000	0000	2	A
6300024	00027	63	Pike	BRANCH CONGER CREEK	CR 400 N	1930	SB	6	N	6	0000	0000	2	A
6300031	00037	63	Pike	BRANCH MUD CREEK	CR 355 E	1923	SB	4	N	8	1993	0000	2	A
6300038	00045	63	Pike	TRIB. TO WHITE RIVER	CR 500 N	1940	SB	5	N	3	0000	0000	2	A
6300051	00065	63	Pike	BRANCH BONE CREEK	CR 900 E	1940	SB	8	N	5	2006	0000	2	A
6300053	00067	63	Pike	BRANCH LICK CREEK	CR 650 E	1940	SB	5	N	6	1993	2007	2	A
6300064	00085	63	Pike	BRANCH FLAT CREEK	CR 125 S	1950	SB	5	N	7	0000	0000	2	A
6300170	00149	63	Pike	BRANCH PATOKA RIVER	CR 425 S	1932	SB	5	N	3	0000	0000	2	A
6300105	00159	63	Pike	BRANCH SUGAR CREEK	CR 1250 S	1935	SB	6	N	6	1989	0000	2	A
6300160	00246	63	Pike	SOUTH FORK PATOKA RIVER	CR 325 W	1876	ITT	4	N	5	0000	0000	2	A
6300125	00267	63	Pike	BRANCH BIG CREEK	CR 625 W	1950	SB	6	N	7	1994	0000	2	A
6500198	00056	65	Posey	BLACK RIVER	EASTVILLE Rd	1899	SPT	5	N	3	0000	2001	2	Q
6500002	00059	65	Posey	BLACK RIVER	CR 300E	1917	SPT	5	N	3	0000		2	A
6500192	00074	65	Posey	BRANCH OF CANEY CREEK	HIGH SCHOOL Rd	1972	PCBB	6	N	5	0000	2005	2	A
6500098	00085	65	Posey	LONG RUN	HARMONY TWP. Rd	1983	PCBB	5	N	6	0000		2	A
6500003	00283	65	Posey	BRANCH BLACK RIVER	WILSEY Rd	1965	SB	5	N	7	0000		2	A
6500255	00327	65	Posey	BIG CREEK	KREITENSTEIN Rd	1910	STT	3	N	4	0000		3	A
6700003	00003	67	Putnam	BRANCH BIG RACCOON CREEK	CR 1350 NORTH	1930	ESB	3	N	6	0000	0000	3	A
6700022	00035	67	Putnam	BRANCH NORTH RAMP CREEK	CR 100 EAST	1930	ESB	3	N	6	0000	0000	3	A
6700029	00042	67	Putnam	SOUTH RAMP CREEK	CR 25 WEST	1920	RCGT	2	N	6	0000	0000	3	A
6700051	00065	67	Putnam	MILLER CREEK	CR 400 NORTH	1935	RCG	3	N	6	0000	0000	3	A
6700062	00076	67	Putnam	BLEDSOE BRANCH CREEK	CR 325 EAST	1925	ESB	3	N	4	0000	0000	3	A
6700093	00107	67	Putnam	BRANCH LEATHERMAN CREEK	CR 675 WEST	1930	ESB	3	N	6	0000	0000	3	A
6700124	00139	67	Putnam	BIG WALNUT CREEK	CR 125 NORTH	1910	STT	0	N	0	1984	0000	1	A
6700138	00159	67	Putnam	BIG WALNUT CREEK	UN-NAMED TRAIL	1929	RCAOS	0	N	7	0000	0000	1	S
6700202	00240	67	Putnam	CLEAR CREEK	CR 800 NORTH	1925	ESB	3	N	6	0000	0000	3	A
6700205	00250	67	Putnam	SOUTH RAMP CREEK	CR 850 NORTH	1925	ESB	3	N	6	0000	0000	3	A
6700211	00257	67	Putnam	BYRD BRANCH CREEK	CR 775 WEST	1930	ESB	4	N	5	0000	0000	3	A
6800001	00005	68	Randolph	BRANCH OF BUSH CREEK	CR 500N	1983	PCBB	6	N	6	0000	0000	3	A
6800002	00006	68	Randolph	BUSH CREEK	CR 800W	1975	PCBB	6	N	3	0000	0000	3	A
6800005	00009	68	Randolph	MISSISSINEWA RIVER	CR 1150W	1972	CPCIB	7	N	8	0000	0000	3	O
6800007	00016	68	Randolph	BEAR CREEK	CR 300N	1925	RCS	3	N	5	0000	0000	3	A
6800010	00019	68	Randolph	BEAR CREEK	CR 500N	1963	SB	6	N	7	0000	0000	3	C
6800012	00021	68	Randolph	ELKHORN CREEK	CR 500N	1910	ESB	5	N	6	0000	0000	3	A
6800015	00024	68	Randolph	BEAR CREEK	CR 600N	1982	PCBB	7	N	7	0000	1994	3	C
6800019	00029	68	Randolph	BRANCH OF FETID CREEK	CR 200W	1935	RCS	7	N	6	0000	0000	3	A
6800021	00031	68	Randolph	SUGAR CREEK	MARTIN St	1975	RCS	5	N	6	0000	0000	3	E
6800024	00034	68	Randolph	BUSH CREEK	CR 750N	1915	SPT	5	N	7	0000	2000	3	A

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RECORD KEY	8b_BRNO	3	CO_NAME	6	7	27a	43_english	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisal	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
6800035	00049	68	Randolph	BEAR CREEK	CR 450W	1905	SPT	6	N	7	0000	1986	1	C
6800038	00052	68	Randolph	CLEAR CREEK	CR 100E	1935	SB	3	N	3	0000	0000	3	A
6800042	00056	68	Randolph	CLEAR CREEK	CR 650N	1987	PCBB	8	N	6	0000	0000	3	O
6800044	00058	68	Randolph	O'BRIEN CREEK	CR 900N	1965	SB	7	N	7	0000	0000	3	O
6800049	00064	68	Randolph	MITCHELL DITCH	CR 700N	1930	RCS	3	N	5	0000	0000	3	A
6800053	00068	68	Randolph	LITTLE MISSISSINEWA	CR 800E	1965	SB	8	N	6	0000	0000	3	A
6800061	00077	68	Randolph	MILLER CREEK	CR 300E	1975	PCBB	4	N	6	0000	0000	3	A
6800236	00085	68	Randolph	WHITE RIVER	NORTH MAIN St	1950	CRCA	7	N	6	0000	0000	3	A
6800066	00087	68	Randolph	EIGHT MILE CREEK	CR 75N	1983	PCBB	6	N	6	0000	0000	3	A
6800070	00092	68	Randolph	MUD CREEK	CR 1200W	1985	PCBB	6	N	7	0000	0000	3	A
6800072	00094	68	Randolph	BRANCH OF WHITE RIVER	CR 100N	1940	RCS	5	N	6	0000	0000	3	A
6800073	00095	68	Randolph	BRANCH OF WHITE RIVER	SHORT St	1940	PCBB	4	N	5	1988	0000	3	A
6800079	00101	68	Randolph	DISMAL CREEK	CR 100S	1960	SB	7	N	7	0000	0000	3	A
6800083	00105	68	Randolph	LITTLE MISSISSINEWA	CR 400N	1974	SB	6	N	3	0000	0000	3	A
6800084	00106	68	Randolph	LITTLE MISSISSINEWA	CR 500N	1975	PCBB	5	N	5	0000	0000	3	A
6800085	00107	68	Randolph	MITCHELL DITCH	CR 900E	1940	RCS	5	N	6	1977	2000	3	A
6800006	00110	68	Randolph	BRANCH OF CAMPBELL CREEK	CR 1200W	1965	SB	8	N	4	0000	0000	3	A
6800089	00114	68	Randolph	LITTLE WHITE RIVER	CR 300S	1920	SPT	4	N	4	0000	0000	3	A
6800095	00121	68	Randolph	SUGAR CREEK	CR 150S	1975	PCBB	5	N	4	0000	0000	3	A
6800105	00131	68	Randolph	EIGHT MILE CREEK	CR 300W	1930	RCS	5	N	6	0000	0000	3	A
6800241	00133	68	Randolph	EIGHT MILE CREEK	CR 500W	1981	MPAUF	N	7	5	0000	2006	3	L
6800113	00142	68	Randolph	SALT CREEK	BASE LINE	1940	SB	5	N	4	0000	0000	3	A
6800115	00144	68	Randolph	MUD CREEK	BASE LINE	1940	ESB	6	N	5	0000	0000	3	A
6800116	00145	68	Randolph	CABIN CREEK	CR 400S	1960	CSB	4	N	6	0000	1999	3	O
6800121	00154	68	Randolph	LITTLE WHITE RIVER	CR 1150W	1910	SPT	4	N	5	0000	2001	3	A
6800125	00159	68	Randolph	HARSHMAN CREEK	CR 500E	1950	ESB	3	N	4	0000	0000	3	A
6800127	00161	68	Randolph	CABIN CREEK	CR 10N	1965	CSB	7	N	6	0000	0000	3	A
6800131	00165	68	Randolph	BRANCH OF WHITE RIVER	CR 200E	1940	RCS	5	N	5	0000	0000	3	A
6800139	00173	68	Randolph	POPLAR RUN	CR 400S	1940	RCS	6	N	5	0000	0000	3	A
6800144	00178	68	Randolph	LOW'S BRANCH	CR 600E	1982	PCBB	3	N	6	0000	2000	3	E
6800147	00181	68	Randolph	LITTLE WHITE RIVER	CR 600S	1975	PCBB	7	N	6	0000	0000	3	A
6800149	00183	68	Randolph	GREENVILLE CREEK	CR 500S	1940	ESB	5	N	4	0000	0000	3	A
6800151	00186	68	Randolph	SUGAR CREEK	CR 70W	1973	CRCS	6	N	7	0000	0000	3	O
6800153	00189	68	Randolph	LITTLE WHITE RIVER	CR 400S	1970	CSB	7	N	6	0000	0000	3	O
6800155	00192	68	Randolph	JORDAN CREEK	CR 700E	1968	SB	7	N	5	0000	0000	3	O
6800156	00193	68	Randolph	MISSISSINEWA RIVER	CR 700E	1967	CSB	7	N	5	0000	0000	3	O
6800165	00206	68	Randolph	LITTLE MISSISSINEWA	CR 260N	1975	RCS	6	N	7	0000	0000	3	A
6800167	00208	68	Randolph	WHITEWATER RIVER	CR 900S	1965	SB	4	N	5	0000	1998	3	A
6800169	00212	68	Randolph	LITTLE MISSISSINEWA	CR 250N	1960	SB	7	N	7	0000	1998	3	C
6800173	00217	68	Randolph	GREENS FORK	CR 700S	1935	PCBB	7	N	7	1988	0000	3	O
6800174	00218	68	Randolph	OWL CREEK	BASE LINE	1987	PCBB	7	N	6	0000	0000	3	O
6800177	00222	68	Randolph	PRICE DITCH	CR 650E	1930	RCS	7	N	3	0000	0000	3	A
6800178	00223	68	Randolph	DISMAL CREEK	CR 730E	1940	SB	5	N	4	0000	0000	3	A
6800240	00224	68	Randolph	GREENVILLE CREEK	CR 900E	1975	PCBB	6	N	7	0000	0000	3	O
6800181	00226	68	Randolph	GREENVILLE CREEK	CR 400S	1915	SPT	3	N	5	0000	2002	3	A
6800183	00228	68	Randolph	GREENVILLE CREEK	CR 690S	1940	RCS	3	N	6	0000	0000	3	A
6800185	00231	68	Randolph	LITTLE WHITE RIVER	CR 800S	1965	SB	7	N	7	0000	0000	3	A
6800186	00237	68	Randolph	NOLANDS FORK	CR 620E	1976	PCBB	5	N	7	0000	0000	3	C
6800199	00250	68	Randolph	MUD CREEK	CR 950S	1970	CPCSB	6	N	7	0000	0000	3	O
6800202	00252	68	Randolph	WHITEWATER RIVER	CR 1000S	1972	PCBB	5	N	7	0000	0000	3	A
6800203	00254	68	Randolph	BRANCH OF GREENS FORK	CR 1000S	1930	RCS	3	N	3	0000	2003	3	A
6800206	00257	68	Randolph	BLOOMINGPORT CREEK	CR 1000S	1938	PCBB	5	N	6	1988	0000	3	A
6800216	00283	68	Randolph	LOW'S BRANCH	CR 500N	1930	RCS	6	N	4	0000	0000	3	A
6800217	00284	68	Randolph	CABIN CREEK	CR 750W	1915	SPT	7	N	7	0000	1988	3	A
6800219	00286	68	Randolph	MARTINDALE CREEK	CR 700S	1930	RCS	5	N	3	0000	0000	3	A
6800226	00301	68	Randolph	BRANCH OF MISSISSINEWA	CR 800N	1930	RCS	2	N	4	0000	0000	3	A
6800227	00302	68	Randolph	MILLER CREEK	CR 500N	1940	ESB	5	N	4	0000	0000	3	A
6800229	00304	68	Randolph	SALT CREEK	CARL St	1940	ESB	5	N	5	0000	0000	3	A

