From: BIERY, PAUL KIM <PAUL.BIERY@scana.com>
Sent: Thursday, September 5, 2019 4:09 PM
To: Amy Cappellino (Amy.e.Cappellino@usace.army.mil) <Amy.e.Cappellino@usace.army.mil>
Cc: Peter.B.McKoy@usace.army.mil <Peter.B.McKoy@usace.army.mil>; Brown, Sara A CIV USARMY CESAC (US) <Sara.A.Brown@usace.army.mil>; EFFINGER, THOMAS (SEG Services - 6) <THOMAS.EFFINGER@DOMINIONENERGY.COM>; Berresford, James <berresjl@dhec.sc.gov>; Cassidy, Greg <cassidga@dhec.sc.gov>; Rusty Contrael <rcontrael21@outlook.com>; Heather Brown <Brown.Heather@richlandcountysc.gov>; cstone@lex-co.com <cstone@lex-co.com>; LAKhan@ColumbiaSC.Net <LAKhan@ColumbiaSC.Net>; coxM@dnr.sc.gov <coxM@dnr.sc.gov>
Subject: FW: DHEC Modified Removal Action conceptual plan concurrence - Congaree River

Amy,

In a continuing effort to submit a complete and comprehensive permit application to the USACE for a cofferdam permit which will support the Stakeholder-developed modified removal Action (MRA) of a tar-like material (TLM) from the Congaree River, we are providing the attached information.

On Thursday, August 22, 2019 a conference call was conducted between various representatives from Dominion Energy South Carolina (DESC), the USACE and the SCDHEC to discuss the 'Engineering No-Rise Certification(s)" and supporting "Backwater Analysis" dated April 12, 2019 and other issues related to the Congaree River MRA Project. The "Backwater Analysis" was developed to evaluate the effects of the proposed cofferdam(s) on the 100-year, 50-year and 10-year flood events based on the FEMA prescribed methods. On August 8, 2019, the Corps provided comments regarding the April 12th submittal and included questions for much lower, more frequent river flow events. The intent of this submittal is to provide responses to the Corps' questions as well as a separate submittal of an additional engineering study that evaluates the effects of the cofferdam(s) on the lower flow events and a graphic that depicts the various flow regimes for each study.

In summary this submittal includes:

1. Detailed, written responses to the Corps' questions provided in an email dated August 8, 2019 - please see the attached responses (#1). [An interim response was also provided by DESC on August 12, 2019.]

2. An evaluation of the lower flow high frequency events as was requested by the Corps. The attached study (#2), entitled "Low Flow Sensitivity Analysis", dated July 30, 2019, uses the same computer modeling ("Backwater Analysis" - HES-RAS program, input variables, etc.) used to provide the "Engineering No-Rise Certification". The "Low Flow Sensitivity Analysis" evaluates the impact that the proposed cofferdams will have on the more frequent and much lower river flow volumes/elevations.

3. A sketch is also attached (#3) that generally depicts the various river flow elevations that were evaluated in each of the studies. The "Backwater Analysis" evaluated the 100-year, 50-year and 10-Year flood events per the FEMA guidance. The "Low Flow Sensitivity Analysis", evaluated three lower flows, as they approach the top of the proposed cofferdam for Area 1.

4. DESC is seeking final concurrence from the Corps that the "Engineering No-Rise Certification(s)" [attached #4 and #5], the "Backwater Analysis" [provided previously], and the HEC-RAS computer model are complete and ready for Floodplain Manager review and approval. Once concurrence with these items is received, DESC will submit them to the appropriate Floodplain Managers for review and approval.

Please call or email with any questions or comments.

Thank you for your continued assistance with this important project.

Paul

VIA ELECTRONIC MAIL

August 28, 2019

William Zeli, P.E., Environment Program Manager
Apex Companies, LLC
1600 Commerce Circle
Trafford, PA 15085

Subject: **Hydraulic Analysis Memo Comment Response Letter**
Congaree River Remediation Project
Columbia, South Carolina

Dear Mr. Zeli:

This letter presents responses to questions received from USACE following their review of WSP's Hydraulic Analysis Memo dated April 12, 2019. The questions were received from USACE via email on August 8, 2019. For clarity, the USACE question is included in bold text, followed by WSP's response.

Question 1. What are the effects of the project on the lower flow high frequency events?

WSP completed a Low Flow Sensitivity Analysis in July 2019, which is provided as Enclosure A.

The analysis considered three low flow rates; 8,564 cfs (average mean-daily flow at USGS Gage 02169500), 26,000 cfs (water level just below cofferdam crest at upstream project extent), and 17,000 cfs (approximate water level mid-point between two previous values).

The HEC-RAS model results show the addition of the proposed Area-1 cofferdam structure results in maximum increases in water surface elevation of 0.5 ft, 0.4 ft, and 0.3 ft for the normal, mid-point, and cofferdam crest flows, respectively. The maximum increase in floodplain width of 8.1 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. The maximum increases in floodplain width for the normal and crest flows are 3.6 ft and 1.4 ft, respectively. However, the typical increase in floodplain width upstream of the Area-1 structure is less than 1.5 ft for the three low flow conditions considered.

The HEC-RAS model results show the addition of the proposed Area-2 cofferdam structure results in maximum increases in water surface elevation of 0.1 ft for the three low flow conditions considered. The maximum increase in floodplain extent of 1.8 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. The maximum increases in floodplain width for the normal and crest flows are 1.3 ft and 0.6 ft, respectively. However, the typical increase in floodplain width upstream of the Area-2 structure is less than 1 ft for the three low flow conditions considered.

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Question 2. Does the rise in Water Surface Elevation (WSE) stay within channel banks or does it increase flood risk for the high frequency flood events?

Floodplain extent maps were created to compare the extents for the three low flow conditions considered with and without the Area-1 and Area-2 cofferdams (modeled separately). These maps show that the change in floodplain extent due to construction of the cofferdams is negligible. The calculated rise in water surface elevation is retained within the channel banks with the exception of the area on the left bank underneath Gervais Street bridge, which is similar to conditions without the cofferdams so there is no change. Based on a visual review of aerial photographs and property boundary information[1,2], no additional properties are impacted by floodwater due to construction of the Area-1 or Area-2 cofferdams, for the high frequency flood events considered in the Low Flow Sensitivity Analysis (Enclosure A).

Question 3. At what flood event does the cofferdam overtop?

The upstream extent of the Area-1 cofferdam begins to overtop when the river flow exceeds approximately 26,500 cfs. The Draft Hydrologic Analysis for Richland County Report, dated 1/25/2019 was provided by FEMA along with the HEC-RAS hydraulic model of the Congaree River. The draft report provides peak discharges for the Congaree River at USGS Gage Station 02169500 as shown in Table 1 and Figure 1 below. This data suggests that a flow of 26,500 cfs has an annual probability of exceedance of approximately 50%, i.e., a 1 in 2-year flood event.

Table 1: USGS Gage 02169500 Peak Discharges (from Table 9; Richland County, South Carolina: Draft Hydrologic Analysis for Richland County, SC using Regression Analysis, Stream Gage, and Rainfall Runoff Methods)

Flooding Source and Location	Peak Discharge (cfs)				
	10% AEP 1 in 10-year	4% AEP 1 in 25-year	2% AEP 1 in 50-year	1% AEP 1 in 100-year	0.2% AEP 1 in 500-year
CONGAREE RIVER At USGS Gage Station No. 02169500	147,600	197,300	239,400	286,000	414,500

[1] Richland County, SC, Internet Mapping: http://www.richlandmaps.com/apps/dataviewer/?lat=33.99399&lon=-81.04640&zoom=17&base=roadmap&expanded=53759|52088|18518|38669|39665&layers=33844|24029
[2] Lexington County, SC, Online Mapping, Parcel Viewer: https://lexco-gis.maps.arcgis.com/apps/Solutions/s2.html?appid=93223c31eb2e46578b38e7bfd7af06bc

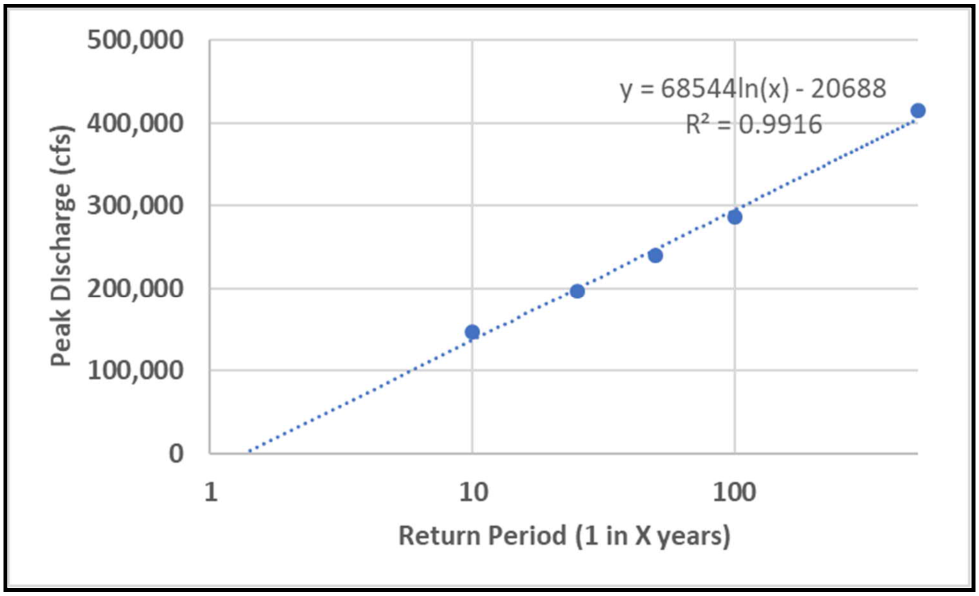

Figure 1: USGS Gage 02169500 Peak Discharges (from Table 9; Richland County, South Carolina: Draft Hydrologic Analysis for Richland County, SC using Regression Analysis, Stream Gage, and Rainfall Runoff Methods)

The report's narrative states, "This elevation is also defined as a levee crest feature; meaning that the area behind the cofferdam remains dry until the water rises above the crest and flows over the top of the structure. The storage and conveyance associated with the area behind the cofferdams is therefore not accounted for until the levee is overtopped. The dry area behind the cofferdams is also specified as an ineffective flow area to ensure that the additional cross-sectional area and wetted perimeter are not accounted for until the water level rises above the crest of the cofferdam."

Question 4. Is the model designed to indicate a breach failure like a dam break to allow flow to pass through the downstream end of the cofferdam?

No, the current model assumes that the entire cofferdam remains in place throughout the duration of the flood events that were considered and does not represent any dam breach or failure scenarios.

Question 5. Is it only the volume of the channel above the crest of the cofferdam that allows conveyance?

The upstream and downstream extents of the cofferdams, where the overtopping structures are located, are defined using cross section data as shown in Figure 2 below. The cofferdam area in between the overtopping structures is represented using the levee feature, which only allows water to flow onto the dry side of the cofferdam once the water level exceeds the crest elevation, as shown in Figure 3 below. The area behind the cofferdam below the crest elevation is also designated as an ineffective flow area, so no conveyance is accounted for in this area for water levels below the crest. However, this flow area becomes active once the water level exceeds the levee crest elevation. This is appropriate because water will be able to flow within the confines of the cofferdam. In order for water to flow out of the 'dry side' of the structure, it has to flow over the overtopping structure at the downstream extent, which is represented using cross section data. Therefore, the downstream extents cross section controls the conveyance leaving the cofferdam area, and these sections only allow flow conveyance above the crest of the overtopping structure located on the cofferdam crest.

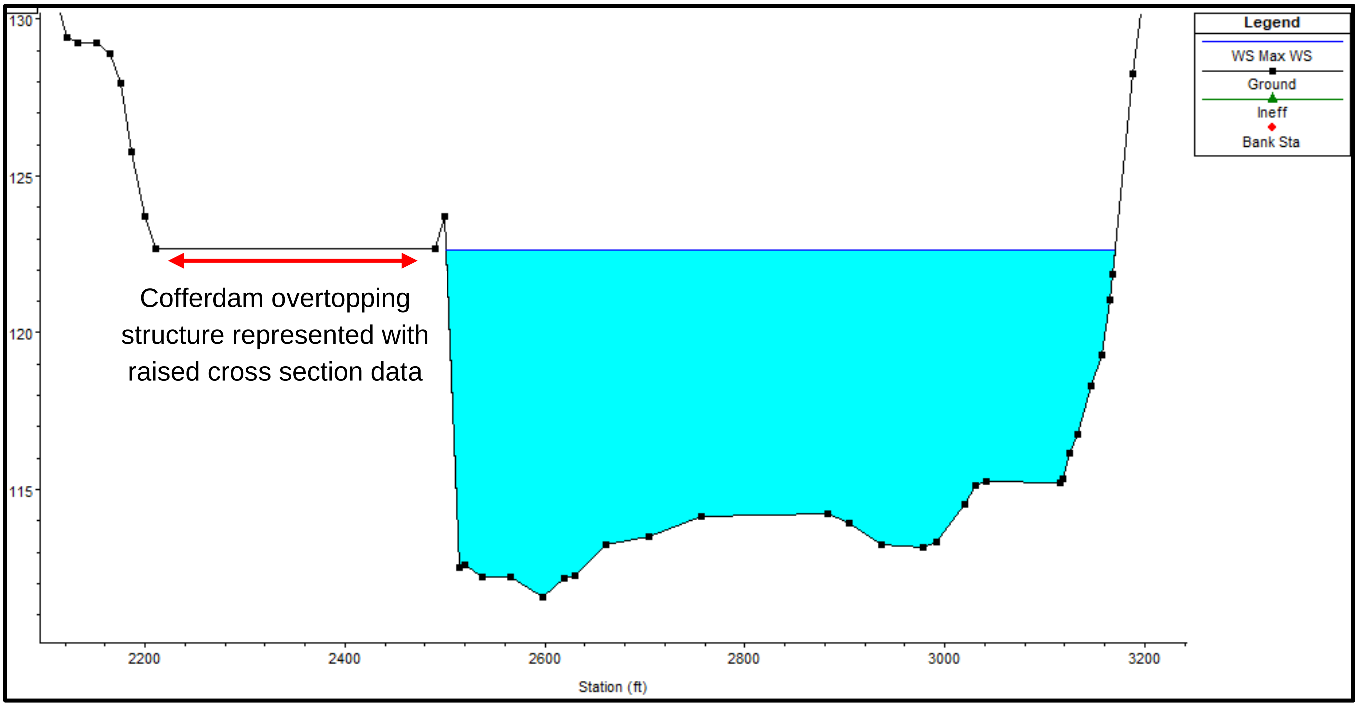

Figure 2: Cross section representing overtopping spillway at upstream crest of Area-1 cofferdam

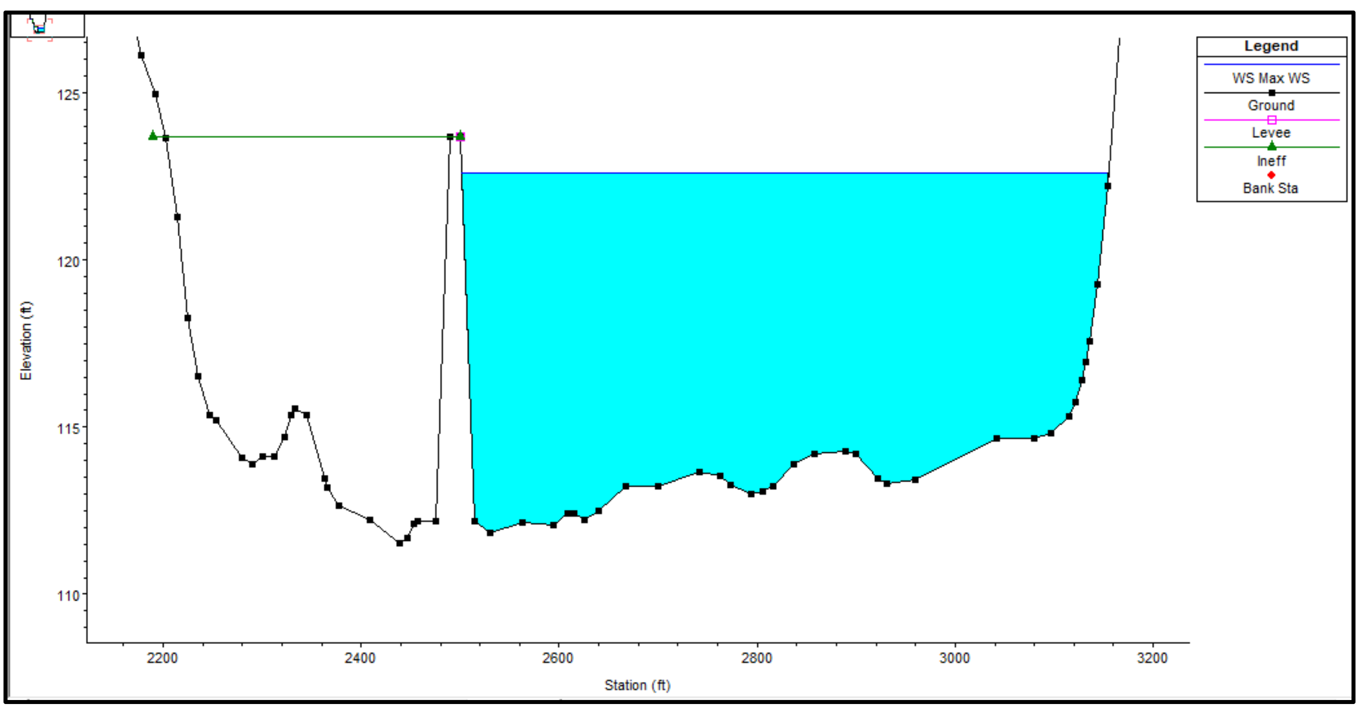

Figure 3: Typical cross section representing Area-1 cofferdam

The report's narrative states, "The FEMA model uses ineffective flow areas to represent areas of the floodplain which only provide flood storage and not flow conveyance. The same approach has been applied for the new cross sections, with areas of the right and left overbanks specified as ineffective flow areas until the water level rises above specified elevations."

Question 6. Please provide further explanation of what situation occurs within the project area to account for the need of ineffective flood areas.

The use of ineffective flow areas in relation to the cofferdam structures is discussed in the response to Question 5. Ineffective flow areas are used within the model to represent areas of the floodplain that primarily provide storage of flood water, and do not provide channel conveyance. Figure 4 shows an example of this situation, where areas of the left and right floodplain would be inundated by floodwater backing up from downstream, but raised bank areas mean that these areas will not contribute to channel conveyance until water levels exceed the bank crests. This approach has been used throughout the project area as required based upon the channel and floodplain topography.

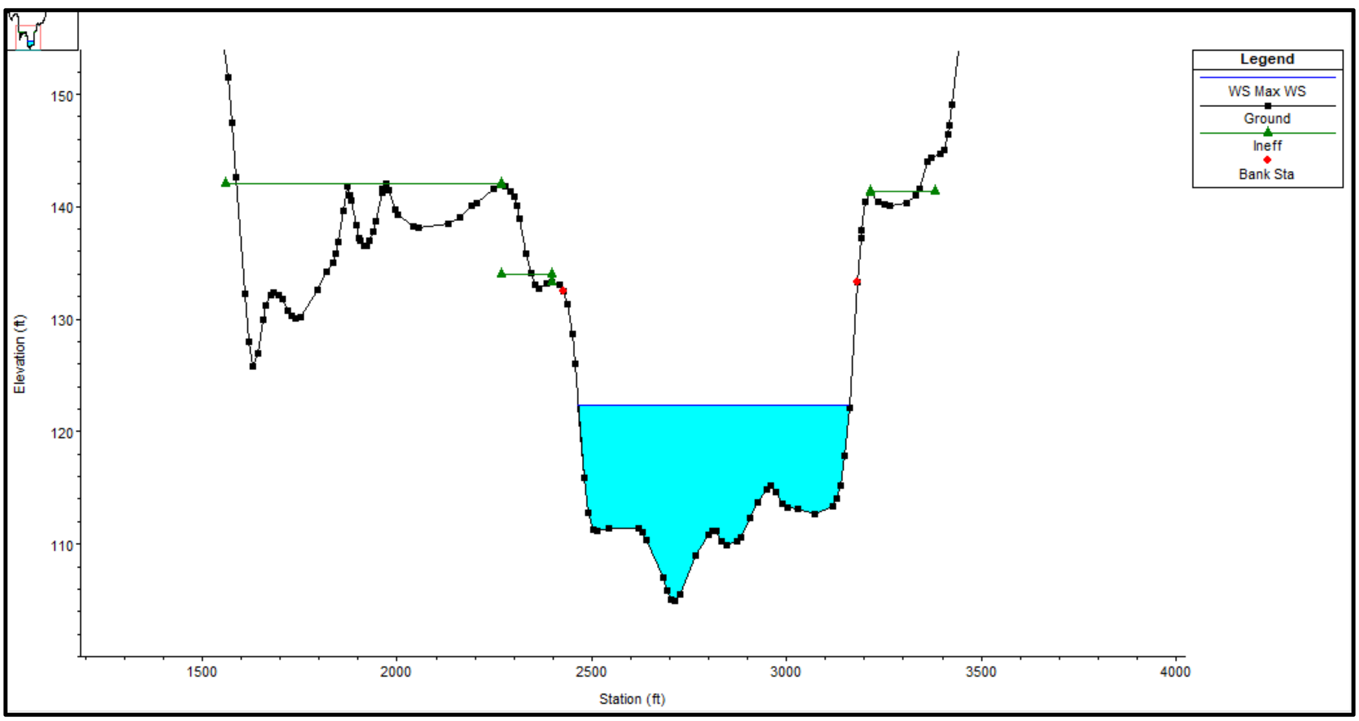

Figure 4: Typical cross section showing ineffective flow areas covering flood storage areas within the floodplain

If you have any questions or need any additional information, please contact John Osterle at 412-535-9823 or john.osterle@wsp.com.

Kind regards,

John P. Osterle, P.E.
Project Manager

JPO:TE:

Enclosure

ENCLOSURE A: LOW FLOW SENSITIVITY ANALYSIS MEMO – JULY 26, 2019 AND SUMMARY LETTER – JULY 30, 2019

VIA ELECTRONIC MAIL

July 30, 2019

William Zeli, P.E., Environment Program Manager
Apex Companies, LLC
1600 Commerce Circle
Trafford, PA 15085

Subject: **Low Flow Sensitivity Analysis**
Congaree River Remediation Project
Columbia, South Carolina

Dear Mr. Zeli:

This letter presents a summary of the results of WSP USA's (WSP) Low Flow Sensitivity Analysis Memo; dated July 26, 2019.

The analysis was completed to determine changes in water surface elevation and floodplain widths in the Congaree River due to construction of the proposed Area-1 and Area-2 cofferdam structures, during low flow conditions. The following three flow rates were considered in the analysis:

- Approximate normal flow rate = 8,564 cfs (average based on USGS data analysis)
- Flow rate that results in water just below the cofferdam crest elevation = 26,000 cfs
- Flow rate that results in water level midway between normal flow level and cofferdam crest = 17,000 cfs

The HEC-RAS model results summarized in Table 1 show the addition of the proposed Area-1 cofferdam structure results in maximum increases in water surface elevation of 0.5 ft, 0.4 ft, and 0.3 ft for the normal, mid-point, and cofferdam crest flows, respectively. The maximum increase in floodplain width of 8.1 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. The maximum increases in floodplain width for the normal and crest flows are 3.6 ft and 1.4 ft, respectively. However, the typical increase in floodplain width upstream of the Area-1 structure is less than 1.5 ft for the three low flow conditions considered.

The HEC-RAS model results show the addition of the proposed Area-2 cofferdam structure results in maximum increases in water surface elevation of 0.1 ft for the three low flow conditions considered. The maximum increase in floodplain extent of 1.8 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. The maximum increases in floodplain width for the normal and crest flows are 1.3 ft and 0.6 ft, respectively. However, the typical increase in floodplain width upstream of the Area-2 structure is less than 1 ft for the three low flow conditions considered.

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Table 1: Summary of Low Flow Sensitivity Analysis Results

Cofferdam	Variable	Normal Flow	Mid-Point Flow	Crest Flow
Area-1	Maximum change in W.S. Elevation (ft)	0.5	0.4	0.3
	Maximum change in Left (East) Bank Floodplain (ft)	3.5	1.2	1.1
	Maximum change in Right (West) Bank Floodplain (ft)	3.6	8.1	1.4
Area-2	Maximum change in W.S. Elevation (ft)	0.1	0.1	0.1
	Maximum change in Left (East) Bank Floodplain (ft)	1.3	1.3	0.6
	Maximum change in Right (West) Bank Floodplain (ft)	1.0	1.8	0.4

The HEC-RAS model results have been used to create floodplain extent maps, to compare the extents for the three low flow conditions considered with and without the Area-1 and Area-2 cofferdams (modeled separately). These maps show that the change in floodplain extent due to construction of the cofferdams is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-1 or Area-2 cofferdams.

If you have any questions or need any additional information, please contact John Osterle at 412-535-9823 or john.osterle@wsp.com.

Kind regards,

John P. Osterle, P.E.
Project Manager

JPO:TE:

Statement of Purpose

The purpose of this calculation is to perform a low flow sensitivity analysis for the affected area along the Congaree River in Columbia, South Carolina, due to the separate installation of two rock fill cofferdams around Areas 1 and 2.

A hydraulic analysis was previously completed to determine the impact of the proposed cofferdam structures on the Base Flood Elevations (BFE) for existing conditions as detailed in WSP's Hydraulic Analysis Memo, completed in April 2019 (WSP, 2019). This calculation uses the HEC-RAS model developed for the previous hydraulic analysis to simulate low flow conditions for the Corrected Effective, Proposed (Area-1), and Proposed (Area-2) models.

A plan view showing the extents of the cofferdams is included on Figure 1, based on Apex Drawing "Stakeholder Approved MRA Plan Sediment Remediation Areas" (Apex, 2019).

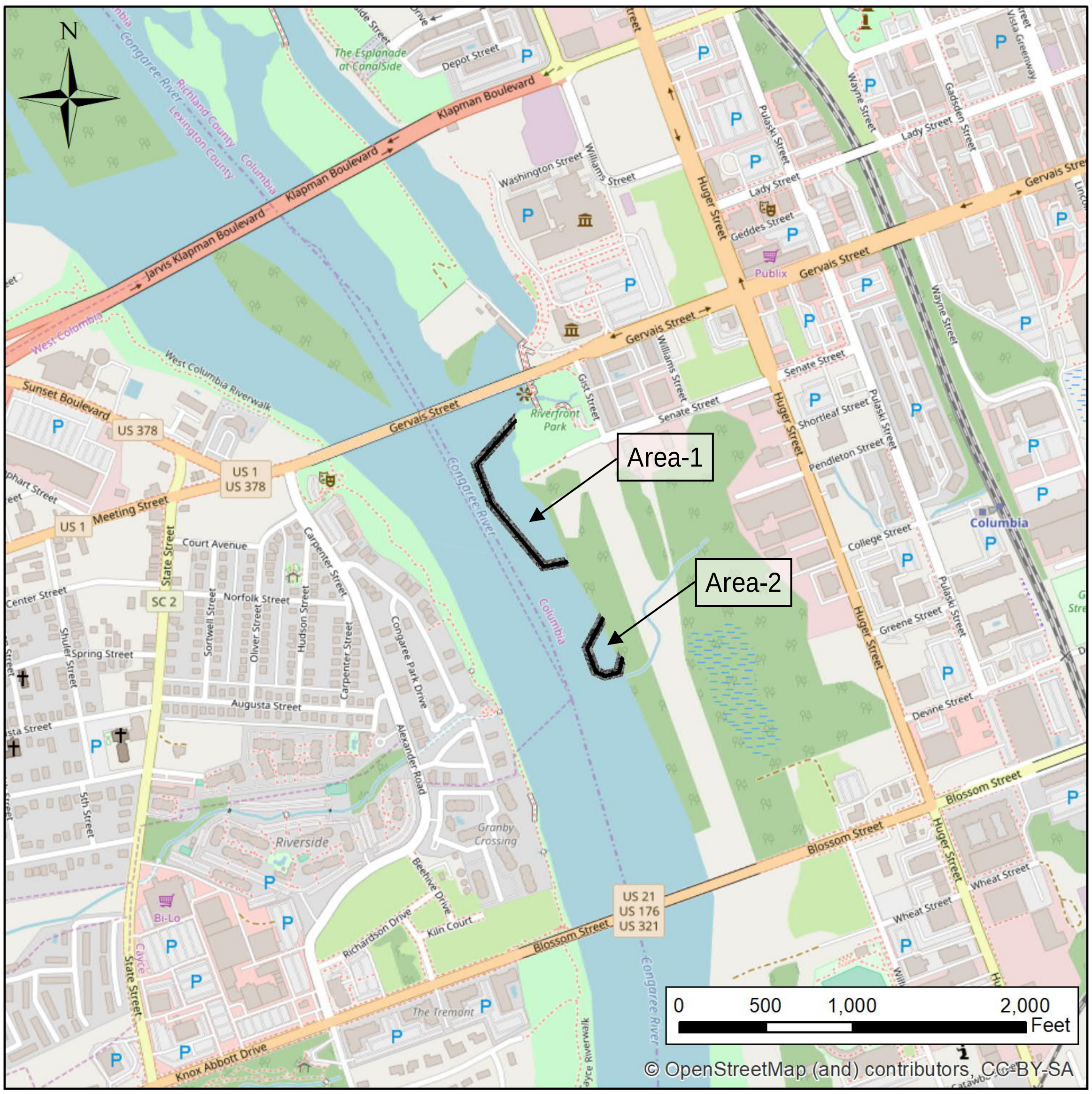

Figure 1: Plan View of Proposed Cofferdams

Description of Methodology Used

WSP (2019) provides full details of the HEC-RAS models developed for the previous hydraulic analysis, which considered the 10-year, 50-year, and 100-year flood events. No changes have been made to the HEC-RAS models for this low flow sensitivity analysis apart from to update the inflow boundary conditions to represent low flow conditions.

The following key characteristics of the HEC-RAS model are repeated below for clarity. Full details can be obtained from WSP (2019).

- The HEC-RAS model was developed from FEMA's Current Effective Model of the Congaree River, and was used to complete unsteady state simulations using HEC-RAS Version 4.1 (USACE, 2010).
- The HEC-RAS model is referenced to the North American Vertical Datum of 1988 (NAVD88). The United States Geological Survey (USGS) gage data is referenced to the National Geodetic Vertical Datum of 1929 (NGVD29). All elevations in this calculation are referenced to NAVD88, unless specifically stated otherwise. The datum shift to convert from NAVD88 to NGVD29 is +0.787 ft, as determined by the National Oceanic and Atmospheric Administration (NOAA) Vertcon tool (NOAA, 2019).
- The typical crest elevation of the rockfill berm cofferdam structures is 123.7 ft NAVD88. To control the locations of overtopping during high river levels, spillway sections are included in the cofferdam design which are 1 ft lower than the typical crest elevation. The level of protection provided by the cofferdam structures is therefore 122.7 ft NAVD88, and when water levels in the river exceed this elevation the areas behind the cofferdams will begin to flood.
- The proposed Area-1 and Area-2 cofferdams are analyzed as separate proposed conditions models, to reflect the phased approach being followed for the project.
- The cofferdams are represented in the model using the HEC-RAS 'levee' feature. This ensures that the storage volume within the river channel behind the cofferdam is only taken into account when the water level exceeds the crest elevation. Therefore, during low flow conditions the area behind the cofferdams remains dry.

Calculation Input

The HEC-RAS model developed in WSP's previous hydraulic analysis (WSP, 2019) was used to complete low flow simulations. The only change made to the model is to update the boundary conditions to represent low flow conditions as detailed below.

Boundary Conditions

Boundary conditions were required to represent the following conditions, as specified in WSP's scope of work:

- Approximate normal flow rate (based on USGS data analysis)
- Flow rate that results in water just below the cofferdam crest elevation
- Flow rate that results in water level midway between normal flow level and cofferdam crest

The United States Geological Survey (USGS) gage 02169500 is located on the Congaree River on the west bank opposite the locations of the proposed cofferdams. The USGS gage data (USGS, 2019) was reviewed and all approved daily-mean flow data was downloaded, covering the period from May 1984 through March 2019, i.e. approximately 35 years of data as shown in Figure 2.

The average of the approved mean-daily flow values was calculated as 8,564 cfs and this was adopted as the approximate normal flow rate for the purposes of this calculation. This flow rate results in a water level of approximately 116.6 ft NAVD88 at the upstream end of the Area-1 cofferdam.

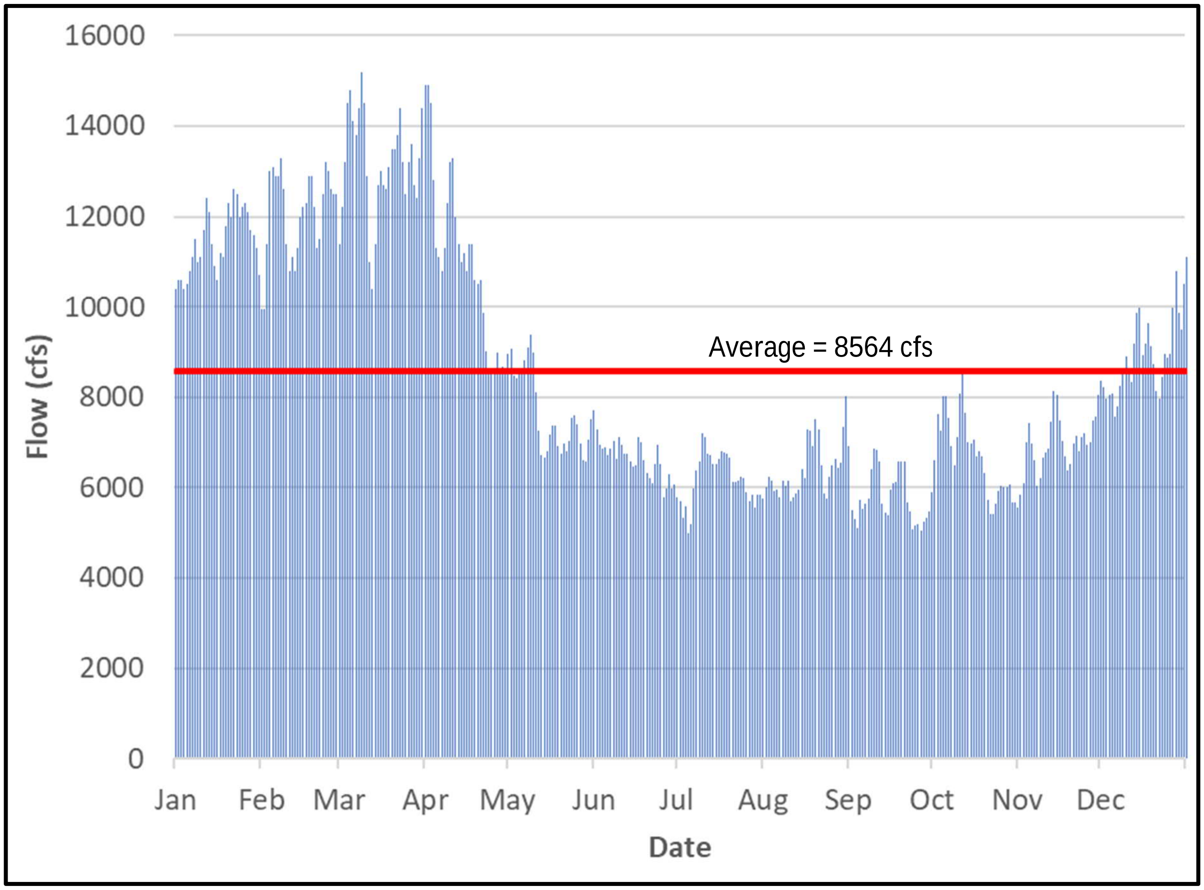

Figure 2: USGS Gage 02169500 Daily-Mean Flow Data, May 1984 through March 2019

Initial test runs were completed to determine the flow rate that would result in a water level just below the cofferdam crest elevation, i.e. the crest elevation of 122.7 ft NAVD88 at the overtopping spillways, above which water starts to flood the area behind the cofferdams.

The normal flow rate of 8,564 cfs was used as the initial flow in the river and the flow rate was increased over time. The water levels from the test runs were reviewed at the upstream end of the Area-1 cofferdam to determine the flow that resulted in a water level just below 122.7 ft NAVD88. The 'crest flow' was determined to be approximately 26,000 cfs.

Results were also reviewed to determine the flow that resulted in a water level midway between the cofferdam crest and normal water levels, i.e. approximately 119.5 ft NAVD88. The 'mid-point flow' was determined to be approximately 17,000 cfs.

Unsteady state (time-varying) inflow boundary conditions were developed for the three low flow scenarios to be analyzed. All boundary conditions begin at the normal flow value (8,564 cfs), and for the midpoint and crest flow conditions the flow rate is increased by approximately 1,500 cfs every 30 mins until the desired flow rate (17,000 or 26,000 cfs) is achieved. The inflow is then held constant until the end of the 47 hour model run, which allows the flows and velocities in the model to stabilize at the specified flow rate. The results are taken at the end of the run, 47 hours after the simulation begins. The inflow boundaries were developed to ensure there were no model instabilities associated with rapidly changing inflow conditions.

The final inflow boundary conditions are shown on Figure 3.

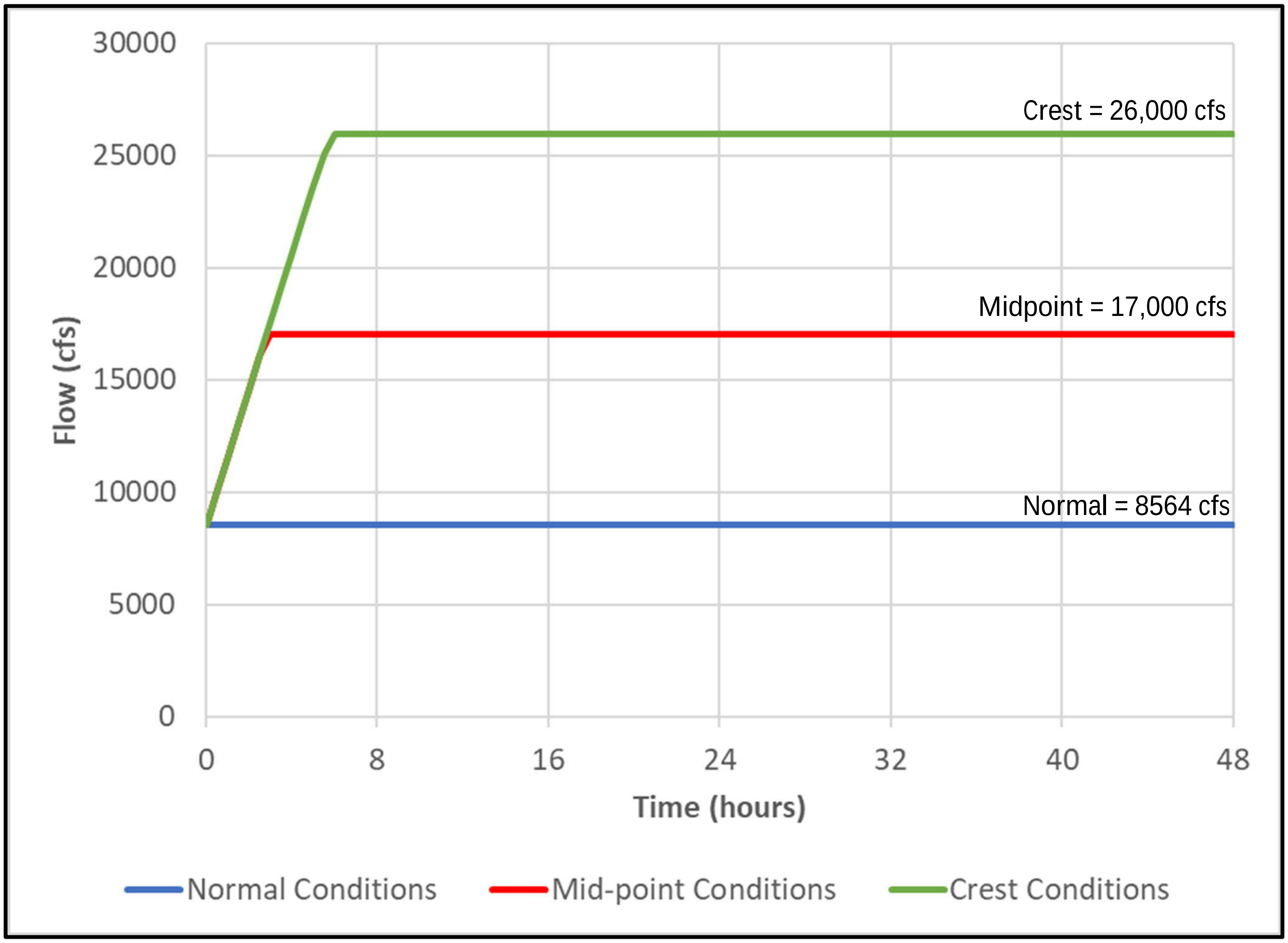

Figure 3: Low Flow Upstream Inflow Boundary Conditions

Numerical Calculations

All hydraulic analysis calculations are performed within the HEC-RAS Version 4.1 (USACE, 2010). The unsteady flow analysis parameters such as computational interval and hydrograph output interval were not modified i.e., the parameters used are identical to the parameters for the current effective model provided by FEMA and used in the previous hydraulic analysis (WSP, 2019).

Calculation Output

The electronic input and output files for all hydraulic models are provided in Appendix A. The HEC-RAS Output Tables are provided in Appendix B.

Figure 4 shows the HEC-RAS model schematic zoomed into the project area for the Corrected Effective model. The purpose of this figure is to provide the Cross Section/River Station numbering when reviewing results output. A full size/resolution version of Figure 4 is also provided in Appendix C.

Figure 4: Corrected Effective HEC-RAS Model Schematic (Project Area)

Results

The model results have been extracted at the end of the run (after 47 hours) when the flow conditions in the model have stabilized after the inflow boundary condition ramps up at the start of the run.

Table 1 and Table 2 summarize the water surface elevations and change in floodplain widths, respectively, of the corrected effective and proposed Area-1 hydraulic model runs for the normal, mid-point, and crest flow conditions. The results demonstrate that the impact of the proposed Area-1 cofferdam structure is greatest for lower flow rates, when the cross-sectional area loss due to the structure accounts for a bigger proportion of the total flow in the channel.

Table 1 shows that for the normal flow rate an increase in water level of up to 0.5 ft is experienced immediately upstream of the Area-1 cofferdam structure, with no increases predicted in the middle of the structure and further downstream. For the mid-point and cofferdam crest flow conditions, the increase upstream of the Area-1 structure is up to 0.4 ft and 0.3 ft, respectively. No increases are also predicted in the middle of the structure and further downstream.

Table 2 shows that a maximum increase in floodplain width of 8.1 ft is experienced on the right (west) bank approximately 100 ft downstream of Gervais Street bridge for mid-point conditions. This is the location where the greatest increase in water level occurs, and the topography of the river bank is also inclined at a shallower gradient than the typical section at flood elevations around 119.5-120.0 ft NAVD88. These two factors combined explain why this is the location of the maximum change in floodplain extent.

However, the increase in floodplain width upstream of the Area-1 structure is typically less than 1.5 ft for the three low flow conditions considered. The increase in floodplain width is determined by the specific topography at the flood level experienced at each specific cross section, i.e. if the topography is flat and low-lying then a small increase in water level can result in a greater increase in width. Therefore, the change in width does not necessarily correlate to the total flow in the river channel (as does the change in water surface elevation).

Construction of the Area-1 cofferdam structure reduces the width of the floodplain adjacent to the cofferdam, as shown by the negative values in Table 2.

Figures C1 through C3 (in Appendix C) show the floodplain extents for the three low flow conditions considered with and without the Area-1 cofferdam. These maps show that the changes in floodplain extent due to construction of the cofferdam is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-1 cofferdam.

Table 1: Comparison of Corrected Effective and Proposed Area-1 Model Water Surface Elevations; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Water Surface Elevation (ft NAVD88)								
	Normal Flow			Mid-Point Flow			Cofferdam Crest Flow		
	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]
288770	136.540	136.555	0.0	137.689	137.656	0.0	138.115	138.010	-0.1
287472	128.954	128.952	0.0	130.051	130.055	0.0	130.904	130.924	0.0
286338	121.996	122.045	0.0	123.764	123.833	0.1	125.468	125.624	0.2
286106	121.259	121.327	0.1	122.764	122.899	0.1	124.919	125.103	0.2
284778	118.632	119.015	0.4	121.319	121.646	0.3	124.310	124.559	0.2
284565[b]	116.856	117.284	0.4	119.631	119.972	0.3	122.657	122.912	0.3
284431	116.638	117.143	0.5	119.496	119.856	0.4	122.553	122.815	0.3
284408[c]	116.613	116.953	0.3	119.481	119.662	0.2	122.543	122.631	0.1
284395[c]	116.596	116.932	0.3	119.474	119.651	0.2	122.537	122.620	0.1
284372[c]	116.579	116.915	0.3	119.464	119.642	0.2	122.530	122.613	0.1
284267[c]	116.480	116.666	0.2	119.407	119.492	0.1	122.486	122.506	0.0
284060[c]	116.379	116.401	0.0	119.329	119.289	0.0	122.425	122.331	-0.1
283820[c]	116.336	116.312	0.0	119.286	119.218	-0.1	122.384	122.278	-0.1
283636[c]	116.310	116.279	0.0	119.253	119.187	-0.1	122.350	122.258	-0.1
283611[c]	116.302	116.271	0.0	119.241	119.180	-0.1	122.337	122.256	-0.1
283601[c]	116.295	116.260	0.0	119.233	119.166	-0.1	122.329	122.241	-0.1
283574	116.270	116.270	0.0	119.202	119.202	0.0	122.301	122.301	0.0
283490	116.205	116.205	0.0	119.138	119.138	0.0	122.247	122.247	0.0
283342	116.147	116.147	0.0	119.093	119.093	0.0	122.213	122.213	0.0
283203	116.114	116.114	0.0	119.064	119.064	0.0	122.190	122.190	0.0
283179	116.116	116.116	0.0	119.067	119.067	0.0	122.192	122.192	0.0
283169	116.115	116.115	0.0	119.066	119.066	0.0	122.191	122.191	0.0
283139	116.104	116.104	0.0	119.054	119.054	0.0	122.180	122.180	0.0
283093	116.089	116.089	0.0	119.038	119.038	0.0	122.168	122.168	0.0
283052	116.085	116.085	0.0	119.035	119.035	0.0	122.164	122.164	0.0
283001	116.078	116.078	0.0	119.028	119.028	0.0	122.159	122.159	0.0
282937	116.050	116.050	0.0	118.996	118.997	0.0	122.130	122.130	0.0
282912	116.030	116.030	0.0	118.977	118.977	0.0	122.116	122.116	0.0
282902	116.018	116.018	0.0	118.968	118.968	0.0	122.110	122.110	0.0
282874	115.973	115.973	0.0	118.941	118.941	0.0	122.096	122.096	0.0
282707	115.673	115.673	0.0	118.760	118.760	0.0	121.964	121.964	0.0
282424	115.453	115.453	0.0	118.674	118.674	0.0	121.923	121.923	0.0
282071	115.004	115.004	0.0	118.490	118.490	0.0	121.804	121.804	0.0
281647[d]	114.654	114.654	0.0	118.370	118.370	0.0	121.726	121.726	0.0
281423	114.343	114.343	0.0	118.226	118.226	0.0	121.538	121.538	0.0
279961	113.809	113.809	0.0	117.951	117.951	0.0	121.306	121.306	0.0
279605	113.744	113.744	0.0	117.900	117.900	0.0	121.257	121.257	0.0
278919	113.612	113.612	0.0	117.801	117.801	0.0	121.166	121.166	0.0

Notes:

a. ‘Change’ is calculated by subtracting ‘Proposed’ from ‘Corrected’ and rounding to one decimal place
b. Located downstream of Gervais Street bridge
c. Area-1 cofferdam
d. Located upstream of Blossom Street bridge

Table 2: Comparison of Corrected Effective and Proposed Area-1 Model Floodplain Widths; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Change in Floodplain Width (ft)					
	Normal Flow		Mid-Point Flow		Cofferdam Crest Flow	
	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank
288770	0.1	0.1	0.0	-0.2	0.0	-0.3
287472	0.0	0.0	0.0	0.0	0.0	0.0
286338	0.6	0.5	0.4	0.3	1.0	1.2
286106	0.3	0.5	0.8	1.5	1.1	1.4
284778	0.7	1.2	0.6	7.7	0.4	1.0
284565[a]	0.8	1.3	0.3	8.1	0.4	1.0
284431	3.5	3.6	1.2	1.3	0.7	0.8
284408[b]	-37.5	3.6	-50.0	0.8	-59.5	0.3
284395[b]	-58.2	3.0	-71.0	0.8	-80.8	0.3
284372[b]	-95.8	2.7	-110.6	0.6	-122.7	0.2
284267[b]	-229.3	1.1	-242.2	0.3	-252.2	0.1
284060[b]	-206.6	0.1	-250.7	-0.1	-281.3	-0.2
283820[b]	-198.3	0.0	-210.7	-0.1	-219.4	-0.2
283636[b]	-133.1	-0.1	-142.9	-0.2	-152.8	-0.2
283611[b]	-126.6	-0.1	-134.4	-0.2	-141.5	-0.2
283601[b]	-124.8	-0.1	-131.9	-0.2	-138.9	-0.1
283574	0.0	0.0	0.0	0.0	0.0	0.0
283490	0.0	0.0	0.0	0.0	0.0	0.0
283342	0.0	0.0	0.0	0.0	0.0	0.0
283203	0.0	0.0	0.0	0.0	0.0	0.0
283179	0.0	0.0	0.0	0.0	0.0	0.0
283169	0.0	0.0	0.0	0.0	0.0	0.0
283139	0.0	0.0	0.0	0.0	0.0	0.0
283093	0.0	0.0	0.0	0.0	0.0	0.0
283052	0.0	0.0	0.0	0.0	0.0	0.0
283001	0.0	0.0	0.0	0.0	0.0	0.0
282937	0.0	0.0	0.0	0.0	0.0	0.0
282912	0.0	0.0	0.0	0.0	0.0	0.0
282902	0.0	0.0	0.0	0.0	0.0	0.0
282874	0.0	0.0	0.0	0.0	0.0	0.0
282707	0.0	0.0	0.0	0.0	0.0	0.0
282424	0.0	0.0	0.0	0.0	0.0	0.0
282071	0.0	0.0	0.0	0.0	0.0	0.0
281647[c]	0.0	0.0	0.0	0.0	0.0	0.0
281423	0.0	0.0	0.0	0.0	0.0	0.0
279961	0.0	0.0	0.0	0.0	0.0	0.0
279605	0.0	0.0	0.0	0.0	0.0	0.0
278919	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

a. Located downstream of Gervais Street bridge
b. Area-1 cofferdam
c. Located upstream of Blossom Street bridge

Table 3 and Table 4 summarize the water surface elevations and change in floodplain widths, respectively, of the corrected effective and proposed Area-2 hydraulic model runs for the normal, mid-point, and crest flow conditions. The results demonstrate that the impact of the proposed Area-2 cofferdam structure is relatively consistent for the normal, mid-point, and cofferdam crest flow conditions.

