Data Capture Technical Reference

November 2016

FEMA

For more information, visit the FEMA Guidelines and Standards for Flood Risk Analysis and Mapping webpage. Copies of the Standards for Flood Risk Analysis and Mapping policy, related guidance, technical references, and other information about the guidelines and standards development process are all available here. You can also search directly by document title at www.fema.gov/library.

Implementation Instructions

This version of the Technical Reference must be used on projects as described below. Generally, the changes in this version may also be implemented on any project, in coordination with the FEMA Project and Contracting Officer's Representative.

Revision Date	Implementation
November 2016	Implemented for all new projects initiated in FY17 and later.

Table of Revisions

The following summary of changes details revisions to the Data Capture Technical Reference subsequent to its most recent version in May 2016.

Affected Section or Subsection	Date	Description
Section 3 – Elevation Submittal Requirements	November 2016	Changed section name and updated references to New Topo Capture, Existing Topo Capture, and Terrain Capture submittals. Also clarified vertical accuracy reporting format in S_Elev_Inv_Ar.
Section 6 – MIP Directory Structure and File Formats	November 2016	Added Automated Engineering report as an item in the General folders where applicable.
Sections 6.3 New Topo Capture, Section 6.4 Existing Topo Capture, and Section 6.5 – Terrain Capture	November 2016	Split out folder structure for New Topo Capture, Existing Topo Capture, and Terrain Capture submittals. Noted that data will be submitted to the Engineering Library.

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1. Introduction

The purpose of the Data Capture Technical Reference is to provide a consistent framework for submittal, storage and retrieval of the technical and administrative data needed for a Flood Risk Project. In addition, this document provides data submittal standards for supporting data that are used in performing risk assessment analyses and the creation of flood risk products. This framework is intended to improve the quality of Flood Risk Project documentation; facilitate effective project handoff between organizations; provide easier retrieval of Flood Risk Project data and preserve the investment made in the data.

The following major production data capture points in the Mapping Information Platform (MIP) workflow are included in this technical reference: discovery, base map, topographic, terrain, survey, hydrologic analysis, hydraulic analysis, alluvial fan analysis, coastal analysis, floodplain mapping for redelineation and digital conversion, draft Flood Insurance Rate Map (FIRM) mapping data, preliminary FIRM mapping data, post-preliminary data, final FIRM mapping data and risk assessment for studies.

This document is intended to be used in conjunction with the FIRM Database Technical Reference document, which details the Geographic Information System (GIS) file formats and content of the FIRM Database files. Most of the FIRM Database files are initially developed during the data development stages outlined in the MIP workflow and will be submitted incrementally as the Flood Risk Project progresses through that workflow. The standards outlined in the FIRM Database Technical Reference must be applied to the FIRM Database elements of the Data Capture data submittals.

This document outlines some additional data standards for Discovery, Elevation, and Survey data. It also provides the required submittal directory structure and file format requirements for each MIP workflow step.

2. Discovery Data Submittal Requirements

Discovery deliverables include all the data collected during Discovery (including data collected after the Discovery meeting) and the draft and final Discovery Map. Any data collected during Discovery that are required by the Coordinated Needs Management Strategy (CNMS) must use the data model provided in the CNMS Technical Reference to enter the data and update CNMS.

Discovery deliverables that are not captured by the CNMS are listed in the following sections and must be submitted as specified in this section and Section 6. An Extensible Markup Language (XML) file with the Discovery spatial data schema can be found on the FEMA Templates and Other Resources webpage at www.FEMA.gov.

If additional data are collected during Discovery that are not specifically mentioned in this section, those data must also be submitted in the format collected as part of Discovery deliverables as supplementary data. Data submitted to the MIP as part of this section must be consistent with data listed in the Discovery Report.

2.1 Table: DCS_L_Mtg_POC

This table is required for all Discovery projects. This non-spatial table includes contact information for the county and every incorporated community in the Flood Risk Project that has the following positions/roles occupied: Chief Executive Officer (CEO), such as Mayor, City Manager, County Judge or other; State National Flood Insurance Program (NFIP) Coordinator; local Floodplain Administrator (if community participates in the NFIP); State Hazard Mitigation Officer (SHMO) and data/GGIS contact (person to contact to obtain local data for use in the Flood Risk Project).

Table 1: DCS_L_Mtg_POC

Field	Type	Length	R/A	Description
POC_ID	Text	25	R	Primary key for this table. Assigned by table creator
POC_NAME	Text	50	R	Point of Contact Full Name
FIRST_NAME	Text	25	R	Point of Contact First Name
LAST_NAME	Text	25	R	Point of Contact Last Name
CNT_TITLE	Text	50	A	Contact Position or Title
AGENCY	Text	50	R	Contact Agency Name
AGY_ROLE	Text	50	A	Role of Contact Agency
CEO	Text	1	R	Community CEO for NFIP purposes. Acceptable values for this field can be found in the D_TrueFalse domain table
FPA	Text	1	R	Community Floodplain Administrator for NFIP Purposes. Acceptable values for this field can be found in the D_TrueFalse domain table
SHMO	Text	1	R	State Hazard Mitigation Officer. Acceptable values for this field can be found in the D_TrueFalse domain table
GIS	Text	1	R	GIS Point of Contact for Community/Agency. Acceptable values for this field can be found in the D_TrueFalse domain table
ADDRESS	Text	75	A	Contact Address
ADDRESS_2	Text	75	A	Contact Address 2
CITY	Text	25	A	Contact City
STATE	Text	24	A	Contact State. Acceptable values for this field are listed in the D_State_Name domain table
ZIP	Text	10	A	Contact ZIP Code
PHONE	Text	10	A	Contact Primary Phone Number. Only numbers (i.e., 3035551212)
PHONE_EXT	Text	6	A	Contact Primary Phone Number Extension. For example, x2345
EMAIL	Text	50	A	Contact E-mail Address
COMMENTS	Text	254	A	User provided comments

2.2 Table: DCS_L_Source_Cit

This table is required for all Discovery projects. This non-spatial table includes information about the sources of the spatial data that are submitted.

Table 2: DCS_L_Source_Cit

Field	Type	Length	R/A	Description
SOURCE_CIT	Text	11	R	Source Citation identifier used in the FIRM Database and in the metadata files. Default source abbreviations are listed in Table 3 of the FIRM Database Technical Reference. Source citations start with the type of source, followed by sequential numbers, for example "BASE1," "BASE2," etc.
CITATION	Text	25	A	Citation A short and unique citation name (Author and Year) used within the Flood Insurance Study (FIS) Report to reference this publication, such as "U.S. Census 2010."
PUBLISHER	Text	254	R	Publisher Name This is the name of the publishing entity.
TITLE	Text	254	R	Title of referenced publication or data. Should include a volume number if applicable.
AUTHOR	Text	254	A	Author/Editor Used in FIS Report Bibliography and References Table. This is the author or editor of the reference. Multiple authors may be listed in this field.
PUB_PLACE	Text	100	A	Publication Place This is the place of publication (i.e., "Washington DC").
PUB_DATE	Text	30	R	Publication Date. This the date of publication or date of issuance.
WEBLINK	Text	128	A	Reference Web Address. This is the web address for the reference, if applicable.
SRC_SCALE	Text	12	A	Scale of the source data, if applicable. For example: 1:24000.
MEDIA	Text	50	R	Media on which the source data were received.
SRC_DATE	Date	Default	A	Calendar date of the source data. Required for spatial sources. Used in metadata.
DATE_REF	Text	254	A	Date reference. What the source date represents (e.g., ground condition, effective date, publication date, model date, MIP submission date, etc.). Required for spatial sources. Used in metadata.
CONTRIB	Text	254	A	Source contribution. Information contributed by the source to the data set. Required for spatial sources. Used in metadata.
NOTES	Text	254	A	User Defined Notes.

2.3 Table: DCS_S_Pol_Ar

This table is required for all Discovery projects. This spatial file contains the political boundaries that cover the geographic extent of the Flood Risk Project. The spatial entity for this layer is a polygon.

Table 3: DCS_S_Pol_Ar

Field	Type	Length	R/A	Description
POL_AR_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
POL_NAME1	Text	50	R	Political Area Name 1. This is the primary name of the area shown, the area with floodplain management jurisdiction. For areas that have more than one name, this would be the primary name, with additional names shown in the field below. This would correspond to the official name of this jurisdiction used by FEMA within the NFIP. For unincorporated areas of a county, this must be the county name (e.g., Montgomery County).
POL_NAME2	Text	50	A	Political Area Name 2. This is the secondary name of the area shown. Populated if there is a common name for an area other than the official jurisdiction name.
POL_NAME3`	Text	50	A	Political Area Name 3. This is the tertiary name of the area shown. Populated if there is a situation where islands, National Parks, National Forests, military bases, or other area boundaries and labels need to be shown on the FIRM underneath the POL_NAME1 and POL_NAME2 labels.
CO_FIPS	Text	3	R	This is the three-digit county Federal Information Processing Standard (FIPS) code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4.
ST_FIPS	Text	2	R	This is the two-digit code that corresponds to the State FIPS code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4. These two numbers correspond to the first two digits of the panel number. Acceptable values for this field are listed in the D_State_FIPS domain table.
COMM_NO	Text	4	R	This is the four-digit number assigned by FEMA to each community for tracking purposes under the NFIP. On newer FIRMs the State FIPS and the community number appear below the community name.

