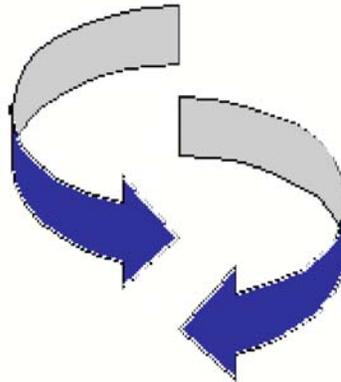# General Specifications for Aeronautical Surveys

Volume IV
Exchange File Format

Version 4.0, February 2006

Federal Aviation Administration

National Oceanic and Atmospheric Administration

National Geodetic Survey

http://www.ngs.noaa.gov/AERO/aero.html

Table of Contents

1. Exchange File Overview

The Exchange File Format documentation is a user's guide for preparing and submitting data for storage in the Federal Aviation Administration's Airport Surveying-GIS Program and the National Geodetic Survey's Obstruction Chart Database (OCDB). It provides in detail the format and structure of every field allowable by the OCDB. Also included are dependencies, field widths, record order requirements and field choice lists. Please note that this document specifies format for the purpose of exchanging data but does not specify what data is required. Required data should be specified by the organization requesting the data.

For questions regarding the Exchange File Format please contact:

Michael Keltz
phone: (301) 713-1428 ext. 204
email: Mike.Keltz@noaa.gov

For errors or questions regarding this document please contact:

Douglas Graham
phone: (301) 713-2675 ext. 170
email: doug.graham@noaa.gov

2. Record Format

Starting with Version 4.0, the column-based format will not be supported – only the comma-delimited format will be supported.

The following sections describe all the possible records found in an Exchange File. These sections are broken down by record and then by field. Each field is further broken down by: description, range, format, and example. All records have the same basic structure. All records contain at most 132 characters. They consist of a variable number of fields. The field format contains a special symbol defined below.

A	Alphabetic upper and lower case characters only (A-Z)
9	Numeric and sign only (0-9, +, -, .)
X	Alphanumeric, sign and decimal point
DDDMMSS.SSSS	DDD - Degrees; MM - Minutes; SS - Seconds
dd-mmm-yyyy hh:mm	dd - 2 character integer day;
	mmm - First 3 alpha characters of the month;
	yyyy - 4 character integer year;
	hh - 2 character integer hour;
	mm - 2 character integer minute

Note: Alphabetic values may be upper or lower case. Due to the Exchange File accommodating a comma-delimited format, alphabetic text ("A") fields cannot contain embedded commas. Embedded commas are represented in "A" fields in the file by replacing the comma with the wedge-shaped caret symbol (^). This is merely a translation between the actual field and it's representation within the Exchange File. For example, "HOWARD SMITH, JR AIRFIELD" would appear in the exchange file as "HOWARD SMITH^ JR AIRFIELD". All numeric distance and length values are in U.S. Survey Feet unless otherwise specified.

2.1 Identification Code

Each record begins with a four character identification code. This code is broken down into two parts, the single upper case alpha character General Data Category and the three digit numeric General Data Record Type. The alpha character in the Identification code must be upper case.

2.1.1 General Data Category

The first character in the record is the general data category. All records for a given data category must be provided before the next category begins. There are eight valid data category codes:

V	Version Information
A	Airport Data
R	Runway Data
F	Feature Data
P	Poly Data
C	Chart Information
L	List Information
T	Task Information
X	End of File Record

Explanations of these categories will be given in further detail under the appropriate section for each category.

2.1.2 General Data Record Type

Characters 2-4 represent an integer value representing the data record for each category. If the first digit is a 3 through 9, the record is a standard series record. Otherwise it is a special format record. The following list contains the integer value range and the corresponding contents of the record:

000-299	Various Contents
300	Reference System Definition Codes
400	3D Positions With Date And Source
500	Distance And Elevation With Date And Source
600	Length And Width With Date And Source
700	2D Positions Without Date And Source
800	Value (Distance, Width, etc.) With Date And Source
900	Orthometric and Ellipsoidal Elevation With Date And Source

These data records are broken down into specific fields in sections 2.1.2.1 through 2.1.2.8.

2.1.2.1 Various Contents (000-299)

2.1.2.2 Reference System Definition Codes (300)

Field 1: **Reference System Code**
Description: Reference system in which the positions are expressed
Range: None, value is always 0 (zero)
Format: 99999
Example: 0

Field 2: **Zone Code**
Description: Zone for the reference system
Range: None, value is always 0 (zero)
Format: 99999
Example: 0

Field 3: **Horizontal Unit Code**
Description: Units in which positions are expressed.
Range: Currently only:
     5   DMS (degrees, minutes, seconds)
Note: Additional codes will be added in the future only if modifications to the OC Database allow for positions in units other than DMS.
Format: 99999
Example: 5

Field 4: **Horizontal Datum Code**
Description: Year of datum in which positions are expressed
Range: Year of Datum, 27 or 83
Format: 99999
Example: 27

Field 5: **Vertical Unit Code**
Description: Units in which elevations and distances are expressed
Range: Currently only:
     1   U.S Survey Feet

Note: Additional unit codes will be added at some point in the future only if modifications to the OC Database allow for elevations and distances in units other than U.S Survey Feet

Format: 99999

Example: 1

Field 6: **Vertical Datum Code**

Description: Datum in which elevations are expressed

Range: 29, 88, 9001 or 9003

Format: 99999

Example: 29

2.1.2.3 3D Positions (400)

Field 1: **Longitude**

Description: Longitude where sign represents hemisphere

Range: -1800000 to +1800000, values west represented as negative

Format: DDDMMSS.SSSS

Example: -1235832.1281

Field 2: **Latitude**

Description: Latitude where sign represents hemisphere

Range: -900000 to +900000, values south represented as negative

Format: DDMMSS.SSSS

Example: 245328.7315

Field 3: **Elevation: Orthometric**

Description: Refer to the FAA NO. 405

Range: None

Format: 99999999999.999

Example: 469.845

Field 4: **Elevation: Ellipsoidal**

Description: Refer to the FAA NO. 405

Range: None

Format: 99999999999.999

Example: 382.289

Field 5: **Determined Date**

Description: Survey Date that data in this record was determined

Range: None

Format: dd-mmm-yyyy

Example: 18-DEC-1996

Field 6: **Verified Date**

Description: Most recent Survey Date that data in this record was verified

Range: None

Format: dd-mmm-yyyy

Example: 18-DEC-1996

Field 7: **Source Code: Position**

Description: Specifies the source of position

Range: See Appendix B

Format: A
Example: F

Field 8: **Source Code: Elevation**
Description: Specifies the source of elevation
Range: See Appendix B
Format: A
Example: F

2.1.2.4 Distance and Elevation (500)

Field 1: **Distance**
Description: Distance (real) from an endpoint
Range: None
Format: 99999999999.999
Example: 72149.968

Field 2: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 12138.325

Field 3: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 9999999999.999
Example: 14325.424

Field 4: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 5: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 6: **Source Code: Distance**
Description: Specifies the source of distance
Range: See Appendix B
Format: A
Example: D

Field 7: **Source Code: Elevation**
Description: Specifies the source of elevation
Range: See Appendix B
Format: A

Example: F

2.1.2.5 Length and Width (600)

Field 1: **Distance**
Description: Distance (real) from runway endpoint
Range: None
Format: 99999999999.999
Example: 1244.945

Field 2: **Width**
Description: Width (real) of runway
Range: None
Format: 99999999999.999
Example: 324.376

Field 3: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 4: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 5: **Source Code: Distance**
Description: Specifies the source of distance
Range: See Appendix B
Format: A
Example: F

Field 6: **Source Code: Elevation**
Description: Specifies the source of Elevation
Range: See Appendix B
Format: A
Example: F

2.1.2.6 2D Positions (700)

Field 1: **Longitude**
Description: Longitude where sign represents hemisphere
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -1751119.1281

Field 2: **Latitude**
Description: Latitude where sign represents hemisphere
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS

Example: 245328.7315

2.1.2.7 Value (Distance, Width, etc.) (800)

Field 1: **Value (Distance, etc.)**
Description: Distance, width or other miscellaneous real value
Range: None
Format: 9999999999.9999
Example: 1231.4433

Field 2: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 3: **Source Code: Value**
Description: Specifies the source of value
Range: See Appendix B
Format: A
Example: F

2.1.2.8 Orthometric and Ellipsoidal Elevation (900)

Field 1: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 13245.786

Field 2: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 14456.556

Field 3: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 4: **Source Code: Elevation**
Description: Specifies the source of Elevation
Range: See Appendix B
Format: A
Example: D

2.2 Specific Data Records

These records are specific to the three general data categories: Airport, Runway, and Feature. The first character represents which general category the record falls under. A - Airport, R - Runway, F - Feature, and P - Poly Feature.