Table 3 shows that for the three low flow conditions considered, an increase in water level of 0.1 ft is experienced immediately upstream of the Area-2 cofferdam structure, with no increases predicted adjacent to the structure and further downstream.

Table 4 shows that a maximum increase in floodplain width of 1.8 ft is experienced on the right (west) bank approximately 100 ft downstream of Gervais Street bridge for mid-point conditions. As previously discussed the topography of the river bank is inclined at a shallower gradient than the typical section at flood elevations around 119.5-120.0 ft NAVD88, which explains why the maximum change is experienced at this location. However, the increase in floodplain width upstream of the Area-2 structure is typically less than 1 ft for the three low flow conditions considered.

Construction of the Area-2 cofferdam structure reduces the width of the floodplain adjacent to the cofferdam, as shown by the negative values in Table 4.

Figures C1 through C3 (in Appendix C) show the floodplain extents for the three low flow conditions considered with and without the Area-2 cofferdam. These maps show that the changes in floodplain extent due to construction of the cofferdam is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-2 cofferdam.

Table 3: Comparison of Corrected Effective and Proposed Area-2 Model Water Surface Elevations; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Water Surface Elevation (ft NAVD88)								
	Normal Flow			Mid-Point Flow			Cofferdam Crest Flow		
	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]
288770	136.540	136.542	0.0	137.689	137.682	0.0	138.115	138.086	0.0
287472	128.954	128.954	0.0	130.051	130.052	0.0	130.904	130.909	0.0
286338	121.996	122.002	0.0	123.764	123.779	0.0	125.468	125.511	0.0
286106	121.259	121.268	0.0	122.764	122.794	0.0	124.919	124.970	0.1
284778	118.632	118.687	0.1	121.319	121.394	0.1	124.310	124.380	0.1
284565[b]	116.856	116.917	0.1	119.631	119.710	0.1	122.657	122.729	0.1
284431	116.638	116.713	0.1	119.496	119.579	0.1	122.553	122.627	0.1
284408	116.613	116.691	0.1	119.481	119.565	0.1	122.543	122.617	0.1
284395	116.596	116.675	0.1	119.474	119.558	0.1	122.537	122.611	0.1
284372	116.579	116.660	0.1	119.464	119.549	0.1	122.530	122.604	0.1
284267	116.480	116.568	0.1	119.407	119.494	0.1	122.486	122.562	0.1
284060	116.379	116.473	0.1	119.329	119.419	0.1	122.425	122.502	0.1
283820	116.336	116.433	0.1	119.286	119.378	0.1	122.384	122.462	0.1
283636	116.310	116.409	0.1	119.253	119.346	0.1	122.350	122.429	0.1
283611	116.302	116.400	0.1	119.241	119.334	0.1	122.337	122.416	0.1
283601	116.295	116.394	0.1	119.233	119.326	0.1	122.329	122.408	0.1
283574	116.270	116.370	0.1	119.202	119.296	0.1	122.301	122.380	0.1
283490	116.205	116.309	0.1	119.138	119.235	0.1	122.247	122.327	0.1
283342	116.147	116.256	0.1	119.093	119.191	0.1	122.213	122.294	0.1
283203	116.114	116.224	0.1	119.064	119.163	0.1	122.190	122.271	0.1
283179[c]	116.116	116.179	0.1	119.067	119.090	0.0	122.192	122.182	0.0
283169[c]	116.115	116.176	0.1	119.066	119.088	0.0	122.191	122.181	0.0
283139[c]	116.104	116.126	0.0	119.054	119.028	0.0	122.180	122.124	-0.1
283093[c]	116.089	116.106	0.0	119.038	119.021	0.0	122.168	122.129	0.0
283052[c]	116.085	116.083	0.0	119.035	118.991	0.0	122.164	122.093	-0.1
283001[c]	116.078	116.061	0.0	119.028	118.967	-0.1	122.159	122.070	-0.1
282937[c]	116.050	115.985	-0.1	118.996	118.886	-0.1	122.130	121.997	-0.1
282912[c]	116.030	115.957	-0.1	118.977	118.867	-0.1	122.116	121.988	-0.1
282902[c]	116.018	115.936	-0.1	118.968	118.850	-0.1	122.110	121.977	-0.1
282874	115.973	115.973	0.0	118.941	118.941	0.0	122.096	122.096	0.0
282707	115.673	115.673	0.0	118.760	118.760	0.0	121.964	121.964	0.0
282424	115.453	115.453	0.0	118.674	118.674	0.0	121.923	121.923	0.0
282071	115.004	115.004	0.0	118.490	118.490	0.0	121.804	121.804	0.0
281647[d]	114.654	114.654	0.0	118.370	118.370	0.0	121.726	121.726	0.0
281423	114.343	114.343	0.0	118.226	118.226	0.0	121.538	121.538	0.0
279961	113.809	113.809	0.0	117.951	117.951	0.0	121.306	121.306	0.0
279605	113.744	113.744	0.0	117.900	117.900	0.0	121.257	121.257	0.0
278919	113.612	113.612	0.0	117.801	117.801	0.0	121.166	121.166	0.0

Notes:

a. ‘Change’ is calculated by subtracting ‘Proposed’ from ‘Corrected’ and rounding to one decimal place
b. Located downstream of Gervais Street bridge
c. Area-2 cofferdam
d. Located upstream of Blossom Street bridge

Table 4: Comparison of Corrected Effective and Proposed Area-2 Model Floodplain Widths; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Change in Floodplain Width (ft)					
	Normal Flow		Mid-Point Flow		Cofferdam Crest Flow	
	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank
288770	0.0	0.0	0.0	0.0	0.0	0.0
287472	0.0	0.0	0.0	0.0	0.0	0.0
286338	0.0	0.1	0.1	0.1	0.3	0.3
286106	0.0	0.3	0.2	0.3	0.3	0.4
284778	0.1	0.2	0.1	1.8	0.1	0.3
284565[a]	0.1	0.2	0.1	1.8	0.1	0.3
284431	0.6	1.0	0.3	0.3	0.2	0.2
284408	0.6	1.0	0.3	0.4	0.2	0.2
284395	0.4	0.7	0.3	0.4	0.3	0.3
284372	0.5	0.6	0.3	0.3	0.4	0.2
284267	0.7	0.7	0.3	0.3	0.2	0.2
284060	1.3	0.4	1.3	0.2	0.6	0.2
283820	0.6	0.3	0.3	0.2	0.2	0.2
283636	0.3	0.3	0.3	0.2	0.3	0.2
283611	0.3	0.3	0.2	0.2	0.2	0.2
283601	0.3	0.3	0.2	0.2	0.2	0.2
283574	0.3	0.3	0.2	0.2	0.2	0.2
283490	0.2	0.4	0.2	0.2	0.2	0.2
283342	0.4	0.3	0.4	0.2	0.2	0.2
283203	0.4	0.5	0.3	0.3	0.2	0.2
283179[b]	-40.5	0.2	-49.8	0.1	-58.2	0.0
283169[b]	-51.9	0.3	-60.6	0.1	-68.7	0.0
283139[b]	-83.1	0.1	-91.4	-0.1	-99.3	-0.1
283093[b]	-141.2	0.1	-149.6	-0.1	-157.1	-0.2
283052[b]	-148.2	0.0	-156.3	-0.1	-163.9	-0.2
283001[b]	-156.2	-0.1	-163.9	-0.2	-171.8	-0.2
282937[b]	-161.7	-0.2	-170.6	-0.3	-179.8	-0.3
282912[b]	-145.2	-0.2	-164.7	-0.3	-205.9	-0.3
282902[b]	-139.0	-0.3	-179.4	-0.3	-206.1	-0.3
282874	0.0	0.0	0.0	0.0	0.0	0.0
282707	0.0	0.0	0.0	0.0	0.0	0.0
282424	0.0	0.0	0.0	0.0	0.0	0.0
282071	0.0	0.0	0.0	0.0	0.0	0.0
281647[c]	0.0	0.0	0.0	0.0	0.0	0.0
281423	0.0	0.0	0.0	0.0	0.0	0.0
279961	0.0	0.0	0.0	0.0	0.0	0.0
279605	0.0	0.0	0.0	0.0	0.0	0.0
278919	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

a. Located downstream of Gervais Street bridge
b. Area-2 cofferdam
c. Located upstream of Blossom Street bridge

Conclusion/Summary

The results in Table 1 and Table 2 show the addition of the proposed Area-1 cofferdam structure results in maximum increases in water surface elevation of 0.5 ft, 0.4 ft, and 0.3 ft for the normal, mid-point, and cofferdam crest flows, respectively. The maximum increases in floodplain width of 8.1 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. However, the typical increase in floodplain width upstream of the Area-1 structure is less than 1.5 ft for the three low flow conditions considered.

The results in Table 3 and Table 4 show the addition of the proposed Area-2 cofferdam structure results in maximum increases in water surface elevation of 0.1 ft for the three low flow conditions considered. The maximum increase in floodplain extent of 1.8 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. However, the typical increase in floodplain width upstream of the Area-2 structure is less than 1 ft for the three low flow conditions considered.

Figures C1 through C3 (in Appendix C) show the floodplain extents for the three low flow conditions considered with and without the Area-1 and Area-2 cofferdams (modeled separately). These maps show that the changes in floodplain extent due to construction of the cofferdams is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-1 or Area-2 cofferdam.

References

1. Apex, 2019: Apex Companies LLC, "Figure 1, Stakeholder Approved MRA Plan Sediment Remediation Areas, Congaree River, Columbia, South Carolina", February 8, 2019.

2. NOAA, 2019: National Oceanic and Atmospheric Administration, "VERTCON - North American Vertical Datum Conversion" https://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl, Accessed March 2019.

3. USACE, 2010: USACE, "HEC-RAS River Analysis System, User's Manual, Version 4.1" Document No. CPD-68, Hydraulic Engineering Center, United States Army Corps of Engineers, January 2010.

4. USGS, 2019: United States Geological Survey, "USGS Gage 02169500 Congaree River at Columbia, SC" <https://waterdata.usgs.gov/usa/nwis/uv?02169500>, Date Accessed: June 25, 2019.

5. WSP, 2019: WSP, "Hydraulic Analysis Memo, Congaree River Remediation Project", April 12, 2019.

APPENDICES

Appendix A: Electronic Files

Appendix B: HEC-RAS Output Tables

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	288770	02JAN2012 2300	Norm-CorrectedC	8564.00	128.14	136.540		136.55	0.000023	0.75	11429.79	1432.68	0.05
Reach-1	288770	02JAN2012 2300	Norm-ProposedD1	8564.00	128.14	136.555		136.56	0.000023	0.75	11452.57	1432.86	0.05
Reach-1	288770	02JAN2012 2300	Norm-ProposedD2	8564.00	128.14	136.542		136.55	0.000023	0.75	11433.37	1432.70	0.05
Reach-1	288770	02JAN2012 2300	MidPt-CorrectedC	17000.00	128.14	137.689		137.72	0.000059	1.30	13085.65	1449.88	0.08
Reach-1	288770	02JAN2012 2300	MidPt-ProposedD1	17000.00	128.14	137.656		137.68	0.000060	1.30	13037.56	1448.52	0.08
Reach-1	288770	02JAN2012 2300	MidPt-ProposedD2	17000.00	128.14	137.682		137.71	0.000059	1.30	13075.07	1449.44	0.08
Reach-1	288770	02JAN2012 2300	Crest-CorrectedC	26000.00	128.14	138.115		138.17	0.000121	1.90	13709.11	1470.83	0.11
Reach-1	288770	02JAN2012 2300	Crest-ProposedD1	26000.00	128.14	138.010		138.07	0.000125	1.92	13554.22	1467.96	0.11
Reach-1	288770	02JAN2012 2300	Crest-ProposedD2	26000.00	128.14	138.086		138.14	0.000122	1.90	13666.75	1470.32	0.11
Reach-1	287472	02JAN2012 2300	Norm-CorrectedC	8564.14	125.74	128.954		129.59	0.011438	6.38	1342.39	729.33	0.83
Reach-1	287472	02JAN2012 2300	Norm-ProposedD1	8564.17	125.74	128.952		129.59	0.011465	6.39	1341.23	729.04	0.83
Reach-1	287472	02JAN2012 2300	Norm-ProposedD2	8564.00	125.74	128.954		129.59	0.011441	6.38	1342.25	729.29	0.83
Reach-1	287472	02JAN2012 2300	MidPt-CorrectedC	16999.96	125.74	130.051		130.91	0.011248	7.42	2292.41	990.28	0.86
Reach-1	287472	02JAN2012 2300	MidPt-ProposedD1	16999.97	125.74	130.055		130.91	0.011188	7.40	2296.68	990.95	0.86
Reach-1	287472	02JAN2012 2300	MidPt-ProposedD2	16999.99	125.74	130.052		130.91	0.011235	7.41	2293.30	990.42	0.86
Reach-1	287472	02JAN2012 2300	Crest-CorrectedC	25999.98	125.74	130.904		131.94	0.010029	8.15	3190.56	1112.98	0.85
Reach-1	287472	02JAN2012 2300	Crest-ProposedD1	26000.00	125.74	130.924		131.94	0.009817	8.09	3212.72	1114.52	0.84
Reach-1	287472	02JAN2012 2300	Crest-ProposedD2	25999.96	125.74	130.909		131.94	0.009971	8.13	3196.57	1113.39	0.85
Reach-1	286338	02JAN2012 2300	Norm-CorrectedC	8563.95	117.29	121.996	120.57	122.12	0.001751	2.85	3003.08	1303.62	0.33
Reach-1	286338	02JAN2012 2300	Norm-ProposedD1	8563.93	117.29	122.045	120.58	122.17	0.001633	2.79	3067.51	1304.76	0.32
Reach-1	286338	02JAN2012 2300	Norm-ProposedD2	8563.99	117.29	122.002	120.58	122.13	0.001735	2.84	3011.55	1303.77	0.33
Reach-1	286338	02JAN2012 2300	MidPt-CorrectedC	17000.01	117.29	123.764	121.38	123.92	0.001054	3.17	5356.62	1352.41	0.28
Reach-1	286338	02JAN2012 2300	MidPt-ProposedD1	17000.01	117.29	123.833	121.38	123.98	0.000996	3.12	5449.31	1353.48	0.27
Reach-1	286338	02JAN2012 2300	MidPt-ProposedD2	16999.99	117.29	123.779	121.38	123.93	0.001041	3.16	5376.64	1352.64	0.28
Reach-1	286338	02JAN2012 2300	Crest-CorrectedC	25999.99	117.29	125.468	122.01	125.65	0.000762	3.38	7683.68	1380.70	0.25
Reach-1	286338	02JAN2012 2300	Crest-ProposedD1	26000.01	117.29	125.624	122.01	125.79	0.000697	3.29	7899.15	1383.62	0.24
Reach-1	286338	02JAN2012 2300	Crest-ProposedD2	26000.00	117.29	125.511	122.00	125.69	0.000743	3.36	7743.20	1381.51	0.25
Reach-1	286221			Bridge									
Reach-1	286106	02JAN2012 2300	Norm-CorrectedC	8563.95	117.10	121.259		121.47	0.003939	3.72	2302.79	1236.51	0.48
Reach-1	286106	02JAN2012 2300	Norm-ProposedD1	8563.93	117.10	121.327		121.53	0.003549	3.59	2388.20	1252.96	0.46
Reach-1	286106	02JAN2012 2300	Norm-ProposedD2	8563.99	117.10	121.268		121.48	0.003885	3.70	2313.94	1238.77	0.48
Reach-1	286106	02JAN2012 2300	MidPt-CorrectedC	17000.01	117.10	122.764		123.01	0.002208	3.98	4266.62	1338.19	0.39
Reach-1	286106	02JAN2012 2300	MidPt-ProposedD1	17000.01	117.10	122.899		123.13	0.001929	3.82	4447.35	1341.19	0.37
Reach-1	286106	02JAN2012 2300	MidPt-ProposedD2	16999.99	117.10	122.794		123.04	0.002142	3.95	4306.11	1338.85	0.39
Reach-1	286106	02JAN2012 2300	Crest-CorrectedC	25999.99	117.10	124.919		125.12	0.000944	3.62	7189.63	1373.99	0.28
Reach-1	286106	02JAN2012 2300	Crest-ProposedD1	26000.01	117.10	125.103		125.29	0.000844	3.49	7443.04	1377.44	0.26
Reach-1	286106	02JAN2012 2300	Crest-ProposedD2	26000.00	117.10	124.970		125.17	0.000914	3.58	7259.73	1374.94	0.27
Reach-1	284778	02JAN2012 2300	Norm-CorrectedC	8564.04	112.83	118.632	115.67	118.68	0.000319	1.76	4858.66	1209.35	0.15
Reach-1	284778	02JAN2012 2300	Norm-ProposedD1	8564.07	112.83	119.015	115.67	119.06	0.000235	1.61	5322.92	1211.20	0.14
Reach-1	284778	02JAN2012 2300	Norm-ProposedD2	8564.02	112.83	118.687	115.67	118.73	0.000304	1.74	4925.30	1209.61	0.15
Reach-1	284778	02JAN2012 2300	MidPt-CorrectedC	16999.98	112.83	121.319	116.39	121.39	0.000232	2.09	8129.80	1234.66	0.14
Reach-1	284778	02JAN2012 2300	MidPt-ProposedD1	16999.98	112.83	121.646	116.39	121.71	0.000199	1.99	8534.85	1242.76	0.13
Reach-1	284778	02JAN2012 2300	MidPt-ProposedD2	16999.99	112.83	121.394	116.39	121.46	0.000224	2.07	8222.84	1236.53	0.14
Reach-1	284778	02JAN2012 2300	Crest-CorrectedC	26000.01	112.83	124.310	117.01	124.38	0.000158	2.19	11874.89	1261.23	0.13
Reach-1	284778	02JAN2012 2300	Crest-ProposedD1	26000.01	112.83	124.559	117.01	124.63	0.000145	2.13	12188.86	1262.61	0.12
Reach-1	284778	02JAN2012 2300	Crest-ProposedD2	25999.98	112.83	124.380	117.01	124.45	0.000154	2.17	11963.32	1261.62	0.12
Reach-1	284668			Bridge									
Reach-1	284565	02JAN2012 2300	Norm-CorrectedC	8564.04	111.22	116.856		116.91	0.000366	1.84	4658.09	1208.55	0.17
Reach-1	284565	02JAN2012 2300	Norm-ProposedD1	8564.07	111.22	117.284		117.33	0.000258	1.65	5175.79	1210.61	0.14
Reach-1	284565	02JAN2012 2300	Norm-ProposedD2	8564.02	111.22	116.917		116.97	0.000347	1.81	4732.55	1208.84	0.16
Reach-1	284565	02JAN2012 2300	MidPt-CorrectedC	16999.98	111.22	119.631		119.70	0.000241	2.12	8033.82	1232.74	0.15
Reach-1	284565	02JAN2012 2300	MidPt-ProposedD1	16999.98	111.22	119.972		120.03	0.000205	2.01	8455.12	1241.17	0.14
Reach-1	284565	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.22	119.710		119.78	0.000232	2.09	8130.54	1234.68	0.14
Reach-1	284565	02JAN2012 2300	Crest-CorrectedC	26000.01	111.22	122.657		122.73	0.000161	2.20	11820.54	1260.99	0.13
Reach-1	284565	02JAN2012 2300	Crest-ProposedD1	26000.01	111.22	122.912		122.98	0.000147	2.14	12141.77	1262.40	0.12
Reach-1	284565	02JAN2012 2300	Crest-ProposedD2	25999.98	111.22	122.729		122.80	0.000157	2.18	11910.97	1261.39	0.13
Reach-1	284431	02JAN2012 2300	Norm-CorrectedC	8564.04	111.36	116.638		116.79	0.001507	3.11	2751.40	944.38	0.32
Reach-1	284431	02JAN2012 2300	Norm-ProposedD1	8564.03	111.36	117.143		117.25	0.000889	2.65	3230.30	951.53	0.25
Reach-1	284431	02JAN2012 2300	Norm-ProposedD2	8563.99	111.36	116.713		116.86	0.001385	3.03	2822.85	945.86	0.31
Reach-1	284431	02JAN2012 2300	MidPt-CorrectedC	17000.00	111.36	119.496		119.64	0.000620	3.09	5493.63	971.06	0.23
Reach-1	284431	02JAN2012 2300	MidPt-ProposedD1	16999.99	111.36	119.856		119.99	0.000508	2.91	5844.25	973.58	0.21
Reach-1	284431	02JAN2012 2300	MidPt-ProposedD2	17000.00	111.36	119.579		119.72	0.000591	3.05	5574.74	971.64	0.22
Reach-1	284431	02JAN2012 2300	Crest-CorrectedC	26000.01	111.36	122.553		122.70	0.000354	3.06	8493.24	990.85	0.18
Reach-1	284431	02JAN2012 2300	Crest-ProposedD1	26000.00	111.36	122.815		122.95	0.000322	2.97	8753.26	998.52	0.18
Reach-1	284431	02JAN2012 2300	Crest-ProposedD2	26000.02	111.36	122.627		122.77	0.000345	3.04	8566.55	993.01	0.18
Reach-1	284408	02JAN2012 2300	Norm-CorrectedC	8564.00	111.06	116.613		116.76	0.001426	3.10	2766.91	911.46	0.31
Reach-1	284408	02JAN2012 2300	Norm-ProposedD1	8564.00	111.58	116.953		117.23	0.002471	4.24	2020.89	626.09	0.42
Reach-1	284408	02JAN2012 2300	Norm-ProposedD2	8563.98	111.06	116.691		116.83	0.001314	3.02	2837.71	913.08	0.30
Reach-1	284408	02JAN2012 2300	MidPt-CorrectedC	16999.99	111.06	119.481		119.63	0.000625	3.13	5437.98	950.22	0.23
Reach-1	284408	02JAN2012 2300	MidPt-ProposedD1	16999.97	111.58	119.662		119.98	0.001310	4.53	3754.86	653.42	0.33
Reach-1	284408	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.06	119.565		119.71	0.000596	3.08	5517.82	950.85	0.23
Reach-1	284408	02JAN2012 2300	Crest-CorrectedC	25999.99	111.06	122.543		122.69	0.000357	3.10	8381.25	971.93	0.19
Reach-1	284408	02JAN2012 2300	Crest-ProposedD1	25999.98	111.58	122.631		122.95	0.000779	4.55	5719.24	668.95	0.27
Reach-1	284408	02JAN2012 2300	Crest-ProposedD2	26000.01	111.06	122.617		122.76	0.000347	3.08	8453.38	972.40	0.18
Reach-1	284395	02JAN2012 2300	Norm-CorrectedC	8564.00	111.13	116.596		116.75	0.001460	3.12	2744.09	908.60	0.32
Reach-1	284395	02JAN2012 2300	Norm-ProposedD1	8564.00	111.37	116.932		117.21	0.002416	4.21	2033.81	625.39	0.41
Reach-1	284395	02JAN2012 2300	Norm-ProposedD2	8563.98	111.13	116.675		116.82	0.001342	3.04	2815.91	909.68	0.30
Reach-1	284395	02JAN2012 2300	MidPt-CorrectedC	17000.00	111.13	119.474		119.63	0.000628	3.14	5409.67	940.69	0.23
Reach-1	284395	02JAN2012 2300	MidPt-ProposedD1	16999.98	111.37	119.651		119.97	0.001278	4.51	3766.09	646.28	0.33
Reach-1	284395	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.13	119.558		119.71	0.000599	3.10	5489.00	941.36	0.23
Reach-1	284395	02JAN2012 2300	Crest-CorrectedC	26000.00	111.13	122.537		122.69	0.000360	3.12	8324.91	962.65	0.19
Reach-1	284395	02JAN2012 2300	Crest-ProposedD1	25999.99	111.37	122.620		122.94	0.000773	4.56	5706.62	660.92	0.27
Reach-1	284395	02JAN2012 2300	Crest-ProposedD2	25999.98	111.13	122.611		122.76	0.000350	3.10	8396.45	963.23	0.18

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	284372	02JAN2012 2300	Norm-CorrectedC	8563.98	111.51	116.579		116.73	0.001351	3.07	2790.75	894.28	0.31
Reach-1	284372	02JAN2012 2300	Norm-ProposedD1	8563.99	111.51	116.915		117.17	0.002136	4.06	2107.57	623.40	0.39
Reach-1	284372	02JAN2012 2300	Norm-ProposedD2	8564.01	111.51	116.660		116.80	0.001243	2.99	2862.79	895.41	0.29
Reach-1	284372	02JAN2012 2300	MidPt-CorrectedC	17000.01	111.51	119.464		119.62	0.000607	3.14	5418.79	924.21	0.23
Reach-1	284372	02JAN2012 2300	MidPt-ProposedD1	16999.98	111.51	119.642		119.95	0.001192	4.44	3831.39	639.96	0.32
Reach-1	284372	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.51	119.549		119.70	0.000579	3.09	5497.09	924.79	0.22
Reach-1	284372	02JAN2012 2300	Crest-CorrectedC	26000.01	111.51	122.530		122.68	0.000354	3.14	8285.23	946.43	0.19
Reach-1	284372	02JAN2012 2300	Crest-ProposedD1	25999.99	111.51	122.613		122.93	0.000741	4.52	5752.89	653.41	0.27
Reach-1	284372	02JAN2012 2300	Crest-ProposedD2	25999.95	111.51	122.604		122.75	0.000344	3.11	8355.67	946.99	0.18
Reach-1	284267	02JAN2012 2300	Norm-CorrectedC	8563.92	108.23	116.480		116.60	0.000891	2.80	3063.61	826.22	0.26
Reach-1	284267	02JAN2012 2300	Norm-ProposedD1	8563.98	108.30	116.666		116.93	0.002106	4.15	2065.23	585.05	0.39
Reach-1	284267	02JAN2012 2300	Norm-ProposedD2	8564.00	108.23	116.568		116.68	0.000826	2.73	3136.38	827.60	0.25
Reach-1	284267	02JAN2012 2300	MidPt-CorrectedC	17000.01	108.23	119.407		119.55	0.000513	3.08	5520.86	850.68	0.21
Reach-1	284267	02JAN2012 2300	MidPt-ProposedD1	17000.02	108.30	119.492		119.81	0.001187	4.54	3741.26	599.92	0.32
Reach-1	284267	02JAN2012 2300	MidPt-ProposedD2	17000.00	108.23	119.494		119.64	0.000491	3.04	5594.98	851.28	0.21
Reach-1	284267	02JAN2012 2300	Crest-CorrectedC	26000.00	108.23	122.486		122.64	0.000335	3.18	8170.70	869.99	0.18
Reach-1	284267	02JAN2012 2300	Crest-ProposedD1	26000.02	108.30	122.506		122.84	0.000761	4.67	5568.86	612.86	0.27
Reach-1	284267	02JAN2012 2300	Crest-ProposedD2	26000.03	108.23	122.562		122.72	0.000327	3.16	8236.31	870.46	0.18
Reach-1	284060	02JAN2012 2300	Norm-CorrectedC	8564.05	108.45	116.379		116.47	0.000421	2.36	3626.01	716.56	0.19
Reach-1	284060	02JAN2012 2300	Norm-ProposedD1	8564.00	108.45	116.401		116.60	0.001065	3.61	2369.41	494.38	0.29
Reach-1	284060	02JAN2012 2300	Norm-ProposedD2	8564.00	108.45	116.473		116.56	0.000397	2.32	3693.95	718.23	0.18
Reach-1	284060	02JAN2012 2300	MidPt-CorrectedC	17000.02	108.45	119.329		119.46	0.000377	2.92	5823.44	770.95	0.19
Reach-1	284060	02JAN2012 2300	MidPt-ProposedD1	17000.00	108.45	119.289		119.60	0.000890	4.45	3817.53	507.95	0.29
Reach-1	284060	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.45	119.419		119.55	0.000363	2.88	5892.90	772.45	0.18
Reach-1	284060	02JAN2012 2300	Crest-CorrectedC	26000.01	108.45	122.425		122.58	0.000292	3.14	8276.19	809.11	0.17
Reach-1	284060	02JAN2012 2300	Crest-ProposedD1	25999.99	108.45	122.331		122.69	0.000687	4.83	5381.69	520.06	0.26
Reach-1	284060	02JAN2012 2300	Crest-ProposedD2	25999.98	108.45	122.502		122.65	0.000285	3.12	8338.35	809.82	0.17
Reach-1	283820	02JAN2012 2300	Norm-CorrectedC	8563.97	107.22	116.336		116.39	0.000192	1.89	4538.03	697.66	0.13
Reach-1	283820	02JAN2012 2300	Norm-ProposedD1	8564.00	107.22	116.312		116.43	0.000401	2.71	3156.71	485.85	0.19
Reach-1	283820	02JAN2012 2300	Norm-ProposedD2	8563.99	107.22	116.433		116.49	0.000183	1.86	4605.95	698.51	0.13
Reach-1	283820	02JAN2012 2300	MidPt-CorrectedC	16999.98	107.22	119.286		119.39	0.000223	2.57	6626.93	717.15	0.15
Reach-1	283820	02JAN2012 2300	MidPt-ProposedD1	17000.00	107.22	119.218		119.43	0.000471	3.71	4585.43	496.80	0.22
Reach-1	283820	02JAN2012 2300	MidPt-ProposedD2	16999.97	107.22	119.378		119.48	0.000216	2.54	6692.57	717.67	0.15
Reach-1	283820	02JAN2012 2300	Crest-CorrectedC	25999.98	107.22	122.384		122.52	0.000210	2.93	8871.71	731.91	0.15
Reach-1	283820	02JAN2012 2300	Crest-ProposedD1	26000.03	107.22	122.278		122.56	0.000434	4.25	6120.85	506.84	0.22
Reach-1	283820	02JAN2012 2300	Crest-ProposedD2	26000.01	107.22	122.462		122.59	0.000206	2.91	8928.51	732.25	0.15
Reach-1	283636	02JAN2012 2300	Norm-CorrectedC	8563.95	105.24	116.310		116.36	0.000153	1.79	4783.16	669.06	0.12
Reach-1	283636	02JAN2012 2300	Norm-ProposedD1	8564.00	105.24	116.279		116.37	0.000269	2.36	3628.06	510.39	0.16
Reach-1	283636	02JAN2012 2300	Norm-ProposedD2	8564.02	105.24	116.409		116.46	0.000146	1.77	4849.23	669.71	0.12
Reach-1	283636	02JAN2012 2300	MidPt-CorrectedC	17000.02	105.24	119.253		119.35	0.000195	2.51	6778.98	686.60	0.14
Reach-1	283636	02JAN2012 2300	MidPt-ProposedD1	16999.99	105.24	119.187		119.36	0.000346	3.31	5129.71	521.96	0.19
Reach-1	283636	02JAN2012 2300	MidPt-ProposedD2	17000.04	105.24	119.346		119.44	0.000189	2.48	6842.71	687.11	0.14
Reach-1	283636	02JAN2012 2300	Crest-CorrectedC	26000.02	105.24	122.350		122.48	0.000188	2.91	8931.81	703.61	0.14
Reach-1	283636	02JAN2012 2300	Crest-ProposedD1	25999.98	105.24	122.258		122.49	0.000335	3.85	6750.30	533.27	0.19
Reach-1	283636	02JAN2012 2300	Crest-ProposedD2	26000.00	105.24	122.429		122.56	0.000185	2.89	8987.13	704.03	0.14
Reach-1	283611	02JAN2012 2300	Norm-CorrectedC	8563.96	105.38	116.302		116.36	0.000176	1.87	4572.01	664.33	0.13
Reach-1	283611	02JAN2012 2300	Norm-ProposedD1	8564.00	105.38	116.271		116.36	0.000288	2.38	3604.28	528.48	0.16
Reach-1	283611	02JAN2012 2300	Norm-ProposedD2	8564.00	105.38	116.400		116.45	0.000168	1.85	4637.67	664.84	0.12
Reach-1	283611	02JAN2012 2300	MidPt-CorrectedC	17000.00	105.38	119.241		119.35	0.000216	2.60	6547.38	679.52	0.15
Reach-1	283611	02JAN2012 2300	MidPt-ProposedD1	17000.00	105.38	119.180		119.35	0.000355	3.30	5158.39	539.82	0.19
Reach-1	283611	02JAN2012 2300	MidPt-ProposedD2	17000.02	105.38	119.334		119.44	0.000210	2.57	6610.40	679.97	0.15
Reach-1	283611	02JAN2012 2300	Crest-CorrectedC	26000.00	105.38	122.337		122.48	0.000204	3.00	8673.12	693.33	0.15
Reach-1	283611	02JAN2012 2300	Crest-ProposedD1	25999.99	105.38	122.256		122.48	0.000335	3.80	6835.24	550.54	0.19
Reach-1	283611	02JAN2012 2300	Crest-ProposedD2	26000.00	105.38	122.416		122.55	0.000200	2.98	8727.49	693.68	0.15
Reach-1	283601	02JAN2012 2300	Norm-CorrectedC	8563.96	105.38	116.295		116.35	0.000200	1.95	4398.66	662.93	0.13
Reach-1	283601	02JAN2012 2300	Norm-ProposedD1	8563.99	105.38	116.260		116.36	0.000328	2.48	3457.88	525.20	0.17
Reach-1	283601	02JAN2012 2300	Norm-ProposedD2	8563.99	105.38	116.394		116.45	0.000190	1.92	4464.38	663.54	0.13
Reach-1	283601	02JAN2012 2300	MidPt-CorrectedC	17000.00	105.38	119.233		119.34	0.000236	2.67	6369.65	677.91	0.15
Reach-1	283601	02JAN2012 2300	MidPt-ProposedD1	17000.00	105.38	119.166		119.35	0.000390	3.40	5002.15	537.02	0.20
Reach-1	283601	02JAN2012 2300	MidPt-ProposedD2	17000.03	105.38	119.326		119.43	0.000229	2.64	6432.71	678.32	0.15
Reach-1	283601	02JAN2012 2300	Crest-CorrectedC	26000.00	105.38	122.329		122.47	0.000218	3.06	8490.08	691.69	0.15
Reach-1	283601	02JAN2012 2300	Crest-ProposedD1	26000.01	105.38	122.241		122.48	0.000360	3.90	6670.32	548.01	0.20
Reach-1	283601	02JAN2012 2300	Crest-ProposedD2	26000.02	105.38	122.408		122.55	0.000214	3.04	8544.47	692.03	0.15
Reach-1	283574	02JAN2012 2300	Norm-CorrectedC	8563.97	105.18	116.270		116.35	0.000329	2.26	3785.97	662.64	0.17
Reach-1	283574	02JAN2012 2300	Norm-ProposedD1	8563.98	105.18	116.270		116.35	0.000329	2.26	3785.97	662.64	0.17
Reach-1	283574	02JAN2012 2300	Norm-ProposedD2	8563.99	105.18	116.370		116.45	0.000311	2.22	3852.53	663.17	0.16
Reach-1	283574	02JAN2012 2300	MidPt-CorrectedC	17000.01	105.18	119.202		119.34	0.000332	2.96	5751.79	677.66	0.18
Reach-1	283574	02JAN2012 2300	MidPt-ProposedD1	16999.99	105.18	119.202		119.34	0.000332	2.96	5751.79	677.66	0.18
Reach-1	283574	02JAN2012 2300	MidPt-ProposedD2	17000.04	105.18	119.296		119.43	0.000320	2.92	5815.51	678.09	0.18
Reach-1	283574	02JAN2012 2300	Crest-CorrectedC	26000.01	105.18	122.301		122.47	0.000281	3.30	7872.33	690.91	0.17
Reach-1	283574	02JAN2012 2300	Crest-ProposedD1	26000.03	105.18	122.301		122.47	0.000281	3.30	7872.33	690.91	0.17
Reach-1	283574	02JAN2012 2300	Crest-ProposedD2	26000.02	105.18	122.380		122.55	0.000274	3.28	7926.99	691.24	0.17
Reach-1	283490	02JAN2012 2300	Norm-CorrectedC	8564.04	104.94	116.205		116.31	0.000525	2.60	3297.06	662.92	0.21
Reach-1	283490	02JAN2012 2300	Norm-ProposedD1	8564.02	104.94	116.205		116.31	0.000525	2.60	3297.06	662.92	0.21
Reach-1	283490	02JAN2012 2300	Norm-ProposedD2	8563.99	104.94	116.309		116.41	0.000492	2.54	3366.17	663.61	0.20
Reach-1	283490	02JAN2012 2300	MidPt-CorrectedC	17000.00	104.94	119.138		119.30	0.000483	3.23	5268.69	679.98	0.20
Reach-1	283490	02JAN2012 2300	MidPt-ProposedD1	17000.01	104.94	119.138		119.30	0.000483	3.23	5268.69	679.98	0.20
Reach-1	283490	02JAN2012 2300	MidPt-ProposedD2	17000.00	104.94	119.235		119.39	0.000465	3.19	5334.27	680.45	0.20
Reach-1	283490	02JAN2012 2300	Crest-CorrectedC	26000.02	104.94	122.247		122.44	0.000402	3.51	7405.77	695.04	0.19
Reach-1	283490	02JAN2012 2300	Crest-ProposedD1	25999.99	104.94	122.247		122.44	0.000402	3.51	7405.77	695.04	0.19
Reach-1	283490	02JAN2012 2300	Crest-ProposedD2	25999.99	104.94	122.327		122.52	0.000394	3.48	7461.60	695.38	0.19
Reach-1	283342	02JAN2012 2300	Norm-CorrectedC	8564.03	107.64	116.147		116.24	0.000433	2.42	3541.01	690.43	0.19
Reach-1	283342	02JAN2012 2300	Norm-ProposedD1	8564.01	107.64	116.147		116.24	0.000433	2.42	3541.01	690.43	0.19