Field	Type	Length	R/A	Description
CID	Text	6	R	This is the six-digit Community Identification (CID) number assigned by FEMA. It is created by combining the State FIPS code with the COMM_NO. If the jurisdiction does not have a community number assigned by FEMA, the CID is created by combining the State FIPS code with the abbreviation contained in the COMM_NO field (FED, ST, or OTHR).
ANI_TF	Text	1	R	Area Not Included. Acceptable values for this field are listed in the D_TrueFalse domain table.
ANI_FIRM	Text	6	A	Used for Area Not Included (ANI) polygons where ANI_TF equals "T" and where the data is included in another FIRM Database, usually because it is a multi-county community. Enter the DFIRM_ID of the FIRM Database that contains the Special Flood Hazard Area (SFHA) data of the ANI community. For a single-jurisdiction Flood Risk Project, the value is composed of the 2-digit state FIPS code and the 4-digit FEMA CID code (e.g., 480001). For a countywide Flood Risk Project, the value is composed of the 2-digit state FIPS code, the 3-digit county FIPS code, and the letter "C" (e.g., 48107C). Populate with "NP" if the area has never been converted to a FIRM Database from paper FIRM format.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.4 Table: DCS_S_Trnsport_Ln

This table is required for all Discovery projects. This spatial file provides transportation features that cover the geographic extent of the Flood Risk Project/mapping project. The spatial entity for this layer is a line.

Table 4: DCS_S_Trnsport_Ln

Fields	Type	Length	R/A	Description
TRANS_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.

Fields	Type	Length	R/A	Description
MTFCC	Text	70	R	Census Bureau Master Address File/Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) feature class code. Defines the primary feature for the edge. Acceptable values for this field are listed in the D_MTFCC domain table.
FULLNAME	Text	100	R	Full name of feature. Concatenation of expanded text for prefix, qualifier, prefix direction, prefix type, base map name, suffix type, suffix direction, and suffix qualifier (as available) with a space between each expanded text field. This is the primary name of the feature. For areas that have more than one name, this would be the primary name with subsequent names shown in fields below. Route numbers and "Intercoastal Waterway" would also be included in this item.
ALTNAME1	Text	100	A	First alternative name of feature. This is the secondary name of the feature.
ALTNAME2	Text	100	A	Second alternative name of feature. This is the tertiary name of the feature.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.5 Table: DCS_S_HUC

This table is required for all Discovery projects. This spatial file contains the Hydrologic Unit Codes (HUCs) for the Flood Risk Project area. This will enable the capture of appropriate drainage basins, including those outside the community boundary. The spatial entity for this layer is a polygon.

Table 5: DCS_S_HUC

Field	Type	Length	R/A	Description
HUC_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
HUC_CODE	Text	14	R	Unique hydrologic unit based on United States Geological Survey (USGS) levels of classification in the hydrologic unit system
HUC_NAME	Text	80	R	The primary name of the hydrologic unit
DIGITS	Short Integer	14	R	Number of digits in HUC-Code (8, 10, 12, or 14)
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.6 Table: DCS_S_Discovery_Map

This table is required for all Discovery projects. This spatial file contains each stream segment and/or coastline contained within the FIRM database, National Hydrography Dataset (NHD) 100k coverage or best available streamline data for flood sources included in the scope of work for the flood map project update. This file should provide an inventory of stream mileage for the project area by effective and proposed zone and Flood Risk Project type. This will be shown on the final Discovery Map. The spatial entity for this layer is a line.

Table 6: DCS_S_Discovery_Map

Field	Type	Length	R/A	Description
DISCMAP_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
COUNTY	Text	100	R	County Name
COMMUNITY	Text	100	R	Community Name
STATE	Text	24	R	State Name. Acceptable values for this field are listed in the D_State_Name domain table.

Field	Type	Length	R/A	Description
CID	Text	6	R	This is the six-digit community identification number (CID) assigned by FEMA. It is created by combining the State FIPS code with the COMM_NO. If the jurisdiction does not have a community number assigned by FEMA, the CID is created by combining the State FIPS code with the abbreviation contained in the COMM_NO field (FED, ST, or OTHR).
ST_FIPS	Text	2	R	This is the two-digit code that corresponds to the State FIPS code. This is a standard numbering system that is used by the Federal government. Defined in FIPS Pub 6-4, these two numbers correspond to the first two digits of the panel number. Acceptable values for this field are listed in the D_State_FIPS domain table.
EZONE_TYP	Text	17	R	From effective Flood Risk Project. Acceptable values for this field are listed in the D_Zone domain table.
EST_TYP	Text	28	R	Effective Study Type. Acceptable values for this field are listed in the D_Study_Typ domain table.
FLOOD_TYP	Text	10	R	Flooding type. Acceptable values for this field are listed in the D_Flood_Typ domain table.
WTR_NM	Text	100	R	Surface Water Feature Name. This is the name of the stream or water body, including lakes and shorelines.
STREAM_LEN	Double	Default	R	Length of stream associated with a Flood Risk Project in feet
FBS_TF	Text	1	R	Are stream segments anticipated to meet Floodplain Boundary Standard (FBS)? Acceptable values for this field are listed in the D_TrueFalse domain table.
RANKING	Text	6	A	Ranking based on local/regional input. Values to be used for this field are High, Medium or Low.

Field	Type	Length	R/A	Description
FST_TYP	Text	28	R	Final Study Type. Acceptable values for this field are listed in the D_Study_Typ domain table.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

2.7 Table: DCS_S_Prp_FirmPan

This table is required for Discovery projects if a Flood Risk Project will result from Discovery. This spatial file contains the proposed panel scheme for the Flood Risk Project area and the panels to be updated as a result of the Discovery meeting. The spatial entity for this layer is a polygon.

Table 7: DCS_S_Prp_FirmPan

Field	Type	Length	R/A	Description
FIRM_ID	Text	25	R	Primary key for table lookup. Assigned by table creator.
ST_FIPS	Text	2	R	State FIPS. Acceptable values for this field are listed in the D_State_FIPS domain table.
PCOMM	Text	4	R	Community or County Identification Number. This is the 3rd through the 6th digits of the panel number. For community based maps this corresponds to the FEMA CID. For countywide maps, this is the county (or county equivalent) FIPS code with a “C”.
PANEL	Text	4	R	Panel Number. This is the 7th through the 10th digits in the complete panel number. This is assigned by the scale of the map and the position within the community or county.

Field	Type	Length	R/A	Description
SUFFIX	Text	1	R	Map Suffix. This is the final digit in the complete panel number. This is a letter suffix at the end of the panel number. The map suffix is incremented one letter every time the panel gets republished.
FIRM_PAN	Text	11	R	This is the complete FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL, and SUFFIX. This is the 11-digit FIRM panel number that is shown in the title block of the map.
PANEL_TYP	Text	30	R	Panel Type. The type of FIRM panel that identifies whether the panel is printed or not printed and whether it is community based or countywide mapping. Acceptable values for this field are listed in the D_Panel_Typ domain table.
SCALE	Text	5	R	Map Scale. This is the denominator of the FIRM scale as a ratio. For example, 24000 is the denominator for a 1" = 2000' map. Acceptable values for this field are listed in the D_Scale domain table.
BASE_TYP	Text	10	R	Base map type. The type of base map used for the FIRM panel shall be recorded in this field. Acceptable values for this field are listed in the D_Basemap_Typ domain table.
UPDATED_TF	Text	1	R	Will this panel be updated as a result of Discovery meeting? Acceptable values for this field are listed in the D_TrueFalse domain table.
SOURCE_CIT	Text	11	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in the DCS_L_Source_Cit table.

3. Elevation Data Submittal Requirements

Under the current MIP design, a Develop Topo task can represent three separate types of elevation data: elevation data that are newly purchased, existing elevation data gathered for a Flood Risk Project, or processed terrain data that are used in the Flood Risk Project modeling and mapping tasks. Under the planned MIP redesign, each of these types of elevation data will be assigned a unique MIP task type: New Topo Capture, Existing Topo Capture, and Terrain Capture. The following elevation data submittal information applies regardless of how the MIP tasks are named.

Elevation data submittals typically include newly purchased LiDAR data (New Topo Capture), existing (gathered) elevation data (Existing Topo Capture), and processed terrain data (Terrain Capture). Elevation deliverables must be submitted on media and as specified in Section 6, in folders organized by the elevation task type. Within those folders, the data are to be organized in sub-folders based on the type of data being submitted (e.g., point cloud, break lines, DEM, Hydro-Flattened or Enforced, Triangulated Irregular Network [TIN], contours, etc. as applicable). Note that even though the elevation data are submitted on media to the Engineering Library, the supporting documentation (i.e. the content of the General, Correspondence, and Spatial_Files folders) must be uploaded to the MIP.

See the Elevation Guidance document for information about elevation data types, elevation data accuracy standards and reporting, and elevation data acquisition. See the Data Capture Guidance – General document for information about submitting large datasets on media.

3.1 Elevation Inventory File

When FEMA purchases new topographic data (e.g. LiDAR, photogrammetry, or topo-bathymetry), in addition to submitting the full suite of required data deliverables (i.e., raw point cloud, classified point cloud, and DEM), the data must be accompanied by a spatial elevation inventory file named S_Elev_Inv_Ar. This file was defined by the National Oceanic and Atmospheric Administration (NOAA) and it may not conform to FEMA FIRM Database conventions (e.g. domain values). FEMA and other agencies report the status of their elevation datasets to NOAA using this file and NOAA uses the data in this file to update the on-line U.S Interagency Elevation Inventory.

This table is required when FEMA purchases new elevation data.

The spatial entities representing the elevation inventory footprints are polygons.

The S_Elev_Inv_Ar layer contains the following elements.

