

APPENDIX H-5

U.S. Coast Guard (USCG) Correspondence

	<u>Page</u>
Indiana Department of Transportation (INDOT) February 14, 2017	1
Stantec Consulting Services Inc. (Stantec) March 1, 2017	2
USCG May 11, 2017	12
Stantec October 9, 2017	13
USCG November 27, 2017	16
USCG April 23, 2019	18



INDIANA DEPARTMENT OF TRANSPORTATION

Vincennes District
3650 S, US Hwy 41
Vincennes, IN 47591

PHONE: (800) 279-5759
FAX: (812-895-7479)

Eric Holcomb, Governor
Joe McGuinness, Commissioner

February 14, 2017

Eric Washburn
Bridge Administrator, Western Rivers
Eighth Coast Guard District
1222 Spruce Street
St. Louis, Missouri 63103-2832

REF: Vanderburgh County, Indiana / Henderson County, Kentucky
A249-17-P1608s101
I-69 Evansville – Henderson New Ohio River Crossing Bridge

Dear Sir,

The Indiana Department of Transportation (INDOT) and Kentucky Transportation Cabinet (KYTC) have reinitiated the preliminary engineering and environmental analysis for a new bridge over the Ohio River for I-69 between Evansville, IN and Henderson, KY. Design funds were authorized by the Federal Highway Administration (FHWA) on January 23, 2017. Additionally, the project's Notice of Intent was published in the Federal Register on February 13, 2017. With the publishing the Coast Guard has been identified as a potential cooperating agency and should receive a formal letter from the FHWA in the next few weeks concerning that participation and details of the agency meeting to be held in April.

INDOT and KYTC have moved forward with securing consultant services for environmental and engineering services for the project. INDOT is administering the project with funding and coordination support from KYTC. Parsons Transportation Group has been selected as the consultant and was issued a Notice to Proceed on January 23, 2017 for the NEPA Document Preparation Services. Stantec Consulting Services is subcontracted to Parsons.

This letter is being provided as authorization for Stantec Consulting Services, represented by Tony Hunley, PE, SE, to coordinate and communicate with the Eighth Coast Guard District on behalf of INDOT and KYTC with respect to the bridge span arrangement and navigation studies for any new bridge over the Ohio River in this vicinity. Stantec will keep INDOT and KYTC fully informed of all future coordination with the Eighth Coast Guard District.

If you have any questions, or would like to discuss further, let us know.

Regards,

Janelle Lemon
Janelle Lemon,
I-69 Ohio River Crossing Project Manager



Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington KY 40513-1703

March 1, 2017

Eric Washburn
Bridge Administrator, Western Rivers
Eighth Coast Guard District
1222 Spruce Street
St. Louis, Missouri 63103-2832

REF: Vanderburgh County, Indiana / Henderson County, Kentucky
A249-17-P1608s101
I-69 Evansville – Henderson New Ohio River Crossing Bridge

Dear Sir,

The Indiana Department of Transportation and Kentucky Transportation Cabinet are in the environmental and preliminary design process of preparing plans for a new bridge crossing near Evansville as part of the I-69 Ohio River Crossing project. Stantec is subcontracted Parsons Transportation Group who is contracted with INDOT to provide the engineering services for this project. FHWA will be contacting the US Coast Guard and other Federal and State agencies separately to re-initiate the NEPA coordination process for the project, which has been recently on hold with the last correspondence with your office in July 2002.

INDOT recently contacted you regarding this project and requested that the Eighth Coast Guard District coordinate directly with Stantec Consulting Services Inc. regarding span arrangements and navigation studies for new bridge locations. This letter serves as a request for preliminary guidance on the navigation requirements for any new structure over the Ohio River in the project area to facilitate development of preliminary span arrangement alternatives. At a minimum, we intend to provide horizontal clearances equal to or greater than the existing US41 Gold Star Bridges at Henderson.

At this stage of the project, three areas are being considered for new crossing locations (as illustrated in the attached). During the preliminary engineering phase, we intend to perform navigation simulation modeling in these alternative corridors to further refine the required horizontal clearances and pier placement constraints. Clarification of minimum vertical clearance requirements is also requested. After receiving your response, we will schedule an early coordination meeting to discuss potential issues moving forward on the project.

Attached are the following documents to provide additional background information on the project:

- Project Location Maps – Showing potential crossing areas currently being evaluated.
 - Area 1: Downstream, and in the vicinity of, the existing US 41 Gold Star Bridges.



March 1, 2017
Page 2 of 2

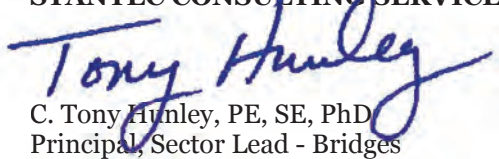
Reference: I-69 Evansville – Henderson New Ohio River Crossing Bridge

- Area 2: Upstream of the existing bridges but downstream of the confluence of the Green River with the Ohio River.
 - Area 3: Upstream of the confluence of the Green River with the Ohio River near South Willow Pond Ditch in the general vicinity of Huntington Creek Drive (Evansville).
- Existing Bridge Layouts for US 41 NB & SB over Ohio River
 - Ohio River Navigation Chart pages
 - US Coast Guard Project Correspondence Letter dated July 11, 2002.

If you have any questions, or would like to discuss further, let us know.