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RECORD KEY	8c_BRNO	3	CO_NAME	6	7	27a	43_english	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
6800230	00305	68	Randolph	SALT CREEK	EAST SOUTH St	1940	CTB	4	N	6	0000	0000	3	A
6800233	00308	68	Randolph	SALT CREEK	SHORT St	1945	ESB	5	N	5	0000	0000	3	O
6800246	01001	68	Randolph	DISMAL CREEK	STATE LINE	1932	SB	6	N	6	0000	0000	3	C
6800249	01004	68	Randolph	O'CONNER DITCH	STATE LINE	1992	PCBB	8	N	7	0000	0000	3	O
6900009	00009	69	Ripley	Laughery Creek	Cavehill Rd	1910	RCA	5	N	4	0000	1991	3	O
6900013	00014	69	Ripley	Laughery Creek	Cavehill Rd	1920	STT	6	N	8	0000	0000	3	O
6900015	00016	69	Ripley	Indian-Kentuck Creek	CR 700S	1925	RCS	2	N	4	0000	0000	3	A
6900020	00021	69	Ripley	Big Creek	CR 710S	1995	SB	7	N	5	0000	1999	3	O
6900023	00024	69	Ripley	Big Graham Creek	CR 200S	2001	SB	8	N	5	0000	2008	3	F
6900026	00027	69	Ripley	Indian-Kentuck Creek	CR 350W	1930	RCS	5	N	4	0000	0000	3	O
6900028	00031	69	Ripley	Little Graham Creek	CR 350W	1980	PCBB	6	N	5	0000	0000	3	A
6900030	00036	69	Ripley	Little Graham Creek	Old Michigan Rd	1970	SRPUF	N	6	4	0000	1993	3	L
6900050	00067	69	Ripley	Laughery Creek	CR 650N	1976	PCIB	6	N	7	0000	0000	3	O
6900052	00069	69	Ripley	Little Graham Creek	CR 400W	1930	SB	4	N	5	1988	0000	3	O
6900053	00070	69	Ripley	Little Otter Creek	CR 650N	1885	SA	5	N	3	0000	0000	2	C
6900054	00072	69	Ripley	Leatherwood Creek	CR 500N	1910	SB	6	N	4	1987	1999	3	C
6900059	00077	69	Ripley	Little Otter Creek	Hopewell Rd	1972	PCIB	5	N	7	0000	1997	3	O
6900066	00084	69	Ripley	South Hogan Creek	CR 150N	1977	PCBB	6	N	4	0000	2005	3	E
6900069	00087	69	Ripley	Castators Creek	CR 250E	1974	PCIB	7	N	6	0000	1997	3	A
6900142	00090	69	Ripley	Ripley Creek	CR 750N	1962	SB	3	N	3	1987	0000	3	O
6900080	00103	69	Ripley	Ripley Creek	CR 1100N	1930	SB	6	N	6	1987	1994	3	O
6900081	00104	69	Ripley	Ripley Creek	CR 1150N	1900	SA	5	N	7	1974	0000	3	C
6900085	00107	69	Ripley	Little Laughery Creek	CR 1400N	1990	SB	6	N	4	0000	0000	3	O
6900088	00109	69	Ripley	Branch of Laughery Creek	CR 1050N	1970	PCBB	7	N	5	0000	0000	3	O
6900092	00112	69	Ripley	Tub Creek	CR 1300N	1890	SB	7	N	5	1986	0000	3	O
6900093	00113	69	Ripley	Walnut Fork	CR 1300N	1986	SB	4	N	2	0000	1999	3	O
6900101	00123	69	Ripley	Western Creek	Frontage Rd	1989	SB	7	N	7	0000	0000	3	A
6900103	00127	69	Ripley	Pipe Creek	CR 1425N	1991	SB	8	N	6	0000	0000	3	A
6900144	00128	69	Ripley	Pipe Creek	CR 910E	1950	MPAUF	N	4	5	0000	0000	3	L
6900104	00131	69	Ripley	Pipe Creek	Pipe Creek Rd	1989	PCBB	7	N	7	0000	0000	3	O
6900109	00133	69	Ripley	Vernon Fk Muscatatuck Rv	Brownstown Rd	1926	CRCG	2	N	6	0000	0000	3	A
6900113	00137	69	Ripley	Brush Creek	Hopewell Rd	1975	PCIB	6	N	5	0000	0000	3	A
6900131	00195	69	Ripley	Branch of Laughery Creek	CR 675N	1993	SB	4	N	4	0000	0000	3	A
6900135	00200	69	Ripley	Little Laughery Creek	CR 1450N	1992	SB	7	N	4	0000	0000	3	O
6900147	00202	69	Ripley	North Fork Graham Creek	CR 400W	1988	SB	2	N	3	0000	1999	3	A
6900148	00206	69	Ripley	Branch of Western Creek	Frontage Rd	1965	RCA	7	N	7	0000	0000	3	O
7000018	00020	70	Rush	THREE MILE CREEK	CR 1000 NORTH	1935	RCG	4	N	3	0000	1993	2	O
7000059	00064	70	Rush	BRANCH OF SHAWNEE CREEK	CR 800 EAST	1968	PCB	4	N	4	0000	0000	3	E
7000094	00105	70	Rush	MUD CREEK	CR 450 WEST	1930	RCGT	4	N	5	0000	0000	3	A
7000208	00117	70	Rush	BRANCH LITTLE BLUE RIVER	CR 500 NORTH	1930	RCA	3	N	7	0000	0000	3	A
7000135	00149	70	Rush	DEER CREEK	CR 450 SOUTH	1972	PCB	5	N	5	0000	0000	3	A
7000145	00159	70	Rush	BR. LITTLE FLATROCK RIV.	CR 365 EAST	1935	RCA	4	N	4	0000	0000	3	A
7000156	00170	70	Rush	N BRANCH OF CLIFTY CREEK	CR 450 EAST	1940	RCS	5	N	5	1988	0000	3	A
7000166	00181	70	Rush	N BRANCH OF CLIFTY CREEK	CR 250 EAST	1968	PCBB	4	N	8	0000	0000	3	C
7000173	00188	70	Rush	LITTLE FLATROCK	NORTH RAILROAD St	1901	STT	3	N	0	0000	0000	1	C
7000210	00265	70	Rush	MCGINNIS DITCH	CR 525 SOUTH	1940	RCS	4	N	4	0000	0000	3	A
7200019	00028	72	Scott	BIG OX CREEK	LEOTA Rd	1962	SB	5	N	6	0000	1992	2	A
7200039	00050	72	Scott	WEDDELL CREEK	OAKHILL Rd	1965	SB	3	N	5	0000	0000	2	A
7200047	00060	72	Scott	STUCKER DITCH	SLATE CUT Rd	1960	SB	5	N	6	0000	1993	2	A
7300109	00121	73	Shelby	NORTH FORK LEWIS CREEK	CR 700 SOUTH	1920	RCGT	4	N	6	0000	0000	3	A
7300110	00122	73	Shelby	THOMPSON DITCH	CR 700 SOUTH	1920	RCGT	4	N	6	0000	0000	3	A
7400001	00002	74	Spencer	Creek to Ohio River	CR 650W	1990	MPAUF	N	3	4	0000		2	L
7400052	00055	74	Spencer	Honey Creek	CR 400N	1905	RCA	5	N	3	0000		3	A
7400078	00082	74	Spencer	Br E Fk Little Pigeon Cr	CR 200E	1905	RCGT	5	N	4	0000		3	A
7400241	00093	74	Spencer	Branch of Lake Drain	CR 700N	1930	RCS	4	N	5	1963		2	A
7400098	00103	74	Spencer	Branch of Huffman Ditch	CR 200W	1925	RCS	6	N	6	1993		2	A
7400106	00114	74	Spencer	Middle Fk Crooked Creek	CR 1350N	1910	RCS	5	N	4	0000	1997	3	A
7400203	00269	74	Spencer	Branch of Lake Drain	CR 250W	1920	RCS	4	N	3	0000		2	A

