

2. Caltrans Data Format

2.1 Drawing Types and Codes

A. Drawing Types

CADD drawings for highway projects are categorized into two types: geographical oriented and non-geographical oriented.

1. Geographical oriented drawings are drawings wherein the graphical elements (lines, points and curves) are located by their on-ground (coordinates) horizontal locations (northings, eastings). Base maps are always geographically oriented. Base maps are generally created by combining the Master Topographic files and the Master Design files. Plan sheets such as Layout, Drainage and Pavement Delineation are considered geographical because these plan sheets utilize base maps. Geographically oriented plan sheets can be used by GIS mapping and other functional units to easily reference files for proper orientation within the California Coordinate System (CCS). All plan view sheets are to utilize and maintain the appropriate CCS coordinates.
2. Non-geographical oriented drawings are drawings wherein the graphical elements describe the spatial relationship of an object or planned construction without a direct relationship to specific horizontal coordinates (northings, eastings). An example is a detail drawing for a drainage inlet. Contract Plan sheets like Typical Cross Sections, Construction Details and Summary of Quantities is not coordinately based, thus they are non-geographical. Drawings with a direct relationship to a horizontal or vertical location, such as Cross Sections and Profiles, are also considered non-geographical.

In several cases, the listing in Section B defines a drawing as a non-geographical drawing when it appears to meet the definition of a geographical drawing. These exceptions have been made because the drawings are cartographic type drawings rather than precise engineering drawings. A Title Sheet or Project Control Sheet is an example of this type of drawing.

B. Drawing Codes - Highway Construction Project

The various drawings used for roadway design, landscape design and electrical systems design are classified in this section by drawing type and are in the proper sequence for a final submittal of Contract Plans. These drawings are those designated by the Plans Preparation Manual.

All contract plans (except the Title Sheet) require a Plan Sheet ID (on the plan sheet) to facilitate the numbering of each type of sheet. Each type of plan sheet requires a Print Sequence Code within the electronic name of the file. This will facilitate the plotting of plan sheets in the correct sequence. The Plan Sheet ID and Print Sequence Code system are shown in the following table for the various types of highway plan sheets.

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS		
DRAWING NAME	DRAWING NAME	PLAN SHEET ID	PRINT SEQ. CODE
	Title		ab
	Index of Plans	IOP	ac
	Locations of Construction	LC	ba
	Identification of Project Structures	IPS	bc
	Typical Cross Sections	X	ca
	Key Map & Line Index	K	da
	Aerial Identification	AI	db
	Project Control	PC	dc
Layout <i>(With or without profile shown or with or without superelevation diagram shown)</i>		L	ea
	Profile <i>(Without superelevation diagram shown)</i>	P	fa
	Profile and Superelevation Diagram	PS	fb
	Superelevation Diagram	SE	fc
	Construction Details	C	ga
Temporary Water Pollution Control Plan <i>(With or without details or quantities)</i>		WPC	gb
	Temporary Water Pollution Control Details <i>(With or without quantities)</i>	WPCD	gc
	Temporary Water Pollution Control Quantities	WPCQ	gd

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS		
DRAWING NAME	DRAWING NAME	PLAN SHEET ID	PRINT SEQ. CODE
Water Pollution Control Plan (With or without profiles details or quantities)		W	gi
	Water Pollution Control Profiles (With or without details or quantities)	WP	gj
	Water Pollution Control Details (With or without quantities)	WD	gk
	Water Pollution Control Quantities	WQ	gl
+Contour Grading		G	ha
Drainage Plan		D	ia
	Drainage Profiles	DP	ib
	Drainage Details	DD	ic
	Drainage Quantities	DQ	id
Subsurface Drainage Plan		SB	ie
	Subsurface Drainage Profiles	SBP	if
	Subsurface Drainage Details	SBD	ig
	Subsurface Drainage Quantities	SBQ	ih
Sanitary Sewer Plan		SS	ja
	Sanitary Sewer Profiles	SSP	jb
	Sanitary Sewer Details	SSD	jc
	Sanitary Sewer Quantities	SSQ	jd
Utility Plan (With or without profiles, details or quantities)		U	ka
	Utility Profiles (With or without details or quantities)	UP	kb
	Utility Details (With or without quantities)	UD	kc
	Utility Quantities	UQ	kd
	Construction Area Signs	CS	la
	Motorist Information Plan (With or without details or quantities)	MI	lb
	Motorist Information Details (With or without quantities)	MID	lc
	Motorist Information Quantities	MIQ	ld