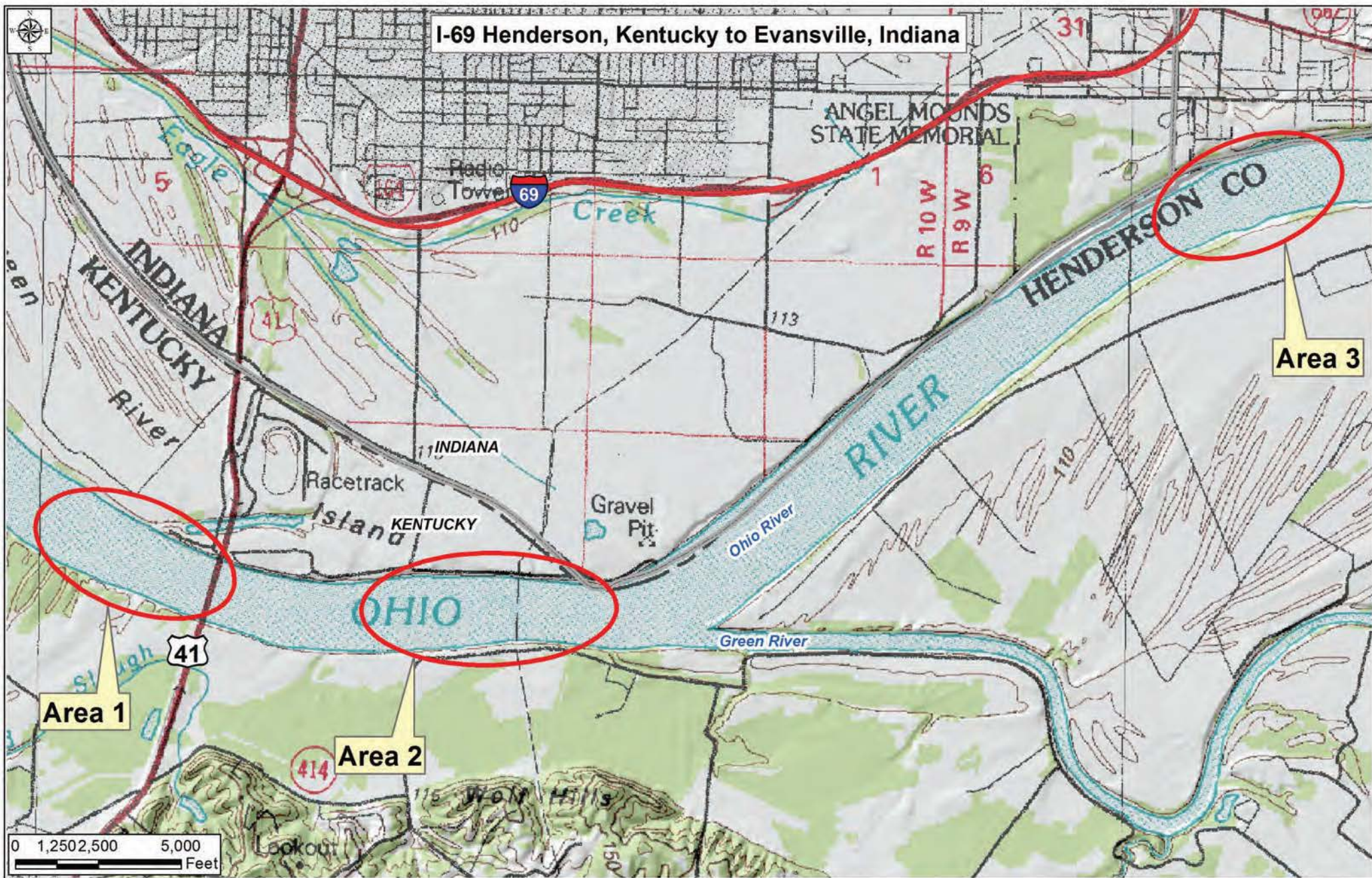
Regards,

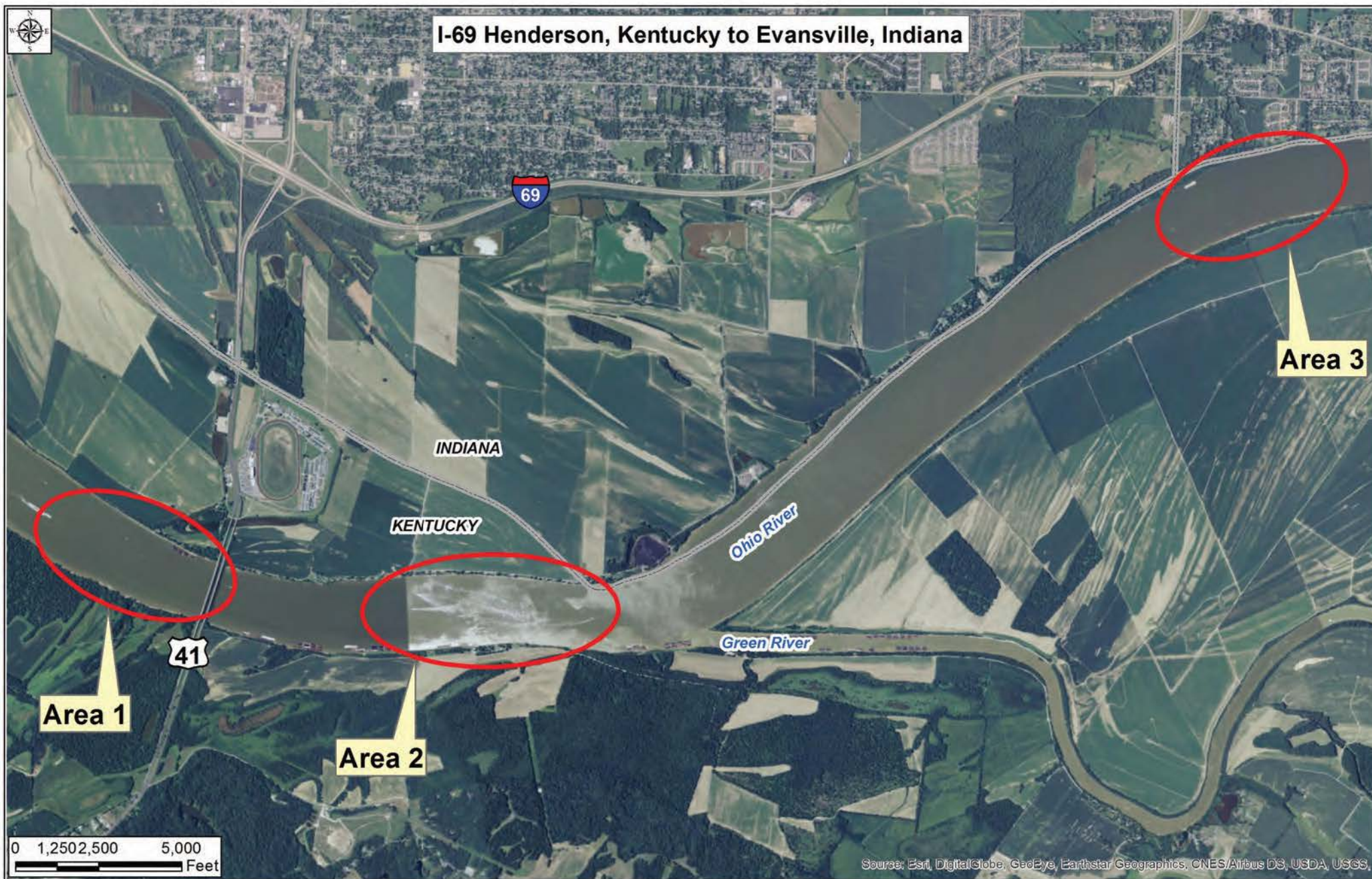
STANTEC CONSULTING SERVICES INC.