Like the General Data Record Type, characters 2-4 represent an integer value representing the data record for each category. If the second character is a 3 through 9, the record is a standard series record.

2.2.1 Airport Specific Records

The following records contain information about the airport.

2.2.1.1 Airport Identification (A000)

Note: This record must be present and should be the first record following the Version Records (V010 and V000).

Field 1: **OC Number**
> Description: The National Geodetic Survey's Obstruction Chart tracking number from FAA's National Aeronautical Charting Office (AL number)
> Range: 1 to 999999
> Format: 999999
> Example: 4367
> Dependancy: This record or the Airport ID is required

Field 2: **OC Edition**
> Description: Most current
> Range: 1 to 99999
> Format: 999999
> Example: 6

Field 3: **Airport ID**
> Description: Airport Identifier (refer to FAA ORDER 7350.**, AS AMENDED)
> Range: None
> Format: XXXX
> Example: TWS
> Dependancy: This record or the OC Number is required

Field 4: **Site ID**
> Description: FAA Identification number
> Range: None
> Format: (10)X
> Example: 045O8.A

Field 5: **Previous Airport ID**
> Description: The previous Airport Identifier (if applicable)
> Range: None
> Format: XXXX
> Example: CNW

2.2.1.2 Airport Name (A010)

Field 1: **Name**
> Description: Name of Airport on Survey Date
> Range: None
> Format: (70)A
> Example: Baltimore Washington International Airport

Field 2: **Verified Date**
        Description: Most recent Survey Date that data in this record was verified
        Range: None
        Format: dd-mmm-yyyy
        Example: 18-DEC-1996

2.2.1.3 Airport Jurisdiction (A020)

Field 1: **City**
        Description: Associated City
        Range: None
        Format: (40)A
        Example: BALTIMORE

Field 2: **State**
        Description: Name or 2 character abbreviation of state in which airport is located
        Range: Valid state name as defined in Annex A of "Input Formats and Specifications of the National Geodetic Survey Data Base (September 1994) (updated 1998, 2000)" are obtained by clicking "generate" on section 2.0 Get the Latest Country, State, and County Codes (http://www.ngs.noaa.gov/FGCS/BlueBook/annexa/annexa.index.html)
        Format: (20)A
        Example: MD

2.2.1.4 Airport Magnetic Declination (A030)

Note: This record contains computed values or values that are established by the NGS or the FAA and, as such, are provided by the NGS or the FAA for informational purposes and will be ignored upon input to the NGS or the FAA. Third parties submitting data to the NGS or the FAA do not need to populate these fields.

Field 1: **Magnetic Declination**
        Description: East Declination is indicated by negative.
        Range: -180.0 to +180.0
        Format: 999999.9
        Example: -100.0

Field 2: **Verified Date**
        Description: Most recent Survey Date that data in this record was verified
        Range: None
        Format: dd-mmm-yyyy
        Example: 18-DEC-1996

2.2.1.5 Airport Status (A040)

Field 1: **Airport Vessel Code**
        Description: Specifies existence of a vessel that possibly obstructs the FAR 77 Horizontal, Conical or Transition OIS
        Range: Y (Yes, there is a vessel), N (No, there is no Vessel), or - (undefined)
        Format: A
        Example: Y

Field 2: **Vessel Code Verified Date**
        Description: Most recent Survey Date that Vessel Code was verified

Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 3: **Survey Date**
Description: Date the field Survey was completed; this record must be the same as the Completed Date of the Survey Task Code (Record T000, Field 4 and with Field 1 = "S") when both are present. If not, the Survey Date will take the value of the last record in which it appears. It is acceptable to set the known flag for this field to "9" (ignore).
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 4: **Published Date**
Description: Publication date of Airport Obstruction Chart. This is a computed value or a value that is established by the NGS or the FAA and, as such, is provided by the NGS or the FAA for informational purposes and will be ignored upon input to the NGS or the FAA. Third parties submitting data to the NGS or the FAA do not need to populate this field.
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 5: **Date of ALP**
Description: Date of original ARP position
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 6: **Date of ARP**
Description: Most recent runway end Survey Date used in the ARP computation
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 7: **Airport Mode Code**
Range: See Appendix B
Format: 9
Example: 1

Field 8: **Survey Type Code: Airport**
Description: Specifies the type of survey conducted for the airport
Range: See Appendix B
Format: 9999
Example: 1

2.2.1.6 Surface Type (A045)

Field 1: **Surface Type Code: 1**
Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the same type usually are similar in nature with respect to certain aspects of the surface definition or may merely be representative of different programs within the airport charting community.
Range: See Appendix B

Format: AAA
Example: F77

Field 2: **Surface Type Code: 2**
　　Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the
　　　　　same type usually are similar in nature with respect to certain aspects of the surface definition
　　　　　or may merely be representative of different programs within the airport charting community.
　　Range: See Appendix B
　　Format: AAA
　　Example: F77

Field 3: **Surface Type Code: 3**
　　Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the
　　　　　same type usually are similar in nature with respect to certain aspects of the surface definition
　　　　　or may merely be representative of different programs within the airport charting community.
　　Range: See Appendix B
　　Format: AAA
　　Example: F77

Field 4: **Surface Type Code: 4**
　　Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the
　　　　　same type usually are similar in nature with respect to certain aspects of the surface definition
　　　　　or may merely be representative of different programs within the airport charting community.
　　Range: See Appendix B
　　Format: AAA
　　Example: F77

Field 5: **Surface Type Code: 5**
　　Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the
　　　　　same type usually are similar in nature with respect to certain aspects of the surface definition
　　　　　or may merely be representative of different programs within the airport charting community.
　　Range: See Appendix B
　　Format: AAA
　　Example: F77

Field 6: **Surface Type Code: 6**
　　Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the
　　　　　same type usually are similar in nature with respect to certain aspects of the surface definition
　　　　　or may merely be representative of different programs within the airport charting community.
　　Range: See Appendix B
　　Format: AAA
　　Example: F77

Field 7: **Surface Type Code: 7**
　　Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the
　　　　　same type usually are similar in nature with respect to certain aspects of the surface definition
　　　　　or may merely be representative of different programs within the airport charting community.
　　Range: See Appendix B
　　Format: AAA
　　Example: F77

Field 8: **Surface Type Code: 8**

Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the same type usually are similar in nature with respect to certain aspects of the surface definition or may merely be representative of different programs within the airport charting community.
Range: See Appendix B
Format: AAA
Example: F77

Field 9: **Surface Type Code: 9**
Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the same type usually are similar in nature with respect to certain aspects of the surface definition or may merely be representative of different programs within the airport charting community.
Range: See Appendix B
Format: AAA
Example: F77

Field 10: **Surface Type Code: 10**
Description: Surface Type refers to the general type of surfaces used to analyze features. Surfaces of the same type usually are similar in nature with respect to certain aspects of the surface definition or may merely be representative of different programs within the airport charting community.
Range: See Appendix B
Format: AAA
Example: F77

