



COMMONWEALTH OF KENTUCKY  
TRANSPORTATION CABINET  
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**DESIGN MEMORANDUM NO. 01-19**

TO: Chief District Engineers  
KYTC Central Office Directors  
Project Development Branch Managers  
Active Consultants

FROM: Jill Asher, P.E., Director   
Division of Highway Design

DATE: March 26, 2019

SUBJECT: Drainage Submittal

In an attempt to streamline the submission of the Drainage Folder, a new format has been developed. The new format removes the DES and plan sets from the folder. The end result impacts the Preliminary Drainage Submittal the most, but the Final Drainage Submittal is also reduced significantly. The submittal will continue to be in electronic (PDF) format. The Advanced Situation Folder is **unaffected** by this action since it is a document defined by the Division of Structural Design.

The new drainage reporting will move away from the term “folder” and use the term “submittal” instead. The approach to the organization of the new drainage submittals is defined by classifying structures as requiring a standard analysis or an advanced analysis. Standard analysis will include all structures that **do not require** either a HEC-RAS (or similar) analysis or a scour analysis. Advanced analysis will include all structures that **do require** either a HEC-RAS (or similar) analysis or a scour analysis. Both the standard and the advanced analyses will require very little information in the Preliminary Submittal by focusing on the source files. The Final Submittal will include the source files and also preserve the drainage designs in a PDF format by including the standard output for the hydrologic and hydraulic (H&H) analyses. The source file deliverables are defined in the attachment to this memo and on the [webpage for the Drainage Branch](#), along with other explanatory materials to assist with the preparation of the submittals. Finally, a different coloring scheme will be used for the new Drainage Design Submittals. The cover of the new drainage design submittals will be blue instead of orange to distinguish the new format from the folders of the past.



This policy should be used for all projects that have not advanced past preliminary drainage submittal stage. However, project managers may elect to use the new submittal process for any project. If the information above is in conflict with Chapter DR 300 of the Drainage Manual, this memo will supersede the guidance in the manual until such time that the manual is updated. Please contact the Drainage Branch in the Division of Highway Design if you have questions regarding the submittal process.

JA:lmj

	Preliminary Drainage Design Submittal Deliverables		Final Drainage Design Submittal Deliverables	
	Compiled PDF Submittal	Source Files*	Compiled PDF Submittal	Source Files
<b>Section 1 Project Drainage Summary</b>	Summary Sheet of Designed Structures (w/flow changes at outfalls) <u>Project Drainage Discussion</u> Site Conditions Design Assumptions Analysis Methods Programs Used Deviations from Drainage Manual Guidance	Plan & Profile Sheets *.dgn Manuscript File of Project *.alg File *.dtm File – Existing and Merged Proposed  Hydrology - NOAA Intensities Table  <u>Watershed maps:</u> Pipes, Storm Sewers, & Ditches with: Longest Flow Path, C Value Calculations, Existing Areas (if different)	Summary Sheet of Designed Structures (w/flow changes at outfalls) <u>Project Drainage Discussion</u> Site Conditions Design Assumptions Analysis Methods Programs Used Deviations from Drainage Manual Guidance <u>Watershed maps:</u> Pipes, Storm Sewers, & Ditches with: Longest Flow Path, C Value Calculations, Existing Areas (if different) Correspondence & Drainage Inspection Minutes Pertinent Hydrology - NOAA Intensities Table	Plan & Profile Sheets *.dgn Manuscript File of Project *.alg File *.dtm File – Existing and Merged Proposed
<b>Section 2 Culverts &amp; Bridges</b>		<b>Standard Analysis</b> Hydrologic and Hydraulic Program Files Pipe Sheets or Situation Survey Sheets with: <u>Hydraulic Data Table:</u> Design & Check Q, HW, Outlet Velocities, Basis for Allowable HW, & Drainage Area Outfall Channel Geometry  <b>Advanced Analysis</b> Hydrologic and Hydraulic Program Files: Structure Plan or Layout Sheet <u>Maps:</u> (FIRM, Contour, Aerial, Drainage Area, Land Use, etc. as needed) Risk Assessment Form (if applicable) Hydraulic Design Output Site Specific Hydrologic & Hydraulic Discussion FEMA Restrictions & Conclusions Environmental Commitments or Limitations	<b>Standard Analysis</b> Pipe Sheets or Situation Survey Sheets with: <u>Hydraulic Data Table:</u> Design & Check Q, HW, Outlet Velocities, Basis for Allowable HW, & Drainage Area Outfall Channel Geometry Hydraulic Design Output  <b>Advanced Analysis</b> Structure Plan or Layout Sheet <u>Maps:</u> (FIRM, Contour, Aerial, Drainage Area, Land Use, etc. as needed) Risk Assessment Form (if applicable) Hydraulic Design Output Site Specific Hydrologic & Hydraulic Discussion FEMA Restrictions & Conclusions Environmental Commitments or Limitations	Hydrologic and Hydraulic Program Files  <b>Advanced Analysis</b> Hydrologic and Hydraulic Program Files
<b>Section 3 Storm Sewer Systems</b>		Hydrologic and Hydraulic Program Files Hydraulic Design Output Plot of EGL/HGL Profile (if needed)	Hydraulic Design Output Plot of EGL/HGL Profile (if needed)	Hydrologic and Hydraulic Program Files
<b>Section 4 Spread Calculations</b>		Hydrologic and Hydraulic Program Files Hydraulic Design Output	Hydraulic Design Output	Hydrologic and Hydraulic Program Files
<b>Section 5 Roadside Ditch Calculations</b>		Hydrologic and Hydraulic Program Files Hydraulic Design Output	Hydraulic Design Output	Hydrologic and Hydraulic Program Files

\* - Some "Source Data" information may be more efficiently submitted in Portable Document Format for Preliminary Submittals.

**Examples:**

Section 1 - Summary Sheet

Station	Structure	Existing Outfall Discharge (cfs)	Proposed Outfall Discharge (cfs)
100+00	36" Culvert	26.5	no change
200+00	60" Storm Sewer Outfall	110	125
300+00	8 x 6 RCBC	209	no change

**Examples:**

Section 2 - Hydraulic Data Table (Pipe Sheet)

FLOOD EVALUATION DATA DRAINAGE AREA = XXX.X ACRES				
	RETURN INTERVAL (YR)	RUNOFF (CFS)	HEADWATER ELEVATION (FT)	OUTLET VELOCITY (FPS)
DESIGN	25	--	--	--
CHECK	100	--	--	--
ALLOWABLE HEADWATER (FT) = --				
BASIS FOR AHW	DESIGNER DESCRIBES ESTABLISHMENT OF ALLOWABLE HEADWATER ELEVATION EX: LOW SHOULDER ELEVATION = XXX.XX FT			