

## DESIGN MEMORANDUM NO. 3-06

**TO:** Chief District Engineers  
Design Engineers  
Active Consultants

**FROM:** David E. Kratt, P.E. *DEK*  
Director  
Division of Highway Design

**DATE:** December 7, 2006

**SUBJECT:** Electronic Drainage Folder Submittal Requirements

The policy of this Cabinet has historically been to document the hydraulic design procedures and methods that are used on highway design jobs. This information has been placed into a document called a drainage folder which has been submitted as a hardcopy. Possible folder types include preliminary, advance, preliminary-advance, advance-final and final drainage folders.

Effective January 1, 2007, the policy of this Cabinet shall be to require the submittal of drainage information in electronic format in accordance with PDF (Portable Document Format) standards. The PDF file format has been proven to be a universal format in the preparation of project documents that are distributed via the internet or other media and as a format that lends itself well for project archival. All future drainage folder submittals shall be in PDF. Hardcopy files will no longer be required. It is recommended that electronic submittals be generated for all jobs in which hardcopy folders are less than 50% complete. Final Drainage Submittals deserve special consideration because they represent the legal document for drainage design. It is recommended that all Final Drainage Submittals be submitted in electronic format if the job is complete and final plans have not been submitted to Central Office. The Project Manager and Chief Drainage Engineer will evaluate individual cases where a different approach may be warranted.

The following guidelines shall be observed when creating electronic drainage submittals.

- **PDF Requirements**

- PDF files shall be created using Adobe Acrobat Standard Edition, version 7. If a different version or program is desired, it must be approved by Division of Highway Design, Drainage Section prior to submittal. All unreadable files or portions of files must be resubmitted in a readable condition.
- All pages shall be sized to accommodate a physical sheet size of 8.5" x 11" or 11" x 17". A bar scale shall be shown on all plan view sheets. The use of scanned images is discouraged unless absolutely necessary.
- The PDF document may be composed of color or black and white text or images and will be stored on KYTC servers with access provided through Projectwise.
- The first page of each volume shall be an image of the current orange drainage folder cover. A template of this page may be downloaded from the Division of Highway Design web site. This page shall be populated with project specific data.

- Each PDF shall include a table of contents. This table shall indicate all volumes and the contents of each and shall be included with each volume. It is not required to paginate the table of contents.
- Bookmarks shall be created in Acrobat, Standard Edition equivalent to a table of contents for that volume.
- Each PDF shall include a footer. Footers shall be created in Acrobat, Standard Edition. Page numbers shall be shown in the lower right corner of the footer in Arial font with a font size of 10 and noted as "Page x of y". Page numbers shall be sequenced per volume. The middle portion of the footer shall identify the volume ("VOLUME x OF y").
- The Final Drainage Submittal will be used to generate a quality black and white microfilm record thus subtle color changes in adjacent or overlapping color schemes shall be avoided.

- **Source Data Requirements**

Drainage source data shall be submitted as a zip file. The zip file shall contain input and output files used to perform the drainage design. Drainage design documentation including inspection reports, supplemental drainage meeting reports and email pertinent to the drainage design are not considered drainage source data.

The zip file shall be organized in a sequential structure packet layout plus it shall contain all other drainage design information not included in a specific structure packet. This may include spread calculations, drop box design, ditch analysis and other standard or non-standard forms or summaries. All stand alone documents must have a descriptive name for easy identification. Other user defined folder names may be added as needed. Structure packet folders shall be appropriately named thus bridge analysis information, for example could be contained in a folder named "Sta. 20+23, Bridge, 60' PCIB" and could include the subfolders "HECRAS", "Diversion" and the TC 61-504 Bridge and Culvert Summary form.

As source data is being used in the drainage design process, the results shall be compiled for inclusion into a PDF file that will become the drainage submittal document. This document will be called the Preliminary Submittal, the Advance Submittal or the Final Submittal. The zip file containing the drainage source data shall be submitted with the PDF file.

Drainage source data and PDF files may be kept on the designer's workstation during project development. These files shall be placed in Projectwise at least 30 days prior to a scheduled inspection, drainage review or Project Team Meeting.

- **Advance Submittal Considerations**

The Advance Submittal review requires the inclusion of additional files for use by the Division of Structure Design. It is recommended that these files be included in a zip file named "Structure Files.zip". The files for structure design review shall include the following files in DGN and PDF format:

- Roadway plan sheets
- Roadway profile sheets
- Roadway typical sheets
- Structure layout sheet
- Cross sections (applicable only in special situations such as a retaining wall)