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS		
DRAWING NAME	DRAWING NAME	PLAN SHEET ID	PRINT SEQ. CODE
Stage Construction <i>(With or without Traffic Handling Plan)</i> <i>(With or without Detour Plan)</i> <i>(With or without details or quantities)</i>		SC	ma
	Stage Construction Details <i>(With or without quantities)</i>	SCD	mb
	Stage Construction Quantities	SCQ	mc
Traffic Handling Plan <i>(When not included on SC sheet)</i> <i>(With or without details or quantities)</i>		TH	md
	Traffic Handling Details <i>(With or without quantities)</i>	THD	me
	Traffic Handling Quantities	THQ	mf
Detour Plan <i>(when not included on SC or TH sheet)</i> <i>(With or without quantities)</i>		DE	mg
	Detour Quantities	DEQ	mh
Pavement Delineation Plan		PD	na
	Pavement Delineation Details	PDD	nb
	Pavement Delineation Quantities	PDQ	nc
Sign Plan		S	oa
	Sign Details	SD	ob
	Special Design Signs	SDS	oc
	Sign Quantities	SQ	od
	Summary of Quantities	Q	pa
	Key Map (overview) for Walls	KW	pf
	Architectural Treatment	AT	pg

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS		
DRAWING NAME	DRAWING NAME	PLAN SHEET ID	PRINT SEQ. CODE
For 1 st Retaining Wall Plan, Elevation, Typical Section, Architectural Treatment, Details, Quantities and Log of Test Boring <i>(All information pertaining to the 1st wall is to be grouped together before the next wall. The typical, details and quantities can be placed on the plan (if room allows) or on their own sheets or in combination)</i>		R1	qa
	Retaining Wall Typical Section (1 st wall)	R1	qa
	Retaining Wall Details (1 st wall)	R1	qa
	Retaining Wall Quantities (1 st wall)	R1	qa
	Log of Test Boring (1 st wall)	R1	qa
For 2 nd Retaining Wall Plan, Elevation, Typical Section, Architectural Treatment, Details, Quantities and Log of Test Boring <i>(Information which pertains to more than 1 wall, such as details or log of test boring, can be shown with the 1st wall, and a reference made to that 1st wall on subsequent walls)</i>		R2	qb
	Retaining Wall Typical Section (2 nd wall)	R2	qb
	Retaining Wall Details (2 nd wall)	R2	qb
	Retaining Wall Quantities (2 nd wall)	R2	qb
	Log of Test Boring (2 nd wall)	R2	qb
Print Sequence Code for all subsequent walls will be “qc” through “qz” (26 walls)			
For more than 26 walls in one project, see Note 4 in this section			

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS		
DRAWING NAME	DRAWING NAME	PLAN SHEET ID	PRINT SEQ. CODE
For 1 st Sound Wall Plan, Elevation, Typical Section, Architectural Treatment, Details, Quantities and Log of Test Boring <i>(All information pertaining to the 1st wall is to be grouped together before the next wall. The typical, details and quantities can be placed on the plan (if room allows) or on their own sheets or in combination)</i>		SW1	ra
	Sound Wall Typical Section (1 st wall)	SW1	ra
	Sound Wall Details (1 st wall)	SW1	ra
	Sound Wall Quantities (1 st wall)	SW1	ra
	Log of Test Boring (1 st wall)	SW1	ra
For 2 nd Sound Wall Plan, Elevation, Typical Section, Architectural Treatment, Details, Quantities and Log of Test Boring <i>(Information which pertains to more than 1 wall, such as details or log of test boring, can be shown with the 1st wall, and a reference made to that 1st wall on subsequent walls)</i>		SW2	rb
	Sound Wall Typical Section (2 nd wall)	SW2	rb
	Sound Wall Details (2 nd wall)	SW2	rb
	Sound Wall Quantities (2 nd wall)	SW2	rb
	Log of Test Boring (2 nd wall)	SW2	rb
Print Sequence Code for all subsequent walls will be "rc" through "rz" (26 walls)			
For more than 26 walls in one project, see Note 4 in this section			