Field 11: **Surface Type Surveyed Flag 1**
Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
Range: 1   Features were surveyed relative to this type of surface
         0   Features were not surveyed relative to this type of surface
Format: 9
Example: 1

Field 12: **Surface Type Surveyed Flag 2**
Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
Range: 1   Features were surveyed relative to this type of surface
         0   Features were not surveyed relative to this type of surface
Format: 9
Example: 1

Field 13: **Surface Type Surveyed Flag 3**
Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
Range: 1   Features were surveyed relative to this type of surface
         0   Features were not surveyed relative to this type of surface
Format: 9
Example: 1

Field 14: **Surface Type Surveyed Flag 4**
> Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
>
> Range: 1   Features were surveyed relative to this type of surface
>   0   Features were not surveyed relative to this type of surface
>
> Format: 9
>
> Example: 1

Field 15: **Surface Type Surveyed Flag 5**
> Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
>
> Range: 1   Features were surveyed relative to this type of surface
>   0   Features were not surveyed relative to this type of surface
>
> Format: 9
>
> Example: 1

Field 16: **Surface Type Surveyed Flag 6**
> Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
>
> Range: 1   Features were surveyed relative to this type of surface
>   0   Features were not surveyed relative to this type of surface
>
> Format: 9
>
> Example: 1

Field 17: **Surface Type Surveyed Flag 7**
> Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
>
> Range: 1   Features were surveyed relative to this type of surface
>   0   Features were not surveyed relative to this type of surface
>
> Format: 9
>
> Example: 1

Field 18: **Surface Type Surveyed Flag 8**
> Description: Specify which surfaces where actually considered for the current survey, refer to the surface types in Fields 1 - 10 respectively. When a particular surface is flagged as not being considered during the current survey, it means that the surface may have been considered during a previous survey and information is being carried forward.
>
> Range: 1   Features were surveyed relative to this type of surface
>   0   Features were not surveyed relative to this type of surface
>
> Format: 9
>
> Example: 1

Field 19: **Surface Type Surveyed Flag 9**

Description: Specify which surfaces where actually considered for the current survey, refer to the surface
types in Fields 1 - 10 respectively. When a particular surface is flagged as not being
considered during the current survey, it means that the surface may have been considered
during a previous survey and information is being carried forward.

Range: 1   Features were surveyed relative to this type of surface
      0   Features were not surveyed relative to this type of surface

Format: 9

Example: 1

Field 20: **Surface Type Surveyed Flag 10**

Description: Specify which surfaces where actually considered for the current survey, refer to the surface
types in Fields 1 - 10 respectively. When a particular surface is flagged as not being
considered during the current survey, it means that the surface may have been considered
during a previous survey and information is being carried forward.

Range: 1   Features were surveyed relative to this type of surface
      0   Features were not surveyed relative to this type of surface

Format: 9

Example: 1

2.2.1.7 Datum Tie (A050)

Field 1: **Horizontal Datum Tie Code**

Description: Specifies the accuracy of the Horizontal Datum Tie relative to the National Spatial Reference
System (NSRS)

Range: See Appendix B

Format: AA

Example: B

Field 2: **Ellipsoidal Datum Tie Code**

Description: Specifies the accuracy of the Ellipsoidal Datum Tie relative to the National Spatial Reference
System (NSRS)

Range: See Appendix B

Format: AA

Example: B

Field 3: **Orthometric Datum Tie Code**

Description: Specifies the accuracy of the Orthometric Datum Tie relative to the National Spatial Reference
System (NSRS)

Range: See Appendix B

Format: AA

Example: D

Field 4: **Date of Horizontal Datum Tie**

Description: The adjustment date for the Primary Airport Control Station position.

Range: None

Format: dd-mmm-yyyy

Example: 18-DEC-1996

Field 5: **Date of Ellipsoidal Datum Tie**

Description: The adjustment date for the Primary Airport Control Station ellipsoid height.

Range: None

Format: dd-mmm-yyyy

Example: 18-DEC-1996

Field 6: **Date of Orthometric Datum Tie**
Description: The adjustment date for the Primary Airport Control Station orthometric height.
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

2.2.1.8 Airport Elevation (A060)

Note: This record contains computed values or values that are established by the NGS or the FAA and, as such, are provided by the NGS or the FAA for informational purposes and will be ignored upon input to the NGS or the FAA. Third parties submitting data to the NGS or the FAA do not need to populate these fields.

Field 1: **Airport Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 213.887

Field 2: **Geoid Height (at ALP)**
Description: The difference between the Ellipsoid and Orthometric elevation at the approximate center of the airport.
Range: None
Format: 99999999999.999
Example: 134.578

2.2.1.9 Reported Elements (A070)

Note: This record contains computed values or values that are established by the NGS or the FAA and, as such, are provided by the NGS or the FAA for informational purposes and will be ignored upon input to the NGS or the FAA. Third parties submitting data to the NGS or the FAA do not need to populate these fields.

Field 1: **Runways Reported Flag**
Description: Denotes whether or not runways are to be reported, and if so, they have been reported
Range: 2   runways are not to be reported
         1   runways are to be reported
         3   runways have been reported
Format: 9
Example: 2

Field 2: **NAVAIDS Reported Flag**
Description: Denotes whether or not NAVAIDS are to be reported, and if so, they have been reported
Range: 2   NAVAIDS are not to be reported
         1   NAVAIDS are to be reported
         3   NAVAIDS have been reported
Format: 9
Example: 2

Field 3: **SafeFlight Reported Flag**
Description: Denotes whether or not the Safe Flight information is to be reported, and if so, it has been

reported
Range: 2   Safe Flight is not to be reported
       1   Safe Flight is to be reported
       3   Safe Flight has been reported
Format: 9
Example: 2

Field 4: **Obstructions Reported Flag**
Description: Denotes whether or not the obstructions are to be reported, and if so, they have been reported
Range: 2   obstructions are not to be reported
       1   obstructions are to be reported
       3   obstructions have been reported
Format: 9
Example: 2

Field 5: **STARS Reported Flag**
Description: Denotes whether or not the STARS information is to be reported, and if so, if it has been
         reported
Range: 2   STARS information is not to be reported
       1   STARS information is to be reported
       3   STARS information have been reported
Format: 9
Example: 2

Field 6: **Additional Flag - Reserved for future use**
Description: Reserved for future additional reporting flag
Range: Reserved for future use
Format: NA
Example: NA

Field 7: **Additional Flag - Reserved for future use**
Description: Reserved for future additional reporting flag
Range: Reserved for future use
Format: NA
Example: NA

Field 8: **Additional Flag - Reserved for future use**
Description: Reserved for future additional reporting flag
Range: Reserved for future use
Format: NA
Example: NA

2.2.1.10 Air Traffic Control Tower Floor Elevation - indexed (A080)

Field 1: **Point Feature Number**
Description: The number must match a Point Feature Number (Field 1) from an F000 Record. Only one
       A080 record may be used and the Point Feature Number of the A080 must correspond to the
       Point Feature Number of the F000 record for the primary ATCT.
Range: 1 to 9999, A1 to A999, B1 to B999, ... Z1 to Z999, a1 to a999, b1 to b999, ... z1 to z999
Format: XXXX
Example: 1

Field 2: **Elevation: Orthometric**
> Description: Orthometric Elevation of the ATCT Floor
> Range: None
> Format: 99999999999.999
> Example: 12138.325

Field 3: **Elevation: Ellipsoidal**
> Description: Ellipsoidal Elevation of the ATCT Floor
> Range: None
> Format: 99999999999.999
> Example: 14325.424

Field 4: **Verified Date**
> Description: Most recent survey Date that data in this record was verified
> Range: None
> Format: dd-mmm-yyyy
> Example: 18-DEC-1996

Field 5: **Source Code: Elevation**
> Description: Specifies the source of the ATCT Floor Elevation
> Range: See Appendix B
> Format: A
> Example: F

2.2.1.11 Last Feature Number (A085)

Note: The Last Point Feature Number and Last Poly Feature Number must each be higher or equal in value to the respective highest Point/Poly Feature number found in the F000 and P000 records.