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	283342	02JAN2012 2300	Norm-ProposedD2	8563.99	107.64	116.256		116.34	0.000405	2.37	3615.82	691.15	0.18
Reach-1	283342	02JAN2012 2300	MidPt-CorrectedC	16999.99	107.64	119.093		119.24	0.000386	3.03	5603.11	709.81	0.19
Reach-1	283342	02JAN2012 2300	MidPt-ProposedD1	17000.00	107.64	119.093		119.24	0.000386	3.03	5603.11	709.81	0.19
Reach-1	283342	02JAN2012 2300	MidPt-ProposedD2	16999.99	107.64	119.191		119.33	0.000371	3.00	5672.91	710.38	0.19
Reach-1	283342	02JAN2012 2300	Crest-CorrectedC	26000.01	107.64	122.213		122.38	0.000335	3.32	7842.52	761.87	0.18
Reach-1	283342	02JAN2012 2300	Crest-ProposedD1	25999.96	107.64	122.213		122.38	0.000335	3.32	7842.52	761.87	0.18
Reach-1	283342	02JAN2012 2300	Crest-ProposedD2	26000.02	107.64	122.294		122.46	0.000327	3.29	7901.46	763.39	0.18
Reach-1	283203	02JAN2012 2300	Norm-CorrectedC	8564.01	106.22	116.114		116.19	0.000299	2.15	3974.19	697.17	0.16
Reach-1	283203	02JAN2012 2300	Norm-ProposedD1	8563.98	106.22	116.114		116.19	0.000299	2.15	3974.19	697.17	0.16
Reach-1	283203	02JAN2012 2300	Norm-ProposedD2	8564.00	106.22	116.224		116.29	0.000281	2.11	4050.92	698.06	0.15
Reach-1	283203	02JAN2012 2300	MidPt-CorrectedC	17000.02	106.22	119.064		119.19	0.000299	2.80	6061.01	764.84	0.17
Reach-1	283203	02JAN2012 2300	MidPt-ProposedD1	16999.99	106.22	119.064		119.19	0.000299	2.80	6061.01	764.84	0.17
Reach-1	283203	02JAN2012 2300	MidPt-ProposedD2	17000.01	106.22	119.163		119.28	0.000288	2.77	6131.76	766.85	0.17
Reach-1	283203	02JAN2012 2300	Crest-CorrectedC	26000.00	106.22	122.190		122.34	0.000251	3.12	8323.98	824.68	0.16
Reach-1	283203	02JAN2012 2300	Crest-ProposedD1	26000.00	106.22	122.190		122.34	0.000251	3.12	8323.98	824.68	0.16
Reach-1	283203	02JAN2012 2300	Crest-ProposedD2	25999.98	106.22	122.271		122.42	0.000245	3.10	8383.41	826.12	0.16
Reach-1	283179	02JAN2012 2300	Norm-CorrectedC	8564.00	106.20	116.116		116.18	0.000241	2.02	4232.75	693.67	0.14
Reach-1	283179	02JAN2012 2300	Norm-ProposedD1	8564.01	106.20	116.116		116.18	0.000241	2.02	4232.68	693.67	0.14
Reach-1	283179	02JAN2012 2300	Norm-ProposedD2	8564.01	107.82	116.179		116.29	0.000436	2.62	3264.91	564.42	0.19
Reach-1	283179	02JAN2012 2300	MidPt-CorrectedC	17000.00	106.20	119.067		119.18	0.000260	2.70	6307.53	756.49	0.16
Reach-1	283179	02JAN2012 2300	MidPt-ProposedD1	16999.98	106.20	119.067		119.18	0.000260	2.70	6307.53	756.49	0.16
Reach-1	283179	02JAN2012 2300	MidPt-ProposedD2	17000.01	107.82	119.090		119.27	0.000451	3.45	4926.68	622.05	0.21
Reach-1	283179	02JAN2012 2300	Crest-CorrectedC	26000.01	106.20	122.192		122.34	0.000227	3.04	8556.81	834.29	0.16
Reach-1	283179	02JAN2012 2300	Crest-ProposedD1	26000.01	106.20	122.192		122.34	0.000227	3.04	8556.81	834.29	0.16
Reach-1	283179	02JAN2012 2300	Crest-ProposedD2	25999.99	107.82	122.182		122.41	0.000384	3.86	6727.78	694.81	0.20
Reach-1	283169	02JAN2012 2300	Norm-CorrectedC	8564.00	106.15	116.115		116.18	0.000232	2.00	4277.10	692.45	0.14
Reach-1	283169	02JAN2012 2300	Norm-ProposedD1	8564.01	106.15	116.115		116.18	0.000232	2.00	4277.10	692.45	0.14
Reach-1	283169	02JAN2012 2300	Norm-ProposedD2	8564.01	107.38	116.176		116.28	0.000423	2.60	3295.96	564.31	0.19
Reach-1	283169	02JAN2012 2300	MidPt-CorrectedC	16999.99	106.15	119.066		119.18	0.000254	2.68	6348.98	755.29	0.16
Reach-1	283169	02JAN2012 2300	MidPt-ProposedD1	16999.98	106.15	119.066		119.18	0.000254	2.68	6348.98	755.29	0.16
Reach-1	283169	02JAN2012 2300	MidPt-ProposedD2	17000.00	107.38	119.088		119.27	0.000441	3.43	4959.15	622.09	0.21
Reach-1	283169	02JAN2012 2300	Crest-CorrectedC	26000.01	106.15	122.191		122.33	0.000223	3.02	8595.31	832.19	0.15
Reach-1	283169	02JAN2012 2300	Crest-ProposedD1	26000.01	106.15	122.191		122.33	0.000223	3.02	8595.31	832.19	0.15
Reach-1	283169	02JAN2012 2300	Crest-ProposedD2	26000.00	107.38	122.181		122.41	0.000378	3.84	6762.90	694.52	0.20
Reach-1	283139	02JAN2012 2300	Norm-CorrectedC	8564.00	104.58	116.104		116.17	0.000257	2.07	4136.81	687.25	0.15
Reach-1	283139	02JAN2012 2300	Norm-ProposedD1	8564.00	104.58	116.104		116.17	0.000257	2.07	4136.81	687.25	0.15
Reach-1	283139	02JAN2012 2300	Norm-ProposedD2	8564.01	104.58	116.126		116.27	0.000661	3.02	2831.38	539.44	0.23
Reach-1	283139	02JAN2012 2300	MidPt-CorrectedC	17000.03	104.58	119.054		119.17	0.000275	2.74	6198.25	749.77	0.16
Reach-1	283139	02JAN2012 2300	MidPt-ProposedD1	17000.00	104.58	119.054		119.17	0.000275	2.74	6198.25	749.77	0.16
Reach-1	283139	02JAN2012 2300	MidPt-ProposedD2	17000.00	104.58	119.028		119.26	0.000615	3.84	4423.94	556.65	0.24
Reach-1	283139	02JAN2012 2300	Crest-CorrectedC	25999.98	104.58	122.180		122.33	0.000237	3.08	8442.55	816.17	0.16
Reach-1	283139	02JAN2012 2300	Crest-ProposedD1	25999.98	104.58	122.180		122.33	0.000237	3.08	8442.55	816.17	0.16
Reach-1	283139	02JAN2012 2300	Crest-ProposedD2	25999.99	104.58	122.124		122.40	0.000492	4.22	6168.05	569.78	0.23
Reach-1	283093	02JAN2012 2300	Norm-CorrectedC	8564.00	104.60	116.089		116.16	0.000283	2.12	4046.23	698.49	0.15
Reach-1	283093	02JAN2012 2300	Norm-ProposedD1	8563.99	104.60	116.089		116.16	0.000283	2.12	4046.23	698.49	0.15
Reach-1	283093	02JAN2012 2300	Norm-ProposedD2	8564.01	104.60	116.106		116.24	0.000637	2.92	2934.51	573.89	0.23
Reach-1	283093	02JAN2012 2300	MidPt-CorrectedC	17000.03	104.60	119.038		119.16	0.000290	2.77	6143.54	758.65	0.17
Reach-1	283093	02JAN2012 2300	MidPt-ProposedD1	16999.99	104.60	119.038		119.16	0.000290	2.77	6143.54	758.65	0.17
Reach-1	283093	02JAN2012 2300	MidPt-ProposedD2	17000.01	104.60	119.021		119.23	0.000572	3.67	4636.93	593.19	0.23
Reach-1	283093	02JAN2012 2300	Crest-CorrectedC	26000.01	104.60	122.168		122.32	0.000272	3.08	8439.90	809.38	0.16
Reach-1	283093	02JAN2012 2300	Crest-ProposedD1	25999.99	104.60	122.168		122.32	0.000272	3.08	8439.90	809.38	0.16
Reach-1	283093	02JAN2012 2300	Crest-ProposedD2	26000.02	104.60	122.129		122.38	0.000508	3.99	6509.41	612.58	0.22
Reach-1	283052	02JAN2012 2300	Norm-CorrectedC	8564.04	105.26	116.085		116.15	0.000237	2.01	4262.93	696.67	0.14
Reach-1	283052	02JAN2012 2300	Norm-ProposedD1	8563.98	105.26	116.085		116.15	0.000237	2.01	4262.93	696.67	0.14
Reach-1	283052	02JAN2012 2300	Norm-ProposedD2	8563.99	105.26	116.083		116.21	0.000578	2.90	2957.28	543.85	0.22
Reach-1	283052	02JAN2012 2300	MidPt-CorrectedC	16999.99	105.26	119.035		119.15	0.000256	2.68	6344.11	743.63	0.16
Reach-1	283052	02JAN2012 2300	MidPt-ProposedD1	16999.99	105.26	119.035		119.15	0.000256	2.68	6344.11	743.63	0.16
Reach-1	283052	02JAN2012 2300	MidPt-ProposedD2	17000.01	105.26	118.991		119.21	0.000557	3.73	4558.02	556.65	0.23
Reach-1	283052	02JAN2012 2300	Crest-CorrectedC	26000.01	105.26	122.164		122.31	0.000224	3.02	8602.51	781.20	0.16
Reach-1	283052	02JAN2012 2300	Crest-ProposedD1	26000.01	105.26	122.164		122.31	0.000224	3.02	8602.51	781.20	0.16
Reach-1	283052	02JAN2012 2300	Crest-ProposedD2	26000.02	105.26	122.093		122.36	0.000457	4.12	6303.89	569.16	0.22
Reach-1	283001	02JAN2012 2300	Norm-CorrectedC	8564.02	105.29	116.078		116.14	0.000214	1.93	4430.36	704.19	0.14
Reach-1	283001	02JAN2012 2300	Norm-ProposedD1	8564.01	105.29	116.078		116.14	0.000214	1.93	4430.36	704.19	0.14
Reach-1	283001	02JAN2012 2300	Norm-ProposedD2	8563.99	105.29	116.061		116.19	0.000521	2.83	3029.70	535.36	0.21
Reach-1	283001	02JAN2012 2300	MidPt-CorrectedC	17000.02	105.29	119.028		119.13	0.000246	2.60	6530.69	759.40	0.15
Reach-1	283001	02JAN2012 2300	MidPt-ProposedD1	17000.01	105.29	119.028		119.13	0.000246	2.60	6530.69	759.40	0.15
Reach-1	283001	02JAN2012 2300	MidPt-ProposedD2	17000.00	105.29	118.967		119.18	0.000526	3.69	4602.84	546.89	0.22
Reach-1	283001	02JAN2012 2300	Crest-CorrectedC	26000.01	105.29	122.159		122.29	0.000232	2.95	8807.43	832.29	0.15
Reach-1	283001	02JAN2012 2300	Crest-ProposedD1	25999.96	105.29	122.159		122.29	0.000232	2.95	8807.43	832.29	0.15
Reach-1	283001	02JAN2012 2300	Crest-ProposedD2	26000.03	105.29	122.070		122.33	0.000460	4.12	6317.95	558.36	0.22
Reach-1	282937	02JAN2012 2300	Norm-CorrectedC	8564.01	107.24	116.050		116.12	0.000281	2.11	4065.43	705.10	0.15
Reach-1	282937	02JAN2012 2300	Norm-ProposedD1	8563.99	107.24	116.050		116.12	0.000281	2.11	4065.43	705.10	0.15
Reach-1	282937	02JAN2012 2300	Norm-ProposedD2	8564.00	107.24	115.985		116.14	0.000745	3.17	2697.45	522.35	0.25
Reach-1	282937	02JAN2012 2300	MidPt-CorrectedC	16999.99	107.24	118.996		119.11	0.000298	2.76	6169.95	774.14	0.17
Reach-1	282937	02JAN2012 2300	MidPt-ProposedD1	17000.02	107.24	118.997		119.11	0.000298	2.76	6170.02	774.14	0.17
Reach-1	282937	02JAN2012 2300	MidPt-ProposedD2	16999.99	107.24	118.886		119.14	0.000724	4.02	4232.25	535.41	0.25
Reach-1	282937	02JAN2012 2300	Crest-CorrectedC	26000.02	107.24	122.130		122.28	0.000260	3.09	8463.36	823.94	0.16
Reach-1	282937	02JAN2012 2300	Crest-ProposedD1	25999.96	107.24	122.130		122.28	0.000260	3.09	8463.36	823.94	0.16
Reach-1	282937	02JAN2012 2300	Crest-ProposedD2	26000.01	107.24	121.997		122.30	0.000605	4.39	5917.74	547.76	0.24
Reach-1	282912	02JAN2012 2300	Norm-CorrectedC	8564.01	108.10	116.030		116.11	0.000393	2.31	3706.02	729.71	0.18
Reach-1	282912	02JAN2012 2300	Norm-ProposedD1	8563.98	108.10	116.030		116.11	0.000393	2.31	3706.02	729.71	0.18
Reach-1	282912	02JAN2012 2300	Norm-ProposedD2	8564.01	108.80	115.957		116.13	0.000886	3.29	2599.86	548.82	0.27
Reach-1	282912	02JAN2012 2300	MidPt-CorrectedC	16999.99	108.10	118.977		119.11	0.000349	2.90	5861.55	795.32	0.18
Reach-1	282912	02JAN2012 2300	MidPt-ProposedD1	17000.01	108.10	118.977		119.11	0.000349	2.90	5861.55	795.32	0.18

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	282912	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.80	118.867		119.12	0.000731	4.05	4196.85	603.81	0.26
Reach-1	282912	02JAN2012 2300	Crest-CorrectedC	25999.99	108.10	122.116		122.27	0.000268	3.17	8291.11	888.71	0.17
Reach-1	282912	02JAN2012 2300	Crest-ProposedD1	25999.98	108.10	122.116		122.27	0.000268	3.17	8291.11	888.71	0.17
Reach-1	282912	02JAN2012 2300	Crest-ProposedD2	26000.01	108.80	121.988		122.29	0.000546	4.38	5947.65	657.57	0.24
Reach-1	282902	02JAN2012 2300	Norm-CorrectedC	8563.99	108.28	116.018		116.11	0.000464	2.42	3539.06	740.52	0.19
Reach-1	282902	02JAN2012 2300	Norm-ProposedD1	8563.99	108.28	116.018		116.11	0.000464	2.42	3539.06	740.52	0.19
Reach-1	282902	02JAN2012 2300	Norm-ProposedD2	8564.01	108.80	115.936		116.12	0.001005	3.41	2511.03	560.91	0.28
Reach-1	282902	02JAN2012 2300	MidPt-CorrectedC	17000.01	108.28	118.968		119.10	0.000383	2.97	5746.26	824.81	0.19
Reach-1	282902	02JAN2012 2300	MidPt-ProposedD1	17000.01	108.28	118.968		119.10	0.000383	2.97	5746.26	824.81	0.19
Reach-1	282902	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.80	118.850		119.11	0.000784	4.12	4124.07	608.67	0.27
Reach-1	282902	02JAN2012 2300	Crest-CorrectedC	26000.00	108.28	122.110		122.27	0.000285	3.21	8230.68	907.36	0.17
Reach-1	282902	02JAN2012 2300	Crest-ProposedD1	25999.98	108.28	122.110		122.27	0.000285	3.21	8230.68	907.36	0.17
Reach-1	282902	02JAN2012 2300	Crest-ProposedD2	26000.01	108.80	121.977		122.28	0.000572	4.41	5891.90	662.64	0.24
Reach-1	282874	02JAN2012 2300	Norm-CorrectedC	8564.00	108.58	115.973		116.10	0.000809	2.87	3154.52	835.26	0.25
Reach-1	282874	02JAN2012 2300	Norm-ProposedD1	8563.98	108.58	115.973		116.10	0.000809	2.87	3154.52	835.26	0.25
Reach-1	282874	02JAN2012 2300	Norm-ProposedD2	8564.00	108.58	115.973		116.10	0.000809	2.87	3154.52	835.26	0.25
Reach-1	282874	02JAN2012 2300	MidPt-CorrectedC	17000.02	108.58	118.941		119.10	0.000520	3.25	5674.05	860.88	0.21
Reach-1	282874	02JAN2012 2300	MidPt-ProposedD1	17000.00	108.58	118.941		119.10	0.000520	3.25	5674.05	860.88	0.21
Reach-1	282874	02JAN2012 2300	MidPt-ProposedD2	16999.98	108.58	118.941		119.10	0.000520	3.25	5674.05	860.88	0.21
Reach-1	282874	02JAN2012 2300	Crest-CorrectedC	25999.99	108.58	122.096		122.27	0.000353	3.40	8424.30	881.67	0.19
Reach-1	282874	02JAN2012 2300	Crest-ProposedD1	25999.99	108.58	122.096		122.27	0.000353	3.40	8424.30	881.67	0.19
Reach-1	282874	02JAN2012 2300	Crest-ProposedD2	26000.01	108.58	122.096		122.27	0.000353	3.40	8424.30	881.67	0.19
Reach-1	282707	02JAN2012 2300	Norm-CorrectedC	8564.01	108.26	115.673		115.89	0.001724	3.69	2319.18	674.60	0.35
Reach-1	282707	02JAN2012 2300	Norm-ProposedD1	8564.01	108.26	115.673		115.89	0.001724	3.69	2319.18	674.60	0.35
Reach-1	282707	02JAN2012 2300	Norm-ProposedD2	8563.99	108.26	115.673		115.89	0.001724	3.69	2319.18	674.60	0.35
Reach-1	282707	02JAN2012 2300	MidPt-CorrectedC	16999.97	108.26	118.760		118.98	0.000815	3.79	4485.51	714.48	0.27
Reach-1	282707	02JAN2012 2300	MidPt-ProposedD1	16999.98	108.26	118.760		118.98	0.000815	3.79	4485.51	714.48	0.27
Reach-1	282707	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.26	118.760		118.98	0.000815	3.79	4485.51	714.48	0.27
Reach-1	282707	02JAN2012 2300	Crest-CorrectedC	26000.01	108.26	121.964		122.19	0.000507	3.82	6802.06	731.57	0.22
Reach-1	282707	02JAN2012 2300	Crest-ProposedD1	26000.02	108.26	121.964		122.19	0.000507	3.82	6802.06	731.57	0.22
Reach-1	282707	02JAN2012 2300	Crest-ProposedD2	25999.97	108.26	121.964		122.19	0.000507	3.82	6802.06	731.57	0.22
Reach-1	282424	02JAN2012 2300	Norm-CorrectedC	8564.01	108.13	115.453		115.56	0.000605	2.59	3307.79	748.11	0.22
Reach-1	282424	02JAN2012 2300	Norm-ProposedD1	8564.01	108.13	115.453		115.56	0.000605	2.59	3307.79	748.11	0.22
Reach-1	282424	02JAN2012 2300	Norm-ProposedD2	8564.02	108.13	115.453		115.56	0.000605	2.59	3307.79	748.11	0.22
Reach-1	282424	02JAN2012 2300	MidPt-CorrectedC	17000.02	108.13	118.674		118.81	0.000403	2.96	5747.38	766.11	0.19
Reach-1	282424	02JAN2012 2300	MidPt-ProposedD1	17000.03	108.13	118.674		118.81	0.000403	2.96	5747.38	766.11	0.19
Reach-1	282424	02JAN2012 2300	MidPt-ProposedD2	16999.97	108.13	118.674		118.81	0.000403	2.96	5747.38	766.11	0.19
Reach-1	282424	02JAN2012 2300	Crest-CorrectedC	26000.00	108.13	121.923		122.08	0.000298	3.15	8262.86	782.18	0.17
Reach-1	282424	02JAN2012 2300	Crest-ProposedD1	26000.00	108.13	121.923		122.08	0.000298	3.15	8262.86	782.18	0.17
Reach-1	282424	02JAN2012 2300	Crest-ProposedD2	26000.01	108.13	121.923		122.08	0.000298	3.15	8262.86	782.18	0.17
Reach-1	282071	02JAN2012 2300	Norm-CorrectedC	8564.00	111.09	115.004		115.17	0.001574	3.31	2588.79	816.79	0.33
Reach-1	282071	02JAN2012 2300	Norm-ProposedD1	8563.99	111.09	115.004		115.17	0.001574	3.31	2588.79	816.79	0.33
Reach-1	282071	02JAN2012 2300	Norm-ProposedD2	8563.99	111.09	115.004		115.17	0.001574	3.31	2588.79	816.79	0.33
Reach-1	282071	02JAN2012 2300	MidPt-CorrectedC	16999.97	111.09	118.490		118.64	0.000559	3.11	5470.89	836.35	0.21
Reach-1	282071	02JAN2012 2300	MidPt-ProposedD1	16999.94	111.09	118.490		118.64	0.000559	3.11	5470.89	836.35	0.21
Reach-1	282071	02JAN2012 2300	MidPt-ProposedD2	17000.01	111.09	118.490		118.64	0.000559	3.11	5470.89	836.35	0.21
Reach-1	282071	02JAN2012 2300	Crest-CorrectedC	26000.02	111.09	121.804		121.96	0.000373	3.14	8272.55	854.24	0.18
Reach-1	282071	02JAN2012 2300	Crest-ProposedD1	26000.00	111.09	121.804		121.96	0.000373	3.14	8272.55	854.24	0.18
Reach-1	282071	02JAN2012 2300	Crest-ProposedD2	25999.96	111.09	121.804		121.96	0.000373	3.14	8272.55	854.24	0.18
Reach-1	281647	02JAN2012 2300	Norm-CorrectedC	8564.00	105.74	114.654	111.56	114.74	0.000475	2.31	3703.20	827.16	0.19
Reach-1	281647	02JAN2012 2300	Norm-ProposedD1	8563.99	105.74	114.654	111.56	114.74	0.000475	2.31	3703.20	827.16	0.19
Reach-1	281647	02JAN2012 2300	Norm-ProposedD2	8564.00	105.74	114.654	111.56	114.74	0.000475	2.31	3703.20	827.16	0.19
Reach-1	281647	02JAN2012 2300	MidPt-CorrectedC	17000.05	105.74	118.370	112.48	118.47	0.000253	2.49	6813.68	844.96	0.15
Reach-1	281647	02JAN2012 2300	MidPt-ProposedD1	17000.05	105.74	118.370	112.48	118.47	0.000253	2.49	6813.68	844.96	0.15
Reach-1	281647	02JAN2012 2300	MidPt-ProposedD2	17000.01	105.74	118.370	112.48	118.47	0.000253	2.49	6813.68	844.96	0.15
Reach-1	281647	02JAN2012 2300	Crest-CorrectedC	25999.97	105.74	121.726	113.28	121.84	0.000189	2.69	9672.72	858.73	0.14
Reach-1	281647	02JAN2012 2300	Crest-ProposedD1	26000.02	105.74	121.726	113.28	121.84	0.000189	2.69	9672.72	858.73	0.14
Reach-1	281647	02JAN2012 2300	Crest-ProposedD2	26000.04	105.74	121.726	113.28	121.84	0.000189	2.69	9672.72	858.73	0.14
Reach-1	281538			Bridge									
Reach-1	281423	02JAN2012 2300	Norm-CorrectedC	8564.00	105.74	114.343		114.44	0.000613	2.47	3473.23	852.85	0.22
Reach-1	281423	02JAN2012 2300	Norm-ProposedD1	8563.99	105.74	114.343		114.44	0.000613	2.47	3473.23	852.85	0.22
Reach-1	281423	02JAN2012 2300	Norm-ProposedD2	8564.00	105.74	114.343		114.44	0.000613	2.47	3473.31	852.85	0.22
Reach-1	281423	02JAN2012 2300	MidPt-CorrectedC	17000.05	105.74	118.226		118.32	0.000261	2.48	6870.60	919.36	0.16
Reach-1	281423	02JAN2012 2300	MidPt-ProposedD1	17000.05	105.74	118.226		118.32	0.000261	2.48	6870.60	919.36	0.16
Reach-1	281423	02JAN2012 2300	MidPt-ProposedD2	17000.01	105.74	118.226		118.32	0.000261	2.48	6870.60	919.36	0.16
Reach-1	281423	02JAN2012 2300	Crest-CorrectedC	25999.97	105.74	121.538		121.65	0.000190	2.65	9845.03	960.91	0.14
Reach-1	281423	02JAN2012 2300	Crest-ProposedD1	26000.02	105.74	121.538		121.65	0.000190	2.65	9845.03	960.91	0.14
Reach-1	281423	02JAN2012 2300	Crest-ProposedD2	26000.04	105.74	121.538		121.65	0.000190	2.65	9845.03	960.91	0.14
Reach-1	279961	02JAN2012 2300	Norm-CorrectedC	8564.01	101.65	113.809		113.86	0.000177	1.83	4680.74	706.16	0.13
Reach-1	279961	02JAN2012 2300	Norm-ProposedD1	8564.01	101.65	113.809		113.86	0.000177	1.83	4680.74	706.16	0.13
Reach-1	279961	02JAN2012 2300	Norm-ProposedD2	8564.00	101.65	113.809		113.86	0.000177	1.83	4680.74	706.16	0.13
Reach-1	279961	02JAN2012 2300	MidPt-CorrectedC	16999.96	101.65	117.951		118.03	0.000140	2.23	7626.85	715.48	0.12
Reach-1	279961	02JAN2012 2300	MidPt-ProposedD1	16999.96	101.65	117.951		118.03	0.000140	2.23	7626.85	715.48	0.12
Reach-1	279961	02JAN2012 2300	MidPt-ProposedD2	16999.99	101.65	117.951		118.03	0.000140	2.23	7626.85	715.48	0.12
Reach-1	279961	02JAN2012 2300	Crest-CorrectedC	26000.02	101.65	121.306		121.41	0.000134	2.59	10038.52	722.39	0.12
Reach-1	279961	02JAN2012 2300	Crest-ProposedD1	25999.99	101.65	121.306		121.41	0.000134	2.59	10038.52	722.39	0.12
Reach-1	279961	02JAN2012 2300	Crest-ProposedD2	25999.96	101.65	121.306		121.41	0.000134	2.59	10038.52	722.39	0.12
Reach-1	279605	02JAN2012 2300	Norm-CorrectedC	8563.98	101.65	113.744		113.80	0.000183	1.85	4634.85	705.91	0.13
Reach-1	279605	02JAN2012 2300	Norm-ProposedD1	8563.98	101.65	113.744		113.80	0.000183	1.85	4634.85	705.91	0.13
Reach-1	279605	02JAN2012 2300	Norm-ProposedD2	8564.00	101.65	113.744		113.80	0.000183	1.85	4634.85	705.91	0.13
Reach-1	279605	02JAN2012 2300	MidPt-CorrectedC	17000.04	101.65	117.900		117.98	0.000142	2.24	7590.29	715.38	0.12
Reach-1	279605	02JAN2012 2300	MidPt-ProposedD1	17000.03	101.65	117.900		117.98	0.000142	2.24	7590.29	715.38	0.12
Reach-1	279605	02JAN2012 2300	MidPt-ProposedD2	16999.98	101.65	117.900		117.98	0.000142	2.24	7590.29	715.38	0.12

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	279605	02JAN2012 2300	Crest-CorrectedC	26000.00	101.65	121.257		121.36	0.000135	2.60	10003.48	722.29	0.12
Reach-1	279605	02JAN2012 2300	Crest-ProposedD1	26000.03	101.65	121.257		121.36	0.000135	2.60	10003.48	722.29	0.12
Reach-1	279605	02JAN2012 2300	Crest-ProposedD2	26000.02	101.65	121.257		121.36	0.000135	2.60	10003.48	722.29	0.12
Reach-1	278919	02JAN2012 2300	Norm-CorrectedC	8564.01	101.65	113.612		113.67	0.000196	1.88	4551.09	711.45	0.13
Reach-1	278919	02JAN2012 2300	Norm-ProposedD1	8564.01	101.65	113.612		113.67	0.000196	1.88	4551.09	711.45	0.13
Reach-1	278919	02JAN2012 2300	Norm-ProposedD2	8564.00	101.65	113.612		113.67	0.000196	1.88	4551.09	711.45	0.13
Reach-1	278919	02JAN2012 2300	MidPt-CorrectedC	16999.98	101.65	117.801		117.88	0.000148	2.24	7589.33	735.92	0.12
Reach-1	278919	02JAN2012 2300	MidPt-ProposedD1	16999.98	101.65	117.801		117.88	0.000148	2.24	7589.33	735.92	0.12
Reach-1	278919	02JAN2012 2300	MidPt-ProposedD2	17000.02	101.65	117.801		117.88	0.000148	2.24	7589.33	735.92	0.12
Reach-1	278919	02JAN2012 2300	Crest-CorrectedC	26000.01	101.65	121.166		121.27	0.000137	2.58	10092.63	788.00	0.12
Reach-1	278919	02JAN2012 2300	Crest-ProposedD1	25999.95	101.65	121.166		121.27	0.000137	2.58	10092.63	788.00	0.12
Reach-1	278919	02JAN2012 2300	Crest-ProposedD2	25999.98	101.65	121.166		121.27	0.000137	2.58	10092.63	788.00	0.12
Reach-1	277724	02JAN2012 2300	Norm-CorrectedC	8564.00	100.07	113.484	104.57	113.51	0.000061	1.35	6362.60	684.93	0.08
Reach-1	277724	02JAN2012 2300	Norm-ProposedD1	8563.99	100.07	113.484	104.57	113.51	0.000061	1.35	6362.60	684.93	0.08
Reach-1	277724	02JAN2012 2300	Norm-ProposedD2	8563.99	100.07	113.484	104.57	113.51	0.000061	1.35	6362.60	684.93	0.08
Reach-1	277724	02JAN2012 2300	MidPt-CorrectedC	17000.02	100.07	117.696	106.06	117.75	0.000071	1.83	9271.30	696.31	0.09
Reach-1	277724	02JAN2012 2300	MidPt-ProposedD1	17000.01	100.07	117.696	106.06	117.75	0.000071	1.83	9271.30	696.31	0.09
Reach-1	277724	02JAN2012 2300	MidPt-ProposedD2	16999.99	100.07	117.696	106.06	117.75	0.000071	1.83	9271.23	696.31	0.09
Reach-1	277724	02JAN2012 2300	Crest-CorrectedC	25999.98	100.07	121.062	107.38	121.14	0.000079	2.24	11630.46	705.41	0.10
Reach-1	277724	02JAN2012 2300	Crest-ProposedD1	26000.05	100.07	121.062	107.38	121.14	0.000079	2.24	11630.46	705.41	0.10
Reach-1	277724	02JAN2012 2300	Crest-ProposedD2	26000.01	100.07	121.062	107.38	121.14	0.000079	2.24	11630.46	705.41	0.10
Reach-1	277625			Bridge									
Reach-1	277512	02JAN2012 2300	Norm-CorrectedC	8564.00	100.07	113.463		113.49	0.000062	1.35	6347.94	684.88	0.08
Reach-1	277512	02JAN2012 2300	Norm-ProposedD1	8563.99	100.07	113.463		113.49	0.000062	1.35	6347.94	684.88	0.08
Reach-1	277512	02JAN2012 2300	Norm-ProposedD2	8563.99	100.07	113.463		113.49	0.000062	1.35	6347.94	684.88	0.08
Reach-1	277512	02JAN2012 2300	MidPt-CorrectedC	17000.02	100.07	117.668		117.72	0.000071	1.84	9251.67	696.24	0.09
Reach-1	277512	02JAN2012 2300	MidPt-ProposedD1	17000.01	100.07	117.668		117.72	0.000071	1.84	9251.67	696.24	0.09
Reach-1	277512	02JAN2012 2300	MidPt-ProposedD2	16999.99	100.07	117.668		117.72	0.000071	1.84	9251.67	696.24	0.09
Reach-1	277512	02JAN2012 2300	Crest-CorrectedC	25999.98	100.07	121.025		121.10	0.000080	2.24	11604.01	705.31	0.10
Reach-1	277512	02JAN2012 2300	Crest-ProposedD1	26000.05	100.07	121.025		121.10	0.000080	2.24	11604.01	705.31	0.10
Reach-1	277512	02JAN2012 2300	Crest-ProposedD2	26000.01	100.07	121.025		121.10	0.000080	2.24	11604.01	705.31	0.10
Reach-1	277500	02JAN2012 2300	Norm-CorrectedC	8563.99	101.08	113.459	104.50	113.49	0.000068	1.43	5992.40	637.49	0.08
Reach-1	277500	02JAN2012 2300	Norm-ProposedD1	8563.99	101.08	113.459	104.50	113.49	0.000068	1.43	5992.40	637.49	0.08
Reach-1	277500	02JAN2012 2300	Norm-ProposedD2	8564.00	101.08	113.459	104.50	113.49	0.000068	1.43	5992.40	637.49	0.08
Reach-1	277500	02JAN2012 2300	MidPt-CorrectedC	16999.99	101.08	117.660	105.87	117.72	0.000080	1.95	8714.85	658.43	0.09
Reach-1	277500	02JAN2012 2300	MidPt-ProposedD1	17000.02	101.08	117.660	105.87	117.72	0.000080	1.95	8714.85	658.43	0.09
Reach-1	277500	02JAN2012 2300	MidPt-ProposedD2	16999.99	101.08	117.660	105.87	117.72	0.000080	1.95	8714.85	658.43	0.09
Reach-1	277500	02JAN2012 2300	Crest-CorrectedC	25999.96	101.08	121.014	107.01	121.10	0.000091	2.37	10951.31	673.52	0.10
Reach-1	277500	02JAN2012 2300	Crest-ProposedD1	26000.05	101.08	121.014	107.01	121.10	0.000091	2.37	10951.31	673.52	0.10
Reach-1	277500	02JAN2012 2300	Crest-ProposedD2	26000.00	101.08	121.014	107.01	121.10	0.000091	2.37	10951.31	673.52	0.10
Reach-1	277397			Bridge									
Reach-1	277287	02JAN2012 2300	Norm-CorrectedC	8563.99	102.92	113.365		113.41	0.000140	1.79	4771.50	620.40	0.11
Reach-1	277287	02JAN2012 2300	Norm-ProposedD1	8563.99	102.92	113.365		113.41	0.000140	1.79	4771.50	620.40	0.11
Reach-1	277287	02JAN2012 2300	Norm-ProposedD2	8564.00	102.92	113.365		113.41	0.000140	1.79	4771.50	620.40	0.11
Reach-1	277287	02JAN2012 2300	MidPt-CorrectedC	16999.99	102.92	117.549		117.63	0.000133	2.29	7439.68	648.70	0.12
Reach-1	277287	02JAN2012 2300	MidPt-ProposedD1	17000.02	102.92	117.549		117.63	0.000133	2.29	7439.68	648.70	0.12
Reach-1	277287	02JAN2012 2300	MidPt-ProposedD2	16999.99	102.92	117.549		117.63	0.000133	2.29	7439.68	648.70	0.12
Reach-1	277287	02JAN2012 2300	Crest-CorrectedC	25999.96	102.92	120.889		121.00	0.000137	2.70	9635.60	665.97	0.13
Reach-1	277287	02JAN2012 2300	Crest-ProposedD1	26000.05	102.92	120.889		121.00	0.000137	2.70	9635.60	665.97	0.13
Reach-1	277287	02JAN2012 2300	Crest-ProposedD2	26000.00	102.92	120.889		121.00	0.000137	2.70	9635.60	665.97	0.13
Reach-1	276335	02JAN2012 2300	Norm-CorrectedC	8564.02	101.04	113.260		113.30	0.000094	1.67	5134.59	554.22	0.10
Reach-1	276335	02JAN2012 2300	Norm-ProposedD1	8564.02	101.04	113.260		113.30	0.000094	1.67	5134.59	554.22	0.10
Reach-1	276335	02JAN2012 2300	Norm-ProposedD2	8564.00	101.04	113.260		113.30	0.000094	1.67	5134.59	554.22	0.10
Reach-1	276335	02JAN2012 2300	MidPt-CorrectedC	17000.00	101.04	117.434		117.51	0.000110	2.27	7481.58	566.88	0.11
Reach-1	276335	02JAN2012 2300	MidPt-ProposedD1	16999.99	101.04	117.434		117.51	0.000110	2.27	7481.58	566.88	0.11
Reach-1	276335	02JAN2012 2300	MidPt-ProposedD2	17000.02	101.04	117.434		117.51	0.000110	2.27	7481.58	566.88	0.11
Reach-1	276335	02JAN2012 2300	Crest-CorrectedC	26000.03	101.04	120.759		120.88	0.000123	2.77	9375.14	572.14	0.12
Reach-1	276335	02JAN2012 2300	Crest-ProposedD1	25999.97	101.04	120.759		120.88	0.000123	2.77	9375.14	572.14	0.12
Reach-1	276335	02JAN2012 2300	Crest-ProposedD2	26000.02	101.04	120.759		120.88	0.000123	2.77	9375.14	572.14	0.12
Reach-1	276088	02JAN2012 2300	Norm-CorrectedC	8563.99	101.04	113.236		113.28	0.000089	1.69	5055.75	511.75	0.09
Reach-1	276088	02JAN2012 2300	Norm-ProposedD1	8563.97	101.04	113.236		113.28	0.000089	1.69	5055.75	511.75	0.09
Reach-1	276088	02JAN2012 2300	Norm-ProposedD2	8564.03	101.04	113.236		113.28	0.000089	1.69	5055.75	511.75	0.09
Reach-1	276088	02JAN2012 2300	MidPt-CorrectedC	17000.02	101.04	117.401		117.49	0.000111	2.36	7214.73	522.44	0.11
Reach-1	276088	02JAN2012 2300	MidPt-ProposedD1	17000.04	101.04	117.401		117.49	0.000111	2.36	7214.73	522.44	0.11
Reach-1	276088	02JAN2012 2300	MidPt-ProposedD2	17000.02	101.04	117.401		117.49	0.000111	2.36	7214.73	522.44	0.11
Reach-1	276088	02JAN2012 2300	Crest-CorrectedC	25999.96	101.04	120.717		120.85	0.000130	2.90	8955.90	527.89	0.12
Reach-1	276088	02JAN2012 2300	Crest-ProposedD1	26000.02	101.04	120.717		120.85	0.000130	2.90	8955.90	527.89	0.12
Reach-1	276088	02JAN2012 2300	Crest-ProposedD2	25999.99	101.04	120.717		120.85	0.000130	2.90	8955.90	527.89	0.12
Reach-1	275472	02JAN2012 2300	Norm-CorrectedC	8564.01	101.04	113.180		113.23	0.000091	1.70	5027.15	511.50	0.10
Reach-1	275472	02JAN2012 2300	Norm-ProposedD1	8564.02	101.04	113.180		113.23	0.000091	1.70	5027.15	511.50	0.10
Reach-1	275472	02JAN2012 2300	Norm-ProposedD2	8563.98	101.04	113.180		113.23	0.000091	1.70	5027.15	511.50	0.10
Reach-1	275472	02JAN2012 2300	MidPt-CorrectedC	17000.00	101.04	117.331		117.42	0.000113	2.37	7243.83	553.51	0.11
Reach-1	275472	02JAN2012 2300	MidPt-ProposedD1	16999.99	101.04	117.331		117.42	0.000113	2.37	7243.83	553.51	0.11
Reach-1	275472	02JAN2012 2300	MidPt-ProposedD2	17000.00	101.04	117.331		117.42	0.000113	2.37	7243.83	553.51	0.11
Reach-1	275472	02JAN2012 2300	Crest-CorrectedC	26000.02	101.04	120.636		120.77	0.000131	2.91	9103.04	570.71	0.12
Reach-1	275472	02JAN2012 2300	Crest-ProposedD1	25999.98	101.04	120.636		120.77	0.000131	2.91	9103.04	570.71	0.12
Reach-1	275472	02JAN2012 2300	Crest-ProposedD2	26000.05	101.04	120.636		120.77	0.000131	2.91	9103.04	570.71	0.12
Reach-1	274472	02JAN2012 2300	Norm-CorrectedC	8564.00	101.04	113.085		113.13	0.000103	1.67	5121.91	585.85	0.10
Reach-1	274472	02JAN2012 2300	Norm-ProposedD1	8563.98	101.04	113.085		113.13	0.000103	1.67	5121.91	585.85	0.10
Reach-1	274472	02JAN2012 2300	Norm-ProposedD2	8564.02	101.04	113.085		113.13	0.000103	1.67	5121.91	585.85	0.10
Reach-1	274472	02JAN2012 2300	MidPt-CorrectedC	16999.99	101.04	117.227		117.30	0.000115	2.22	7644.07	620.90	0.11
Reach-1	274472	02JAN2012 2300	MidPt-ProposedD1	17000.04	101.04	117.227		117.30	0.000115	2.22	7644.07	620.90	0.11

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	274472	02JAN2012 2300	MidPt-ProposedD2	17000.01	101.04	117.227		117.30	0.000115	2.22	7644.07	620.90	0.11
Reach-1	274472	02JAN2012 2300	Crest-CorrectedC	25999.99	101.04	120.527		120.64	0.000126	2.68	9719.59	662.25	0.12
Reach-1	274472	02JAN2012 2300	Crest-ProposedD1	26000.03	101.04	120.527		120.64	0.000126	2.68	9719.59	662.25	0.12
Reach-1	274472	02JAN2012 2300	Crest-ProposedD2	25999.97	101.04	120.527		120.64	0.000126	2.68	9719.59	662.25	0.12
Reach-1	273472	02JAN2012 2300	Norm-CorrectedC	8564.01	99.91	113.001		113.04	0.000080	1.53	5579.25	599.29	0.09
Reach-1	273472	02JAN2012 2300	Norm-ProposedD1	8564.02	99.91	113.001		113.04	0.000080	1.53	5579.25	599.29	0.09
Reach-1	273472	02JAN2012 2300	Norm-ProposedD2	8563.99	99.91	113.001		113.04	0.000080	1.53	5579.25	599.29	0.09
Reach-1	273472	02JAN2012 2300	MidPt-CorrectedC	17000.01	99.91	117.129		117.20	0.000098	2.09	8128.34	635.67	0.10
Reach-1	273472	02JAN2012 2300	MidPt-ProposedD1	16999.98	99.91	117.129		117.20	0.000098	2.09	8128.34	635.67	0.10
Reach-1	273472	02JAN2012 2300	MidPt-ProposedD2	17000.02	99.91	117.129		117.20	0.000098	2.09	8128.34	635.67	0.10
Reach-1	273472	02JAN2012 2300	Crest-CorrectedC	26000.03	99.91	120.420		120.52	0.000112	2.53	10267.85	664.66	0.11
Reach-1	273472	02JAN2012 2300	Crest-ProposedD1	25999.98	99.91	120.420		120.52	0.000112	2.53	10267.85	664.66	0.11
Reach-1	273472	02JAN2012 2300	Crest-ProposedD2	26000.03	99.91	120.420		120.52	0.000112	2.53	10267.85	664.66	0.11
Reach-1	272318	02JAN2012 2300	Norm-CorrectedC	8564.00	99.91	112.905		112.95	0.000079	1.63	5245.50	508.71	0.09
Reach-1	272318	02JAN2012 2300	Norm-ProposedD1	8563.99	99.91	112.905		112.95	0.000079	1.63	5245.50	508.71	0.09
Reach-1	272318	02JAN2012 2300	Norm-ProposedD2	8564.01	99.91	112.905		112.95	0.000079	1.63	5245.50	508.71	0.09
Reach-1	272318	02JAN2012 2300	MidPt-CorrectedC	17000.02	99.91	116.998		117.08	0.000104	2.31	7349.23	519.31	0.11
Reach-1	272318	02JAN2012 2300	MidPt-ProposedD1	17000.03	99.91	116.998		117.08	0.000104	2.31	7349.23	519.31	0.11
Reach-1	272318	02JAN2012 2300	MidPt-ProposedD2	16999.99	99.91	116.998		117.08	0.000104	2.31	7349.23	519.31	0.11
Reach-1	272318	02JAN2012 2300	Crest-CorrectedC	25999.98	99.91	120.255		120.38	0.000125	2.87	9054.51	527.75	0.12
Reach-1	272318	02JAN2012 2300	Crest-ProposedD1	26000.02	99.91	120.255		120.38	0.000125	2.87	9054.51	527.75	0.12
Reach-1	272318	02JAN2012 2300	Crest-ProposedD2	25999.99	99.91	120.255		120.38	0.000125	2.87	9054.51	527.75	0.12
Reach-1	271472	02JAN2012 2300	Norm-CorrectedC	8564.00	99.91	112.845		112.88	0.000071	1.57	5438.75	583.70	0.09
Reach-1	271472	02JAN2012 2300	Norm-ProposedD1	8564.00	99.91	112.845		112.88	0.000071	1.57	5438.75	583.70	0.09
Reach-1	271472	02JAN2012 2300	Norm-ProposedD2	8563.99	99.91	112.845		112.88	0.000071	1.57	5438.75	583.70	0.09
Reach-1	271472	02JAN2012 2300	MidPt-CorrectedC	17000.02	99.91	116.928		117.00	0.000086	2.16	7885.50	608.79	0.11
Reach-1	271472	02JAN2012 2300	MidPt-ProposedD1	16999.96	99.91	116.928		117.00	0.000086	2.16	7885.50	608.79	0.11
Reach-1	271472	02JAN2012 2300	MidPt-ProposedD2	17000.02	99.91	116.928		117.00	0.000086	2.16	7885.50	608.79	0.11
Reach-1	271472	02JAN2012 2300	Crest-CorrectedC	26000.01	99.91	120.181		120.29	0.000099	2.63	9893.55	628.55	0.12
Reach-1	271472	02JAN2012 2300	Crest-ProposedD1	25999.96	99.91	120.181		120.29	0.000099	2.63	9893.55	628.55	0.12
Reach-1	271472	02JAN2012 2300	Crest-ProposedD2	26000.03	99.91	120.181		120.29	0.000099	2.63	9893.55	628.55	0.12
Reach-1	270472	02JAN2012 2300	Norm-CorrectedC	8563.99	99.91	112.775		112.81	0.000071	1.55	5526.32	607.39	0.09
Reach-1	270472	02JAN2012 2300	Norm-ProposedD1	8564.00	99.91	112.775		112.81	0.000071	1.55	5526.32	607.39	0.09
Reach-1	270472	02JAN2012 2300	Norm-ProposedD2	8564.02	99.91	112.775		112.81	0.000071	1.55	5526.32	607.39	0.09
Reach-1	270472	02JAN2012 2300	MidPt-CorrectedC	16999.99	99.91	116.846		116.92	0.000083	2.12	8029.71	620.86	0.10
Reach-1	270472	02JAN2012 2300	MidPt-ProposedD1	17000.03	99.91	116.846		116.92	0.000083	2.12	8029.71	620.86	0.10
Reach-1	270472	02JAN2012 2300	MidPt-ProposedD2	16999.98	99.91	116.846		116.92	0.000083	2.12	8029.71	620.86	0.10
Reach-1	270472	02JAN2012 2300	Crest-CorrectedC	25999.98	99.91	120.088		120.19	0.000094	2.59	10055.06	628.79	0.11
Reach-1	270472	02JAN2012 2300	Crest-ProposedD1	26000.04	99.91	120.088		120.19	0.000094	2.59	10055.06	628.79	0.11
Reach-1	270472	02JAN2012 2300	Crest-ProposedD2	25999.96	99.91	120.088		120.19	0.000094	2.59	10055.06	628.79	0.11
Reach-1	269529	02JAN2012 2300	Norm-CorrectedC	8564.01	100.75	112.708		112.74	0.000073	1.53	5584.18	640.43	0.09
Reach-1	269529	02JAN2012 2300	Norm-ProposedD1	8564.02	100.75	112.708		112.74	0.000073	1.53	5584.18	640.43	0.09
Reach-1	269529	02JAN2012 2300	Norm-ProposedD2	8563.98	100.75	112.708		112.74	0.000073	1.53	5584.18	640.43	0.09
Reach-1	269529	02JAN2012 2300	MidPt-CorrectedC	17000.01	100.75	116.771		116.84	0.000082	2.07	8203.98	649.07	0.10
Reach-1	269529	02JAN2012 2300	MidPt-ProposedD1	16999.99	100.75	116.771		116.84	0.000082	2.07	8203.98	649.07	0.10
Reach-1	269529	02JAN2012 2300	MidPt-ProposedD2	17000.01	100.75	116.771		116.84	0.000082	2.07	8203.98	649.07	0.10
Reach-1	269529	02JAN2012 2300	Crest-CorrectedC	26000.05	100.75	120.006		120.10	0.000091	2.52	10314.88	656.36	0.11
Reach-1	269529	02JAN2012 2300	Crest-ProposedD1	25999.98	100.75	120.006		120.10	0.000091	2.52	10314.88	656.36	0.11
Reach-1	269529	02JAN2012 2300	Crest-ProposedD2	26000.01	100.75	120.006		120.10	0.000091	2.52	10314.88	656.36	0.11
Reach-1	268320	02JAN2012 2300	Norm-CorrectedC	8563.99	100.75	112.617		112.65	0.000076	1.55	5525.97	640.24	0.09
Reach-1	268320	02JAN2012 2300	Norm-ProposedD1	8563.97	100.75	112.617		112.65	0.000076	1.55	5525.97	640.24	0.09
Reach-1	268320	02JAN2012 2300	Norm-ProposedD2	8564.02	100.75	112.617		112.65	0.000076	1.55	5525.97	640.24	0.09
Reach-1	268320	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.75	116.669		116.74	0.000084	2.09	8137.92	648.85	0.10
Reach-1	268320	02JAN2012 2300	MidPt-ProposedD1	17000.02	100.75	116.669		116.74	0.000084	2.09	8137.92	648.85	0.10
Reach-1	268320	02JAN2012 2300	MidPt-ProposedD2	16999.97	100.75	116.669		116.74	0.000084	2.09	8137.92	648.85	0.10
Reach-1	268320	02JAN2012 2300	Crest-CorrectedC	25999.97	100.75	119.893		119.99	0.000094	2.54	10241.57	658.00	0.11
Reach-1	268320	02JAN2012 2300	Crest-ProposedD1	26000.00	100.75	119.893		119.99	0.000094	2.54	10241.57	658.00	0.11
Reach-1	268320	02JAN2012 2300	Crest-ProposedD2	25999.99	100.75	119.893		119.99	0.000094	2.54	10241.57	658.00	0.11
Reach-1	267678	02JAN2012 2300	Norm-CorrectedC	8564.01	100.75	112.568		112.61	0.000078	1.54	5556.48	661.08	0.09
Reach-1	267678	02JAN2012 2300	Norm-ProposedD1	8563.99	100.75	112.568		112.61	0.000078	1.54	5556.48	661.08	0.09
Reach-1	267678	02JAN2012 2300	Norm-ProposedD2	8563.99	100.75	112.568		112.61	0.000078	1.54	5556.48	661.08	0.09
Reach-1	267678	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.75	116.617		116.68	0.000084	2.06	8252.54	671.08	0.10
Reach-1	267678	02JAN2012 2300	MidPt-ProposedD1	16999.98	100.75	116.617		116.68	0.000084	2.06	8252.54	671.08	0.10
Reach-1	267678	02JAN2012 2300	MidPt-ProposedD2	17000.02	100.75	116.617		116.68	0.000084	2.06	8252.54	671.08	0.10
Reach-1	267678	02JAN2012 2300	Crest-CorrectedC	26000.00	100.75	119.836		119.93	0.000092	2.49	10458.02	756.40	0.11
Reach-1	267678	02JAN2012 2300	Crest-ProposedD1	25999.97	100.75	119.836		119.93	0.000092	2.49	10458.02	756.40	0.11
Reach-1	267678	02JAN2012 2300	Crest-ProposedD2	26000.06	100.75	119.836		119.93	0.000092	2.49	10458.02	756.40	0.11
Reach-1	266472	02JAN2012 2300	Norm-CorrectedC	8563.99	100.75	112.472		112.51	0.000081	1.56	5485.41	657.57	0.10
Reach-1	266472	02JAN2012 2300	Norm-ProposedD1	8564.02	100.75	112.472		112.51	0.000081	1.56	5485.41	657.57	0.10
Reach-1	266472	02JAN2012 2300	Norm-ProposedD2	8564.02	100.75	112.472		112.51	0.000081	1.56	5485.41	657.57	0.10
Reach-1	266472	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.75	116.513		116.58	0.000086	2.08	8157.94	665.11	0.10
Reach-1	266472	02JAN2012 2300	MidPt-ProposedD1	17000.02	100.75	116.513		116.58	0.000086	2.08	8157.94	665.11	0.10
Reach-1	266472	02JAN2012 2300	MidPt-ProposedD2	16999.97	100.75	116.513		116.58	0.000086	2.08	8157.94	665.11	0.10
Reach-1	266472	02JAN2012 2300	Crest-CorrectedC	25999.98	100.75	119.722		119.82	0.000095	2.52	10878.28	1208.58	0.11
Reach-1	266472	02JAN2012 2300	Crest-ProposedD1	26000.04	100.75	119.722		119.82	0.000095	2.52	10878.28	1208.58	0.11
Reach-1	266472	02JAN2012 2300	Crest-ProposedD2	25999.94	100.75	119.722		119.82	0.000095	2.52	10878.28	1208.58	0.11
Reach-1	265472	02JAN2012 2300	Norm-CorrectedC	8564.00	100.76	112.400		112.43	0.000070	1.49	5759.35	666.65	0.09
Reach-1	265472	02JAN2012 2300	Norm-ProposedD1	8563.98	100.76	112.400		112.43	0.000070	1.49	5759.35	666.65	0.09
Reach-1	265472	02JAN2012 2300	Norm-ProposedD2	8563.99	100.76	112.400		112.43	0.000070	1.49	5759.35	666.65	0.09
Reach-1	265472	02JAN2012 2300	MidPt-CorrectedC	17000.00	100.76	116.435		116.50	0.000078	2.01	8458.63	671.19	0.10
Reach-1	265472	02JAN2012 2300	MidPt-ProposedD1	16999.96	100.76	116.435		116.50	0.000078	2.01	8458.63	671.19	0.10
Reach-1	265472	02JAN2012 2300	MidPt-ProposedD2	17000.02	100.76	116.435		116.50	0.000078	2.01	8458.63	671.19	0.10
Reach-1	265472	02JAN2012 2300	Crest-CorrectedC	26000.04	100.76	119.637		119.73	0.000087	2.44	11296.32	1532.27	0.11
Reach-1	265472	02JAN2012 2300	Crest-ProposedD1	25999.97	100.76	119.637		119.73	0.000087	2.44	11296.32	1532.27	0.11

