



EVANSVILLE-VANDEBURGH COUNTY, INDIANA COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. 04-01 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated June 7, 2004 between Evansville-Vanderburgh County, IN and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 04-01 is as follows.

SECTION 1—OBJECTIVE AND SCOPE

The objective of the Flood Map Project documented in this MAS is to update the existing preliminary Digital Flood Insurance Rate Map (DFIRM) and Flood Insurance Study (FIS) report for the incorporated and unincorporated areas in the Harper Ditch – Crawford-Brandeis Ditch watershed of Evansville-Vanderburgh County, IN. The DFIRM and FIS report will be produced in the FEMA Countywide Format. The final product will be in the NGVD 29 Datum.

Existing GIS data and study needs for the community will be researched, obtained, organized and provided in accordance with Activity 1. Scoping will be necessary to determine the final scope of work for this project. In addition the Mapping Partners involved in this project will develop new and/or updated flood hazard data for the Harper Ditch and Crawford-Brandeis Ditch watersheds on the east side of Evansville and Vanderburgh County, Indiana, as summarized below.

For the entire reach of the Crawford-Brandeis Ditch extending upstream from the confluence with Pigeon Creek for approximately 3.3 miles to the confluence with the Lockwood Ditch at the Morgan Avenue crossing, a detailed study will be performed.

For the reach of the Harper Ditch extending upstream from the confluence with Pigeon Creek for approximately 1.2 miles to the confluence with the Hirsch Ditch, a detailed study will be performed.

For the entire reach of the Hirsch Ditch extending upstream from the confluence with Harper Ditch for approximately 1.0 miles to the confluence with the Crawford-Brandeis, Lockwood and Stockfleith ditches, a detailed study will be performed.

For the entire reach of the Lockwood Ditch extending upstream from the confluence with the Crawford-Brandeis, Hirsch and Stockfleith ditches for approximately 1.1 miles to the confluence with the Nurenbern Ditch, a detailed study will be performed.

For the reach of Nurenbern Ditch extending upstream from the confluence with the Lockwood Ditch for approximately 0.9 mile to a point approximately 400 feet upstream of the I-164 crossing to the one square mile watershed cutoff, a detailed study will be performed.

For the reach of the Boesche Ditch extending upstream from the confluence with the Crawford-Brandeis Ditch for approximately 0.5 mile to the one square mile watershed cutoff, a detailed study will be performed.

- For the reach of the Burkhardt Road Storm Sewer and Ditch extending upstream from the confluence with Lockwood Ditch for approximately 0.5 mile to the Vogel Road crossing to the one square mile watershed cutoff, a detailed study will be performed.

In order to complete the mapping of the Harper Ditch and Crawford-Brandeis Ditch watersheds, several tributaries and portions of tributaries which have watershed areas less than 1 square mile will be subject to approximate studies.

For the entire reach of the Stockfleith Ditch extending upstream from the confluence with the Crawford-Brandeis, Hirsch and Lockwood ditches for approximately 1.3 miles to its' intersection with Sycamore Street, an approximate study will be performed.

- For the reach of Harper Ditch extending upstream from the confluence with Hirsch Ditch for approximately 1.2 miles to the SR 66 (Lloyd Expressway) crossing, an approximate study will be performed.

For the reach of the Nurebern Ditch extending upstream from the point 400 feet upstream of the I-164 crossing for approximately 1.1 miles to the Lincoln Avenue crossing, an approximate study will be performed.

- For the Boesche Ditch extending upstream from a point 0.5 mile upstream of the confluence with the Crawford-Brandeis Ditch for approximately 0.8 mile to the intersection with the Vanderburgh – Warrick county line, an approximate study will be performed.
- For the reach of the Burkhardt Road Storm Sewer and Ditch extending upstream from the Vogel Road crossing for approximately 1.1 miles to the intersection with Highcroft Drive, an approximate study will be performed.

This Flood Map Project will be completed by the following

- Evansville-Vanderburgh County, Indiana -- the Cooperating Technical Partner (CTP);
- Morley and Associates, Inc. – the CTP Study Contractor (SC);
- Dewberry and Davis, LLC; - the FEMA Study Contractor (SC) for this Flood Map Project;
- Indiana Department of Natural Resources, Division of Water (IDNR-DOW) - QA/QC – State CTP; and
- Michael Baker Jr., Inc.

The CTP shall notify FEMA and the NSP by e-mail of all meetings with community officials at least one week prior to the meeting (with as much notice as possible). FEMA and/or the NSP may or may not attend the community meetings

The activities for this Flood Map Project, including required Quality Assurance/Quality Control (QA/QC) reviews, and the Mapping Partners that will complete them are summarized in the table below. The sections of this MAS that follow the table below describe the specific activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map components.

Activities	CTP	FEMA
Activity 1 – Scoping	X	
Activity 2 - Outreach	X	X
Activity 3 – Field Surveys and Reconnaissance	X	
Activity 4 – Topographic Data Development	X	
Activity 5 – Independent QA/QC Review of Topographic Data	N/A	
Activity 6 –Hydrologic Analyses	X	
Activity 6A –Coastal Flood Hazard Analyses	N/A	
Activity 7–Independent QA/QC Review of Hydrologic Analyses	X (IDNR -DOW)	
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	N/A	
Activity 8 – Hydraulic Analyses	X	
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	X (IDNR -DOW)	
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	X	
Activity 10A – Floodplain Mapping (Redelination Using Effective Flood Profiles and Updated Topographic Data)	N/A	
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	X	
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)		X
Activity 12 – Base Map Acquisition	X	
Activity 13 – DFIRM Production (Non-Revised Areas)		X

Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)		X
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)		X
Activity 14A – Application of DFIRM Graphic and Database Specifications		X
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications		X
Activity 15 – Preliminary DFIRM and FIS Report Distribution		X
Activity 16 – Post-Preliminary Processing		X

FEMA has developed tools to assist in the development of the flood hazard data studies and the Digital Flood Insurance Rate Maps (DFIRMs) if the CTP wishes to use them. FEMA will, through the NSP, provide all CTPs access to and training in these tools. The tools available at this time include WISE software and the DFIRM production tools. The use of these tools will improve the Map Modernization and efficiency of all mapping partners.

If the CTP chooses not to use these production tools, then the CTP will be required to submit intermediate project data at major milestones in each Mapping Project in accordance with data capture standards. Submitting data in these standards will aid in more efficient quality control reviews, data storage, archiving, and for future study updates.

The Data Capture Standard submittals will be required at the following study milestones:

- Project Scoping (as specified)
- Terrain Data Processing Completed
- Field Survey Completed
- Hydrology Completed (draft and final)
- Hydraulics Completed (draft and final)
- Coastal Analysis Completed (draft and final)
- DFIRM Mapping (draft and preliminary)

QA/QC review activities may be performed by CTPs or the NSP at the discretion of FEMA. Please note the NSP will also be performing periodic audits and overall study/project management to ensure study quality.

