Appendix E
Sample Metadata File[1]

Metadata is formal documentation of geospatial data. The major uses of metadata are to help organize and maintain an organization's internal investment in geospaital data; to provide information about an organization's data holdings to data catalogues, clearinghouses, and brokerages; and to provide intormation to process and interpret data received through a transfer from an external source. The Federal Geographic Data Committee (FGDC) has developed a standard set of terminology and definition for the documentation of geospatial data, including data elements. This standard set of terminology and definitions is known as the FGDC Metadata Content Standard.

The National Spatial Data Infrastructure (NSDI) Clearinghouse Activity, sponsored by the FGDC, is a decentralized system of servers located on the Internet which contain field-level descriptions of available digital spatial data. This descriptive information, metadata, are collected in a standard format to facilitate query and consistent presentation across multiple participating sites. A fundamental goal of Clearinghouse is to provide access to digital spatial data through metadata. The Clearinghouse functions as a detailed catalog service with support for links to spatial data and browse graphics. Clearinghouse sites are encouraged to provide hypertext linkages within their metadata entries that enable users to directly download the digital data set in one or more formats. For more information regarding metadata and the USACE NSDI Clearinghouse, see Appendix D of EM 1110-1-2909 or visit http://corpsgeo1.usace.army.mil .

Metadata can be generated using a variety of tools. USACE has developed a metadata tool, Corpsmet. Corpsmet can be downloaded from http://corpsgeo1.usace.army.mil. There is also a metadata tutorial that can be downloaded from this site. A comprehensive overview of existing Metadata tools and tutorials can be downloaded from http://www.fgdc.gov/metadata/metadata.html. Under NO circumstances should metadata be generated using a word processor.

The following file is an example metadata file. More examples can be viewed at http://homepages.together.net/~bspatial/duck/samples.htm.

[1] Appendix E contains sample metadata files that may be used as a general guide for photogrammetric mapping data sets. In addition, Appendix E also contains a brief document containing general information regarding Metadata, the National Spatial Data Infrastructure (NSDI) Clearinghouse Activity, and a reference to the USACE developed metadata tool, Corpsmet.

```
Identification_Information:
      Citation:
            Citation_Information:
                  Originator: U.S. Army Corps of Engineers - Huntington
District
                  Publication_Date: Unpublished material
                  Publication_Time: Unknown
                  Title: 1999 Topographic Mapping of the Greenup Pool - Ohio
River
                  Edition: N/A
                  Geospatial_Data_Presentation_Form: map
                  Series_Information:
                        Series_Name: N/A
                        Issue_Identification: N/A
                  Online_Linkage:
ftp://www.usace.army.mil/lrd/huntington/metadata
      Description:
            Abstract:
                  On August 3, 1999, topographic mapping of a portion of
                  the Ohio River known as the Greenup Pool was
                  contracted to Horizons, Inc. of Rapid City, South Dakota
                  by the U.S. Army Corps of Engineers under contract
                  DACW43-98-D-0510 - Task Order #0021.
                  B/W aerial photography had been taken on April 5, 1998
                  over the Ohio River between the Gallipolis and Mehldahl
                  Locks and Dams by Barton Aerial Technologies, Inc..
                  Ground control for the project along with mensuration and
                  aerotriangulation were done by Barton Aerial Technologies,
                  Inc..  Contact prints, diapositives, control, and a camera
                  calibration report were delivered to Horizons, Inc. for the
                  mapping phase of the project.
                  Planimetric features and a Digital Terrain Model
                  (DTM) were collected from the head of the Greenup Pool
                  (at the Galipolis Locks and Dam) to the tail of the Greenup
                  Pool (at the Greenup Locks and Dam) and one half mile
                  from the centerline on either side of the river along this
                  reach.
                  Forty eight (48) mapping files compiled at a scale of
                  300' with 5' contour interval were delivered in
                  a MicroStation format to the Huntington District of the
                  Army Corps of Engineers.  MicroStation files that are
                  TSSDS compliant for the MGE setting on the TSSDS
                  browser were also delivered.
            Purpose:
                  The project was undertaken to provide the Huntington
                  District of the U.S. Army Corps of Engineers base map
                  information for hydrologic study, land use, watercourse,
                  operational, and planning purposes.