Field Name	Required/ Required if Applicable	Description
ELEV_INV_ID	R	Primary key for table lookup. Assigned by table creator (NOAA).

Field Name	Required/ Required if Applicable	Description
ProjectName	R	Descriptive name of the project. The name should include the following in order: the year of collection, the source, and the title of the data collection. If it is already this way, there is no need to change it. For new data sets, make sure to include all the information mentioned above and make sure the data set name is unique. (Example: "2010 FEMA Lidar: Great Dismal Swamp.")
DataType	R	Type of data. Acceptable values for this field are: Lidar-Topo, Lidar-Topobathy, Lidar-Bathy, IfSAR, Multibeam, NOAA Hydro Survey, Other Bathy Survey, and Photogrammetry. Normally Lidar-Topo for FEMA projects.
CollectionYear	R	Fiscal year the data was funded. If multi-year, input year when the majority of data was funded. If the year is unknown, enter 9999.
ProjectStatus	R	The completion status of the data. Acceptable values for this field are: Complete, In Progress, Planned/Funded, and Unknown. Normally this file is submitted at Complete.
Restrictions	R	The restrictions, if any, on use of the data. Acceptable values for this field are: Public, Purchase, Government Only, Other, and Unknown. All FEMA purchased data must be public.
State	R	2-letter abbreviation of the state. If multiple states, leave blank, acceptable values for this field are listed in the D_State_Name table.
MissionID	A	Placeholder for NOAA CSC internal Lidar mission ID. Leave blank.
PointOfContact	R	Point of contact (POC) for the data. If known, include position of the person responsible, name of office/agency, URL, phone number, email. The information in this field will not be publicly distributed, so you are able to include personal information (name, email, etc.). Coordinate with FEMA project lead. Could be FEMA lead, contractor name, MIP Help or other POC.
MetadataLink	R	The URL for link to the metadata. If no link to the metadata available, enter "Not Provided." For metadata uploaded to the MIP: https://hazards.fema.gov
WebServiceLink	A	Web link to data if available.
DataAccess	R	The URL for data download where possible. If data is not available for online download, enter a Point of Contact. DO NOT INCLUDE PERSONAL INFORMATION (name, email). Do include title, name of office/agency, URL, phone number. For FEMA this will typically be: FEMA Engineering Library https://www.fema.gov/engineering-library (1-877) FEMA MAP (1-877-336-2627)
HorizontalDatum	R	Horizontal datum of the data. Acceptable values for this field are: NAD83, NAD83HARN, NAD83NSRS2007, NAD83NA2011, NAD27, WGS84, User Specified, Not Provided, Unknown.

Field Name	Required/ Required if Applicable	Description
HorizontalAccuracy	R	The horizontal accuracy expressed in meters. This is accuracy of the positions of the data. Many times this is not provided, if so, enter "Not Provided." Otherwise use actual value from QA Report.
VerticalAccuracy	R	The vertical accuracy expressed in cm. This is open for different formats for reporting vertical accuracy. Preferred is cm RMSE (Root Mean Square Error). Please provide actual values from Quality Assurance (QA) Report and indicate reporting format (e.g., $RMSE_z$ or $Accuracy_z$ at 95% confidence level).
VerticalDatum	R	Vertical datum of the data. Acceptable values for this field are: NAVD88, GRS80, NGVD29, WGS84, Local Tidal, MSL, MLLW, User Specified, Not Provided, Unknown. FEMA data should typically be in NAVD88.
Notes	A	Any items of interest, additional information not represented by previous attributes, etc. This information will be displayed in the public online viewer.
ProductsAvailable	R	The types of data available.
PointSpacing	R	The distance between data points. Also may be called Horizontal Resolution of Ground Sample Distance (GSD). Expressed in meters, actual.
CollectionDate	R	The actual date(s) of collection of the data. Enter range of dates, if applicable.
PointSpacingNumber	R	Just the number in meters, of the distance between data points. If Point Spacing is Not Provided or Unknown, enter 9999.
VerticalRMSE	R	Just the number of the cm RMSE Vertical Accuracy of the data. If Vertical Accuracy is Not Provided or Unknown, enter 9999.
QL	R	The USGS quality level assigned to the data set. Numeric value from 1 to 9. 1-5 are the quality levels. 7 is bad or unusable data. 8 is bathymetry, 9 is Unknown.
InvID	R	USIEI ID number assigned by NOAA. Leave blank.
Owner	R	Agency responsible for maintaining record. Acceptable values for this field are: NOAA, USGS, and FEMA.
StartDate	A	Month and year of start of data collection. The day is not added for this field, however, the database will format the entry as MM/1/YYYY. If the month is unknown, input the first of Jan (Ex: 1/1/YYYY). If the year is unknown leave this field blank.
EndDate	A	Month and year of end of data collection. The day is not added for this field, however, the database will format the entry as MM/1/YYYY. If the month is unknown, input the 31st of Dec (Ex: 12/31/YYYY). If the year is unknown leave this field blank.
PointCloud	R	The classification status of the point cloud (Raw = Data before any classification done). Acceptable values for this field are: Classified, Raw and Classified, Unknown, Raw - Unclassified Only, Null.

Table: S_Elev_Inv_Ar

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
ELEV_INV_ID	R	Text	25		N/A
ProjectName	R	Text	250		N/A
DataType	R	Text	20		N/A
CollectionYear	R	Short Integer	Default		N/A
ProjectStatus	R	Text	20		N/A
Restrictions	R	Date	20	0	N/A
State	R	Text	2		D_State_Name
MissionID	A	Short Integer	Default		N/A
PointOfContact	R	Text	300		N/A
MetadataLink	R	Text	500		N/A
WebServiceLink	A	Text	500		N/A
DataAccess	R	Text	500		N/A
HorizontalDatum	R	Text	300		N/A
HorizontalAccuracy	R	Text	300		N/A
VerticalAccuracy	R	Text	300		N/A
VerticalDatum	R	Text	300		N/A
Notes	A	Text	500		N/A
ProductsAvailable	R	Text	300		N/A
PointSpacing	R	Text	50		N/A
CollectionDate	R	Text	200		N/A
PointSpacingNumber	R	Double	Default		N/A
VerticalRMSE	R	Double	Default		N/A
QL	R	Short Integer	Default		N/A
InvID	R	Long Integer	Default		N/A
Owner	R	Text	100		N/A
StartDate	A	Date	Default	0	N/A
EndDate	A	Date	Default	0	N/A
PointCloud	R	Text	50		N/A

3.2 Topographic Breakline Topology Requirements

Topographic breaklines are optional and may be needed depending upon the planned procedures used to perform hydrologic and hydraulic modeling. When optional breaklines are produced, the following breakline topology rules must be followed for the applicable feature classes.

Table 8: Topographic Breakline Topology Rules

Topology Filename (*_TOPOLOGY)	Spatial Layer	Topology Rule	Parameter	Minimum Cluster Tolerance (ft.)
HydraulicStruct	HydraulicStructure	Must Not Intersect		0.003
HydraulicStruct	HydraulicStructure	Must Not Self Intersect		0.003
HydrographicStruct	HydrographicFeature	Must Not Intersect		0.003
HydrographicStruct	HydrographicFeature	Must Not Self Intersect		0.003
HydrographicStruct	HydrographicFeature	Must not Overlap		0.003
Coastal	CoastalShoreline	Must Not Intersect	CoastalShoreline	0.003
Coastal	CoastalShoreline	Must Not Self Intersect		0.003
PondsLakes	Ponds_and_Lakes	Must Not Intersect		0.003
PondsLakes	Ponds_and_Lakes	Must Not Self Intersect		0.003
Island	Island	Must Not Intersect		0.003
Island	Island	Must Not Self Intersect		0.003

4. Field Survey Submittal Standards

See the Data Capture Guidance – Workflow Details document for information about field survey submittals, including photos, sketches, survey data, survey field notebooks, survey data naming conventions, and survey codes. Examples of the use of survey codes for different types of structures are also included.

5. Deliverables

This section provides information about the required deliverables for the regulatory and Flood Risk products. These deliverables are submitted to the MIP and are subsequently made available to the public by the Flood Map Service Center (MSC). The Data Capture submittals for MIP data development tasks are outlined in Section 6.

Note that the file names for deliverable products specified in this section also apply to the corresponding files in native format that are submitted to the MIP as outlined in Section 6. For example, the file naming convention used for the deliverable FIS Report Portable Document Format (.PDF) file(s) also applies to the FIS Report Word file uploaded to the MIP.

Note also that these requirements apply to all new study deliverables, regardless of project age.

5.1 Preliminary Regulatory Products

The required documents that make up the preliminary regulatory products package are outlined in Section 6. They must be named using the product naming conventions outlined below for the final regulatory products and must be submitted in the digital format and directory structure indicated in Section 6.

Note that a separate standalone PDF of any 11”x17” FIRM Index page(s) must be submitted at Preliminary even though they are also included within the FIS report PDF.

5.2 Final Regulatory Products

The required documents that make up the final regulatory products package include the items listed below. They must be in the digital format and directory structure indicated in Section 6. All deliverables are submitted to the MIP and the MSC will review, publish and distribute the data directly from the MIP.

5.2.1 Transmittal to Community CEO

A Transmittal Letter to the community CEO is sent by the MSC to each community, along with the final mapping products distributed by the MSC. Where possible, Post Office Box addresses should be avoided to promote direct delivery to community officials. Refer to *Appendix A* of the Document Control Procedures Manual for the current letter templates.

There must be one transmittal letter for each community that will receive mapping data and/or a FIS from the MSC. The letter must include the current (as of the date the post-preliminary study deliverables are prepared) CEO’s name and address, the six-digit community identification number and the effective date. Each letter must be provided in Word format.