FEMA will be providing download/upload capability for intermediate data submittals through the Management Information Portal (MIP). Data submittals uploaded via the MIP will include the same data required prior to the existence of the MIP.



Activity 1 – Scoping

Responsible Mapping Partner: Evansville-Vanderburgh County, IN

Scope: In cooperation with the FEMA Region, a Project Management Team will be established consisting of Evansville-Vanderburgh County, IN, FEMA's regional engineer, and other appropriate officials. The Project Management Team will be responsible for coordinating the activities of this project and completing all tasks identified in this Statement of Work.

The intent of this Flood Map Project is to perform the necessary field reconnaissance, field surveying, hydrologic/hydraulic analyses and floodplain/floodway delineation to provide the information for detailed mapping of the Harper Ditch and Crawford-Brandeis Ditch watersheds in order to correct the errors discovered during a thorough review of the preliminary FIS and DFIRM panels. Scoping activity shall consist of delineating watersheds to determine final reach lengths, identifying stream reaches requiring additional field reconnaissance and surveying, identifying acceptable methods for performance of hydrologic/hydraulic analyses of areas to be studied, and identification and compilation of available resources needed to produce working base maps and maps for production of final DFIRM.

Based on the discussion of mapping needs, Evansville-Vanderburgh County, IN and FEMA Project Officer will finalize the areas to be included in the project (based on recommendations provided by the Project Team). Areas to be studied by detailed and approximate methods shall be identified.

Standards: All work under Activity shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: The Final Scoping Report shall be delivered with all of the components as laid out in the attached "Partner Flood Map Modernization Program Scoping Report" template in Appendix A in accordance with the schedule outlined in Section 6 for this Activity.

Activity 2 – Outreach

Responsible Mapping Partner: Evansville-Vanderburgh County, IN

Scope: The office of the Evansville - Vanderburgh County, IN Building Commission will coordinate the activities of this project with other community offices and agencies and keep them informed of the progress of said project. The outreach activities for a Flood Map Project can best be understood as a process that begins during the Project Scoping phase and continues through the Map Production and Post-preliminary phases. A regulatory overview of required activities is followed by a description of tools that can be used in working with stakeholders to keep them informed and to solicit their input.

The overarching goal for conducting outreach is to create a climate of understanding and ownership of the mapping process at the State and local levels. Well-planned outreach activities can reduce political stress, confrontation in the media, and public controversy, which can arise from lack of information, misunderstanding, or misinformation. These outreach activities also can assist FEMA and other members of the Project Team in responding to congressional inquiries.

Tracking, monitoring, and evaluating outreach activities and adjusting efforts according to ongoing feedback and evolving project needs.

All communication with local governments will be done in accordance with Title 44 Code of Federal Regulations Part 66.

Standards: All work under Activity 2 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon Completion of Outreach and Coordination the Contractor shall deliver the following to the FEMA Regional Project Officer in accordance with the schedule outlined in Section 6 for this Activity:

- A report detailing outreach and coordination activities
- Backup or supplemental information used in writing this report

Activity 3 - Field Surveys and Reconnaissance

Responsible Mapping Partner: Evansville-Vanderburgh County, IN and Morley and Associates, Inc.

Scope: Evansville-Vanderburgh County, IN and Morley and Associates, Inc. are in possession of field reconnaissance and field survey data obtained during the performance of the previous studies on the Harper Ditch and Crawford-Brandeis Ditch watersheds. All data is available in electronic and hard copy form.

~~To supplement prior field reconnaissance conducted during the previous studies performed on the Harper Ditch and Crawford-Brandeis Ditch watersheds, Morley and Associates, Inc. shall conduct a detailed field reconnaissance of the specific study area to determine conditions along the floodplain(s), types and numbers of hydraulic and/or flood-control structures, apparent maintenance or lack thereof of existing hydraulic structures, locations of cross sections to be surveyed, and other parameters needed for the hydrologic and hydraulic analyses.~~

In addition to the supplemental field reconnaissance, Morley and Associates, Inc. shall conduct field surveys for the streams or portions of streams not surveyed during the course of the performance of the previous studies for the Harper Ditch and Crawford-Brandeis Ditch watersheds. The field surveys shall include obtaining channel and floodplain cross sections, identifying or establishing Temporary Bench Marks, and obtaining the physical dimensions of hydraulic and flood-control structures. Field surveys will be required for the following reaches of the study streams:

- The lower reach of the Crawford-Brandeis Ditch extending upstream from the confluence with Pigeon Creek for approximately 1.9 miles to a point upstream of the Lynch Road crossing,
- The reach of Boesche Ditch extending upstream from the confluence with the Crawford-Brandeis Ditch for approximately 0.5 mile to the one square mile watershed cutoff,
- The lower reach of Harper Ditch extending upstream from the confluence with Pigeon Creek for approximately 0.6 mile to the SR 62 (Morgan Avenue) crossing,

The relocated reach of Harper Ditch extending from approximately 200 feet downstream (west) of Stockwell Road extending upstream approximately 725 feet to the upstream limit of the relocated channel,

- The reach of Harper Ditch contained within existing storm sewer pipes, extending upstream from the confluence with Hirsch Ditch for approximately 0.7 mile to the point where it becomes an open channel again,

The entire reach of the Burkhardt Road Storm Sewer and Ditch, a total length of approximately 1.4 miles to the point where it becomes an open channel again.

Data from previous field surveys of cross sections and structures is available for use in developing the hydraulic modeling. The following reaches of the study streams have been surveyed:

- The upper reach of the Crawford-Brandeis Ditch extending upstream from the Lynch Road crossing for approximately 1.4 miles to the confluence with the Lockwood Ditch at the Morgan Avenue crossing.

The reach of the Harper Ditch extending upstream from the SR 62 (Morgan Avenue) crossing for approximately 0.7 mile to the confluence with the Hirsch Ditch.

The entire reach of the Hirsch Ditch extending upstream from the confluence with Harper Ditch for approximately 1.0 miles to the confluence with the Crawford-Brandeis, Lockwood and Stockfleith ditches.

The entire reach of the Lockwood Ditch extending upstream from the confluence with the Crawford-Brandeis, Hirsch and Stockfleith ditches for approximately 1.1 miles to the confluence with the Nurebern Ditch.

~~The reach of Nurebern Ditch extending upstream from the Crawford-Brandeis, Lockwood and Stockfleith ditches for approximately 1.5 miles to a point 300 feet upstream of the SR 66 (Lloyd Expressway) crossing.~~

The entire reach of the Stockfleith Ditch extending upstream from the confluence with the Crawford-Brandeis, Hirsch and Lockwood ditches for approximately 1.2 miles to approximately 300 feet upstream (south) of SR 66 (Lloyd Expressway).