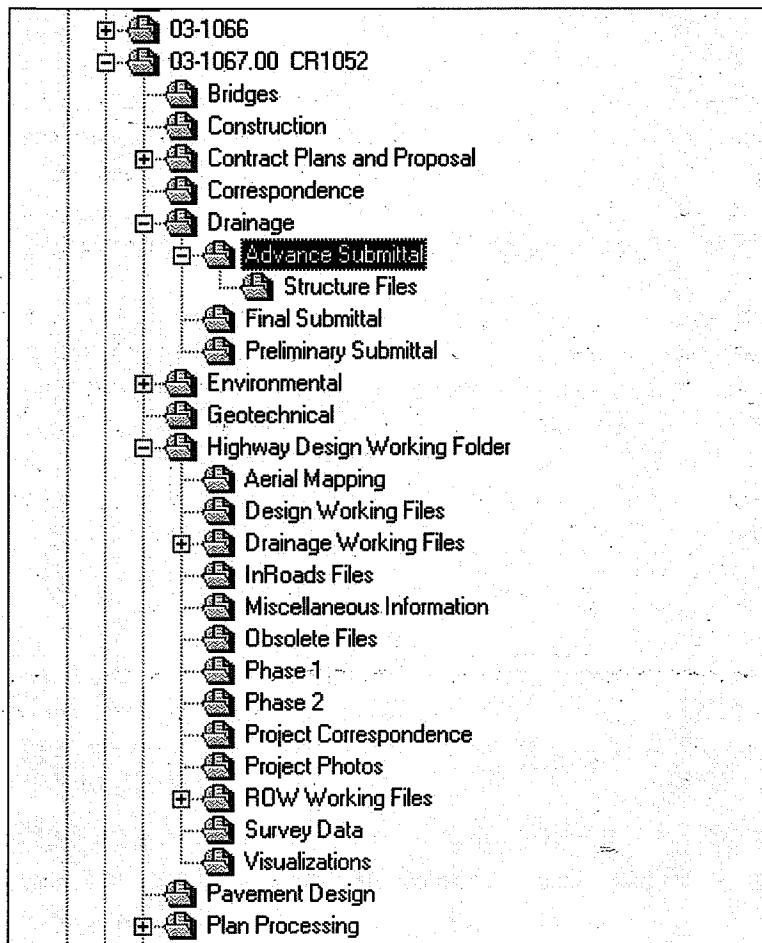
- **District Responsibilities**

All PDF and zip files shall be placed by the district project manager or designee into the appropriate Projectwise folder. The Project Manager or designee shall notify the Central Office drainage engineer responsible for that project by email when a drainage submittal or resubmittal has been placed into Projectwise. Each district shall be responsible for managing their own in-house drainage design as they deem appropriate.

The district is responsible for reviewing each electronic drainage submittal and supplying review comments to the Central Office Drainage Section and to the designer. The district reviewer shall use Acrobat Standard Edition to affix an electronic review status stamp to the cover sheet when finished with the drainage review and shall notify the Central Office Drainage Section of this event. The electronic stamp documents the level of review. Typical responses include "received", "reviewed", "revised" or "approved". Central Office and District Office reviews may occur concurrently.

- **Consultant Responsibilities**

All electronic drainage submittals shall be sent to the District Office Project Manager or designee responsible for that project. The PDF and the source data must be supplied in an electronic format that is compatible with the Projectwise folder structure. Only one copy per drainage submittal type is required. A typical Projectwise folder structure is shown as follows:



### Typical Projectwise Folder Structure

- **Central Office Drainage Responsibilities**

The Central Office drainage reviewer shall login each drainage submittal once notification has been received from the district and shall notify the district, Central Office personnel including the location engineer, the Division of Structure Design and the Division of Environmental Analysis of this event. The Central Office drainage reviewer shall provide recommendations to the location engineer and district project manager or designee. In certain instances, comments will be provided to other interested parties such as the local FEMA administrator. When the review of a drainage submittal has been completed, the Central Office drainage reviewer shall:

- Affix an electronic review status stamp to the cover sheet
- Enter a completion date into the drainage log
- Send an email confirmation to the district, Central Office personnel including the location engineer, the Division of Structure Design and the Division of Environmental Analysis

- **Structures Division Responsibilities**

The Division of Structure Design and the Division of Highway Design, Drainage Section shall maintain close communication with each other and the district to ensure coordinated and

prompt review of each advance drainage submittal. A notification of approval of the advance submittal will be sent by the Division of Structure Design to the district project manager.

- **Archival Considerations**

- The Final Drainage Submittal document will be electronically stored by KYTC and shall be considered the legal document of record to be retained for at least 40 years. After a period of time, the document will be moved to off-line tape storage that is accessible through Projectwise.
- The Final Drainage Submittal document will be sent to the Kentucky Department for Library and Archives (KDLA) for the purpose of generating a permanent high quality microfilm record. The Preliminary and Advance Drainage Submittals are not sent to KDLA. No retention period is required for Preliminary and Advance Drainage Submittals.
- Open record requests for drainage information may be submitted to the Central Office Drainage Section or to the District Office.
- It may be determined that an open records request requires the retrieval of records that are stored in boxes as hardcopy drainage folders. The retrieval of such records may include a processing charge depending on the amount of work and copying necessary to retrieve the information. These charges may be minimized or eliminated if the requestor can review the information in the Central Office Drainage Section.

Please contact the Drainage Section of the Division of Highway Design for questions regarding this memo.