5.2.2 Inventory Worksheet for Each Community

The Inventory Worksheet is used by the MSC to update the MSC inventory and community information. Every community — including the unincorporated Areas; the countywide or all-jurisdictions mapping number, if applicable; non-flood-prone and non-participating communities; and communities without a printed map but appearing in the FIS Report and/or FIRM Database — requires a separate Inventory Worksheet. This also includes communities that appear as part of a “Countywide” or “All Jurisdictions” study but are not part of the Physical Map Revision (PMR).

The Inventory Worksheet must be provided in Excel format (XLS/XLSX). The formatting of the standard Inventory Worksheet template must not be modified or otherwise altered. A sample Inventory Worksheet and directions on how to enter the community codes on the Inventory Worksheet can be found on the FEMA Templates and Other Resources page at FEMA.gov. Submitting the Inventory Worksheet to the MIP complies with the standard to submit the Community Map Action List and the Transmittal Form to the MSC.

5.2.3 FIS Report

The FIS Report must be submitted in digital format as an unsecure PDF file, with a resolution of 400 dots per inch (dpi). There must be one PDF file per FIS volume that is bookmarked as described in the Flood Insurance Study (FIS) Report Technical Reference.

The PDF version of the FIS Report must be named <ST_FIPS><PCOMM><VOLUME NUMBER>.pdf.

Examples:

24031CV000B.pdf – Single volume countywide FIS

120234V001A.pdf – Community FIS Volume 1 of 2

120234V002A.pdf – Community FIS Volume 2 of 2

5.2.4 FIRM Scans and World Files

FIRM Scans are the raster images of the FIRM panels and FIRM Index. The FIRM Scans must be georeferenced to the local projection (e.g., Universal Transverse Mercator or State Plane) used for hardcopy FIRM publication. The FIRM Scans of the FIRM panels must conform to the requirements of the FIRM Panel Technical Reference. The FIRM Scans of the FIRM Index must conform to the requirements of the Flood Insurance Study (FIS) Technical Reference if the FIRM Index is prepared in the new 11"x17" format. Note that a separate stand-alone georeferenced FIRM Index scan must be submitted even if it is also included as a figure within the FIS Report. The FIRM Scans must be named according to the map number shown on the title block of the FIRM panel or FIRM Index. Color images must be 400 dpi, in 24 bit Portable Network Graphics (PNG) format. Black and white images must be 400 dpi, Group 4 compression, in Tagged Image File (TIF) format. All images must be accompanied by their world file.

Examples:

FIRM Scans

24031C0001A.png or 24031C0001A.tif – FIRM panel

24031CIND0A.png or 24031CIND0A.tif – FIRM Index

World files for the image files above:

24031C0001A.pgwx or 24031C0001A.tfwx – FIRM panel

24031CIND0A.pgwx or 24031CIND0A.tfwx – FIRM Index

5.2.5 FIRM Database

FIRM Databases must be submitted in Shapefile (SHP) format. The FIRM Database must conform to the requirements of the FIRM Database Technical Reference. FIRM Database Shapefiles must be named using the table names in the FIRM Database Technical Reference. Note that S_Trnsport_Ln is not required if orthophotos are submitted.

5.2.6 Orthophotos

The aerial images and any associated world files that were used to create the FIRM (if applicable) must be submitted if not previously submitted or modified from those submitted under the Base Map data development task. These data should be in the format in which the orthophotos were provided to the FEMA Mapping Partner, unless the appearance of any portion of the orthophotos shown on the FIRM was modified by re-projection, re-sampling, etc. In this case, only the modified orthophotos should be submitted.

5.2.7 Metadata Files

Metadata files should be provided in XML format. The metadata files must conform to the requirements of the Metadata Profiles Technical Reference. The FIRM Database metadata files must be named <ST_FIPS><PCOMM>_<EFF_DATE> _metadata.xml where ST_FIPS is the two-digit state FIPS code. PCOMM is either the three-digit county FIPS code with a trailing "C" or the four-digit CID. EFF_DATE is the effective date of the study in YYYYMMDD format.

Examples:

24031C_20031217_metadata.xml – a countywide FIRM Database

241234_20031217_metadata.xml – a community FIRM Database

5.3 Final Flood Risk Products

The required documents that make up the final Flood Risk Products package include the following items. They must be in the digital format and directory structure indicated below and in Section 6. The Flood Risk Products deliverables (i.e. the Flood Risk Database [FRD], Flood Risk Report [FRR] and Flood Risk Map [FRM]) are currently submitted to the MSC on media (i.e. CD/DVD) or by FTP. In the future, all Flood Risk Products deliverables and artifacts will be submitted to the MIP only.

5.3.1 Project ID

The Project ID should be a description that most effectively summarizes what area is covered by the project. The Project ID may be an 8-digit HUC identifying the watershed (strongly preferred for watershed based projects); a text description (e.g., the coastal flooding source studied – "Delaware Bay") or a CID or FIPS code identifying the primary county or community mapped. The Project ID should be the same across all products for the Flood Risk Project. Note that it is good practice to limit the Project ID to 40 characters or less.

5.3.2 Flood Risk Database

Because the Flood Risk Database (FRD) datasets are quite large, the FRD data must be submitted in a series of .ZIP files that each contains data in one file format. FRD submittals must contain the following items:

- A .ZIP file containing the FRD files in Shapefile (SHP) format and the FRD metadata file in XML format
- A .ZIP file containing the FRD in File Geodatabase (fGDB) format (including the Flood Depth and Analysis rasters in Environmental Systems Research Institute, Inc. (Esri) grid format) and the FRD metadata file in XML format
- A .ZIP file containing the Flood Depth and Analysis rasters in Georeferenced Tagged Image File Format (GeoTIFF) format and the FRD metadata file in XML format

The FRD must conform to the requirements of the Flood Risk Database Technical Reference.

The names of the .ZIP files identify the Project ID for the FRD, the volume number if applicable, the file format and the date the data are submitted to the MSC. The .ZIP files must be named <Project ID>_<Volume Number (if applicable)>_<File Format>_<YYYYMMDD>. The <Volume Number> is used only if there are multiple volumes; it is not needed for a single volume .ZIP file. The <File Format> is "GeoDatabase" for the fGDB, "ShapeFiles" for the SHP files, and "GeoTIFFS" for the GeoTIFFS. The <YYYYMMDD> is the date the data are submitted to the MSC.

The directory for an FRD must be named FRD_<Project ID>_<YYYYMMDD>. The FRD fGDB file must also be named FRD_<Project ID>_<YYYYMMDD>. FRD Shapefiles must be named using the table names in the Flood Risk Database Technical Reference. The GeoTIFF versions of the rasters must be named using the file naming convention in the Flood Risk Database Technical Reference.

Examples:

FRD_87654321_20130419.gdb – a watershed-wide FRD fGDB

FRD_87654321_GeoDatabase_20130419.zip – a single volume watershed-wide FRD fGDB .ZIP file

FRD_87654321_1_GeoDatabase_20130419.zip – volume 1 of a two-volume watershed-wide FRD fGDB .ZIP file

FRD_87654321_2_GeoDatabase_20130419.zip – volume 2 of a two-volume watershed-wide FRD fGDB .ZIP file

FRD_87654321_ShapeFiles_20130419.zip – a watershed-wide FRD shapefiles .ZIP file

FRD_87654321_GeoTIFFS_20130419.zip – a watershed-wide FRD GeoTIFFs .ZIP file

FRD_Delaware_Bay_20130419.gdb – a coastal FRD fGDB

FRD_Delaware_Bay_GeoDatabase_20130419.zip – a single volume coastal FRD fGDB .ZIP file

FRD_Delaware_Bay_1_GeoDatabase_20130419.zip – volume 1 of a two-volume coastal FRD fGDB .ZIP file

FRD_Delaware_Bay_2_GeoDatabase_20130419.zip – volume 2 of a two-volume coastal FRD fGDB .ZIP file

FRD_Delaware_Bay_Shapefiles_20130419.zip – a coastal FRD shapefiles .ZIP file

FRD_Delaware_Bay_GeoTIFFS_20130419.zip – a coastal FRD GeoTIFFs .ZIP file

FRD_42079C_20130419.gdb – a countywide FRD fGDB

FRD_42079C_GeoDatabase_20130419.zip – a single volume countywide FRD fGDB .ZIP file

FRD_42079C_1_GeoDatabase_20130419.zip – volume 1 of a two-volume countywide FRD fGDB .ZIP file

FRD_42079C_2_GeoDatabase_20130419.zip – volume 2 of a two-volume countywide FRD fGDB .ZIP file

FRD_42079C_ShapeFiles_20130419.zip – a countywide FRD shapefiles .ZIP file

FRD_42079C_GeoTIFFS_20130419.zip – a countywide FRD GeoTIFFs .ZIP file

5.3.3 FRD Metadata Files

FRD metadata files must be provided in XML format. The metadata files must conform to the Metadata Profiles Technical Reference. The FRD metadata files must be named <Project ID>_<FRD >_metadata.

Examples:

87654321_FRD_metadata.xml – metadata for a watershed-wide FRD
Delaware_Bay_FRD_metadata.xml – metadata for a coastal FRD
42079C_FRD_metadata.xml – metadata for a countywide FRD

5.3.4 Flood Risk Report

The Flood Risk Report (FRR) must be submitted in digital format as an unsecure PDF file, with a resolution of 400 dpi. The FRR must also be uploaded to the MIP in Word format.