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RECORD KEY	8b_BRNO	3	CO_NAME	6	7	27a	43_english	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisal	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
7100084	00036	71	St. Joseph	POTATO CREEK	SMILAX Rd	1903	PCBB	7	N	7	1988	0000	3	A
7100007	00052	71	St. Joseph	GRIMES DITCH	BEECH Rd	1935	RCG	6	N	7	0000	0000	3	O
7100085	00057	71	St. Joseph	PINE CREEK	SPRUCE Rd	1960	PCBB	4	N	7	1985	0000	3	A
7100092	00058	71	St. Joseph	PINE CREEK	UNDERWOOD Rd	1925	RCG	5	N	7	0000	2002	3	A
7100089	00065	71	St. Joseph	YELLOW BANK CREEK	TYLER Rd	1930	PCBB	3	N	6	1973	2002	2	O
7100026	00132	71	St. Joseph	GRIMES DITCH	ELM Rd	1979	PCBB	6	N	7	0000	0000	3	G
7100052	00203	71	St. Joseph	ST. JOSEPH RIVER	MISHAWAKA Ave	1924	RCA	4	N	9	1987	0000	3	F
7100051	00205	71	St. Joseph	ST. JOSEPH RIVER	LOGAN St	1925	RCA	8	N	9	2006	0000	2	O
7100088	00207	71	St. Joseph	ST. JOSEPH R.& N.S. BLVD	TWYCKENHAM DRIVE	1929	RCAOS	5	N	9	1982	0000	2	O
7100047	00210	71	St. Joseph	ST. JOSEPH RIVER	LASALLE St	1907	RCA	8	N	9	2006	0000	3	O
7100119	00216	71	St. Joseph	ST. JOSEPH RIVER	ASH Rd	1929	RCAOS	6	N	9	1995	1995	3	O
7500074	00137	75	Starke	Yellow River	CR 300E	1965	PCBB	4	N	7	0000		2	G
7700001	00001	77	Sullivan	BRANCH OF SPENCER CREEK	CARLISLE-PLEAST.RD	1965	PCBB	6	N	6	0000	1991	2	A
7700005	00005	77	Sullivan	POLLARD DITCH	S COUNTY LINE Rd	1935	SB	4	N	7	0000		2	A
7700006	00006	77	Sullivan	BRANCH OF POLLARD DITCH	S COUNTY LINE Rd	1925	RCA	5	N	7	0000		2	A
7700007	00007	77	Sullivan	BRANCH OF MARIA CREEK	S COUNTY LINE Rd	1920	RCA	5	N	7	0000		2	A
7700008	00008	77	Sullivan	MARIA CREEK	S COUNTY LINE Rd	1989	SRRFC	5	N	8	0000	1991	2	A
7700014	00014	77	Sullivan	BRANCH OF MARIA CREEK	CR 900 SOUTH	1925	SB	6	N	7	2005		2	A
7700017	00017	77	Sullivan	BRANCH OF POLLARD DITCH	CR 625 EAST	1930	RCS	5	N	6	0000		2	A
7700027	00027	77	Sullivan	BRANCH OF MARIA CREEK	CR 500 EAST	1925	RCA	5	N	6	0000		2	A
7700045	00051	77	Sullivan	MARSH CREEK	CR 50 EAST	1930	SB	4	N	7	1998		2	A
7700057	00064	77	Sullivan	RODGERS DITCH	CR 750 SOUTH	1920	ESB	5	N	5	0000		2	A
7700066	00076	77	Sullivan	BRANCH OF RODGERS DITCH	CR 450 WEST	1935	RCG	4	N	5	0000		2	A
7700067	00077	77	Sullivan	BRANCH OF RODGERS DITCH	CR 550 SOUTH	1930	RCG	6	N	4	0000		2	A
7700068	00078	77	Sullivan	BRANCH OF RODGERS DITCH	COUNTY Rd	1930	RCG	4	N	4	0000		2	A
7700070	00080	77	Sullivan	BRANCH OF ROGERS DITCH	COUNTY Rd	1930	RCGT	5	N	6	0000		2	A
7700076	00086	77	Sullivan	LITTLE TURTLE CREEK	CR 625 WEST	1930	RCA	6	N	6	0000		2	A
7700080	00092	77	Sullivan	BRANCH LITTLE TURTLE CR.	CR 100 SOUTH	1935	RCG	5	N	4	0000		2	A
7700085	00098	77	Sullivan	BUSSERON CREEK	CR 300 SOUTH	1930	RCS	5	N	5	0000		2	A
7700095	00108	77	Sullivan	BRANCH OF BUSSERON CREEK	CR 100 WEST	1930	RCS	5	N	2	0000		2	A
7700096	00109	77	Sullivan	BRANCH OF BUSSERON CREEK	CR 100 WEST	1930	RCA	5	N	5	0000		2	A
7700100	00113	77	Sullivan	MIDDLE FORK CREEK	CR 250 EAST	1935	CRCG	5	N	5	0000		2	A
7700101	00114	77	Sullivan	BRANCH MIDDLE FORK CREEK	CR 550 SOUTH	1940	ESB	5	N	5	0000		2	A
7700103	00116	77	Sullivan	ROBBINS BRANCH	CR 250 EAST	1930	RCGT	6	N	5	0000		2	A
7700112	00125	77	Sullivan	BRANCH MIDDLE FORK CREEK	CR 500 SOUTH	1970	PCB	5	N	8	0000		2	A
7700118	00131	77	Sullivan	BRANCH MIDDLE FORK CREEK	CR 600 SOUTH	1935	RCS	5	N	4	0000		2	A
7700126	00140	77	Sullivan	BRANCH BUTTERMILK CREEK	CR 300 SOUTH	1935	RCA	5	N	5	0000		2	A
7700127	00141	77	Sullivan	BRANCH BUTTERMILK CREEK	CR 300 SOUTH	1935	RCG	5	N	5	0000		2	A
7700130	00147	77	Sullivan	UNNAMED DITCH	CR 350 SOUTH	1930	RCG	5	N	5	0000		2	A
7700135	00153	77	Sullivan	MUD CREEK	CR 800 EAST	1920	PCBB	3	N	5	1977		2	A
7700136	00158	77	Sullivan	BIG BRANCH CREEK	CR 525 EAST	1920	SPT	5	N	5	1977		2	A
7700140	00163	77	Sullivan	BIG BRANCH CREEK	CR 700 EAST	1935	RCA	4	N	5	0000	1991	2	A
7700141	00164	77	Sullivan	BRANCH BIG BRANCH CREEK	CR 700 EAST	1935	RCA	5	N	7	0000		2	A
7700143	00166	77	Sullivan	SULPHUR CREEK	CR 600 EAST	1925	RCA	4	N	5	0000		2	A
7700151	00178	77	Sullivan	BIG BRANCH CREEK	CR 825 EAST	1910	PCB	5	N	8	1992		2	A
7700158	00186	77	Sullivan	BRANCH OF BUSSERON CREEK	CR 400 EAST	1920	SB	5	N	5	1998		2	A
7700168	00196	77	Sullivan	MORRISON CREEK	CR 50 NORTH	1935	RCG	5	N	5	0000		2	A
7700173	00201	77	Sullivan	SUGAR CREEK	CR 500 NORTH	1976	PCBB	5	N	5	0000		2	A
7700179	00209	77	Sullivan	BUCK CREEK	JOHNSON St	1965	RCS	5	N	5	0000		2	A
7700180	00210	77	Sullivan	BRANCH OF BUCK CREEK	WASHINGTON St	1930	RCA	5	N	5	1950		2	A
7700193	00225	77	Sullivan	BRANCH CLEAR POND DITCH	CR 900 WEST	1920	RCA	5	N	5	0000		2	A
7700195	00228	77	Sullivan	CLEAR POND DITCH	CR 900 WEST	1920	RCA	5	N	5	0000		2	A
7700200	00236	77	Sullivan	BRANCH OF TURMAN CREEK	CR 425 NORTH	1923	RCS	5	N	5	0000		2	A
7700204	00241	77	Sullivan	BRANCH OF SUGAR CREEK	CR 500 NORTH	1924	RCG	5	N	5	0000		2	A
7700215	00257	77	Sullivan	PRAIRIE CREEK	CR 1150 NORTH	1925	RCA	4	N	3	0000		2	A
7700226	00273	77	Sullivan	WEST FORK TURMAN CREEK	CR 1100 NORTH	1965	RCS	5	N	6	0000		2	A
7700227	00274	77	Sullivan	BR. W. FORK TURMAN CREEK	TROTMAN Rd	1970	PCB	5	N	7	0000		2	A
7700230	00277	77	Sullivan	TURMAN CREEK	THUNDERBIRD POND R	1940	CRCGT	4	N	7	0000		2	A

List of 668 Scour Critical County Bridges

Data as of: 07-02-2009

RECORD KEY	8b_BRNO	3	CO_NAME	6	7	27a	43_english	60_RATING	62_RATING	71_WATERWAY	106a	106b	113a	113b
NBI Number	Bridge Number	Co #	County Name	Features Intersected	Facility Carried	Year Built	Main Structure Type	Substructure Condition	Culvert Rating	Waterway Appraisl	Year Rehab	Year Repaired	Scour Criticality	Foundation Type
7700236	00283	77	Sullivan	HANGER CREEK	CR 850 NORTH	1935	ESB	3	N	5	0000		2	A
7700240	00287	77	Sullivan	BRANCH OF TURMAN CREEK	CR 25 WEST	1976	ESB	5	N	7	0000		2	A
7700244	00291	77	Sullivan	WEST FORK BUSSERON CREEK	CR 1175 NORTH	1945	SB	5	N	7	0000		2	A
7700245	00293	77	Sullivan	WEST FORK BUSSERON CREEK	CR 950 NORTH	1916	RCA	5	N	5	0000		2	A
7700252	00300	77	Sullivan	BRANCH OF BUSSERON CREEK	CR 500 EAST	1945	RCG	5	N	5	0000		2	A
7700258	00306	77	Sullivan	WEST FORK BUSSERON CREEK	CR 375 EAST	1935	RCA	5	N	5	0000		2	A
7700267	00320	77	Sullivan	SULPHUR CREEK	CR 600 NORTH	1935	RCG	6	N	6	0000		2	A
7700286	00629	77	Sullivan	BRANCH OF SUGAR CREEK	CR 325 WEST	1930	PCBB	4	N	5	1970		2	A
7800016	00018	78	Switzerland	WILLOW CREEK	ALLENSVILLE RD	1925	PCBB	5	N	4	1999	0000	3	A
7800031	00037	78	Switzerland	GOOSE CREEK	GOOSE CREEK RD	1999	MPAUF	N	7	7	0000	0000	3	N
7800032	00038	78	Switzerland	GOOSE CREEK	UPPER GOOSE CK. RD	1900	ESB	3	N	4	1985	0000	2	A
7800038	00065	78	Switzerland	BRANCH LOST FORK CREEK	LOST FORK RD	1920	ESB	5	N	4	0000	1995	2	A
7800044	00071	78	Switzerland	UPPER INDIAN CREEK	LAKE GENEVA RD	1910	SB	5	N	5	1987	0000	2	C
8000009	00009	80	Tipton	WILBERT CRUM DITCH	CR 1050 WEST	1930	RCS	4	N	5	0000	0000	3	A
8000051	00059	80	Tipton	SCHLATER DITCH	CR 400 EAST	1940	RCG	4	N	6	0000	0000	3	A
8400172	00252	84	Vigo	CLEAR CREEK	OLD NATIONAL Rd	1919	RCA	4	N	6	0000	0000	2	A
8400205	00315	84	Vigo	THOMPSON DITCH	MARGARET AVE	1970	MPAUF	N	6	6	0000	0000	3	L
8600011	00014	86	Warren	W Branch of Kickapoo Cr	Mountz Rd	1920	RCS	3	N	3	1982	0000	3	A
8600012	00015	86	Warren	Branch of Kickapoo Creek	Winthrop Rd	1920	RCS	3	N	7	0000	0000	3	A
8600040	00049	86	Warren	Fall Creek	CR 100 NORTH	1896	RCG	3	N	5	1920	0000	3	C
8600089	00123	86	Warren	Dry Branch	CR 650 SOUTH	1908	ESB	3	N	5	0000	0000	2	A
8700009	00034	87	Warrick	SUGAR CREEK	SELVIN Rd	1992	SRRFC	4	N	7	0000	1996	3	A
8700015	00043	87	Warrick	PIGEON CREEK	SEVEN HILLS Rd	1910	SPT	0	N	0	0000	0000	1	A
8700016	00044	87	Warrick	TRIB OF PIGEON CREEK	SEVEN HILLS Rd	1920	SB	0	N	0	0000	0000	1	A
8800040	00060	88	Washington	BR. WEST FORK BLUE RIVER	HARRISTOWN Rd	1930	CRCS	3	N	8	0000	0000	2	A
8800054	00082	88	Washington	MIDDLE FORK BLUE RIVER	BLUE RIVER CHURCH	1975	PCBB	8	N	8	0000	0000	3	A
8900030	00036	89	Wayne	WHITE BROOK	ENDSLEY Rd	1912	RCAUF	N	4	2	0000	2001	2	A
8900141	00191	89	Wayne	WHITEWATER RIVER	HEINEY Rd	1935	RCG	4	N	4	0000	0000	3	O
9000097	00131	90	Wells	FLAT CREEK	CR 900N	1920	ESB	4	N	7	0000	1998	3	A
9100095	00122	91	White	Honey Creek	CR 025E	1958	PCBB	5	N	6	0000	0000	2	A

SCOUR PLAN-OF-ACTION

The following items should be included in a Scour Plan of Action (POA).

Pre Flood Actions:

1. Have a copy of the channel profile from the Routine Inspection on file and available that has several channel readings marked as well as a reference elevation on the deck, pier/abutment, or railings.
2. Identify a water elevation or mark on individual structure unit(s) that will trigger the POA. Also significant debris against pier during high water, or suspected movement of a substructure unit (or sag of the deck or railings) will trigger POA.
3. Identify person who will visit site during a flood
4. Identify person in charge who will close the bridge
5. Identify all substructure units to be inspected
6. List equipment to take to site including survey equipment or probing rod.
7. List criteria for immediate closure by field inspection staff such as overtopping roadway or superstructure or confirmed movement of a substructure unit.
8. Identify a detour route, if necessary, if bridge needs to be closed. Some county roads could require just road closed signs without a formal detour.
9. If plans are available then the high water and scour info could also be available.

During Flood Actions:

1. Periodic monitoring of identified structures until floodwaters lower.
2. Close bridge immediately if any of the criteria for immediate closure is met, (water reaches identified marks, settling or sags in deck/railing, approaches scouring, overtopping of approaches).
3. Implement detour route if bridge is closed.

Post Flood Actions:

1. Determine streambed elevations relative to established channel baseline.
2. Verify that substructure units have not been adversely affected, (undermined or settled) before opening.
3. Remove excess debris from channel.
4. Verify condition of required countermeasures.
5. Call in an Engineer if uncertain about the condition.