Standards: All work under Activity 3 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the Technical Support Data Notebook (TSDN) format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results; and
- Survey notebook containing cross sections and structural data.
- NSP Format Survey Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the *Guidelines and Specifications for Flood Mapping Partners*

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 4 - Topographic Data Development

Responsible Mapping Partner: Evansville-Vanderburgh County, IN

Scope: To supplement the field surveys conducted under Activity 3, Evansville-Vanderburgh County, IN shall provide additional topographic data of the stream channel and overbank areas of the flooding sources studied to delineate floodplain boundaries. Specifically, Evansville-Vanderburgh County, IN shall provide topographic data and mapping generated from the 2000 aerial photography for the Harper Ditch and Crawford-Brandeis Ditch streams and tributaries. The topographic mapping was previously provided to FEMA and Dewberry and Davis for use in producing the existing preliminary DFIRM panels. The contour interval and accuracy for the topographic data meets or exceeds the current FEMA requirements as documented in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

The topographic mapping to be used for this Flood Map Project was previously developed from aerial photography performed in 2000 for the express purpose of generating accurate and up-to-date mapping for the Evansville-Vanderburgh County, IN community.

Standards: All work under Activity 4 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Evansville-Vanderburgh County, IN shall make the following products available to FEMA:

- Hardcopy topographic maps;
- Report summarizing methodology and results;
- Mass points and breaklines data on CD-ROM;
- Digital work maps with contours;
- Checkpoint analyses to assess the accuracy of data, including Root Mean Square Error calculations to support vertical accuracy;
- Identification of remote-sensing data voids and methods used to supplement data voids;
- National Geodetic Survey data sheets for Network Control Points used to control remote-sensing and ground surveys; and

Metadata compliant with Federal Geographic Data Committee standards.

- NSP Format Terrain Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the *Guidelines and Specifications for Flood Mapping Partners*

- NSP Format Hydrology Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the Guidelines and Specifications for Flood Mapping Partners

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 7 - Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: Indiana Department of Natural Resources, Division of Water (IDNR-DOW)

Scope: IDNR-DOW shall review the technical, scientific, and other information submitted by Morley and Associates, Inc. under Activity 6 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:

Use of acceptable models;

Use of appropriate methodology(ies);

Correctly applied methodology(ies)/model(s), including QC of input parameters;

Comparison with gage data and/or regression equations, if appropriate; and

Comparison with discharges for contiguous reaches or flooding sources.

Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.

- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 7 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR-DOW shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- A Summary Report that describes the findings of the independent QA/QC review and
- Recommendations to resolve any problems that are identified during the independent QA/QC review.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 8 – Hydraulic Analyses

Responsible Mapping Partner: Evansville-Vanderburgh County, IN and Morley and Associates, Inc

Scope: Morley and Associates, Inc. shall perform detailed hydraulic analyses for approximately 8.5 miles of the flooding sources with watershed areas greater than one square mile as listed earlier in this MAS. Additionally, Morley and Associates, Inc. shall perform hydraulic analyses to determine approximate BFE's for approximately 5.5 miles of the flooding sources with watershed areas less than one square mile as listed earlier in this MAS. The modeling will include the 10-, 4-, 2-, 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Activity 6. The hydraulic methods used for the detailed analysis will include one-dimensional, steady water surface profile calculations using HEC-2 and/or HEC-RAS computer programs. The hydraulic analysis for determining approximate BFE's may include normal-depth calculations using Manning's Equations and/or highway culvert nomographs from *Hydraulic Design of Highway Culverts* (FHWA, 1985).

Morley and Associates, Inc. shall use the cross-section and field data collected/provided under Activity 3 to perform the detailed hydraulic analyses. The detailed hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources. The hydraulic analyses for the approximate BFE's shall obtain cross sections from existing topographic maps and from previously collected cross section and field data.

Morley and Associates, Inc. shall use the FEMA CHECK-2 or CHECK-RAS checking program to check the reasonableness of the hydraulic analyses. To facilitate the independent QA/QC review under Activity 9, Morley and Associates, Inc. shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, Morley and Associates, Inc. shall address all concerns or questions regarding Activity 6 that are raised by IDNR-DOW during the independent QA/QC review under Activity 9.

Morley and Associates, Inc. shall review the hydraulic analyses available from the previous analyses performed for the existing preliminary FIS. The following streams have previously had full or partial hydraulic analyses performed on them:

The upper reach of the Crawford-Brandeis Ditch extending upstream from the Lynch Road crossing for approximately 1.4 miles to the confluence with the Lockwood, Hirsch and Stockfleith ditches at the Morgan Avenue crossing.

The reach of the Harper Ditch extending upstream from the confluence with Pigeon Creek for approximately 1.2 miles to the confluence with the Hirsch Ditch. The reach of Harper Ditch to be relocated east and west of Stockwell Road will have to replace the reach being abandoned by the relocation.

The entire reach of the Hirsch Ditch extending upstream from the confluence with Harper Ditch for approximately 1.0 miles to the confluence with the Crawford-Brandeis, Lockwood and Stockfleith ditches.

The entire reach of the Lockwood Ditch extending upstream from the confluence with the Crawford-Brandeis, Hirsch and Stockfleith ditches for approximately 1.1 miles to the confluence with the Nurebern Ditch.

The reach of Nurebern Ditch extending upstream from the Lockwood ditch for approximately 1.5 miles to a point 300 feet upstream of the SR 66 (Lloyd Expressway) crossing.

The entire reach of the Stockfleith Ditch extending upstream from the confluence with the Crawford-Brandeis, Hirsch and Lockwood ditches for approximately 1.2 miles to approximately 300 feet upstream (south) of SR 66 (Lloyd Expressway).

- The reach of the Burkhardt Road Storm Sewer and Ditch extending upstream from the confluence with Lockwood Ditch for approximately 1.5 miles to approximately 0.3 mile upstream (south) of SR 66 (Lloyd Expressway). There are two previous hydraulic analyses for this flooding source available. However, one study analyzed the stream as an open channel for the entire length. The second analysis was performed to design the existing structures which extend upstream from the mouth of the stream to approximately 0.2 mile upstream of SR 66.

No detailed hydraulic analyses have been performed on the following stream reaches:

- The lower reach of the Crawford-Brandeis Ditch extending upstream from the confluence with Pigeon Creek for approximately 1.9 miles to a point upstream of the Lynch Road crossing.

The entire reach of Boesche Ditch extending upstream from the confluence with the Crawford-Brandeis Ditch for approximately 1.3 miles to the Vanderburgh – Warrick county line.

The reach of Harper Ditch extending upstream from the confluence with Hirsch Ditch for approximately 1.2 miles to the SR 66 (Lloyd Expressway) crossing.

Standards: All work under Activity 8 shall be performed in accordance with the standards specified in ~~Section 5~~ of this MAS.