Field 1: **Last Point Feature Number**
> Description: Specifies the last Point Feature Number used. The Point Feature Numbers of point features added to the exchange file should start with the Last Point Feature Number + 1. NOTE: Scanning the file for the highest Point Feature Number and assign the next number to the first additional feature is not correct because that feature might have been deleted from the exchange file.
> Range: 1 to 9999, A1 to A999, B1 to B999, ... Z1 to Z999, a1 to a999, b1 to b999, ... z1 to z999
> Format: XXXX
> Example: 1

Field 2: **Last Poly Feature Number**
> Description: Specifies the last Poly Feature Number used. The Poly Feature Numbers of poly features added to the exchange file should start with the Last Poly Feature Number + 1. NOTE: Scanning the file for the highest Poly Feature Number and assign the next number to the first additional feature is not correct because that feature might have been deleted from the exchange file.
> Range: 1 to 9999, A1 to A999, B1 to B999, ... Z1 to Z999, a1 to a999, b1 to b999, ... z1 to z999
> Format: XXXX
> Example: 1

2.2.1.12 Epoch Dates (A090)

Field 1: **Datum Tag**
> Description: Displayed for horizontal NAD 83 Latitude, Longitudes only.

Range: None
Format: Shown in parentheses immediately following NAD 83.

NAD 83 (1986) indicates positions on the NAD83 datum for the North American Adjustment, completed in 1986.

NAD 83 (nnnn) indicates positions on the NAD83 datum for the North American Adjustment, but readjusted to a State High Accuracy Reference Network (HARN) on the date shown in (nnnn).

NAD 83 (CORS) indicates positions which are part of the CORS

NAD 83 (CORS) is an obsolete Tag which has been replaced by (CORS96), (PACP00), and (MARP00)

NAD 83 (CORS96) indicates a CORS position referenced to the North American tectonic plate.

NAD 83 (PACP00) indicates a CORS position referenced to the Pacific tectonic plate.

NAD 83 (MARP00) indicates a CORS position referenced to the Mariana tectonic plate.

Field 2: **Horizontal Epoch Date**
Description: The date the published horizontal coordinate is valid
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 3: **Ellipsoidal Epoch Date**
Description: The date the published ellipsoidal height is valid
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 4: **Orthometric Epoch Date**
Description: The date the published orthometric height is valid
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

2.2.1.13 Airport Reference System (A310)

Field 1: **Reference System Code**
Description: Reference system in which positions are expressed
Range: None, value is always 0 (zero) indicating Geographic
Format: 99999
Example: 0

Field 2: **Zone Code**
Description: Zone for the reference system
Range: None, value is always 0
Format: 99999
Example: 0

Field 3: **Horizontal Unit Code**

Description: Units in which positions are expressed
Range: None, value is always 5
Format: 99999
Example: 5

Field 4: **Horizontal Datum Code**

Description: Year of datum in which positions are expressed
Range: 27 or 83
Format: 99999
Example: 27

Field 5: **Vertical Unit Code**

Description: Units in which elevations are expressed
Range: None, value is always 1
Format: 99999
Example: 1

Field 6: **Vertical Datum Code**

Description: Datum in which elevations are expressed
Range: See Appendix B
Format: 99999
Example: 29

2.2.1.14 Airport Location Point (A710)

Field 1: **Longitude**

Description: Longitude with hemisphere represented by sign
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -1751119.1281

Field 2: **Latitude**

Description: Latitude with hemisphere represented by sign
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

2.2.2 Runway Specific Records

The following records contain information about a specific runway at the airport. Note that each record following the R000 record refers to that specific R000 record. If no R000 record is present, all runway records are invalid. Also any runway records preceding the R000 record are invalid. When the fourth character of the identification code is designated by an asterisk '*' the valid values specify the end of the runway. The low numbered end of the runway is designated by a one '1' and the high numbered end of the runway is designated by a two '2'.

2.2.2.1 Runway Identification (R000)

Note: Runway identification numbers must be unique. They are identified by the magnetic direction in which they point, rounding to the nearest ten degrees. So, for example, a runway identified with "36" would stand for a 360 degrees direction (i.e. North). Each runway can be used in two directions, and hence has two numbers. Since the directions are necessarily opposite, the number of a runway can always be found by adding or subtracting 18 from the opposite runway number (whichever yields a positive number less than 37). If an airport has more than one

runway pointing in the same direction, the runways are further identified by the letters L, C and R, for Left, Center and Right, behind the number. Such an example would be runways "36L", "36C" and "36R". If a runway end identification number includes a letter the opposite runway end must also include the opposite directional letter. Such an example of letter designations would be 18R/36L, 18C/36C, and 18L/36R. If a planned runway is designated with an 'X' then the opposite runway end must also be designated with an 'X'.

Field 1: **Low End Identification Number**

> Description: Identifies the low end of the runway, measured from 10 degrees to 180 degrees. Note that the 0 is dropped from the degree reading.
> Range: 1-18 followed by:
> > blank - only runway with this azimuth
> > L - left runway
> > R - right runway
> > C - center runway
> > X – unmarked runway
>
> Format: 99A
> Example: 16R

Field 2: **High End Identification Number**

> Description: Identifies the high end of the runway, measured from 190 degrees to 360 degrees. Note that the 0 is dropped from the degree reading.
> Range: 19-36 followed by:
> > blank - only runway with this azimuth
> > L - left runway
> > R - right runway
> > C - center runway
> > X – unmarked runway
>
> Format: 99A
> Example: 34L

2.2.2.2 Runway Width (R810)

Field 1: **Width**

> Description: Width (real) of runway
> Range: None
> Format: 9999999999.9999
> Example: 156.4565

Field 2: **Verified Date**

> Description: Most recent Survey Date that data in this record was verified
> Range: None
> Format: dd-mmm-yyyy
> Example: 18-DEC-1996

Field 3: **Source Code: Value**

> Description: Specifies the source of value
> Range: See Appendix B
> Format: A
> Example: F

2.2.2.3 Runway Type (R010)

Field 1: **Runway Type Code**
        Description: Material used in finish of runway
        Range: See Appendix B
        Format: A
        Example: P

Field 2: **Verified Date**
        Description: Most recent Survey Date that data in this record was verified
        Range: None
        Format: dd-mmm-yyyy
        Example: 18-DEC-1996

2.2.2.4 Runway Flags (R02*)
Note: Fields 1, 2, 5, 6 and 7 of the R02* record are no longer in use but they must be preserved in the record to prevent errors in existing software. The R03* record is now the preferred method for specifying approach types.

Field 1: **This Field is no longer in use**
        Description:
        Range:
        Format:
        Example:

Field 2: **This Field is no longer in use**
        Description:
        Range:
        Format:
        Example:

Field 3: **Runway Vessel Code**
        Description: Specifies the existence of a vessel that possibly obstructs the FAR 77 Approach or Primary
                OIS
        Range: Y (Yes, there is a vessel), N (No, there is no Vessel), or - (undefined)
        Format: A
        Example: D

Field 4: **Runway Vessel Verified Date**
        Description: Most recent Survey Date the Runway Vessel Code was verified
        Range: None
        Format: dd-mmm-yyyy
        Example: 18-DEC-1996

Field 5: **This Field is no longer in use**
        Description:
        Range:
        Format:
        Example:

Field 6: **This Field is no longer in use**
        Description:
        Range:
        Format:
        Example:

Field 7: **This Field is no longer in use**
        Description:
        Range:
        Format:
        Example:

Field 8: **Profile Method Flag Code**
        Description: Specifies the method used to collect runway profile information
        Range: See Appendix B
        Format: 9
        Example: 1

2.2.2.5 Runway Approach Type (R03*)

Note: The approach types reported in Fields 1-10 must be an approach of the general surface type specified in the corresponding field in the A045 record. The Approach Surveyed Flags in Fields 11-20 specify whether or not the approach surfaces was used for feature penetration analysis during the current survey, and must refer to the Approach Types specified in fields 1 - 10 respectively. When a particular approach is flagged as not being considered during the current survey, it means that the approach surface may have been considered during a previous survey and information is being carried forward.