      Time_Period_of_Content:
            Time_Period_Information:
                  Single_Date/Time:
                        Calendar_Date: 19980408
                        Time_of_Day: Unknown
            Currentness_Reference: Ground Condition
      Status:
            Progress: Complete
            Maintenance_and_Update_Frequency: Unknown
      Spatial_Domain:
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            Bounding_Coordinates:
                  West_Bounding_Coordinate: +084.864583
                  East_Bounding_Coordinate: +082.146972
                  North_Bounding_Coordinate: +38.689528
                  South_Bounding_Coordinate: +38.382722
      Keywords:
            Theme:
                  Theme_Keyword_Thesaurus: Tri - Service Spatial Data Standard
                  Theme_Keyword: Buildings
                  Theme_Keyword: Environment/Hazard
                  Theme_Keyword: Geodedic/Cadastral
                  Theme_Keyword: Hydrography
                  Theme_Keyword: Improvement
                  Theme_Keyword: land Status
                  Theme_Keyword: Landform
                  Theme_Keyword: Transportation
                  Theme_Keyword: Utilities
            Place:
                  Place_Keyword_Thesaurus: Geographic Names Information System
                  Place_Keyword: Mehldahl Pool
                  Place_Keyword: Greenup Pool
                  Place_Keyword: Ohio River
                  Place_Keyword: Ohio
            Stratum:
                  Stratum_Keyword_Thesaurus: None
                  Stratum_Keyword: Ground Condition
      Access_Constraints:
            Access to this data is controlled by the Huntington District
            of the U.S. Army Corps of Engineers
      Use_Constraints:
            Use of the mapping data is controlled by the Huntington
            District of the U.S Army Corps of Engineers.  Use of the
            data is also restricted to the scale and contour interval at
            which it was produced.  If the mapping is altered from the
            specified scale and contour interval either by digital or
            photo/mechanical means there is no assurance of the
            map accuracy.
      Point_of_Contact:
            Contact_Information:
                  Contact_Organization_Primary:
                        Contact_Organization: CAE Section, U.S. Army Corps of
Engineers - Huntington District
                        Contact_Person: James P. Vassar
                  Contact_Address:
                        Address_Type: mailing and physical address
                        Address:
                              CELRH-EC-DA
                              502 Eighth Street
                        City: Huntington
                        State_or_Province: West Virginia
                        Postal_Code: 25701-2070
                        Country: U.S.A.
                  Contact_Voice_Telephone: (304)529-5208
                  Contact_Facsimile_Telephone: (304)529-5209
                  Contact_Electronic_Mail_Address:
James.P.Vassar@LRH01.usace.army.mil
      Data_Set_Credit:
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            The B/W aerial photography, ground survey,
            mensuration, and aerotriangulation for this project were
            done by Barton Aerial Technologies, Inc. of Columbus,
            Ohio.  The mapping, edit, and translation were done by
            Horizons, Inc. of Rapid City, South Dakota.
      Security_Information:
            Security_Handling_Description:
                  Access to the data collected during this project is
                  controlled by the Huntington District of the U.S. Army Corps
                  of Engineers.
            Security_Classification: Unclassified
            Security_Classification_System: N/A
      Native_Data_Set_Environment: MicroStation95
      Cross_Reference:
            Citation_Information:
            Originator: U.S. Army Corps of Engineers - Huntington District
                  Publication_Date: Unknown
                  Publication_Time: Unknown
            Title: 1998 Topographic Mapping of the Greenup Pool - Ohio River
                  Edition: N/A
                  Geospatial_Data_Presentation_Form: map
                  Series_Information:
                        Series_Name: N/A
                        Issue_Identification: N/A
                  Online_Linkage:
ftp://www.usace.army.mil/lrd/huntington/metadata
Data_Quality_Information:
      Attribute_Accuracy:
            Attribute_Accuracy_Report:
                  The data collection procedure is designed to create
                  mapping that meets the requirements of National Map
                  300' scale - 5' contour interval
                  mapping.  The accuracy of the mapping data presumes
                  that there is no discernable error in the ground control
                  survey.
      Logical_Consistency_Report:
            Horizons, Inc. mapped the project area using the ground
            control and aerotriangulation solution provided by Barton
            Aerial Technologies.  No problems were noted in the
            set-ups of the stereo-models using the control provided.
      Completeness_Report: The project is complete.
      Positional_Accuracy:
            Horizontal_Positional_Accuracy:
                  Horizontal_Positional_Accuracy_Report:
                  National Map Accuracy Standards state that 90% of
                  horizontal positions shall be within 1/30 of one inch at the
                  300').
            Vertical_Positional_Accuracy:
                  Vertical_Positional_Accuracy_Report:
                  National Map Accuracy Standards state that 90% of all
                  contours will be within one half contour interval except
                  where obscured.  The contour interval for this project was
                  5 feet.
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Lineage:
      Source_Information:
            Source_Scale_Denominator: 1:3600
            Type_of_Source_Media: CD-ROM
            Source_Time_Period_of_Content:
                  Time_Period_Information:
                        Single_Date/Time:
                              Calendar_Date: 19980408
                              Time_of_Day: Unknown
                  Source_Currentness_Reference: Ground Condition
            Source_Citation_Abbreviation: N/A
            Source_Contribution:
            The aerial photography, ground control, and
            aerotriangulation solution were done by Barton
            Aerial Technologies, Inc. of Columbus, OH.
