

Exhibit I CADD Standards

January 2003

The following pages provide the CADD Standards.



Project CADD/GIS Standards

June 2002

This document was created for the Airport Engineering Section – Mapping/AIMS Group. The purpose is to establish basic guidelines for all Engineering Drawings. Instructions are provided for the following topics.

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- B. Engineering Design Submittals**
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A. Background Information

The Norman Y. Mineta San José International Airport (SJC) has established the following guidelines for all project drawings submitted to SJC. These standards are necessary to ensure compatibility, consistency, and usability of all CADD, GIS, and other project files.

Drawings provided by SJC shall not be altered in any manner, unless otherwise stated within this manual. Any revision or variance to these specified guidelines require a written request for authorization by the Airport Department, Development Division, Senior Civil Engineer or Senior Geographic Systems Specialist (see *attachment 1*).

All drawings submitted for review and approval shall be clearly legible, all hand-written comments must be incorporated into CADD files, and purged of unused entities. All submittals shall include, but not necessarily be limited to, hard copy plots and CADD files.

B. Engineering Design Submittals

All project drawings submitted to SJC for review and approval shall follow the requirements set forth in this document. All submittals shall include but not necessarily be limited to hard copy plots and CADD files.

30% Submittal:

Submit hard copy plots and CADD files to the Project Manager for review.

65% Submittal:

Re-submit revised/corrected hard copy plots and CADD files required for the 30% submittal including additional plots and CADD files required by the Project Manager. All revisions should be clearly noted, all hand-written comments must be incorporated into CADD files, purged of unused entities, and all reference files shall be included with submittal.

65% submittal shall be distributed to the following individuals:

- Project Manager
- Airport Development, Sr. Geographic Systems Specialist
- City of San José, City Land Surveyor

95% Submittal:

Re-submit all items required for the 65% submittal including additional plots and CADD files required by the Project Manager for final review and approval. All revisions should be clearly noted, all hand-written comments must be



incorporated into CADD files, purged of unused entities, and all reference files shall be included with submittal.

95% submittal shall be distributed to the following individuals:

- Project Manager
- Airport Development, Sr. Geographic Systems Specialist
- City of San José, City Land Surveyor

Final Submittal:

Final Plots ready for signature and final CADD files necessary for review including; coordinate geometry (COGO) point files, survey points collected, vertical & horizontal alignment databases, and road network. All revisions should be clearly noted, all hand-written comments must be incorporated into CADD files, purged of unused entities, and all reference files shall be included with submittal.

Final submittal shall be distributed to the following individuals:

- Project Manager
- Airport Development, Sr. Geographic Systems Specialist
- City of San José, City Land Surveyor
- Santa Clara County Assessors Office

C. Ramifications for Non-Compliance

For tenant projects, project approval may be delayed. For Airport Projects, ramifications of non-compliance are under review.

D. Acceptable File Formats & Electronic File Transfer

Acceptable File Formats

All electronic files (construction documents, as-builts, specifications, etc.) delivered to SJC must be in the applicable format listed below. It is the Consultant/Contractors responsibility to confirm program versions prior to beginning project work.

	Preferred	Acceptable
Operating System:	MS Windows 2000	
Relational Database:	Oracle 8i	MS Access 2000
CADD:	MicroStation/J	MicroStation/SE AutoCAD r13
GIS:	GeoMedia 4.0	ArcView 3.2



SJC will not accept 3D file formats. If elevation values are collected, SJC requires the x, y, and z elements to be delivered as an attribute table that links to a graphic element.

Electronic File Transfer

The intent of electronic file transfer is to provide SJC a complete archive of entire projects for retention requirements, future use, and to update GIS Program.

FORMAT

All files must meet requirements as outlined in this document. Before a file transfer can occur, Consultant/Contractor shall:

- Remove all extraneous graphics outside the border area.
- Make sure all reference files are attached without device or directory specifications.
- Include all files, both graphic and non-graphic required for the project (color tables, pen tables, user command files, plot files, etc.).
- Include any standard sheets (abbreviation sheets, standard symbol sheets, etc.) necessary for a complete project.

MEDIA

File transfers are to be written to a Recordable Compact Disc with a standard FAT or NTFS file system. Files are to be placed on CD uncompressed and delivered in a standard jewel case. Both the CD and case must be labeled appropriately.

CONTENTS

File transfers shall include the following:

• Sheet Files	Design files that represent each sheet of the project drawing set and all reference files.
• Model Files	Design files representing any changes to SJC Master CADD Maps.
• Resource Files	Any resource and configuration files (pen tables, seed files) necessary for the use & production of project drawing.
• Specifications	Project specifications



<ul style="list-style-type: none"> • Project Information 	<p>Simple text file containing the following information</p> <ol style="list-style-type: none"> 1. Project Title 2. Project Description 3. Project Manager(s) 4. Contact information 5. Design Consultant 6. Contract Number 7. Contact information 8. Consultant / General Contractor 9. Contract Number 10. Project Manager 11. Construction Manager 12. Contact information 13. Issue for Bid Date 14. Issue for Construction Date 15. Notice to Proceed 16. Project Completion Date 17. Date Record Drawings Submitted
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E. Required Coordinate System & Units

All drawings shall be prepared using ground coordinates that tie into the primary coordinate system designated by SJC. All benchmarks and elevation requirements will be coordinated with City of San José Surveying.

Primary Coordinate System	SJC Local Grid
Secondary Coordinate System	California State Plane 1983, Zone 3 (NAD83, NAVD88)
Units	US Survey Feet

F. Required Drawing File Design Cube

MicroStation J is the primary CADD system utilized by SJC. This section defines the concept of the MicroStation Design Cube, Working Units, and Global Origin. To ensure compatibility with SJC mapping system, **all CADD drawings shall be designed, prepared, and delivered the Project Manager within the parameters described below.**



Design Cube

MicroStation utilizes a finite design cube that has 4,294,967,296 Positional Units (PU) or Units of Resolution (UOR) in each axis (x, y, z). These points are grouped to comprise the design file working units. Working units are made up of Master Units, Sub Units, and Positional Units.

