

# MOA/HEC-RAS Checklist Change Log

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## 01/05/17

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- Item 16 was updated with the following wording “it may be helpful to submit supporting information such as contraction/expansion lines in the .dgn file”.
- Item 19 was updated to conform to the 2016 Guidelines and most recent MOA. Please note: For Type 2b submittals, due to the LOMR requirement, no BFE increase greater than 0.0 ft. is allowed in the project Area of Influence.

## 05/25/16

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- Item 1 was rewritten to better define how to handle different versions of HEC-RAS.
- Items 3 to 25 were renumbered 4 to 26.
- New item 3 defines the area of influence and upstream and downstream limits.
- Item 4, Boundary Conditions, was rewritten to better reflect FEMA policies.
- Item 11, Corrected Effective Model, was rewritten to better define the purpose of the corrected effective model.
- Item 14, Contraction and Expansion Coefficients, added additional guidance.
- Item 19, Rises, was rewritten to address recurring review comments. Item 22, HEC-2, was rewritten to better reflect FEMA policies.
- New item 26 defines FEMA’s policy on No Impacts to Structures.

## 06/22/15

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- Fixed links in Item 2.
- The following sentences were added to item 22 “Only the BFE natural profile will be reviewed. No floodway profile is required.”

## 04/21/15

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- Renamed Document to “MOA/HEC-RAS Checklist”. The items are arranged to better follow the modeling process and group similar issues together. Diagrams showing encroachment and ineffective flow placement were added. Individual checkboxes were added to the sub items under the Structure Data Issue.
- The following was added to the Ineffective areas issue “The general accepted contraction ratio is 1:1 and expansion ratio generally ranges from 1:1 to 1:4. Also, when revising ineffective flow elevations be consistent and make sure that the ineffective flow areas act together on the upstream and downstream cross sections of a structure (sections 2 and 3).”
- The following was added to the New Cross Section issue “The cut line length in the geometric data needs to match the cross section length.”
- Added new Item 25 - “The reported upstream and downstream limits should extend just beyond the range of published FEMA FIS cross sections for which there is a water surface elevation difference between the corrected and revised plans (i.e. the affected reach).”

## 02/11/15

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- Item 19 hyperlinks updated.

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## 10/07/14

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- Item 10 revised for clarification regarding effective models which do not use Method 1 encroachment for floodway. Guidance added to change to Method 1 and copy exact encroachment stations from effective model output into Duplicate Effective model.
- Item 19 updated link to USACE HEC-RAS version downloads web page.

## 08/07/13

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- Item 22 revised for clarification.
- Item 24 added specifying that interpolated cross sections are not allowed and how new cross sections are to be added.

## 05/13/13

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- Item 23 added to clarify meaning of “six section analysis” for MOA Type 2c.

## 04/22/13

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- Item 6 changed to reflect FMP guidance to use 0.98 for maximum weir submergence factor.
- Items 10, 16, and 18 were updated to be consistent with recent modifications to MOA.

## 08/07/12

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- Item 19 wording was revised for clarification regarding acceptable HEC-RAS model version(s) to use for MOA submittals.

## 05/07/12

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- Item 11 was modified based on discussion with FMP Staff and their review contractors at a coordination meeting with NCDOT Hydraulics Staff on 5/03/12. The modifications provide clarification regarding inclusion of information in the in the RAS model narrative to address common recurring comments from MOA reviewers.

## 03/09/12

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- Item 8 was revised again because, after guidance from recent HEC-RAS training, it is not necessarily appropriate to use 0.6 and 0.8 for the respective contraction / expansion coefficients for culverts in every situation - only applicable if structure width is very small relative to the floodplain width. Therefore previous guidance to use typical values of 0.3 and 0.5 was correct, and any deviation should be justified in the MOA model narrative.

## 03/05/12

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- Item 8 was revised to clarify that contraction / expansion coefficients of 0.3 and 0.5, respectively, while valid for bridges, would not be valid for culverts (which, if considered an "abrupt transition" would be 0.6 and 0.8, respectively, per Table 3-3 in HEC-RAS Hydraulic Reference Manual.)