Deliverables: Upon completion of hydraulic modeling for Harper Ditch and Crawford-Brandeis Ditch watersheds, Morley and Associates, Inc. shall submit the results to IDNR-DOW for an independent QA/QC review under Activity 9. Specifically, Morley and Associates, Inc. shall submit the results of detailed hydraulic analyses for Crawford-Brandeis Ditch, Hirsch Ditch, Lockwood Ditch, and portions of Harper Ditch, Boesche Ditch, Nurember Ditch, and the Burkhardt Road Storm Sewer for a final QA/QC review at the completion of this activity. Morley and Associates, Inc. shall also submit the hydraulic analyses for determining approximate BFE's for the Stockfleith Ditch and portions of Boesche Ditch, Harper Ditch, Nurember Ditch and Burkhardt Road Storm Sewer and Ditch

In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Morley and Associates, Inc. shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Digital and hardcopy versions of the Floodway Data Table for each flooding source that is compatible with the DFIRM database;
- Digital and hardcopy versions of all hydraulic modeling (input and output) files;
- Digital and hardcopy versions of table with range of Manning's "n" values;
- Explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate;
- Digital and hardcopy versions of all backup data used in the analyses;

- Digital and hardcopy versions of draft text for inclusion in the FIS report.
- NSP Format Hydraulic Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the Guidelines and Specifications for Flood Mapping Partners

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 9 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: Indiana Department of Natural Resources, Division of Water (IDNR-DOW)

Scope: IDNR-DOW shall review the technical, scientific, and other information submitted by Evansville-Vanderburgh County, IN and Morley and Associates, Inc. under Activity 8 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to revise the FIRM. This work shall include, at a minimum, the activities listed below.

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
 - Use of acceptable model(s);
 - Starting water-surface elevations;
 - Cross-section geometry;
 - Manning’s “n” values and expansion/contraction coefficients;
 - Bridge and culvert modeling;
 - Flood discharges;
 - Regulatory floodway computation methods; and
 - Tie-in to upstream and downstream non-revised Flood Profiles.
- Use the CHECK-2 or CHECK-RAS program as appropriate to flag potential problems and focus review efforts.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for hydraulic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 9 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, IDNR-DOW shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- A Summary Report that describes the findings of the independent QA/QC review; and
Recommendations to resolve any problems that are identified during the independent QA/QC review.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 10 - Floodplain Mapping (Detailed Riverine Analysis)

Responsible Mapping Partner: Evansville-Vanderburgh County, IN and Morley and Associates, Inc.

Scope: Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries (as required) for the flooding sources for which detailed hydrologic and hydraulic analyses were performed. Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall incorporate all new or revised hydrologic and hydraulic modeling and shall use the topographic data acquired under Activity 4 to delineate the floodplain and regulatory floodway boundaries on a digital work map. Also, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall address all concerns or questions regarding Activity 10 that are raised by the MCC during the independent QA/QC review under Activity 11.

Standards: All work under Activity 10 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of floodplain mapping for Harper Ditch and Crawford-Brandeis Ditch watersheds, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall submit the results to the MCC for an independent QA/QC review under Activity 11. Specifically, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall submit the results of floodplain mapping for Crawford-Brandeis Ditch, Hirsch Ditch, Lockwood Ditch, and portions of Harper Ditch, Boesche Ditch, Nurenbem Ditch and the Burkhardt Road Storm Sewer and Ditch for a final QA/QC review at the completion of this activity.

In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;

- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM;
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined under Activity 9; and
- An explanation for the use of existing topography for the studied reaches, if appropriate.
- NSP Format Mapping Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the *Guidelines and Specifications for Flood Mapping Partners*

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 10B - Floodplain Mapping (Refinement or Creation of Zone A)

Responsible Mapping Partner: Evansville-Vanderburgh County, IN and Morley and Associates, Inc.

Scope: ~~Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall use the hydrologic and hydraulic analyses which were performed under Activities 6 and 8 for determination of approximate floodplain boundaries to delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources listed earlier in this MAS. Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall delineate the floodplain boundaries on a digital work map based on existing topography or the topographic data acquired under Activity 4, which shall be the basis of the revised DFIRM. In addition, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall address all concerns or questions regarding Activity 10B that are raised by the MCC during the independent QA/QC review under Activity 11.~~

Evansville-Vanderburgh County, IN and Morley and Associates, Inc. may expand on the approaches for analyzing Zone A areas outlined in *Guidelines and Specifications for Flood Hazard Mapping Partners* and in FEMA 265, *Managing Floodplain Development in Approximate Zone A Areas* (April 1995), and/or develop new approaches. Such approaches must be coordinated with the FEMA Regional Project Officer identified in Section 12 of this MAS before analysis and mapping begin.

Standards: All work under Activity 10B shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of floodplain mapping for Harper Ditch and Crawford-Brandeis Ditch watersheds, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall submit the results to the MCC for an independent QA/QC review under Activity 11. Specifically, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall submit the results of mapping for Stockfleith Ditch and portions of Harper Ditch, Boesche Ditch, Nurenbern Ditch and Burkhardt Road Storm Sewer and Ditch for a final QA/QC review at the completion of this activity.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Evansville-Vanderburgh County, IN and Morley and Associates, Inc. shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Digital work maps showing the 1-percent-annual-chance floodplain boundary delineations, flood insurance risk zone labels, and all applicable base map features;

Written summary of the analysis methodologies;

- Any backup or supplemental information, including supporting calculations and assumptions for any computed 1-percent-annual-chance water-surface elevations used in the mapping required for the independent QA/QC review under Activity 11;
- Hardcopy and digital versions of input and output for any computer programs that were used;
DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.
- NSP Format Mapping Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the *Guidelines and Specifications for Flood Mapping Partners*

If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 11 - Independent QA/QC Review of Floodplain Mapping (Revised Areas)

Responsible Mapping Partner: FEMA (MCC)

Scope: The MCC shall review the floodplain mapping submitted by Evansville-Vanderburgh County, IN and Morley and Associates, Inc. under Activities 10 and 10B to ensure that the results of the analyses performed are accurately represented. This work shall include, at a minimum, the activities listed below.

Review the cross sections for proper location and orientation on the work map and agreement with the Floodway Data Table.

Review the BFEs shown on the work map for proper location and agreement with the results of the hydraulic modeling.

- Review the regulatory floodway widths for agreement with the widths shown in the Floodway Data Table and the results of the hydraulic modeling. Primary responsibility for review of the regulatory floodway boundary shall rest with IDNR-DOW.
- Review the floodplain boundaries for agreement with the flood elevations shown in the Floodway Data Table and the contour lines and other topographic information shown on the work maps.
- Review the floodplain widths at cross sections as shown on the work maps to ensure they match the Floodway Data Table.
- Review the floodplain boundaries as shown on the work maps to ensure they match the Flood Profiles.
- Review the flood insurance risk zones as shown on the work maps to ensure they are labeled properly.
- Review the DFIRM mapping files to ensure they were prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- Review the metadata files to ensure they include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All work under Activity 11 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- A Summary Report that describes the findings of the QA/QC review, noting any deficiencies in or agreeing with the mapping results;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated work map with all questions and/or concerns indicated, if necessary.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/frm_gsam.pdf.