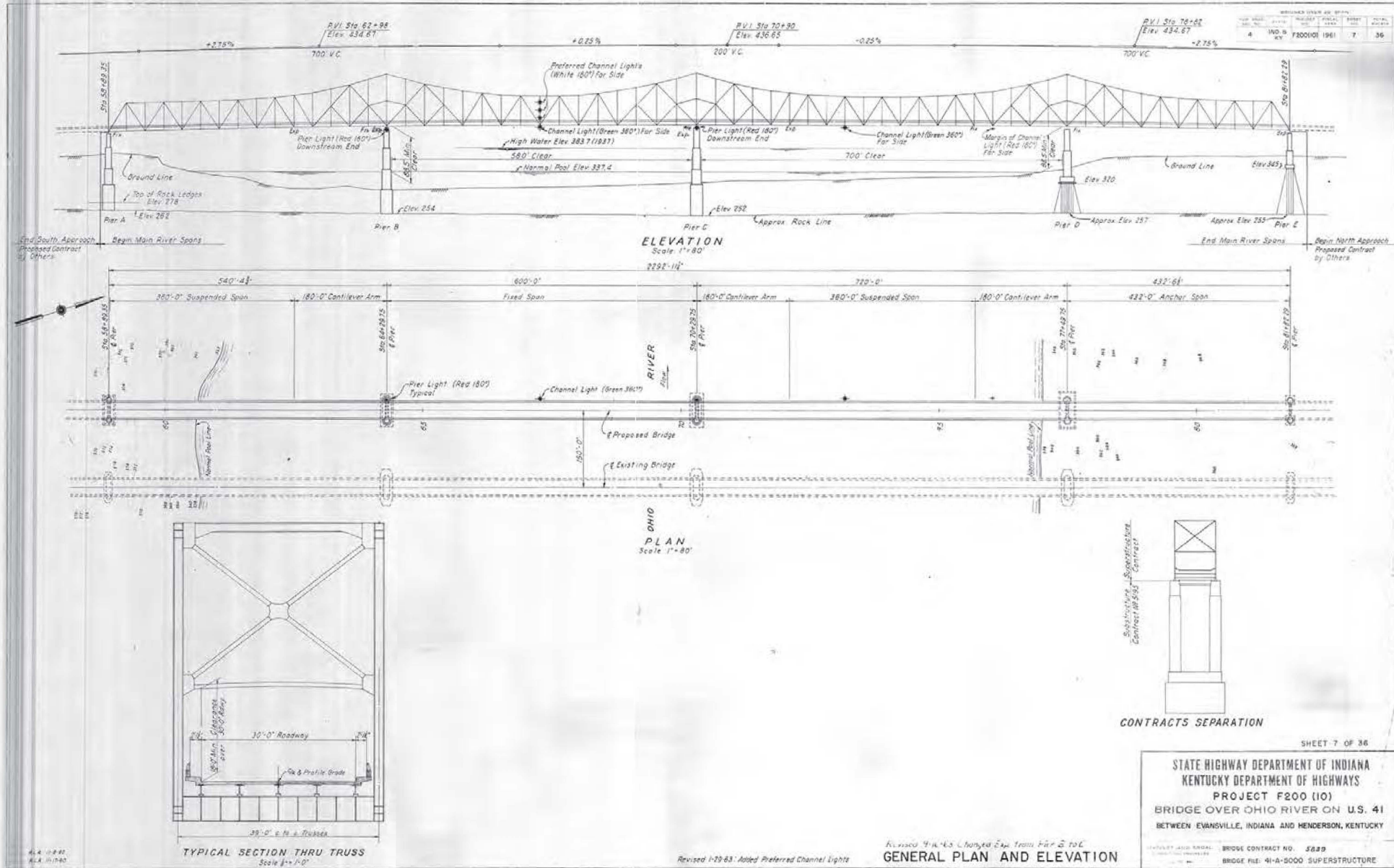


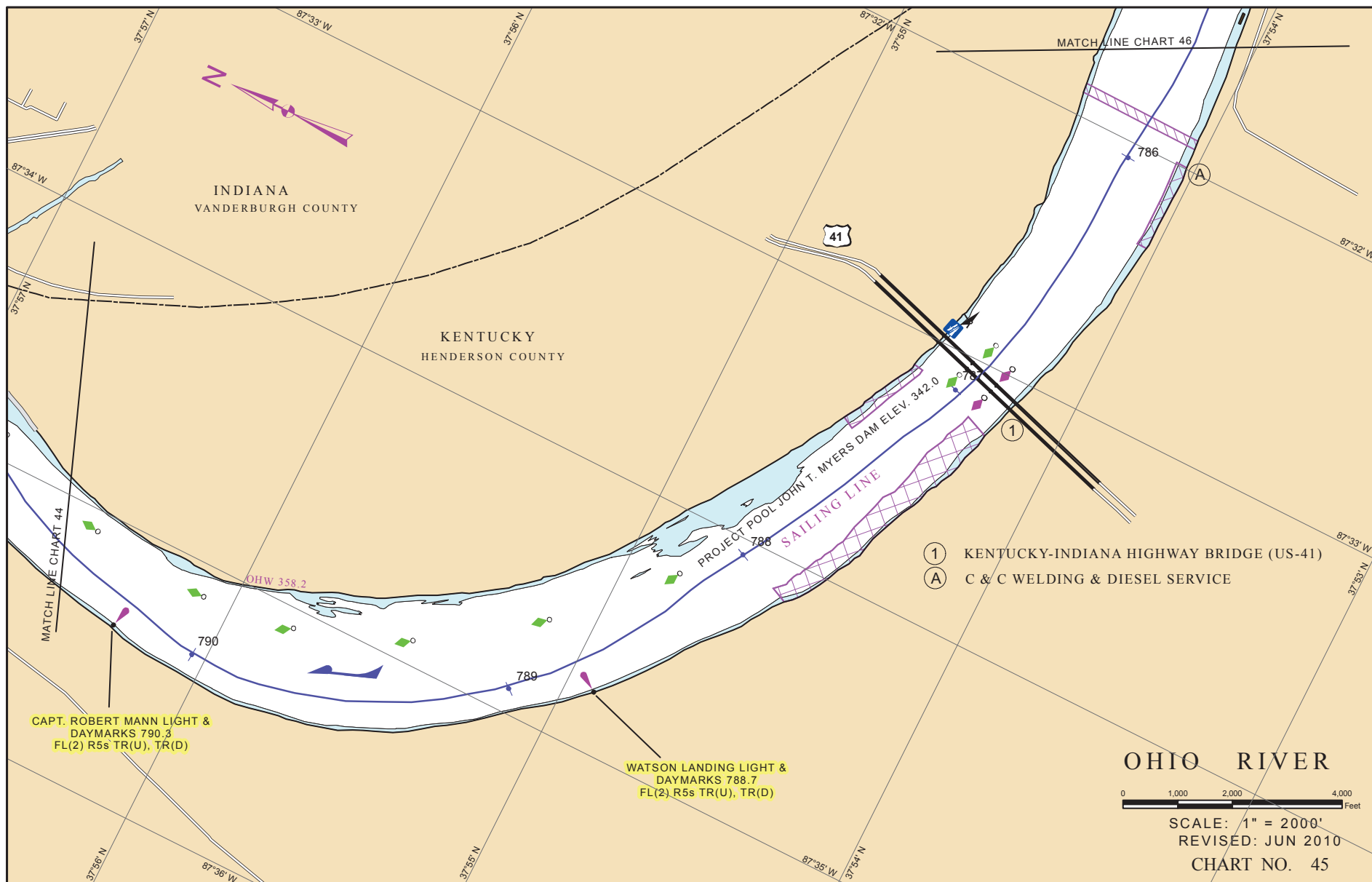
C. Tony Hunley, PE, SE, PhD
Principal, Sector Lead - Bridges

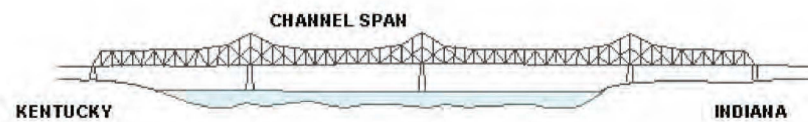
c. Janelle Lemon, INDOT