County Bridge Scour Form

COUNTY#: 20 CO_NAME: Elkhart BRIDGE#: 00258 NBI#: 2000087

Facility Carried: CR 36 Feature Intersected: Baugo Creek

Year Built: 1959 Year Reconstructed: 0000 EMERGENCY ROUTE: ☐

Average Daily Traffic: 00057 Year of ADT: 2006 Daily Truck Percent: 09

DATE OF POA: DATE POA UPDATED: UPDATE FREQ: 24

113a:	2	113A_SCOUR_STATUS:	Scour Critical-Immed Action
113b:	A	113B_SCOUR_FOUNDATION:	Concrete Spread Footing-no Piles
60_RATING:	4	60#SUBSTR COND:	LEACHING VERT. CRACKS
61_RATING:	5	61#CHANL COND:	FLOWS AGAINST E ABUT
		61#CHANL MATL:	NATURAL
62_RATING:	N	62#CULV COND:	N/A
71_WATERWAY:	6	71#WATER ADEQ:	OCCASIONAL OVERTOPPING OF APPROA

REASON FOR MONT:

TRIGGERS:

COUNTY CONTACT INFO:

COUNTER MEASURES RATING: N

COUNTER MEASURES Observations:

COUNTER MEASURES NEEDED:

DATE OF CROSS SECTION:

CROSS SECTION COMMENTS:

Soil Information:

Example Blank Form

SCOUR_HISTORY:	
FLOOD_HISTORY:	
MONITORING METHOD	
MONITOR TERMINATION CRITERIA:	
CLOSURE PLAN:	
DETOUR ROUTE:	
ROUTINE INSPECTION RECOMMENDATIONS:	
U/W INSPECTION RECOMMENDATIONS:	
WHY_REMOVED:	

Example Blank Form

Date	NBI-NUMBER	Water Surface Level	Velocity	FOLLOWUP REQ	OBSERVER

COUNTY#: 20 CO_NAME: Elkhart BRIDGE#: 00309 NBI#: 2000117

Facility Carried: CR 19 Feature Intersected: Swoveland Ditch

Year Built: 1960 Year Reconstructed: 1985 EMERGENCY ROUTE: ☐

CLOSURE PLAN:

DETOUR ROUTE:

ROUTINE INSPECTION RECOMMENDATIONS:

U/W INSPECTION RECOMMENDATIONS:

WHY_REMOVED:

Date	NBI-NUMBER	Water Surface Level	Velocity	FOLLOWUP REQ	OBSERVER
8/10/2009		2.00	3.0	☑	County Engineer

COUNTY#: 21 CO_NAME: Fayette BRIDGE#: 00025 NBI#: 2100020

Facility Carried: CR 300N Feature Intersected: WILLIAMS Creek

Year Built: 1938 Year Reconstructed: 0000 EMERGENCY ROUTE: ☐

Average Daily Traffic: 00039 Year of ADT: 2008 Daily Truck Percent: 05

DATE OF POA: 8/4/2009 DATE POA UPDATED: UPDATE FREQ: 24

113a:	3	113A_SCOUR_STATUS:	Scour Critical - Unstable
113b:	O	113B_SCOUR_FOUNDATION:	Unknown Type
60_RATING:	4	60#SUBSTR COND:	POOR - DEEP SPALLING
61_RATING:	4	61#CHANL COND:	MINOR DISTRESS
		61#CHANL MATL:	NO PROTECTION
62_RATING:	N	62#CULV COND:	-
71_WATERWAY:	7	71#WATER ADEQ:	ADEQUATE

REASON FOR MONT: Unknown Foundation Types - Assessed (Screened) as Scour Critical.

TRIGGERS:	1. 3.0 inches of rain in the water shed within a 24-hour period. 2. 1.5 inches of rain in a hour. 3. Water surface elevation within 3.0 feet of the bottom of the top of the arch ring - Span 3 (mid-span) at upstream (north) end of bridge
COUNTY CONTACT INFO:	1. County Engineer _____ Phone # _____ 2. County Road Supervisor_____ Phone #_____ 3. County Inspection Consultant_____ Phone#_____
COUNTER MEASURES RATING:	N
COUNTER MEASURES Observations:	None in place - vegetation only.
COUNTER MEASURES NEEDED:	1. Replace bridge with a one-span +- 100-foot span structure. 2. Clear channel and place Class-1 Rip Rap across entire channel, +- 25' up to down stream and under the bridge if replacement is not to be done within +- 5-years.
DATE OF CROSS SECTION:	8/4/2009
CROSS SECTION COMMENTS:	Cross-Sections taken at upstream and downstream copings, and 25-feet upstream, (measurements taken at pier noses and at quarter points of each span).
Soil Information:	Soils information is unknown - no plans found.
SCOUR_HISTORY:	Minor scour holes (+-12 inches deep) have been observed during routine inspections since early 1990's, at the upstream noses of Piers #3 & #4 (from west end of the bridge). Drift collects at upstream nose of all piers.
FLOOD_HISTORY:	Normal flow is under spans #3 & #4 (normal water depth is +- 2-feet deep = +- 8-feet below the bottom of the top of the arch ring - Span 3 (mid-span) at upstream (north) end of bridge. 1-2 Flood events per year when water depth is at +- 4-feet below the
MONITORING METHOD	Visual monitoring - check and document the water surface elevation under Span 3. Document drift collection on piers and in channel.
MONITOR TERMINATION CRITERIA:	Stop when the water surface elevation is 4-feet below the bottom of the top of the arch ring - Span 3. Return when the water level has returned to normal to check for scour. Monitor hourly when the water level is at or greater than 3-feet below top of
CLOSURE PLAN:	Place barricades and road closed signs at approaches at both ends of the bridge. Notify Bridge Inspection Team Leader & all proper County Officials.

DETOUR ROUTE:	West - take CO Rd 300N to 650 W to 400N.
ROUTINE INSPECTION RECOMMENDATIONS:	Take new Cross-sections at a minimum of every 2-years, at upstream and downstream copings, and 25-feet upstream, (measurements taken at pier noses and at quarter points of each span). Check for soils records on any near by projects.
U/W INSPECTION RECOMMENDATIONS:	N/A Bridge does not require an Underwater Inspection.
WHY_REMOVED:	N/A Check about costs for developing a hydraulic model to check for scour depth.

Example Completed Form

Date	NBI-NUMBER	Water Surface Level	Velocity	FOLLOWUP REQ	OBSERVER
8/10/2009		2.00	3.0	☑	County Engineer

COUNTY#: 21 CO_NAME: Fayette BRIDGE#: 00043 NBI#: 2100086

Facility Carried: WILLIAMS Rd Feature Intersected: Branch of WILLIAMS Creek

Year Built: 1976 Year Reconstructed: 0000 EMERGENCY ROUTE: ☐

Average Daily Traffic: 00025 Year of ADT: 2008 Daily Truck Percent: 05

DATE OF POA: DATE POA UPDATED: UPDATE FREQ: 24

113a:	3	113A_SCOUR_STATUS:	Scour Critical - Unstable
113b:	L	113B_SCOUR_FOUNDATION:	None - Under Fill
60_RATING:	N	60#SUBSTR COND:	-
61_RATING:	5	61#CHANL COND:	DEBRIS BUILDUP
		61#CHANL MATL:	RIPRAP
62_RATING:	4	62#CULV COND:	POOR -DEFLECTED, CORR.
71_WATERWAY:	6	71#WATER ADEQ:	MARGINAL

REASON FOR MONT:

TRIGGERS:

U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: **ACTION**: National Bridge Inspection Standards – Scour Evaluations and Plans of Action for Scour Critical Bridges (Reply Due: February 29, 2008)

Date: January 4, 2008

In Reply Refer To: HIBT-20

/s/ Original Signed by
From: King W. Gee
Associate Administrator for Infrastructure

To: Associate Administrator for RD&T
Directors of Field Services
Resource Center Director
Division Administrators

The purpose of this memorandum is to request your assistance towards ensuring that State and local agencies (referenced herein as bridge owners) complete the scour evaluation of their bridges over waterways (riverine and tidal). Also, we request your assistance towards ensuring that bridge owners develop and implement a Plan of Action (POA) for each bridge identified as scour critical to meet the requirement set forth in the National Bridge Inspection Standards (NBIS) regulation, 23 CFR 650.313(e)(3).

Status of Bridge Scour Evaluations and POAs for Scour Critical Bridges:

Bridge owners have been working for several years towards the evaluation of their bridges over waterways to determine foundation vulnerability against stream instability and scour. To date, about 93 percent of these bridges have been evaluated. We must, however, make sure that all bridges over waterways are evaluated for their vulnerability to stream instability and scour. As of August 2007, bridge owners reported on their National Bridge Inventory (NBI) data submission a total of 34,900 bridges over waterways that still remain to be evaluated as for their scour vulnerability. These are bridges that have been coded 6, T, or Null for Item 113 of the NBI. The FHWA established a target date of January 1997 for completing all scour evaluations by memorandum dated July 15, 1991; however, as the NBI data shows, we still have work to do to complete this important component of the NBIS. Table 1 presents the number of bridges over waterways on the National Highway System (NHS) and the non-NHS that still need a scour evaluation. Another 67,039 bridges over waterways identified by bridge owners as having unknown foundations remain to be evaluated for their scour vulnerability as of August 2007. We will address the subject of unknown foundations, including a process developed by the FHWA's Office of Bridge Technology to identify bridge foundations characteristics under a separate memorandum.

Table 1 – Number of Bridges over Waterways Needing a Scour Evaluation			
Item 113 Code	NHS	Non-NHS	Total
6	3,311	30,589	33,900*
T	339	661	1,000
Total	3,650**	31,250***	34,900

* Includes 6,606 bridges not coded for Item 113.
** Includes 3,480 State-owned bridges; 162 local-owned bridges; and 8 other-owner bridges.
*** Includes 10,614 State-owned bridges; 20,546 local-owned bridges; and 90 other-owner bridges.

With regards to POA for scour critical bridges, the NBIS regulation, 23 CFR 650.313(e)(3), enacted January 13, 2005, requires that bridge owners prepare a POA to monitor both known and potential deficiencies and to address critical findings for bridges identified to be scour critical. The FHWA's Office of Bridge Technology issued a memorandum dated March 29, 2005, which advised FHWA's field offices of the January 13, 2006, target date for implementing the requirements of the NBIS regulation. In a follow-up memorandum dated March 23, 2006, the Office of Bridge Technology requested the FHWA's field offices to report by May 5, 2006, on their corresponding bridge owners' implementation plan, which should have included a schedule for developing a POA. To date, we have received only a few responses.

Table 2 shows that bridge owners reported 2,671 bridges over waterways as scour critical based on the observed scour condition at one or more of the bridge foundations (code 0, 1, or 2 for Item 113). Also, Table 2 shows that bridge owners reported 18,233 bridges over waterways as scour critical based on the assessed or calculated scour depths that, if developed, would make one or more of the bridge foundations unstable (code 3 for Item 113). A State-by-State breakdown for NBI Item 113 by NHS and non-NHS is presented in Attachment A. Please note that Attachment A includes tables titled "NHS Other-Owner Bridges" and "Non-NHS Other-Owner Bridges." The data shown on the latter tables represent owner codes identified as private, railroad, unknown and records with the owner code missing.

Table 2 – Number of Scour Critical Bridges				
Scour Condition	**Item 113 Code**	**NHS**	**Non-NHS**	**Total**
Observed	0	2	111	113
	1-2	119	2,439	2,558
Total Observed		121	2,550	2,671
Total Assessed or Calculated	3	2,889	15,344	18,233
Total Scour Critical Bridges		3,010*	17,894**	20,904

* Includes 2,972 State-owned bridges; and 38 local-owned bridges.
** Includes 7,769 State-owned bridges; 10,117 local-owned bridges; and 8 other-owner bridges.

The FHWA's role and responsibility is to ensure that bridge owners complete the scour evaluation of all their remaining bridges over waterways, and that they develop, implement and maintain a POA for each of their bridges over waterways identified as scour critical to comply with the NBIS regulation.