Activity 12 - Base Map Acquisition

Responsible Mapping Partner: Evansville-Vanderburgh County, IN

Scope: Activity 12 consists of obtaining the digital base map, the current Evansville-Vanderburgh County topographic maps produced from the 2000 aerial photography, for the project. Evansville-Vanderburgh County, IN shall provide the digital base map. These base maps were previously provided for use in the preparation of the existing preliminary FIS and DFIRM panels. The required activities are as follows:

Provide digital files (raster or vector) of the base map.

- Provide necessary permission to allow FEMA's use and distribution of hardcopy and digital map products using the digital base map, free of charge.
- Certify that the digital data meets the minimum standards and specifications that FEMA requires for DFIRM production.
- Populate the DFIRM database with the information required by FEMA.

Standards: All work under Activity 12 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, Evansville-Vanderburgh County, IN shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Written certification that the digital data meet the minimum standards and specifications and
- Documentation that FEMA can use the digital base map.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/fhm_gsam.pdf.

Activity 13 – DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: FEMA (MCC)

Scope: For all flooding sources except those segments for which updated flood data will be developed under Activities 1 through 11, the information shown on the effective FIRM panels for all incorporated and unincorporated areas of Evansville-Vanderburgh County has been previously converted to digital format in conformance with FEMA DFIRM specifications. The MCC shall use the base map provided under Activity 12 to ensure that the non-revised areas on panels 140, 182, 201 and 205 were correctly digitized from the currently effective FIRM panels. The MCC also shall ensure that the results of LOMCs issued by FEMA since the date of the current effective FIRM for each affected community have been incorporated into the DFIRM panels.

Also, the MCC shall address all comments and questions regarding Activity 13 that are raised by FEMA during the independent QA/QC review under Activity 13A.

The MCC shall ensure that the flood theme for those segments of flooding sources for which updated flood data will be developed is not included in the digital DFIRM panels. Rather, the MCC shall leave these as "holes" in the digital flood theme that will be filled in as part of Activity 14 using the digital flood data developed under Activities 10 and 10B.

Standards: All work under Activity 13 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of DFIRM panels 140, 182, 201 and 205, the MCC shall submit the panels to FEMA for an independent QA/QC review under Activity 13A. In accordance with the TSDN

format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM, including a check that the road and floodplain relationship is maintained for all non-revised areas.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: FEMA (MCC)

Scope: FEMA shall review the DFIRM panels submitted by the MCC under Activity 13 to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs for the area mapped. This work shall include, at a minimum, checking the following:

- Cross sections were properly located and oriented as shown on the FIRM
BFEs are properly located and agree with the BFEs shown on the FIRM.
- Regulatory floodway widths agree with the widths shown on the FIRM
- The 1 and 0.2-percent-annual-chance floodplain boundaries agree with the floodplain boundaries shown on the FIRM and the contour lines, other topographic information, and planimetric information shown on the DFIRM base.
- For coastal studies, setup and runup height elevations shown on the work map agree with those shown on the data table(s), and stillwater elevations are shown where coastal and riverine flooding studied in detail join.
- Flood insurance risk zone designations are indicated properly.
- Road and floodplain relationships are maintained for all unrevised areas.

- DFIRM mapping files meet the GIS file and database format requirements specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those requirements for content and attribution.
- Metadata files describing the DFIRM data include the required information.

Standards: All work under Activity 13A shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 14 –DFIRM Production (Merging Revised and Non-Revised Information)

Responsible Mapping Partner: FEMA (MCC)

Scope: Upon completion of the floodplain mapping activities for the revised areas (Activities 10 and 10B) and the DFIRM production for non-revised areas (Activity 13), the MCC shall merge the digital floodplain data into a single, updated DFIRM. This work is to include tie-in of flood hazard information for areas that were not studied as part of the Flood Map Project documented in this MAS. The MCC also shall tie in the revised and non-revised Flood Profiles, floodplain boundaries, and regulatory floodway boundaries with contiguous communities that were not studied as part of the Flood Map Project documented in this MAS. The MCC shall coordinate with FEMA and those Mapping Partners responsible for Activities 10, 10B, and 13, as necessary, to resolve any potential tie-in issues.

Standards: All work under Activity 14 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;
- DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;

- Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 14A – DFIRM Production (Application of DFIRM Graphics and Database Specifications)

Responsible Mapping Partner: FEMA (MCC)

Scope: The MCC shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Activity 14. This work shall include adding all required annotation, line pattern, area shading, and map collar information (e.g., map borders, title blocks, legends, notes to user). The MCC shall coordinate with those Mapping Partners responsible for Activities 10, 10B, 13, and 14, as necessary, to resolve any problems that are identified during Activity 14A.

Standards: All work under Activity 14A shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone labels, and all applicable base map features;

DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;

Metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;

Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and

- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM.
- NSP Format DFIRM Database or Intermediate Data Delivery consistent with the NSP Data Capture Standards – Appendix N of the *Guidelines and Specifications for Flood Mapping Partners*

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 14B – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications

Responsible Mapping Partner: FEMA (MCC)

Scope: Upon completion of the floodplain mapping activities (Activities 10 and 10B) and DFIRM production activities (Activities 13, 14, and 14A), the MCC shall review the DFIRM to ensure it meets current FEMA graphic specifications. In addition, the MCC shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. The MCC shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QA/QC review. This work shall ensure that the requirements below are met.

- All required DFIRM features are accurately and legibly labeled and follow the examples shown in the FEMA DFIRM specifications. This includes all flood insurance risk zones, BFEs, cross sections, studied streams, mapped political entities, and all roads within and adjacent to the 1-percent-annual-chance floodplains.
- All DFIRM features are correctly symbolized with the appropriate symbol, line pattern, or area shading and follow the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- All map collar information is complete, correct, and follows the requirements specified in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- DFIRM mapping files are in one of the GIS file and database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution.

DFIRM database files are in one of the database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those specifications for content and attribution.

- Metadata files describing the DFIRM data include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- The FIS report is prepared in the FEMA Countywide Format as documented in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All work under Activity 14B shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the MCC shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results and the results of all automated or manual QA/QC steps taken during the independent QA/QC review;

Recommendations to resolve any problems that are identified during the independent QA/QC review; and

- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary.

Appendix M may be downloaded from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/pdf/fhm/firm_gsam.pdf.

Activity 15 - Preliminary DFIRM and FIS Report Distribution

Responsible Mapping Partners: FEMA (MCC)

Scope: Activity 15 consists of the final preparation, review, and distribution of the Preliminary copies of the DFIRM and FIS report for community official and general public review and comment. The activities to be performed are summarized below.