Gary Valentine, KYTC
Steve Nicaise, Parsons
Martin Furrer, Parsons









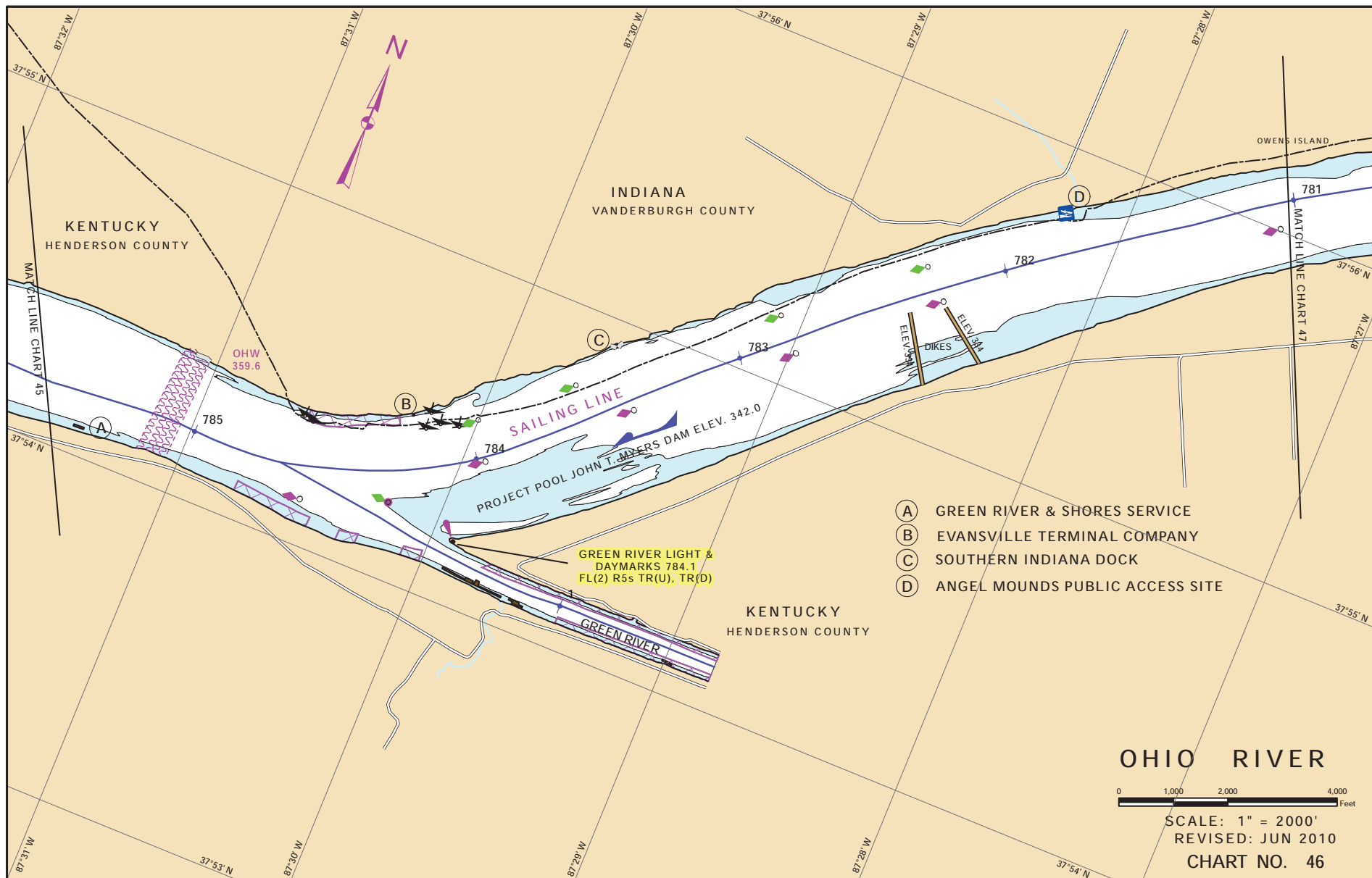


ELEVATION OF LOW STEEL	426.5'
VERTICAL CLEARANCE AT POOL STAGE	80.0'
HORIZONTAL CLEARANCE	580.0'