            Horizons, Inc. of Rapid City, South Dakota utilized the
            photography and control to compile the mapping.  Edit of
            the mapping and translation to MicroStation was also done
            by Horizons, Inc..
      Process_Step:
            Process_Description:
            On April 5, 1998 B/W aerial photography was taken over
            the Ohio River between the Gallipolis and Mehldahl Pools
            by Barton Aerial Technologies, Inc..  Ground control for the
            project along with mensuration and aerotriangulation were
            done by Barton Aerial Technologies, Inc..  Contact prints,
            diapositives, control, and a camera calibration report were
            delivered to Horizons, Inc. for mapping.
            Planimetric features and a Digital Terrain Model (DTM)
            were collected from the head of the Greenup Pool
            at the Galipolis Locks and Dam to the tail of the Greenup
            Pool at the Mehldahl Locks and Dam and one half mile
            from the centerline on either side of the river along this
            reach.
            The final mapping was delivered to the Huntington
            District of the U.S. Army Corps of Engineers at a scale of
            300' with a 5' contour interval.  Forty eight
            (48) MicroStation files were delivered along with
            MicroStation files compliant for the MGE setting on the
            TSSDS browser.
            Source_Used_Citation_Abbreviation: N/A
            Process_Date: 20000508
            Process_Time: 11000000
            Source_Produced_Citation_Abbreviation: N/A
            Process_Contact:
                  Contact_Information:
                        Contact_Organization_Primary:
                              Contact_Organization: Horizons, Inc.
                              Contact_Person: Ken Wrede
                        Contact_Position: Project Manager
                        Contact_Address:
                              Address_Type: mailing and physical address
                              Address: 3600 Jet Drive
                              City: Rapid City
                              State_or_Province: South Dakota
                              Postal_Code: 57703
                              Country: U.S.A.
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                  Contact_Voice_Telephone: (605)343-0280 (ext. 137)
                  Contact_Facsimile_Telephone: (605)343-0305
                  Contact_Electronic_Mail_Address: kwrede@horizonsinc.com
                  Hours_of_Service: 8:00 A.M. to 5:00 P.M. (MDT)
                  Contact_Instructions:
                  Please contact Monday through Friday during business hours.
      Cloud_Cover: Unknown
Spatial_Data_Organization_Information:
      Direct_Spatial_Reference_Method: Vector
Spatial_Reference_Information:
      Vertical_Coordinate_System_Definition:
            Altitude_System_Definition:
            Altitude_Datum_Name: National Geodetic Vertical Datum of 1929
                  Altitude_Resolution: 0.0
                  Altitude_Distance_Units: Feet
                  Altitude_Encoding_Method: Explicit elevation coordinate
included with horizontal coordinates
Entity_and_Attribute_Information:
      Detailed_Description:
            Entity_Type:
                  Entity_Type_Label: MicroStation Levels
                  Entity_Type_Definition: Planimetric and Topographic Features
                  Entity_Type_Definition_Source: Horizons, Inc. - "Standards
for 1"=200' Collection"
            Attribute:
                  Attribute_Label: Mapping Level Assignments
                  Attribute_Definition:
                        ATHLETIC FIELD - UNIDENTIFIED
                        BRIDGE
                        BUILDING - SEMI-PERMANENT
                        BUILDING - UNDER CONSTRUCTION
                        BUILDING FOUNDATION
                        BUILDING ROOF LINE
                        BUILDING, FOUNDATION
                        BUILDING, SEMI-PERMANENT
                        CEMETERY
                        CLIFF LINE
                        CONCRETE PAD
                        CONTOUR, INDEX
                        CONTOUR, INDEX, DEPRESSION
                        CONTOUR, INTERMEDIATE, OBSCURED
                        COURT - RECREATION
                        CULVERT
                        CULVERT INLET/OUTLET
                        DAM
                        DRAINAGE LINE
                        DRIVEWAY, UNIDENTIFIED
                        ELECTRICAL SUBSTATION
                        ELECTRICAL TRANSMISSION TOWER
                        FENCE, GENERIC
                        GATE
                        GOLF COURSE - GREENS/FAIRWAYS/TEES
                        GRID TICKS
                        GRIDS
                        GROUND CONTROL, HORIZONTAL
                        GROUND CONTROL, HORZ/VERT
                        GROUND CONTROL, VERTICAL
                        LAKE
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                        LOCATED OBJECT LINE
                        PARKING, CONCRETE
                        PARKING, GRAVEL
                        PILE OUTLINE
                        PIPELINE
                        PIT BOUNDARY
                        POLE, ELECTRICAL
                        POLE, STREET LIGHT
                        POND/LAKE/WATER
                        POST, UNIDENTIFIED
                        RAILROAD
                        ROAD, GENERIC
                        ROAD, GRAVEL
                        SIGN
                        SPOT ELEVATION
                        STREAM
                        SWAMP
                        TANK
                        TITLEBLOCK
                        TITLEBLOCK HATCH A
                        TITLEBLOCK HATCH B
                        TITLEBLOCK PEN 2
                        TITLEBLOCK PEN 3
                        TITLEBLOCK PEN 4
                        TRAIL
                        TREE
                        TREE LINE
                        WALL
                        WING WALL, CULVERT
                  Attribute_Definition_Source: Horizons, Inc. "Standards for
1"=200' Collection"
                  Attribute_Domain_Values:
                        Codeset_Domain:
                              Codeset_Name: "Standards for 1"=200' Collection
                              Codeset_Source: Horizons, Inc.