Preliminary Transmittal Letter Preparation. The MCC shall prepare letters to transmit the Preliminary copies of the DFIRM and FIS report and related enclosures to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

Preliminary FIS Report Preparation: The MCC shall prepare the FIS report in the FEMA Countywide Format following the FEMA requirements specified in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Final QA/QC Review of Preliminary DFIRM and FIS Report: The MCC shall perform a final QA/QC review of the Preliminary DFIRM and FIS report, including all data tables, Flood Profiles, and other components of the FIS report. The QA/QC review procedures shall be consistent with the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Discrepancy Resolution: The MCC shall work with Dewberry and Davis LLC, Evansville-Vanderburgh County, IN, IDNR-DOW, Morley and Associates, Inc. and FEMA as appropriate to resolve discrepancies identified during the final QA/QC review.

Distribution of Preliminary DFIRM and FIS Report: The MCC shall distribute the Preliminary copies of the DFIRM and FIS report to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

News Release Preparation: The MCC shall prepare news release notifications of BFE changes for all affected communities if appropriate and perform QA/QC reviews of the notices for accuracy and compliance with FEMA format requirements. The MCC shall file the notifications for later submittal to FEMA for review.

Preliminary Summary of Map Actions (SOMA) Preparation: The MCC shall prepare Preliminary SOMAs for all affected communities if appropriate. The SOMA shall list pertinent information regarding LOMCs that will be affected by the issuance of the DFIRM (i.e., superseded, incorporated, revalidated).

Standards: All work under Activity 15 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the *FEMA Document Control Procedures Manual*. The MCC, Dewberry and Davis LLC, Evansville-Vanderburgh County, IN, IDNR-DOW and Morley and Associates, Inc. shall make the products listed below available to FEMA in accordance with the schedule outlined in Section 6 for this Activity.

- Preliminary transmittal letters shall be prepared. These letters and any additional letters requested by FEMA shall be prepared in accordance with the current version of the *FEMA Document Control Procedures Manual*.
- Preliminary copies of the DFIRM and FIS report, including all new or updated data tables and Flood Profiles, shall be prepared.
- Preliminary copies of the DFIRM and FIS report, including all updated data tables and Flood Profiles shall be mailed to the Chief Executive Officer (CEO) and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.
- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be provided as appropriate.
- Revised DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- Revised DFIRM database files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- Revised metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM shall be provided.

Activity 16 - Post-Preliminary Processing

Responsible Mapping Partners: FEMA (MCC) and Evansville-Vanderburgh County, IN

Scope: Activity 16 consists of finalizing the DFIRM and FIS report after the Preliminary copies of the DFIRM and FIS report have been issued to community officials and the public for review and comment. The activities to be performed are summarized below.

Initiation of Statutory 90-Day Appeal Period: When required, upon completion of a 30-day community comment period and/or final coordination meeting with the affected communities, FEMA and/or the MCC shall arrange for and verify that the following activities are completed in accordance with the current version of the *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*:

- Proposed BFE determination letters are sent to the community CEOs and floodplain administrators.
- News release notifications of BFE changes are published in prominent newspapers with local circulation.

- The appropriate notices (Proposed Rules) are published in the *Federal Register*.
- When the MCC and/or Evansville-Vanderburgh County, IN holds public meetings to present and discuss the results of this Flood Map Project, FEMA will attend the meetings and assist where possible if requested.

Resolution of Appeals and Protests: FEMA and/or the MCC and Evansville-Vanderburgh County, IN shall support FEMA in reviewing and resolving appeals and protests received during the 90-day appeal period. For each appeal and protest, the following activities shall be conducted as appropriate:

- Initial processing and acknowledgment of submittal;
- Technical review of submittal;
- Preparation of letter(s) requesting additional supporting data;
- Performance of revised analyses; and
- Preparation of a draft resolution letter and revised DFIRM and FIS report materials for FEMA review.

FEMA's Contractor and/or the MCC shall mail all associated correspondence upon authorization by FEMA.

Preparation of Special Correspondence: FEMA's Contractor, the MCC and/or Evansville-Vanderburgh County, IN shall support FEMA in responding to comments not received within the 90-day appeal period (referred to as "special correspondence"), including drafting responses for FEMA review when appropriate and finalizing responses when requested by FEMA. FEMA's Contractor and/or the MCC also shall mail the final correspondence (and enclosures if appropriate) and distribute appropriate copies of the correspondence and enclosures upon receipt of authorization from FEMA.

Revision of FIRM and FIS Report: If necessary, FEMA, the MCC and/or Evansville-Vanderburgh County, IN shall work together to revise the DFIRM and FIS report at the direction of the FEMA Regional Project Officer and distribute Revised Preliminary copies of the DFIRM and FIS report to the CEO and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

Final SOMA Preparation: FEMA and/or the MCC shall prepare Final SOMAs for the affected communities as appropriate.

Processing of Letter of Final Determination: FEMA's Contractor and/or the MCC shall work with FEMA to establish the effective date for the DFIRM and FIS report, and shall prepare a Letter of Final Determination (LFDs) for each affected community for FEMA review in accordance with the FEMA Document Control Procedures Manual. They also shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs and enclosures upon receipt of authorization from FEMA.

Processing of Final DFIRM and FIS Report for Printing: FEMA and/or the MCC shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to the FEMA Map Service Center for printing by the U.S. Government Printing Office. The MCC also shall prepare the appropriate paperwork to accompany the DFIRM and FIS report (including Print Processing Worksheet,

Printing Requisition Forms, and Community Map Actions Form) and transmittal letters to the community CEOs.

Revalidation Letter Processing. FEMA, the MCC and/or Evansville-Vanderburgh County, IN shall prepare and distribute letters to the community CEOs and floodplain administrators to notify the affected communities about LOMCs for which determinations will remain in effect after the DFIRM and FIS report become effective.

Archiving Data: FEMA and/or the MCC shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until they are transmitted to the FEMA Engineering Study Data Package Facility. In addition, the MCC, Dewberry and Davis LLC, Evansville-Vanderburgh County, IN, IDNR-DOW and Morley and Associates, Inc. will maintain copies of all data for a period of no less than 3 years.

Standards: All work under Activity 16 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the *FEMA Document Control Procedures Manual*, FEMA's Contractor, the MCC and/or Evansville-Vanderburgh County, IN shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 for this Activity:

- Documentation that the news releases were published in accordance with FEMA requirements;
- Documentation that the appropriate *Federal Register* notices (Proposed and Final Rules) were published in accordance with FEMA requirements;

Draft and final Special Correspondence (and all associated enclosures, backup data, and other related information) for FEMA review and signature as appropriate;

- Draft and final Appeal and Protest acknowledgment, additional data, and resolution letters (and all associated enclosures, backup data, and other related information) for FEMA review and signature as appropriate;
- Draft and final LFDs (and all associated enclosures, backup data, and other related information) for FEMA review and signature;

DFIRM negatives and final FIS report materials, including all updated data tables and Flood Profiles;

- Paperwork for the final DFIRM and FIS report materials;
- Transmittal letters for the printed DFIRM and FIS report;

LOMC Revalidation Letters if appropriate; and

- Complete, organized archived technical and administrative support data

SECTION 2—TECHNICAL AND ADMINISTRATIVE SUPPORT DATA SUBMITTAL

The Project Team members for this Flood Map Project that have responsibilities for activities included in this MAS shall comply with the data submittal requirements summarized below.