Actions Requested:

After consulting with the FHWA Office of Chief Counsel and conducting a thorough review of the NBI database, there are several bridges that appear to not be in compliance with the NBIS regulation regarding scour. Since State departments of transportation (DOT) are responsible for overall NBIS compliance, we solicit your assistance to obtain the following information:

1. Verify with your corresponding bridge owner manager official that they still have bridges that are vulnerable to scour.

   If bridge owners confirm that they still have bridges that are vulnerable to scour (code 6, T, or Null), we request that you notify them that their jurisdiction is not in compliance with 23 CFR 650.313(e). Noncompliance could lead to suspension of Federal-aid highway funds. Bridge owners that confirm having bridges that are vulnerable to scour must provide the following schedule to avoid possible suspension of Federal-aid highway funds:

   - Schedule for completing the evaluation of all remaining scour vulnerable bridges within your State, local and other-owner jurisdiction. We recommend a target date of November 2008 for completing the scour evaluation of these bridges.

2. Verify with your corresponding bridge owner manager official the number of scour critical bridges (code 0, 1, 2, or 3 for Item 113) reported in the NBI database.

   If bridge owners confirm that they have scour critical bridges, we will appreciate it if your corresponding staff can make sure that bridge owners have developed and implemented POAs for each of their scour critical bridges. If bridge owners have not developed and implemented a POA for each of their scour critical bridges, we request that you notify them that their jurisdiction is not in compliance with 23 CFR 650.313(e)(3). As we have already stated, noncompliance could lead to the suspension of Federal-aid highway funds. These bridge owners must provide the following schedules to avoid possible suspension of Federal-aid funds:

   - Schedule for completing the development of all POAs for bridges identified as scour critical. We recommend a target date of November 2008 for bridges under State jurisdiction, and November 2009 for bridges under local and other-owner jurisdictions.

- Schedule for completing the implementation of all POAs for bridges identified as scour critical. We recommend a target date of April 2009 for bridges under State jurisdiction, and April 2010 for bridges under local and other-owner jurisdictions.

In addition, we request that bridge owners submit a status report to the FHWA Office of Bridge Technology every April and November on their progress made towards developing and implementing POAs. The status report should also include the following information:

- Percent of scour critical bridges with POAs developed by State, local, and other-owner jurisdiction, and
- Percent of scour critical bridges with POAs implemented by State, local and other-owner jurisdiction.

Bridge owners must continue to submit their status report until all bridges identified as scour critical in their corresponding jurisdiction have POAs developed and implemented.

We ask for your assistance in obtaining the information requested on these action items from all bridge owners through your corresponding State DOT manager official since the ultimate responsibility for complying with the NBIS requirement is at the State level. When a bridge owner code is missing or coded unknown, we ask that you work with the State DOT manager official to assign a proper owner code to the bridge record.

Please report the information requested herein regarding any actions taken by your division office to verify that bridges owners have reviewed their NBI data as for the number of bridges needing a scour evaluation (code 6, T, or Null for Item 113), and for the number of scour critical bridges within their jurisdiction (code 0, 1, 2, or 3 for Item 113). Also, please provide the schedules for completing scour evaluations, and for developing and implementing POAs for scour critical bridges. We request that you submit this information to the FHWA Office of Bridge Technology by February 29, 2008.

We are providing additional guidance to assist you in compiling the information requested herein in the document titled "Guidance for Reporting Schedule for Completing Bridge Scour Evaluations and Plans of Action for Scour Critical Bridges" (see Attachment B).

Also, we request that you report progress on these actions using a Web-based template, which can be accessed online at: http://staffnet.fhwa.dot.gov/bridge/attachmentc/. Once all fields are completed on this Web-based template, a summary table similar to that presented in Attachment C will be automatically generated on the Web.

If you have any questions please do not hesitate to contact Mr. Jorge E. Pagán-Ortiz, Principal Bridge Engineer – Hydraulics at (202) 366-4604, (jorge.pagan@dot.gov).

3 Attachments

Attachment B

Guidance for Reporting Schedule for Completing Bridge Scour Evaluations and Plans of Action for Scour (POAs) Critical Bridges

- Schedule for completing the evaluation of all remaining scour vulnerable bridges (code 6, T, or Null for Item 113 of the NBI) within your State, local, and other owner jurisdiction.

  1. This must be a firm target date for completing the scour evaluations.
     a) A target date of November 28, 2008, is recommended (e.g., The evaluation of all remaining scour vulnerable bridges within the State, local and other-owner jurisdiction will be completed by November 28, 2008).
     b) Please make sure that bridges with a missing code (null code) on Attachment A are assigned a proper code for Item 113 after a scour evaluation is completed.
  2. Each FHWA division office must review the proposed target date by State, local and other-owner jurisdiction and notify the FHWA Office of Bridge Technology of any action taken such as concurring or nonconcurring with the target date.
     a) Bridge owners must consult with their corresponding FHWA division office in the event that a previously concurred target date must be changed. The FHWA division office must review any information provided in support of the change and notify the FHWA Office of Bridge Technology of any further action(s) taken.
  3. Please continue to report on the progress made by bridge owners towards completing scour evaluations to the FHWA Office of Bridge Technology after your February 29, 2008, report. Bridge owners with less than 90 percent of their scour evaluations completed must report biannually in Calendar Year 2008 (April 30 and November 28), and owners with more than 90 percent of their scour evaluations completed must report by the November 28, 2008, target date.

- Schedule for completing the development of all POAs for bridges identified as scour critical.

  1. This must be a firm target date for completing the development of all POAs.
     a) A target date of November 28, 2008, is recommended for bridges under your State jurisdiction, and November 27, 2009, for bridges under local and other-owner jurisdictions (e.g., POAs for State-owned bridges identified as scour critical will be developed by November 28, 2008; POAs for local-owned and other-owner bridges identified as scour critical will be developed by November 27, 2009).
  2. Each FHWA division office must review the proposed target date by their State, local and other-owner jurisdiction and notify the FHWA Office of Bridge Technology of any action taken such as concurring or nonconcurring with the target date.
     a) Bridge owners must consult with their corresponding FHWA division office in the event that a previously concurred target date must be changed. The FHWA division office must review any information provided in support of the change

and notify the FHWA Office of Bridge Technology of any further action(s) taken.

3. The development of a POA means that bridge owners have held meetings involving the appropriate personnel from internal units within their corresponding agency (design, construction, inspection and maintenance, districts and others as applicable) and with external entities (local authorities such as a commissioner, police department, fire department and others as needed) to identify and document:
   a) General information about the bridge, responsibility for POA, scour vulnerability, recommended countermeasure(s) or alternatives, NBI coding information, countermeasure selection(s) including priority ranking and cost, bridge closure plan, detour route and any other supportive information.
4. Guidance for developing POAs for scour critical bridges is presented in the FHWA's POA training seminar, which was distributed on a CD-ROM to our field offices by memorandum dated May 22, 2007, (see copy of this memorandum at http://www.fhwa.dot.gov/engineering/hydraulics/bridgehyd/20070522.cfm). Copies of this CD-ROM can be obtained from NHI at the following Web site: http://www.nhi.fhwa.dot.gov/training/NHIStoreSearchResults.aspx?get=&COURSE_NO=135085&KEYWORD=&TITLE=. In addition, the POA training seminar is available online at no cost at http://fhwa.acrobat.com/n135085seminar.

- Schedule for completing the implementation of all POAs for bridges identified as scour critical.

1. This must be a firm target date for completing the implementation of all POAs.
   a) A target date of April 29, 2009, is recommended for bridges under your State jurisdiction, and April 29, 2010, for bridges under local and other-owner jurisdictions (e.g., POAs developed for State-owned bridges identified as scour critical will be implemented by April 29, 2009; POAs developed for local-owned and other-owner bridges identified as scour critical will be implemented by April 29, 2010).
2. Each FHWA division office must review the proposed target date by State, local and other-owner jurisdiction and notify the FHWA Office of Bridge Technology of any action taken such as concurring or nonconcurring with the date.
   a) Bridge owners must consult with their corresponding FHWA division office in the event that a previously concurred target date must be changed. The FHWA division office must review any information provided in support of the change and notify the FHWA Office of Bridge Technology of any further action(s) taken.
3. The implementation of a POA means that bridge owners have completed disseminating POAs to the appropriate personnel within their internal offices/units and external entities and have met with these offices/units and with external entities to communicate:
   a) General information and instructions contained in each POA (e.g., individuals responsible for the POA implementation, detour routes, when to close/open a bridge, countermeasure selection, and design and installation schedules).
      1. Bridge owners should make sure that responsible parties identified in the POA understand their roles and responsibilities and that they are provided with periodic training on the implementation of selected components of a POA such as bridge closure/opening procedures.

b) Frequency to conduct periodic reviews and updates of the information presented in a POA.

- Percent of scour critical bridges with POAs developed by State, local and other-owner jurisdiction.

  1. Please report the percent of scour critical bridges that have been developed for Item 113 code 0-2, and for Item 113 code 3.
  2. Please continue to report progress after your February 29, 2008, report on a biannual basis (April and November) to the FHWA Office of Bridge Technology until POAs have been developed for each scour critical bridges.
  3. We encourage bridge owners to prioritize the development of POAs for bridges coded 1 or 2 for Item 113 that are critical to the transportation system of a locality or region such as Interstate bridges and other NHS bridges on arterial and primary routes.

- Percent of scour critical bridges with POAs implemented by State, local and other-owner jurisdiction.

  1. Please report the percent of scour critical bridges that have been implemented for Item 113 code 0-2, and for Item 113 code 3.
  2. Please continue to report progress after your February 29, 2008, report on a biannual basis (April and November) until POAs have been implemented for each scour critical bridge.
  3. We encourage bridge owners to prioritize the implementation of POAs for bridges coded 1 or 2 for Item 113 that are critical for the transportation system of a locality or region such as Interstate bridges and other NHS bridges on arterial and primary routes.

Attachment C: Action Items for Scour Evaluations of Bridges over Waterways and POAs for Scour Critical Bridges								
					Percent of Scour Critical Bridges with POAs Developed		Percent of Scour Critical Bridges with POAs Implemented	
Agency	**System**	**Schedule for Completing all Bridge Scour Evaluations**	**Schedule for Completing the Development of All POAs**	**Schedule for Completing the Implementation of All POAs**	**Codes 0-2**	**Code 3**	**Codes 0-2**	**Code 3**
State DOT	NHS							
	Non-NHS							
Local	NHS							
	Non-NHS							
Other Owner	NHS							
	Non-NHS							
Reporting State:	**Name and Title of Individual Updating Action Items:**			**Telephone Number:**			**Report Date:**	

U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: **ACTION**: Technical Guidance for Bridges over Waterways with Unknown Foundations
/s/ Original Signed by
From: King W. Gee
Associate Administrator for Infrastructure

Date: January 9, 2008

In Reply Refer To: HIBT-20

To: Associate Administrator for RD&T
Associate Administrator for
Federal Lands Highway Program
Directors of Field Services
Resource Center Director
Division Administrators

The purpose of this memorandum is to provide technical guidance on a process that should be considered by Federal, State and local agencies (referenced herein as bridge owners) to identify foundation characteristics such as width, depth and length for bridge foundations identified as unknown. The goal of this process is to reduce or eliminate the population of bridges over waterways identified as having unknown foundations, which in turn would allow bridge owners to evaluate these bridges for their scour vulnerability.

Background:

The term "unknown foundations" has been traditionally associated with examining the population of existing bridges over waterways (riverine and tidal) where foundation details are unknown and therefore, foundations could not be evaluated against the hydraulic hazards related to scour. Most of the bridges having unknown foundations were identified by owners while screening their bridges over waterways (riverine and tidal) for their scour vulnerability. These bridges received a Code U for Item 113 of the FHWA's Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges (Coding Guide).