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	265472	02JAN2012 2300	Crest-ProposedD2	26000.07	100.76	119.637		119.73	0.000087	2.44	11296.32	1532.27	0.11
Reach-1	264426	02JAN2012 2300	Norm-CorrectedC	8564.00	100.76	112.325		112.36	0.000072	1.50	5710.33	667.58	0.09
Reach-1	264426	02JAN2012 2300	Norm-ProposedD1	8564.01	100.76	112.325		112.36	0.000072	1.50	5710.33	667.58	0.09
Reach-1	264426	02JAN2012 2300	Norm-ProposedD2	8564.03	100.76	112.325		112.36	0.000072	1.50	5710.33	667.58	0.09
Reach-1	264426	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.76	116.352		116.42	0.000080	2.02	8472.33	953.02	0.10
Reach-1	264426	02JAN2012 2300	MidPt-ProposedD1	17000.02	100.76	116.352		116.42	0.000080	2.02	8472.33	953.02	0.10
Reach-1	264426	02JAN2012 2300	MidPt-ProposedD2	16999.98	100.76	116.352		116.42	0.000080	2.02	8472.33	953.02	0.10
Reach-1	264426	02JAN2012 2300	Crest-CorrectedC	25999.98	100.76	119.551		119.64	0.000086	2.42	12357.42	1295.18	0.11
Reach-1	264426	02JAN2012 2300	Crest-ProposedD1	26000.01	100.76	119.551		119.64	0.000086	2.42	12357.42	1295.18	0.11
Reach-1	264426	02JAN2012 2300	Crest-ProposedD2	25999.96	100.76	119.551		119.64	0.000086	2.42	12357.42	1295.18	0.11
Reach-1	263569	02JAN2012 2300	Norm-CorrectedC	8564.01	100.76	112.266		112.30	0.000071	1.44	5933.83	729.88	0.09
Reach-1	263569	02JAN2012 2300	Norm-ProposedD1	8564.00	100.76	112.266		112.30	0.000071	1.44	5933.83	729.88	0.09
Reach-1	263569	02JAN2012 2300	Norm-ProposedD2	8563.98	100.76	112.266		112.30	0.000071	1.44	5933.83	729.88	0.09
Reach-1	263569	02JAN2012 2300	MidPt-CorrectedC	17000.01	100.76	116.293		116.35	0.000075	1.91	8990.92	830.05	0.10
Reach-1	263569	02JAN2012 2300	MidPt-ProposedD1	16999.98	100.76	116.293		116.35	0.000075	1.91	8990.92	830.05	0.10
Reach-1	263569	02JAN2012 2300	MidPt-ProposedD2	17000.03	100.76	116.293		116.35	0.000075	1.91	8990.92	830.05	0.10
Reach-1	263569	02JAN2012 2300	Crest-CorrectedC	26000.01	100.76	119.488		119.57	0.000081	2.28	12006.79	1008.33	0.10
Reach-1	263569	02JAN2012 2300	Crest-ProposedD1	25999.99	100.76	119.488		119.57	0.000081	2.28	12006.79	1008.33	0.10
Reach-1	263569	02JAN2012 2300	Crest-ProposedD2	26000.06	100.76	119.488		119.57	0.000081	2.28	12006.79	1008.33	0.10
Reach-1	262577	02JAN2012 2300	Norm-CorrectedC	8564.00	100.76	112.198		112.23	0.000073	1.38	6228.78	953.77	0.09
Reach-1	262577	02JAN2012 2300	Norm-ProposedD1	8564.00	100.76	112.198		112.23	0.000073	1.38	6228.78	953.77	0.09
Reach-1	262577	02JAN2012 2300	Norm-ProposedD2	8564.01	100.76	112.198		112.23	0.000073	1.38	6228.78	953.77	0.09
Reach-1	262577	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.76	116.234		116.28	0.000067	1.75	11540.56	1800.80	0.09
Reach-1	262577	02JAN2012 2300	MidPt-ProposedD1	17000.01	100.76	116.234		116.28	0.000067	1.75	11540.56	1800.80	0.09
Reach-1	262577	02JAN2012 2300	MidPt-ProposedD2	16999.97	100.76	116.234		116.28	0.000067	1.75	11540.56	1800.80	0.09
Reach-1	262577	02JAN2012 2300	Crest-CorrectedC	25999.96	100.76	119.439		119.50	0.000065	2.00	17804.12	2096.26	0.09
Reach-1	262577	02JAN2012 2300	Crest-ProposedD1	26000.01	100.76	119.439		119.50	0.000065	2.00	17804.12	2096.26	0.09
Reach-1	262577	02JAN2012 2300	Crest-ProposedD2	25999.94	100.76	119.439		119.50	0.000065	2.00	17804.12	2096.26	0.09
Reach-1	261551	02JAN2012 2300	Norm-CorrectedC	8564.00	97.61	112.134		112.16	0.000055	1.34	6440.27	773.62	0.08
Reach-1	261551	02JAN2012 2300	Norm-ProposedD1	8563.99	97.61	112.134		112.16	0.000055	1.34	6440.27	773.62	0.08
Reach-1	261551	02JAN2012 2300	Norm-ProposedD2	8563.99	97.61	112.134		112.16	0.000055	1.34	6440.27	773.62	0.08
Reach-1	261551	02JAN2012 2300	MidPt-CorrectedC	17000.02	97.61	116.162		116.21	0.000063	1.82	9613.74	806.68	0.09
Reach-1	261551	02JAN2012 2300	MidPt-ProposedD1	17000.00	97.61	116.162		116.21	0.000063	1.82	9613.74	806.68	0.09
Reach-1	261551	02JAN2012 2300	MidPt-ProposedD2	17000.03	97.61	116.162		116.21	0.000063	1.82	9613.74	806.68	0.09
Reach-1	261551	02JAN2012 2300	Crest-CorrectedC	26000.04	97.61	119.348		119.42	0.000088	2.21	12466.72	1157.40	0.11
Reach-1	261551	02JAN2012 2300	Crest-ProposedD1	26000.00	97.61	119.348		119.42	0.000088	2.21	12466.72	1157.40	0.11
Reach-1	261551	02JAN2012 2300	Crest-ProposedD2	26000.04	97.61	119.348		119.42	0.000088	2.21	12466.72	1157.40	0.11
Reach-1	260635	02JAN2012 2300	Norm-CorrectedC	8564.01	97.61	112.083		112.11	0.000054	1.37	6358.23	755.96	0.08
Reach-1	260635	02JAN2012 2300	Norm-ProposedD1	8564.02	97.61	112.083		112.11	0.000054	1.37	6358.23	755.96	0.08
Reach-1	260635	02JAN2012 2300	Norm-ProposedD2	8564.02	97.61	112.083		112.11	0.000054	1.37	6358.23	755.96	0.08
Reach-1	260635	02JAN2012 2300	MidPt-CorrectedC	16999.99	97.61	116.100		116.15	0.000065	1.88	9416.42	767.69	0.09
Reach-1	260635	02JAN2012 2300	MidPt-ProposedD1	17000.01	97.61	116.100		116.15	0.000065	1.88	9416.42	767.69	0.09
Reach-1	260635	02JAN2012 2300	MidPt-ProposedD2	16999.97	97.61	116.100		116.15	0.000065	1.88	9416.42	767.69	0.09
Reach-1	260635	02JAN2012 2300	Crest-CorrectedC	25999.99	97.61	119.271		119.35	0.000075	2.31	11876.59	786.48	0.10
Reach-1	260635	02JAN2012 2300	Crest-ProposedD1	25999.99	97.61	119.271		119.35	0.000075	2.31	11876.59	786.48	0.10
Reach-1	260635	02JAN2012 2300	Crest-ProposedD2	25999.94	97.61	119.271		119.35	0.000075	2.31	11876.59	786.48	0.10
Reach-1	259263	02JAN2012 2300	Norm-CorrectedC	8563.98	97.61	112.008	104.11	112.04	0.000056	1.38	6354.44	762.01	0.08
Reach-1	259263	02JAN2012 2300	Norm-ProposedD1	8563.99	97.61	112.008	104.11	112.04	0.000056	1.38	6354.44	762.01	0.08
Reach-1	259263	02JAN2012 2300	Norm-ProposedD2	8564.00	97.61	112.008	104.11	112.04	0.000056	1.38	6354.44	762.01	0.08
Reach-1	259263	02JAN2012 2300	MidPt-CorrectedC	17000.01	97.61	116.010	105.36	116.06	0.000066	1.88	9711.80	1013.31	0.09
Reach-1	259263	02JAN2012 2300	MidPt-ProposedD1	16999.99	97.61	116.010	105.37	116.06	0.000066	1.88	9711.80	1013.31	0.09
Reach-1	259263	02JAN2012 2300	MidPt-ProposedD2	17000.02	97.61	116.010	105.37	116.06	0.000066	1.88	9711.80	1013.31	0.09
Reach-1	259263	02JAN2012 2300	Crest-CorrectedC	26000.00	97.61	119.171	106.29	119.25	0.000074	2.28	13394.22	1280.79	0.10
Reach-1	259263	02JAN2012 2300	Crest-ProposedD1	26000.00	97.61	119.171	106.29	119.25	0.000074	2.28	13394.22	1280.79	0.10
Reach-1	259263	02JAN2012 2300	Crest-ProposedD2	26000.08	97.61	119.171	106.30	119.25	0.000074	2.28	13394.22	1280.79	0.10
Reach-1	259032			Bridge									
Reach-1	258805	02JAN2012 2300	Norm-CorrectedC	8563.98	98.28	111.958		111.99	0.000073	1.50	5915.27	917.15	0.09
Reach-1	258805	02JAN2012 2300	Norm-ProposedD1	8563.99	98.28	111.958		111.99	0.000073	1.50	5915.27	917.15	0.09
Reach-1	258805	02JAN2012 2300	Norm-ProposedD2	8564.00	98.28	111.958		111.99	0.000073	1.50	5915.27	917.15	0.09
Reach-1	258805	02JAN2012 2300	MidPt-CorrectedC	17000.01	98.28	115.959		116.02	0.000076	1.95	10588.84	1355.93	0.10
Reach-1	258805	02JAN2012 2300	MidPt-ProposedD1	16999.99	98.28	115.959		116.02	0.000076	1.95	10588.84	1355.93	0.10
Reach-1	258805	02JAN2012 2300	MidPt-ProposedD2	17000.02	98.28	115.959		116.02	0.000076	1.95	10588.84	1355.93	0.10
Reach-1	258805	02JAN2012 2300	Crest-CorrectedC	26000.00	98.28	119.117		119.19	0.000079	2.29	15174.03	1574.47	0.10
Reach-1	258805	02JAN2012 2300	Crest-ProposedD1	26000.00	98.28	119.117		119.19	0.000079	2.29	15174.03	1574.47	0.10
Reach-1	258805	02JAN2012 2300	Crest-ProposedD2	26000.08	98.28	119.117		119.19	0.000079	2.29	15174.03	1574.47	0.10
Reach-1	257368	02JAN2012 2300	Norm-CorrectedC	8564.01	97.61	111.206		111.24	0.000977	1.51	5656.95	684.66	0.09
Reach-1	257368	02JAN2012 2300	Norm-ProposedD1	8563.99	97.61	111.206		111.24	0.000977	1.51	5656.95	684.66	0.09
Reach-1	257368	02JAN2012 2300	Norm-ProposedD2	8564.00	97.61	111.206		111.24	0.000977	1.51	5656.95	684.66	0.09
Reach-1	257368	02JAN2012 2300	MidPt-CorrectedC	16999.98	97.61	115.215		115.27	0.001003	1.94	9453.12	1193.39	0.10
Reach-1	257368	02JAN2012 2300	MidPt-ProposedD1	17000.01	97.61	115.215		115.27	0.001003	1.94	9453.12	1193.39	0.10
Reach-1	257368	02JAN2012 2300	MidPt-ProposedD2	16999.97	97.61	115.215		115.27	0.001003	1.94	9453.12	1193.39	0.10
Reach-1	257368	02JAN2012 2300	Crest-CorrectedC	25999.99	97.61	118.438		118.50	0.000943	2.15	13761.24	1485.62	0.10
Reach-1	257368	02JAN2012 2300	Crest-ProposedD1	25999.99	97.61	118.438		118.50	0.000943	2.15	13761.24	1485.62	0.10
Reach-1	257368	02JAN2012 2300	Crest-ProposedD2	25999.92	97.61	118.438		118.50	0.000943	2.15	13761.24	1485.62	0.10
Reach-1	254766	02JAN2012 2300	Norm-CorrectedC	8563.99	99.27	109.444		109.54	0.000334	2.51	3411.78	585.00	0.18
Reach-1	254766	02JAN2012 2300	Norm-ProposedD1	8564.00	99.27	109.444		109.54	0.000334	2.51	3411.78	585.00	0.18
Reach-1	254766	02JAN2012 2300	Norm-ProposedD2	8564.01	99.27	109.444		109.54	0.000334	2.51	3411.78	585.00	0.18
Reach-1	254766	02JAN2012 2300	MidPt-CorrectedC	17000.02	99.27	113.537		113.66	0.000265	2.83	6000.67	771.44	0.17
Reach-1	254766	02JAN2012 2300	MidPt-ProposedD1	16999.99	99.27	113.537		113.66	0.000265	2.83	6000.59	771.44	0.17
Reach-1	254766	02JAN2012 2300	MidPt-ProposedD2	17000.04	99.27	113.537		113.66	0.000265	2.83	6000.67	771.44	0.17
Reach-1	254766	02JAN2012 2300	Crest-CorrectedC	26000.01	99.27	116.932		117.07	0.000216	3.01	9215.00	1403.83	0.16
Reach-1	254766	02JAN2012 2300	Crest-ProposedD1	26000.02	99.27	116.932		117.07	0.000216	3.01	9215.00	1403.83	0.16
Reach-1	254766	02JAN2012 2300	Crest-ProposedD2	26000.07	99.27	116.932		117.07	0.000216	3.01	9215.00	1403.83	0.16

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	250071	02JAN2012 2300	Norm-CorrectedC	8564.02	84.54	108.520		108.59	0.000074	2.05	4177.63	307.52	0.10
Reach-1	250071	02JAN2012 2300	Norm-ProposedD1	8564.00	84.54	108.520		108.59	0.000074	2.05	4177.63	307.52	0.10
Reach-1	250071	02JAN2012 2300	Norm-ProposedD2	8564.00	84.54	108.520		108.59	0.000074	2.05	4177.63	307.52	0.10
Reach-1	250071	02JAN2012 2300	MidPt-CorrectedC	16999.99	84.54	112.575		112.72	0.000139	3.08	5517.10	352.79	0.14
Reach-1	250071	02JAN2012 2300	MidPt-ProposedD1	17000.01	84.54	112.575		112.72	0.000139	3.08	5517.10	352.79	0.14
Reach-1	250071	02JAN2012 2300	MidPt-ProposedD2	16999.96	84.54	112.575		112.72	0.000139	3.08	5517.10	352.79	0.14
Reach-1	250071	02JAN2012 2300	Crest-CorrectedC	25999.98	84.54	115.898		116.13	0.000197	3.84	6765.52	402.91	0.17
Reach-1	250071	02JAN2012 2300	Crest-ProposedD1	25999.99	84.54	115.898		116.13	0.000197	3.84	6765.52	402.91	0.17
Reach-1	250071	02JAN2012 2300	Crest-ProposedD2	25999.94	84.54	115.898		116.13	0.000197	3.84	6765.52	402.91	0.17
Reach-1	248531	02JAN2012 2300	Norm-CorrectedC	8563.99	84.54	108.404		108.47	0.000076	2.07	4141.94	306.25	0.10
Reach-1	248531	02JAN2012 2300	Norm-ProposedD1	8564.01	84.54	108.404		108.47	0.000076	2.07	4141.94	306.25	0.10
Reach-1	248531	02JAN2012 2300	Norm-ProposedD2	8564.01	84.54	108.404		108.47	0.000076	2.07	4141.94	306.25	0.10
Reach-1	248531	02JAN2012 2300	MidPt-CorrectedC	16999.99	84.54	112.358		112.51	0.000142	3.11	5739.93	472.11	0.14
Reach-1	248531	02JAN2012 2300	MidPt-ProposedD1	17000.00	84.54	112.358		112.51	0.000142	3.11	5739.93	472.11	0.14
Reach-1	248531	02JAN2012 2300	MidPt-ProposedD2	17000.03	84.54	112.358		112.51	0.000142	3.11	5739.93	472.11	0.14
Reach-1	248531	02JAN2012 2300	Crest-CorrectedC	26000.01	84.54	115.610		115.84	0.000181	3.87	7349.84	522.39	0.16
Reach-1	248531	02JAN2012 2300	Crest-ProposedD1	25999.99	84.54	115.610		115.84	0.000181	3.87	7349.84	522.39	0.16
Reach-1	248531	02JAN2012 2300	Crest-ProposedD2	26000.05	84.54	115.610		115.84	0.000181	3.87	7349.84	522.39	0.16
Reach-1	246078	02JAN2012 2300	Norm-CorrectedC	8564.01	98.13	108.035		108.12	0.000212	2.31	3712.56	510.19	0.15
Reach-1	246078	02JAN2012 2300	Norm-ProposedD1	8564.00	98.13	108.035		108.12	0.000212	2.31	3712.56	510.19	0.15
Reach-1	246078	02JAN2012 2300	Norm-ProposedD2	8563.98	98.13	108.035		108.12	0.000212	2.31	3712.56	510.19	0.15
Reach-1	246078	02JAN2012 2300	MidPt-CorrectedC	17000.01	98.13	111.969		112.10	0.000199	2.91	5975.25	605.01	0.16
Reach-1	246078	02JAN2012 2300	MidPt-ProposedD1	17000.00	98.13	111.969		112.10	0.000199	2.91	5975.25	605.01	0.16
Reach-1	246078	02JAN2012 2300	MidPt-ProposedD2	16999.97	98.13	111.969		112.10	0.000199	2.91	5975.19	605.01	0.16
Reach-1	246078	02JAN2012 2300	Crest-CorrectedC	26000.00	98.13	115.223		115.39	0.000193	3.35	7978.48	626.19	0.16
Reach-1	246078	02JAN2012 2300	Crest-ProposedD1	26000.00	98.13	115.223		115.39	0.000193	3.35	7978.48	626.19	0.16
Reach-1	246078	02JAN2012 2300	Crest-ProposedD2	25999.95	98.13	115.223		115.39	0.000193	3.35	7978.48	626.19	0.16
Reach-1	244614	02JAN2012 2300	Norm-CorrectedC	8564.00	98.13	107.712		107.79	0.000233	2.27	3765.14	570.04	0.16
Reach-1	244614	02JAN2012 2300	Norm-ProposedD1	8564.00	98.13	107.712		107.79	0.000233	2.27	3765.14	570.04	0.16
Reach-1	244614	02JAN2012 2300	Norm-ProposedD2	8564.01	98.13	107.712		107.79	0.000233	2.27	3765.14	570.04	0.16
Reach-1	244614	02JAN2012 2300	MidPt-CorrectedC	17000.01	98.13	111.690		111.81	0.000195	2.80	6078.49	659.78	0.15
Reach-1	244614	02JAN2012 2300	MidPt-ProposedD1	17000.01	98.13	111.690		111.81	0.000195	2.80	6078.49	659.78	0.15
Reach-1	244614	02JAN2012 2300	MidPt-ProposedD2	17000.01	98.13	111.690		111.81	0.000195	2.80	6078.49	659.78	0.15
Reach-1	244614	02JAN2012 2300	Crest-CorrectedC	26000.00	98.13	114.953		115.12	0.000187	3.24	8027.28	698.65	0.16
Reach-1	244614	02JAN2012 2300	Crest-ProposedD1	25999.98	98.13	114.953		115.12	0.000187	3.24	8027.28	698.65	0.16
Reach-1	244614	02JAN2012 2300	Crest-ProposedD2	26000.03	98.13	114.953		115.12	0.000187	3.24	8027.28	698.65	0.16
Reach-1	242472	02JAN2012 2300	Norm-CorrectedC	8564.00	94.20	105.289		105.36	0.002043	2.09	4093.20	530.79	0.13
Reach-1	242472	02JAN2012 2300	Norm-ProposedD1	8564.00	94.20	105.289		105.36	0.002043	2.09	4093.20	530.79	0.13
Reach-1	242472	02JAN2012 2300	Norm-ProposedD2	8564.00	94.20	105.289		105.36	0.002043	2.09	4093.20	530.79	0.13
Reach-1	242472	02JAN2012 2300	MidPt-CorrectedC	16999.99	94.20	109.097		109.21	0.002231	2.75	6192.33	569.52	0.15
Reach-1	242472	02JAN2012 2300	MidPt-ProposedD1	17000.00	94.20	109.097		109.21	0.002231	2.75	6192.33	569.52	0.15
Reach-1	242472	02JAN2012 2300	MidPt-ProposedD2	16999.99	94.20	109.097		109.21	0.002231	2.75	6192.33	569.52	0.15
Reach-1	242472	02JAN2012 2300	Crest-CorrectedC	25999.98	94.20	112.226		112.39	0.002360	3.24	8019.31	638.12	0.16
Reach-1	242472	02JAN2012 2300	Crest-ProposedD1	26000.00	94.20	112.226		112.39	0.002360	3.24	8019.31	638.12	0.16
Reach-1	242472	02JAN2012 2300	Crest-ProposedD2	25999.96	94.20	112.226		112.39	0.002359	3.24	8019.31	638.12	0.16
Reach-1	241833	02JAN2012 2300	Norm-CorrectedC	8564.01	93.70	104.574		104.65	0.000177	2.19	3915.26	509.97	0.14
Reach-1	241833	02JAN2012 2300	Norm-ProposedD1	8563.99	93.70	104.574		104.65	0.000177	2.19	3915.26	509.97	0.14
Reach-1	241833	02JAN2012 2300	Norm-ProposedD2	8563.99	93.70	104.574		104.65	0.000177	2.19	3915.26	509.97	0.14
Reach-1	241833	02JAN2012 2300	MidPt-CorrectedC	17000.01	93.70	108.309		108.44	0.000190	2.91	5846.18	523.96	0.15
Reach-1	241833	02JAN2012 2300	MidPt-ProposedD1	16999.98	93.70	108.309		108.44	0.000190	2.91	5846.18	523.96	0.15
Reach-1	241833	02JAN2012 2300	MidPt-ProposedD2	17000.03	93.70	108.309		108.44	0.000190	2.91	5846.18	523.96	0.15
Reach-1	241833	02JAN2012 2300	Crest-CorrectedC	26000.04	93.70	111.383		111.57	0.000203	3.48	7473.59	534.38	0.16
Reach-1	241833	02JAN2012 2300	Crest-ProposedD1	26000.01	93.70	111.383		111.57	0.000203	3.48	7473.59	534.38	0.16
Reach-1	241833	02JAN2012 2300	Crest-ProposedD2	26000.03	93.70	111.383		111.57	0.000203	3.48	7473.59	534.38	0.16
Reach-1	240531	02JAN2012 2300	Norm-CorrectedC	8564.00	93.60	104.388		104.45	0.000135	1.92	4458.48	577.71	0.12
Reach-1	240531	02JAN2012 2300	Norm-ProposedD1	8564.00	93.60	104.388		104.45	0.000135	1.92	4458.48	577.71	0.12
Reach-1	240531	02JAN2012 2300	Norm-ProposedD2	8564.02	93.60	104.388		104.45	0.000135	1.92	4458.48	577.71	0.12
Reach-1	240531	02JAN2012 2300	MidPt-CorrectedC	16999.98	93.60	108.119		108.22	0.000147	2.56	6639.39	591.50	0.13
Reach-1	240531	02JAN2012 2300	MidPt-ProposedD1	17000.01	93.60	108.119		108.22	0.000147	2.56	6639.39	591.50	0.13
Reach-1	240531	02JAN2012 2300	MidPt-ProposedD2	16999.98	93.60	108.119		108.22	0.000147	2.56	6639.39	591.50	0.13
Reach-1	240531	02JAN2012 2300	Crest-CorrectedC	25999.96	93.60	111.190		111.34	0.000158	3.07	8473.39	602.85	0.14
Reach-1	240531	02JAN2012 2300	Crest-ProposedD1	25999.99	93.60	111.190		111.34	0.000158	3.07	8473.39	602.85	0.14
Reach-1	240531	02JAN2012 2300	Crest-ProposedD2	25999.96	93.60	111.190		111.34	0.000158	3.07	8473.39	602.85	0.14
Reach-1	235176	02JAN2012 2300	Norm-CorrectedC	8564.00	92.80	103.639		103.70	0.000142	2.05	4184.24	510.57	0.13
Reach-1	235176	02JAN2012 2300	Norm-ProposedD1	8564.00	92.80	103.639		103.70	0.000142	2.05	4184.24	510.57	0.13
Reach-1	235176	02JAN2012 2300	Norm-ProposedD2	8563.98	92.80	103.639		103.70	0.000142	2.05	4184.24	510.57	0.13
Reach-1	235176	02JAN2012 2300	MidPt-CorrectedC	17000.01	92.80	107.252		107.37	0.000169	2.82	6039.00	516.20	0.15
Reach-1	235176	02JAN2012 2300	MidPt-ProposedD1	17000.00	92.80	107.252		107.37	0.000169	2.82	6039.00	516.20	0.15
Reach-1	235176	02JAN2012 2300	MidPt-ProposedD2	17000.02	92.80	107.252		107.37	0.000169	2.82	6039.00	516.20	0.15
Reach-1	235176	02JAN2012 2300	Crest-CorrectedC	26000.02	92.80	110.228		110.41	0.000189	3.43	7611.30	550.45	0.16
Reach-1	235176	02JAN2012 2300	Crest-ProposedD1	26000.00	92.80	110.228		110.41	0.000189	3.43	7611.30	550.45	0.16
Reach-1	235176	02JAN2012 2300	Crest-ProposedD2	26000.05	92.80	110.228		110.41	0.000189	3.43	7611.30	550.45	0.16
Reach-1	232472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.70	103.302		103.35	0.000117	1.83	4669.44	582.01	0.11
Reach-1	232472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.70	103.302		103.35	0.000117	1.83	4669.44	582.01	0.11
Reach-1	232472	02JAN2012 2300	Norm-ProposedD2	8564.02	91.70	103.302		103.35	0.000117	1.83	4669.44	582.01	0.11
Reach-1	232472	02JAN2012 2300	MidPt-CorrectedC	16999.99	91.70	106.861		106.96	0.000138	2.51	6767.66	596.97	0.13
Reach-1	232472	02JAN2012 2300	MidPt-ProposedD1	17000.01	91.70	106.861		106.96	0.000138	2.51	6767.66	596.97	0.13
Reach-1	232472	02JAN2012 2300	MidPt-ProposedD2	16999.99	91.70	106.861		106.96	0.000138	2.51	6767.66	596.97	0.13
Reach-1	232472	02JAN2012 2300	Crest-CorrectedC	25999.96	91.70	109.804		109.95	0.000154	3.04	8559.90	626.76	0.14
Reach-1	232472	02JAN2012 2300	Crest-ProposedD1	25999.99	91.70	109.804		109.95	0.000154	3.04	8559.90	626.76	0.14
Reach-1	232472	02JAN2012 2300	Crest-ProposedD2	25999.96	91.70	109.804		109.95	0.000154	3.04	8559.90	626.76	0.14
Reach-1	231472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.70	103.160		103.23	0.000139	2.07	4140.94	489.17	0.13
Reach-1	231472	02JAN2012 2300	Norm-ProposedD1	8563.99	91.70	103.160		103.23	0.000139	2.07	4140.94	489.17	0.13

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	231472	02JAN2012 2300	Norm-ProposedD2	8564.00	91.70	103.160		103.23	0.000139	2.07	4140.94	489.17	0.13
Reach-1	231472	02JAN2012 2300	MidPt-CorrectedC	17000.00	91.70	106.672		106.80	0.000177	2.89	5877.59	499.78	0.15
Reach-1	231472	02JAN2012 2300	MidPt-ProposedD1	17000.01	91.70	106.672		106.80	0.000177	2.89	5877.59	499.78	0.15
Reach-1	231472	02JAN2012 2300	MidPt-ProposedD2	17000.01	91.70	106.672		106.80	0.000177	2.89	5877.59	499.78	0.15
Reach-1	231472	02JAN2012 2300	Crest-CorrectedC	26000.02	91.70	109.576		109.77	0.000202	3.54	7338.09	506.49	0.16
Reach-1	231472	02JAN2012 2300	Crest-ProposedD1	26000.00	91.70	109.576		109.77	0.000202	3.54	7338.09	506.49	0.16
Reach-1	231472	02JAN2012 2300	Crest-ProposedD2	26000.03	91.70	109.576		109.77	0.000202	3.54	7338.09	506.49	0.16
Reach-1	230472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.60	103.018		103.08	0.000144	2.07	4139.59	499.00	0.13
Reach-1	230472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.60	103.018		103.08	0.000144	2.07	4139.59	499.00	0.13
Reach-1	230472	02JAN2012 2300	Norm-ProposedD2	8564.01	91.60	103.018		103.08	0.000144	2.07	4139.59	499.00	0.13
Reach-1	230472	02JAN2012 2300	MidPt-CorrectedC	16999.99	91.60	106.494		106.62	0.000180	2.89	5880.57	502.98	0.15
Reach-1	230472	02JAN2012 2300	MidPt-ProposedD1	17000.00	91.60	106.494		106.62	0.000180	2.89	5880.57	502.98	0.15
Reach-1	230472	02JAN2012 2300	MidPt-ProposedD2	16999.98	91.60	106.494		106.62	0.000180	2.89	5880.57	502.98	0.15
Reach-1	230472	02JAN2012 2300	Crest-CorrectedC	25999.98	91.60	109.372		109.57	0.000205	3.54	7335.92	508.38	0.16
Reach-1	230472	02JAN2012 2300	Crest-ProposedD1	25999.98	91.60	109.372		109.57	0.000205	3.54	7335.92	508.38	0.16
Reach-1	230472	02JAN2012 2300	Crest-ProposedD2	25999.97	91.60	109.372		109.57	0.000205	3.54	7335.92	508.38	0.16
Reach-1	229472	02JAN2012 2300	Norm-CorrectedC	8564.00	89.34	102.951		102.99	0.000053	1.49	5734.51	527.19	0.08
Reach-1	229472	02JAN2012 2300	Norm-ProposedD1	8564.00	89.34	102.951		102.99	0.000053	1.49	5734.51	527.19	0.08
Reach-1	229472	02JAN2012 2300	Norm-ProposedD2	8563.98	89.34	102.951		102.99	0.000053	1.49	5734.51	527.19	0.08
Reach-1	229472	02JAN2012 2300	MidPt-CorrectedC	17000.01	89.34	106.412		106.49	0.000085	2.25	7565.31	530.65	0.10
Reach-1	229472	02JAN2012 2300	MidPt-ProposedD1	16999.99	89.34	106.412		106.49	0.000085	2.25	7565.31	530.65	0.10
Reach-1	229472	02JAN2012 2300	MidPt-ProposedD2	17000.00	89.34	106.412		106.49	0.000085	2.25	7565.31	530.65	0.10
Reach-1	229472	02JAN2012 2300	Crest-CorrectedC	26000.01	89.34	109.282		109.41	0.000109	2.86	9092.23	533.52	0.12
Reach-1	229472	02JAN2012 2300	Crest-ProposedD1	25999.98	89.34	109.282		109.41	0.000109	2.86	9092.23	533.52	0.12
Reach-1	229472	02JAN2012 2300	Crest-ProposedD2	26000.03	89.34	109.282		109.41	0.000109	2.86	9092.23	533.52	0.12
Reach-1	228472	02JAN2012 2300	Norm-CorrectedC	8564.00	90.08	102.892		102.93	0.000063	1.52	5624.53	577.09	0.09
Reach-1	228472	02JAN2012 2300	Norm-ProposedD1	8564.00	90.08	102.892		102.93	0.000063	1.52	5624.53	577.09	0.09
Reach-1	228472	02JAN2012 2300	Norm-ProposedD2	8564.01	90.08	102.892		102.93	0.000063	1.52	5624.53	577.09	0.09
Reach-1	228472	02JAN2012 2300	MidPt-CorrectedC	16999.97	90.08	106.325		106.40	0.000092	2.23	7609.16	578.98	0.11
Reach-1	228472	02JAN2012 2300	MidPt-ProposedD1	17000.00	90.08	106.325		106.40	0.000092	2.23	7609.16	578.98	0.11
Reach-1	228472	02JAN2012 2300	MidPt-ProposedD2	16999.97	90.08	106.325		106.40	0.000092	2.23	7609.16	578.98	0.11
Reach-1	228472	02JAN2012 2300	Crest-CorrectedC	25999.98	90.08	109.176		109.30	0.000113	2.81	9261.84	580.55	0.12
Reach-1	228472	02JAN2012 2300	Crest-ProposedD1	26000.02	90.08	109.176		109.30	0.000113	2.81	9261.84	580.55	0.12
Reach-1	228472	02JAN2012 2300	Crest-ProposedD2	25999.99	90.08	109.176		109.30	0.000113	2.81	9261.84	580.55	0.12
Reach-1	227472	02JAN2012 2300	Norm-CorrectedC	8564.00	90.79	102.808		102.85	0.000085	1.71	4997.71	534.74	0.10
Reach-1	227472	02JAN2012 2300	Norm-ProposedD1	8564.01	90.79	102.808		102.85	0.000085	1.71	4997.71	534.74	0.10
Reach-1	227472	02JAN2012 2300	Norm-ProposedD2	8563.98	90.79	102.808		102.85	0.000085	1.71	4997.71	534.74	0.10
Reach-1	227472	02JAN2012 2300	MidPt-CorrectedC	17000.01	90.79	106.199		106.30	0.000121	2.50	6813.47	536.13	0.12
Reach-1	227472	02JAN2012 2300	MidPt-ProposedD1	17000.00	90.79	106.199		106.30	0.000121	2.50	6813.47	536.13	0.12
Reach-1	227472	02JAN2012 2300	MidPt-ProposedD2	17000.01	90.79	106.199		106.30	0.000121	2.50	6813.47	536.13	0.12
Reach-1	227472	02JAN2012 2300	Crest-CorrectedC	26000.02	90.79	109.016		109.17	0.000148	3.12	8325.78	540.64	0.14
Reach-1	227472	02JAN2012 2300	Crest-ProposedD1	25999.99	90.79	109.016		109.17	0.000148	3.12	8325.78	540.64	0.14
Reach-1	227472	02JAN2012 2300	Crest-ProposedD2	26000.01	90.79	109.016		109.17	0.000148	3.12	8325.78	540.64	0.14
Reach-1	226472	02JAN2012 2300	Norm-CorrectedC	8563.99	91.17	102.714		102.76	0.000099	1.75	4893.69	576.59	0.11
Reach-1	226472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.17	102.714		102.76	0.000099	1.75	4893.69	576.59	0.11
Reach-1	226472	02JAN2012 2300	Norm-ProposedD2	8564.02	91.17	102.714		102.76	0.000099	1.75	4893.69	576.59	0.11
Reach-1	226472	02JAN2012 2300	MidPt-CorrectedC	16999.97	91.17	106.074		106.17	0.000130	2.49	6834.89	578.89	0.13
Reach-1	226472	02JAN2012 2300	MidPt-ProposedD1	17000.02	91.17	106.074		106.17	0.000130	2.49	6834.89	578.89	0.13
Reach-1	226472	02JAN2012 2300	MidPt-ProposedD2	16999.98	91.17	106.074		106.17	0.000130	2.49	6834.89	578.89	0.13
Reach-1	226472	02JAN2012 2300	Crest-CorrectedC	25999.98	91.17	108.871		109.02	0.000152	3.07	8460.48	583.51	0.14
Reach-1	226472	02JAN2012 2300	Crest-ProposedD1	25999.99	91.17	108.871		109.02	0.000152	3.07	8460.48	583.51	0.14
Reach-1	226472	02JAN2012 2300	Crest-ProposedD2	25999.97	91.17	108.871		109.02	0.000152	3.07	8460.48	583.51	0.14
Reach-1	225472	02JAN2012 2300	Norm-CorrectedC	8564.01	89.79	102.623		102.67	0.000084	1.74	4922.82	516.82	0.10
Reach-1	225472	02JAN2012 2300	Norm-ProposedD1	8564.00	89.79	102.623		102.67	0.000084	1.74	4922.82	516.82	0.10
Reach-1	225472	02JAN2012 2300	Norm-ProposedD2	8563.98	89.79	102.623		102.67	0.000084	1.74	4922.82	516.82	0.10
Reach-1	225472	02JAN2012 2300	MidPt-CorrectedC	17000.01	89.79	105.941		106.04	0.000125	2.55	6656.53	528.18	0.13
Reach-1	225472	02JAN2012 2300	MidPt-ProposedD1	17000.00	89.79	105.941		106.04	0.000125	2.55	6656.53	528.18	0.13
Reach-1	225472	02JAN2012 2300	MidPt-ProposedD2	17000.00	89.79	105.941		106.04	0.000125	2.55	6656.53	528.18	0.13
Reach-1	225472	02JAN2012 2300	Crest-CorrectedC	26000.01	89.79	108.706		108.86	0.000154	3.20	8128.62	535.90	0.14
Reach-1	225472	02JAN2012 2300	Crest-ProposedD1	25999.99	89.79	108.706		108.86	0.000154	3.20	8128.62	535.90	0.14
Reach-1	225472	02JAN2012 2300	Crest-ProposedD2	26000.02	89.79	108.706		108.86	0.000154	3.20	8128.62	535.90	0.14
Reach-1	224472	02JAN2012 2300	Norm-CorrectedC	8563.98	90.65	102.511		102.57	0.000120	1.93	4443.79	522.43	0.12
Reach-1	224472	02JAN2012 2300	Norm-ProposedD1	8564.00	90.65	102.511		102.57	0.000120	1.93	4443.79	522.43	0.12
Reach-1	224472	02JAN2012 2300	Norm-ProposedD2	8564.02	90.65	102.511		102.57	0.000120	1.93	4443.79	522.43	0.12
Reach-1	224472	02JAN2012 2300	MidPt-CorrectedC	16999.99	90.65	105.780		105.90	0.000166	2.75	6189.47	545.53	0.14
Reach-1	224472	02JAN2012 2300	MidPt-ProposedD1	17000.01	90.65	105.780		105.90	0.000166	2.75	6189.47	545.53	0.14
Reach-1	224472	02JAN2012 2300	MidPt-ProposedD2	17000.00	90.65	105.780		105.90	0.000166	2.75	6189.47	545.53	0.14
Reach-1	224472	02JAN2012 2300	Crest-CorrectedC	26000.01	90.65	108.513		108.69	0.000196	3.37	7706.89	564.83	0.16
Reach-1	224472	02JAN2012 2300	Crest-ProposedD1	26000.01	90.65	108.513		108.69	0.000196	3.37	7706.89	564.83	0.16
Reach-1	224472	02JAN2012 2300	Crest-ProposedD2	25999.98	90.65	108.513		108.69	0.000196	3.37	7706.89	564.83	0.16
Reach-1	223472	02JAN2012 2300	Norm-CorrectedC	8564.02	91.51	102.339		102.42	0.000182	2.26	3794.02	478.98	0.14
Reach-1	223472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.51	102.339		102.42	0.000182	2.26	3794.02	478.98	0.14
Reach-1	223472	02JAN2012 2300	Norm-ProposedD2	8564.00	91.51	102.339		102.42	0.000182	2.26	3794.02	478.98	0.14
Reach-1	223472	02JAN2012 2300	MidPt-CorrectedC	17000.02	91.51	105.539		105.70	0.000236	3.18	5341.15	487.95	0.17
Reach-1	223472	02JAN2012 2300	MidPt-ProposedD1	16999.99	91.51	105.539		105.70	0.000236	3.18	5341.15	487.95	0.17
Reach-1	223472	02JAN2012 2300	MidPt-ProposedD2	17000.00	91.51	105.539		105.70	0.000236	3.18	5341.15	487.95	0.17
Reach-1	223472	02JAN2012 2300	Crest-CorrectedC	25999.98	91.51	108.220		108.46	0.000272	3.90	6659.20	495.45	0.19
Reach-1	223472	02JAN2012 2300	Crest-ProposedD1	25999.99	91.51	108.220		108.46	0.000272	3.90	6659.20	495.45	0.19
Reach-1	223472	02JAN2012 2300	Crest-ProposedD2	26000.00	91.51	108.220		108.46	0.000272	3.90	6659.20	495.45	0.19
Reach-1	222472	02JAN2012 2300	Norm-CorrectedC	8563.99	90.62	102.230		102.28	0.000100	1.73	4947.11	597.96	0.11
Reach-1	222472	02JAN2012 2300	Norm-ProposedD1	8564.00	90.62	102.230		102.28	0.000100	1.73	4947.11	597.96	0.11
Reach-1	222472	02JAN2012 2300	Norm-ProposedD2	8564.01	90.62	102.230		102.28	0.000100	1.73	4947.11	597.96	0.11
Reach-1	222472	02JAN2012 2300	MidPt-CorrectedC	17000.00	90.62	105.413		105.51	0.000143	2.45	6929.12	647.76	0.13
Reach-1	222472	02JAN2012 2300	MidPt-ProposedD1	16999.99	90.62	105.413		105.51	0.000143	2.45	6929.12	647.76	0.13

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	222472	02JAN2012 2300	MidPt-ProposedD2	16999.98	90.62	105.413		105.51	0.000143	2.45	6929.12	647.76	0.13
Reach-1	222472	02JAN2012 2300	Crest-CorrectedC	26000.00	90.62	108.096		108.23	0.000169	2.98	8724.19	692.57	0.15
Reach-1	222472	02JAN2012 2300	Crest-ProposedD1	26000.00	90.62	108.096		108.23	0.000169	2.98	8724.19	692.57	0.15
Reach-1	222472	02JAN2012 2300	Crest-ProposedD2	25999.98	90.62	108.096		108.23	0.000169	2.98	8724.19	692.57	0.15
Reach-1	220272	02JAN2012 2300	Norm-CorrectedC	8564.01	93.07	101.621		101.73	0.000397	2.69	3182.72	559.77	0.20
Reach-1	220272	02JAN2012 2300	Norm-ProposedD1	8564.00	93.07	101.621		101.73	0.000397	2.69	3182.72	559.77	0.20
Reach-1	220272	02JAN2012 2300	Norm-ProposedD2	8563.99	93.07	101.621		101.73	0.000397	2.69	3182.72	559.77	0.20
Reach-1	220272	02JAN2012 2300	MidPt-CorrectedC	17000.00	93.07	104.723		104.90	0.000408	3.40	4994.89	629.66	0.21
Reach-1	220272	02JAN2012 2300	MidPt-ProposedD1	16999.99	93.07	104.723		104.90	0.000408	3.40	4994.89	629.66	0.21
Reach-1	220272	02JAN2012 2300	MidPt-ProposedD2	17000.02	93.07	104.723		104.90	0.000408	3.40	4994.89	629.66	0.21
Reach-1	220272	02JAN2012 2300	Crest-CorrectedC	26000.00	93.07	107.363		107.59	0.000417	3.83	6787.04	728.13	0.22
Reach-1	220272	02JAN2012 2300	Crest-ProposedD1	25999.99	93.07	107.363		107.59	0.000417	3.83	6787.04	728.13	0.22
Reach-1	220272	02JAN2012 2300	Crest-ProposedD2	26000.01	93.07	107.363		107.59	0.000417	3.83	6787.04	728.13	0.22
Reach-1	217472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.92	100.415		100.55	0.000445	3.00	2858.77	458.88	0.21
Reach-1	217472	02JAN2012 2300	Norm-ProposedD1	8563.99	91.92	100.415		100.55	0.000445	3.00	2858.77	458.88	0.21
Reach-1	217472	02JAN2012 2300	Norm-ProposedD2	8564.01	91.92	100.415		100.55	0.000445	3.00	2858.77	458.88	0.21
Reach-1	217472	02JAN2012 2300	MidPt-CorrectedC	16999.99	91.92	103.407		103.66	0.000482	4.02	4233.46	460.02	0.23
Reach-1	217472	02JAN2012 2300	MidPt-ProposedD1	17000.00	91.92	103.407		103.66	0.000482	4.02	4233.46	460.02	0.23
Reach-1	217472	02JAN2012 2300	MidPt-ProposedD2	17000.00	91.92	103.407		103.66	0.000482	4.02	4233.46	460.02	0.23
Reach-1	217472	02JAN2012 2300	Crest-CorrectedC	26000.01	91.92	105.936		106.30	0.000509	4.82	5398.03	460.99	0.25
Reach-1	217472	02JAN2012 2300	Crest-ProposedD1	26000.02	91.92	105.936		106.30	0.000509	4.82	5398.03	460.99	0.25
Reach-1	217472	02JAN2012 2300	Crest-ProposedD2	25999.98	91.92	105.936		106.30	0.000509	4.82	5398.03	460.99	0.25
Reach-1	216472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.48	100.018	95.60	100.13	0.000400	2.70	3175.67	559.64	0.20
Reach-1	216472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.48	100.018	95.60	100.13	0.000400	2.70	3175.67	559.64	0.20
Reach-1	216472	02JAN2012 2300	Norm-ProposedD2	8563.99	91.48	100.018	95.59	100.13	0.000400	2.70	3175.67	559.64	0.20
Reach-1	216472	02JAN2012 2300	MidPt-CorrectedC	17000.00	91.48	103.029	97.23	103.22	0.000400	3.46	4909.70	593.40	0.21
Reach-1	216472	02JAN2012 2300	MidPt-ProposedD1	17000.00	91.48	103.029	97.23	103.22	0.000400	3.46	4909.70	593.40	0.21
Reach-1	216472	02JAN2012 2300	MidPt-ProposedD2	17000.00	91.48	103.029	97.23	103.22	0.000400	3.46	4909.70	593.40	0.21
Reach-1	216472	02JAN2012 2300	Crest-CorrectedC	25999.99	91.48	105.589	98.34	105.84	0.000400	4.02	6466.61	622.94	0.22
Reach-1	216472	02JAN2012 2300	Crest-ProposedD1	25999.98	91.48	105.589	98.34	105.84	0.000400	4.02	6466.61	622.94	0.22
Reach-1	216472	02JAN2012 2300	Crest-ProposedD2	26000.01	91.48	105.589	98.34	105.84	0.000400	4.02	6466.61	622.94	0.22

Appendix C: Full Size/Resolution Figures

Provided separately due to large file size

VIA ELECTRONIC MAIL

July 30, 2019

William Zeli, P.E., Environment Program Manager
Apex Companies, LLC
1600 Commerce Circle
Trafford, PA 15085

Subject: **Low Flow Sensitivity Analysis**
Congaree River Remediation Project
Columbia, South Carolina

Dear Mr. Zeli:

This letter presents a summary of the results of WSP USA's (WSP) Low Flow Sensitivity Analysis Memo; dated July 26, 2019.