All supporting documentation for the activities in this Mapping Activity Statement shall be submitted in the TSDN format in accordance with Appendix M of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated April 2003. Appendix M is available for viewing or downloading on the FEMA Web site at http://www.fema.gov/pdf/fhm/fhm_gsam.pdf. Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

If any issues arise that could affect the completion of an activity within the proposed scope or budget, the responsible Mapping Partner shall complete a Special Problem Report (SPR) as soon as possible after the issue is identified and submitted to FEMA. The SPR is to describe the issue and propose possible resolutions. (For additional information on SPRs, refer to Appendix M, Subsection M.2.1.1 of *Guidelines and Specifications for Flood Hazard Mapping Partners*.)

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities															
	1	2	3	4	5	6	7	8	9	10 10B	11	12	13 13A	14 14A 14B	15	16
General Documentation																
Special Problem Reports	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Telephone Conversation Reports	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Meeting Minutes/Reports	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
General Correspondence	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Engineering Analyses																
Hydrologic Analyses			X			X	X	X	X	X	X					
Hydraulic Analyses			X			X	X	X	X	X	X					
Key to Cross-Section Labeling			X			X	X	X	X	X	X					
Key to Transect Labeling			X			X	X	X	X	X	X					
Draft FIS Report						X	X	X	X							
Mapping Information	X	X		X						X	X	X	X	X	X	X
Miscellaneous Reference Information	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin on August 23, 2004, and will be completed no later than August 22, 2005. The mapping activities may be terminated at the option of FEMA or Evansville-Vanderburgh County, IN in accordance with the provisions of the Partnership Agreement dated June 7, 2004. If these Mapping Activities are terminated; the remaining funds from uncompleted activities, provided by FEMA for this Mapping Activity Statement, will be returned to FEMA.

SECTION 5—STANDARDS

The standards relevant to this Mapping Activity Statement are provided in Tables 5-1 and 5-2. Information on the correct volume, appendix, section, or subsection of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* to be referenced for each mapping activity are summarized in Table 5-2.

These Guidelines are available for viewing or download from the FEMA Flood Hazard Mapping Web site at http://www.fema.gov/fhm/dl_cgs.shtm.

Table 5-1. Applicable Standards for Project Activities

	Activities															
	1	2	3	4	5	6	7	8	9	10, 10B	11	12	13, 13A	14, 14A, 14B	15	16
Applicable Standards	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003		X														
American Congress on Surveying and Mapping Procedures	X		X	X												
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-510), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	X		X	X												
Engineer Manual 1110-1-1000, <i>Photogrammetric Mapping</i> (USACE), July 1, 2002	X		X	X												
Engineer Manual 1110-2-1003, <i>Hydrographic Surveys</i> (USACE), January 1, 2002	X		X													
"Numerical Models Accepted by FEMA for NFP Usage," Updated April 2003	X					X		X	X							
<i>Content Standard for Digital Geospatial Metadata</i> (Federal Geographic Data Committee), 1998	X	X		X						X	X	X	X	X	X	X
<i>Document Control Procedures</i>	X	X														X

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
6A	Coastal Hazard Analyses	Appendices E, F, G, H, M and N Volume 1, Section 1.4 (specifically Subsection 1.4.2.2) Appendix A, Section A.4 Appendices B, D, M and N

Table 5-2. Project Activities and Applicable Portions of FEMA Guidelines and Specifications (Cont'd)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
7	Independent QA/QC Review of Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendix C, Section C.2 Appendices E, F, G, H, and M
7A	Independent QA/QC Review of Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendices B, D, and M
8	Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Sections C.3 and C.7 Appendices B, E, F, G, H, M and N
9	Independent QA/QC Review of Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 (specifically Subsection A.4.7)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
10	Floodplain Mapping (Detailed Riverine or Coastal Analysis)	Appendix C, Section B, G, H, and M Volume 1, Section 1.4 (specifically Subsection 1.4.2) Appendix C, Sections C.4 and C.6 Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, M and N
10A	Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.3) Appendix C, Section C.6 (specifically Subsection 6) Appendices K, L, M and N
10B	Floodplain Mapping (Refinement or Creation of Zone A)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendices K, L, M and N
11	Independent QA/QC Review of Floodplain Mapping (Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 4, and 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendix D, Sections D.2 (specifically Subsection 7) and D.3 (specifically Subsection D.3.7) Appendices E, F, G, H, K, L, and M
12	Base Map Acquisition and Preparation	Volume 1, Section 1.3 (specifically Subsection 3.1.8) and 4 (specifically Subsections 1.4.3.1 and 1.4.3.2) Appendix A, Section A.1 (specifically Subsection A)
13	DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 4.2.3, and 1.4.3.2) Appendices K, M and N

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
13A	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2) Appendices K, L, and M
14	DFIRM Production (Merging Revised and Non-Revised Areas)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K, L, M and N
14A	DFIRM Production (Application of FEMA Graphics and Database Specifications)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, M and N
14B	Independent QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10) Appendices K, L, and M
15	Preliminary DFIRM and FIS Report Distribution	Volume 1, Sections 1.4 (specifically Subsections 1.4.2 and 1.4.3) and 1.5 (specifically Subsection 1.5.1) Appendices J, K, L, and M
16	Post-Preliminary Processing	Volume 1, Section 1.5 (specifically Subsection 1.5.2) Appendices J, K, L, and M

SECTION 6—SCHEDULE

The activities documented in this MAS shall be completed in accordance with the project schedule below. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner.

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 1 – Scoping	CTP, FEMA	
Activity 2 - Outreach	CTP, FEMA	
Activity 3 – Field Surveys and Reconnaissance	CTP	
Activity 4 – Topographic Data Development	CTP	
Activity 5 – Independent QA/QC Review of Topographic Data	N/A	
Activity 6 –Hydrologic Analyses	CTP	
Activity 6A –Coastal Flood Hazard Analyses	N/A	
Activity 7–Independent QA/QC Review of Hydrologic Analyses	IDNR-DOW	
Activity 7A–Independent QA/QC Review of Coastal Hazard Analyses	N/A	
Activity 8 – Hydraulic Analyses	CTP	
Activity 9 – Independent QA/QC Review of Hydraulic Analyses	IDNR-DOW	
Activity 10 – Floodplain Mapping (Detailed Riverine or Coastal Analysis)	CTP, FEMA	
Activity 10A – Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	N/A	
Activity 10B – Floodplain Mapping (Refinement or Creation of Zone A)	CTP, FEMA	
Activity 11 – Independent QA/QC Review of Floodplain Mapping (Revised Areas)	FEMA	
Activity 12 – Base Map Acquisition	CTP	
Activity 13 – DFIRM Production (Non-Revised Areas)	FEMA	
Activity 13A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	FEMA	

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 14 – DFIRM Production (Merge Revised and Non-Revised Information)	FEMA	
Activity 14A – Application of DFIRM Graphic and Database Specifications	FEMA	
Activity 14A – Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	FEMA	
Activity 15 – Preliminary DFIRM and FIS Report Distribution	FEMA	
Activity 16 – Post-Preliminary Processing	FEMA	

SECTION 7—CERTIFICATIONS

Activity 3 (Field Surveys and Reconnaissance) and Activity 4 (Topographic Data Development)

A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic data, in accordance with 44 CFR 65.5(c). Certification of topographic data by the American Society for Photogrammetry and Remote Sensing is also acceptable.