The PDF version of the FRR must be named FRR_<Project ID>_<Volume Number (if applicable)>_<YYYYMMDD>.pdf. The <Volume Number> is used only if the FRR requires multiple volumes; it is not needed for a single volume FRR. The <YYYYMMDD> is the date the data are submitted to the MSC. The FRR in Word format must also conform to the same naming convention.

Examples:

FRR_87654321_20130419.pdf – a single volume watershed-wide FRR

FRR_87654321_1_20130419.pdf – volume 1 of a two-volume watershed-wide FRR

FRR_87654321_2_20130419.pdf – volume 2 of a two-volume watershed-wide FRR

FRR_Delaware_Bay_20130419.pdf – a single volume coastal FRR

FRR_Delaware_Bay_1_20130419.pdf – volume 1 of a two-volume coastal FRR

FRR_Delaware_Bay_2_20130419.pdf – volume 2 of a two-volume coastal FRR

FRR_42079C_20130419.pdf – a single volume countywide FRR

FRR_42079C_1_20130419.pdf – volume 1 of a two-volume countywide FRR

FRR_42079C_2_20130419.pdf – volume 2 of a two-volume countywide FRR

5.3.5 Flood Risk Map

The Flood Risk Map (FRM) must be submitted in digital format as an unsecure PDF file, with a resolution of 400 dpi. The MXD file used to create the FRM must also be uploaded to the MIP.

The PDF version of the FRM must be named FRM_<Project ID>_<Sheet Number (if applicable)>_<YYYYMMDD>.pdf. The <Sheet Number> is used only if the FRM is too large or detailed to fit on a single sheet; it is not needed for a single page FRM. The <YYYYMMDD> is the date the data are submitted to the MSC. The FRM in MXD format must also conform to the same naming convention.

Examples:

FRM_87654321_20130419.pdf – a single page watershed-wide FRM

FRM_87654321_1_20130419.pdf – sheet 1 of a two-page watershed-wide FRM

FRM_87654321_2_20130419.pdf – sheet 2 of a two-page watershed-wide FRM

FRM_Delaware_Bay_20130419.pdf – a single page coastal FRM

FRM_Delaware_Bay_1_20130419.pdf – sheet 1 of a two-page coastal FRM

FRM_Delaware_Bay_2_20130419.pdf – sheet 2 of a two-page coastal FRM

FRM_42079C_20130419.pdf – a single page countywide FRM

FRM_42079C_1_20130419.pdf – sheet 1 of a two-page countywide FRM

FRM_42079C_2_20130419.pdf – sheet 2 of a two-page countywide FRM

5.3.6 Flood Risk Products Index

The index provides a listing of the communities covered in the FRD being submitted to the MSC. It is a table designed to ensure that all communities with data in the dataset are accurately represented on the MSC website. A sample Flood Risk Products Index form can be found on the FEMA Templates and Other Resources page at www.FEMA.gov. All regions, states, counties, CIDs and products associated with the Flood Risk Products submission should be listed.

The Transmittal Form must be provided in Excel format. The Index for the Flood Risk Dataset must be named FRD_<Project ID>_Index.

Example:

FRD_87654321_Index.xls

5.4 Post-Preliminary Documents

The required documents that make up the Post-Preliminary package include the following items. They must be in the digital format and directory structure indicated below and in Section 6.

- A project narrative describing the Statement of Work (SOW), direction from FEMA, issues, information for the next Mapping Partner, etc.
- Floodplain Boundary Standard (FBS) Self-Certification Document (this document must be submitted within 30 days after issuance of preliminary maps). The file must be named as follows: County or Community_State_FBS_Preliminary.
- Revised FBS Self-Certification Document (this document must be submitted within 30 days after issuance of the Letter of Final Determination (LFD) if floodplain boundaries were revised during the post-preliminary phase). The file must be named as follows: County or Community_State_FBS_Final.
- Correspondence file including any documentation not previously submitted during earlier tasks or as part of the Flood Elevation Determination Docket (FEDD) file related to coordination and processing decisions made during the course of the study documented in the forms of memorandums, records of communication, Special Problem Reports, etc. Also included are reports of meetings among the Agency representatives, property owners, State coordinating agency, Flood Risk Project contractors or other interested persons; meeting minutes and meeting attendance lists.
- FEDD for each affected community, including the documents listed in the FEDD Checklist, per 44 CFR 67.3[1]. Rolled into this file are copies of all correspondence related to due process and the FEDD File Checklist, organized in chronological order. One PDF file is to be submitted for each community. The file must be named as follows: County_state_Community_FEDD (Example: Bergen_NJ_Alpine_FEDD_Effective Date).

6. MIP Directory Structure and File Formats

A complete set of the most up-to-date engineering and mapping data associated with changes to FEMA maps must be captured in the MIP before their effective date. These data form the scientific and technical basis for the flood map and are needed in the future to address challenges or changes to the maps. This requirement replaces the previous requirement to submit a hardcopy Technical Study Data Notebook (TSDN) at the end of each mapping project.

Mapping Partners must submit data to the MIP in the file format(s) and in the MIP directory structure shown below for each of their assigned workflow tasks. If a sub-folder is not applicable to a particular study, it does not need to be created. Only folders that contain data (or "dummy" data if applicable) need to be created. Where multiple file formats are shown separated by a slash, either is acceptable (e.g., Word/PDF). When multiple file formats are required to be submitted, they are noted as such (e.g., Word and PDF). Note: See Appendix A for a list of file format acronyms used in this section.

[1] The correspondence noted below may not be applicable to all communities. For instance, communities that have adopted an automatic revision clause in their floodplain management ordinances may not receive a 90- or 30- suspension letter.

The MIP is currently organized with pre-defined directories for each FEMA Region, state, county, community, MIP case number, assigned MIP workflow tasks, and an auto-generated System ID# (Task SYSID), as illustrated below. Note that the directory structure shown in this section represents the structure below the Task SYSIDs that are assigned in the MIP for each workflow task. Directory names are shown in bold for clarification.

The MIP is organized into J: and K: drives. Unless noted otherwise, all references in the following section are to the directory structure on the J: drive.

Note: Currently Flood Risk metadata and in some cases products are uploaded to the MIP in the following directories associated with the Flood Risk Product development case number: FRR under Survey, FRM under Floodplain Mapping, FRD under Hydraulics, and Flood Risk Assessment data under Hydrology. In the future, it is envisioned that the directories outlined in this document will be developed for the Flood Risk Products in the MIP.

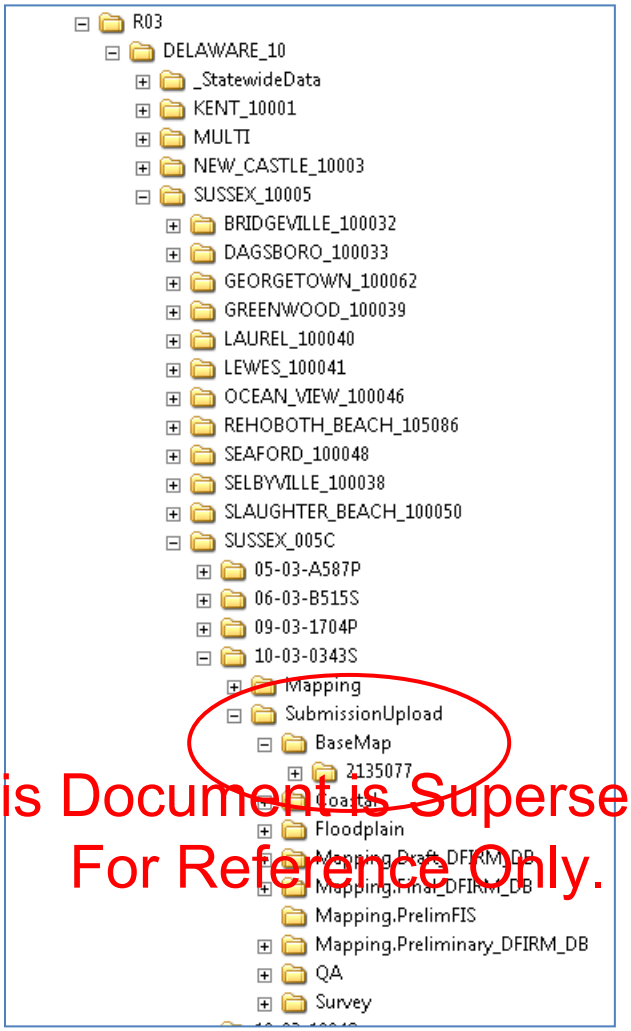

Figure 1: MIP Pre-Defined Directory Structure

6.1 Discovery

Scoping/Task SYSID

HUC-8 (use for Riverine data)

General

- Project Narrative – Word
- Certification – .PDF
- Discovery Metadata - .XML

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Project_Discovery_Initiation

- Project Management Team – Word/.PDF
- Discovery Report – Word/.PDF

Discovery_Meeting

- Meeting Invitations – Word/PDF
- Meeting Agendas/Meeting Minutes – Word/.PDF
- Meeting Attendance Records – Word/.PDF
- Meeting Summary – Word/.PDF
- Project Charter – Word/.PDF

Post_Discovery

- Discovery Map – .PDF
- SOW or Mapping Activity Statement (MAS) – Word/.PDF
- Geospatial Data Summary – Word/.PDF