Field 1: **Approach Type 1**
        Description: Approach Type refers to the specific type of approach surface used to analyze features.
        Range: See Appendix B
        Format: AAA
        Example: PIR

Field 2: **Approach Type 2**
        Description: Approach Type refers to the specific type of approach surface used to analyze features.
        Range: See Appendix B
        Format: AAA
        Example: PIR

Field 3: **Approach Type 3**
        Description: Approach Type refers to the specific type of approach surface used to analyze features.
        Range: See Appendix B
        Format: AAA
        Example: PIR

Field 4: **Approach Type 4**
        Description: Approach Type refers to the specific type of approach surface used to analyze features.
        Range: See Appendix B
        Format: AAA
        Example: PIR

Field 5: **Approach Type 5**
        Description: Approach Type refers to the specific type of approach surface used to analyze features.
        Range: See Appendix B
        Format: AAA
        Example: PIR

Field 6: **Approach Type 6**
>
> Description: Approach Type refers to the specific type of approach surface used to analyze features.
> Range: See Appendix B
> Format: AAA
> Example: PIR

Field 7: **Approach Type 7**
>
> Description: Approach Type refers to the specific type of approach surface used to analyze features.
> Range: See Appendix B
> Format: AAA
> Example: PIR

Field 8: **Approach Type 8**
>
> Description: Approach Type refers to the specific type of approach surface used to analyze features.
> Range: See Appendix B
> Format: AAA
> Example: PIR

Field 9: **Approach Type 9**
>
> Description: Approach Type refers to the specific type of approach surface used to analyze features.
> Range: See Appendix B
> Format: AAA
> Example: PIR

Field 10: **Approach Type 10**
>
> Description: Approach Type refers to the specific type of approach surface used to analyze features.
> Range: See Appendix B
> Format: AAA
> Example: PIR

Field 11: **Approach Surveyed Flag 1**
>
> Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
> Range: 1   Features were surveyed relative to this approach surface
>   0   Features were not surveyed relative to this approach surface
> Format: 9
> Example: 1

Field 12: **Approach Surveyed Flag 2**
>
> Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
> Range: 1   Features were surveyed relative to this approach surface
>   0   Features were not surveyed relative to this approach surface
> Format: 9
> Example: 1

Field 13: **Approach Surveyed Flag 3**
>
> Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
> Range: 1   Features were surveyed relative to this approach surface
>   0   Features were not surveyed relative to this approach surface
> Format: 9

Example: 1

Field 14: **Approach Surveyed Flag 4**
Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
Range: 1   Features were surveyed relative to this approach surface
        0   Features were not surveyed relative to this approach surface
Format: 9
Example: 1

Field 15: **Approach Surveyed Flag 5**
Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
Range: 1   Features were surveyed relative to this approach surface
        0   Features were not surveyed relative to this approach surface
Format: 9
Example: 1

Field 16: **Approach Surveyed Flag 6**
Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
Range: 1   Features were surveyed relative to this approach surface
        0   Features were not surveyed relative to this approach surface
Format: 9
Example: 1

Field 17: **Approach Surveyed Flag 7**
Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
Range: 1   Features were surveyed relative to this approach surface
        0   Features were not surveyed relative to this approach surface
Format: 9
Example: 1

Field 18: **Approach Surveyed Flag 8**
Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
Range: 1   Features were surveyed relative to this approach surface
        0   Features were not surveyed relative to this approach surface
Format: 9
Example: 1

Field 19: **Approach Surveyed Flag 9**
Description: Specify whether or not the approach surface was used for feature penetration analysis during the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
Range: 1   Features were surveyed relative to this approach surface
        0   Features were not surveyed relative to this approach surface
Format: 9
Example: 1

Field 20: **Approach Surveyed Flag 10**
Description: Specify whether or not the approach surface was used for feature penetration analysis during

the current survey; refer to the Approach Types specified in fields 1 - 10 respectively.
Range: 1   Features were surveyed relative to this approach surface
         0   Features were not surveyed relative to this approach surface
Format: 9
Example: 1

2.2.2.6 Runway End Position (R40*)

Field 1: **Longitude**
Description: Longitude with hemisphere represented by sign
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -1751119.1281

Field 2: **Latitude**
Description: Latitude with hemisphere represented by sign
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

Field 3: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 469.845

Field 4: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 382.289

Field 5: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 6: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 7: **Source Code: Horizontal Position**
Description: Specifies the source of Horizontal Position
Range: See Appendix B
Format: A
Example: F

Field 8: **Source Code: Vertical Position**
Description: Specifies the source of Vertical Elevation

Range: See Appendix B
Format: A
Example: F

2.2.2.7 Displaced Threshold - by position (R41*)

Field 1: **Longitude**
Description: Longitude with hemisphere represented by sign
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -761119.1281

Field 2: **Latitude**
Description: Latitude with hemisphere represented by sign
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

Field 3: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 469.845

Field 4: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 382.289

Field 5: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 6: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 7: **Source Code: Horizontal Position**
Description: Specifies the source of Horizontal Position
Range: See Appendix B
Format: A
Example: F

Field 8: **Source Code: Vertical Position**
Description: Specifies the source of Vertical Elevation
Range: See Appendix B
Format: A

Example: F

2.2.2.8 Stopway - by position (R42*)

Note: A corresponding R82* record should be present to specify the width and width source. If not found, the width and width source will be assumed to be the same as the runway width.

Field 1: **Longitude**
Description: Longitude with hemisphere represented by sign
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -761119.1281

Field 2: **Latitude**
Description: Latitude with hemisphere represented by sign
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

Field 3: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 469.845

Field 4: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 382.289

Field 5: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 6: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Position: Columns 78-88
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 7: **Source Code: Horizontal Position**
Description: Specifies the source of Horizontal Position
Range: See Appendix B
Format: A
Example: F

Field 8: **Source Code: Vertical Position**
Description: Specifies the source of Vertical Elevation

Range: See Appendix B
Format: A
Example: F

2.2.2.9 Stopway Width (R82*)

Field 1: **Width**
Description: Specifies the width and width source for the stopway. If omitted, the runway width and width
source is assumed to be the same as for the runway. The Date field is ignored.
Range: None
Format: 9999999999.9999
Example: 156.4565

Field 2: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 3: **Source Code: Value**
Description: Specifies the source of value
Range: See Appendix B
Format: A
Example: F

2.2.2.10 Blast Pad - by position (R43*)

Note: A corresponding R83* record should be present to specify the width and width source. If not found, the
width and width source will be assumed to be the same as the runway width.