Activity 6 (Hydrologic Analyses), Activity 8 (Hydraulic Analyses), Activity 10 (Floodplain Mapping– Detailed Riverine) and Activity 10B (Floodplain Mapping {Refinement or Creation of Zone A})

- A Registered Professional Engineer shall certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).
- A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic information in accordance with 44 CFR 65.5(c).
- Any levee systems to be accredited will be certified in accordance with 44 CFR 65.10(e).

Activity 10 (Floodplain Mapping– Detailed Riverine), Activity 10B (Floodplain Mapping {Refinement or Creation of Zone A}), Activity 11 (Independent QA/QC Review of Floodplain Mapping {Revised Areas}), Activity 13 (DFIRM Production {Non-Revised Areas}), Activity 14 (DFIRM Production {Merging Revised and Non-Revised Information}), and Activity 14A (DFIRM Production {Application of FEMA Graphics and Database Specifications})

The DFIRM metadata files shall include a description of the horizontal and vertical accuracy of the DFIRM base map and floodplain information.

Activity 12 (Base Map Acquisition and Preparation)

- A community official or responsible party shall provide written certification that the digital data meet FEMA minimum standards and specifications.
- The responsible Mapping Partner shall provide documentation that the digital base map can be used by FEMA. Please note that uploading base map data to the MIP does not constitute

agreement that the digital base map can be used by FEMA. Documentation that the digital base map can be used by FEMA will still be required.

Certifications must be made at the time the intermediate data is submitted. For example, if hydrologic data is submitted, certification will be required at the time it is submitted.

SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from the NSP, who may be contacted by telephone at 312-707-8770 or by facsimile at 312-707-8804.

General technical and programmatic information, such as FEMA 265 and the Quick-2 computer program, can be downloaded from the FEMA Web site (<http://www.fema.gov/flm/>). Specific technical and programmatic support may be provided through the NSP; such assistance should be requested through the FEMA Project Officer specified in Section 12 of this MAS.

Project Team members also may consult with the FEMA Regional Project Officer to request support in the areas of selection of data sources, digital data accuracy standards, assessment of vertical data accuracy, data collection methods or subcontractors, and GIS-based engineering and modeling training.

SECTION 9—CONTRACTORS

Evansville-Vanderburgh County, IN intends to use the services of Morley and Associates, Inc. as a contractor for this Flood Map Project. Evansville-Vanderburgh County, IN shall ensure that the procurement for all contractors used for this Flood Map Project complies with the requirements of 44 CFR 13.36.

Part 13 may be downloaded in PDF or text format from the U.S. Government Printing Office Web site at http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html.

SECTION 10—REPORTING

FINANCIAL REPORTING

Because funding has been provided to Evansville-Vanderburgh County, IN by FEMA, financial reporting requirements for Evansville-Vanderburgh County, IN will be in accordance with Cooperative Agreement Articles V and VI.

Evansville-Vanderburgh County, IN shall provide financial reports to the FEMA Regional Project Officer and Assistance Officer in accordance with the terms of Cooperative Agreement No. {Insert CTP cooperative agreement number}, dated {Insert date Cooperative Agreement signed}.

STATUS REPORTING:

Status reports will be submitted on a quarterly basis in accordance with the financial reporting submittals. At a minimum these reports will include a summary of the work as outlined in the Cooperative Technical

Partner (CTP)/Map Modernization Project Quarterly Report located in Appendix B of this Mapping Activity Statement. The Project Officer, as needed, may request additional information on status.

Evansville-Vanderburgh County, IN may meet with the NSP and/or FEMA more frequently (up to bi-weekly if needed) to review the progress of the project in addition to the quarterly financial and status submittals. These meetings will alternate between FEMA's Regional Office, the Evansville-Vanderburgh County, IN office and conference calls as necessary.

Where specific actions are funded by FEMA, the reporting requirements will be in accordance with the FEMA Cooperative Agreement. Evansville-Vanderburgh County, IN shall work with the FEMA Project Officer to establish an acceptable protocol for entry of project information into the Monitoring of Contracted Studies (MICS) database at the beginning of each project. Evansville-Vanderburgh County, IN will update MICS quarterly. If this report proves to be sufficient, the Assistance Officer may waive the written quarterly reports thereafter (reference 44 CFR Part 13.40, *Monitoring and Reporting Program Performance*). However, this shall not affect the financial reporting requirements (reference 44 CFR Part 13.41, *Financial Reporting*). The PO shall ensure that key Evansville-Vanderburgh County, IN staff have been provided access and passwords to MICS. The PO will also provide project-naming conventions for MICS. Once access is provided, MICS (including a tutorial) may be found at: <https://mics.fema.gov>. As the Mapping Information Portal (MIP) project management modules become available and ultimately replace MICS, the MIP tracking tools will be used for this reporting.

Section 11—PROJECT COORDINATION

Throughout the project, all members of the Project Team will coordinate, as necessary, to ensure the products meet the technical and format specifications required and contain accurate, up-to-date information. Coordination activities shall include:

- Meetings, teleconferences, and video conferences with FEMA and other Project Team members;
- Telephone conversations with FEMA and other Project Team members on a scheduled basis and an ad hoc basis, as required;
- Updates to the MICS, Mapping Needs Update Support System database, and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- E-mail, facsimile transmissions, and letters, as required

SECTION 12—POINTS OF CONTACT

The points of contact for this Flood Map Project are Mary Jo Mullen, the FEMA Regional Project Officer; Steve Fuchs, the Project Manager for; Evansville-Vanderburgh County, IN or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, the any additional assistance of FEMA should be requested through the FEMA Regional Project Officer.

Each party has caused this MAS to be executed by its duly authorized representative.

Catherine Fanello

Catherine Fanello
President, County Commissioners
Vanderburgh County

9/17/04

Date

Jonathan Weinzapfel

Jonathan Weinzapfel
Mayor
City of Evansville

9/16/04

Date

Terry Russ Fell

Terry Fell
HIRA Branch Chief
Federal Emergency Management Agency, Region V

Sept. 9. 2004

Date

Mickey J. James
Deputy Director
Indiana Department of Natural Resources

Date