Master Units (MU):	Largest unit of the design cube, typically set to feet or meters with a value of 1.
Sub Units (SU):	Second largest unit of design cube that divides the MU into smaller components. SU's are typically set to inches with a value of 12 or tenths of a foot with a value of 10.
Positional Units (PU):	Smallest unit of the design cube that determines the precision and size of the design cube.

Working Units

Working units are made up of Master Units (MU), Sub Units (SU), and Positional Units (PU). The measurable limits of the design cube changes when differing values are assigned to the working units. SJC mapping system has established the following working units.

SJC – ARCHITECTURAL & CIVIL DRAWINGS	
Working Units:	1:10:1000
Master Units (MU):	Feet (FT)
Sub Units (SU):	Thousandths of a foot (TH)
Positional Units (PU):	4,294,967,296
Design Cube:	429,496.73 FT Square

Global Origin (GO)

The default GO for a 2D file in MicroStation is set to the center of the design plane with coordinate values of 0,0. Since the design plane functions like the Cartesian coordinate system, all coordinates left of or below the default global origin are negative and all coordinates right of or above are positive.

Global Origin for SJC Mapping System

SJC Global Origin = 2147483.65, 2147483.65



The SJC global origin is based on the primary coordinate system, SJC Local Grid, and has been preset in the SJC Seed File. All CADD drawings must be created with the provided SJC Seed File.

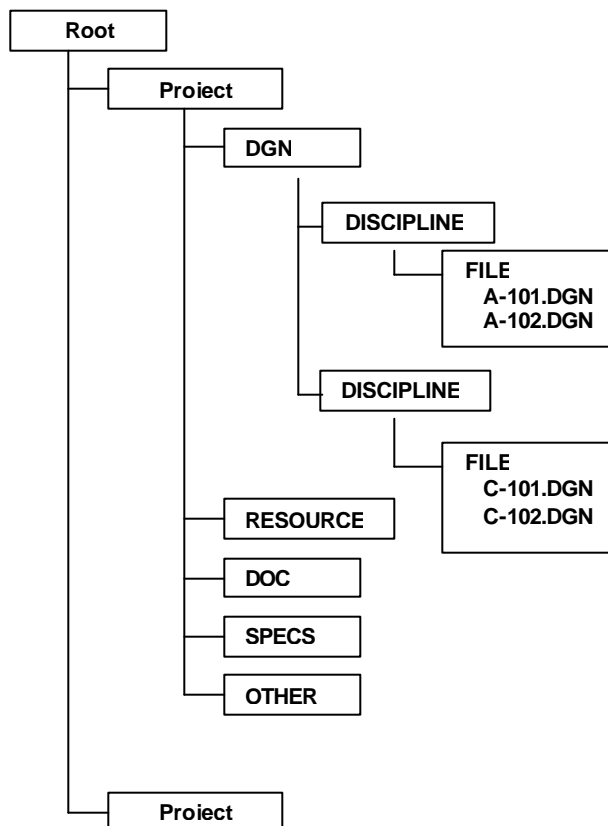
G. Project Organization and File Naming Conventions

Introduction

This section defines project structure, naming conventions for the different file types, and a recommendation for numbering hard copy plots.

Project Structure

DGN:	Contains all design files and reference files subdivided into separate directories by discipline as required (e.g. arch., civil, survey, structural, etc.).
RESOURCE:	Contains all necessary resource and configuration files subdivided into separate directories as required.
DOC:	Contains the electronic version of all required CADD documentation.
SPEC:	Contains the final version of the project's technical specifications.
OTHER:	Contains any miscellaneous files associated with the project.





H. Layer Names & Formatting

UNDER DEVELOPMENT

Layer names and formatting will follow the SDSFIE / FMSFIE

I. Quality Assurance & Quality Control (QA/QC) Process

UNDER DEVELOPMENT



ATTACHMENT 1
Request of Variance
Proposed Change to CADD/GIS Standards

DATE: _____

FROM: < REQUESTOR >
< COMPANY / DEPARTMENT >
< PHONE & FAX >
< E-MAIL >
< ADDRESS >

TO: Mineta San Jose Int'l Airport
Development Division
ATTN: Lysée Moyaert
1732 North First Street, Su. 600
San Jose, CA 95112

CADD/GIS Standards

Subject:
Page:

Section:
Sub-Section:

Justification for Change

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| <input type="checkbox"/> Incomplete | <input type="checkbox"/> Inaccurate | <input type="checkbox"/> Obsolete |
| <input type="checkbox"/> Conflicting | <input type="checkbox"/> Redundant | <input type="checkbox"/> Other _____ |

Describe: _____

Proposed Change

Describe: _____

Reviewed by:

Name:
Title:

Date:
Approve / Disapprove

Describe: _____



ATTACHMENT 2 **SJC Seed File**

All project drawings submitted to SJC shall be prepared using ground coordinates that tie into the SJC Local Grid. Please contact the Sr. Geographic Systems Specialist to obtain the appropriate seed file.

Lysée Moyaert

Sr. Geographic Systems Specialist
1732 North First Street, Su. 600
San José, CA 95112
Lmoyaert@sjc.org
408-501-7712



ATTACHMENT 3 **Master Layer List**

UNDER DEVELOPMENT



ATTACHMENT 4
Cell / Block Library Standards

UNDER DEVELOPMENT



ATTACHMENT 5 **Standard Conversions**

UNDER DEVELOPMENT