

NCFMP and NCDOT MOA Project Review

GENERAL INFORMATION

Project TIP / ID:	B-4950
WBS:	40108.1.1
Initial Submittal Date:	9/28/2016
MOA Approval Target Date:	12/30/2016
Project LET DATE:	5/16/2017
DOT Project Manager:	Paul Atkinson
DOT Design Engineer:	Craig A Freeman
In-House or PEF project?	PEF
PEF (Name of Firm)	RS&H Architects-Engineers
DOT STR. INV. # (6-digit):	250171 and 250172

LOCATION INFORMATION

Stream Name :	South River
River Basin :	Cape Fear
Regulating City:	N/A
Regulating County:	Cumberland, Sampson
Division:	06
Community ID Number:	370076
Latitude (in decimal degrees):	35.0527
Longitude (in decimal degrees):	-78.6565
Route Number:	SR 1851
Road Name (on FIRM Panel):	Faircloth Bridge Rd
Effective FIS date:	7/17/2007
Panel Number (4-digit):	1406J
Panel Effective Date:	1/5/2007
Published section # up/down stream	3740/3480

FEMA/FMP STATUS

Status (MOA TYPE: 1, 2a, 2b, 3a, 3b):	2a
If MOA Type 3a or 3b, CLOMR case number:	N/A
Type Of Study (detailed, limited, redelineated):	Limited
Effective Model on File? (Yes or No):	Yes
Effective Model Format (HEC-RAS, HEC2):	HEC-RAS
Model Version No.	3.1.2
Proposed Model Format (HEC-RAS, HEC2):	HEC-RAS
Model Version No.	4.1.0

PROJECT SPECIFIC NOTES (pre-model review)

This project has a maximum decrease of 0.12-ft, and qualifies under Type 2a MOA.

FMP/DOT NOTES AND REVIEW COMMENTS:

[DOT staff: Add any pertinent notes from FMP/DOT coordination meetings/correspondence.]

1. Please use a negative sign for longitude value under LOCATION INFORMATION in the FEMA Coordination Form.

Comment Incorporated

No further comments issued.

2. The FIRM indicates that this project is located in both Sampson and Cumberland counties. Please verify and add Sampson as Regulating County under LOCATION INFORMATION in the FEMA Coordination Form.

Comment Incorporated

No further comments issued.

3. The Narrative text should be expanded to include required information for Corrected Effective and Revised Models such as pier width and shape, and total and effective bridge lengths.

Pier width and shape, and total and effective bridge lengths were added to the HEC RAS Model Narrative in the Corrected Effective and Revised sections.

Per the Narrative, the total length of Bridge 250171 is 122.25'; but the BSR shows its spans as 1@35', 1@55', 1@30' making the total length as 120'. Similarly, the total length of Bridge 250172 is 187.25' per the Narrative, but the BSR shows its spans as 1@35', 2@55', 1@40' making the total length as 185'. Please verify the total span and effective span of both bridges in the models and the Narrative and revise as necessary. The Narrative mentions that both bridges have 3' diameter interior bents in the Revised Model, but the Drag Coefficient for Bridge #2 has been set as 2.0; please revise it as 1.2 for circular piers as appropriate.

Model Narrative Revised to match the BSR. Total length for bridge 0171 and 0172 changed to 120' and 185' respectively, and the effective span was verified as the total bridge length less end bents. Our oversight on the drag coefficient for Bridge #2 was revised to 1.2. Additionally the pier shape coefficient for Bridge #2 was revised to 0.9 for semi-circular nose and tail. Model was rerun and the output did not change.

No further comments issued.

4. For Bridge 250171 and Bridge 250172, the number of the piers modeled in the Corrected Effective model are twice the number shown on the BSRs. Please verify and revise as appropriate.

As shown in the pictures below, both bridges are supported by dual column bents. This is what is modeled in HEC RAS, while the BSR only shows where the pier locations are for span arrangement, rather than their geometry.



No further comments issued.

5. For Bridge 250172, the existing bridge low chord and high chord elevations do not exactly match the elevations shown on the BSR. The modeled bridge deck elevations are approximately 0.2 ft to 0.5 ft lower than the elevations shown on the BSR. Please check and revise if necessary.

The existing bridge low chord elevation was verified based on NCDOT survey data elevations. The bridge deck elevation has been changed to accurately reflect the field survey data and match the bridge deck on the BSR.

No further comments issued.

6. For Bridge 250171, the existing bridge high chord elevations do not exactly match the elevations shown on the BSR. The modeled bridge high chord elevations are approximately 0.3 ft lower than the elevations shown on the BSR. Please check and revise if necessary.

The bridge deck elevation has been changed to accurately reflect the field survey data and match the bridge deck on the BSR.

No further comments issued.

7. In the Corrected Effective and the Revised models, the calculated contraction and expansion ratios for the ineffective flow area stations are not 1:1 and 2:1 respectively (as noted in the narrative); also, the ratios differ between the left and right sides and between the Corrected Effective and the Revised models. Please justify the ineffective flow area stations in the models or revise, as appropriate.

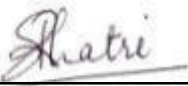
The ineffective areas were graphically drawn into microstation at a 1:1 contraction and a 2:1 expansion ratio. These areas are shown in our MOA.dgn file. The ineffective areas were measured and hand entered into HEC RAS. This process was used for both the

Revised and the Corrected Effective Models. The MOA.dgn that was initially submitted only had the shapes representing the areas for the Revised model shown, however for this resubmittal we have provided the areas for both the Revised (shown in white) and the Corrected Effective (shown in grey) runs.

No further comments issued.

FINAL DETERMINATION:

B-4950 is recommended for approval as a Type 2a MOA.



Rahish Khatri, PE
Project Engineer

Date 1/25/2017