The FHWA exempted this population of bridges from being evaluated for their scour vulnerability due to the lack of a process and guidance that would have allowed bridge owners to determine their foundation characteristics and therefore, evaluate these bridges. This exemption did not apply to bridges on Interstate designated routes for which FHWA recommended bridge owners to consider technology available to determine their foundation characteristics and evaluate their scour vulnerability. The use of geophysics technology such as non-destructive testing (NDT) has been available for quite some time; however, cost and reliability of results may be the leading reason for their limited use for determining foundation characteristics.

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The National Bridge Inspection Standards (NBIS) regulation, 23 CFR 650.313.e.3, requires that bridge owners develop a plan of action (POA) for bridges identified as scour critical bridges. We are concerned that some bridges within the unknown foundation population may be scour critical and as such need to have a POA as required by the NBIS regulation.

An additional growing concern, primarily related to our aging bridge population and increasing load and performance demand on all bridges, is our limited "body of knowledge" to assess the structural and geotechnical load capacity and deterioration mechanisms of foundation elements in both the short and long-term. When examining the "body of knowledge" from a broader view point, a more global definition of unknown foundations appears to be appropriate as we have to consider the potential of having another population of unknown foundations on land bridges currently reported in the Coding Guide. In general, the topic of unknown foundations presents a broad based challenge to bridge owners, which warrants FHWA's attention.

Status of Bridges with Unknown Foundations:

As of September 2007, the National Bridge Inventory (NBI) data showed that bridge owners reported 67,240 bridges over waterways as having unknown foundations. Table 1 presents the number of bridges over waterways on the National Highway System (NHS) and the non-NHS with unknown foundations by Federal, State and local agencies. It is important to highlight that the NHS population of unknown foundation bridges presented in Table 1 includes 144 bridges with Interstate designation. The number of bridges over waterways having unknown foundations is presented by bridge owner in Attachment A.

Table 1 – Number of Bridges over Waterways Coded U (Unknown Foundations) for Item 113 of the NBI

Agency	NHS	Non-NHS	Total
Federal	0	238	238
State	1,155*	12,864	14,019
Local	324	52,577	52,901
Other Bridge Owners	2	80	82
Total	1,481	65,759	67,240

* Includes 144 bridges with Interstate designation

Guidance on Process for Reducing the Number of Bridges with Unknown Foundations:

The following steps outline a process developed by the FHWA Office of Bridge Technology's Hydraulics and Geotechnical Team that bridge owners may consider to reduce or eliminate the population of bridges over waterways identify as having unknown foundations:

1. Screen all bridges coded U to ensure that they are correctly coded as having unknown foundations. In addition, bridges with unknown foundations that may have been coded 6 for

Item 113 should be recoded as U and undergo a screening as well. Bridge owners that assigned a Code 6 to Interstate bridges with unknown foundations based on the current definition of Code U should keep these bridges with a Code 6 and follow the guidance presented in this process. Direct and specific communication between bridge inspection and bridge design and construction units should expedite and improve the results of this activity.

- Most bridge owners may have some form of historical technical inventory of project plans, standard sheets, construction specifications, and design guidance. A concerted effort to "mine" this historical data by cross referencing coded U bridges construction dates should yield valuable preliminary information regarding foundation practices in that period. This information could also be coupled with knowledge on bridges with known foundations constructed in the same time period. Similar to current foundation practices, historical practices were very repetitive and rather simple in concept.

2. For bridges over waterways that are determined to be correctly identified as having unknown foundations:

- Prioritize these bridges based on their functional classification. We recommend that this prioritization be as follows: Principal Arterial – Interstate; Principal Arterial – Other Freeways or Expressways; Other Principal Arterial; Minor Arterial, Major Collector; Minor Collector.

- Consider using the following criteria for determining, with a reasonable accuracy, foundation characteristics:
  a) Collect and document historical knowledge of foundation design and construction practices for the period of original construction.
  b) Consider geologic, subsurface conditions, bridge standards, and information that may be available from nearby bridges.
  c) Consider applying "proven" surface and subsurface NDT tools to confirm foundation type and determine foundation length.
     1. NCHRP 21-05(2) "Determination of Unknown Subsurface Bridge Foundations" specifically examined NDT tools for the application. The unedited final report and accompanying guideline document can be obtained for loan by contacting NCHRP at NCHRP@nas.edu. More information on this project is available at http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=667.
        a) Pertinent results of this study are summarized in FHWA's Geotechnical Notebook Issuance No. 16 (GT-16) of the same title, which is available at http://www.fhwa.dot.gov/engineering/geotech/policymemo/gt-16.pdf.
        b) Since the completion of project NCHRP 21-05(2) further advancements in computer software and hardware have greatly advanced to provide improved result reliability. The current state of knowledge is such that the combined suite of surface and subsurface NDT tools has limitations based on foundation access (surface or down-hole) foundation material type and dimension and the best results require the user to consider each situation for undertaking a testing program.

- Conduct a scour evaluation based on this determination and consider recoding the bridge for Item 113 according to the outcome of the evaluation.

a) A risk-based prioritized schedule for conducting the scour evaluations of these bridges may be considered.
   1. Factors other than functional classification, such as the amount and reliability of the determined information should be considered in a risk-based prioritization schedule in order to target the scour evaluation of the bridges most in need of attention.
   2. It is likely that only partial foundation information may be determined on some bridges and that some information may be qualitative rather than quantitative resulting in some uncertainty in the scour evaluations for that population.
   3. Several projects funded by the NCHRP have addressed the topic of unknown foundations and produced valuable though limited information and guidance. The concept of a risk based approach was addressed in the NCHRP project 24-25, Risk-based Management Guidelines for Scour at Bridges with Unknown Foundations (Web-only document 107). This project advanced a template for a risk-based approach and computer software. While this project might not meet the needs of all bridge owners, it provides a protocol of how a risk-based approach could be structured to manage bridges with unknown foundations. We encourage bridge owners to consider this product as a beginning draft to develop their own risk based approach. The Web-only document 107 could be downloaded at: http://www.trb.org/news/blurb_detail.asp?id=8000.

3. For bridges that were previously coded as U for Item 113 of the NBI and whose foundations are completely and accurately identified after completing the screening:

   - Conduct scour evaluations following the guidance presented in the FHWA publication Hydraulic Engineering Circular No. 18, Evaluating Scour at Highway Bridges, Fourth Edition dated May 2001.
     a) Prioritize the scour evaluation of these bridges based on the functional classification previously recommended.

   - Code Item 113 according to the outcome of the evaluation.

We request that your appropriate staff disseminate and discuss this technical guidance with their appropriate Federal and State department of transportation management official. We plan to monitor the progress made by bridge owners towards reducing their number of bridges with unknown foundations by reviewing the NBI data every year in April. November 2010 is the target date for eliminating the number of bridges with unknown foundations from the NBI. We are contemplating amending the NBIS regulations so that any remaining bridge reported as having unknown foundations after November 2010 would be kept with a Code U for Item 113, considered scour critical and subject to the plan of action requirement of the NBIS regulation, 23 CFR 650.313(e)(3), until properly designed countermeasures are installed to protect the bridge foundations or until the bridge is replaced.

If you have any questions please do not hesitate to contact Mr. Jorge E. Pagán-Ortiz, Principal Bridge Engineer – Hydraulics at (202) 366-4604 (jorge.pagan@dot.gov), or Jerry DiMaggio, Principal Bridge Engineer – Geotechnical at (202) 366-1569 (jerome.dimaggio@dot.gov).

Attachment

Excerpts from the Quality Control / Quality Assurance Document

The scope of the QC and QA procedures is to outline:

- Team Member Roles and Responsibilities
- Documenting Qualifications for Various Inspection Team Members
- Tracking Current Qualified Bridge Inspectors
- Required Bridge Inspection Training
- QC Roles and Review Procedures
- QA Roles and Review Procedures
- Bridge File Maintenance
- Identification and Resolution of Data Errors, Omissions and/or Changes
- Disqualification and Requalification Processes

Quality Control Officer

The Quality Control Officer will be the INDOT District Bridge Engineer for each INDOT district. For Consultants, the Quality Control Officer will be another responsible Team Leader within the Consulting Firm who is either the direct supervisor of the Team Leader or a Program Manager. For firms without an active 2nd Team leader, another consulting firm with a qualified Team Leader will be necessary to be the Quality Control Officer.

Quality Control Office Review

This review by the Quality Control Officer should include (but not limited to) the following:

- Verify correct data collection forms were used
- Verify correct reports are included which conform to state and federal requirements, including Fracture Critical, Special Detail and Underwater Inspection Reports.
- Review SIA data items to ensure correctness of the entered input information.
- Verify ratings are consistent with deterioration
- Review condition ratings verses the previous inventory
- Review photos to ensure photographic documentation was provided for the bridge. Any structural condition rating of a 4 or less should have proper photo documentation.
- Verify that all coding information has been properly entered in accordance with the FHWA Coding Guide and the INDOT Bridge Inspection Manual and conforms to NBIS requirements.
- Review all load ratings for bridges to ensure all bridges have been load rated and computations reflect on site conditions
- Verify that the current report is consistent with the previous report
- Verify inspector qualifications. The AASHTO Manual for Condition Evaluation of Bridges states "Qualified Personnel should be used in conducting bridge inspections."

Excerpts from the Quality Control / Quality Assurance Document

- Verify compliance with posting policies
- Verify that the inspection was performed at the appropriate time with respect to the required date set forth in the biennial inspection cycle or other time-based cycles.
- Verify general bridge file content. The AASHTO Manual for Condition Evaluation of Bridges states "Bridge Owners should maintain complete, accurate, and current records of each bridge under their jurisdiction." This should include new bridge, repair and/or rehabilitation plans as well as shop drawings if available.
- Ensure consistency of inventory data input verses as built construction plans if available.

All inspection reports shall be signed by the Quality Control Officer as reviewed by the Quality Control Officer.

Quality Control Field Review

This review by the Quality Control Officer should include (but not limited to) the following:

- Perform a field verification of condition ratings
- Verify adequacy of photographs, notes and sketches
- Verify all critical deficiencies have been identified
- Verify recommended maintenance and repair recommendations
- Review documentation of inspection notes for any item with a condition rating of a 4 or less.

A separate Quality Control Log and Forms are to be completed by the Quality Control Officer and submitted with the draft report to INDOT. See Appendix A and A-2 for examples of the Log and Forms.

Inspection Report Submission Review by INDOT

Upon completion of the internal Quality Control Reviews and any needed corrections, the draft electronic inspection data shall be submitted to the Quality Control Data Officer for a Quality Control Data Review. The Quality Control Data Officer shall have 30 days from the time of receipt to review and comment on the submitted draft data. If errors are found which the Quality Control Data Officer believes should be corrected and reviewed prior to the Quality Control Report Review, contact the Team Leader to make the changes. The Team Leader shall then make the revisions and resubmit the draft electronic data.

If a resubmission is not required, the Team Leader shall submit for the Quality Control Report Review. The Quality Control Report Officer shall have 30 days from the time of receipt to review and comment on the Draft Inspection report. Upon approval of the Draft Report, final inspection reports shall be submitted.

Excerpts from the Quality Control / Quality Assurance Document

Comments received after the review period shall be addressed at the discretion of the submitting Team Leader and may be addressed at the next inspection cycle and report submission. However, all data must meet federal requirements and any comments received regarding these requirements must be addressed promptly and regardless of the review timeline by INDOT.

Quality Control Data Review

Purpose and Scope

The primary goal of the Quality Control Data Review is to ensure consistency of data collection and data submission. This QC review ensures that the QC efforts are effective for the individual Inspecting Agency, resulting in overall quality of the individual bridge inspection program.

Quality Control Criteria

This review by the Quality Control Officer for Data Review should include (but not limited to) the following:

- Review accuracy of data entry in accordance FHWA coding and local requirements
- Review of data for consistency between Inspecting Agencies

Quality Control Report Review

Purpose and Scope

The primary goal of the Quality Control Report Review is to ensure consistency and quality of inspection reports. This QC review ensures that the QC efforts are effective for the individual Inspecting Agency, resulting in overall quality of the individual bridge inspection program. There should be two levels of review for the Quality Control Report Review:

- Level I – Cursory review of document content and consistency.
- Level II – Thorough review of document for NBIS compliance, documentation, content and consistency

Submission Requirements

The Team Leader is required to submit the following information to the Quality Control Officer for Report Review for their Quality Control Report Review:

- Biennial Inspection Reports – All up front reports, including the table of contents and the Structure Inventory and Appraisal Reports for the five bridges with the lowest sufficiency rating.
- Fracture Critical, Special Detail and Underwater Inspection Report – The entire report shall be submitted.