The analysis was completed to determine changes in water surface elevation and floodplain widths in the Congaree River due to construction of the proposed Area-1 and Area-2 cofferdam structures, during low flow conditions. The following three flow rates were considered in the analysis:

- Approximate normal flow rate = 8,564 cfs (average based on USGS data analysis)
- Flow rate that results in water just below the cofferdam crest elevation = 26,000 cfs
- Flow rate that results in water level midway between normal flow level and cofferdam crest = 17,000 cfs

The HEC-RAS model results summarized in Table 1 show the addition of the proposed Area-1 cofferdam structure results in maximum increases in water surface elevation of 0.5 ft, 0.4 ft, and 0.3 ft for the normal, mid-point, and cofferdam crest flows, respectively. The maximum increase in floodplain width of 8.1 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. The maximum increases in floodplain width for the normal and crest flows are 3.6 ft and 1.4 ft, respectively. However, the typical increase in floodplain width upstream of the Area-1 structure is less than 1.5 ft for the three low flow conditions considered.

The HEC-RAS model results show the addition of the proposed Area-2 cofferdam structure results in maximum increases in water surface elevation of 0.1 ft for the three low flow conditions considered. The maximum increase in floodplain extent of 1.8 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. The maximum increases in floodplain width for the normal and crest flows are 1.3 ft and 0.6 ft, respectively. However, the typical increase in floodplain width upstream of the Area-2 structure is less than 1 ft for the three low flow conditions considered.

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Table 1: Summary of Low Flow Sensitivity Analysis Results

Cofferdam	Variable	Normal Flow	Mid-Point Flow	Crest Flow
Area-1	Maximum change in W.S. Elevation (ft)	0.5	0.4	0.3
	Maximum change in Left (East) Bank Floodplain (ft)	3.5	1.2	1.1
	Maximum change in Right (West) Bank Floodplain (ft)	3.6	8.1	1.4
Area-2	Maximum change in W.S. Elevation (ft)	0.1	0.1	0.1
	Maximum change in Left (East) Bank Floodplain (ft)	1.3	1.3	0.6
	Maximum change in Right (West) Bank Floodplain (ft)	1.0	1.8	0.4

The HEC-RAS model results have been used to create floodplain extent maps, to compare the extents for the three low flow conditions considered with and without the Area-1 and Area-2 cofferdams (modeled separately). These maps show that the change in floodplain extent due to construction of the cofferdams is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-1 or Area-2 cofferdams.

If you have any questions or need any additional information, please contact John Osterle at 412-535-9823 or john.osterle@wsp.com.

Kind regards,

John P. Osterle, P.E.
Project Manager

JPO:TE:

Statement of Purpose

The purpose of this calculation is to perform a low flow sensitivity analysis for the affected area along the Congaree River in Columbia, South Carolina, due to the separate installation of two rock fill cofferdams around Areas 1 and 2.

A hydraulic analysis was previously completed to determine the impact of the proposed cofferdam structures on the Base Flood Elevations (BFE) for existing conditions as detailed in WSP's Hydraulic Analysis Memo, completed in April 2019 (WSP, 2019). This calculation uses the HEC-RAS model developed for the previous hydraulic analysis to simulate low flow conditions for the Corrected Effective, Proposed (Area-1), and Proposed (Area-2) models.

A plan view showing the extents of the cofferdams is included on Figure 1, based on Apex Drawing "Stakeholder Approved MRA Plan Sediment Remediation Areas" (Apex, 2019).

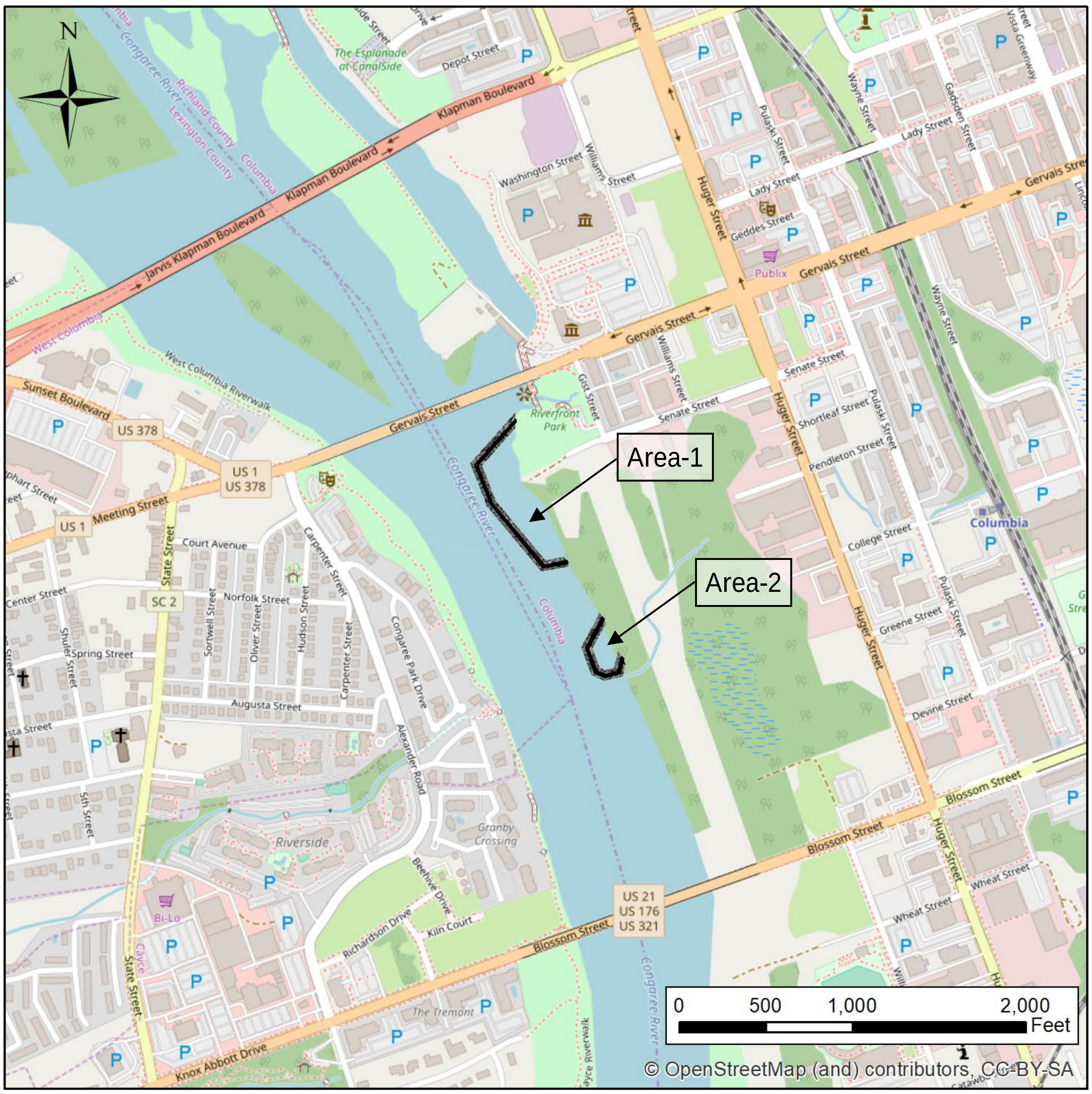


Figure 1: Plan View of Proposed Cofferdams

Description of Methodology Used

WSP (2019) provides full details of the HEC-RAS models developed for the previous hydraulic analysis, which considered the 10-year, 50-year, and 100-year flood events. No changes have been made to the HEC-RAS models for this low flow sensitivity analysis apart from to update the inflow boundary conditions to represent low flow conditions.

The following key characteristics of the HEC-RAS model are repeated below for clarity. Full details can be obtained from WSP (2019).

- The HEC-RAS model was developed from FEMA's Current Effective Model of the Congaree River, and was used to complete unsteady state simulations using HEC-RAS Version 4.1 (USACE, 2010).
- The HEC-RAS model is referenced to the North American Vertical Datum of 1988 (NAVD88). The United States Geological Survey (USGS) gage data is referenced to the National Geodetic Vertical Datum of 1929 (NGVD29). All elevations in this calculation are referenced to NAVD88, unless specifically stated otherwise. The datum shift to convert from NAVD88 to NGVD29 is +0.787 ft, as determined by the National Oceanic and Atmospheric Administration (NOAA) Vertcon tool (NOAA, 2019).
- The typical crest elevation of the rockfill berm cofferdam structures is 123.7 ft NAVD88. To control the locations of overtopping during high river levels, spillway sections are included in the cofferdam design which are 1 ft lower than the typical crest elevation. The level of protection provided by the cofferdam structures is therefore 122.7 ft NAVD88, and when water levels in the river exceed this elevation the areas behind the cofferdams will begin to flood.
- The proposed Area-1 and Area-2 cofferdams are analyzed as separate proposed conditions models, to reflect the phased approach being followed for the project.
- The cofferdams are represented in the model using the HEC-RAS 'levee' feature. This ensures that the storage volume within the river channel behind the cofferdam is only taken into account when the water level exceeds the crest elevation. Therefore, during low flow conditions the area behind the cofferdams remains dry.

Calculation Input

The HEC-RAS model developed in WSP's previous hydraulic analysis (WSP, 2019) was used to complete low flow simulations. The only change made to the model is to update the boundary conditions to represent low flow conditions as detailed below.

Boundary Conditions

Boundary conditions were required to represent the following conditions, as specified in WSP's scope of work:

- Approximate normal flow rate (based on USGS data analysis)
- Flow rate that results in water just below the cofferdam crest elevation
- Flow rate that results in water level midway between normal flow level and cofferdam crest

The United States Geological Survey (USGS) gage 02169500 is located on the Congaree River on the west bank opposite the locations of the proposed cofferdams. The USGS gage data (USGS, 2019) was reviewed and all approved daily-mean flow data was downloaded, covering the period from May 1984 through March 2019, i.e. approximately 35 years of data as shown in Figure 2.

The average of the approved mean-daily flow values was calculated as 8,564 cfs and this was adopted as the approximate normal flow rate for the purposes of this calculation. This flow rate results in a water level of approximately 116.6 ft NAVD88 at the upstream end of the Area-1 cofferdam.

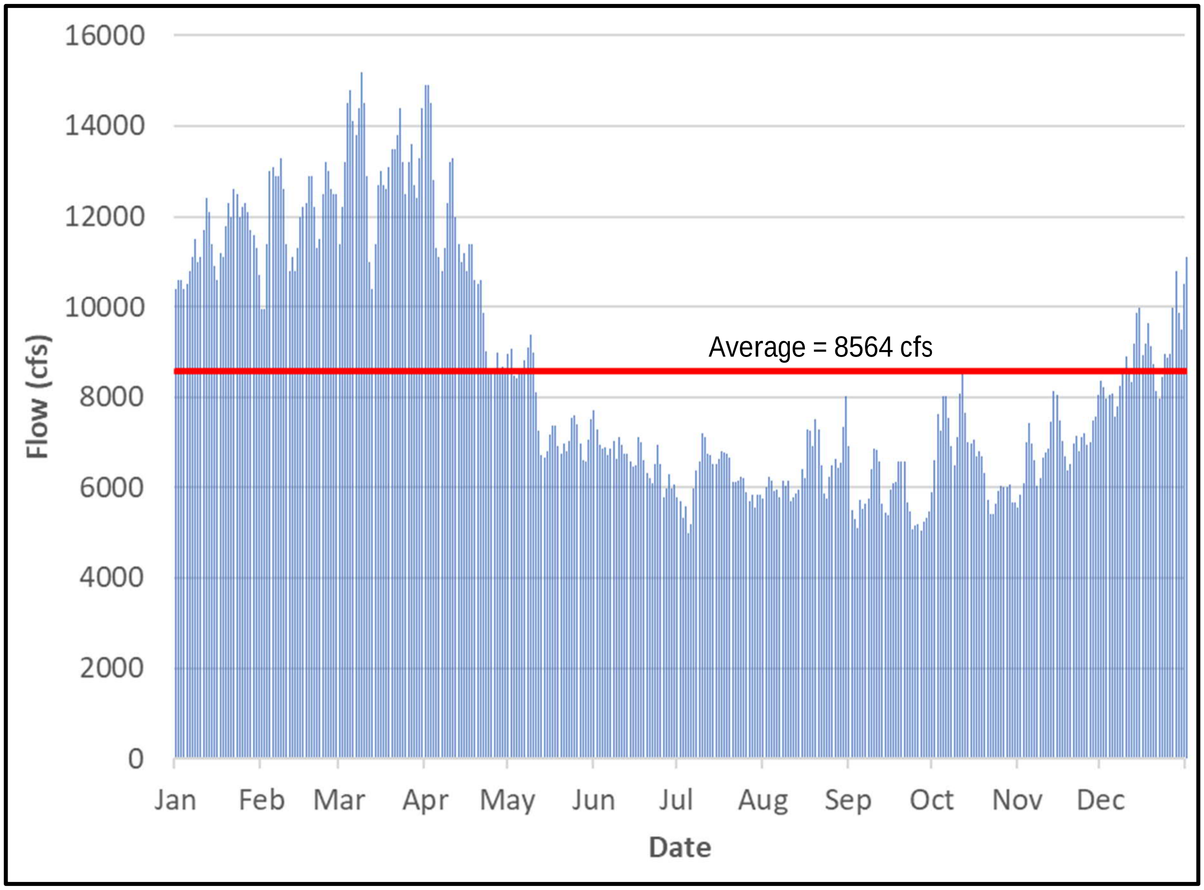


Figure 2: USGS Gage 02169500 Daily-Mean Flow Data, May 1984 through March 2019

Initial test runs were completed to determine the flow rate that would result in a water level just below the cofferdam crest elevation, i.e. the crest elevation of 122.7 ft NAVD88 at the overtopping spillways, above which water starts to flood the area behind the cofferdams.

The normal flow rate of 8,564 cfs was used as the initial flow in the river and the flow rate was increased over time. The water levels from the test runs were reviewed at the upstream end of the Area-1 cofferdam to determine the flow that resulted in a water level just below 122.7 ft NAVD88. The 'crest flow' was determined to be approximately 26,000 cfs.

Results were also reviewed to determine the flow that resulted in a water level midway between the cofferdam crest and normal water levels, i.e. approximately 119.5 ft NAVD88. The 'mid-point flow' was determined to be approximately 17,000 cfs.

Unsteady state (time-varying) inflow boundary conditions were developed for the three low flow scenarios to be analyzed. All boundary conditions begin at the normal flow value (8,564 cfs), and for the midpoint and crest flow conditions the flow rate is increased by approximately 1,500 cfs every 30 mins until the desired flow rate (17,000 or 26,000 cfs) is achieved. The inflow is then held constant until the end of the 47 hour model run, which allows the flows and velocities in the model to stabilize at the specified flow rate. The results are taken at the end of the run, 47 hours after the simulation begins. The inflow boundaries were developed to ensure there were no model instabilities associated with rapidly changing inflow conditions.

The final inflow boundary conditions are shown on Figure 3.

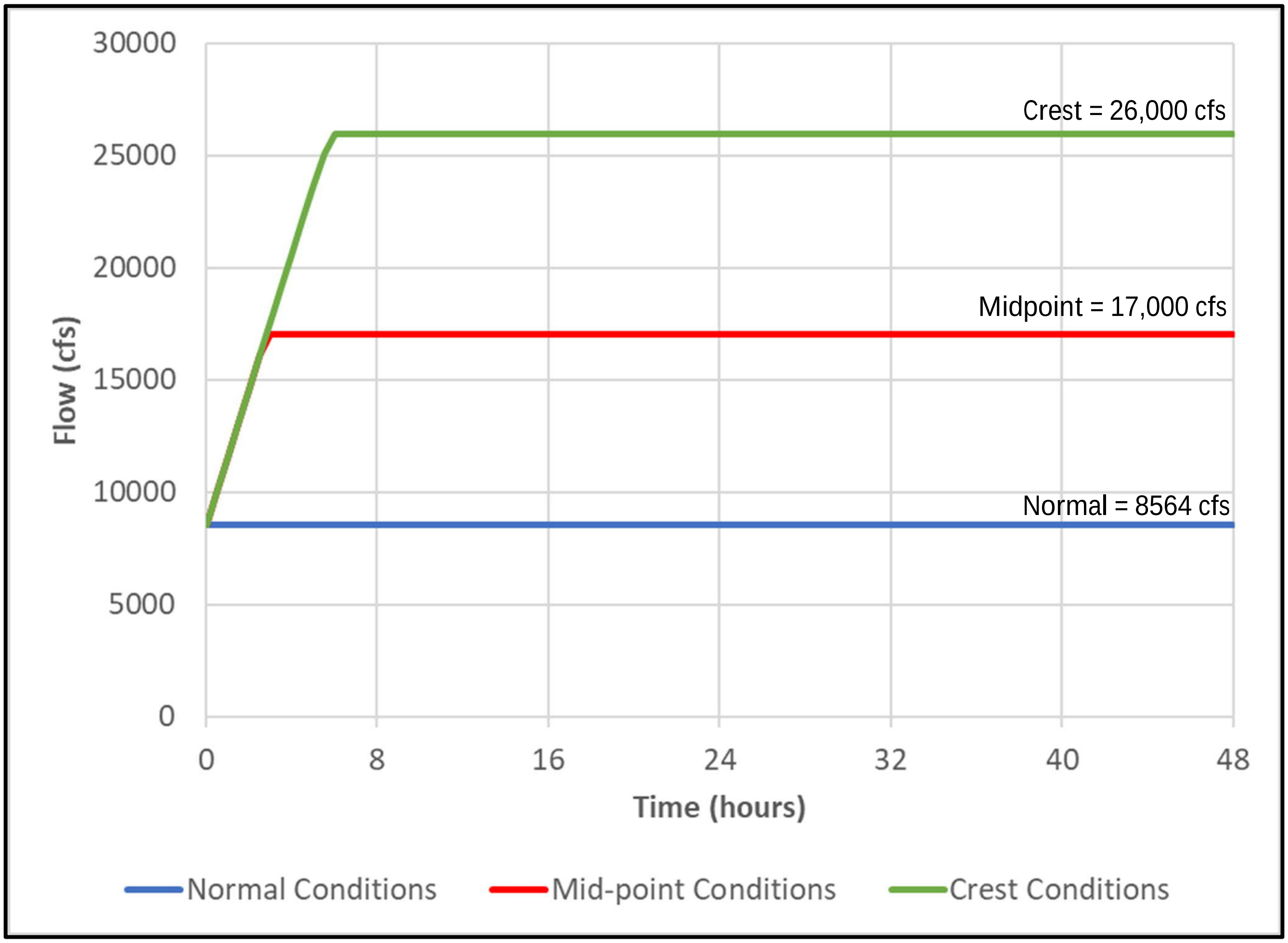


Figure 3: Low Flow Upstream Inflow Boundary Conditions

Numerical Calculations

All hydraulic analysis calculations are performed within the HEC-RAS Version 4.1 (USACE, 2010). The unsteady flow analysis parameters such as computational interval and hydrograph output interval were not modified i.e., the parameters used are identical to the parameters for the current effective model provided by FEMA and used in the previous hydraulic analysis (WSP, 2019).

Calculation Output

The electronic input and output files for all hydraulic models are provided in Appendix A. The HEC-RAS Output Tables are provided in Appendix B.

Figure 4 shows the HEC-RAS model schematic zoomed into the project area for the Corrected Effective model. The purpose of this figure is to provide the Cross Section/River Station numbering when reviewing results output. A full size/resolution version of Figure 4 is also provided in Appendix C.

Figure 4: Corrected Effective HEC-RAS Model Schematic (Project Area)

Results

The model results have been extracted at the end of the run (after 47 hours) when the flow conditions in the model have stabilized after the inflow boundary condition ramps up at the start of the run.

Table 1 and Table 2 summarize the water surface elevations and change in floodplain widths, respectively, of the corrected effective and proposed Area-1 hydraulic model runs for the normal, mid-point, and crest flow conditions. The results demonstrate that the impact of the proposed Area-1 cofferdam structure is greatest for lower flow rates, when the cross-sectional area loss due to the structure accounts for a bigger proportion of the total flow in the channel.

Table 1 shows that for the normal flow rate an increase in water level of up to 0.5 ft is experienced immediately upstream of the Area-1 cofferdam structure, with no increases predicted in the middle of the structure and further downstream. For the mid-point and cofferdam crest flow conditions, the increase upstream of the Area-1 structure is up to 0.4 ft and 0.3 ft, respectively. No increases are also predicted in the middle of the structure and further downstream.

Table 2 shows that a maximum increase in floodplain width of 8.1 ft is experienced on the right (west) bank approximately 100 ft downstream of Gervais Street bridge for mid-point conditions. This is the location where the greatest increase in water level occurs, and the topography of the river bank is also inclined at a shallower gradient than the typical section at flood elevations around 119.5-120.0 ft NAVD88. These two factors combined explain why this is the location of the maximum change in floodplain extent.

However, the increase in floodplain width upstream of the Area-1 structure is typically less than 1.5 ft for the three low flow conditions considered. The increase in floodplain width is determined by the specific topography at the flood level experienced at each specific cross section, i.e. if the topography is flat and low-lying then a small increase in water level can result in a greater increase in width. Therefore, the change in width does not necessarily correlate to the total flow in the river channel (as does the change in water surface elevation).

Construction of the Area-1 cofferdam structure reduces the width of the floodplain adjacent to the cofferdam, as shown by the negative values in Table 2.

Figures C1 through C3 (in Appendix C) show the floodplain extents for the three low flow conditions considered with and without the Area-1 cofferdam. These maps show that the changes in floodplain extent due to construction of the cofferdam is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-1 cofferdam.

Table 1: Comparison of Corrected Effective and Proposed Area-1 Model Water Surface Elevations; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Water Surface Elevation (ft NAVD88)								
	Normal Flow			Mid-Point Flow			Cofferdam Crest Flow		
	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]
288770	136.540	136.555	0.0	137.689	137.656	0.0	138.115	138.010	-0.1
287472	128.954	128.952	0.0	130.051	130.055	0.0	130.904	130.924	0.0
286338	121.996	122.045	0.0	123.764	123.833	0.1	125.468	125.624	0.2
286106	121.259	121.327	0.1	122.764	122.899	0.1	124.919	125.103	0.2
284778	118.632	119.015	0.4	121.319	121.646	0.3	124.310	124.559	0.2
284565[b]	116.856	117.284	0.4	119.631	119.972	0.3	122.657	122.912	0.3
284431	116.638	117.143	0.5	119.496	119.856	0.4	122.553	122.815	0.3
284408[c]	116.613	116.953	0.3	119.481	119.662	0.2	122.543	122.631	0.1
284395[c]	116.596	116.932	0.3	119.474	119.651	0.2	122.537	122.620	0.1
284372[c]	116.579	116.915	0.3	119.464	119.642	0.2	122.530	122.613	0.1
284267[c]	116.480	116.666	0.2	119.407	119.492	0.1	122.486	122.506	0.0
284060[c]	116.379	116.401	0.0	119.329	119.289	0.0	122.425	122.331	-0.1
283820[c]	116.336	116.312	0.0	119.286	119.218	-0.1	122.384	122.278	-0.1
283636[c]	116.310	116.279	0.0	119.253	119.187	-0.1	122.350	122.258	-0.1
283611[c]	116.302	116.271	0.0	119.241	119.180	-0.1	122.337	122.256	-0.1
283601[c]	116.295	116.260	0.0	119.233	119.166	-0.1	122.329	122.241	-0.1
283574	116.270	116.270	0.0	119.202	119.202	0.0	122.301	122.301	0.0
283490	116.205	116.205	0.0	119.138	119.138	0.0	122.247	122.247	0.0
283342	116.147	116.147	0.0	119.093	119.093	0.0	122.213	122.213	0.0
283203	116.114	116.114	0.0	119.064	119.064	0.0	122.190	122.190	0.0
283179	116.116	116.116	0.0	119.067	119.067	0.0	122.192	122.192	0.0
283169	116.115	116.115	0.0	119.066	119.066	0.0	122.191	122.191	0.0
283139	116.104	116.104	0.0	119.054	119.054	0.0	122.180	122.180	0.0
283093	116.089	116.089	0.0	119.038	119.038	0.0	122.168	122.168	0.0
283052	116.085	116.085	0.0	119.035	119.035	0.0	122.164	122.164	0.0
283001	116.078	116.078	0.0	119.028	119.028	0.0	122.159	122.159	0.0
282937	116.050	116.050	0.0	118.996	118.997	0.0	122.130	122.130	0.0
282912	116.030	116.030	0.0	118.977	118.977	0.0	122.116	122.116	0.0
282902	116.018	116.018	0.0	118.968	118.968	0.0	122.110	122.110	0.0
282874	115.973	115.973	0.0	118.941	118.941	0.0	122.096	122.096	0.0
282707	115.673	115.673	0.0	118.760	118.760	0.0	121.964	121.964	0.0
282424	115.453	115.453	0.0	118.674	118.674	0.0	121.923	121.923	0.0
282071	115.004	115.004	0.0	118.490	118.490	0.0	121.804	121.804	0.0
281647[d]	114.654	114.654	0.0	118.370	118.370	0.0	121.726	121.726	0.0
281423	114.343	114.343	0.0	118.226	118.226	0.0	121.538	121.538	0.0
279961	113.809	113.809	0.0	117.951	117.951	0.0	121.306	121.306	0.0
279605	113.744	113.744	0.0	117.900	117.900	0.0	121.257	121.257	0.0
278919	113.612	113.612	0.0	117.801	117.801	0.0	121.166	121.166	0.0

Notes:

a. 'Change' is calculated by subtracting 'Proposed' from 'Corrected' and rounding to one decimal place
b. Located downstream of Gervais Street bridge
c. Area-1 cofferdam
d. Located upstream of Blossom Street bridge

Table 2: Comparison of Corrected Effective and Proposed Area-1 Model Floodplain Widths; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Change in Floodplain Width (ft)					
	Normal Flow		Mid-Point Flow		Cofferdam Crest Flow	
	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank
288770	0.1	0.1	0.0	-0.2	0.0	-0.3
287472	0.0	0.0	0.0	0.0	0.0	0.0
286338	0.6	0.5	0.4	0.3	1.0	1.2
286106	0.3	0.5	0.8	1.5	1.1	1.4
284778	0.7	1.2	0.6	7.7	0.4	1.0
284565[a]	0.8	1.3	0.3	8.1	0.4	1.0
284431	3.5	3.6	1.2	1.3	0.7	0.8
284408[b]	-37.5	3.6	-50.0	0.8	-59.5	0.3
284395[b]	-58.2	3.0	-71.0	0.8	-80.8	0.3
284372[b]	-95.8	2.7	-110.6	0.6	-122.7	0.2
284267[b]	-229.3	1.1	-242.2	0.3	-252.2	0.1
284060[b]	-206.6	0.1	-250.7	-0.1	-281.3	-0.2
283820[b]	-198.3	0.0	-210.7	-0.1	-219.4	-0.2
283636[b]	-133.1	-0.1	-142.9	-0.2	-152.8	-0.2
283611[b]	-126.6	-0.1	-134.4	-0.2	-141.5	-0.2
283601[b]	-124.8	-0.1	-131.9	-0.2	-138.9	-0.1
283574	0.0	0.0	0.0	0.0	0.0	0.0
283490	0.0	0.0	0.0	0.0	0.0	0.0
283342	0.0	0.0	0.0	0.0	0.0	0.0
283203	0.0	0.0	0.0	0.0	0.0	0.0
283179	0.0	0.0	0.0	0.0	0.0	0.0
283169	0.0	0.0	0.0	0.0	0.0	0.0
283139	0.0	0.0	0.0	0.0	0.0	0.0
283093	0.0	0.0	0.0	0.0	0.0	0.0
283052	0.0	0.0	0.0	0.0	0.0	0.0
283001	0.0	0.0	0.0	0.0	0.0	0.0
282937	0.0	0.0	0.0	0.0	0.0	0.0
282912	0.0	0.0	0.0	0.0	0.0	0.0
282902	0.0	0.0	0.0	0.0	0.0	0.0
282874	0.0	0.0	0.0	0.0	0.0	0.0
282707	0.0	0.0	0.0	0.0	0.0	0.0
282424	0.0	0.0	0.0	0.0	0.0	0.0
282071	0.0	0.0	0.0	0.0	0.0	0.0
281647[c]	0.0	0.0	0.0	0.0	0.0	0.0
281423	0.0	0.0	0.0	0.0	0.0	0.0
279961	0.0	0.0	0.0	0.0	0.0	0.0
279605	0.0	0.0	0.0	0.0	0.0	0.0
278919	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

a. Located downstream of Gervais Street bridge
b. Area-1 cofferdam
c. Located upstream of Blossom Street bridge

Table 3 and Table 4 summarize the water surface elevations and change in floodplain widths, respectively, of the corrected effective and proposed Area-2 hydraulic model runs for the normal, mid-point, and crest flow conditions. The results demonstrate that the impact of the proposed Area-2 cofferdam structure is relatively consistent for the normal, mid-point, and cofferdam crest flow conditions.

Table 3 shows that for the three low flow conditions considered, an increase in water level of 0.1 ft is experienced immediately upstream of the Area-2 cofferdam structure, with no increases predicted adjacent to the structure and further downstream.

Table 4 shows that a maximum increase in floodplain width of 1.8 ft is experienced on the right (west) bank approximately 100 ft downstream of Gervais Street bridge for mid-point conditions. As previously discussed the topography of the river bank is inclined at a shallower gradient than the typical section at flood elevations around 119.5-120.0 ft NAVD88, which explains why the maximum change is experienced at this location. However, the increase in floodplain width upstream of the Area-2 structure is typically less than 1 ft for the three low flow conditions considered.

Construction of the Area-2 cofferdam structure reduces the width of the floodplain adjacent to the cofferdam, as shown by the negative values in Table 4.

Figures C1 through C3 (in Appendix C) show the floodplain extents for the three low flow conditions considered with and without the Area-2 cofferdam. These maps show that the changes in floodplain extent due to construction of the cofferdam is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-2 cofferdam.

Table 3: Comparison of Corrected Effective and Proposed Area-2 Model Water Surface Elevations; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Water Surface Elevation (ft NAVD88)								
	Normal Flow			Mid-Point Flow			Cofferdam Crest Flow		
	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]	Corrected	Proposed	Change[a]
288770	136.540	136.542	0.0	137.689	137.682	0.0	138.115	138.086	0.0
287472	128.954	128.954	0.0	130.051	130.052	0.0	130.904	130.909	0.0
286338	121.996	122.002	0.0	123.764	123.779	0.0	125.468	125.511	0.0
286106	121.259	121.268	0.0	122.764	122.794	0.0	124.919	124.970	0.1
284778	118.632	118.687	0.1	121.319	121.394	0.1	124.310	124.380	0.1
284565[b]	116.856	116.917	0.1	119.631	119.710	0.1	122.657	122.729	0.1
284431	116.638	116.713	0.1	119.496	119.579	0.1	122.553	122.627	0.1
284408	116.613	116.691	0.1	119.481	119.565	0.1	122.543	122.617	0.1
284395	116.596	116.675	0.1	119.474	119.558	0.1	122.537	122.611	0.1
284372	116.579	116.660	0.1	119.464	119.549	0.1	122.530	122.604	0.1
284267	116.480	116.568	0.1	119.407	119.494	0.1	122.486	122.562	0.1
284060	116.379	116.473	0.1	119.329	119.419	0.1	122.425	122.502	0.1
283820	116.336	116.433	0.1	119.286	119.378	0.1	122.384	122.462	0.1
283636	116.310	116.409	0.1	119.253	119.346	0.1	122.350	122.429	0.1
283611	116.302	116.400	0.1	119.241	119.334	0.1	122.337	122.416	0.1
283601	116.295	116.394	0.1	119.233	119.326	0.1	122.329	122.408	0.1
283574	116.270	116.370	0.1	119.202	119.296	0.1	122.301	122.380	0.1
283490	116.205	116.309	0.1	119.138	119.235	0.1	122.247	122.327	0.1
283342	116.147	116.256	0.1	119.093	119.191	0.1	122.213	122.294	0.1
283203	116.114	116.224	0.1	119.064	119.163	0.1	122.190	122.271	0.1
283179[c]	116.116	116.179	0.1	119.067	119.090	0.0	122.192	122.182	0.0
283169[c]	116.115	116.176	0.1	119.066	119.088	0.0	122.191	122.181	0.0
283139[c]	116.104	116.126	0.0	119.054	119.028	0.0	122.180	122.124	-0.1
283093[c]	116.089	116.106	0.0	119.038	119.021	0.0	122.168	122.129	0.0
283052[c]	116.085	116.083	0.0	119.035	118.991	0.0	122.164	122.093	-0.1
283001[c]	116.078	116.061	0.0	119.028	118.967	-0.1	122.159	122.070	-0.1
282937[c]	116.050	115.985	-0.1	118.996	118.886	-0.1	122.130	121.997	-0.1
282912[c]	116.030	115.957	-0.1	118.977	118.867	-0.1	122.116	121.988	-0.1
282902[c]	116.018	115.936	-0.1	118.968	118.850	-0.1	122.110	121.977	-0.1
282874	115.973	115.973	0.0	118.941	118.941	0.0	122.096	122.096	0.0
282707	115.673	115.673	0.0	118.760	118.760	0.0	121.964	121.964	0.0
282424	115.453	115.453	0.0	118.674	118.674	0.0	121.923	121.923	0.0
282071	115.004	115.004	0.0	118.490	118.490	0.0	121.804	121.804	0.0
281647[d]	114.654	114.654	0.0	118.370	118.370	0.0	121.726	121.726	0.0
281423	114.343	114.343	0.0	118.226	118.226	0.0	121.538	121.538	0.0
279961	113.809	113.809	0.0	117.951	117.951	0.0	121.306	121.306	0.0
279605	113.744	113.744	0.0	117.900	117.900	0.0	121.257	121.257	0.0
278919	113.612	113.612	0.0	117.801	117.801	0.0	121.166	121.166	0.0

Notes:

a. 'Change' is calculated by subtracting 'Proposed' from 'Corrected' and rounding to one decimal place
b. Located downstream of Gervais Street bridge
c. Area-2 cofferdam
d. Located upstream of Blossom Street bridge

Table 4: Comparison of Corrected Effective and Proposed Area-2 Model Floodplain Widths; Normal, Mid-Point, and Cofferdam Crest Flow Rates

Cross Section/ River Station	Change in Floodplain Width (ft)					
	Normal Flow		Mid-Point Flow		Cofferdam Crest Flow	
	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank	Left (East) Bank	Right (West) Bank
288770	0.0	0.0	0.0	0.0	0.0	0.0
287472	0.0	0.0	0.0	0.0	0.0	0.0
286338	0.0	0.1	0.1	0.1	0.3	0.3
286106	0.0	0.3	0.2	0.3	0.3	0.4
284778	0.1	0.2	0.1	1.8	0.1	0.3
284565[a]	0.1	0.2	0.1	1.8	0.1	0.3
284431	0.6	1.0	0.3	0.3	0.2	0.2
284408	0.6	1.0	0.3	0.4	0.2	0.2
284395	0.4	0.7	0.3	0.4	0.3	0.3
284372	0.5	0.6	0.3	0.3	0.4	0.2
284267	0.7	0.7	0.3	0.3	0.2	0.2
284060	1.3	0.4	1.3	0.2	0.6	0.2
283820	0.6	0.3	0.3	0.2	0.2	0.2
283636	0.3	0.3	0.3	0.2	0.3	0.2
283611	0.3	0.3	0.2	0.2	0.2	0.2
283601	0.3	0.3	0.2	0.2	0.2	0.2
283574	0.3	0.3	0.2	0.2	0.2	0.2
283490	0.2	0.4	0.2	0.2	0.2	0.2
283342	0.4	0.3	0.4	0.2	0.2	0.2
283203	0.4	0.5	0.3	0.3	0.2	0.2
283179[b]	-40.5	0.2	-49.8	0.1	-58.2	0.0
283169[b]	-51.9	0.3	-60.6	0.1	-68.7	0.0
283139[b]	-83.1	0.1	-91.4	-0.1	-99.3	-0.1
283093[b]	-141.2	0.1	-149.6	-0.1	-157.1	-0.2
283052[b]	-148.2	0.0	-156.3	-0.1	-163.9	-0.2
283001[b]	-156.2	-0.1	-163.9	-0.2	-171.8	-0.2
282937[b]	-161.7	-0.2	-170.6	-0.3	-179.8	-0.3
282912[b]	-145.2	-0.2	-164.7	-0.3	-205.9	-0.3
282902[b]	-139.0	-0.3	-179.4	-0.3	-206.1	-0.3
282874	0.0	0.0	0.0	0.0	0.0	0.0
282707	0.0	0.0	0.0	0.0	0.0	0.0
282424	0.0	0.0	0.0	0.0	0.0	0.0
282071	0.0	0.0	0.0	0.0	0.0	0.0
281647[c]	0.0	0.0	0.0	0.0	0.0	0.0
281423	0.0	0.0	0.0	0.0	0.0	0.0
279961	0.0	0.0	0.0	0.0	0.0	0.0
279605	0.0	0.0	0.0	0.0	0.0	0.0
278919	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

a. Located downstream of Gervais Street bridge
b. Area-2 cofferdam
c. Located upstream of Blossom Street bridge

Conclusion/Summary

The results in Table 1 and Table 2 show the addition of the proposed Area-1 cofferdam structure results in maximum increases in water surface elevation of 0.5 ft, 0.4 ft, and 0.3 ft for the normal, mid-point, and cofferdam crest flows, respectively. The maximum increases in floodplain width of 8.1 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. However, the typical increase in floodplain width upstream of the Area-1 structure is less than 1.5 ft for the three low flow conditions considered.

The results in Table 3 and Table 4 show the addition of the proposed Area-2 cofferdam structure results in maximum increases in water surface elevation of 0.1 ft for the three low flow conditions considered. The maximum increase in floodplain extent of 1.8 ft is experienced on the right (west) bank, 100 ft downstream of Gervais Street bridge for mid-point conditions. However, the typical increase in floodplain width upstream of the Area-2 structure is less than 1 ft for the three low flow conditions considered.

Figures C1 through C3 (in Appendix C) show the floodplain extents for the three low flow conditions considered with and without the Area-1 and Area-2 cofferdams (modeled separately). These maps show that the changes in floodplain extent due to construction of the cofferdams is negligible. Based on a review of aerial photographs, no additional properties are impacted by floodwater due to construction of the Area-1 or Area-2 cofferdam.

References

1. Apex, 2019: Apex Companies LLC, “Figure 1, Stakeholder Approved MRA Plan Sediment Remediation Areas, Congaree River, Columbia, South Carolina”, February 8, 2019.

2. NOAA, 2019: National Oceanic and Atmospheric Administration, “VERTCON - North American Vertical Datum Conversion” https://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl, Accessed March 2019.

3. USACE, 2010: USACE, “HEC-RAS River Analysis System, User’s Manual, Version 4.1” Document No. CPD-68, Hydraulic Engineering Center, United States Army Corps of Engineers, January 2010.

4. USGS, 2019: United States Geological Survey, “USGS Gage 02169500 Congaree River at Columbia, SC” <https://waterdata.usgs.gov/usa/nwis/uv?02169500>, Date Accessed: June 25, 2019.

5. WSP, 2019: WSP, “Hydraulic Analysis Memo, Congaree River Remediation Project”, April 12, 2019.

APPENDICES

Appendix A: Electronic Files

Appendix B: HEC-RAS Output Tables

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	288770	02JAN2012 2300	Norm-CorrectedC	8564.00	128.14	136.540		136.55	0.000023	0.75	11429.79	1432.68	0.05
Reach-1	288770	02JAN2012 2300	Norm-ProposedD1	8564.00	128.14	136.555		136.56	0.000023	0.75	11452.57	1432.86	0.05
Reach-1	288770	02JAN2012 2300	Norm-ProposedD2	8564.00	128.14	136.542		136.55	0.000023	0.75	11433.37	1432.70	0.05
Reach-1	288770	02JAN2012 2300	MidPt-CorrectedC	17000.00	128.14	137.689		137.72	0.000059	1.30	13085.65	1449.88	0.08
Reach-1	288770	02JAN2012 2300	MidPt-ProposedD1	17000.00	128.14	137.656		137.68	0.000060	1.30	13037.56	1448.52	0.08
Reach-1	288770	02JAN2012 2300	MidPt-ProposedD2	17000.00	128.14	137.682		137.71	0.000059	1.30	13075.07	1449.44	0.08
Reach-1	288770	02JAN2012 2300	Crest-CorrectedC	26000.00	128.14	138.115		138.17	0.000121	1.90	13709.11	1470.83	0.11
Reach-1	288770	02JAN2012 2300	Crest-ProposedD1	26000.00	128.14	138.010		138.07	0.000125	1.92	13554.22	1467.96	0.11
Reach-1	288770	02JAN2012 2300	Crest-ProposedD2	26000.00	128.14	138.086		138.14	0.000122	1.90	13666.75	1470.32	0.11
Reach-1	287472	02JAN2012 2300	Norm-CorrectedC	8564.14	125.74	128.954		129.59	0.011438	6.38	1342.39	729.33	0.83
Reach-1	287472	02JAN2012 2300	Norm-ProposedD1	8564.17	125.74	128.952		129.59	0.011465	6.39	1341.23	729.04	0.83
Reach-1	287472	02JAN2012 2300	Norm-ProposedD2	8564.00	125.74	128.954		129.59	0.011441	6.38	1342.25	729.29	0.83
Reach-1	287472	02JAN2012 2300	MidPt-CorrectedC	16999.96	125.74	130.051		130.91	0.011248	7.42	2292.41	990.28	0.86
Reach-1	287472	02JAN2012 2300	MidPt-ProposedD1	16999.97	125.74	130.055		130.91	0.011188	7.40	2296.68	990.95	0.86
Reach-1	287472	02JAN2012 2300	MidPt-ProposedD2	16999.99	125.74	130.052		130.91	0.011235	7.41	2293.30	990.42	0.86
Reach-1	287472	02JAN2012 2300	Crest-CorrectedC	25999.98	125.74	130.904		131.94	0.010029	8.15	3190.56	1112.98	0.85
Reach-1	287472	02JAN2012 2300	Crest-ProposedD1	26000.00	125.74	130.924		131.94	0.009817	8.09	3212.72	1114.52	0.84
Reach-1	287472	02JAN2012 2300	Crest-ProposedD2	25999.96	125.74	130.909		131.94	0.009971	8.13	3196.57	1113.39	0.85
Reach-1	286338	02JAN2012 2300	Norm-CorrectedC	8563.95	117.29	121.996	120.57	122.12	0.001751	2.85	3003.08	1303.62	0.33
Reach-1	286338	02JAN2012 2300	Norm-ProposedD1	8563.93	117.29	122.045	120.58	122.17	0.001633	2.79	3067.51	1304.76	0.32
Reach-1	286338	02JAN2012 2300	Norm-ProposedD2	8563.99	117.29	122.002	120.58	122.13	0.001735	2.84	3011.55	1303.77	0.33
Reach-1	286338	02JAN2012 2300	MidPt-CorrectedC	17000.01	117.29	123.764	121.38	123.92	0.001054	3.17	5356.62	1352.41	0.28
Reach-1	286338	02JAN2012 2300	MidPt-ProposedD1	17000.01	117.29	123.833	121.38	123.98	0.000996	3.12	5449.31	1353.48	0.27
Reach-1	286338	02JAN2012 2300	MidPt-ProposedD2	16999.99	117.29	123.779	121.38	123.93	0.001041	3.16	5376.64	1352.64	0.28
Reach-1	286338	02JAN2012 2300	Crest-CorrectedC	25999.99	117.29	125.468	122.01	125.65	0.000762	3.38	7683.68	1380.70	0.25
Reach-1	286338	02JAN2012 2300	Crest-ProposedD1	26000.01	117.29	125.624	122.01	125.79	0.000697	3.29	7899.15	1383.62	0.24
Reach-1	286338	02JAN2012 2300	Crest-ProposedD2	26000.00	117.29	125.511	122.00	125.69	0.000743	3.36	7743.20	1381.51	0.25
Reach-1	286221			Bridge									
Reach-1	286106	02JAN2012 2300	Norm-CorrectedC	8563.95	117.10	121.259		121.47	0.003939	3.72	2302.79	1236.51	0.48
Reach-1	286106	02JAN2012 2300	Norm-ProposedD1	8563.93	117.10	121.327		121.53	0.003549	3.59	2388.20	1252.96	0.46
Reach-1	286106	02JAN2012 2300	Norm-ProposedD2	8563.99	117.10	121.268		121.48	0.003885	3.70	2313.94	1238.77	0.48
Reach-1	286106	02JAN2012 2300	MidPt-CorrectedC	17000.01	117.10	122.764		123.01	0.002208	3.98	4266.62	1338.19	0.39
Reach-1	286106	02JAN2012 2300	MidPt-ProposedD1	17000.01	117.10	122.899		123.13	0.001929	3.82	4447.35	1341.19	0.37
Reach-1	286106	02JAN2012 2300	MidPt-ProposedD2	16999.99	117.10	122.794		123.04	0.002142	3.95	4306.11	1338.85	0.39
Reach-1	286106	02JAN2012 2300	Crest-CorrectedC	25999.99	117.10	124.919		125.12	0.000944	3.62	7189.63	1373.99	0.28
Reach-1	286106	02JAN2012 2300	Crest-ProposedD1	26000.01	117.10	125.103		125.29	0.000844	3.49	7443.04	1377.44	0.26
Reach-1	286106	02JAN2012 2300	Crest-ProposedD2	26000.00	117.10	124.970		125.17	0.000914	3.58	7259.73	1374.94	0.27
Reach-1	284778	02JAN2012 2300	Norm-CorrectedC	8564.04	112.83	118.632	115.67	118.68	0.000319	1.76	4858.66	1209.35	0.15
Reach-1	284778	02JAN2012 2300	Norm-ProposedD1	8564.07	112.83	119.015	115.67	119.06	0.000235	1.61	5322.92	1211.20	0.14
Reach-1	284778	02JAN2012 2300	Norm-ProposedD2	8564.02	112.83	118.687	115.67	118.73	0.000304	1.74	4925.30	1209.61	0.15
Reach-1	284778	02JAN2012 2300	MidPt-CorrectedC	16999.98	112.83	121.319	116.39	121.39	0.000232	2.09	8129.80	1234.66	0.14
Reach-1	284778	02JAN2012 2300	MidPt-ProposedD1	16999.98	112.83	121.646	116.39	121.71	0.000199	1.99	8534.85	1242.76	0.13
Reach-1	284778	02JAN2012 2300	MidPt-ProposedD2	16999.99	112.83	121.394	116.39	121.46	0.000224	2.07	8222.84	1236.53	0.14
Reach-1	284778	02JAN2012 2300	Crest-CorrectedC	26000.01	112.83	124.310	117.01	124.38	0.000158	2.19	11874.89	1261.23	0.13
Reach-1	284778	02JAN2012 2300	Crest-ProposedD1	26000.01	112.83	124.559	117.01	124.63	0.000145	2.13	12188.86	1262.61	0.12
Reach-1	284778	02JAN2012 2300	Crest-ProposedD2	25999.98	112.83	124.380	117.01	124.45	0.000154	2.17	11963.32	1261.62	0.12
Reach-1	284668			Bridge									
Reach-1	284565	02JAN2012 2300	Norm-CorrectedC	8564.04	111.22	116.856		116.91	0.000366	1.84	4658.09	1208.55	0.17
Reach-1	284565	02JAN2012 2300	Norm-ProposedD1	8564.07	111.22	117.284		117.33	0.000258	1.65	5175.79	1210.61	0.14
Reach-1	284565	02JAN2012 2300	Norm-ProposedD2	8564.02	111.22	116.917		116.97	0.000347	1.81	4732.55	1208.84	0.16
Reach-1	284565	02JAN2012 2300	MidPt-CorrectedC	16999.98	111.22	119.631		119.70	0.000241	2.12	8033.82	1232.74	0.15
Reach-1	284565	02JAN2012 2300	MidPt-ProposedD1	16999.98	111.22	119.972		120.03	0.000205	2.01	8455.12	1241.17	0.14
Reach-1	284565	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.22	119.710		119.78	0.000232	2.09	8130.54	1234.68	0.14
Reach-1	284565	02JAN2012 2300	Crest-CorrectedC	26000.01	111.22	122.657		122.73	0.000161	2.20	11820.54	1260.99	0.13
Reach-1	284565	02JAN2012 2300	Crest-ProposedD1	26000.01	111.22	122.912		122.98	0.000147	2.14	12141.77	1262.40	0.12
Reach-1	284565	02JAN2012 2300	Crest-ProposedD2	25999.98	111.22	122.729		122.80	0.000157	2.18	11910.97	1261.39	0.13
Reach-1	284431	02JAN2012 2300	Norm-CorrectedC	8564.04	111.36	116.638		116.79	0.001507	3.11	2751.40	944.38	0.32
Reach-1	284431	02JAN2012 2300	Norm-ProposedD1	8564.03	111.36	117.143		117.25	0.000889	2.65	3230.30	951.53	0.25
Reach-1	284431	02JAN2012 2300	Norm-ProposedD2	8563.99	111.36	116.713		116.86	0.001385	3.03	2822.85	945.86	0.31
Reach-1	284431	02JAN2012 2300	MidPt-CorrectedC	17000.00	111.36	119.496		119.64	0.000620	3.09	5493.63	971.06	0.23
Reach-1	284431	02JAN2012 2300	MidPt-ProposedD1	16999.99	111.36	119.856		119.99	0.000508	2.91	5844.25	973.58	0.21
Reach-1	284431	02JAN2012 2300	MidPt-ProposedD2	17000.00	111.36	119.579		119.72	0.000591	3.05	5574.74	971.64	0.22
Reach-1	284431	02JAN2012 2300	Crest-CorrectedC	26000.01	111.36	122.553		122.70	0.000354	3.06	8493.24	990.85	0.18
Reach-1	284431	02JAN2012 2300	Crest-ProposedD1	26000.00	111.36	122.815		122.95	0.000322	2.97	8753.26	998.52	0.18
Reach-1	284431	02JAN2012 2300	Crest-ProposedD2	26000.02	111.36	122.627		122.77	0.000345	3.04	8566.55	993.01	0.18
Reach-1	284408	02JAN2012 2300	Norm-CorrectedC	8564.00	111.06	116.613		116.76	0.001426	3.10	2766.91	911.46	0.31
Reach-1	284408	02JAN2012 2300	Norm-ProposedD1	8564.00	111.58	116.953		117.23	0.002471	4.24	2020.89	626.09	0.42
Reach-1	284408	02JAN2012 2300	Norm-ProposedD2	8563.98	111.06	116.691		116.83	0.001314	3.02	2837.71	913.08	0.30
Reach-1	284408	02JAN2012 2300	MidPt-CorrectedC	16999.99	111.06	119.481		119.63	0.000625	3.13	5437.98	950.22	0.23
Reach-1	284408	02JAN2012 2300	MidPt-ProposedD1	16999.97	111.58	119.662		119.98	0.001310	4.53	3754.86	653.42	0.33
Reach-1	284408	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.06	119.565		119.71	0.000596	3.08	5517.82	950.85	0.23
Reach-1	284408	02JAN2012 2300	Crest-CorrectedC	25999.99	111.06	122.543		122.69	0.000357	3.10	8381.25	971.93	0.19
Reach-1	284408	02JAN2012 2300	Crest-ProposedD1	25999.98	111.58	122.631		122.95	0.000779	4.55	5719.24	668.95	0.27
Reach-1	284408	02JAN2012 2300	Crest-ProposedD2	26000.01	111.06	122.617		122.76	0.000347	3.08	8453.38	972.40	0.18
Reach-1	284395	02JAN2012 2300	Norm-CorrectedC	8564.00	111.13	116.596		116.75	0.001460	3.12	2744.09	908.60	0.32
Reach-1	284395	02JAN2012 2300	Norm-ProposedD1	8564.00	111.37	116.932		117.21	0.002416	4.21	2033.81	625.39	0.41
Reach-1	284395	02JAN2012 2300	Norm-ProposedD2	8563.98	111.13	116.675		116.82	0.001342	3.04	2815.91	909.68	0.30
Reach-1	284395	02JAN2012 2300	MidPt-CorrectedC	17000.00	111.13	119.474		119.63	0.000628	3.14	5409.67	940.69	0.23
Reach-1	284395	02JAN2012 2300	MidPt-ProposedD1	16999.98	111.37	119.651		119.97	0.001278	4.51	3766.09	646.28	0.33
Reach-1	284395	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.13	119.558		119.71	0.000599	3.10	5489.00	941.36	0.23
Reach-1	284395	02JAN2012 2300	Crest-CorrectedC	26000.00	111.13	122.537		122.69	0.000360	3.12	8324.91	962.65	0.19
Reach-1	284395	02JAN2012 2300	Crest-ProposedD1	25999.99	111.37	122.620		122.94	0.000773	4.56	5706.62	660.92	0.27
Reach-1	284395	02JAN2012 2300	Crest-ProposedD2	25999.98	111.13	122.611		122.76	0.000350	3.10	8396.45	963.23	0.18

