MINETA SAN JOSE INTERNATIONAL AIRPORT

SURVEY DATA SUBMITTAL SPECIFICATION

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1.0 INTRODUCTION

1.1 Scope

This document details the requirements for survey data submitted to the San José International Airport (SJC). Survey data includes information on monuments, photo control points, field measurements, point data showing the location of specific features, elevation data, and vector data derived from survey points.

1.2 Purpose

Survey data provides the foundation of spatial accuracy for all CADD, GIS, orthophotography and remotely sensed data used by the airport. Coordinates provided by surveying crews are a vital component of all spatial data that is created. Survey data is also the ultimate source of higher accuracy that is used as a source to assess the accuracy of other data sets that are submitted.

It is easier to realize the value of survey data if it conforms to common standards. The document describes the standards required for survey data submitted to SJC. For contractors or consultants working for the airport, this document represents a requirement. For external agencies and other surveyors not under contractual obligation to adhere to these standards, this document should be considered as a guideline.

1.3 Contact Information

This document was prepared by the Carter & Burgess (C&B) Team. If you have any questions, please call Lysée Moyaert, AIMS Manager at (408) 501-7712, Barry Ng, CSJ Land Surveyor at (408) 998-6086, David Tamir or Behzad Mohammadi of the C&B Consulting Team at (818) 784-7585.

2.0 SUBMISSION REQUIREMENT SUMMARY

All survey data submitted to SJC should adhere to the following requirements:

- All data should accurately tie into one or more of the SJC control stations documented in (SJC-ACM-AIMS-2400).
- New control monuments that are established should adhere to General Specifications for Aeronautical Surveys, Vol. I, Establishment of Geodetic Control on Airports, First Edition (June, 2000)
- Point data should be submitted in comma delimited text files with all codes fully described
- Vector data should be submitted in a CADD or GIS Format (MicroStation v. 8.1 or AutoCAD 2000, ESRI Shape file, or GeoMedia Access Warehouse).
- Point and vector data should be submitted in both the NAD 83 / NAVD 88 and Airport Grid / Airport Elevation datums

Each of these requirements is described in more detail in the following section.

3.0 DETAILED SURVEYSUBMITTAL REQUIREMENTS

3.1 Tie to Established SJC Control Stations

The National Geodetic Survey has established one Primary Airport Control Stations (PACS) and two Secondary Airport Control Stations (SACS) at SJC. In addition, the airport has established 4 primary control points and 28 secondary control points. Together, these points establish a highly accurate survey control network. The locations and data sheets for each of these are provided in the SJC Survey Control Network Standard (SJC-ACM-AIMS-2400).

Any new survey data that is created should tie into at least one of these control points. Where possible, the PACS, SACS or primary airport control points should be used. Whatever, point(s) are used should be indicated by their point ID (PID) along with the submitted data.

3.2 Establishing New Control Monuments

Any new survey control monuments that are established on airport property at the request of the airport, City of San Jose or to support an airport contract should be established based on the guidelines detailed in the NOAA/NGS publication General Specifications for Aeronautical Surveys, Vol. I, Establishment of Geodetic Control on Airports, First Edition (June, 2000). This document is provided as an appendix to this standard. All deliverables including the final survey control report that is submitted and any station diagrams and photos should be provided in digital form.

3.3 Establishing New Photo Control

Any new photo control targets that are established to support photogrammetry initiatives conducted on behalf of the airport should be documented along with a sketch of the site, accurate Northing, Easting, and Elevation in the Airport Grid / Airport Elevation datum and at least one digital photo of the target placed in juxtaposition with its immediate surrounds.

Any airport aerial photography collected for the airport should adhere to NGS's Aerial Specifications for Aeronautical Surveys, Volume II, Airport Aerial Photography, Version 14 (July, 2002).

3.4 Submittal of Point Data

All point data submitted as the result of field survey work should be submitted as a comma delimited ASCII text file in digital form, as well as paper if desired. All points should carry an accurate Northing, Easting, and Elevation in the Airport Grid / Airport Elevation datum along with any IDs, names or descriptive text to identify the surveyed feature. All codes, not originating from and provided by the airport, should be fully described as a field within the ASCII file. In other words, a separate attached legend of codes is not permissible. Point data submissions must also be accompanied by the appropriate metadata as described in SJC Metadata Standards (SJC-ACM-AIMS-2600).

3.4.1 Runway End, Stopway End, and Displaced Threshold Surveys

As special subset of point data surveys are those of runway ends, stopway ends, and displaced thresholds. This data is used by the airport and the FAA for airport and landing procedure design purposes and therefore must have an exceptionally high level of quality. Should SJC staff or contractors be asked to survey such points, NGS's Runway End, Stopway End, and Displaced Threshold Identification for Surveyors, First Edition (January, 1998) should be used as a guideline.

3.5 Submittal of Vector Data

In many cases, vector data derived from survey point data will be a required deliverable. This type of data may be submitted in CADD format (AutoCAD DWG or MicroStation DGN files) or in GIS format (ESRI Shape file or GeoMedia Access Warehouse). All vector data should conform to SJC CADD and Mapping Standards and Procedures (SJC-ACM-AIMS-2200). Survey data submitted in a CADD format should all be placed on CADD layers within the survey discipline (indicated with a V as the first character in the layer name). Vector data submissions must also be accompanied by the appropriate metadata as described in SJC Metadata Standards (SJC-ACM-AIMS-2600).

3.6 Coordinate System

All point and vector data should be submitted is both of the following coordinate systems:

- Latitude/Longitude, NAD83, NAVD88 datum
- Airport Grid / Airport Elevation datum as defined in document (SJC-ACM-AIMS-2400) which covers the coordinate system, horizontal and vertical datum and units of measurement that should be used. Following is a brief overview of these definitions.
  - The Airport Grid coordinate system has an origin at the Northing and Easting coordinates of 6127023.6025, 1933807.3459 in the California State Plane Coordinate System – Zone 3
  - Units are U.S. Survey Feet
  - Airport Grid lines are parallel and perpendicular to the airport's primary runway (30L/12R). North- South lines are rotated 40.311° to the left of True North.
  - The Horizontal Datum is NAD83
  - The Vertical Datum was based on NGVD 1929

3.7 File Formats & Naming Conventions

All survey data should be provided in digital form as well as in hard copy if desired. The following file formats should be used.

- Text documents should be in MS Word, except for point data which should be submitted in ASCII comma delimited text.

- Scanned images of diagrams, sketches, etc. should be in TIFF format.

- Digital photos should be in JPG format.

- Vector data should be submitted in CADD format (AutoCAD DWG or MicroStation DGN files) or in GIS format (ESRI Shape file or GeoMedia Access Warehouse).

All filenames should indicate the project number as well as an indication of the data being provided.

3.8 Acceptable Media

File transfers are to be written to a Recordable Compact Disc (CD-R). Files are to be placed on CD uncompressed, and delivered in a standard jewel case. Both the CD and case must be labeled appropriately. Alternatively arrangements can be made to receive the files via e-mail or FTP as long as the receiving party has been contacted and agreed to receive the files in that manner.