Field 1: **Longitude**
Description: Longitude with hemisphere represented by sign
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -761119.1281

Field 2: **Latitude**
Description: Latitude with hemisphere represented by sign
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

Field 3: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 469.845

Field 4: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999

Example: 382.289

Field 5: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 6: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 7: **Source Code: Horizontal Position**
Description: Specifies the source of Horizontal Position
Range: See Appendix B
Format: A
Example: F

Field 8: **Source Code: Vertical Position**
Description: Specifies the source of Vertical Elevation
Range: See Appendix B
Format: A
Example: F

2.2.2.11 Blast Pad Width (R83*)

Field 1: **Width**
Description: Specifies the width and width source for the blast pad. If omitted, the runway width and width source is assumed to be the same as for the runway. The Date field is ignored.
Range: None
Format: 9999999999.9999
Example: 156.4565

Field 2: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 3: **Source Code: Value**
Description: Specifies the source of value
Range: See Appendix B
Format: A
Example: F

2.2.2.12 Distance To Boundary - by position (R74*)

Field 1: **Longitude**
Description: Longitude with hemisphere represented by sign
Range: -1800000 to +1800000, values west represented as negative

Format: DDDMMSS.SSSS
Example: -1761119.1281

Field 2: **Latitude**
Description: Latitude with hemisphere represented by sign
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

2.2.2.13 TDZE - output only (R92*)

Note: This record contains computed value or values that are established by the NGS or the FAA and, as such, are provided by the NGS or the FAA for informational purposes and will be ignored upon input to the NGS or the FAA. Third parties submitting data to the NGS or the FAA do not need to populate these fields.

Field 1: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 13245.786

Field 2: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 99999999999.999
Example: 14456.556

Field 3: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 4: **Source Code: Elevation**
Description: Specifies the source of Elevation
Range: See Appendix B
Format: A
Example: D

2.2.2.14 Profile Point Status (R090)

Field 1: **Runway Identification Number From Which Distance Is Measured**
Description: Runway azimuth varies from 10 to 360 degrees. Note that the trailing zero (0) is dropped from the identification number.
Range: 1-36 followed by:
blank - only runway with this azimuth
L - left runway
R - right runway
C - center runway
X – unmarked runway
Note: Must match field 1 or field 2 of R000 record

Format: 99A
Example: 18

Field 2: **Profile Point Type Code**
    Description: Software generated type code (can be left blank)
    Range: Software Generated (can be left blank)
    Format: A
    Example: X

2.2.2.15 Profile Point - by position (R490)

Field 1: **Longitude**
    Description: Longitude with hemisphere represented by sign
    Range: -1800000 to +1800000, values west represented as negative
    Format: DDDMMSS.SSSS
    Example: -1761119.1281

Field 2: **Latitude**
    Description: Latitude with hemisphere represented by sign
    Range: -900000 to +900000 values south represented as negative
    Format: DDMMSS.SSSS
    Example: 245328.7315

Field 3: **Elevation: Orthometric**
    Description: Refer to the FAA NO. 405
    Range: None
    Format: 99999999999.999
    Example: 469.845

Field 4: **Elevation: Ellipsoidal**
    Description: Refer to the FAA NO. 405
    Range: None
    Format: 99999999999.999
    Example: 382.289

Field 5: **Determined Date**
    Description: Survey Date that data in this record was determined
    Range: None
    Format: dd-mmm-yyyy
    Example: 18-DEC-1996

Field 6: **Verified Date**
    Description: Most recent Survey Date that data in this record was verified
    Range: None
    Format: dd-mmm-yyyy
    Example: 18-DEC-1996

Field 7: **Source Code: Horizontal Position**
    Description: Specifies the source of Horizontal Position
    Range: See Appendix B
    Format: A

Example: F

Field 8: **Source Code: Vertical Position**
>Description: Specifies the source of Vertical Position
>Range: See Appendix B
>Format: A
>Example: F

2.2.3 Feature Specific Records

The following records contain information about a feature at the airport. Note that each record following the F000 record refers to that specific F000 record.

2.2.3.1 Feature Identification (F000)

Field 1: **Point Feature Number**
>Description: Unique "number" for a feature which identifies the feature for life of the airport. Features added to the file should start with the next number in sequence as described in the range. If this is the first survey or there was no exchange file with previous survey information available, the feature numbers should start with 1.
>Range: 1 to 9999, A1 to A999, B1 to B999, ... Z1 to Z999, a1 to a999, b1 to b999, ... z1 to z999
>Format: XXXX
>Example: 1

Field 2: **Feature Description**
>Description: Description of feature (refer to FAA NO. 405 for allowed abbreviations). If the feature is a PACS (P) or SACS (A) control point then the NGS designated Permanent IDentifier (PID) must be included as the first six characters followed by a blank ' ' or slash '/' character for readability. If the PID is unknown then XXXXXX should be used.
>Range: None
>Format: (40)X
>Example: TREE

2.2.3.2 Feature Status Record (F010)

Field 1: **Feature Status Flag**
>Description: Specifies whether or not a feature is to be considered as a possible obstruction.
>Range: See Appendix B
>Format: 9
>Example: 1

Field 2: **Accuracy Code**
>Description: Specifies the accuracy standard (refer to FAA NO. 405). Note: This accuracy code is for point feature accuracy relative to the FAA 405 requirements for obstructions. NAVAIDS and control points without a top elevation should use the accuracy code "99".
>Range: See Appendix B
>Format: XX
>Example: 1A

Field 3: **Point Survey Status Attribute**
>Description: Specifies the action performed to verify/determine features in the current survey.

Range: See Appendix B
Format: A
Example: P

Field 4: **Control Type Attribute**
Description: Type of Control point.
Range: See Appendix B
Format: A
Example: P

Field 5: **NAVAID Type Attribute**
Description: Specifies whether or not the feature is a navigational aid and/or STARS component and, if so, what kind. Each Active NAVAID (with the exception of the Airport Beacon) shall be uniquely identified based on the NAVAID Type, Facility ID, and if applicable, Runway End ID attributes. This does not apply to NAVAIDS with NAVAID Type Code =: (STARS) or NAVAIDS that are Under Construction, Out of Service or Non-commissioned.
Range: See Appendix B
Format: A and some special characters, see Appendix B
Example: W

Field 6: **Special Attribute**
Description: Specifies one or more special attributes
Range: See Appendix B
Format: A
Example: T

Field 7: **Survey Type Code: Feature**
Description: Specifies the type of survey for which the feature was surveyed
Position: Columns 20-23
Range: See Appendix B
Format: 9999
Example: 1

2.2.3.3 Feature Position (F410)

Field 1: **Longitude**
Description: Longitude with hemisphere represented by sign
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -1761119.1281

Field 2: **Latitude**
Description: Latitude with hemisphere represented by sign
Range: -900000 to +900000 values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

Field 3: **Top Elevation: Orthometric**
Description: The top elevation will be the highest point of a feature (Refer to the FAA NO. 405).
Range: None
Format: 99999999999.999

Example: 469.845

Field 4: **Top Elevation: Ellipsoidal**
Description: The top elevation will be the highest point of a feature (Refer to the FAA NO. 405).
Range: None
Format: 99999999999.999
Example: 382.289

Field 5: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 6: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 7: **Source Code: Horizontal Position**
Description: Specifies the source of Horizontal Position
Range: See Appendix B
Format: A
Example: F

Field 8: **Source Code: Vertical Position**
Description: Specifies the source of Vertical Position
Range: See Appendix B
Format: A
Example: F

2.2.3.4 Base Elevation Record (F020)

Field 1: **Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 9999999999.999
Example: 469.845

Field 2: **Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 9999999999.999
Example: 382.289

Field 3: **Source Code: Elevation**
Description: Specifies the source of Elevation
Range: See Appendix B
Format: A
Example: F

2.2.3.5 Reference Elevation Record (F025)

Field 1: **Elevation: Orthometric**
　　　　Description: The reference elevation will be one of several kinds of mutually exclusive elevations
　　　　　　　　depending upon the NAVAID flag (F010, Field 5). The possibilities are : Mid-Point
　　　　　　　　Elevation, Phase Center Elevation and ATCT Floor Elevation (only if feature is an ATCT).
　　　　　　　　(Refer to the FAA No. 405)
　　　　Range: None
　　　　Format: 9999999999.999
　　　　Example: 469.845