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	284372	02JAN2012 2300	Norm-CorrectedC	8563.98	111.51	116.579		116.73	0.001351	3.07	2790.75	894.28	0.31
Reach-1	284372	02JAN2012 2300	Norm-ProposedD1	8563.99	111.51	116.915		117.17	0.002136	4.06	2107.57	623.40	0.39
Reach-1	284372	02JAN2012 2300	Norm-ProposedD2	8564.01	111.51	116.660		116.80	0.001243	2.99	2862.79	895.41	0.29
Reach-1	284372	02JAN2012 2300	MidPt-CorrectedC	17000.01	111.51	119.464		119.62	0.000607	3.14	5418.79	924.21	0.23
Reach-1	284372	02JAN2012 2300	MidPt-ProposedD1	16999.98	111.51	119.642		119.95	0.001192	4.44	3831.39	639.96	0.32
Reach-1	284372	02JAN2012 2300	MidPt-ProposedD2	16999.99	111.51	119.549		119.70	0.000579	3.09	5497.09	924.79	0.22
Reach-1	284372	02JAN2012 2300	Crest-CorrectedC	26000.01	111.51	122.530		122.68	0.000354	3.14	8285.23	946.43	0.19
Reach-1	284372	02JAN2012 2300	Crest-ProposedD1	25999.99	111.51	122.613		122.93	0.000741	4.52	5752.89	653.41	0.27
Reach-1	284372	02JAN2012 2300	Crest-ProposedD2	25999.95	111.51	122.604		122.75	0.000344	3.11	8355.67	946.99	0.18
Reach-1	284267	02JAN2012 2300	Norm-CorrectedC	8563.92	108.23	116.480		116.60	0.000891	2.80	3063.61	826.22	0.26
Reach-1	284267	02JAN2012 2300	Norm-ProposedD1	8563.98	108.30	116.666		116.93	0.002106	4.15	2065.23	585.05	0.39
Reach-1	284267	02JAN2012 2300	Norm-ProposedD2	8564.00	108.23	116.568		116.68	0.000826	2.73	3136.38	827.60	0.25
Reach-1	284267	02JAN2012 2300	MidPt-CorrectedC	17000.01	108.23	119.407		119.55	0.000513	3.08	5520.86	850.68	0.21
Reach-1	284267	02JAN2012 2300	MidPt-ProposedD1	17000.02	108.30	119.492		119.81	0.001187	4.54	3741.26	599.92	0.32
Reach-1	284267	02JAN2012 2300	MidPt-ProposedD2	17000.00	108.23	119.494		119.64	0.000491	3.04	5594.98	851.28	0.21
Reach-1	284267	02JAN2012 2300	Crest-CorrectedC	26000.00	108.23	122.486		122.64	0.000335	3.18	8170.70	869.99	0.18
Reach-1	284267	02JAN2012 2300	Crest-ProposedD1	26000.02	108.30	122.506		122.84	0.000761	4.67	5568.86	612.86	0.27
Reach-1	284267	02JAN2012 2300	Crest-ProposedD2	26000.03	108.23	122.562		122.72	0.000327	3.16	8236.31	870.46	0.18
Reach-1	284060	02JAN2012 2300	Norm-CorrectedC	8564.05	108.45	116.379		116.47	0.000421	2.36	3626.01	716.56	0.19
Reach-1	284060	02JAN2012 2300	Norm-ProposedD1	8564.00	108.45	116.401		116.60	0.001065	3.61	2369.41	494.38	0.29
Reach-1	284060	02JAN2012 2300	Norm-ProposedD2	8564.00	108.45	116.473		116.56	0.000397	2.32	3693.95	718.23	0.18
Reach-1	284060	02JAN2012 2300	MidPt-CorrectedC	17000.02	108.45	119.329		119.46	0.000377	2.92	5823.44	770.95	0.19
Reach-1	284060	02JAN2012 2300	MidPt-ProposedD1	17000.00	108.45	119.289		119.60	0.000890	4.45	3817.53	507.95	0.29
Reach-1	284060	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.45	119.419		119.55	0.000363	2.88	5892.90	772.45	0.18
Reach-1	284060	02JAN2012 2300	Crest-CorrectedC	26000.01	108.45	122.425		122.58	0.000292	3.14	8276.19	809.11	0.17
Reach-1	284060	02JAN2012 2300	Crest-ProposedD1	25999.99	108.45	122.331		122.69	0.000687	4.83	5381.69	520.06	0.26
Reach-1	284060	02JAN2012 2300	Crest-ProposedD2	25999.98	108.45	122.502		122.65	0.000285	3.12	8338.35	809.82	0.17
Reach-1	283820	02JAN2012 2300	Norm-CorrectedC	8563.97	107.22	116.336		116.39	0.000192	1.89	4538.03	697.66	0.13
Reach-1	283820	02JAN2012 2300	Norm-ProposedD1	8564.00	107.22	116.312		116.43	0.000401	2.71	3156.71	485.85	0.19
Reach-1	283820	02JAN2012 2300	Norm-ProposedD2	8563.99	107.22	116.433		116.49	0.000183	1.86	4605.95	698.51	0.13
Reach-1	283820	02JAN2012 2300	MidPt-CorrectedC	16999.98	107.22	119.286		119.39	0.000223	2.57	6626.93	717.15	0.15
Reach-1	283820	02JAN2012 2300	MidPt-ProposedD1	17000.00	107.22	119.218		119.43	0.000471	3.71	4585.43	496.80	0.22
Reach-1	283820	02JAN2012 2300	MidPt-ProposedD2	16999.97	107.22	119.378		119.48	0.000216	2.54	6692.57	717.67	0.15
Reach-1	283820	02JAN2012 2300	Crest-CorrectedC	25999.98	107.22	122.384		122.52	0.000210	2.93	8871.71	731.91	0.15
Reach-1	283820	02JAN2012 2300	Crest-ProposedD1	26000.03	107.22	122.278		122.56	0.000434	4.25	6120.85	506.84	0.22
Reach-1	283820	02JAN2012 2300	Crest-ProposedD2	26000.01	107.22	122.462		122.59	0.000206	2.91	8928.51	732.25	0.15
Reach-1	283636	02JAN2012 2300	Norm-CorrectedC	8563.95	105.24	116.310		116.36	0.000153	1.79	4783.16	669.06	0.12
Reach-1	283636	02JAN2012 2300	Norm-ProposedD1	8564.00	105.24	116.279		116.37	0.000269	2.36	3628.06	510.39	0.16
Reach-1	283636	02JAN2012 2300	Norm-ProposedD2	8564.02	105.24	116.409		116.46	0.000146	1.77	4849.23	669.71	0.12
Reach-1	283636	02JAN2012 2300	MidPt-CorrectedC	17000.02	105.24	119.253		119.35	0.000195	2.51	6778.98	686.60	0.14
Reach-1	283636	02JAN2012 2300	MidPt-ProposedD1	16999.99	105.24	119.187		119.36	0.000346	3.31	5129.71	521.96	0.19
Reach-1	283636	02JAN2012 2300	MidPt-ProposedD2	17000.04	105.24	119.346		119.44	0.000189	2.48	6842.71	687.11	0.14
Reach-1	283636	02JAN2012 2300	Crest-CorrectedC	26000.02	105.24	122.350		122.48	0.000188	2.91	8931.81	703.61	0.14
Reach-1	283636	02JAN2012 2300	Crest-ProposedD1	25999.98	105.24	122.258		122.49	0.000335	3.85	6750.30	533.27	0.19
Reach-1	283636	02JAN2012 2300	Crest-ProposedD2	26000.00	105.24	122.429		122.56	0.000185	2.89	8987.13	704.03	0.14
Reach-1	283611	02JAN2012 2300	Norm-CorrectedC	8563.96	105.38	116.302		116.36	0.000176	1.87	4572.01	664.33	0.13
Reach-1	283611	02JAN2012 2300	Norm-ProposedD1	8564.00	105.38	116.271		116.36	0.000288	2.38	3604.28	528.48	0.16
Reach-1	283611	02JAN2012 2300	Norm-ProposedD2	8564.00	105.38	116.400		116.45	0.000168	1.85	4637.67	664.84	0.12
Reach-1	283611	02JAN2012 2300	MidPt-CorrectedC	17000.00	105.38	119.241		119.35	0.000216	2.60	6547.38	679.52	0.15
Reach-1	283611	02JAN2012 2300	MidPt-ProposedD1	17000.00	105.38	119.180		119.35	0.000355	3.30	5158.39	539.82	0.19
Reach-1	283611	02JAN2012 2300	MidPt-ProposedD2	17000.02	105.38	119.334		119.44	0.000210	2.57	6610.40	679.97	0.15
Reach-1	283611	02JAN2012 2300	Crest-CorrectedC	26000.00	105.38	122.337		122.48	0.000204	3.00	8673.12	693.33	0.15
Reach-1	283611	02JAN2012 2300	Crest-ProposedD1	25999.99	105.38	122.256		122.48	0.000335	3.80	6835.24	550.54	0.19
Reach-1	283611	02JAN2012 2300	Crest-ProposedD2	26000.00	105.38	122.416		122.55	0.000200	2.98	8727.49	693.68	0.15
Reach-1	283601	02JAN2012 2300	Norm-CorrectedC	8563.96	105.38	116.295		116.35	0.000200	1.95	4398.66	662.93	0.13
Reach-1	283601	02JAN2012 2300	Norm-ProposedD1	8563.99	105.38	116.260		116.36	0.000328	2.48	3457.88	525.20	0.17
Reach-1	283601	02JAN2012 2300	Norm-ProposedD2	8563.99	105.38	116.394		116.45	0.000190	1.92	4464.38	663.54	0.13
Reach-1	283601	02JAN2012 2300	MidPt-CorrectedC	17000.00	105.38	119.233		119.34	0.000236	2.67	6369.65	677.91	0.15
Reach-1	283601	02JAN2012 2300	MidPt-ProposedD1	17000.00	105.38	119.166		119.35	0.000390	3.40	5002.15	537.02	0.20
Reach-1	283601	02JAN2012 2300	MidPt-ProposedD2	17000.03	105.38	119.326		119.43	0.000229	2.64	6432.71	678.32	0.15
Reach-1	283601	02JAN2012 2300	Crest-CorrectedC	26000.00	105.38	122.329		122.47	0.000218	3.06	8490.08	691.69	0.15
Reach-1	283601	02JAN2012 2300	Crest-ProposedD1	26000.01	105.38	122.241		122.48	0.000360	3.90	6670.32	548.01	0.20
Reach-1	283601	02JAN2012 2300	Crest-ProposedD2	26000.02	105.38	122.408		122.55	0.000214	3.04	8544.47	692.03	0.15
Reach-1	283574	02JAN2012 2300	Norm-CorrectedC	8563.97	105.18	116.270		116.35	0.000329	2.26	3785.97	662.64	0.17
Reach-1	283574	02JAN2012 2300	Norm-ProposedD1	8563.98	105.18	116.270		116.35	0.000329	2.26	3785.97	662.64	0.17
Reach-1	283574	02JAN2012 2300	Norm-ProposedD2	8563.99	105.18	116.370		116.45	0.000311	2.22	3852.53	663.17	0.16
Reach-1	283574	02JAN2012 2300	MidPt-CorrectedC	17000.01	105.18	119.202		119.34	0.000332	2.96	5751.79	677.66	0.18
Reach-1	283574	02JAN2012 2300	MidPt-ProposedD1	16999.99	105.18	119.202		119.34	0.000332	2.96	5751.79	677.66	0.18
Reach-1	283574	02JAN2012 2300	MidPt-ProposedD2	17000.04	105.18	119.296		119.43	0.000320	2.92	5815.51	678.09	0.18
Reach-1	283574	02JAN2012 2300	Crest-CorrectedC	26000.01	105.18	122.301		122.47	0.000281	3.30	7872.33	690.91	0.17
Reach-1	283574	02JAN2012 2300	Crest-ProposedD1	26000.03	105.18	122.301		122.47	0.000281	3.30	7872.33	690.91	0.17
Reach-1	283574	02JAN2012 2300	Crest-ProposedD2	26000.02	105.18	122.380		122.55	0.000274	3.28	7926.99	691.24	0.17
Reach-1	283490	02JAN2012 2300	Norm-CorrectedC	8564.04	104.94	116.205		116.31	0.000525	2.60	3297.06	662.92	0.21
Reach-1	283490	02JAN2012 2300	Norm-ProposedD1	8564.02	104.94	116.205		116.31	0.000525	2.60	3297.06	662.92	0.21
Reach-1	283490	02JAN2012 2300	Norm-ProposedD2	8563.99	104.94	116.309		116.41	0.000492	2.54	3366.17	663.61	0.20
Reach-1	283490	02JAN2012 2300	MidPt-CorrectedC	17000.00	104.94	119.138		119.30	0.000483	3.23	5268.69	679.98	0.20
Reach-1	283490	02JAN2012 2300	MidPt-ProposedD1	17000.01	104.94	119.138		119.30	0.000483	3.23	5268.69	679.98	0.20
Reach-1	283490	02JAN2012 2300	MidPt-ProposedD2	17000.00	104.94	119.235		119.39	0.000465	3.19	5334.27	680.45	0.20
Reach-1	283490	02JAN2012 2300	Crest-CorrectedC	26000.02	104.94	122.247		122.44	0.000402	3.51	7405.77	695.04	0.19
Reach-1	283490	02JAN2012 2300	Crest-ProposedD1	25999.99	104.94	122.247		122.44	0.000402	3.51	7405.77	695.04	0.19
Reach-1	283490	02JAN2012 2300	Crest-ProposedD2	25999.99	104.94	122.327		122.52	0.000394	3.48	7461.60	695.38	0.19
Reach-1	283342	02JAN2012 2300	Norm-CorrectedC	8564.03	107.64	116.147		116.24	0.000433	2.42	3541.01	690.43	0.19
Reach-1	283342	02JAN2012 2300	Norm-ProposedD1	8564.01	107.64	116.147		116.24	0.000433	2.42	3541.01	690.43	0.19

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	283342	02JAN2012 2300	Norm-ProposedD2	8563.99	107.64	116.256		116.34	0.000405	2.37	3615.82	691.15	0.18
Reach-1	283342	02JAN2012 2300	MidPt-CorrectedC	16999.99	107.64	119.093		119.24	0.000386	3.03	5603.11	709.81	0.19
Reach-1	283342	02JAN2012 2300	MidPt-ProposedD1	17000.00	107.64	119.093		119.24	0.000386	3.03	5603.11	709.81	0.19
Reach-1	283342	02JAN2012 2300	MidPt-ProposedD2	16999.99	107.64	119.191		119.33	0.000371	3.00	5672.91	710.38	0.19
Reach-1	283342	02JAN2012 2300	Crest-CorrectedC	26000.01	107.64	122.213		122.38	0.000335	3.32	7842.52	761.87	0.18
Reach-1	283342	02JAN2012 2300	Crest-ProposedD1	25999.96	107.64	122.213		122.38	0.000335	3.32	7842.52	761.87	0.18
Reach-1	283342	02JAN2012 2300	Crest-ProposedD2	26000.02	107.64	122.294		122.46	0.000327	3.29	7901.46	763.39	0.18
Reach-1	283203	02JAN2012 2300	Norm-CorrectedC	8564.01	106.22	116.114		116.19	0.000299	2.15	3974.19	697.17	0.16
Reach-1	283203	02JAN2012 2300	Norm-ProposedD1	8563.98	106.22	116.114		116.19	0.000299	2.15	3974.19	697.17	0.16
Reach-1	283203	02JAN2012 2300	Norm-ProposedD2	8564.00	106.22	116.224		116.29	0.000281	2.11	4050.92	698.06	0.15
Reach-1	283203	02JAN2012 2300	MidPt-CorrectedC	17000.02	106.22	119.064		119.19	0.000299	2.80	6061.01	764.84	0.17
Reach-1	283203	02JAN2012 2300	MidPt-ProposedD1	16999.99	106.22	119.064		119.19	0.000299	2.80	6061.01	764.84	0.17
Reach-1	283203	02JAN2012 2300	MidPt-ProposedD2	17000.01	106.22	119.163		119.28	0.000288	2.77	6131.76	766.85	0.17
Reach-1	283203	02JAN2012 2300	Crest-CorrectedC	26000.00	106.22	122.190		122.34	0.000251	3.12	8323.98	824.68	0.16
Reach-1	283203	02JAN2012 2300	Crest-ProposedD1	26000.00	106.22	122.190		122.34	0.000251	3.12	8323.98	824.68	0.16
Reach-1	283203	02JAN2012 2300	Crest-ProposedD2	25999.98	106.22	122.271		122.42	0.000245	3.10	8383.41	826.12	0.16
Reach-1	283179	02JAN2012 2300	Norm-CorrectedC	8564.00	106.20	116.116		116.18	0.000241	2.02	4232.75	693.67	0.14
Reach-1	283179	02JAN2012 2300	Norm-ProposedD1	8564.01	106.20	116.116		116.18	0.000241	2.02	4232.68	693.67	0.14
Reach-1	283179	02JAN2012 2300	Norm-ProposedD2	8564.01	107.82	116.179		116.29	0.000436	2.62	3264.91	564.42	0.19
Reach-1	283179	02JAN2012 2300	MidPt-CorrectedC	17000.00	106.20	119.067		119.18	0.000260	2.70	6307.53	756.49	0.16
Reach-1	283179	02JAN2012 2300	MidPt-ProposedD1	16999.98	106.20	119.067		119.18	0.000260	2.70	6307.53	756.49	0.16
Reach-1	283179	02JAN2012 2300	MidPt-ProposedD2	17000.01	107.82	119.090		119.27	0.000451	3.45	4926.68	622.05	0.21
Reach-1	283179	02JAN2012 2300	Crest-CorrectedC	26000.01	106.20	122.192		122.34	0.000227	3.04	8556.81	834.29	0.16
Reach-1	283179	02JAN2012 2300	Crest-ProposedD1	26000.01	106.20	122.192		122.34	0.000227	3.04	8556.81	834.29	0.16
Reach-1	283179	02JAN2012 2300	Crest-ProposedD2	25999.99	107.82	122.182		122.41	0.000384	3.86	6727.78	694.81	0.20
Reach-1	283169	02JAN2012 2300	Norm-CorrectedC	8564.00	106.15	116.115		116.18	0.000232	2.00	4277.10	692.45	0.14
Reach-1	283169	02JAN2012 2300	Norm-ProposedD1	8564.01	106.15	116.115		116.18	0.000232	2.00	4277.10	692.45	0.14
Reach-1	283169	02JAN2012 2300	Norm-ProposedD2	8564.01	107.38	116.176		116.28	0.000423	2.60	3295.96	564.31	0.19
Reach-1	283169	02JAN2012 2300	MidPt-CorrectedC	16999.99	106.15	119.066		119.18	0.000254	2.68	6348.98	755.29	0.16
Reach-1	283169	02JAN2012 2300	MidPt-ProposedD1	16999.98	106.15	119.066		119.18	0.000254	2.68	6348.98	755.29	0.16
Reach-1	283169	02JAN2012 2300	MidPt-ProposedD2	17000.00	107.38	119.088		119.27	0.000441	3.43	4959.15	622.09	0.21
Reach-1	283169	02JAN2012 2300	Crest-CorrectedC	26000.01	106.15	122.191		122.33	0.000223	3.02	8595.31	832.19	0.15
Reach-1	283169	02JAN2012 2300	Crest-ProposedD1	26000.01	106.15	122.191		122.33	0.000223	3.02	8595.31	832.19	0.15
Reach-1	283169	02JAN2012 2300	Crest-ProposedD2	26000.00	107.38	122.181		122.41	0.000378	3.84	6762.90	694.52	0.20
Reach-1	283139	02JAN2012 2300	Norm-CorrectedC	8564.00	104.58	116.104		116.17	0.000257	2.07	4136.81	687.25	0.15
Reach-1	283139	02JAN2012 2300	Norm-ProposedD1	8564.00	104.58	116.104		116.17	0.000257	2.07	4136.81	687.25	0.15
Reach-1	283139	02JAN2012 2300	Norm-ProposedD2	8564.01	104.58	116.126		116.27	0.000661	3.02	2831.38	539.44	0.23
Reach-1	283139	02JAN2012 2300	MidPt-CorrectedC	17000.03	104.58	119.054		119.17	0.000275	2.74	6198.25	749.77	0.16
Reach-1	283139	02JAN2012 2300	MidPt-ProposedD1	17000.00	104.58	119.054		119.17	0.000275	2.74	6198.25	749.77	0.16
Reach-1	283139	02JAN2012 2300	MidPt-ProposedD2	17000.00	104.58	119.028		119.26	0.000615	3.84	4423.94	556.65	0.24
Reach-1	283139	02JAN2012 2300	Crest-CorrectedC	25999.98	104.58	122.180		122.33	0.000237	3.08	8442.55	816.17	0.16
Reach-1	283139	02JAN2012 2300	Crest-ProposedD1	25999.98	104.58	122.180		122.33	0.000237	3.08	8442.55	816.17	0.16
Reach-1	283139	02JAN2012 2300	Crest-ProposedD2	25999.99	104.58	122.124		122.40	0.000492	4.22	6168.05	569.78	0.23
Reach-1	283093	02JAN2012 2300	Norm-CorrectedC	8564.00	104.60	116.089		116.16	0.000283	2.12	4046.23	698.49	0.15
Reach-1	283093	02JAN2012 2300	Norm-ProposedD1	8563.99	104.60	116.089		116.16	0.000283	2.12	4046.23	698.49	0.15
Reach-1	283093	02JAN2012 2300	Norm-ProposedD2	8564.01	104.60	116.106		116.24	0.000637	2.92	2934.51	573.89	0.23
Reach-1	283093	02JAN2012 2300	MidPt-CorrectedC	17000.03	104.60	119.038		119.16	0.000290	2.77	6143.54	758.65	0.17
Reach-1	283093	02JAN2012 2300	MidPt-ProposedD1	16999.99	104.60	119.038		119.16	0.000290	2.77	6143.54	758.65	0.17
Reach-1	283093	02JAN2012 2300	MidPt-ProposedD2	17000.01	104.60	119.021		119.23	0.000572	3.67	4636.93	593.19	0.23
Reach-1	283093	02JAN2012 2300	Crest-CorrectedC	26000.01	104.60	122.168		122.32	0.000272	3.08	8439.90	809.38	0.16
Reach-1	283093	02JAN2012 2300	Crest-ProposedD1	25999.99	104.60	122.168		122.32	0.000272	3.08	8439.90	809.38	0.16
Reach-1	283093	02JAN2012 2300	Crest-ProposedD2	26000.02	104.60	122.129		122.38	0.000508	3.99	6509.41	612.58	0.22
Reach-1	283052	02JAN2012 2300	Norm-CorrectedC	8564.04	105.26	116.085		116.15	0.000237	2.01	4262.93	696.67	0.14
Reach-1	283052	02JAN2012 2300	Norm-ProposedD1	8563.98	105.26	116.085		116.15	0.000237	2.01	4262.93	696.67	0.14
Reach-1	283052	02JAN2012 2300	Norm-ProposedD2	8563.99	105.26	116.083		116.21	0.000578	2.90	2957.28	543.85	0.22
Reach-1	283052	02JAN2012 2300	MidPt-CorrectedC	16999.99	105.26	119.035		119.15	0.000256	2.68	6344.11	743.63	0.16
Reach-1	283052	02JAN2012 2300	MidPt-ProposedD1	16999.99	105.26	119.035		119.15	0.000256	2.68	6344.11	743.63	0.16
Reach-1	283052	02JAN2012 2300	MidPt-ProposedD2	17000.01	105.26	118.991		119.21	0.000557	3.73	4558.02	556.65	0.23
Reach-1	283052	02JAN2012 2300	Crest-CorrectedC	26000.01	105.26	122.164		122.31	0.000224	3.02	8602.51	781.20	0.16
Reach-1	283052	02JAN2012 2300	Crest-ProposedD1	26000.01	105.26	122.164		122.31	0.000224	3.02	8602.51	781.20	0.16
Reach-1	283052	02JAN2012 2300	Crest-ProposedD2	26000.02	105.26	122.093		122.36	0.000457	4.12	6303.89	569.16	0.22
Reach-1	283001	02JAN2012 2300	Norm-CorrectedC	8564.02	105.29	116.078		116.14	0.000214	1.93	4430.36	704.19	0.14
Reach-1	283001	02JAN2012 2300	Norm-ProposedD1	8564.01	105.29	116.078		116.14	0.000214	1.93	4430.36	704.19	0.14
Reach-1	283001	02JAN2012 2300	Norm-ProposedD2	8563.99	105.29	116.061		116.19	0.000521	2.83	3029.70	535.36	0.21
Reach-1	283001	02JAN2012 2300	MidPt-CorrectedC	17000.02	105.29	119.028		119.13	0.000246	2.60	6530.69	759.40	0.15
Reach-1	283001	02JAN2012 2300	MidPt-ProposedD1	17000.01	105.29	119.028		119.13	0.000246	2.60	6530.69	759.40	0.15
Reach-1	283001	02JAN2012 2300	MidPt-ProposedD2	17000.00	105.29	118.967		119.18	0.000526	3.69	4602.84	546.89	0.22
Reach-1	283001	02JAN2012 2300	Crest-CorrectedC	26000.01	105.29	122.159		122.29	0.000232	2.95	8807.43	832.29	0.15
Reach-1	283001	02JAN2012 2300	Crest-ProposedD1	25999.96	105.29	122.159		122.29	0.000232	2.95	8807.43	832.29	0.15
Reach-1	283001	02JAN2012 2300	Crest-ProposedD2	26000.03	105.29	122.070		122.33	0.000460	4.12	6317.95	558.36	0.22
Reach-1	282937	02JAN2012 2300	Norm-CorrectedC	8564.01	107.24	116.050		116.12	0.000281	2.11	4065.43	705.10	0.15
Reach-1	282937	02JAN2012 2300	Norm-ProposedD1	8563.99	107.24	116.050		116.12	0.000281	2.11	4065.43	705.10	0.15
Reach-1	282937	02JAN2012 2300	Norm-ProposedD2	8564.00	107.24	115.985		116.14	0.000745	3.17	2697.45	522.35	0.25
Reach-1	282937	02JAN2012 2300	MidPt-CorrectedC	16999.99	107.24	118.996		119.11	0.000298	2.76	6169.95	774.14	0.17
Reach-1	282937	02JAN2012 2300	MidPt-ProposedD1	17000.02	107.24	118.997		119.11	0.000298	2.76	6170.02	774.14	0.17
Reach-1	282937	02JAN2012 2300	MidPt-ProposedD2	16999.99	107.24	118.886		119.14	0.000724	4.02	4232.25	535.41	0.25
Reach-1	282937	02JAN2012 2300	Crest-CorrectedC	26000.02	107.24	122.130		122.28	0.000260	3.09	8463.36	823.94	0.16
Reach-1	282937	02JAN2012 2300	Crest-ProposedD1	25999.96	107.24	122.130		122.28	0.000260	3.09	8463.36	823.94	0.16
Reach-1	282937	02JAN2012 2300	Crest-ProposedD2	26000.01	107.24	121.997		122.30	0.000605	4.39	5917.74	547.76	0.24
Reach-1	282912	02JAN2012 2300	Norm-CorrectedC	8564.01	108.10	116.030		116.11	0.000393	2.31	3706.02	729.71	0.18
Reach-1	282912	02JAN2012 2300	Norm-ProposedD1	8563.98	108.10	116.030		116.11	0.000393	2.31	3706.02	729.71	0.18
Reach-1	282912	02JAN2012 2300	Norm-ProposedD2	8564.01	108.80	115.957		116.13	0.000886	3.29	2599.86	548.82	0.27
Reach-1	282912	02JAN2012 2300	MidPt-CorrectedC	16999.99	108.10	118.977		119.11	0.000349	2.90	5861.55	795.32	0.18
Reach-1	282912	02JAN2012 2300	MidPt-ProposedD1	17000.01	108.10	118.977		119.11	0.000349	2.90	5861.55	795.32	0.18

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	282912	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.80	118.867		119.12	0.000731	4.05	4196.85	603.81	0.26
Reach-1	282912	02JAN2012 2300	Crest-CorrectedC	25999.99	108.10	122.116		122.27	0.000268	3.17	8291.11	888.71	0.17
Reach-1	282912	02JAN2012 2300	Crest-ProposedD1	25999.98	108.10	122.116		122.27	0.000268	3.17	8291.11	888.71	0.17
Reach-1	282912	02JAN2012 2300	Crest-ProposedD2	26000.01	108.80	121.988		122.29	0.000546	4.38	5947.65	657.57	0.24
Reach-1	282902	02JAN2012 2300	Norm-CorrectedC	8563.99	108.28	116.018		116.11	0.000464	2.42	3539.06	740.52	0.19
Reach-1	282902	02JAN2012 2300	Norm-ProposedD1	8563.99	108.28	116.018		116.11	0.000464	2.42	3539.06	740.52	0.19
Reach-1	282902	02JAN2012 2300	Norm-ProposedD2	8564.01	108.80	115.936		116.12	0.001005	3.41	2511.03	560.91	0.28
Reach-1	282902	02JAN2012 2300	MidPt-CorrectedC	17000.01	108.28	118.968		119.10	0.000383	2.97	5746.26	824.81	0.19
Reach-1	282902	02JAN2012 2300	MidPt-ProposedD1	17000.01	108.28	118.968		119.10	0.000383	2.97	5746.26	824.81	0.19
Reach-1	282902	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.80	118.850		119.11	0.000784	4.12	4124.07	608.67	0.27
Reach-1	282902	02JAN2012 2300	Crest-CorrectedC	26000.00	108.28	122.110		122.27	0.000285	3.21	8230.68	907.36	0.17
Reach-1	282902	02JAN2012 2300	Crest-ProposedD1	25999.98	108.28	122.110		122.27	0.000285	3.21	8230.68	907.36	0.17
Reach-1	282902	02JAN2012 2300	Crest-ProposedD2	26000.01	108.80	121.977		122.28	0.000572	4.41	5891.90	662.64	0.24
Reach-1	282874	02JAN2012 2300	Norm-CorrectedC	8564.00	108.58	115.973		116.10	0.000809	2.87	3154.52	835.26	0.25
Reach-1	282874	02JAN2012 2300	Norm-ProposedD1	8563.98	108.58	115.973		116.10	0.000809	2.87	3154.52	835.26	0.25
Reach-1	282874	02JAN2012 2300	Norm-ProposedD2	8564.00	108.58	115.973		116.10	0.000809	2.87	3154.52	835.26	0.25
Reach-1	282874	02JAN2012 2300	MidPt-CorrectedC	17000.02	108.58	118.941		119.10	0.000520	3.25	5674.05	860.88	0.21
Reach-1	282874	02JAN2012 2300	MidPt-ProposedD1	17000.00	108.58	118.941		119.10	0.000520	3.25	5674.05	860.88	0.21
Reach-1	282874	02JAN2012 2300	MidPt-ProposedD2	16999.98	108.58	118.941		119.10	0.000520	3.25	5674.05	860.88	0.21
Reach-1	282874	02JAN2012 2300	Crest-CorrectedC	25999.99	108.58	122.096		122.27	0.000353	3.40	8424.30	881.67	0.19
Reach-1	282874	02JAN2012 2300	Crest-ProposedD1	25999.99	108.58	122.096		122.27	0.000353	3.40	8424.30	881.67	0.19
Reach-1	282874	02JAN2012 2300	Crest-ProposedD2	26000.01	108.58	122.096		122.27	0.000353	3.40	8424.30	881.67	0.19
Reach-1	282707	02JAN2012 2300	Norm-CorrectedC	8564.01	108.26	115.673		115.89	0.001724	3.69	2319.18	674.60	0.35
Reach-1	282707	02JAN2012 2300	Norm-ProposedD1	8564.01	108.26	115.673		115.89	0.001724	3.69	2319.18	674.60	0.35
Reach-1	282707	02JAN2012 2300	Norm-ProposedD2	8563.99	108.26	115.673		115.89	0.001724	3.69	2319.18	674.60	0.35
Reach-1	282707	02JAN2012 2300	MidPt-CorrectedC	16999.97	108.26	118.760		118.98	0.000815	3.79	4485.51	714.48	0.27
Reach-1	282707	02JAN2012 2300	MidPt-ProposedD1	16999.98	108.26	118.760		118.98	0.000815	3.79	4485.51	714.48	0.27
Reach-1	282707	02JAN2012 2300	MidPt-ProposedD2	17000.02	108.26	118.760		118.98	0.000815	3.79	4485.51	714.48	0.27
Reach-1	282707	02JAN2012 2300	Crest-CorrectedC	26000.01	108.26	121.964		122.19	0.000507	3.82	6802.06	731.57	0.22
Reach-1	282707	02JAN2012 2300	Crest-ProposedD1	26000.02	108.26	121.964		122.19	0.000507	3.82	6802.06	731.57	0.22
Reach-1	282707	02JAN2012 2300	Crest-ProposedD2	25999.97	108.26	121.964		122.19	0.000507	3.82	6802.06	731.57	0.22
Reach-1	282424	02JAN2012 2300	Norm-CorrectedC	8564.01	108.13	115.453		115.56	0.000605	2.59	3307.79	748.11	0.22
Reach-1	282424	02JAN2012 2300	Norm-ProposedD1	8564.01	108.13	115.453		115.56	0.000605	2.59	3307.79	748.11	0.22
Reach-1	282424	02JAN2012 2300	Norm-ProposedD2	8564.02	108.13	115.453		115.56	0.000605	2.59	3307.79	748.11	0.22
Reach-1	282424	02JAN2012 2300	MidPt-CorrectedC	17000.02	108.13	118.674		118.81	0.000403	2.96	5747.38	766.11	0.19
Reach-1	282424	02JAN2012 2300	MidPt-ProposedD1	17000.03	108.13	118.674		118.81	0.000403	2.96	5747.38	766.11	0.19
Reach-1	282424	02JAN2012 2300	MidPt-ProposedD2	16999.97	108.13	118.674		118.81	0.000403	2.96	5747.38	766.11	0.19
Reach-1	282424	02JAN2012 2300	Crest-CorrectedC	26000.00	108.13	121.923		122.08	0.000298	3.15	8262.86	782.18	0.17
Reach-1	282424	02JAN2012 2300	Crest-ProposedD1	26000.00	108.13	121.923		122.08	0.000298	3.15	8262.86	782.18	0.17
Reach-1	282424	02JAN2012 2300	Crest-ProposedD2	26000.01	108.13	121.923		122.08	0.000298	3.15	8262.86	782.18	0.17
Reach-1	282071	02JAN2012 2300	Norm-CorrectedC	8564.00	111.09	115.004		115.17	0.001574	3.31	2588.79	816.79	0.33
Reach-1	282071	02JAN2012 2300	Norm-ProposedD1	8563.99	111.09	115.004		115.17	0.001574	3.31	2588.79	816.79	0.33
Reach-1	282071	02JAN2012 2300	Norm-ProposedD2	8563.99	111.09	115.004		115.17	0.001574	3.31	2588.79	816.79	0.33
Reach-1	282071	02JAN2012 2300	MidPt-CorrectedC	16999.97	111.09	118.490		118.64	0.000559	3.11	5470.89	836.35	0.21
Reach-1	282071	02JAN2012 2300	MidPt-ProposedD1	16999.94	111.09	118.490		118.64	0.000559	3.11	5470.89	836.35	0.21
Reach-1	282071	02JAN2012 2300	MidPt-ProposedD2	17000.01	111.09	118.490		118.64	0.000559	3.11	5470.89	836.35	0.21
Reach-1	282071	02JAN2012 2300	Crest-CorrectedC	26000.02	111.09	121.804		121.96	0.000373	3.14	8272.55	854.24	0.18
Reach-1	282071	02JAN2012 2300	Crest-ProposedD1	26000.00	111.09	121.804		121.96	0.000373	3.14	8272.55	854.24	0.18
Reach-1	282071	02JAN2012 2300	Crest-ProposedD2	25999.96	111.09	121.804		121.96	0.000373	3.14	8272.55	854.24	0.18
Reach-1	281647	02JAN2012 2300	Norm-CorrectedC	8564.00	105.74	114.654	111.56	114.74	0.000475	2.31	3703.20	827.16	0.19
Reach-1	281647	02JAN2012 2300	Norm-ProposedD1	8563.99	105.74	114.654	111.56	114.74	0.000475	2.31	3703.20	827.16	0.19
Reach-1	281647	02JAN2012 2300	Norm-ProposedD2	8564.00	105.74	114.654	111.56	114.74	0.000475	2.31	3703.20	827.16	0.19
Reach-1	281647	02JAN2012 2300	MidPt-CorrectedC	17000.05	105.74	118.370	112.48	118.47	0.000253	2.49	6813.68	844.96	0.15
Reach-1	281647	02JAN2012 2300	MidPt-ProposedD1	17000.05	105.74	118.370	112.48	118.47	0.000253	2.49	6813.68	844.96	0.15
Reach-1	281647	02JAN2012 2300	MidPt-ProposedD2	17000.01	105.74	118.370	112.48	118.47	0.000253	2.49	6813.68	844.96	0.15
Reach-1	281647	02JAN2012 2300	Crest-CorrectedC	25999.97	105.74	121.726	113.28	121.84	0.000189	2.69	9672.72	858.73	0.14
Reach-1	281647	02JAN2012 2300	Crest-ProposedD1	26000.02	105.74	121.726	113.28	121.84	0.000189	2.69	9672.72	858.73	0.14
Reach-1	281647	02JAN2012 2300	Crest-ProposedD2	26000.04	105.74	121.726	113.28	121.84	0.000189	2.69	9672.72	858.73	0.14
Reach-1	281538			Bridge									
Reach-1	281423	02JAN2012 2300	Norm-CorrectedC	8564.00	105.74	114.343		114.44	0.000613	2.47	3473.23	852.85	0.22
Reach-1	281423	02JAN2012 2300	Norm-ProposedD1	8563.99	105.74	114.343		114.44	0.000613	2.47	3473.23	852.85	0.22
Reach-1	281423	02JAN2012 2300	Norm-ProposedD2	8564.00	105.74	114.343		114.44	0.000613	2.47	3473.31	852.85	0.22
Reach-1	281423	02JAN2012 2300	MidPt-CorrectedC	17000.05	105.74	118.226		118.32	0.000261	2.48	6870.60	919.36	0.16
Reach-1	281423	02JAN2012 2300	MidPt-ProposedD1	17000.05	105.74	118.226		118.32	0.000261	2.48	6870.60	919.36	0.16
Reach-1	281423	02JAN2012 2300	MidPt-ProposedD2	17000.01	105.74	118.226		118.32	0.000261	2.48	6870.60	919.36	0.16
Reach-1	281423	02JAN2012 2300	Crest-CorrectedC	25999.97	105.74	121.538		121.65	0.000190	2.65	9845.03	960.91	0.14
Reach-1	281423	02JAN2012 2300	Crest-ProposedD1	26000.02	105.74	121.538		121.65	0.000190	2.65	9845.03	960.91	0.14
Reach-1	281423	02JAN2012 2300	Crest-ProposedD2	26000.04	105.74	121.538		121.65	0.000190	2.65	9845.03	960.91	0.14
Reach-1	279961	02JAN2012 2300	Norm-CorrectedC	8564.01	101.65	113.809		113.86	0.000177	1.83	4680.74	706.16	0.13
Reach-1	279961	02JAN2012 2300	Norm-ProposedD1	8564.01	101.65	113.809		113.86	0.000177	1.83	4680.74	706.16	0.13
Reach-1	279961	02JAN2012 2300	Norm-ProposedD2	8564.00	101.65	113.809		113.86	0.000177	1.83	4680.74	706.16	0.13
Reach-1	279961	02JAN2012 2300	MidPt-CorrectedC	16999.96	101.65	117.951		118.03	0.000140	2.23	7626.85	715.48	0.12
Reach-1	279961	02JAN2012 2300	MidPt-ProposedD1	16999.96	101.65	117.951		118.03	0.000140	2.23	7626.85	715.48	0.12
Reach-1	279961	02JAN2012 2300	MidPt-ProposedD2	16999.99	101.65	117.951		118.03	0.000140	2.23	7626.85	715.48	0.12
Reach-1	279961	02JAN2012 2300	Crest-CorrectedC	26000.02	101.65	121.306		121.41	0.000134	2.59	10038.52	722.39	0.12
Reach-1	279961	02JAN2012 2300	Crest-ProposedD1	25999.99	101.65	121.306		121.41	0.000134	2.59	10038.52	722.39	0.12
Reach-1	279961	02JAN2012 2300	Crest-ProposedD2	25999.96	101.65	121.306		121.41	0.000134	2.59	10038.52	722.39	0.12
Reach-1	279605	02JAN2012 2300	Norm-CorrectedC	8563.98	101.65	113.744		113.80	0.000183	1.85	4634.85	705.91	0.13
Reach-1	279605	02JAN2012 2300	Norm-ProposedD1	8563.98	101.65	113.744		113.80	0.000183	1.85	4634.85	705.91	0.13
Reach-1	279605	02JAN2012 2300	Norm-ProposedD2	8564.00	101.65	113.744		113.80	0.000183	1.85	4634.85	705.91	0.13
Reach-1	279605	02JAN2012 2300	MidPt-CorrectedC	17000.04	101.65	117.900		117.98	0.000142	2.24	7590.29	715.38	0.12
Reach-1	279605	02JAN2012 2300	MidPt-ProposedD1	17000.03	101.65	117.900		117.98	0.000142	2.24	7590.29	715.38	0.12
Reach-1	279605	02JAN2012 2300	MidPt-ProposedD2	16999.98	101.65	117.900		117.98	0.000142	2.24	7590.29	715.38	0.12