Excerpts from the Quality Control / Quality Assurance Document

Level I Quality Control Criteria

This review by the Quality Control Officer for Report Review should include (but not limited to) the following:

- Review to ensure that federal and state required reports are included in the document.
- Review to ensure that the individual bridge reports utilize appropriate forms.
- Verify that the Inspector meets state and federal requirements.

Level II Quality Assurance Criteria

This review by the Quality Control Officer for Report Review should include (but not limited to) the following:

- All requirements of the Level I Quality Control Review
- Verify that reported deficiencies are well documented with photographs and that appropriate recommended actions are stated in the report.

QUALITY ASSURANCE

Quality Assurance Officer(s)

The Indiana State Bridge Engineer, or their designate, shall be the Quality Assurance Officer(s) for the State of Indiana. Their role as the officer(s) is to ensure adherence to federal and state inspection criteria, laws, codes, standards, as well as regulatory requirements. His/her review will include the evaluation of the Team Leader's choice of inspection equipment, information gathering methods, time and frequency of inspection services as well as the quality control review efforts and log documentation.

Quality Assurance Data Review

Purpose and Scope

The primary goal of the Quality Assurance Data Review is to ensure consistency of data collection and data submission. This QA review ensures that the QC efforts are equally effective across different Inspecting Agencies, resulting in overall quality in the bridge inspection program. Results of the previous Quality Control Data Reviews will be provided to the Quality Assurance Officer on a quarterly basis in order to determine recurring deficiencies in data entry within the industry that could require additional training. This data will be summarized in a quarterly report.

Quality Assurance Report Review

Purpose and Scope

The primary goal of the Quality Assurance Report Review is to ensure consistency and quality of inspection reports. This QA review ensures that the QC efforts are equally

effective across different Inspecting Agencies, resulting in overall quality in the bridge inspection program. Results of the previous Quality Control Data Reviews will be provided to the Quality Assurance Officer on a quarterly basis in order to determine recurring deficiencies in the report development within the industry that could require additional training. This data will be summarized in a quarterly report.

Quality Assurance Office Review

Purpose and Scope

The primary goal of the Quality Assurance Office Review is to ensure the completeness of the individual Bridge Files. This QA review ensures that the QC efforts are equally effective across different Inspecting Agencies, resulting in overall quality in the bridge inspection program. The review should consist of reviewing the bridge files to ensure that the bridges are properly load rated and documented, as well as any other required/available bridge documentation. There should be two levels of review for the Quality Assurance Report Review:

- Level I – Cursory review of file content and consistency.
- Level II – Thorough review of bridge file for documentation, content and consistency.

Prior to the Office Review, the Quality Assurance Officer shall submit a form to the Inspecting Agency which contains questions about general office practices with regards to Bridge File Maintenance and documentation of inspections and correspondence. Appendix XX is a blank copy of such form. An editable version of this form may also be found on the Department's website at http://www.in.gov/dot/div/contracts/design/dmforms.
This form should be submitted back to the Quality Assurance Officer a minimum of 7 days prior to the Office Review.

Level I Quality Assurance Criteria

This review by the Quality Assurance Officer should include (but not limited to) the following:

- Verify that bridge plans, repair plans, rehabilitation plans, As-Builts or shop drawings are present, when available
- Verify that Load Rating Calculations are present.
- Verify that Scour Plan of Actions are present, when required
- Verify an organized file containing correspondence is present. It need not be separate for each bridge under the Team Leader's jurisdiction.
- Verify that the Inspector meets state and federal requirements.

Level II Quality Assurance Criteria

This review by the Quality Assurance Officer should include (but not limited to) the following:

Excerpts from the Quality Control / Quality Assurance Document

- All requirements of the Level I Quality Assurance Review
- Verify that Load Rating Calculations are present and verify the Load Ratings in accordance with the criteria below.
- Verify that the bridge file contains previous inspection reports which comment on existing deficiencies to provide a baseline for future inspections.
- Verify that if a bridge requires a special inspection (i.e. Fracture Critical, Underwater, Special Detail…) that previous inspection reports are present within the bridge file to provide a baseline for future inspections.

Load Rating Verification

For bridges which are selected for a Level II Quality Assurance Review, the load ratings shall be reviewed in the following manner.

- Stage I – Verify that the load rating provided in the bridge file is consistent with the signage in the field and the data entered in the bridge inventory. Also, verify that a professional engineer was involved in the performing or checking of the load ratings.
- Stage II – Review of calculations, assumptions and documentation in the load rating. This includes review of inclusion of deterioration of the structural members in the load rating or any rehabilitation made to the bridge.
- Stage III – An independent recalculation of the load rating by the Quality Assurance Officer. Due to the assumption made during the load rating process, there will be variability in what is calculated between the Team Leader and Quality Assurance Officer. An acceptable tolerance between load rating is 2 tons.

Quality Assurance Peer Field Review

Purpose and Scope

The primary goal of the Quality Assurance Peer Field Review is to ensure proper equipment and safety measures are utilized during inspections, as well as verifying the thoroughness of the inspection. This QA review ensures that the QC efforts are equally effective across different Inspecting Agencies, resulting in overall quality in the bridge inspection program. The Quality Assurance Officer shall contact the Team Leader to determine the Team Leader's schedule of inspection. The Quality Control Officer shall coordinate with the Team Leader to determine bridges that would be good candidates for the Peer Field Review.

The sampling procedure for the selection of bridges shall include consideration of the bridge posting, the sufficiency rating of the bridge, bridges that are in need of bridge rehabilitation or replacement, new structures, bridges that have a critical finding, bridges that have an unusual change in structural rating (i.e. a change of more than 1 from the previous rating), special inspection type, and the location of the bridge.

Excerpts from the Quality Control / Quality Assurance Document

Quality Assurance Criteria

The Quality Assurance Officer shall observe the Team Leader performing the inspection of the subject bridge. This evaluation shall document the arrival time, set-up time, preparations made for equipment, safety conformance, access methods, and the quality and thoroughness of each inspection team member's activities. It should also note whether or not safety equipment was properly used, whether appropriate access methods were used, and an evaluation of whether the inspection served its desired purpose. The Quality Assurance Officer shall not impede the inspection of the Team Leader, but observe the Team Leader's inspection technique. The Field Performance Review form shall be filled out during the inspection to record notes and comments during the Peer Review. Appendix B is a blank copy of such form. An editable version of this form may also be found on the Department's website at http://www.in.gov/dot/div/contracts/design/dmforms.

Quality Assurance Post-Inspection Field Review

Purpose and Scope

The primary goal of the Quality Assurance Post-Inspection Field Review is to ensure consistency of ratings and deficiency documentation between Inspecting Agencies. This QA review ensures that the QC efforts are equally effective across different Inspecting Agencies, resulting in overall quality in the bridge inspection program. The Quality Control Officer shall inspect the selected bridges without any prior knowledge of the bridge's condition. The re-inspection generates a companion inspection result that can be compared to the subject inspection data for analysis of consistency and accuracy. The re-inspection should be performed within six months of the Team Leader's inspection to ensure that conditions have not changed significantly. Therefore, coordination will be required between the Team Leader and Quality Control Officer for Data Review to determine a time-table for both inspections.

The re-inspection should be performed by the assigned Quality Assurance Officer. It is very important to use a limited number of independent reviewers to ensure consistency in the Quality Assurance Reviews.

The sampling procedure for the selection of bridges shall include consideration of the bridge posting, the sufficiency rating of the bridge, bridges that are in need of bridge rehabilitation or replacement, new structures, bridges that have a critical finding, bridges that have an unusual change in condition rating (i.e. a change of more than 1 from the previous rating), special inspection type as well as the location of the bridge.

Criteria

This review by the independent reviewer should include the following:

- Item 43A Main Superstructure Type
- Item 43C Main Widening Type

Excerpts from the Quality Control / Quality Assurance Document

- Item 44A Str. Type - Approach
- Item 59B Paint Rating
- Item 36A Traffic Safety Features
- Item 58 Deck Condition Rating
- Item 59 Superstructure Condition Rating
- Item 60 Substructure Condition Rating
- Item 61 Channel Condition Rating
- Item 62 Culverts Condition Rating
- Item 65 Approach Roadway Condition Rating
- Item 71 Waterway Adequacy
- Item 75 Type of Work Needed and Description of Work
- Item 51 Bridge Roadway Width
- Item 53 Vertical Clear./Deck
- Item 54 Vertical Underclearance
- Item 55 Lateral Clearance
- Item 113A Scour Critical Bridge
- Remarks containing deficiencies
- Verification of required signage

An acceptable tolerance between ratings is +/- 1. An acceptable tolerance between geometric measurements is 3".

Quality Assurance Closeout and Comments

For Quality Assurance Peer Field Reviews, after the inspection has concluded, the Quality Control Officer will generate a Peer Field Review Quality Assurance Report. The findings shall be discussed with the Program Manager and submitted to the Team Leader involved in the inspection. If the Team Leader would like to schedule a meeting to discuss the findings of the report, the Team Leader should contact the Program Manager to schedule the meeting. An annual report will be generated which summarize the findings of the report.

For Quality Assurance Post-Inspection Reviews, after the inspection has concluded and the results are compared, the Quality Control Officer will generate a Post-Inspection Review Quality Assurance Report. The findings shall be discussed with the Program Manager and submitted to the Team Leader involved in the inspection. If the Team Leader would like to schedule a meeting to discuss the findings of the report, the Team Leader should contact the Program Manager to schedule the meeting. An annual report will be generated which summarize the findings of the report.

Corrective Actions

Data error, omissions and/or changes can occur during the inspection and inventory process, as well as during the Quality Assurance process. The identification and resolution of these items shall be done in an expedited manor. Notification of the issue

shall occur immediately to the appropriate Program Manager. A discussion will occur to discuss the issue in-depth. A revision to the report shall be documented and submitted to the Indiana State Bridge Engineer for their files. Once reviewed and accepted by the Indiana State Bridge Engineer the corrected information shall be submitted to the agency for their files or further action.

DISQUALIFICATION AND REQUALIFICATION

Disqualification Process

When the quality assurance review indicates that a Team Leader and/or an inspecting agency continues to make the same or similar mistakes, omissions, etc., INDOT shall implement disqualification procedures as follows:

1. Upon receiving INDOT's Quality Assurance Report, the inspecting agency shall address the findings of the report and take steps to correct the problems to insure they will not be repeated in the future.
2. The Team Leader and inspecting agency will be placed on probation and reviewed again in twelve (12) months. This review will be conducted by a team consisting of the original reviewer, another qualified Team Leader, and a member of the FHWA, if they desire.
3. If the same or similar mistakes are found during this second review, the inspecting agency and/or the Team Leader shall be given notification that they will be disqualified if these problems are not corrected and avoided in the future, and placed on a secondary probation period of six (6) months.
4. The Team Leader and inspecting agency shall be reviewed again in three (3) months by the reviewing team. If the same or similar problems are found the inspecting agency and/or the Team Leader will be notified that they are hereby disqualified for a minimum of two years and will no longer be allowed to perform bridge safety inspections in the State of Indiana until they have been requalified.
6. INDOT reserves the right to disqualify immediately and indefinitely if gross negligence, misconduct and/or major omissions are found. These errors may adversely affect the safety of the public or the capacity of the bridge.

Reasons for Disqualification

Typical reasons for disqualification can be, but are not limited to, the following:

1. Lack of proper follow-up with the bridge owner for critical findings, such as broken load carrying members, critical scour at foundations, vehicular impacts which could adversely effect load carrying members, bridges requiring closure, etc.