KENTUCKY-INDIANA HIGHWAY (US 41) BRIDGES (Ohio River Mile 786.8)

Downstream View



U.S. Department
of Transportation

United States
Coast Guard



Commander
Eighth Coast Guard District

1222 Spruce Street
St. Louis, MO 63103-2832
Staff Symbol: ob
Phone: (314)539-3900 x2382
FAX: (314)539-3755

16591.1/820.0 OHR
11 July 2002

Mr. Tim N. Miller
Project Manager
HNTB Corporation
310 W. liberty St.
Suite 701
Louisville, KY 40202

Subj: PROPOSED NEW I-69 HIGHWAY BRIDGE BETWEEN EVANSVILLE, IN AND
HENDERSON, KY, MILE 820.0, OHIO RIVER

Dear Mr. Miller:

In reviewing the *Level 1 Draft Analysis Report*, page 5 states the design minimums for horizontal and vertical clearances and pier spacings for new river crossings are: 55 feet above the 2% low-level flood plain (vertical clearance); 69 feet above the normal pool plain; and 845 feet of horizontal clearance between piers. These statements are incorrect.

The correct minimum vertical guide clearance for the proposed subject bridge is: 55 feet above 2% flowline or 69 feet above normal pool (average June flow), whichever is greater. Also, the horizontal clearance in the navigation channel will be a minimum of 1000 feet. After a final crossing location is selected, we will determine pier placement and location and clearance requirements.

We appreciate the opportunity to comment on the project in this early stage. If you have any questions you can contact Mr. David Orzechowski of my office at the above number.

Sincerely,

A handwritten signature in dark ink, appearing to read "R. Wiebusch".

ROGER K. WIEBUSCH

Bridge Administrator

By direction of the District Commander



16591.1/787-781 OHR
11 May 2017

Mr. Tony Hunley
Stantec Consulting Services, Inc.
3052 Beaumont Centre Circle
Lexington, KY 40513-1703

Subj: PROPOSED I-69 BRIDGE, MILE 787-781, OHIO RIVER

Dear Mr. Hunley:

This is in reply to your letter dated March 1, 2017 regarding a new bridge crossing near Evansville, IN as part of the I-69 Ohio River Crossing project. You requested span arrangements and navigational clearances for new bridge locations as defined by:

- Area 1: Downstream , and in the vicinity of, the existing US 41 Gold Star Bridges;
- Area 2: Upstream of the existing bridges but downstream of the confluence of the Green River with the Ohio River; and
- Area 3: Upstream of the confluence of the Green River with the Ohio River near South Willow Pond Ditch in the general vicinity of Huntington Creek Driver (Evansville).

For Area 1, if a new bridge was built immediately adjacent to the existing US 41 Gold Star Bridge and this bridge was to remain, the horizontal clearance of a new bridge at this location would match existing left and right descending piers but with no center pier.

For Area 2, the Coast Guard has major concerns with any bridge built in this vicinity due to the proximity to the mouth of the Green River. This area is already congested with fleeting, loading/unloading facilities, and service/support industries and the adding of a bridge to this area could hamper these operations and become a hindrance to safe navigation.

For Area 3, after a more definitive crossing location is selected, we will determine pier placement and clearance requirements.

For any proposed bridge the minimum vertical clearance would be 55 feet above the 2% flowline or 69 feet above normal pool (average June flow), whichever is greater. Also, actual vertical clearance to be determined by examining vertical clearance of other bridges in the area.

We appreciate the opportunity to comment on the project in this early stage. You can contact Mr. David Orzechowski at the above telephone number if you have questions regarding our comments or requirements.

Sincerely,

A handwritten signature in blue ink, appearing to read "Eric A. Washburn".

ERIC A. WASHBURN
Bridge Administrator
By direction of the District Commander

Copy: INDOT



Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington KY 40513-1703

October 9, 2017

Eric Washburn
Bridge Administrator, Western Rivers
Eighth Coast Guard District
1222 Spruce Street
St. Louis, Missouri 63103-2832

ATTN: David Orzechowski

REF: Vanderburgh County, Indiana / Henderson County, Kentucky
I-69 Evansville – Henderson New Ohio River Crossing Bridge, Ohio River Mile 787-781
Navigation Clearance Study & Navigation Simulation Modeling Report

Dear Sir,

By this letter, we are transmitting the following documents related to the subject project:

- Navigation Simulation Modeling Report – Summary report of the navigation simulation modeling study performed in conjunction with Seamen’s Church Institute and the USCG in July 2017. The report details the navigation modeling plan development, progression of the study during the onsite simulation modeling exercises, and summarizes the results of each exercise.
- Navigation Clearance Study – Study report detailing proposed horizontal and vertical clearance envelopes based on initial guidance from the USCG, the results of the Navigation Simulation Modeling, and consideration of ongoing project development related to river crossing alternative locations analysis.

The Navigation Clearance Study is the primary document for USCG review for consideration of vertical and horizontal clearance recommendations by the project team. As has been discussed previously, this project is a significant one for INDOT and KYTC and, as such, an extensive environmental and preliminary engineering phase is ongoing. Given that the cost of a new bridge over the Ohio is a major component in the cost of the project and the unique environmental, social, and budgetary impacts of the various alignments currently under consideration, the project team is respectfully requesting that the USCG consider the attached documents and provide acceptable vertical and horizontal clearance guidance for both the “Western” and “Central” river crossing locations.