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	279605	02JAN2012 2300	Crest-CorrectedC	26000.00	101.65	121.257		121.36	0.000135	2.60	10003.48	722.29	0.12
Reach-1	279605	02JAN2012 2300	Crest-ProposedD1	26000.03	101.65	121.257		121.36	0.000135	2.60	10003.48	722.29	0.12
Reach-1	279605	02JAN2012 2300	Crest-ProposedD2	26000.02	101.65	121.257		121.36	0.000135	2.60	10003.48	722.29	0.12
Reach-1	278919	02JAN2012 2300	Norm-CorrectedC	8564.01	101.65	113.612		113.67	0.000196	1.88	4551.09	711.45	0.13
Reach-1	278919	02JAN2012 2300	Norm-ProposedD1	8564.01	101.65	113.612		113.67	0.000196	1.88	4551.09	711.45	0.13
Reach-1	278919	02JAN2012 2300	Norm-ProposedD2	8564.00	101.65	113.612		113.67	0.000196	1.88	4551.09	711.45	0.13
Reach-1	278919	02JAN2012 2300	MidPt-CorrectedC	16999.98	101.65	117.801		117.88	0.000148	2.24	7589.33	735.92	0.12
Reach-1	278919	02JAN2012 2300	MidPt-ProposedD1	16999.98	101.65	117.801		117.88	0.000148	2.24	7589.33	735.92	0.12
Reach-1	278919	02JAN2012 2300	MidPt-ProposedD2	17000.02	101.65	117.801		117.88	0.000148	2.24	7589.33	735.92	0.12
Reach-1	278919	02JAN2012 2300	Crest-CorrectedC	26000.01	101.65	121.166		121.27	0.000137	2.58	10092.63	788.00	0.12
Reach-1	278919	02JAN2012 2300	Crest-ProposedD1	25999.95	101.65	121.166		121.27	0.000137	2.58	10092.63	788.00	0.12
Reach-1	278919	02JAN2012 2300	Crest-ProposedD2	25999.98	101.65	121.166		121.27	0.000137	2.58	10092.63	788.00	0.12
Reach-1	277724	02JAN2012 2300	Norm-CorrectedC	8564.00	100.07	113.484	104.57	113.51	0.000061	1.35	6362.60	684.93	0.08
Reach-1	277724	02JAN2012 2300	Norm-ProposedD1	8563.99	100.07	113.484	104.57	113.51	0.000061	1.35	6362.60	684.93	0.08
Reach-1	277724	02JAN2012 2300	Norm-ProposedD2	8563.99	100.07	113.484	104.57	113.51	0.000061	1.35	6362.60	684.93	0.08
Reach-1	277724	02JAN2012 2300	MidPt-CorrectedC	17000.02	100.07	117.696	106.06	117.75	0.000071	1.83	9271.30	696.31	0.09
Reach-1	277724	02JAN2012 2300	MidPt-ProposedD1	17000.01	100.07	117.696	106.06	117.75	0.000071	1.83	9271.30	696.31	0.09
Reach-1	277724	02JAN2012 2300	MidPt-ProposedD2	16999.99	100.07	117.696	106.06	117.75	0.000071	1.83	9271.23	696.31	0.09
Reach-1	277724	02JAN2012 2300	Crest-CorrectedC	25999.98	100.07	121.062	107.38	121.14	0.000079	2.24	11630.46	705.41	0.10
Reach-1	277724	02JAN2012 2300	Crest-ProposedD1	26000.05	100.07	121.062	107.38	121.14	0.000079	2.24	11630.46	705.41	0.10
Reach-1	277724	02JAN2012 2300	Crest-ProposedD2	26000.01	100.07	121.062	107.38	121.14	0.000079	2.24	11630.46	705.41	0.10
Reach-1	277625			Bridge									
Reach-1	277512	02JAN2012 2300	Norm-CorrectedC	8564.00	100.07	113.463		113.49	0.000062	1.35	6347.94	684.88	0.08
Reach-1	277512	02JAN2012 2300	Norm-ProposedD1	8563.99	100.07	113.463		113.49	0.000062	1.35	6347.94	684.88	0.08
Reach-1	277512	02JAN2012 2300	Norm-ProposedD2	8563.99	100.07	113.463		113.49	0.000062	1.35	6347.94	684.88	0.08
Reach-1	277512	02JAN2012 2300	MidPt-CorrectedC	17000.02	100.07	117.668		117.72	0.000071	1.84	9251.67	696.24	0.09
Reach-1	277512	02JAN2012 2300	MidPt-ProposedD1	17000.01	100.07	117.668		117.72	0.000071	1.84	9251.67	696.24	0.09
Reach-1	277512	02JAN2012 2300	MidPt-ProposedD2	16999.99	100.07	117.668		117.72	0.000071	1.84	9251.67	696.24	0.09
Reach-1	277512	02JAN2012 2300	Crest-CorrectedC	25999.98	100.07	121.025		121.10	0.000080	2.24	11604.01	705.31	0.10
Reach-1	277512	02JAN2012 2300	Crest-ProposedD1	26000.05	100.07	121.025		121.10	0.000080	2.24	11604.01	705.31	0.10
Reach-1	277512	02JAN2012 2300	Crest-ProposedD2	26000.01	100.07	121.025		121.10	0.000080	2.24	11604.01	705.31	0.10
Reach-1	277500	02JAN2012 2300	Norm-CorrectedC	8563.99	101.08	113.459	104.50	113.49	0.000068	1.43	5992.40	637.49	0.08
Reach-1	277500	02JAN2012 2300	Norm-ProposedD1	8563.99	101.08	113.459	104.50	113.49	0.000068	1.43	5992.40	637.49	0.08
Reach-1	277500	02JAN2012 2300	Norm-ProposedD2	8564.00	101.08	113.459	104.50	113.49	0.000068	1.43	5992.40	637.49	0.08
Reach-1	277500	02JAN2012 2300	MidPt-CorrectedC	16999.99	101.08	117.660	105.87	117.72	0.000080	1.95	8714.85	658.43	0.09
Reach-1	277500	02JAN2012 2300	MidPt-ProposedD1	17000.02	101.08	117.660	105.87	117.72	0.000080	1.95	8714.85	658.43	0.09
Reach-1	277500	02JAN2012 2300	MidPt-ProposedD2	16999.99	101.08	117.660	105.87	117.72	0.000080	1.95	8714.85	658.43	0.09
Reach-1	277500	02JAN2012 2300	Crest-CorrectedC	25999.96	101.08	121.014	107.01	121.10	0.000091	2.37	10951.31	673.52	0.10
Reach-1	277500	02JAN2012 2300	Crest-ProposedD1	26000.05	101.08	121.014	107.01	121.10	0.000091	2.37	10951.31	673.52	0.10
Reach-1	277500	02JAN2012 2300	Crest-ProposedD2	26000.00	101.08	121.014	107.01	121.10	0.000091	2.37	10951.31	673.52	0.10
Reach-1	277397			Bridge									
Reach-1	277287	02JAN2012 2300	Norm-CorrectedC	8563.99	102.92	113.365		113.41	0.000140	1.79	4771.50	620.40	0.11
Reach-1	277287	02JAN2012 2300	Norm-ProposedD1	8563.99	102.92	113.365		113.41	0.000140	1.79	4771.50	620.40	0.11
Reach-1	277287	02JAN2012 2300	Norm-ProposedD2	8564.00	102.92	113.365		113.41	0.000140	1.79	4771.50	620.40	0.11
Reach-1	277287	02JAN2012 2300	MidPt-CorrectedC	16999.99	102.92	117.549		117.63	0.000133	2.29	7439.68	648.70	0.12
Reach-1	277287	02JAN2012 2300	MidPt-ProposedD1	17000.02	102.92	117.549		117.63	0.000133	2.29	7439.68	648.70	0.12
Reach-1	277287	02JAN2012 2300	MidPt-ProposedD2	16999.99	102.92	117.549		117.63	0.000133	2.29	7439.68	648.70	0.12
Reach-1	277287	02JAN2012 2300	Crest-CorrectedC	25999.96	102.92	120.889		121.00	0.000137	2.70	9635.60	665.97	0.13
Reach-1	277287	02JAN2012 2300	Crest-ProposedD1	26000.05	102.92	120.889		121.00	0.000137	2.70	9635.60	665.97	0.13
Reach-1	277287	02JAN2012 2300	Crest-ProposedD2	26000.00	102.92	120.889		121.00	0.000137	2.70	9635.60	665.97	0.13
Reach-1	276335	02JAN2012 2300	Norm-CorrectedC	8564.02	101.04	113.260		113.30	0.000094	1.67	5134.59	554.22	0.10
Reach-1	276335	02JAN2012 2300	Norm-ProposedD1	8564.02	101.04	113.260		113.30	0.000094	1.67	5134.59	554.22	0.10
Reach-1	276335	02JAN2012 2300	Norm-ProposedD2	8564.00	101.04	113.260		113.30	0.000094	1.67	5134.59	554.22	0.10
Reach-1	276335	02JAN2012 2300	MidPt-CorrectedC	17000.00	101.04	117.434		117.51	0.000110	2.27	7481.58	566.88	0.11
Reach-1	276335	02JAN2012 2300	MidPt-ProposedD1	16999.99	101.04	117.434		117.51	0.000110	2.27	7481.58	566.88	0.11
Reach-1	276335	02JAN2012 2300	MidPt-ProposedD2	17000.02	101.04	117.434		117.51	0.000110	2.27	7481.58	566.88	0.11
Reach-1	276335	02JAN2012 2300	Crest-CorrectedC	26000.03	101.04	120.759		120.88	0.000123	2.77	9375.14	572.14	0.12
Reach-1	276335	02JAN2012 2300	Crest-ProposedD1	25999.97	101.04	120.759		120.88	0.000123	2.77	9375.14	572.14	0.12
Reach-1	276335	02JAN2012 2300	Crest-ProposedD2	26000.02	101.04	120.759		120.88	0.000123	2.77	9375.14	572.14	0.12
Reach-1	276088	02JAN2012 2300	Norm-CorrectedC	8563.99	101.04	113.236		113.28	0.000089	1.69	5055.75	511.75	0.09
Reach-1	276088	02JAN2012 2300	Norm-ProposedD1	8563.97	101.04	113.236		113.28	0.000089	1.69	5055.75	511.75	0.09
Reach-1	276088	02JAN2012 2300	Norm-ProposedD2	8564.03	101.04	113.236		113.28	0.000089	1.69	5055.75	511.75	0.09
Reach-1	276088	02JAN2012 2300	MidPt-CorrectedC	17000.02	101.04	117.401		117.49	0.000111	2.36	7214.73	522.44	0.11
Reach-1	276088	02JAN2012 2300	MidPt-ProposedD1	17000.04	101.04	117.401		117.49	0.000111	2.36	7214.73	522.44	0.11
Reach-1	276088	02JAN2012 2300	MidPt-ProposedD2	17000.02	101.04	117.401		117.49	0.000111	2.36	7214.73	522.44	0.11
Reach-1	276088	02JAN2012 2300	Crest-CorrectedC	25999.96	101.04	120.717		120.85	0.000130	2.90	8955.90	527.89	0.12
Reach-1	276088	02JAN2012 2300	Crest-ProposedD1	26000.02	101.04	120.717		120.85	0.000130	2.90	8955.90	527.89	0.12
Reach-1	276088	02JAN2012 2300	Crest-ProposedD2	25999.99	101.04	120.717		120.85	0.000130	2.90	8955.90	527.89	0.12
Reach-1	275472	02JAN2012 2300	Norm-CorrectedC	8564.01	101.04	113.180		113.23	0.000091	1.70	5027.15	511.50	0.10
Reach-1	275472	02JAN2012 2300	Norm-ProposedD1	8564.02	101.04	113.180		113.23	0.000091	1.70	5027.15	511.50	0.10
Reach-1	275472	02JAN2012 2300	Norm-ProposedD2	8563.98	101.04	113.180		113.23	0.000091	1.70	5027.15	511.50	0.10
Reach-1	275472	02JAN2012 2300	MidPt-CorrectedC	17000.00	101.04	117.331		117.42	0.000113	2.37	7243.83	553.51	0.11
Reach-1	275472	02JAN2012 2300	MidPt-ProposedD1	16999.99	101.04	117.331		117.42	0.000113	2.37	7243.83	553.51	0.11
Reach-1	275472	02JAN2012 2300	MidPt-ProposedD2	17000.00	101.04	117.331		117.42	0.000113	2.37	7243.83	553.51	0.11
Reach-1	275472	02JAN2012 2300	Crest-CorrectedC	26000.02	101.04	120.636		120.77	0.000131	2.91	9103.04	570.71	0.12
Reach-1	275472	02JAN2012 2300	Crest-ProposedD1	25999.98	101.04	120.636		120.77	0.000131	2.91	9103.04	570.71	0.12
Reach-1	275472	02JAN2012 2300	Crest-ProposedD2	26000.05	101.04	120.636		120.77	0.000131	2.91	9103.04	570.71	0.12
Reach-1	274472	02JAN2012 2300	Norm-CorrectedC	8564.00	101.04	113.085		113.13	0.000103	1.67	5121.91	585.85	0.10
Reach-1	274472	02JAN2012 2300	Norm-ProposedD1	8563.98	101.04	113.085		113.13	0.000103	1.67	5121.91	585.85	0.10
Reach-1	274472	02JAN2012 2300	Norm-ProposedD2	8564.02	101.04	113.085		113.13	0.000103	1.67	5121.91	585.85	0.10
Reach-1	274472	02JAN2012 2300	MidPt-CorrectedC	16999.99	101.04	117.227		117.30	0.000115	2.22	7644.07	620.90	0.11
Reach-1	274472	02JAN2012 2300	MidPt-ProposedD1	17000.04	101.04	117.227		117.30	0.000115	2.22	7644.07	620.90	0.11

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	274472	02JAN2012 2300	MidPt-ProposedD2	17000.01	101.04	117.227		117.30	0.000115	2.22	7644.07	620.90	0.11
Reach-1	274472	02JAN2012 2300	Crest-CorrectedC	25999.99	101.04	120.527		120.64	0.000126	2.68	9719.59	662.25	0.12
Reach-1	274472	02JAN2012 2300	Crest-ProposedD1	26000.03	101.04	120.527		120.64	0.000126	2.68	9719.59	662.25	0.12
Reach-1	274472	02JAN2012 2300	Crest-ProposedD2	25999.97	101.04	120.527		120.64	0.000126	2.68	9719.59	662.25	0.12
Reach-1	273472	02JAN2012 2300	Norm-CorrectedC	8564.01	99.91	113.001		113.04	0.000080	1.53	5579.25	599.29	0.09
Reach-1	273472	02JAN2012 2300	Norm-ProposedD1	8564.02	99.91	113.001		113.04	0.000080	1.53	5579.25	599.29	0.09
Reach-1	273472	02JAN2012 2300	Norm-ProposedD2	8563.99	99.91	113.001		113.04	0.000080	1.53	5579.25	599.29	0.09
Reach-1	273472	02JAN2012 2300	MidPt-CorrectedC	17000.01	99.91	117.129		117.20	0.000098	2.09	8128.34	635.67	0.10
Reach-1	273472	02JAN2012 2300	MidPt-ProposedD1	16999.98	99.91	117.129		117.20	0.000098	2.09	8128.34	635.67	0.10
Reach-1	273472	02JAN2012 2300	MidPt-ProposedD2	17000.02	99.91	117.129		117.20	0.000098	2.09	8128.34	635.67	0.10
Reach-1	273472	02JAN2012 2300	Crest-CorrectedC	26000.03	99.91	120.420		120.52	0.000112	2.53	10267.85	664.66	0.11
Reach-1	273472	02JAN2012 2300	Crest-ProposedD1	25999.98	99.91	120.420		120.52	0.000112	2.53	10267.85	664.66	0.11
Reach-1	273472	02JAN2012 2300	Crest-ProposedD2	26000.03	99.91	120.420		120.52	0.000112	2.53	10267.85	664.66	0.11
Reach-1	272318	02JAN2012 2300	Norm-CorrectedC	8564.00	99.91	112.905		112.95	0.000079	1.63	5245.50	508.71	0.09
Reach-1	272318	02JAN2012 2300	Norm-ProposedD1	8563.99	99.91	112.905		112.95	0.000079	1.63	5245.50	508.71	0.09
Reach-1	272318	02JAN2012 2300	Norm-ProposedD2	8564.01	99.91	112.905		112.95	0.000079	1.63	5245.50	508.71	0.09
Reach-1	272318	02JAN2012 2300	MidPt-CorrectedC	17000.01	99.91	116.998		117.08	0.000104	2.31	7349.23	519.31	0.11
Reach-1	272318	02JAN2012 2300	MidPt-ProposedD1	17000.03	99.91	116.998		117.08	0.000104	2.31	7349.23	519.31	0.11
Reach-1	272318	02JAN2012 2300	MidPt-ProposedD2	16999.99	99.91	116.998		117.08	0.000104	2.31	7349.23	519.31	0.11
Reach-1	272318	02JAN2012 2300	Crest-CorrectedC	25999.98	99.91	120.255		120.38	0.000125	2.87	9054.51	527.75	0.12
Reach-1	272318	02JAN2012 2300	Crest-ProposedD1	26000.02	99.91	120.255		120.38	0.000125	2.87	9054.51	527.75	0.12
Reach-1	272318	02JAN2012 2300	Crest-ProposedD2	25999.99	99.91	120.255		120.38	0.000125	2.87	9054.51	527.75	0.12
Reach-1	271472	02JAN2012 2300	Norm-CorrectedC	8564.00	99.91	112.845		112.88	0.000071	1.57	5438.75	583.70	0.09
Reach-1	271472	02JAN2012 2300	Norm-ProposedD1	8564.00	99.91	112.845		112.88	0.000071	1.57	5438.75	583.70	0.09
Reach-1	271472	02JAN2012 2300	Norm-ProposedD2	8563.99	99.91	112.845		112.88	0.000071	1.57	5438.75	583.70	0.09
Reach-1	271472	02JAN2012 2300	MidPt-CorrectedC	17000.02	99.91	116.928		117.00	0.000086	2.16	7885.50	608.79	0.11
Reach-1	271472	02JAN2012 2300	MidPt-ProposedD1	16999.96	99.91	116.928		117.00	0.000086	2.16	7885.50	608.79	0.11
Reach-1	271472	02JAN2012 2300	MidPt-ProposedD2	17000.02	99.91	116.928		117.00	0.000086	2.16	7885.50	608.79	0.11
Reach-1	271472	02JAN2012 2300	Crest-CorrectedC	26000.01	99.91	120.181		120.29	0.000099	2.63	9893.55	628.55	0.12
Reach-1	271472	02JAN2012 2300	Crest-ProposedD1	25999.96	99.91	120.181		120.29	0.000099	2.63	9893.55	628.55	0.12
Reach-1	271472	02JAN2012 2300	Crest-ProposedD2	26000.03	99.91	120.181		120.29	0.000099	2.63	9893.55	628.55	0.12
Reach-1	270472	02JAN2012 2300	Norm-CorrectedC	8563.99	99.91	112.775		112.81	0.000071	1.55	5526.32	607.39	0.09
Reach-1	270472	02JAN2012 2300	Norm-ProposedD1	8564.00	99.91	112.775		112.81	0.000071	1.55	5526.32	607.39	0.09
Reach-1	270472	02JAN2012 2300	Norm-ProposedD2	8564.02	99.91	112.775		112.81	0.000071	1.55	5526.32	607.39	0.09
Reach-1	270472	02JAN2012 2300	MidPt-CorrectedC	16999.99	99.91	116.846		116.92	0.000083	2.12	8029.71	620.86	0.10
Reach-1	270472	02JAN2012 2300	MidPt-ProposedD1	17000.03	99.91	116.846		116.92	0.000083	2.12	8029.71	620.86	0.10
Reach-1	270472	02JAN2012 2300	MidPt-ProposedD2	16999.98	99.91	116.846		116.92	0.000083	2.12	8029.71	620.86	0.10
Reach-1	270472	02JAN2012 2300	Crest-CorrectedC	25999.98	99.91	120.088		120.19	0.000094	2.59	10055.06	628.79	0.11
Reach-1	270472	02JAN2012 2300	Crest-ProposedD1	26000.04	99.91	120.088		120.19	0.000094	2.59	10055.06	628.79	0.11
Reach-1	270472	02JAN2012 2300	Crest-ProposedD2	25999.96	99.91	120.088		120.19	0.000094	2.59	10055.06	628.79	0.11
Reach-1	269529	02JAN2012 2300	Norm-CorrectedC	8564.01	100.75	112.708		112.74	0.000073	1.53	5584.18	640.43	0.09
Reach-1	269529	02JAN2012 2300	Norm-ProposedD1	8564.02	100.75	112.708		112.74	0.000073	1.53	5584.18	640.43	0.09
Reach-1	269529	02JAN2012 2300	Norm-ProposedD2	8563.98	100.75	112.708		112.74	0.000073	1.53	5584.18	640.43	0.09
Reach-1	269529	02JAN2012 2300	MidPt-CorrectedC	17000.01	100.75	116.771		116.84	0.000082	2.07	8203.98	649.07	0.10
Reach-1	269529	02JAN2012 2300	MidPt-ProposedD1	16999.99	100.75	116.771		116.84	0.000082	2.07	8203.98	649.07	0.10
Reach-1	269529	02JAN2012 2300	MidPt-ProposedD2	17000.01	100.75	116.771		116.84	0.000082	2.07	8203.98	649.07	0.10
Reach-1	269529	02JAN2012 2300	Crest-CorrectedC	26000.05	100.75	120.006		120.10	0.000091	2.52	10314.88	656.36	0.11
Reach-1	269529	02JAN2012 2300	Crest-ProposedD1	25999.98	100.75	120.006		120.10	0.000091	2.52	10314.88	656.36	0.11
Reach-1	269529	02JAN2012 2300	Crest-ProposedD2	26000.01	100.75	120.006		120.10	0.000091	2.52	10314.88	656.36	0.11
Reach-1	268320	02JAN2012 2300	Norm-CorrectedC	8563.99	100.75	112.617		112.65	0.000076	1.55	5525.97	640.24	0.09
Reach-1	268320	02JAN2012 2300	Norm-ProposedD1	8563.97	100.75	112.617		112.65	0.000076	1.55	5525.97	640.24	0.09
Reach-1	268320	02JAN2012 2300	Norm-ProposedD2	8564.02	100.75	112.617		112.65	0.000076	1.55	5525.97	640.24	0.09
Reach-1	268320	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.75	116.669		116.74	0.000084	2.09	8137.92	648.85	0.10
Reach-1	268320	02JAN2012 2300	MidPt-ProposedD1	17000.02	100.75	116.669		116.74	0.000084	2.09	8137.92	648.85	0.10
Reach-1	268320	02JAN2012 2300	MidPt-ProposedD2	16999.97	100.75	116.669		116.74	0.000084	2.09	8137.92	648.85	0.10
Reach-1	268320	02JAN2012 2300	Crest-CorrectedC	25999.97	100.75	119.893		119.99	0.000094	2.54	10241.57	658.00	0.11
Reach-1	268320	02JAN2012 2300	Crest-ProposedD1	26000.00	100.75	119.893		119.99	0.000094	2.54	10241.57	658.00	0.11
Reach-1	268320	02JAN2012 2300	Crest-ProposedD2	25999.99	100.75	119.893		119.99	0.000094	2.54	10241.57	658.00	0.11
Reach-1	267678	02JAN2012 2300	Norm-CorrectedC	8564.01	100.75	112.568		112.61	0.000078	1.54	5556.48	661.08	0.09
Reach-1	267678	02JAN2012 2300	Norm-ProposedD1	8563.99	100.75	112.568		112.61	0.000078	1.54	5556.48	661.08	0.09
Reach-1	267678	02JAN2012 2300	Norm-ProposedD2	8563.99	100.75	112.568		112.61	0.000078	1.54	5556.48	661.08	0.09
Reach-1	267678	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.75	116.617		116.68	0.000084	2.06	8252.54	671.08	0.10
Reach-1	267678	02JAN2012 2300	MidPt-ProposedD1	16999.98	100.75	116.617		116.68	0.000084	2.06	8252.54	671.08	0.10
Reach-1	267678	02JAN2012 2300	MidPt-ProposedD2	17000.02	100.75	116.617		116.68	0.000084	2.06	8252.54	671.08	0.10
Reach-1	267678	02JAN2012 2300	Crest-CorrectedC	26000.00	100.75	119.836		119.93	0.000092	2.49	10458.02	756.40	0.11
Reach-1	267678	02JAN2012 2300	Crest-ProposedD1	25999.97	100.75	119.836		119.93	0.000092	2.49	10458.02	756.40	0.11
Reach-1	267678	02JAN2012 2300	Crest-ProposedD2	26000.06	100.75	119.836		119.93	0.000092	2.49	10458.02	756.40	0.11
Reach-1	266472	02JAN2012 2300	Norm-CorrectedC	8563.99	100.75	112.472		112.51	0.000081	1.56	5485.41	657.57	0.10
Reach-1	266472	02JAN2012 2300	Norm-ProposedD1	8564.02	100.75	112.472		112.51	0.000081	1.56	5485.41	657.57	0.10
Reach-1	266472	02JAN2012 2300	Norm-ProposedD2	8564.02	100.75	112.472		112.51	0.000081	1.56	5485.41	657.57	0.10
Reach-1	266472	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.75	116.513		116.58	0.000086	2.08	8157.94	665.11	0.10
Reach-1	266472	02JAN2012 2300	MidPt-ProposedD1	17000.02	100.75	116.513		116.58	0.000086	2.08	8157.94	665.11	0.10
Reach-1	266472	02JAN2012 2300	MidPt-ProposedD2	16999.97	100.75	116.513		116.58	0.000086	2.08	8157.94	665.11	0.10
Reach-1	266472	02JAN2012 2300	Crest-CorrectedC	25999.98	100.75	119.722		119.82	0.000095	2.52	10878.28	1208.58	0.11
Reach-1	266472	02JAN2012 2300	Crest-ProposedD1	26000.04	100.75	119.722		119.82	0.000095	2.52	10878.28	1208.58	0.11
Reach-1	266472	02JAN2012 2300	Crest-ProposedD2	25999.94	100.75	119.722		119.82	0.000095	2.52	10878.28	1208.58	0.11
Reach-1	265472	02JAN2012 2300	Norm-CorrectedC	8564.00	100.76	112.400		112.43	0.000070	1.49	5759.35	666.65	0.09
Reach-1	265472	02JAN2012 2300	Norm-ProposedD1	8563.98	100.76	112.400		112.43	0.000070	1.49	5759.35	666.65	0.09
Reach-1	265472	02JAN2012 2300	Norm-ProposedD2	8563.99	100.76	112.400		112.43	0.000070	1.49	5759.35	666.65	0.09
Reach-1	265472	02JAN2012 2300	MidPt-CorrectedC	17000.00	100.76	116.435		116.50	0.000078	2.01	8458.63	671.19	0.10
Reach-1	265472	02JAN2012 2300	MidPt-ProposedD1	16999.96	100.76	116.435		116.50	0.000078	2.01	8458.63	671.19	0.10
Reach-1	265472	02JAN2012 2300	MidPt-ProposedD2	17000.02	100.76	116.435		116.50	0.000078	2.01	8458.63	671.19	0.10
Reach-1	265472	02JAN2012 2300	Crest-CorrectedC	26000.04	100.76	119.637		119.73	0.000087	2.44	11296.32	1532.27	0.11
Reach-1	265472	02JAN2012 2300	Crest-ProposedD1	25999.97	100.76	119.637		119.73	0.000087	2.44	11296.32	1532.27	0.11

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	265472	02JAN2012 2300	Crest-ProposedD2	26000.07	100.76	119.637		119.73	0.000087	2.44	11296.32	1532.27	0.11
Reach-1	264426	02JAN2012 2300	Norm-CorrectedC	8564.00	100.76	112.325		112.36	0.000072	1.50	5710.33	667.58	0.09
Reach-1	264426	02JAN2012 2300	Norm-ProposedD1	8564.01	100.76	112.325		112.36	0.000072	1.50	5710.33	667.58	0.09
Reach-1	264426	02JAN2012 2300	Norm-ProposedD2	8564.03	100.76	112.325		112.36	0.000072	1.50	5710.33	667.58	0.09
Reach-1	264426	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.76	116.352		116.42	0.000080	2.02	8472.33	953.02	0.10
Reach-1	264426	02JAN2012 2300	MidPt-ProposedD1	17000.02	100.76	116.352		116.42	0.000080	2.02	8472.33	953.02	0.10
Reach-1	264426	02JAN2012 2300	MidPt-ProposedD2	16999.98	100.76	116.352		116.42	0.000080	2.02	8472.33	953.02	0.10
Reach-1	264426	02JAN2012 2300	Crest-CorrectedC	25999.98	100.76	119.551		119.64	0.000086	2.42	12357.42	1295.18	0.11
Reach-1	264426	02JAN2012 2300	Crest-ProposedD1	26000.01	100.76	119.551		119.64	0.000086	2.42	12357.42	1295.18	0.11
Reach-1	264426	02JAN2012 2300	Crest-ProposedD2	25999.96	100.76	119.551		119.64	0.000086	2.42	12357.42	1295.18	0.11
Reach-1	263569	02JAN2012 2300	Norm-CorrectedC	8564.01	100.76	112.266		112.30	0.000071	1.44	5933.83	729.88	0.09
Reach-1	263569	02JAN2012 2300	Norm-ProposedD1	8564.00	100.76	112.266		112.30	0.000071	1.44	5933.83	729.88	0.09
Reach-1	263569	02JAN2012 2300	Norm-ProposedD2	8563.98	100.76	112.266		112.30	0.000071	1.44	5933.83	729.88	0.09
Reach-1	263569	02JAN2012 2300	MidPt-CorrectedC	17000.01	100.76	116.293		116.35	0.000075	1.91	8990.92	830.05	0.10
Reach-1	263569	02JAN2012 2300	MidPt-ProposedD1	16999.98	100.76	116.293		116.35	0.000075	1.91	8990.92	830.05	0.10
Reach-1	263569	02JAN2012 2300	MidPt-ProposedD2	17000.03	100.76	116.293		116.35	0.000075	1.91	8990.92	830.05	0.10
Reach-1	263569	02JAN2012 2300	Crest-CorrectedC	26000.01	100.76	119.488		119.57	0.000081	2.28	12006.79	1008.33	0.10
Reach-1	263569	02JAN2012 2300	Crest-ProposedD1	25999.99	100.76	119.488		119.57	0.000081	2.28	12006.79	1008.33	0.10
Reach-1	263569	02JAN2012 2300	Crest-ProposedD2	26000.06	100.76	119.488		119.57	0.000081	2.28	12006.79	1008.33	0.10
Reach-1	262577	02JAN2012 2300	Norm-CorrectedC	8564.00	100.76	112.198		112.23	0.000073	1.38	6228.78	953.77	0.09
Reach-1	262577	02JAN2012 2300	Norm-ProposedD1	8564.00	100.76	112.198		112.23	0.000073	1.38	6228.78	953.77	0.09
Reach-1	262577	02JAN2012 2300	Norm-ProposedD2	8564.01	100.76	112.198		112.23	0.000073	1.38	6228.78	953.77	0.09
Reach-1	262577	02JAN2012 2300	MidPt-CorrectedC	16999.99	100.76	116.234		116.28	0.000067	1.75	11540.56	1800.80	0.09
Reach-1	262577	02JAN2012 2300	MidPt-ProposedD1	17000.01	100.76	116.234		116.28	0.000067	1.75	11540.56	1800.80	0.09
Reach-1	262577	02JAN2012 2300	MidPt-ProposedD2	16999.97	100.76	116.234		116.28	0.000067	1.75	11540.56	1800.80	0.09
Reach-1	262577	02JAN2012 2300	Crest-CorrectedC	25999.96	100.76	119.439		119.50	0.000065	2.00	17804.12	2096.26	0.09
Reach-1	262577	02JAN2012 2300	Crest-ProposedD1	26000.01	100.76	119.439		119.50	0.000065	2.00	17804.12	2096.26	0.09
Reach-1	262577	02JAN2012 2300	Crest-ProposedD2	25999.94	100.76	119.439		119.50	0.000065	2.00	17804.12	2096.26	0.09
Reach-1	261551	02JAN2012 2300	Norm-CorrectedC	8564.00	97.61	112.134		112.16	0.000055	1.34	6440.27	773.62	0.08
Reach-1	261551	02JAN2012 2300	Norm-ProposedD1	8563.99	97.61	112.134		112.16	0.000055	1.34	6440.27	773.62	0.08
Reach-1	261551	02JAN2012 2300	Norm-ProposedD2	8563.99	97.61	112.134		112.16	0.000055	1.34	6440.27	773.62	0.08
Reach-1	261551	02JAN2012 2300	MidPt-CorrectedC	17000.02	97.61	116.162		116.21	0.000063	1.82	9613.74	806.68	0.09
Reach-1	261551	02JAN2012 2300	MidPt-ProposedD1	17000.00	97.61	116.162		116.21	0.000063	1.82	9613.74	806.68	0.09
Reach-1	261551	02JAN2012 2300	MidPt-ProposedD2	17000.03	97.61	116.162		116.21	0.000063	1.82	9613.74	806.68	0.09
Reach-1	261551	02JAN2012 2300	Crest-CorrectedC	26000.04	97.61	119.348		119.42	0.000088	2.21	12466.72	1157.40	0.11
Reach-1	261551	02JAN2012 2300	Crest-ProposedD1	26000.00	97.61	119.348		119.42	0.000088	2.21	12466.72	1157.40	0.11
Reach-1	261551	02JAN2012 2300	Crest-ProposedD2	26000.04	97.61	119.348		119.42	0.000088	2.21	12466.72	1157.40	0.11
Reach-1	260635	02JAN2012 2300	Norm-CorrectedC	8564.01	97.61	112.083		112.11	0.000054	1.37	6358.23	755.96	0.08
Reach-1	260635	02JAN2012 2300	Norm-ProposedD1	8564.02	97.61	112.083		112.11	0.000054	1.37	6358.23	755.96	0.08
Reach-1	260635	02JAN2012 2300	Norm-ProposedD2	8564.02	97.61	112.083		112.11	0.000054	1.37	6358.23	755.96	0.08
Reach-1	260635	02JAN2012 2300	MidPt-CorrectedC	16999.99	97.61	116.100		116.15	0.000065	1.88	9416.42	767.69	0.09
Reach-1	260635	02JAN2012 2300	MidPt-ProposedD1	17000.01	97.61	116.100		116.15	0.000065	1.88	9416.42	767.69	0.09
Reach-1	260635	02JAN2012 2300	MidPt-ProposedD2	16999.97	97.61	116.100		116.15	0.000065	1.88	9416.42	767.69	0.09
Reach-1	260635	02JAN2012 2300	Crest-CorrectedC	25999.99	97.61	119.271		119.35	0.000075	2.31	11876.59	786.48	0.10
Reach-1	260635	02JAN2012 2300	Crest-ProposedD1	25999.99	97.61	119.271		119.35	0.000075	2.31	11876.59	786.48	0.10
Reach-1	260635	02JAN2012 2300	Crest-ProposedD2	25999.94	97.61	119.271		119.35	0.000075	2.31	11876.59	786.48	0.10
Reach-1	259263	02JAN2012 2300	Norm-CorrectedC	8563.98	97.61	112.008	104.11	112.04	0.000056	1.38	6354.44	762.01	0.08
Reach-1	259263	02JAN2012 2300	Norm-ProposedD1	8563.99	97.61	112.008	104.11	112.04	0.000056	1.38	6354.44	762.01	0.08
Reach-1	259263	02JAN2012 2300	Norm-ProposedD2	8564.00	97.61	112.008	104.11	112.04	0.000056	1.38	6354.44	762.01	0.08
Reach-1	259263	02JAN2012 2300	MidPt-CorrectedC	17000.01	97.61	116.010	105.36	116.06	0.000066	1.88	9711.80	1013.31	0.09
Reach-1	259263	02JAN2012 2300	MidPt-ProposedD1	16999.99	97.61	116.010	105.37	116.06	0.000066	1.88	9711.80	1013.31	0.09
Reach-1	259263	02JAN2012 2300	MidPt-ProposedD2	17000.02	97.61	116.010	105.37	116.06	0.000066	1.88	9711.80	1013.31	0.09
Reach-1	259263	02JAN2012 2300	Crest-CorrectedC	26000.00	97.61	119.171	106.29	119.25	0.000074	2.28	13394.22	1280.79	0.10
Reach-1	259263	02JAN2012 2300	Crest-ProposedD1	26000.00	97.61	119.171	106.29	119.25	0.000074	2.28	13394.22	1280.79	0.10
Reach-1	259263	02JAN2012 2300	Crest-ProposedD2	26000.08	97.61	119.171	106.30	119.25	0.000074	2.28	13394.22	1280.79	0.10
Reach-1	259032			Bridge									
Reach-1	258805	02JAN2012 2300	Norm-CorrectedC	8563.98	98.28	111.958		111.99	0.000073	1.50	5915.27	917.15	0.09
Reach-1	258805	02JAN2012 2300	Norm-ProposedD1	8563.99	98.28	111.958		111.99	0.000073	1.50	5915.27	917.15	0.09
Reach-1	258805	02JAN2012 2300	Norm-ProposedD2	8564.00	98.28	111.958		111.99	0.000073	1.50	5915.27	917.15	0.09
Reach-1	258805	02JAN2012 2300	MidPt-CorrectedC	17000.01	98.28	115.959		116.02	0.000076	1.95	10588.84	1355.93	0.10
Reach-1	258805	02JAN2012 2300	MidPt-ProposedD1	16999.99	98.28	115.959		116.02	0.000076	1.95	10588.84	1355.93	0.10
Reach-1	258805	02JAN2012 2300	MidPt-ProposedD2	17000.02	98.28	115.959		116.02	0.000076	1.95	10588.84	1355.93	0.10
Reach-1	258805	02JAN2012 2300	Crest-CorrectedC	26000.00	98.28	119.117		119.19	0.000079	2.29	15174.03	1574.47	0.10
Reach-1	258805	02JAN2012 2300	Crest-ProposedD1	26000.00	98.28	119.117		119.19	0.000079	2.29	15174.03	1574.47	0.10
Reach-1	258805	02JAN2012 2300	Crest-ProposedD2	26000.08	98.28	119.117		119.19	0.000079	2.29	15174.03	1574.47	0.10
Reach-1	257368	02JAN2012 2300	Norm-CorrectedC	8564.01	97.61	111.206		111.24	0.000977	1.51	5656.95	684.66	0.09
Reach-1	257368	02JAN2012 2300	Norm-ProposedD1	8563.99	97.61	111.206		111.24	0.000977	1.51	5656.95	684.66	0.09
Reach-1	257368	02JAN2012 2300	Norm-ProposedD2	8564.00	97.61	111.206		111.24	0.000977	1.51	5656.95	684.66	0.09
Reach-1	257368	02JAN2012 2300	MidPt-CorrectedC	16999.98	97.61	115.215		115.27	0.001003	1.94	9453.12	1193.39	0.10
Reach-1	257368	02JAN2012 2300	MidPt-ProposedD1	17000.01	97.61	115.215		115.27	0.001003	1.94	9453.12	1193.39	0.10
Reach-1	257368	02JAN2012 2300	MidPt-ProposedD2	16999.97	97.61	115.215		115.27	0.001003	1.94	9453.12	1193.39	0.10
Reach-1	257368	02JAN2012 2300	Crest-CorrectedC	25999.99	97.61	118.438		118.50	0.000943	2.15	13761.24	1485.62	0.10
Reach-1	257368	02JAN2012 2300	Crest-ProposedD1	25999.99	97.61	118.438		118.50	0.000943	2.15	13761.24	1485.62	0.10
Reach-1	257368	02JAN2012 2300	Crest-ProposedD2	25999.92	97.61	118.438		118.50	0.000943	2.15	13761.24	1485.62	0.10
Reach-1	254766	02JAN2012 2300	Norm-CorrectedC	8563.99	99.27	109.444		109.54	0.000334	2.51	3411.78	585.00	0.18
Reach-1	254766	02JAN2012 2300	Norm-ProposedD1	8564.00	99.27	109.444		109.54	0.000334	2.51	3411.78	585.00	0.18
Reach-1	254766	02JAN2012 2300	Norm-ProposedD2	8564.01	99.27	109.444		109.54	0.000334	2.51	3411.78	585.00	0.18
Reach-1	254766	02JAN2012 2300	MidPt-CorrectedC	17000.02	99.27	113.537		113.66	0.000265	2.83	6000.67	771.44	0.17
Reach-1	254766	02JAN2012 2300	MidPt-ProposedD1	16999.99	99.27	113.537		113.66	0.000265	2.83	6000.59	771.44	0.17
Reach-1	254766	02JAN2012 2300	MidPt-ProposedD2	17000.04	99.27	113.537		113.66	0.000265	2.83	6000.67	771.44	0.17
Reach-1	254766	02JAN2012 2300	Crest-CorrectedC	26000.01	99.27	116.932		117.07	0.000216	3.01	9215.00	1403.83	0.16
Reach-1	254766	02JAN2012 2300	Crest-ProposedD1	26000.02	99.27	116.932		117.07	0.000216	3.01	9215.00	1403.83	0.16
Reach-1	254766	02JAN2012 2300	Crest-ProposedD2	26000.07	99.27	116.932		117.07	0.000216	3.01	9215.00	1403.83	0.16

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	250071	02JAN2012 2300	Norm-CorrectedC	8564.02	84.54	108.520		108.59	0.000074	2.05	4177.63	307.52	0.10
Reach-1	250071	02JAN2012 2300	Norm-ProposedD1	8564.00	84.54	108.520		108.59	0.000074	2.05	4177.63	307.52	0.10
Reach-1	250071	02JAN2012 2300	Norm-ProposedD2	8564.00	84.54	108.520		108.59	0.000074	2.05	4177.63	307.52	0.10
Reach-1	250071	02JAN2012 2300	MidPt-CorrectedC	16999.99	84.54	112.575		112.72	0.000139	3.08	5517.10	352.79	0.14
Reach-1	250071	02JAN2012 2300	MidPt-ProposedD1	17000.01	84.54	112.575		112.72	0.000139	3.08	5517.10	352.79	0.14
Reach-1	250071	02JAN2012 2300	MidPt-ProposedD2	16999.96	84.54	112.575		112.72	0.000139	3.08	5517.10	352.79	0.14
Reach-1	250071	02JAN2012 2300	Crest-CorrectedC	25999.98	84.54	115.898		116.13	0.000197	3.84	6765.52	402.91	0.17
Reach-1	250071	02JAN2012 2300	Crest-ProposedD1	25999.99	84.54	115.898		116.13	0.000197	3.84	6765.52	402.91	0.17
Reach-1	250071	02JAN2012 2300	Crest-ProposedD2	25999.94	84.54	115.898		116.13	0.000197	3.84	6765.52	402.91	0.17
Reach-1	248531	02JAN2012 2300	Norm-CorrectedC	8563.99	84.54	108.404		108.47	0.000076	2.07	4141.94	306.25	0.10
Reach-1	248531	02JAN2012 2300	Norm-ProposedD1	8564.01	84.54	108.404		108.47	0.000076	2.07	4141.94	306.25	0.10
Reach-1	248531	02JAN2012 2300	Norm-ProposedD2	8564.01	84.54	108.404		108.47	0.000076	2.07	4141.94	306.25	0.10
Reach-1	248531	02JAN2012 2300	MidPt-CorrectedC	16999.99	84.54	112.358		112.51	0.000142	3.11	5739.93	472.11	0.14
Reach-1	248531	02JAN2012 2300	MidPt-ProposedD1	17000.00	84.54	112.358		112.51	0.000142	3.11	5739.93	472.11	0.14
Reach-1	248531	02JAN2012 2300	MidPt-ProposedD2	17000.03	84.54	112.358		112.51	0.000142	3.11	5739.93	472.11	0.14
Reach-1	248531	02JAN2012 2300	Crest-CorrectedC	26000.01	84.54	115.610		115.84	0.000181	3.87	7349.84	522.39	0.16
Reach-1	248531	02JAN2012 2300	Crest-ProposedD1	25999.99	84.54	115.610		115.84	0.000181	3.87	7349.84	522.39	0.16
Reach-1	248531	02JAN2012 2300	Crest-ProposedD2	26000.05	84.54	115.610		115.84	0.000181	3.87	7349.84	522.39	0.16
Reach-1	246078	02JAN2012 2300	Norm-CorrectedC	8564.01	98.13	108.035		108.12	0.000212	2.31	3712.56	510.19	0.15
Reach-1	246078	02JAN2012 2300	Norm-ProposedD1	8564.00	98.13	108.035		108.12	0.000212	2.31	3712.56	510.19	0.15
Reach-1	246078	02JAN2012 2300	Norm-ProposedD2	8563.98	98.13	108.035		108.12	0.000212	2.31	3712.56	510.19	0.15
Reach-1	246078	02JAN2012 2300	MidPt-CorrectedC	17000.01	98.13	111.969		112.10	0.000199	2.91	5975.25	605.01	0.16
Reach-1	246078	02JAN2012 2300	MidPt-ProposedD1	17000.00	98.13	111.969		112.10	0.000199	2.91	5975.25	605.01	0.16
Reach-1	246078	02JAN2012 2300	MidPt-ProposedD2	16999.97	98.13	111.969		112.10	0.000199	2.91	5975.19	605.01	0.16
Reach-1	246078	02JAN2012 2300	Crest-CorrectedC	26000.00	98.13	115.223		115.39	0.000193	3.35	7978.48	626.19	0.16
Reach-1	246078	02JAN2012 2300	Crest-ProposedD1	26000.00	98.13	115.223		115.39	0.000193	3.35	7978.48	626.19	0.16
Reach-1	246078	02JAN2012 2300	Crest-ProposedD2	25999.95	98.13	115.223		115.39	0.000193	3.35	7978.48	626.19	0.16
Reach-1	244614	02JAN2012 2300	Norm-CorrectedC	8564.00	98.13	107.712		107.79	0.000233	2.27	3765.14	570.04	0.16
Reach-1	244614	02JAN2012 2300	Norm-ProposedD1	8564.00	98.13	107.712		107.79	0.000233	2.27	3765.14	570.04	0.16
Reach-1	244614	02JAN2012 2300	Norm-ProposedD2	8564.01	98.13	107.712		107.79	0.000233	2.27	3765.14	570.04	0.16
Reach-1	244614	02JAN2012 2300	MidPt-CorrectedC	17000.01	98.13	111.690		111.81	0.000195	2.80	6078.49	659.78	0.15
Reach-1	244614	02JAN2012 2300	MidPt-ProposedD1	17000.01	98.13	111.690		111.81	0.000195	2.80	6078.49	659.78	0.15
Reach-1	244614	02JAN2012 2300	MidPt-ProposedD2	17000.01	98.13	111.690		111.81	0.000195	2.80	6078.49	659.78	0.15
Reach-1	244614	02JAN2012 2300	Crest-CorrectedC	26000.00	98.13	114.953		115.12	0.000187	3.24	8027.28	698.65	0.16
Reach-1	244614	02JAN2012 2300	Crest-ProposedD1	25999.98	98.13	114.953		115.12	0.000187	3.24	8027.28	698.65	0.16
Reach-1	244614	02JAN2012 2300	Crest-ProposedD2	26000.03	98.13	114.953		115.12	0.000187	3.24	8027.28	698.65	0.16
Reach-1	242472	02JAN2012 2300	Norm-CorrectedC	8564.00	94.20	105.289		105.36	0.002043	2.09	4093.20	530.79	0.13
Reach-1	242472	02JAN2012 2300	Norm-ProposedD1	8564.00	94.20	105.289		105.36	0.002043	2.09	4093.20	530.79	0.13
Reach-1	242472	02JAN2012 2300	Norm-ProposedD2	8564.00	94.20	105.289		105.36	0.002043	2.09	4093.20	530.79	0.13
Reach-1	242472	02JAN2012 2300	MidPt-CorrectedC	16999.99	94.20	109.097		109.21	0.002231	2.75	6192.33	569.52	0.15
Reach-1	242472	02JAN2012 2300	MidPt-ProposedD1	17000.00	94.20	109.097		109.21	0.002231	2.75	6192.33	569.52	0.15
Reach-1	242472	02JAN2012 2300	MidPt-ProposedD2	16999.99	94.20	109.097		109.21	0.002231	2.75	6192.33	569.52	0.15
Reach-1	242472	02JAN2012 2300	Crest-CorrectedC	25999.98	94.20	112.226		112.39	0.002360	3.24	8019.31	638.12	0.16
Reach-1	242472	02JAN2012 2300	Crest-ProposedD1	26000.00	94.20	112.226		112.39	0.002360	3.24	8019.31	638.12	0.16
Reach-1	242472	02JAN2012 2300	Crest-ProposedD2	25999.96	94.20	112.226		112.39	0.002359	3.24	8019.31	638.12	0.16
Reach-1	241833	02JAN2012 2300	Norm-CorrectedC	8564.01	93.70	104.574		104.65	0.000177	2.19	3915.26	509.97	0.14
Reach-1	241833	02JAN2012 2300	Norm-ProposedD1	8563.99	93.70	104.574		104.65	0.000177	2.19	3915.26	509.97	0.14
Reach-1	241833	02JAN2012 2300	Norm-ProposedD2	8563.99	93.70	104.574		104.65	0.000177	2.19	3915.26	509.97	0.14
Reach-1	241833	02JAN2012 2300	MidPt-CorrectedC	17000.01	93.70	108.309		108.44	0.000190	2.91	5846.18	523.96	0.15
Reach-1	241833	02JAN2012 2300	MidPt-ProposedD1	16999.98	93.70	108.309		108.44	0.000190	2.91	5846.18	523.96	0.15
Reach-1	241833	02JAN2012 2300	MidPt-ProposedD2	17000.03	93.70	108.309		108.44	0.000190	2.91	5846.18	523.96	0.15
Reach-1	241833	02JAN2012 2300	Crest-CorrectedC	26000.04	93.70	111.383		111.57	0.000203	3.48	7473.59	534.38	0.16
Reach-1	241833	02JAN2012 2300	Crest-ProposedD1	26000.01	93.70	111.383		111.57	0.000203	3.48	7473.59	534.38	0.16
Reach-1	241833	02JAN2012 2300	Crest-ProposedD2	26000.03	93.70	111.383		111.57	0.000203	3.48	7473.59	534.38	0.16
Reach-1	240531	02JAN2012 2300	Norm-CorrectedC	8564.00	93.60	104.388		104.45	0.000135	1.92	4458.48	577.71	0.12
Reach-1	240531	02JAN2012 2300	Norm-ProposedD1	8564.00	93.60	104.388		104.45	0.000135	1.92	4458.48	577.71	0.12
Reach-1	240531	02JAN2012 2300	Norm-ProposedD2	8564.02	93.60	104.388		104.45	0.000135	1.92	4458.48	577.71	0.12
Reach-1	240531	02JAN2012 2300	MidPt-CorrectedC	16999.98	93.60	108.119		108.22	0.000147	2.56	6639.39	591.50	0.13
Reach-1	240531	02JAN2012 2300	MidPt-ProposedD1	17000.01	93.60	108.119		108.22	0.000147	2.56	6639.39	591.50	0.13
Reach-1	240531	02JAN2012 2300	MidPt-ProposedD2	16999.98	93.60	108.119		108.22	0.000147	2.56	6639.39	591.50	0.13
Reach-1	240531	02JAN2012 2300	Crest-CorrectedC	25999.96	93.60	111.190		111.34	0.000158	3.07	8473.39	602.85	0.14
Reach-1	240531	02JAN2012 2300	Crest-ProposedD1	25999.99	93.60	111.190		111.34	0.000158	3.07	8473.39	602.85	0.14
Reach-1	240531	02JAN2012 2300	Crest-ProposedD2	25999.96	93.60	111.190		111.34	0.000158	3.07	8473.39	602.85	0.14
Reach-1	235176	02JAN2012 2300	Norm-CorrectedC	8564.00	92.80	103.639		103.70	0.000142	2.05	4184.24	510.57	0.13
Reach-1	235176	02JAN2012 2300	Norm-ProposedD1	8564.00	92.80	103.639		103.70	0.000142	2.05	4184.24	510.57	0.13
Reach-1	235176	02JAN2012 2300	Norm-ProposedD2	8563.98	92.80	103.639		103.70	0.000142	2.05	4184.24	510.57	0.13
Reach-1	235176	02JAN2012 2300	MidPt-CorrectedC	17000.01	92.80	107.252		107.37	0.000169	2.82	6039.00	516.20	0.15
Reach-1	235176	02JAN2012 2300	MidPt-ProposedD1	17000.00	92.80	107.252		107.37	0.000169	2.82	6039.00	516.20	0.15
Reach-1	235176	02JAN2012 2300	MidPt-ProposedD2	17000.02	92.80	107.252		107.37	0.000169	2.82	6039.00	516.20	0.15
Reach-1	235176	02JAN2012 2300	Crest-CorrectedC	26000.02	92.80	110.228		110.41	0.000189	3.43	7611.30	550.45	0.16
Reach-1	235176	02JAN2012 2300	Crest-ProposedD1	26000.00	92.80	110.228		110.41	0.000189	3.43	7611.30	550.45	0.16
Reach-1	235176	02JAN2012 2300	Crest-ProposedD2	26000.05	92.80	110.228		110.41	0.000189	3.43	7611.30	550.45	0.16
Reach-1	232472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.70	103.302		103.35	0.000117	1.83	4669.44	582.01	0.11
Reach-1	232472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.70	103.302		103.35	0.000117	1.83	4669.44	582.01	0.11
Reach-1	232472	02JAN2012 2300	Norm-ProposedD2	8564.02	91.70	103.302		103.35	0.000117	1.83	4669.44	582.01	0.11
Reach-1	232472	02JAN2012 2300	MidPt-CorrectedC	16999.99	91.70	106.861		106.96	0.000138	2.51	6767.66	596.97	0.13
Reach-1	232472	02JAN2012 2300	MidPt-ProposedD1	17000.01	91.70	106.861		106.96	0.000138	2.51	6767.66	596.97	0.13
Reach-1	232472	02JAN2012 2300	MidPt-ProposedD2	16999.99	91.70	106.861		106.96	0.000138	2.51	6767.66	596.97	0.13
Reach-1	232472	02JAN2012 2300	Crest-CorrectedC	25999.96	91.70	109.804		109.95	0.000154	3.04	8559.90	626.76	0.14
Reach-1	232472	02JAN2012 2300	Crest-ProposedD1	25999.99	91.70	109.804		109.95	0.000154	3.04	8559.90	626.76	0.14
Reach-1	232472	02JAN2012 2300	Crest-ProposedD2	25999.96	91.70	109.804		109.95	0.000154	3.04	8559.90	626.76	0.14
Reach-1	231472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.70	103.160		103.23	0.000139	2.07	4140.94	489.17	0.13
Reach-1	231472	02JAN2012 2300	Norm-ProposedD1	8563.99	91.70	103.160		103.23	0.000139	2.07	4140.94	489.17	0.13