2. Lack of follow-up with the bridge owner for correcting load posting deficiencies.

3. Failure to correct findings from Quality Control or Quality Assurance reviews.

4. Recurring miscoded critical inventory items such as NBI Items 41(Open, Posted or Closed), 43 (Structure Type), 51(Bridge Roadway Width), 54 (Vertical Under clearance), 90 (Inspection Date), 92 (Critical Feature Inspection), 93(Critical Feature Inspection Date), and 113A (Scour Critical Bridge).

5. Recurring miscoded critical rating items such as condition states.

6. Recurring condition rating deviations of more than 1 above or below an independent condition review.

7. Recurring load rating calculations that deviate by more than 2 tons from an independent load rating calculation.

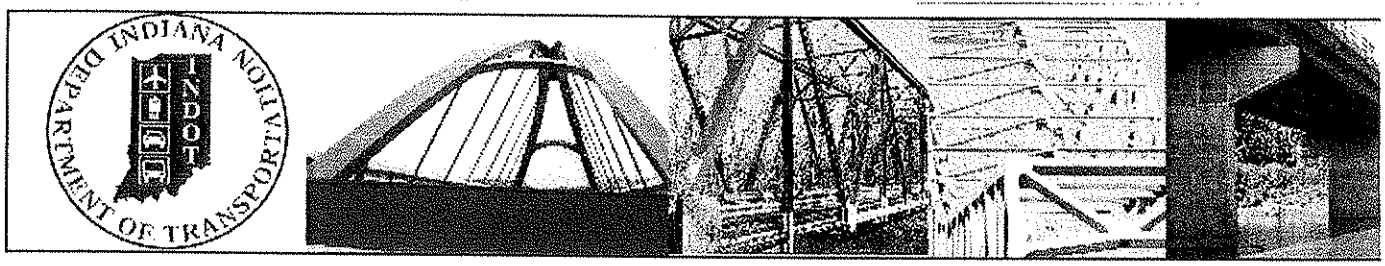
8. Failure to submit completed inspection data and/or corrections in a timely manner.

9. Dishonest or unethical behavior that adversely affects the inspection results.

The Indiana Department of Transportation has the final authority to carry out this disqualification process. The inspecting agency must agree to these procedures as part of any bridge safety inspection agreement before they will be allowed to perform any bridge safety inspections.

Requalification Process

1. A disqualified Team Leader and\or inspecting agency may be requalified after the two-year period if they indicate in a written report how they have corrected their deficiencies. Upon approval by INDOT, the Team Leader or inspecting agency shall be placed back on the qualified list and under probation for twelve (12) months.
2. A disqualified Team Leader may also be requalified following the two year disqualification period and after he/she has retaken the training course "Safety Inspection of In-Service Bridges" and achieved a score of 70 percent or better on the examination given at the end of the course. Attendance in the entire course is mandatory for requalification (i.e., no "testing out").
3. Henceforth, prospective Team Leaders taking the training course "Safety Inspection of In-Service Bridges" must attend the entire course and achieve a score of 70 percent or better on the examination given at the end of the course to be considered requalified.



Indiana Toll Road Instructions

- Required Report Sections for First Round Toll Road Inspections

Printed Output Report Examples:
- 5 Page Report
- 7 Page Report
- Every Section Included Even if No Pages

Starting Pages for Software
- Collector Starting Page
- Manager Starting Page

Pages By Sections

Primary Forms
- General Inventory
- Approach (72X)
- Deck (58)
- Superstructure (59A)
- Paint (59B)
- Collision Damage (505)
- Substructure (60)
- Channel and Protection (61)
- Culvert/Underfill (62)
- Estimated Remaining Life

Auxiliary Forms
- Appraisal
- Overweight Vehicle (501)
- H.I.P. (502)
- Structure Detail (503)
- In-Depth (504)
- Actions Taken (506)
- Subjective Appraisal (507)
- Safety Improvement
- Roadway Management (600)
- Contracts

SI&A Forms
- All
- Identification
- Structure Data
- Age of Service

- Geometric Data
- Navigation
- Classification
- Condition
- Rating
- Appraisal
- Proposed Improvements
- Inspection
- Underrecs

Fracture Critical/Underwater/Special

- 92A Data
- 92A Requirements
- 92A Master List
- 92B NBI Data
- 92B Master List
- 92C Special Data
- 92C Requirements
- 92C Master List
- Inspection History

P.o.A. (Plan of Action)

- Routine P.o.A.
- Special Id Items
- 92A Fracture Critical P.o.A.
- 92B Underwater P.o.A.
- 92C Special P.o.A.
- Scour P.o.A.

Scour

- Office Screening
- Foundation Data
- Scour Calculations
- Monitoring Data
- Maintenance Notes and Seismic
- Scour Committee Review Data
- Scour Committee Review Notes

Load Rating

- Structure Data (1)
- Load Rating (2)

Report Information

- Inspectors/Date
- Report Sections
- Pictures
- Forms
- Notes
- Decifiency
- NBI Calcs
- Error Check

Data Base Collection Guidelines for Toll Road Inspections - 2009

The following are required Data Fields for NBI Data collection for the 1st round (Summer-2009) Indiana Toll Road Bridge Inspections, in the InspectTech Data Base.

Note: Since the Data Base is still in the developmental stages, there may be some minor changes in the layout of the input forms and/or field names when the Data Base is used by the Toll Road's Consultant.

1. **SI&A – Main Tab**
   a. **SI &A All – Sub Tab** --- All fields to be completed.
   b. **Identification – Sub Tab** --- All fields to be completed.
   c. **Structure Data – Sub Tab** --- All fields to be completed.
   d. **Age of Service – Sub Tab** --- All fields to be completed.
   e. **Geometric – Sub Tab** --- All fields to be completed.
   f. **Navigation – Sub Tab** --- All fields to be completed.
   g. **Classification – Sub Tab** --- All fields to be completed.
   h. **Condition – Sub Tab** --- All fields to be completed.
   i. **Rating – Sub Tab** --- All fields to be completed.
   j. **Appraisal – Sub Tab** --- All fields to be completed.
   k. **Proposed Improvements – Sub Tab** --- All fields to be completed.
   l. **Inspections – Sub Tab** --- All fields to be completed.
   m. **Under-Records – Sub Tab** --- All fields to be completed.

2. **Auxiliary Forms – Main Tab**
   a. **Structural Details (503) – Sub Tab** --- All fields to be completed.
   b. **Actions Taken (506) – Sub Tab** --- See below.
      1. Item *506.08 Critical Deficiencies*: complete the Check Box and add a Comment if a Critical Deficiency is found.
   c. **Contract – Sub Tab** --- See below.
      1. Create a new *Contract Form* for each type of contract work that is scheduled, planned, or being proposed for the bridge. If no work is scheduled, planned, or being proposed, then no Contract Form is required. Update any existing Contract Forms.

3. **Primary forms – Main Tab**
   a. **General Inventory – Sub Tab** --- See below.
      1. Check that *Inventory Information Code* = 1. Do not inspect any bridges not = 1.
      2. Check that *(2) District Code* = 7. Do not inspect any bridges not = 7.
      3. Where applicable for Item *(43) Material/Designs-Main Spans* complete the check box if Span Members are: Variable Depth, Continuous, and/or Curved.
      4. Where applicable for Item *(44) Material/Designs-Appr. Spans* complete the check box if Span Members are: Variable Depth, Continuous, and/or Curved.
      5. Where applicable for Item *(107B) Concrete Stay in Place Forms* – code "Y" = Yes, or "N" = No.
      6. Where applicable for Item *(107C) Metal Stay in Place Forms* – code "Y" = Yes, or "N" = No.
      7. Code Item *(107D) Original Deck Thickness*, (in inches, to two decimal points).

8. Code Item *(108D) Additional Overlay Thickness*, (added on top of Original Deck thickness), (in inches, to two decimal points).

b. **Deck (58) – Sub Tab** --- See below.
   1. Code Item *(58.01) Wearing Surface Condition* - Rating and Comment.
   2. Code Item *(58.16) Transverse Joints - Overall Condition* – Rating and Comment.
   3. Code Item *(58.16A) South or West Transverse Joints* - Overall Condition – Rating, Type, and Comment.
   4. Code Item *(58.16B) Interior Transverse Joints* - Overall Condition – Rating, Type, and Comment.
   5. Code Item *(58.16C) North or East Transverse Joints* - Overall Condition – Rating, Type, and Comment.

c. **Paint (59B) – Sub Tab** --- See below.
   1. Code all items that apply except - *Other Coatings and Sealants*.

d. **Collision Damage (505B) – Sub Tab** --- See below.
   1. Code all items that apply.

e. **Estimated Remaining Life – Sub Tab** --- All fields to be completed.

4. **FC / UW / Spec – Main Tab**

a. **92A Data – Sub Tab** --- See below.
   1. Code all items that apply, (except *Official Codes*).

b. **92A Inspection Requirements – Sub Tab** --- See below.
   1. Code all items that apply, of only the *Current Inspection Data Section*.

c. **92A Master List – Sub Tab** --- See below.
   1. Code all items that apply.

d. **92B NBI Data – Sub Tab** --- See below.
   1. Code all items that apply, except: *Item (113A)* and the *Official Codes for Items 92B.01 and 92B.02*.

e. **92B Master List – Sub Tab** --- See below.
   1. Code all items that apply.

f. **92CA Special Data – Sub Tab** --- See below.
   1. Code all items that apply, (except *Official Codes*).

g. **92C Inspection Requirements – Sub Tab** --- See below.
   1. Code all items that apply, of only the *Current Inspection Data Section*.

h. **92C Master List – Sub Tab** --- See below.
   1. Code all items that apply.

5. **POA – Plan of Actions – Main Tab**

a. **Special Identification Items – Sub Tab** --- See below.
   1. Code if the bridge has "*Hoan Bridge Type Details*".
   2. Code if the bridge has "*Horizontally Curved Superstructure Member*".

b. **92A Fracture Critical POA – Sub Tab** --- See below.
   1. Create a NEW ACTION ITEM and then Code all items that apply.

c. **92B Underwater POA – Sub Tab** --- See below.
   1. Create a NEW ACTION ITEM and then Code all items that apply.

d. **92C Special Detail POA – Sub Tab** --- See below.
   1. Create a NEW ACTION ITEM and then Code all items that apply.
e. **Scour Critical Bridge POA – Sub Tab** --- See below.
   1. Create a NEW ACTION ITEM and then Code all items that apply.

6. **Scour – Main Tab**
   a. **Office Screening – Sub Tab** --- See below.
      1. Code only (*113R*) and *Field Observed Problems* if applicable. Move any Scour Comments into *Past Scour Problems* Comment Field.
   b. **Foundation Data – Sub Tab** --- See below.
      1. Code all *113B Items* that apply.
      2. Complete – *Foundation Numbering System.*
   c. **Maintenance Notes and Seismic – Sub Tab** --- See below.
      1. Code and describe if the bridge has any *Seismic Countermeasures.*
      2. Code and describe if the bridge has had any *Seismic Design.*
      3. Add any *Seismic Notes* that may apply.

7. **Load Rating – Main Tab**
   a. **Structure Data (1) – Sub Tab** --- See below.
      1. Review existing data – update Load Rating Data if new Load Rating is conducted.
   b. **Structure Data (2) – Sub Tab** --- See below.
      1. Review any existing data – update Load Rating Data if new Load Rating is conducted.

8. **Report Info – Main Tab**
   a. **Inspectors/Date – Sub Tab** --- See below.
      1. Complete all items that apply on the Form down to and including "Additionally Inspected By".
   b. **Report Sections – Sub Tab** --- See below.
      1. As a minimum, the final PDF Report should include the following Sections:
         01 – Cover
         03 – SI&A
         39 – Notes
         40 – Deficiency
      2. If applicable, the final PDF Report should include the following Sections:
         10 – Collision Damage
         18 – Structure Details (503)
         25 – Under Records
         26 – 92A Fracture Critical
         27 – 92B Underwater
         28 – 92C Special Inspection
   c. **Pictures – Sub Tab** --- See below.
      1. As a minimum, the final PDF Report should include the following Photos:
         Alignment photos from both ends of the bridge.