                  Attribute_Units_of_Measure: Feet
                  Attribute_Measurement_Resolution: 0.0 (one decimal place)
                  Beginning_Date_of_Attribute_Values: 19980408
                  Ending_Date_of_Attribute_Values: 19980408
                  Attribute_Value_Accuracy_Information:
      Attribute_Value_Accuracy: Horizontal (1/30 of one inch at map scale)
                        Attribute_Value_Accuracy_Explanation:
      The mapping meets National Map Accuracy Standards for
      horizontal and vertical position for the scale at which it was
      produced.
                  Attribute_Measurement_Frequency: Unknown
      Overview_Description:
            Entity_and_Attribute_Overview:
                  200'
                  Collection" planimetric and topographic detail was
                  compiled from 10,000' AMT photography supplied by
                  Barton Aerial Technologies, Inc. of Columbus, OH.
            Entity_and_Attribute_Detail_Citation: Horizons, Inc. "Standard
Features for 1"=200' Collection"
Distribution_Information:
      Distributor:
            Contact_Information:
                  Contact_Organization_Primary:
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      Contact_Organization: U.S. Army Corps of Engineers - Huntington District
                        Contact_Person: Jim .P. Vassar
                  Contact_Position: Civil Engineer
                  Contact_Address:
                        Address_Type: mailing and physical address
                        Address:
                              CELRH-EC-DA
                              502 Eighth Street
                        City: Huntington
                        State_or_Province: West Virginia
                        Postal_Code: 25701-2070
                        Country: U.S.A.
                  Contact_Voice_Telephone: (304)529-5208
                  Contact_Facsimile_Telephone: (304)529-5209
                  Contact_Electronic_Mail_Address:
James.P.Vassar@LRH01.usace.army.mil
                  Hours_of_Service: 8:00 A.M. to 5:00 P.M.
                  Contact_Instructions:
                        Please contact Monday through Friday during working
                        hours.
Resource_Description: 1999 Topographic Mapping of the Greenup
Pool - Ohio River
      Distribution_Liability:
            The data represents the results of data
            collection/processing for a specific U.S. Army Corps of
            Engineers project and describes the general existing
            condition on the ground at the time of the photography.  As
            such the data is only valid for its intended use, content,
            time, accuracy, and scale specifications.  The user is
            responsible for the results of any application of the data for
            other than its intended purpose.
      Custom_Order_Process: Unknown
      Technical_Prerequisites: Unknown
Metadata_Reference_Information:
      Metadata_Date: 20000508
      Metadata_Contact:
            Contact_Information:
                  Contact_Organization_Primary:
                        Contact_Organization: Horizons, Inc.
                        Contact_Person: Ken Wrede
                  Contact_Position: Project Manager
                  Contact_Address:
                        Address_Type: mailing and physical address
                        Address: 3600 Jet Drive
                        City: Rapid City
                        State_or_Province: South Dakota
                        Postal_Code: 57703
                        Country: U.S.A.
                  Contact_Voice_Telephone: (605)343-0280
                  Contact_Facsimile_Telephone: (605)343-0305
                  Contact_Electronic_Mail_Address: kwrede@horizonsinc.com
                  Hours_of_Service: 8:00 A.M. to 5:00 P.M.
                  Contact_Instructions:
                        Please contact Monday through Friday during working
                        hours.
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
      Metadata_Standard_Version: June 8, 1994
      Metadata_Time_Convention: Local time
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Metadata_Access_Constraints: None
Metadata_Use_Constraints: None
Metadata_Security_Information:
      Metadata_Security_Handling_Description:
            No security handling issues are imposed on the
            metadata by the author of the metadata (Horizons, Inc.).
      Metadata_Security_Classification: Unclassified
      Metadata_Security_Classification_System: Unknown
```