Vertical Clearance: The Clearance Study includes proposed low chord elevations for each river crossing location based on previous guidance provided by the USCG, coordination of water surface elevations



Reference: I-69 Evansville – Henderson New Ohio River Crossing Bridge

with the USACE, and supplemental hydraulic analysis (summary attached to Study report). Please review and provide concurrence or alternative guidance on these proposed elevations.

Alignment	Prop. Low Chord Elev.	Controlling Criteria
Western	El. 425.9	55-ft above 2% flowline
Central	El. 426.3	55-ft above 2% flowline

Horizontal Clearance: As discussed previously and on several occasions, the project team is requesting consideration and approval of various scenarios for each bridge location. The summary of proposed horizontal clearance windows for consideration are summarized in the table below with detailed discussion in the attached documents.

Alignment	Scenario	Proposed Horizontal Clearance
Western	One/both existing bridges remain	• Two adjacent 600-ft clearance channels
	Existing bridges removed	• Two adjacent 600-ft clearance channels, and • Single 800-ft clearance channel
Central	With or without existing bridges	• Two adjacent 600-ft clearance channels, and • Single 800-ft clearance channel

Please note, for two of the scenarios, two separate horizontal clearance windows are proposed. We respectfully request consideration for approval of both clearance window options for these scenarios to maximize flexibility in the bridge design as the two concepts will allow for consideration of multiple structure types and have significant impact on projects costs.

We appreciate the USCG's partnership and flexibility in collaborating with the project team at this stage, understanding that the clearance requirements for each location, with the resulting structure types and varied structure costs, are a key input consideration for the upcoming evaluation of each alignment crossing location to determine the Preferred Alternative.



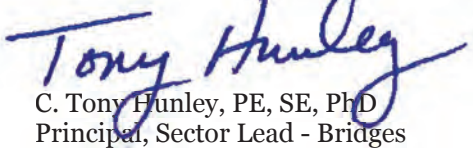
October 9, 2017
Page 3 of 3

Reference: I-69 Evansville – Henderson New Ohio River Crossing Bridge

If you have any questions, or would like to discuss further, let us know.

Regards,

STANTEC CONSULTING SERVICES INC.



C. Tony Hunley, PE, SE, PhD
Principal, Sector Lead - Bridges

- c. Janelle Lemon, INDOT
- Jim Poturalski, INDOT
- Gary Valentine, KYTC
- Marshall Carrier, KYTC
- Steve Nicaise, Parsons
- David Depp, Stantec
- Martin Furrer, Parsons



16591.1/785.2-787.0 OHR
November 27, 2017

Mr. Tony Hunley
Stantec Consulting Services, Inc.
3052 Beaumont Centre Circle
Lexington, KY 40513-1703

Subj: PROPOSED I-69 BRIDGE, MILE 785.2-787, OHIO RIVER

Dear Mr. Hunley:

This is in reply to your letter dated October 9, 2017 requesting acceptable vertical and horizontal clearance guidance for both the "Western" and "Central" proposed river crossing locations located at river mile 787.0 and 785.2 respectively.

- Western Alternative (one or both existing bridges to remain) – A new bridge at this location would have to match the horizontal clearances of the existing bridges, i.e. horizontal clearance of main navigation span is 582.6 feet and the alternate span is 703.7 feet; for vertical clearance, low chord elevation would be based on your proposal of 425.9 m.s.l. (55 feet above the 2% flowline) NAVD 88 datum. The far left descending pier would be on the bank. The Indiana pier would be at the river's edge.
- Western Alternative (existing bridges removed) – A new bridge at this location would require two navigation spans providing at least 650 feet of clearance each or if one navigation span were proposed, it would require at least an 800 foot or larger horizontal clearance due to the amount of navigation traffic in this area. This alternative would also require at least a 250 foot clear channel (measured pier face to pier face) be provided along the Kentucky bank for the use of fleeter boats. Low chord elevation would be based on your proposal of 425.9 m.s.l. (55 feet above the 2% flowline) NAVD 88 datum.
- Central Alternative (new alignment) – A new bridge with two navigation spans with a minimum of 650 feet of clearance each or a single navigation span of at least 800 feet of clearance or larger would be required. This alternative would also require at least a 250 foot clear channel (measured pier face to pier face) be provided along the Kentucky bank for the use of fleeter boats. At this location, low chord elevation would be based on your proposal of 426.3 m.s.l. (55 feet above the 2% flowline) NAVD 88 datum.

All of the above scenarios presented for both vertical and horizontal clearances would be acceptable for a Coast Guard Bridge Permit and would meet the reasonable needs of navigation.

Once the actual pier placement and alignment for the new bridge has been determined, please forward these drawings to us for review and approval. Final concurrence cannot occur until we process a public notice and receive public input.

Subj: PROPOSED I-69 BRIDGE, MILE 787-781,
OHIO RIVER

16591.1/785.2-787.0 OHR
November 27, 2017

If you have any questions or need further assistance, please call Mr. David Orzechowski at the above phone number.

Sincerely,



ERIC A. WASHBURN
Bridge Administrator, Western Rivers
By direction of the District Commander

From: Orzechowski, David A CIV <David.A.Orzechowski@uscg.mil>
Sent: Tuesday, April 23, 2019 10:50 AM
To: Nicaise, Steven <Steven.Nicaise@parsons.com>
Subject: FW: Response to USCG Letter Dated 12/20/2018 re: I-69 Ohio River Crossing DEIS

Steve,

Appreciate the response to our Dec 20, 2018 letter regarding adding a Navigation Impacts section. Well written.