Field 2: **Elevation: Ellipsoidal**
　　　　Description: The reference elevation will be one of several kinds of mutually exclusive elevations
　　　　　　　　depending upon the NAVAID flag (F010, Field 5). The possibilities are : Base Elevation,
　　　　　　　　Mid-Point Elevation, and Phase Center Elevation. (Refer to the FAA No. 405)
　　　　Range: None
　　　　Format: 9999999999.999
　　　　Example: 382.289

Field 3: **Source Code: Elevation**
　　　　Description: Specifies the source of Elevation
　　　　Range: See Appendix B
　　　　Format: A
　　　　Example: F

2.2.3.6 Feature Cross-Reference Record (F040)

Field 1: **Facility ID**
　　　　Description: ID of the associated Facility. Note that the Facility ID for NAVAIDS associated with a
　　　　　　　　specific runway end (as with an ILS/MLS system identifier) is located in the Runway End Ids
　　　　　　　　attribute.
　　　　Range: None
　　　　Format: XXXX
　　　　Example: SUN

Field 2: **Runway End IDs**
　　　　Description: Runway end associated with the NAVAID. When a Facility Id is associated with the specific
　　　　　　　　runway end (as with an ILS/MLS system identifier) it is appended to the runway end ID
　　　　　　　　following an underscore. Example: 8L_HFW.
　　　　Range: The Runway End ID must match either Field 1 or Field 2 in any R000 Record; in special cases the
　　　　　　　　Runway End ID can be "NON" (for NONE), or can be a list of valid IDs separated by a "/" such as
　　　　　　　　9L/26R/3 or 8L_HFW/8R_ATL.
　　　　Format: (47) X
　　　　Example: 34L

Field 3: **Usage Status Code**
　　　　Description:
　　　　Range: See Appendix B
　　　　Format: AAA
　　　　Example: UNC

Field 4: **Z (Elev) Offset**
> Description: The Z Offset (Field 4) is a value added to the true elevation to reflect the elevation at which the feature should be considered for penetration (Refer to FAA No. 405). This is to accommodate features such as roads or railroads which are themselves at a given, or true, elevation but may have vehicles on them which raise the effective elevation. In this instance, the Z Offset would be the value added to the true elevation to allow for the height of the vehicle. A feature's true elevation is the Orthometric Elevation minus the Z Offset.
> Range: Refer to FAA No. 405
> Format: (15) X
> Example: 23

Field 5: **Source code: for Z Offset**
> Description: Specifies the source for the presence of the Z Offset
> Range: See Appendix B
> Format: A
> Example: F

2.2.3.7 Feature Comment Record - Field Survey (F050)

Field 1: **Feature Comment: Field Survey**
> Description: Comment
> Range: None
> Format: (80) X
> Example: West Dedham Church

2.2.3.8 Feature Comment Record - Requirements (F051)

Field 1: **Feature Comment: Requirements**
> Description: Comment
> Range: None
> Format: (80) X
> Example: CPME associated with ASR (ABC)

2.2.3.9 Feature Comment Record - Compilation (F052)

Field 1: **Feature Comment: Compilation**
> Description: Comment
> Range: None
> Format: (80) X
> Example: OBST #366 RD(N) 918, approximately 235 feet NE of rwy end 22, was moved 15 feet east.

2.2.3.10 Photo ID Record (F008)

Field 1: **Photo Identification**
> Description: Photo ID for Photo Identified features. For aerial photographs, the Photo ID label shall comprise of the Roll and Frame number of the photograph in which the feature may be identified from.
> Range: None
> Format: (40) X
> Example: 98AP01-1032

2.2.3.11 Collection Interface Record (F009)

Field 1: **Date-Time Visited**
Description: Date-time (any kind)
Range: None
Format: dd-mmm-yyyy hh:mm
Example: 18-DEC-1995 13:57

Field 2: **Date-Time Horizontal Position Edited**
Description: Date-time (any kind)
Range: None
Format: dd-mmm-yyyy hh:mm
Example: 18-DEC-1995 13:57

Field 3: **Date-Time Vertical Position (Top) Edited**
Description: Date-time (any kind)
Range: Text
Format: dd-mmm-yyyy hh:mm
Example: 18-DEC-1995 13:57

Field 4: **Date-Time Description Edited**
Description: Date-time (any kind)
Range: Text
Format: dd-mmm-yyyy hh:mm
Example: 18-DEC-1995 13:57

Field 5: **Date-Time Other Attribute(s) Edited**
Description: Date-time (any kind)
Range: Text
Format: dd-mmm-yyyy hh:mm
Example: 18-DEC-1995 13:57

Field 6: **Temporary Subject to Review Flag**
Description: Feature designated for review by Quality Control
Range: 0 - False
            1 - True
Format: 999
Example: 1

2.2.3.12 Reference to Poly Feature Record (F005)

Field 1: **Reference to Poly Feature**
Description: The Poly Feature Number of the poly feature to which this point belongs
Range: 0 to 9999, A1 to A999, B1 to B999, ... Z1 to Z999, a1 to a999, b1 to b999, ... z1 to z999. Note that
        0 implies it does not belong to a poly feature.
Format: XXXX
Example: 1

2.2.4 Poly Feature Records
The following records contain information about a specific polygon or polyline feature at the airport. Note that each

record following a Poly Feature Class record (P000) refers to that specific P000 record. If no P000 record is present, all poly feature records are invalid. Poly Feature Attribute records (P005) and Feature Comment Records (P05*) apply to the poly feature as a whole and reference the most recent Poly Feature Class (P000) record. There should be at least 2 Poly Vertex (P010) records for each polyline feature, and 3 Poly Vertex (P010) records for each polygon feature. For a polygon feature, the first Poly Vertex (P010) coordinates must be the same as the last Poly Vertex coordinates. There is no limit to the number of vertices per feature. Each Vertex Comment (P015) record is associated with the most recent Poly Vertex (P010) record and is intended to provide information about each vertex. The Vertex Comment (P015) record is most useful during a field survey to keep track of what has been done (Example: NW Corner). Poly Vertex (P010) records are required to be in sequence. The Feature Comment Records (P05*) and Vertex Comment (P015) records are optional.

2.2.4.1 Poly Feature Class Record (P000)

Field 1: **Poly Feature Number**
> Description: Unique "number" for a poly feature which identifies the feature for life of the airport.
> Features added to the file should start with the next number in sequence as described in the range. If this is the first survey or there was no exchange file with previous survey information available, the feature numbers should start with 1.
> Range: 1 to 9999, A1 to A999, B1 to B999, ... Z1 to Z999, a1 to a999, b1 to b999, ... z1 to z999
> Format: XXXX
> Example: 1

Field 2: **Poly Feature Class**
> Description: A collection of features with similar attributes
> Range: None
> Format: (80) X
> Example: BUILDING

2.2.4.2 Poly Feature Attribute Record (P005)

Field 1: **Description**
> Description: Description of the feature
> Range: None
> Format: (40)X
> Example: HANGAR

Field 2: **Type (G polygon & L polyline)**
> Description: Geometric representation of the feature
> Range: G for a polygon, L for a polyline
> Format: 9
> Example: G

Field 3: **Feature Status Flag: Poly**
> Description: Specifies whether or not a poly feature is to be considered for the current survey.
> Range: 0, 1, 3, 7, 8 (See Appendix B)
> Format: 9
> Example: 1

Field 4: **Poly Feature Survey Status Attribute**
> Description: Specifies the action performed to verify/determine features in the current survey.