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

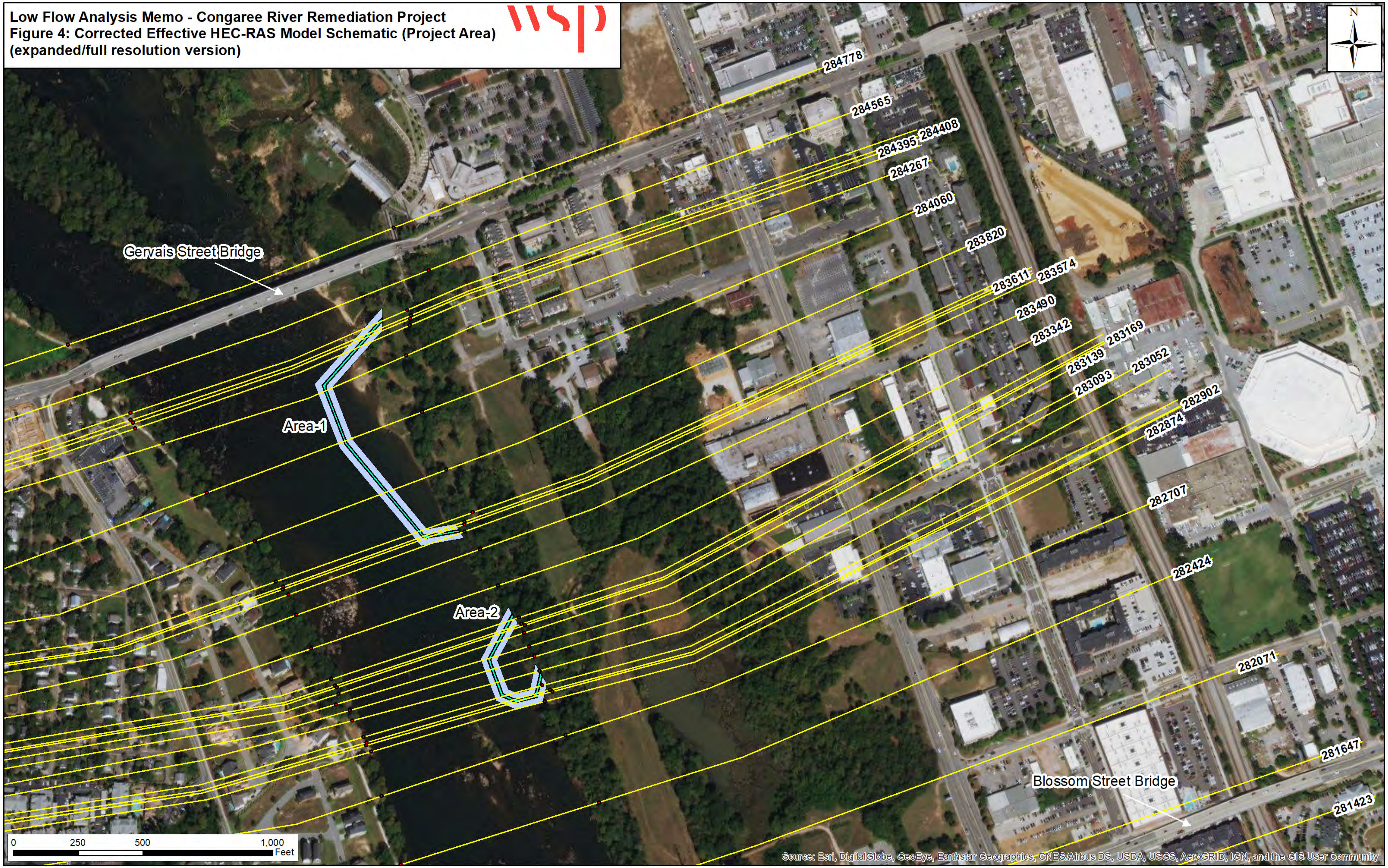
Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	231472	02JAN2012 2300	Norm-ProposedD2	8564.00	91.70	103.160		103.23	0.000139	2.07	4140.94	489.17	0.13
Reach-1	231472	02JAN2012 2300	MidPt-CorrectedC	17000.00	91.70	106.672		106.80	0.000177	2.89	5877.59	499.78	0.15
Reach-1	231472	02JAN2012 2300	MidPt-ProposedD1	17000.01	91.70	106.672		106.80	0.000177	2.89	5877.59	499.78	0.15
Reach-1	231472	02JAN2012 2300	MidPt-ProposedD2	17000.01	91.70	106.672		106.80	0.000177	2.89	5877.59	499.78	0.15
Reach-1	231472	02JAN2012 2300	Crest-CorrectedC	26000.02	91.70	109.576		109.77	0.000202	3.54	7338.09	506.49	0.16
Reach-1	231472	02JAN2012 2300	Crest-ProposedD1	26000.00	91.70	109.576		109.77	0.000202	3.54	7338.09	506.49	0.16
Reach-1	231472	02JAN2012 2300	Crest-ProposedD2	26000.03	91.70	109.576		109.77	0.000202	3.54	7338.09	506.49	0.16
Reach-1	230472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.60	103.018		103.08	0.000144	2.07	4139.59	499.00	0.13
Reach-1	230472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.60	103.018		103.08	0.000144	2.07	4139.59	499.00	0.13
Reach-1	230472	02JAN2012 2300	Norm-ProposedD2	8564.01	91.60	103.018		103.08	0.000144	2.07	4139.59	499.00	0.13
Reach-1	230472	02JAN2012 2300	MidPt-CorrectedC	16999.99	91.60	106.494		106.62	0.000180	2.89	5880.57	502.98	0.15
Reach-1	230472	02JAN2012 2300	MidPt-ProposedD1	17000.00	91.60	106.494		106.62	0.000180	2.89	5880.57	502.98	0.15
Reach-1	230472	02JAN2012 2300	MidPt-ProposedD2	16999.98	91.60	106.494		106.62	0.000180	2.89	5880.57	502.98	0.15
Reach-1	230472	02JAN2012 2300	Crest-CorrectedC	25999.98	91.60	109.372		109.57	0.000205	3.54	7335.92	508.38	0.16
Reach-1	230472	02JAN2012 2300	Crest-ProposedD1	25999.98	91.60	109.372		109.57	0.000205	3.54	7335.92	508.38	0.16
Reach-1	230472	02JAN2012 2300	Crest-ProposedD2	25999.97	91.60	109.372		109.57	0.000205	3.54	7335.92	508.38	0.16
Reach-1	229472	02JAN2012 2300	Norm-CorrectedC	8564.00	89.34	102.951		102.99	0.000053	1.49	5734.51	527.19	0.08
Reach-1	229472	02JAN2012 2300	Norm-ProposedD1	8564.00	89.34	102.951		102.99	0.000053	1.49	5734.51	527.19	0.08
Reach-1	229472	02JAN2012 2300	Norm-ProposedD2	8563.98	89.34	102.951		102.99	0.000053	1.49	5734.51	527.19	0.08
Reach-1	229472	02JAN2012 2300	MidPt-CorrectedC	17000.01	89.34	106.412		106.49	0.000085	2.25	7565.31	530.65	0.10
Reach-1	229472	02JAN2012 2300	MidPt-ProposedD1	16999.99	89.34	106.412		106.49	0.000085	2.25	7565.31	530.65	0.10
Reach-1	229472	02JAN2012 2300	MidPt-ProposedD2	17000.00	89.34	106.412		106.49	0.000085	2.25	7565.31	530.65	0.10
Reach-1	229472	02JAN2012 2300	Crest-CorrectedC	26000.01	89.34	109.282		109.41	0.000109	2.86	9092.23	533.52	0.12
Reach-1	229472	02JAN2012 2300	Crest-ProposedD1	25999.98	89.34	109.282		109.41	0.000109	2.86	9092.23	533.52	0.12
Reach-1	229472	02JAN2012 2300	Crest-ProposedD2	26000.03	89.34	109.282		109.41	0.000109	2.86	9092.23	533.52	0.12
Reach-1	228472	02JAN2012 2300	Norm-CorrectedC	8564.00	90.08	102.892		102.93	0.000063	1.52	5624.53	577.09	0.09
Reach-1	228472	02JAN2012 2300	Norm-ProposedD1	8564.00	90.08	102.892		102.93	0.000063	1.52	5624.53	577.09	0.09
Reach-1	228472	02JAN2012 2300	Norm-ProposedD2	8564.01	90.08	102.892		102.93	0.000063	1.52	5624.53	577.09	0.09
Reach-1	228472	02JAN2012 2300	MidPt-CorrectedC	16999.97	90.08	106.325		106.40	0.000092	2.23	7609.16	578.98	0.11
Reach-1	228472	02JAN2012 2300	MidPt-ProposedD1	17000.00	90.08	106.325		106.40	0.000092	2.23	7609.16	578.98	0.11
Reach-1	228472	02JAN2012 2300	MidPt-ProposedD2	16999.97	90.08	106.325		106.40	0.000092	2.23	7609.16	578.98	0.11
Reach-1	228472	02JAN2012 2300	Crest-CorrectedC	25999.98	90.08	109.176		109.30	0.000113	2.81	9261.84	580.55	0.12
Reach-1	228472	02JAN2012 2300	Crest-ProposedD1	26000.02	90.08	109.176		109.30	0.000113	2.81	9261.84	580.55	0.12
Reach-1	228472	02JAN2012 2300	Crest-ProposedD2	25999.99	90.08	109.176		109.30	0.000113	2.81	9261.84	580.55	0.12
Reach-1	227472	02JAN2012 2300	Norm-CorrectedC	8564.00	90.79	102.808		102.85	0.000085	1.71	4997.71	534.74	0.10
Reach-1	227472	02JAN2012 2300	Norm-ProposedD1	8564.01	90.79	102.808		102.85	0.000085	1.71	4997.71	534.74	0.10
Reach-1	227472	02JAN2012 2300	Norm-ProposedD2	8563.98	90.79	102.808		102.85	0.000085	1.71	4997.71	534.74	0.10
Reach-1	227472	02JAN2012 2300	MidPt-CorrectedC	17000.01	90.79	106.199		106.30	0.000121	2.50	6813.47	536.13	0.12
Reach-1	227472	02JAN2012 2300	MidPt-ProposedD1	17000.00	90.79	106.199		106.30	0.000121	2.50	6813.47	536.13	0.12
Reach-1	227472	02JAN2012 2300	MidPt-ProposedD2	17000.01	90.79	106.199		106.30	0.000121	2.50	6813.47	536.13	0.12
Reach-1	227472	02JAN2012 2300	Crest-CorrectedC	26000.02	90.79	109.016		109.17	0.000148	3.12	8325.78	540.64	0.14
Reach-1	227472	02JAN2012 2300	Crest-ProposedD1	25999.99	90.79	109.016		109.17	0.000148	3.12	8325.78	540.64	0.14
Reach-1	227472	02JAN2012 2300	Crest-ProposedD2	26000.01	90.79	109.016		109.17	0.000148	3.12	8325.78	540.64	0.14
Reach-1	226472	02JAN2012 2300	Norm-CorrectedC	8563.99	91.17	102.714		102.76	0.000099	1.75	4893.69	576.59	0.11
Reach-1	226472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.17	102.714		102.76	0.000099	1.75	4893.69	576.59	0.11
Reach-1	226472	02JAN2012 2300	Norm-ProposedD2	8564.02	91.17	102.714		102.76	0.000099	1.75	4893.69	576.59	0.11
Reach-1	226472	02JAN2012 2300	MidPt-CorrectedC	16999.97	91.17	106.074		106.17	0.000130	2.49	6834.89	578.89	0.13
Reach-1	226472	02JAN2012 2300	MidPt-ProposedD1	17000.02	91.17	106.074		106.17	0.000130	2.49	6834.89	578.89	0.13
Reach-1	226472	02JAN2012 2300	MidPt-ProposedD2	16999.98	91.17	106.074		106.17	0.000130	2.49	6834.89	578.89	0.13
Reach-1	226472	02JAN2012 2300	Crest-CorrectedC	25999.98	91.17	108.871		109.02	0.000152	3.07	8460.48	583.51	0.14
Reach-1	226472	02JAN2012 2300	Crest-ProposedD1	25999.99	91.17	108.871		109.02	0.000152	3.07	8460.48	583.51	0.14
Reach-1	226472	02JAN2012 2300	Crest-ProposedD2	25999.97	91.17	108.871		109.02	0.000152	3.07	8460.48	583.51	0.14
Reach-1	225472	02JAN2012 2300	Norm-CorrectedC	8564.01	89.79	102.623		102.67	0.000084	1.74	4922.82	516.82	0.10
Reach-1	225472	02JAN2012 2300	Norm-ProposedD1	8564.00	89.79	102.623		102.67	0.000084	1.74	4922.82	516.82	0.10
Reach-1	225472	02JAN2012 2300	Norm-ProposedD2	8563.98	89.79	102.623		102.67	0.000084	1.74	4922.82	516.82	0.10
Reach-1	225472	02JAN2012 2300	MidPt-CorrectedC	17000.01	89.79	105.941		106.04	0.000125	2.55	6656.53	528.18	0.13
Reach-1	225472	02JAN2012 2300	MidPt-ProposedD1	17000.00	89.79	105.941		106.04	0.000125	2.55	6656.53	528.18	0.13
Reach-1	225472	02JAN2012 2300	MidPt-ProposedD2	17000.00	89.79	105.941		106.04	0.000125	2.55	6656.53	528.18	0.13
Reach-1	225472	02JAN2012 2300	Crest-CorrectedC	26000.01	89.79	108.706		108.86	0.000154	3.20	8128.62	535.90	0.14
Reach-1	225472	02JAN2012 2300	Crest-ProposedD1	25999.99	89.79	108.706		108.86	0.000154	3.20	8128.62	535.90	0.14
Reach-1	225472	02JAN2012 2300	Crest-ProposedD2	26000.02	89.79	108.706		108.86	0.000154	3.20	8128.62	535.90	0.14
Reach-1	224472	02JAN2012 2300	Norm-CorrectedC	8563.98	90.65	102.511		102.57	0.000120	1.93	4443.79	522.43	0.12
Reach-1	224472	02JAN2012 2300	Norm-ProposedD1	8564.00	90.65	102.511		102.57	0.000120	1.93	4443.79	522.43	0.12
Reach-1	224472	02JAN2012 2300	Norm-ProposedD2	8564.02	90.65	102.511		102.57	0.000120	1.93	4443.79	522.43	0.12
Reach-1	224472	02JAN2012 2300	MidPt-CorrectedC	16999.99	90.65	105.780		105.90	0.000166	2.75	6189.47	545.53	0.14
Reach-1	224472	02JAN2012 2300	MidPt-ProposedD1	17000.01	90.65	105.780		105.90	0.000166	2.75	6189.47	545.53	0.14
Reach-1	224472	02JAN2012 2300	MidPt-ProposedD2	17000.00	90.65	105.780		105.90	0.000166	2.75	6189.47	545.53	0.14
Reach-1	224472	02JAN2012 2300	Crest-CorrectedC	26000.01	90.65	108.513		108.69	0.000196	3.37	7706.89	564.83	0.16
Reach-1	224472	02JAN2012 2300	Crest-ProposedD1	26000.01	90.65	108.513		108.69	0.000196	3.37	7706.89	564.83	0.16
Reach-1	224472	02JAN2012 2300	Crest-ProposedD2	25999.98	90.65	108.513		108.69	0.000196	3.37	7706.89	564.83	0.16
Reach-1	223472	02JAN2012 2300	Norm-CorrectedC	8564.02	91.51	102.339		102.42	0.000182	2.26	3794.02	478.98	0.14
Reach-1	223472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.51	102.339		102.42	0.000182	2.26	3794.02	478.98	0.14
Reach-1	223472	02JAN2012 2300	Norm-ProposedD2	8564.00	91.51	102.339		102.42	0.000182	2.26	3794.02	478.98	0.14
Reach-1	223472	02JAN2012 2300	MidPt-CorrectedC	17000.02	91.51	105.539		105.70	0.000236	3.18	5341.15	487.95	0.17
Reach-1	223472	02JAN2012 2300	MidPt-ProposedD1	16999.99	91.51	105.539		105.70	0.000236	3.18	5341.15	487.95	0.17
Reach-1	223472	02JAN2012 2300	MidPt-ProposedD2	17000.00	91.51	105.539		105.70	0.000236	3.18	5341.15	487.95	0.17
Reach-1	223472	02JAN2012 2300	Crest-CorrectedC	25999.98	91.51	108.220		108.46	0.000272	3.90	6659.20	495.45	0.19
Reach-1	223472	02JAN2012 2300	Crest-ProposedD1	25999.99	91.51	108.220		108.46	0.000272	3.90	6659.20	495.45	0.19
Reach-1	223472	02JAN2012 2300	Crest-ProposedD2	26000.00	91.51	108.220		108.46	0.000272	3.90	6659.20	495.45	0.19
Reach-1	222472	02JAN2012 2300	Norm-CorrectedC	8563.99	90.62	102.230		102.28	0.000100	1.73	4947.11	597.96	0.11
Reach-1	222472	02JAN2012 2300	Norm-ProposedD1	8564.00	90.62	102.230		102.28	0.000100	1.73	4947.11	597.96	0.11
Reach-1	222472	02JAN2012 2300	Norm-ProposedD2	8564.01	90.62	102.230		102.28	0.000100	1.73	4947.11	597.96	0.11
Reach-1	222472	02JAN2012 2300	MidPt-CorrectedC	17000.00	90.62	105.413		105.51	0.000143	2.45	6929.12	647.76	0.13
Reach-1	222472	02JAN2012 2300	MidPt-ProposedD1	16999.99	90.62	105.413		105.51	0.000143	2.45	6929.12	647.76	0.13

HEC-RAS River: Congaree River Reach: Reach-1 Profile: 02JAN2012 2300 (Continued)

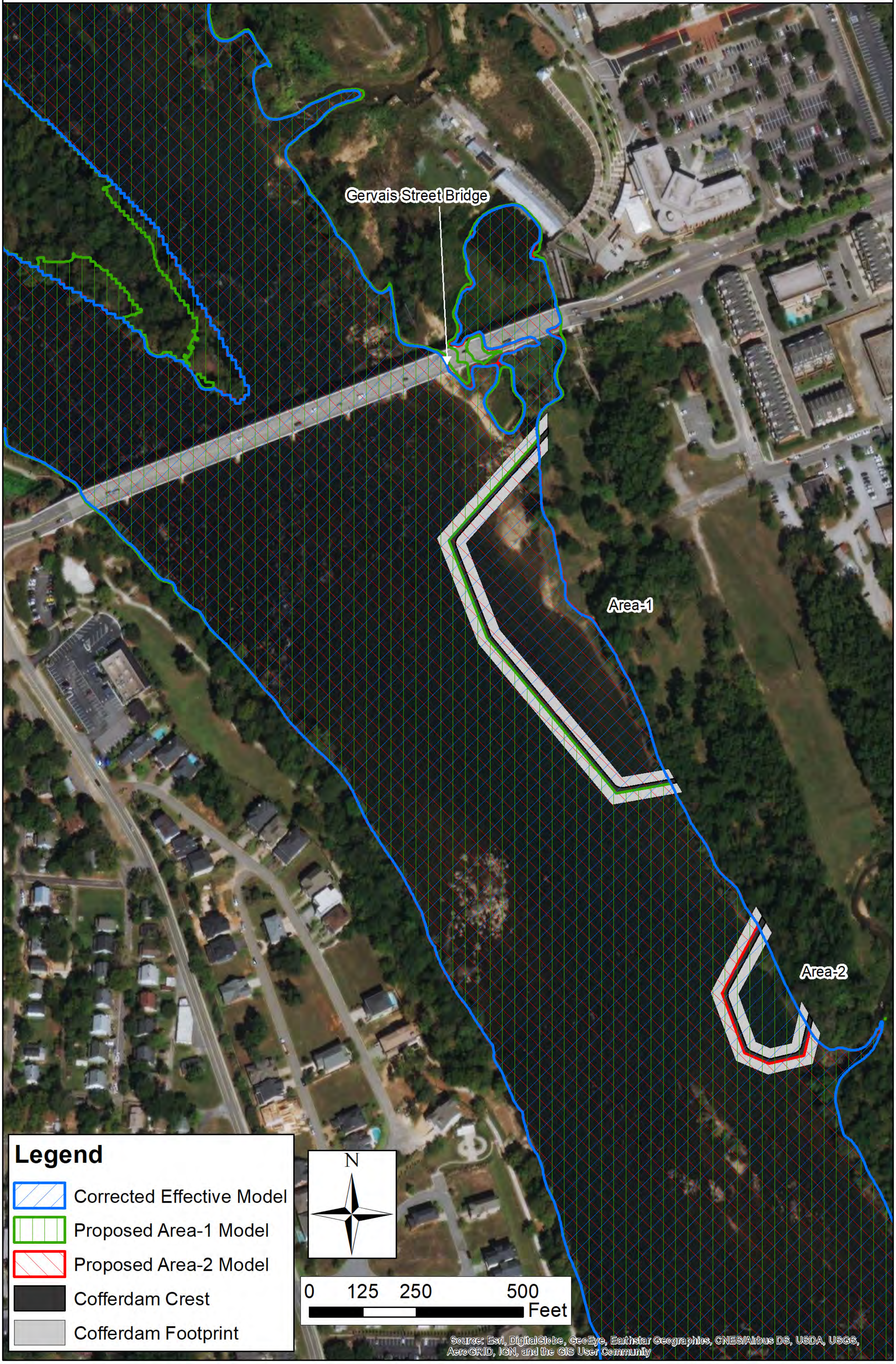
Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	222472	02JAN2012 2300	MidPt-ProposedD2	16999.98	90.62	105.413		105.51	0.000143	2.45	6929.12	647.76	0.13
Reach-1	222472	02JAN2012 2300	Crest-CorrectedC	26000.00	90.62	108.096		108.23	0.000169	2.98	8724.19	692.57	0.15
Reach-1	222472	02JAN2012 2300	Crest-ProposedD1	26000.00	90.62	108.096		108.23	0.000169	2.98	8724.19	692.57	0.15
Reach-1	222472	02JAN2012 2300	Crest-ProposedD2	25999.98	90.62	108.096		108.23	0.000169	2.98	8724.19	692.57	0.15
Reach-1	220272	02JAN2012 2300	Norm-CorrectedC	8564.01	93.07	101.621		101.73	0.000397	2.69	3182.72	559.77	0.20
Reach-1	220272	02JAN2012 2300	Norm-ProposedD1	8564.00	93.07	101.621		101.73	0.000397	2.69	3182.72	559.77	0.20
Reach-1	220272	02JAN2012 2300	Norm-ProposedD2	8563.99	93.07	101.621		101.73	0.000397	2.69	3182.72	559.77	0.20
Reach-1	220272	02JAN2012 2300	MidPt-CorrectedC	17000.00	93.07	104.723		104.90	0.000408	3.40	4994.89	629.66	0.21
Reach-1	220272	02JAN2012 2300	MidPt-ProposedD1	16999.99	93.07	104.723		104.90	0.000408	3.40	4994.89	629.66	0.21
Reach-1	220272	02JAN2012 2300	MidPt-ProposedD2	17000.02	93.07	104.723		104.90	0.000408	3.40	4994.89	629.66	0.21
Reach-1	220272	02JAN2012 2300	Crest-CorrectedC	26000.00	93.07	107.363		107.59	0.000417	3.83	6787.04	728.13	0.22
Reach-1	220272	02JAN2012 2300	Crest-ProposedD1	25999.99	93.07	107.363		107.59	0.000417	3.83	6787.04	728.13	0.22
Reach-1	220272	02JAN2012 2300	Crest-ProposedD2	26000.01	93.07	107.363		107.59	0.000417	3.83	6787.04	728.13	0.22
Reach-1	217472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.92	100.415		100.55	0.000445	3.00	2858.77	458.88	0.21
Reach-1	217472	02JAN2012 2300	Norm-ProposedD1	8563.99	91.92	100.415		100.55	0.000445	3.00	2858.77	458.88	0.21
Reach-1	217472	02JAN2012 2300	Norm-ProposedD2	8564.01	91.92	100.415		100.55	0.000445	3.00	2858.77	458.88	0.21
Reach-1	217472	02JAN2012 2300	MidPt-CorrectedC	16999.99	91.92	103.407		103.66	0.000482	4.02	4233.46	460.02	0.23
Reach-1	217472	02JAN2012 2300	MidPt-ProposedD1	17000.00	91.92	103.407		103.66	0.000482	4.02	4233.46	460.02	0.23
Reach-1	217472	02JAN2012 2300	MidPt-ProposedD2	17000.00	91.92	103.407		103.66	0.000482	4.02	4233.46	460.02	0.23
Reach-1	217472	02JAN2012 2300	Crest-CorrectedC	26000.01	91.92	105.936		106.30	0.000509	4.82	5398.03	460.99	0.25
Reach-1	217472	02JAN2012 2300	Crest-ProposedD1	26000.02	91.92	105.936		106.30	0.000509	4.82	5398.03	460.99	0.25
Reach-1	217472	02JAN2012 2300	Crest-ProposedD2	25999.98	91.92	105.936		106.30	0.000509	4.82	5398.03	460.99	0.25
Reach-1	216472	02JAN2012 2300	Norm-CorrectedC	8564.00	91.48	100.018	95.60	100.13	0.000400	2.70	3175.67	559.64	0.20
Reach-1	216472	02JAN2012 2300	Norm-ProposedD1	8564.00	91.48	100.018	95.60	100.13	0.000400	2.70	3175.67	559.64	0.20
Reach-1	216472	02JAN2012 2300	Norm-ProposedD2	8563.99	91.48	100.018	95.59	100.13	0.000400	2.70	3175.67	559.64	0.20
Reach-1	216472	02JAN2012 2300	MidPt-CorrectedC	17000.00	91.48	103.029	97.23	103.22	0.000400	3.46	4909.70	593.40	0.21
Reach-1	216472	02JAN2012 2300	MidPt-ProposedD1	17000.00	91.48	103.029	97.23	103.22	0.000400	3.46	4909.70	593.40	0.21
Reach-1	216472	02JAN2012 2300	MidPt-ProposedD2	17000.00	91.48	103.029	97.23	103.22	0.000400	3.46	4909.70	593.40	0.21
Reach-1	216472	02JAN2012 2300	Crest-CorrectedC	25999.99	91.48	105.589	98.34	105.84	0.000400	4.02	6466.61	622.94	0.22
Reach-1	216472	02JAN2012 2300	Crest-ProposedD1	25999.98	91.48	105.589	98.34	105.84	0.000400	4.02	6466.61	622.94	0.22
Reach-1	216472	02JAN2012 2300	Crest-ProposedD2	26000.01	91.48	105.589	98.34	105.84	0.000400	4.02	6466.61	622.94	0.22

Appendix C: Full Size/Resolution Figures

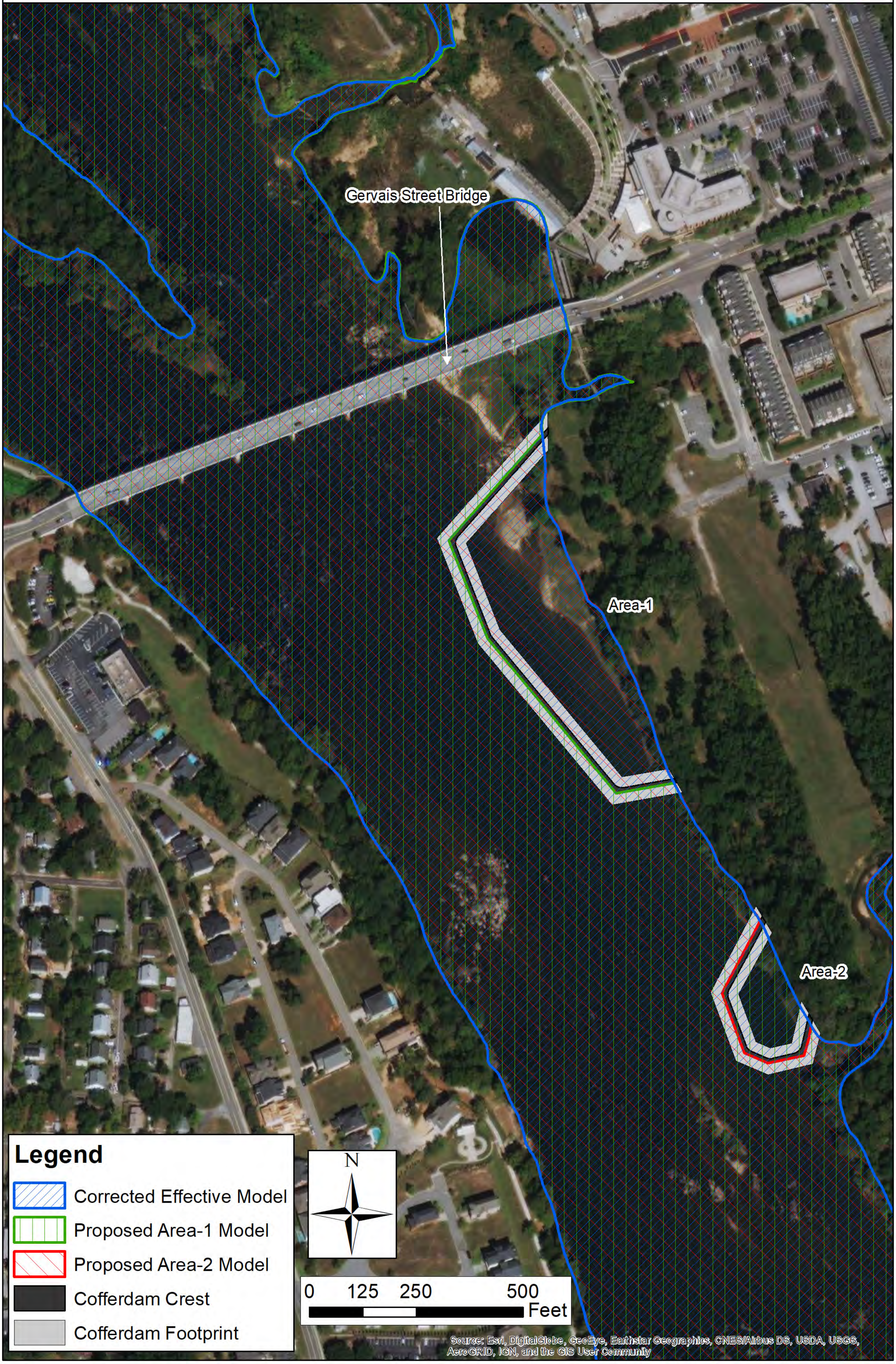
Low Flow Analysis Memo - Congaree River Remediation Project
Figure 4: Corrected Effective HEC-RAS Model Schematic (Project Area)
(expanded/full resolution version)



Low Flow Analysis Memo - Congaree River Remediation Project
Figure C1: Normal Flow (8,564 cfs) Flood Extents

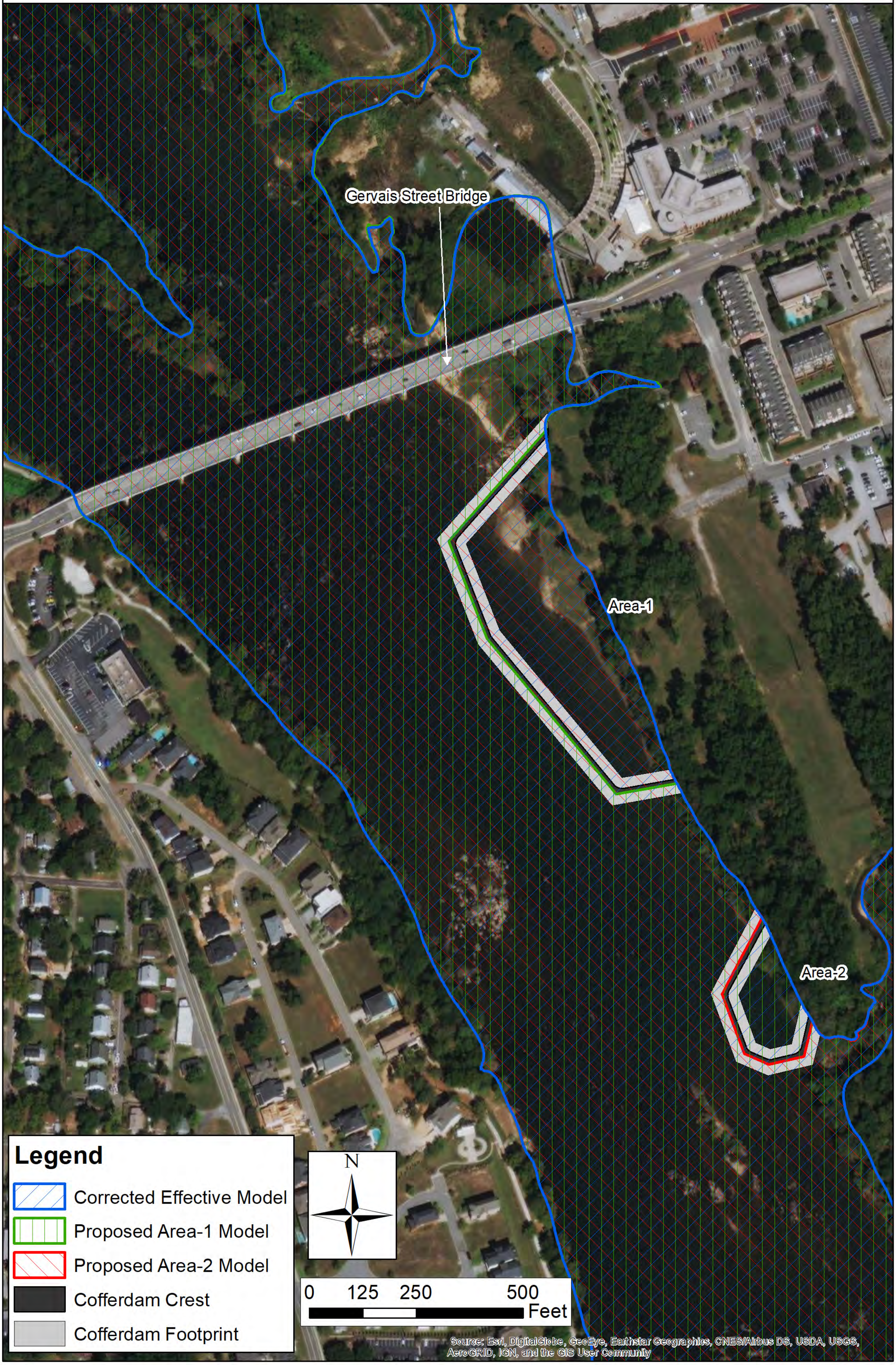


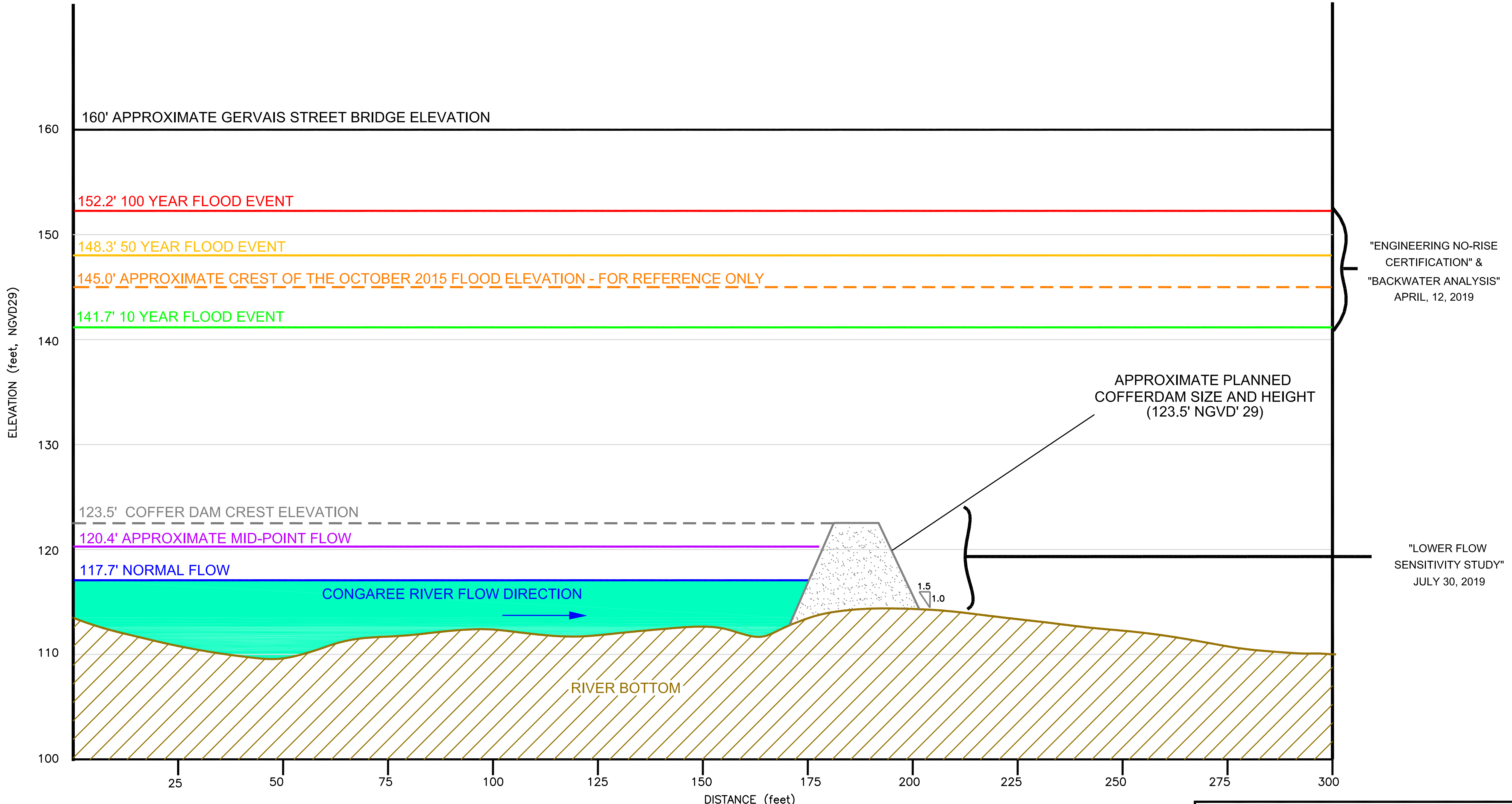
Low Flow Analysis Memo - Congaree River Remediation Project
Figure C2: Mid-Point Flow (17,000 cfs) Flood Extents

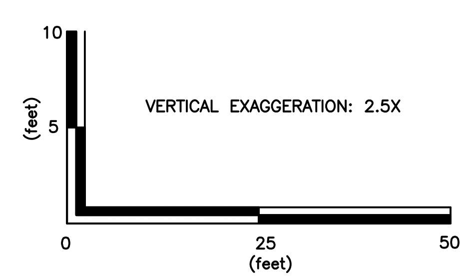


Low Flow Analysis Memo - Congaree River Remediation Project

Figure C3: Crest Flow (26,000 cfs) Flood Extents







LEGEND

- COFFER DAM (WEST TO EAST TRENDING SEGMENT AT AREA 1 NORTHERN END)
- CONGAREE RIVER BOTTOM

NOTES:

1) ELEVATION REFERENCED TO NGVD29.

FIGURE 1

DOMINION ENERGY SOUTH CAROLINA, INC.

COFFERDAM RIVER LEVEL SCENARIOS

CONGAREE RIVER SEDIMENTS
COLUMBIA, SOUTH CAROLINA

DATE: 8/29/19 FILE NAME: CONG537

APEX COMPANIES, LLC

ENGINEERING "NO-RISE" CERTIFICATION

This is to certify that I am a duly qualified engineer licensed to practice in the State of South Carolina.

It is to further certify that the attached technical data supports the fact that proposed Congaree River Remediation Project will

(Name of Development)

not impact the 100-year flood elevations, floodway elevations and floodway widths on Congaree River at published sections

(Name of Stream)

in the Flood Insurance Study for Richland County,

(Name of Community)

dated December 21, 2017 and will not impact the 100-year flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

Attached are the following documents that support my findings:

Congaree River Remediation Project Hydraulic Analysis Memo, April 12, 2019

(Date) 4/12/2019

(Signature) John P. Osterle

(Title) Project Manager

WSP USA

11 Stanwix, Suite 950

Pittsburgh, PA 15222

(Address)

(Seal)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 22631 JOHN P. OSTERLE

ENGINEERING "NO-RISE" CERTIFICATION

This is to certify that I am a duly qualified engineer licensed to practice in the State of South Carolina.

It is to further certify that the attached technical data supports the fact that proposed Congaree River Remediation Project will

(Name of Development)

not impact the 100-year flood elevations, floodway elevations and floodway widths on Congaree River at published sections

(Name of Stream)

in the Flood Insurance Study for Lexington County,

(Name of Community)

dated July 5, 2018 and will not impact the 100-year flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

Attached are the following documents that support my findings:

Congaree River Remediation Project Hydraulic Analysis Memo, April 2019

(Date) 8/13/2019

(Signature)

(Title) Project Manager

WSP USA

11 Stanwix, Suite 950

Pittsburgh, PA 15222

(Address)

(Seal)

SOUTH CAROLINA
PROFESSIONAL ENGINEER
LICENSED
No. 22631
JOHN P. OSTERLE