Spatial_Files

- Community Contact List – (DCS_L_Mtg_POC) .DBF/.PGDB/.fGDB/.GML
- Source citations (DCS_L_Source_Cit) MDB/.DBF/.PGDB/.fGDB/.GML
- Political Areas (DCS_S_Pol_Ar) – .SHP/.PGDB/.fGDB/.GML
- Transportation (DCS_S_Trnsport_Ln) – .SHP/.PGDB/.fGDB/.GML
- Discovery Map (DCS_S_Discovery_Map) – .SHP/.PGDB/.fGDB/.GML
- Proposed FIRM Panel Index (DCS_S_Prp_FIRMPan) – SHP/.PGDB/fGDB/.GML
- HUC (DCS_S_HUC) – .SHP/.PGDB/.fGDB./GML

Supplemental_Data

- All other relevant data collected during Discovery – Format as received

Water_Body_Name/Project_Name (use for coastal data)

General

- Project Narrative – Word
- Certification – .PDF
- Discovery Metadata - .XML

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF
-

Project_Discovery_Initiation

- Project Management Team – Word/.PDF
- Discovery Report – Word/.PDF
- Political Areas (DCS_S_Pol_Ar) – .SHP/.PGDB/.fGDB/.GML
- Transportation (DCS_S_Trnsport_Ln) – .SHP/.PGDB/.fGDB/.GML
- HUC (DCS_S_HUC) – .SHP/.PGDB/.fGDB/.GML

Discovery_Meeting

- Meeting Invitations – Word/.PDF
- Meeting Agendas/Meeting Minutes – Word/.PDF
- Meeting Attendance Records – Word/.PDF
- Meeting Summary – Word/.PDF
- Project Charter – Word/.PDF

Post_Discovery

- Discovery Map – .PDF
- SOW or MAS – Word/.PDF
- Geospatial Data Summary – Word/.PDF

Spatial_Files

- Community Contact List – (DCS_L_Mtg_POC) .DBF/.PGDB/.fGDB/.GML
- Source citations (DCS_L_Source_Cit) MDB/.DBF/.PGDB/.fGDB/.GML
- Political Areas (DCS_S_Pol_Ar) – .SHP/.PGDB/.fGDB/.GML
- Transportation (DCS_S_Trnsport_Ln) – .SHP/.PGDB/.fGDB/.GML
- Discovery Map (DCS_S_Discovery_Map) – .SHP/.PGDB/.fGDB/.GML
- Proposed FIRM Panel Index (DCS_S_Prp_FIRMPan) – .SHP/.PGDB/.fGDB/.GML
- HUC (DCS_S_HUC) – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

- All other relevant data collected during Discovery – Format as received

6.2 Base Map

BaseMap/Task SYSID

HUC-8

General

- Project Narrative – Word
- Certification – .PDF
- Basemap and/or Orthoimagery Metadata – .XML

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/PDF

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML
- Feature Names– .SHP/.PGDB/.fGDB/.GML/text/annotation
- Orthophotos – .BIL/.BIP/.ECW/.GeoTIFF/.IMG/.JPEG2000/MrSID/PNG + .PGW/georeferenced JPEG/TIF + .TFW

Supplemental_Data

- Any additional Base Map data collected for use in the preparation of this Flood Risk Project – Format as received

6.3 New Topo Capture

Note that New Topo Capture deliverables must be submitted on media in folders organized by the folder structure shown below. The supporting documentation (i.e. the content of the General, Correspondence, and Spatial_Files folders) must also be uploaded to the MIP.

NewTopoCapture/Task SYSID

General

- Project Narrative – Word
- Certification – .PDF
- Flight plans and logs – Word/.PDF
- Mapping Partner and independent QA/QC reports – Word/.PDF
- Photogrammetric Reports (if applicable) – Format as received
- Terrain Metadata – .XML
- Readme file specifying that the data are located in the Engineering Library

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Source

Raw_Point_Cloud_Data

- LiDAR Data – .LAS/.ASCII
- LiDAR Tile Index – .SHP/.PGDB/.fGDB

Classified_Point_Cloud_Data

- LiDAR Data – .LAS/.ASCII
- LiDAR Tile Index – .SHP/.PGDB/.fGDB

Breaklines

- 3D Breaklines – .SHP/.PGDB/.fGDB/.DXF
- 3D Breakline Tile Index – .SHP/.PGDB/.fGDB
- 2D Breaklines – .SHP/.PGDB/.fGDB/.DXF
- 2D Breakline Tile Index – .SHP/.PGDB/.fGDB
- Mass Points – .SHP/.PGDB/.fGDB/.DXF

Bare_Earth_DEM

- DEMs – Esri grid/GeoTIFF/ASCII grid
- DEM Tile Index – .SHP/.PGDB/.fGDB

Contours

- Contours – .SHP/.PGDB/.fGDB/.DXF

- Contour Tile Index – .SHP/.PGDB/.fGDB
- Bathymetric Data – .SHP/.PGDB/.fGDB/.DXF
- Bathymetry Tile Index – .SHP/.PGDB/.fGDB

TIN

- Uncorrected TIN Files – Esri ArcGIS
- Terrain – Esri ArcGIS
- TIN Tile Index – .SHP/.PGDB/.fGDB

HDEM

- Hydrologically Corrected DEMs – Esri grid/GeoTIFF/ASCII grid
- Terrain – Esri ArcGIS
- HDEM Tile Index – .SHP/.PGDB/.fGDB

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML
- S_Elev_Inv_Ar spatial elevation inventory file – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

- Any additional elevation data collected for use in the preparation of this Flood Risk Project – Format as received

6.4 Existing Topo Capture

Note that Existing Topo Capture deliverables must be submitted on media in folders organized by the folder structure shown below. The supporting documentation (i.e. the content of the General, Correspondence, and Spatial_Files folders) must also be uploaded to the MIP.

ExistingTopoCapture/Task SYSID

General

- Project Narrative – Word
- Certification – .PDF
- Terrain Metadata – .XML
- Readme file specifying that the data are located in the Engineering Library

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Source

Raw_Point_Cloud_Data

- LiDAR Data – .LAS/.ASCII
- LiDAR Tile Index – .SHP/.PGDB/.fGDB

Classified_Point_Cloud_Data

- LiDAR Data – .LAS/.ASCII

- LiDAR Tile Index – .SHP/.PGDB/.fGDB

Breaklines

- 3D Breaklines – .SHP/.PGDB/.fGDB/.DXF
- 3D Breakline Tile Index – .SHP/.PGDB/.fGDB
- 2D Breaklines – .SHP/.PGDB/.fGDB/.DXF
- 2D Breakline Tile Index – .SHP/.PGDB/.fGDB
- Mass Points – .SHP/.PGDB/.fGDB/.DXF

Bare_Earth_DEM

- DEMs – Esri grid/GeoTIFF/ASCII grid
- DEM Tile Index – .SHP/.PGDB/.fGDB

Contours

- Contours – .SHP/.PGDB/.fGDB/.DXF
- Contour Tile Index – .SHP/.PGDB/.fGDB
- Bathymetric Data – .SHP/.PGDB/.fGDB/.DXF
- Bathymetry Tile Index – .SHP/.PGDB/.fGDB

TIN

- Uncorrected TIN Files – Esri ArcGIS
- Terrain – Esri ArcGIS
- TIN Tile Index – .SHP/.PGDB/.fGDB

HDEM

- Hydrologically Corrected DEMs – Esri grid/GeoTIFF/ASCII grid
- Terrain – Esri ArcGIS
- HDEM Tile Index – .SHP/.PGDB/.fGDB

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

- Any additional elevation data collected for use in the preparation of this Flood Risk Project – Format as received

6.5 Terrain Capture

Note that Terrain Capture deliverables must be submitted on media in folders organized by the folder structure shown below. The supporting documentation (i.e. the content of the General, Correspondence, and Spatial_Files folders) must also be uploaded to the MIP.

TerrainCapture/Task SYSID

General

- Project Narrative – Word
- Certification – .PDF
- Terrain Metadata – .XML
- Readme file specifying that the data are located in the Engineering Library

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Final

Breaklines

- 3D Breaklines – .SHP/.PGDB/.fGDB/.DXF
- 3D Breakline Tile Index – .SHP/.PGDB/.fGDB
- 2D Breaklines – .SHP/.PGDB/.fGDB/.DXF
- 2D Breakline Tile Index – .SHP/.PGDB/.fGDB
- Mass Points – .SHP/.PGDB/.fGDB/.DXF

Bare_Earth_DEM

- DEMs – Esri grid/GeoTIFF/ASCII grid
- DEM Tile Index – .SHP/.PGDB/.fGDB

Contours

- Contours – .SHP/.PGDB/.fGDB/.DXF
- Contour Tile Index – .SHP/.PGDB/.fGDB
- Bathymetric Data – .SHP/.PGDB/.fGDB/.DXF
- Bathymetry Tile Index – .SHP/.PGDB/.fGDB

TIN

- Uncorrected TIN Files – Esri ArcGIS
- Terrain – Esri ArcGIS
- TIN Tile Index – .SHP/.PGDB/.fGDB

HDEM

- Hydrologically Corrected DEMs – Esri grid/GeoTIFF/ASCII grid
- Terrain – Esri ArcGIS
- HDEM Tile Index – .SHP/.PGDB/.fGDB

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

Supplemental_Data

- Any additional elevation data collected for use in the preparation of this Flood Risk Project – Format as received

6.6 Survey

Survey/Task SYSID

HUC-8

General

- Project Narrative – Word
- Certification – .PDF

- Survey Metadata – .XML

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Photos

- Digital Photographs – .JPEG/.TIFF/.BMP

Sketches

- Digital Sketches – .JPEG/.TIFF/.BMP/.PDF

Survey_Data

- Survey Files – .MDB/.PGDB/.fGDB/.XLS/.XLSX/.DBF/.ASCII/.CSV

Supplemental_Data

- Any additional Survey data collected for use in the preparation of this Flood Risk Project (e.g., survey notebooks, etc.) – Format as received