Range: See Appendix B
Format: A
Example: S

Field 5: **Poly Feature Usage Status Code**
Description: The state of surface at time of survey.
Range: See Appendix B
Format: AAA
Example: UNC

Field 6: **Poly Feature Accuracy Code**
Description: Specifies the accuracy standard (refer to Draft FAA AC NO. 150/53XX-XX: Airport Survey
Data Collection and Geographic Information Systems Standards). Note: This accuracy code is
for the actual poly feature and not necessarily the vertices that comprise the poly feature.
Range: See Appendix B
Format: XXXXXX
Example: 5/10

Field 7: **Determined Date**
Description: Survey Date that data in this record was determined
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 8: **Verified Date**
Description: Most recent Survey Date that data in this record was verified
Range: None
Format: dd-mmm-yyyy
Example: 18-DEC-1996

Field 9: **Source Code: Horizontal Position**
Description: Specifies the source of Horizontal Position
Range: See Appendix B
Format: A
Example: F

Field 10: **Source Code: Vertical Position**
Description: Specifies the source of Vertical Position
Range: See Appendix B
Format: A
Example: F

2.2.4.3 Vertex Record (P010)

Field 1: **Longitude**
Description: Longitude where sign represents hemisphere
Range: -1800000 to +1800000, values west represented as negative
Format: DDDMMSS.SSSS
Example: -1235832.1281

Field 2: **Latitude**

Description: Latitude where sign represents hemisphere
Range: -900000 to +900000, values south represented as negative
Format: DDMMSS.SSSS
Example: 245328.7315

Field 3: **Top Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 9999999.999
Example: 469.845

Field 4: **Top Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 9999999.999
Example: 382.289

Field 5: **Base Elevation: Orthometric**
Description: Refer to the FAA NO. 405
Range: None
Format: 9999999.999
Example: 469.845

Field 6: **Base Elevation: Ellipsoidal**
Description: Refer to the FAA NO. 405
Range: None
Format: 9999999.999
Example: 382.289

2.2.4.4 Vertex Comment Record (P015)

Field 1: **Vertex Comment**
Description: Comment
Range: None
Format: (40) X
Example: NW Corner

2.2.4.5 Poly Feature Comment Record - Field Survey (P050)

Note: Poly Feature Comment records (P05*) reference the most recent Poly Feature Class record (P000).

Field 1: **Poly Feature Comment: Field Survey**
Description: Comment
Range: None
Format: (80) X
Example: Tie-down area

2.2.4.6 Poly Feature Comment Record - Requirements (P051)

Field 1: **Poly Feature Comment: Requirements**
Description: Comment

Range: None
Format: (80) X
Example: Verify existence

2.2.4.7 Poly Feature Comment Record - Compilation (P052)

Field 1: **Poly Feature Comment: Compilation**
Description: Comment
Range: None
Format: (80) X
Example: Building

2.2.5 Miscellaneous Records
The following records contain miscellaneous information.

2.2.5.1 Chart Reference System (C310)

Note: This record contains computed values or values that are established by the NGS or the FAA and, as such, are provided by the NGS or the FAA for informational purposes and will be ignored upon input to the NGS or the FAA. Third parties submitting data to the NGS or the FAA do not need to populate these fields.

Field 1: **Reference System Code**
Description: Reference system in which positions are expressed
Range: 1 - UTM
          2 - State Plane
Format: 99999
Example: 1

Field 2: **Zone Code**
Description: Zone for the reference system
Range: UTM or State Plane zone code
Format: XXXXX
Example: 17

Field 3: **Horizontal Unit Code**
Description: Units in which positions are expressed
Range: None, value is always 1
Format: 99999
Example: 1

Field 4: **Horizontal Datum Code**
Description: Specifies year of Datum
Range: 27 or 83
Format: 99999
Example: 83

Field 5: **Vertical Unit Code**
Description: Units in which positions are expressed
Range: None, value is always 1
Format: 99999
Example: 1

Field 6: **Vertical Datum Code**
>   Description: Datum in which elevations are expressed
>   Range: See Appendix B
>   Format: 99999
>   Example: 88

2.2.5.2 NGVD29 to NAVD88 Conversion Adjustment (C010)

Field 1: **Conversion Adjustment**
>   Description: Added to NGVD29 data to convert to NAVD88 data. This is a computed value or a value that
>   is established by the NGS or the FAA and, as such, is provided by the NGS or the FAA for
>   informational purposes and will be ignored upon input to the NGS or the FAA. Third parties
>   submitting data to the NGS or the FAA do not need to populate this field.
>   Range: None
>   Format: 9999.99
>   Example: 469.84

2.2.5.3 Version Number Record (V000)

Note: Upon input to the National Geodetic Survey Obstruction Chart Database (OCDB), the Version Date (Field 2) will be ignored. An Exchange File which does not have this record will be considered Version 1.00. This must be the second record in the Exchange File if present.

Field 1: **Exchange File Version**
>   Description: Exchange File Version
>   Range: 2.000 to 999.999
>   Format: mmm.sss, where
>   mmm is the major version
>   sss is the minor version
>   A change in major version number indicates the addition of new records
>   A change in minor version number indicates all other changes
>   Example: 2.00

Field 2: **Version Date**
>   Description: Date Version became effective
>   Range: None
>   Format: dd-mmm-yyyy
>   Example: 18-DEC-1996

2.2.5.4 Version Format Record (V010)

Note: This record must be the first record present in an Exchange File. Previously the Exchange File accommodated a column-based format. That format is no longer an option, but this record is still required to ensure compatibility with existing software.
The comma delimited format is similar to the previous standard format:
>   o The Record Id field is considered Field 0 for all records.
>   o There must be a comma following the last field
>   o A field with no characters indicates that the value is not known. A blank is considered a valid
>   character.
>   For example, consider the Airport Elevation (A060) which has two fields, plus the Record Id

Field: Field 1 is the "Airport Elevation, Orthometric" and field 2 is the "Geoid Height (at ALP)". The comma delimited records:

A060,0,134.23
    Or
A060, ,134.23,

Both indicate that the Airport Elevation is 0.
However,

A060,,134.23,

Indicates that the Airport Elevation is unknown

Field 1: **Version Format Record**
    Description: Exchange File Version
    Range: C for comma delimited format
    Format: A
    Example: C

2.2.5.5 Task Status Record (T000)

Note: When Field 1 (Task Code) = "S", Field 4 (Date Completed) must be identical to the Survey Date Field (Record A040, Field 3) if both fields are populated.

Field 1: **Task Code**
    Description: For an exchange file going out to or coming in from a contractor the only possible value is "S".
    Range: S for survey, all other values are for internal use only
    Format: A
    Example: S

Field 2: **User**
    Description: In general, this is the person or persons who performed the task. If the task was performed by a contractor, this will be a unique six-character NGS assigned contractor identification code and a colon; then optionally followed by the name of the specific person who performed the task.
    Range: None
    Format: 20X
    Example: TX8537:SMITH

Field 3: **Date Started**
    Description: Date the field survey was begun
    Range: None
    Format: dd-mmm-yyyy
    Example: 18-DEC-1996

Field 4: **Date Completed**
    Description: Date the field survey was concluded
    Range: None
    Format: dd-mmm-yyyy

Example: 18-DEC-1996

2.2.5.6 Additional Information (T299)

Note: The following documentation applies only when Code 1 is "P" and Code 2 is "A". All other records of this type should be ignored.

Field 1: **Code 1**
Description: For an exchange file going out to or coming in from a contractor the only possible value is "P".
Range: P
Format: A
Example: S

Field 2: **Code 2**
Description: For an exchange file going out to or coming in from a contractor the only possible value is "A".
Range: A
Format: A
Example: S

Field 3: **Roll Number**
Description: Identification of the roll (or group) of images containing the image of the center of the airport.
Range: None
Format: (20)A
Example: 10BC01

Field 4: **Photo Number**
Description: Identification of the photo (image) of the center of the airport.
Range: None
Format: (20)A
Example: 11

Field 5: **Reserved**
Description: Reserved for internal use
Range: None
Format: (20)A
Example: none

Field 6: **Reserved**
Description: Reserved for internal use
Range: None
Format: (20)A
Example: none

2.2.5.7 End of File Record (X000)
No Fields in this Record, only the record type (X000) in columns 1-4. Record signals the end of the exchange file and must be the last Record.