Thanks,

David Orzechowski

Coast Guard Bridge Office
St. Louis, MO
314.269.2382

From: Nicaise, Steven <Steven.Nicaise@parsons.com>
Sent: Monday, April 22, 2019 10:55 AM
To: Washburn, Eric CIV <Eric.Washburn@uscg.mil>
Cc: Prevost, Daniel <Daniel.Prevost@parsons.com>; Allen, Michelle (FHWA) <michelle.allen@dot.gov>; 'Eric Rothermel (eric.rothermel@dot.gov)' <eric.rothermel@dot.gov>; Valentine, Gary (KYTC) <gvalentine@ky.gov>; Jasinski, Kevin G <KJasinski@indot.IN.gov>; Jim Poturalski <jpoturalski@indot.in.gov>; Carrier, Marshall D (KYTC) <marshall.carrier@ky.gov>; Ronald Bales <rbales@indot.in.gov>; Laura Hilden <lhilden@indot.IN.gov>; Peake, Danny R (KYTC) <Danny.Peake@ky.gov>; Foreman, Tim E (KYTC) <tim.foreman@ky.gov>
Subject: [Non-DoD Source] Response to USCG Letter Dated 12/20/2018 re: I-69 Ohio River Crossing DEIS

Eric,

In response to the letter that USCG sent to Michelle Allen, FHWA on December 12, 2018 please see the attached memo with additional river commerce information as requested. This additional information will be presented in the FEIS document. Please provide any comments you may have on the additional information.

Sincerely

Steven G. Nicaise, PE, PMP™

Vice President – Mobility Solutions
9300 Shelbyville Rd, Suite 1301, Louisville, KY 40222
steven.nicaise@parsons.com - +1 502.653.6622 Mobile +1 502.439.1023

PARSONS - Envision More
www.parsons.com | [LinkedIn](#) | [Twitter](#) | [Facebook](#)



MEMORANDUM

To: Eric Washburn, USCG

From: Dan Prevost, Parsons

Date: March 12, 2019

Subject: Response to letter from Eric Washburn to Michelle Allen, December 20, 2018

We have prepared this memorandum in response to the United States Coast Guard (USCG) comment letter (USCG 2018) on the December 2018 *Draft Environmental Impact Statement* (DEIS) (Indiana Department of Transportation (INDOT) and Kentucky Transportation Cabinet (KYTC) 2018) for the I-69 Ohio River Crossing project. That letter stated:

The following comment must be addressed in the final EIS in order that this document will be acceptable to the Coast Guard.

A full navigational section of how bridge construction will impact the waterway users and Ohio River commerce. A description of Ohio River commerce in terms of numbers, sizes and types of vessels used to move the various commodities and the marine facilities which depend on the efficient movement of goods on the waterway. Also, an analysis of the current vessel traffic and a forecast of future traffic and how the bridge will impact future growth.

A preliminary draft of the supplemental section is provided below. We would appreciate your review of the material to ensure that we have adequately addressed your comments.

OHIO RIVER NAVIGATION

AFFECTED ENVIRONMENT

The Ohio River is a series of pools connected by 19 high-lift locks and dams installed by the United States Army Corps of Engineers (USACE) for navigational purposes. The project area is within the area of the Ohio River known as "John T. Myers Pool". This 69.9-mile-long water body is bounded by Newburgh Locks & Dam (Newburgh) upstream at river mile point 776.1 and John T. Myers Locks & Dam (John T. Myers) on the downstream end at river mile point 846.0. The existing US 41 bridges cross at river mile point 786.8.

River commerce is critical for the local and regional economy. Each year, millions of tons of cargo worth billions of dollars are shipped on the rivers near the project area, as summarized in Table 1. Major commodities shipped include coal, aggregates, grain, iron/steel, and petroleum. The Green River, whose confluence with the Ohio River is at river mile point 784.1, carries shipments of coal and other freight to and from central Kentucky (USACE 2016a and 2016b).



Table 1. River Commerce Annual Summary (2016)

WATERWAY	TONS PER YEAR	VALUE PER YEAR
Ohio River - Indiana	31 Million	\$ 6.1 Billion
Ohio River – Kentucky	61.5 Million	\$ 12.5 Billion
Green and Barren Rivers – Kentucky	10.7 Million	\$ 996 Million

Source: USACE 2016a and 2016b

The John T. Myers pool also contains some of the busiest river ports in the United States, including the Port of Indiana - Mount Vernon, IN located downstream of the project area at river mile point 828. Mount Vernon, the sixth largest river port in the US, is a regional hub for multimodal shipments with over 3,600 barges moving through it annually (Ports of Indiana 2019). Closer to the project area, the Henderson County Riverport intermodal facility is located at river mile point 808 in the City of Henderson, KY. The Henderson riverport maintains a fleet of 134 barges (Henderson County Riverport Authority 2019). Major commodities handled at these facilities include coal, grains, steel, lime/cement, ethanol, fertilizer, talc, limestone, coke, salt, and heavy lift cargo.

In addition to the large river ports, there are numerous marine facilities within the John T. Myers pool, including power stations (e.g., Vectren), grain companies (e.g., ADM, Cargill), aggregate companies (e.g., Mulzer, Irving Materials), petroleum companies (e.g., Trans Montaigne, Ashland Oil), marinas, and public ramps. Significant marine operators working within this portion of the river include American Commercial Barge Lines, Crounse Corporation, Ingram Barge, and Southern Towing, who all participated in the *Navigation Simulation Modeling Report* (INDOT & KYTC 2017a). Most of the marine facilities are outside the DEIS study area, except for the Evansville Marine Service, Inc. (EMS) Green River facility at river mile point 786 (EMS 2019).

While the majority of cargo on the river is shipped via barges, there are a variety of water vessels using the Ohio River in the project area. From 2007 to 2016, an average of 37,000 loaded barges went through the locks on the John T. Myers pool (USACE 2016c). A summary of the lock usage data is provided in Table 2.

Table 2. Lock Usage

VESSEL TYPE	NUMBER OF VESSELS		
	JOHN T. MYERS 2016	NEWBURGH 2016	TEN-YEAR AVERAGE BOTH LOCKS 2007-2016
Barges Empty	14,415	22,337	21,226
Barges Loaded	26,184	32,449	37,462
Commercial Vessels	4,351	5,542	5,688
Commercial Flotillas	4,322	5,529	5,665
Non-Commercial Vessels	65	22	37
Recreational Vessels	1,653	743	1,192

Source: USACE 2016c

ENVIRONMENTAL CONSEQUENCES

Coordination occurred between the project team and the USCG to determine how navigation can be least impacted with the construction of the new bridges (see Section 8.2.3 of the DEIS (INDOT and KYTC 2018). A *Navigation Clearance Study* and *Navigation Simulation Modeling Report* were submitted to USCG on October 9, 2017 (INDOT and KYTC 2017a and 2017b). The navigation simulation was conducted to identify acceptable pier placement and horizontal clearance for the proposed bridge as well as preferred bridge pier orientation. USCG responded on November 27, 2017 that the vertical and horizontal clearances presented for Western Alternatives 1 and 2 and Central Alternatives 1A and 1B (Preferred) would be acceptable for a USCG Bridge Permit and would meet reasonable needs of navigation (USCG 2017). Final concurrence would occur following submittal of drawings and opportunities for public input.