As-Built

- As-Built Data – Format as received

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

6.7 Hydrology

Hydrology/Task SYSID

HUC-8

General

- Hydrology Report – Word and .PDF
- Draft FIS Section 5.1 – Word and .PDF
- Project Narrative – Word
- Certification – .PDF
- Hydrology Metadata – .XML
- Automated Engineering Report (if applicable) – Word and .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Watershed_Name

Simulations

- Model input and output files – Native format

- Readme file explaining contents of each named file – .TXT

Supplemental_Data

- Database file(s) and/or spatial files such as data and analyses for stream and rainfall gages and computations for regional regression equations such as output from USGS PeakFQ, NFF or NSS computer programs – Native format
- Any additional Hydrology data collected for use in the preparation of this Flood Risk Project – Format as received

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

6.8 Hydraulics

Hydraulics/Task SYSID

HUC-8

General

- Hydraulics Report – Word and .PDF
- Draft FIS Section 5.2 – Word and .PDF
- Project Narrative – Word
- Certification – .PDF
- Hydraulics Metadata – XML
- Automated Engineering Report (if applicable) – Word and .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Stream_Name (Station)

Simulations

- Model input and output files for all flood frequencies required by the task order and floodway analysis – Native format
- Model input and output files for levee analysis for the 1-percent-annual-chance flood including, if applicable: de-accredited left levee and hold right levee; de-accredited right levee and hold left levee; both levees in place; and both levees de-accredited (for floodway analysis) – Native format
- Model input and output files for levee analyses for all flood frequencies required by the task order [e.g., the 10-, 4-, 2-(normally with levees in place), 1-, 0.2-(normally without levees) percent-annual-chance floods] – Native format
- Readme file explaining contents of each named file – .TXT

Profiles

- Profiles – RASPLOT .MDB/.DXF/.DWG

FWDT

- Floodway Data Tables – .MDB/.XLS/.XLSX/.DBF
- Flood Hazard Data Tables – .MDB/.XLS/.XLSX/.DBF

Supplemental_Data

- Database file(s) and/or spatial files such as high water mark data for model calibration – Native format
- Zone A backup files – Native format
- Any additional Hydraulics data collected for use in the preparation of this Flood Risk Project – Format as received

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

  Note that the submitted FIRM Database files must match the model output with respect to floodplain boundaries, cross sections, and water surface elevations and their precision. Unlike in the regulatory data submittals, floodplain boundaries and cross sections should not be cartographically modified, and the data may not necessarily agree exactly with the regulatory FIRM, FIRM Database, flood profiles, and Floodway Data Tables.

6.9 Alluvial Fan

AlluvialFan/Task SYSID

HUC-8

General

- Alluvial Fan Technical Report (including Stage 1, Stage 2, and Stage 3 documentation) – Word and .PDF
- Draft FIS Section 5.4 – Word and .PDF
- Project Narrative – Word
- Certification – .PDF
- Alluvial Fan Metadata – .XML

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Stream_Name

Simulations

- Model input and output files – Native format
- Readme file explaining contents of each named file – .TXT

Profiles

- Profiles – RASPLOT .MDB/.DXF/.DWG

Hydraulic_Databases

- Database File(s) – Native format

FAN_Program_Files

- Model input and output files – Native format

Supplemental_Data

- Any additional spatial or non-spatial Alluvial Fan data collected for use in the preparation of this Flood Risk Project – Format as received

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

  Note that the submitted FIRM Database files must match the model output with respect to floodplain boundaries, cross sections, and water surface elevations and their precision. Unlike in the regulatory data submittals, floodplain boundaries and cross sections should not be cartographically modified, and the data may not necessarily agree exactly with the regulatory FIRM, FIRM Database, flood profiles, and Summary of Alluvial Fan Analyses and Results of Alluvial Fan Analyses tables.

6.10 Coastal

Coastal/Task SYSID

Water_Body_Name

Project_Name

General

- ReadMe – simple text document describing the types of documents in the folder and the folder structure
- White Papers, Technical Memos, etc. related to Coastal Analyses and Mapping – Word or .PDF
- Draft FIS Coastal Hydrology and Coastal Hydraulic Analysis Sections (typically 5.1 and 5.3) – Word and .PDF
- FIS Graphics (e.g., SWEL contour map, transect location map) – .PDF./JPEG
- FIS Tables – .MDB/.XLS/.XLSX/.DBF
- FIS Coastal Profiles – .PDF/.JPEG and .DXF/.DWG
- Project Narrative – Word
- Certification – .PDF
- Metadata – .XML

Coastal_IDS_1

- Final IDS 1Report – .PDF
- IDS 1 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_2

- Final IDS 2Report – .PDF
- IDS 2 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_3

- Final IDS 3Report – .PDF
- IDS 3 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_4

- Final IDS 4Report – .PDF
- IDS 4 QA/QC Tracking forms – Word or .XLS/.XLSX

Coastal_IDS_5

- Final IDS 5Report – .PDF
- IDS 5 QA/QC Tracking forms – Word or .XLS/.XLSX

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Stillwater_Data

Tidal Water Level Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including data source, units and datum for all raw data files – .PDF/.TXT
- Graphic showing location and names of stations from which tidal water level data was retrieved – .PDF.JPEG
- Historical hourly water level data for each station from which tidal water level data was retrieved – .MDB/.XLS/.XLSX/.DBF
- Historical annual maximum water level data for each station from which tidal water level data was retrieved – .MDB/.XLS/.XLSX/.DBF

High Water Mark Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Graphic showing location and names of locations where high water mark data was retrieved – .PDF/.JPEG
- High water mark data from each location from which high water mark data was retrieved – .MDB/.XLS/.XLSX/.DBF
  - If available, any notes or documentation on methods applied to obtain the high water mark data or the quality of individual data points. – .PDF

Stillwater_Analysis

Stillwater_Analysis_Approach

- Narrative of approach used to determine water levels for use in performing the FIS (e.g., 2D surge modeling with JPM-OS, 2D modeling for multi-decadal hindcast, desktop analysis for multi-decadal hindcast, etc.) – .PDF

Desktop_Hydro_Analysis_Name

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- One fully worked example demonstrating inputs, analysis technique and outputs used for the analysis of water levels – .PDF
- Input and output data referenced in the fully worked example – Native format
- Complete analysis input and output for all stations within the study – Native format

2D_Hydro_Modeling_Analysis_Name

Hydro_Model_Geometry

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Final model mesh including nodal elevations, roughness coefficients and all other static boundary conditions assigned. – Native Format
- Final DEM of topography and bathymetry used in model mesh creation – .SHP/.PGDB/.fGDB/.GML

Tidal_Calibration

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Model input files needed to reproduce final tidal simulations – Native format
- Model output files from final tidal simulations – Native format

Hydro_Historic_Storm_Verification

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT

- Model input files needed to reproduce final storm verification simulations – Native format
- Model output files from final storm verification simulations – Native format

Hydro_Production_Runs

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Model inputs needed to reproduce time varying water level elevations throughout the model domain for each event modeled – Native format
- Model output needed to reproduce results from the statistical analysis – Native format
- Optional additional output from analysis – Native format

Hydro_Statistical_Analysis

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- One fully worked example demonstrating inputs, analysis technique and outputs used to calculate the 0.2% and 1%-annual-chance water levels – .PDF
- Input and output data referenced in the fully worked example – Native format

Hydro_Supplemental_Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Any additional data used in the water level modeling of this Flood Risk Project – Native format

Hydro_Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Final 0.2% and 1%-annual-chance surge surfaces used as input for the transect based wave analysis – .SHP/.PGDB/.fGDB/.GML

Wave_Analysis

Wave_Analysis_Approach

- Narrative of approach used to determine regional wave conditions for use in performing the FIS (e.g., 2D wave modeling within JPM-OS, 2D wave modeling for multi-decadal hindcast, desktop analysis for multi-decadal hindcast, etc.). Includes explanation of how different ocean/regional/coastal scale wave domains were linked. – .PDF

Desktop_Wave_Analysis_Name

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- One fully worked example demonstrating inputs, analysis technique and outputs used for the analysis of regional wave conditions – .PDF
- Input and output data referenced in the fully worked example – Native format
- Final analysis output for all locations within the study area – Native format

2D_Wave_Modeling_Analysis_Name

Wave_Model_Geometry

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files. Includes explanation of how different ocean/regional/coastal scale wave domains were linked – .PDF/.TXT
- Final model mesh including nodal elevations, roughness coefficients and all other static boundary conditions assigned. – Native format

Wave_Historic_Storm_Verification

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files. Includes explanation of how different ocean/regional/coastal scale wave domains were linked – .PDF/.TXT
- Model input files needed to reproduce final storm verification simulations – Native format
- Model output files from final storm verification simulations – Native format
- Wave data used to compare with model results from the verification runs – Native format

Wave_Production_Runs

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files. Includes explanation of how different ocean/regional/coastal scale wave domains were linked – .PDF/.TXT
- Model inputs needed to reproduce time varying wave conditions throughout the model domain for each event modeled – Native format
- Model output needed to reproduce results from the statistical analysis – Native format
- Final analysis output for all locations within the study area – Native format
- Data necessary to develop the final 1-percent- and 0.2-percent- annual-chance wave conditions – Native format

Wave_Supplemental_Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Any additional data used in the modeling of offshore wave conditions for this Flood Risk Project – Native format

Transect_Based_Wave_Hazard_Analysis

- Narrative of approach used to determine wave hazards – .PDF
- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT

Wave_Statistical_Analysis_Event

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- One fully worked example demonstrating inputs, analysis technique and outputs used to determine the input wave conditions for use within the transect based wave analysis – .PDF
- Input and output data referenced in the fully worked example – Native format

Wave_Hazard_Model_Name

Simulations

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT

- Model/calculation input and output files for wave hazard analyses – Native format
- For response-based studies, one fully worked example demonstrating inputs, analysis technique and outputs used to determine the Total Water Level – .PDF
- Wave Envelope Files – .PDF and .DXF or spatially compatible file

Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Field survey, land-use and other reference files for 1D wave calculations – Native format
- Topographic and bathymetric datasets if different from 2D_Hydro_Modeling_Analysis_Name\Hydro_Model_Geometry – .SHP/.PGDB/.fGDB/.GML
- Spatial files by model including Transect Layout file –.SHP/.PGDB/.fGDB/.GML

Supplemental_Data

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Any additional data used in the modeling of wave hazards for this Flood Risk Project – Native format

Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.PGDB/.fGDB/.GML

Coastal_Flood_Risk_Spatial_Files

- ReadMe – simple text file describing organization and naming convention of files within this directory including units and datum for all raw data files – .PDF/.TXT
- Final coastal Flood Risk Products produced for the study (i.e. depth grids, erosion hazard, etc.) – .SHP/.PGDB/.fGDB/.GML
- Maps of coastal final Flood Risk Products produced for the study. – .PDF

6.11 Floodplain Mapping / Redelineation

Floodplain/Task SYSID

HUC-8

General

- Draft FIS Report – Word and .PDF
- FIS Tables – .MDB/.XLS/.XLSX/.DBF
- FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
- Project Narrative – Word
- Certification – .PDF
- Floodplain/Redelineation Metadata – .XML
- Automated Engineering Report (if applicable) – Word and .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Base_Map

- Orthophotos (if not submitted under Base Map) – ESL/GeoTIFF/JPEG2000/MrSID/PNG + .EGW/.JPEG/.TIF + .TFW

Spatial_Files

- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP/.GDB/.fGDB/.GML

Topographic_Data

- Topographic Data Files (if not submitted under Terrain Capture) – .LAS/.ASCII/.SHP (2D or 3D)/.PGDB/.fGDB/.DXF/Esri Grid/.GeoTIFF/.ASCII Grid/Esri ArcGIS

Supplemental_Data

- Rectified effective maps and any other data that was used to re-create effective profiles and delineations – Native format

6.12 Draft Mapping Data

Mapping.Draft_DFIRM_DB/Task SYSID

- FIRM Database Draft Metadata – .XML
- FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
- FIRM Database files as described in the *FIRM Database Technical Reference* Table 2 – .SHP

6.13 Preliminary Mapping Data

Note that currently the DFIRM Verification Tool (DVT) requires all data used for verification (i.e. SHP files and metadata) to be in the Task SYSID folder.

Mapping.Preliminary_DFIRM_DB/Task SYSID

- FIRM Database Preliminary Metadata – .XML
- FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP

RFIRM

- Preliminary FIRM Panel Images – .PDF
- Preliminary FIRM Index Images – .PDF

FIS

- Preliminary FIS Report – .PDF

General

- Certification forms – PDF
- Project Charter (if signed after Discovery) – .PDF

Quality_Records

- Pre-QR3Submission Questionnaire and Self-Certification – .PDF
- Post-QR3 Confirmation and Self-Certification forms – .PDF
- QR3 and SOMA Checklists – Word/.PDF

SOMA

- Preliminary SOMA documents – Word

6.14 Final Mapping Data

Note that currently the DVT requires all data used for verification (i.e. .SHP files and metadata) to be in the Task SYSID folder.

Mapping.Final_DFIRM_DB/Task SYSID

- FIRM Database Final Metadata – .XML
- FIS text overflow for Principal Flood Problems and Special Considerations (if necessary) – .TXT
- FIRM Database files as described in the FIRM Database Technical Reference Table 2 – .SHP

RFIRM

- Final georeferenced FIRM Panel Images – PNG + PGW or PGWX/TIF + .TFW or .TFWX
- Final georeferenced FIRM Index Image(s) – PNG + PGW or PGWX/TIF + .TFW or .TFWX

Ortho_photos

- Orthoimagery used as base map for FIRMs (if not previously submitted or modified from a Base Map submittal) – BIL/BIP/GeoTIFF/MrSID/PNG + .PGW or .PGWX/Georeferenced JPEG/TIF + .TFW or .TFWX/.ECW/.JPEG2000

FIS

- Final FIS Report – Word and Bookmarked .PDF
- Profiles – RASPLOT .MDB/.DXF/.DWG

MSC_Paperwork

- Transmittal Letters – Word
- Inventory Worksheets – .XLS/.XLSX

MXD

- FIRM Panel and FIRM Index MXD Files – .MXD

6.15 QA Reports

QA/Task SYSID

FIPS

MIP_Reports

- DVT or other MIP reports, MIPHelp emails, etc. – As received

6.16 Post Preliminary

Using the MIP Tools & Links >Data Upload >Load Studies/Data Artifacts interface, the following information must be uploaded to the MIP K: drive in the Submission Repository folder.

The Post Preliminary files must be submitted as a .ZIP file for each of the data categories organized in the following directory structure.

See the Data Capture Guidance – General document for additional information about submitting revised data, to include revised preliminaries, appeals, and replacing or superseding data in the MIP. See also the Post-Preliminary Deliverables Guidance and the Preliminary Distribution and Revised Preliminary Guidance documents. Note that data submitted by the appellant should be stored under the original project case number.

TSDN

FIPS

General

- Final Project Narrative – Word
- Certification – PDF
- Checklists including the TSDN Checklist – Word/.PDF
- Project Charter (if signed after Discovery) – .DF

Quality_Records

- QR1 and QR2 Passing Reports

- Pre-QR3 Submission Questionnaire and Self-Certification – .PDF
- Post-QR3 Confirmation and Self-Certification forms – .PDF
- QR3, QR5, QR7, QR8, and SOMA Checklists – Word/PDF
- QR5 Shapefile(s) – .SHP
- QR5 and QR7 Passing Reports – Word/.PDF

Correspondence

FIPS

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

FBS

FIPS

- Preliminary Self-Certification – .PDF and any supporting .SHP files
- Final Self-Certification – .PDF and any supporting .SHP files

FEDD

FIPS

- FEDD files (one file per community) – .PDF

6.17 Flood Risk Products Data

There is not yet an automatically created predefined MIP directory structure for the Flood Risk Products data. Mapping Partners submitting Flood Risk Products data will need to create all of the folders listed below.

Flood_Risk_Data

Project ID

General

- Project Narrative – Word
- Certification – .PDF
- Automated Engineering Report (if applicable) – Word and .PDF

Correspondence

- Letters; transmittals; memoranda; general status reports and queries; SPRs; technical issues; direction by FEMA; and internal communications, routing slips, and notes – Word/.PDF

Flood_Risk_Datasets

CSLF

- Input and output data associated with the Changes Since Last FIRM dataset (not the actual CSLF dataset which is submitted with the FRD) – Native format

FDAG

- Input and output data associated with the Flood Depth and Analysis Grids dataset (not the actual grids which are submitted with the FRD) – Native format

FRA

- Input and output data associated with the Flood Risk Assessment dataset, which include Hazus data (not the actual Risk Assessment dataset which is submitted with the FRD) – Native format (.hpr files for Hazus data)

AOMI

- Input and output data associated with the Areas of Mitigation Interest dataset (not the actual AOMI dataset which is submitted with the FRD) – Native format

Flood_Risk_Products

FRD

- Input and output data associated with the FRD (not the actual FRD which is submitted with the final mapping data) – Native format

FRR

- Input and output data associated with the Flood Risk Report (not the actual FRR which is submitted with the FRD) – Native format

FRM

- Input and output data associated with the Flood Risk Map (not the actual FRM which is submitted with the FRD) – Native format

Supplemental_Data

- Any additional data used to assist in the preparation of this Flood Risk Project – Native format

Appendix A. File Format Acronyms List

The following acronyms are used in the list of file format(s) shown in the directory structure.

.ASCII – American Standard for Information Interchange

.BIL – Band Interleaved by Line

.BIP – Band Interleaved by Pixel

.BMP – Bitmap image file

.CSV – Comma Separated Values

.DBF – dBase DataBase File

.DXF – AutoCAD® Drawing Interchange Format or Drawing Exchange Format

.DWG – AutoCAD® DraWinG file

.ECW – Intergraph® (ERDAS) Enhanced Compression Wavelet

Esri grid – Esri® raster file format

.fGDB – Esri® File Geodatabase

.GML – Geographic Markup Language

GeoTIFF – Georeferenced TIFF

.IMG – Image file

.JPEG/.JPEG2000 – Joint Photographic Experts Group

.LAS – LASer (ASPRS)

.MDB – Microsoft® Access Database

.MrSID – LizardTech® Multiresolution Seamless Image Database

.MXD – Esri® ArcMap document

.PDF – Adobe® Portable Document Format

.PGDB – Esri® Personal Geodatabase

.PGW or .PGWX – PNG World File

.PNG – Portable Network Graphics

.SHP – Esri® Shapefile

.TFW or .TFWX – TIFF World File

TIFF – Tagged Image File Format

.TIN – Triangulated Irregular Network

.TXT – Text file

Word – Microsoft® Word .doc or .docx file format

.XLS/.XLSX – Microsoft® Excel format

.XML – Extensible Markup Language