No Build Alternative

The No Build Alternative would leave the existing US 41 bridges in-place and construct no new infrastructure in the river. This alternative would have no impact on river commerce, and existing marine operations could continue to operate.

West Alternative 1

West Alternative 1 would include a new four-lane interstate bridge over the Ohio River west of US 41, approximately at river mile point 787. The Audubon Memorial Bridge/Northbound US 41 Bridge would be converted to a two-way bridge for local traffic while the Southbound US 41 Bridge would be removed. The new bridge would be approximately 83 feet west of the southbound bridge and 243 feet from the northbound bridge. The new bridge configuration would closely match the existing bridge navigation channel locations. The proposed elevation for vertical clearance would be 425.9 feet above mean sea level (m.s.l.) (NAVD88), which is just above the current US 41 bridges' elevation of 424.6 feet m.s.l. This would provide for two navigation channels, including a center pier, each with 600-foot clearance. Plan and elevation drawings were provided in Appendix A of the *Navigation Clearance Study* (INDOT and KYTC 2017b). This configuration would be very similar to the existing bridge configuration, which has existed since the 1930's. West Alternative 1 is not expected to impact river commerce or existing marine facilities.

West Alternative 2

West Alternative 2 would include a new six-lane interstate bridge over the Ohio River, approximately at river mile point 787. Both existing US 41 bridges would be removed. Under this alternative, both a two-channel and a single-channel bridge configuration were considered. One configuration would mirror the two-channel configuration described above under West Alternative 1, closely matching existing conditions. The alternate configuration would provide a single navigation channel with a horizontal clearance of 800 feet and a vertical clearance elevation of at least 425.9 feet m.s.l. West Alternative 2 is not anticipated to impact river commerce or existing marine facilities.

Central Alternatives 1A and 1B (Preferred)

Central Alternatives 1A and 1B (Preferred) would include a new four-lane interstate bridge over the Ohio River approximately 1.5 miles east of the existing US 41 bridges at river mile point 785.2. This location is 0.9 mile downstream of the confluence of the Green River. The Audubon Memorial Bridge/Northbound US 41 Bridge would be converted from a one-way bridge to a two-way bridge for local traffic. The Southbound US 41 Bridge would be removed. Based on the navigation simulations, both a two-channel configuration (600-600 ft) and a single-channel configuration (800 ft) are recommended. These alternatives would also provide at least a 250 foot clear channel (measured pier face to pier face) along the southern bank for use of fleeter boats. The proposed elevation for vertical clearance would be slightly higher at 426.3 feet m.s.l than the remaining northbound US 41 bridge which is at 424.6 feet m.s.l. The nearby EMS marine facility located at river mile point 786 should have no permanent impacts, but their normal operations would likely have temporary disruptions during construction (see Construction Impacts). Central Alternatives 1A and 1B are not anticipated to permanently impact river commerce or existing marine facilities.

CONSTRUCTION IMPACTS

Construction of the bridge substructure and superstructure has implications for river navigation. During construction, building equipment and materials would need to be placed in the river channels, thereby reducing the horizontal clearance available for navigation. Work tugs and material barges would be operating near the construction site.

The duration of the reduction in horizontal clearance is dependent upon the specific foundation type selected and the specific methods of construction employed, but is expected to be in the range of 1 to 3 years. Depending on the type of construction, temporary closure of one or both of the river channels may be required so that the work tug, material barge and crane barge can operate in the channels. Construction may also temporarily impact the use of this portion of the river for two-way traffic.

Bridge demolition will also impact river navigation. Depending on which demolition technique is used, river navigation will be obstructed for a period of time during demolition. A final determination about demolition methodology will be made during final design and in consultation with the USCG. Coordination will also occur with the USACE during the permitting process to assess potential environmental impacts resulting from the bridge demolition.

- Bridge Deck—Two options exist for removing the bridge deck. One consists of cutting the bridge deck into large sections and removing it by barge or by trucks using the still intact portions of the bridge. The other consists of breaking the deck into smaller pieces and dropping the debris into debris nets.
- Structural Steel—The structural steel of the bridge may either be dismantled piecemeal or in large spans and removed using barges. Dismantling in large spans may require the use of explosive devices to break apart the larger pieces of the steel.

MEMORANDUM – Response to Dec. 20, 2018 Letter from USCG

- Foundations—The concrete foundations of the river spans would be removed at a depth approved by the USCG and USACE, anticipated to be zero to two feet below the mudline.

LITERATURE CITED

Evansville Marine Service, Inc.

2019 Facilities webpage. Source: <http://www.ems-harbors.com/facilities.html>

Henderson County Riverport Authority

2019 Facilities webpage. Source: <https://hendersonport.com/facilities/>

Indiana Department of Environmental Management and Kentucky Transportation Cabinet

2017a *Navigation Simulation Modeling Report*

2017b *Navigation Clearance Study*

2018 *Draft Environmental Impact Statement*. Available at <https://i69ohiorivercrossing.com/deis/>

Ports of Indiana

2019 Port Overview webpage. Source: <http://www.portsofindiana.com/mountvernon/ohio-river-mega-port/>

United States Coast Guard

2017 Letter from Eric Washburn to Tony Hunley regarding Proposed I-69 Bridge.

2018 Letter from Eric Washburn to Michelle Allen regarding Proposed I-69 Bridge.

United States Army Corps of Engineers

2016a Indiana Waterborne Commerce Fact Sheet. Source: <http://waterwayscouncil.org/wp-content/uploads/2012/11/Indiana-2016.pdf>

2016b Kentucky Waterborne Commerce Fact Sheet. Source: <http://waterwayscouncil.org/wp-content/uploads/2012/11/Kentucky-2016.pdf>

2016c Public Lock Usage Report, Ohio River 2016