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS		
DRAWING NAME	DRAWING NAME	PLAN SHEET ID	PRINT SEQ. CODE
	Roadside Cross Sections	XR	sa
		*	sb
	Landscape Key Map	LK	sc
Roadside Clearing Plan		RC	sd
Plant Removal Plan		PR	se
Maintain Existing Planted Areas		MEPA	sf
Establish Existing Planting Plan		EEP	sg
		*	sh
Safety Roadside Rest Area Plan		SRRA	si
		*	sj
Landscape Layout Plan		LL	sk
		*	sl
	Irrigation Sprinkler Schedule	ISS	sm
Irrigation Removal Plan		IR	sn
Irrigation and Planting Plan		IPP	so
Irrigation Plan		IP	sp
	Irrigation Details	ID	sq
	Irrigation Quantities	IQ	sr
	Plant Legend	PL	st
Planting Plan		PP	su
	Planting Details	PD	sv
	Planting Quantities	PQ	sw
		*	sx
	Landscape Details	LD	sy
	Landscape Quantities	LQ	sz
	Erosion Control Key Map	ECK	ta
		*	tb
	Erosion Control Legend	ECL	tc
		*	td
Erosion Control Plan		EC	te
	Erosion Control Details	ECD	tf
	Erosion Control Quantities	ECQ	tg
Electrical Systems Plan		E	ua
	Electrical Systems Details	ED	ub
	Electrical Systems Quantities	EQ	uc
	Special Electrical Structures	SES	uh
OBSOLETE	Traffic Control Systems	TCS	uj
	Log of Test Boring	LOTB	ul
	Revised Standard Plan		va
OBSOLETE	New Standard Plan		vb

* Reserved for additional landscape sheets (including the rest of the “T” series) only when necessary. Contact HQ Landscape Architecture office before using.

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS		
DRAWING NAME	DRAWING NAME	PLAN SHEET ID	PRINT SEQ. CODE
General Plan		GP	wa
	Architectural Plan	A	wc
	Structural Plan **	ST	we
	Mechanical Plan **	M	wg
	Mechanical Plumbing	MP	wh
	Electrical Plan **	EE	wj
	Sanitary Plan	SS	wl

** Booster pumps will be shown on their respective discipline sheets.

Note 1: Print Sequence Codes should not utilize the same letter twice (example – “aa” or “gg”. If this happens, it may be confused with the CADD Alpha Code within the naming convention for mapping and preliminary drawings (see Section 2.1 D of this CADD Users Manual).

Note 2: All landscape sheets within the “S” or “T” series (whether part of a highway project or not) must use the Sheet IDs and Print Sequence Code from the table above. Do not include any non-landscape sheets within the “S” or “T” series (i.e. title sheet, utility sheets, construction area signs sheet, etc.).

Note 3: Each Retaining Wall or Sound Wall (submitted by the district) will have a different Print Sequence Code for each wall. The plan sheet(s) for each wall are to contain all the information pertaining to that wall (including the Log of Test boring information and Architectural Treatment information that is specific to just that wall). Separate sheets are allowed for typical sections, details and quantities when needed for clarity. All information pertaining to a specific wall is to be shown before showing any information pertaining to the next wall.

The Sheet ID for each Retaining Wall or Sound Wall (submitted by the District) will now have a sequential number in addition to the alpha character(s). The sequential number represents the first, second, third, etc. wall presented within the roadway portion of the contract plans submitted for PS&E (see previous table).

The quantities for each wall is to be shown within the plan sheets for that specific wall, but the total quantities for all Retaining Walls or Sound Walls submitted by the District (when there is more than one wall) must be shown on the Summary of Quantities sheets. If the District and Structures submit wall plans under a separate submittal, then there needs to be, at the minimum, a cross reference note below the quantity table for walls on the Summary of Quantities sheets saying “for additional quantities see Structures plans.” If a separate row can be added to the quantity table for the total wall quantities from Structures, (especially for the items of work used by both District and Structures), this would be ideal.

Retaining Wall profiles must be shown as a horizontal to vertical (H/V) scale ratio of 1 to 1 (no exaggeration). It is preferred that Sound Wall profiles also be shown as a (H/V) scale ratio of 1 to 1.

Note 4: For those projects that have more than 26 Retaining Walls or 26 Sound Walls, one more character will be added to the electronic file name to handle the 27th wall to the 52nd wall. For the 53rd wall to the 78th wall, one additional character will be added to the electronic file name. For any further questions, contact the editor of this CADD Users Manual.

Naming Convention using “Project Number” and “Phase”

Example:	<u>Retaining Wall</u>	<u>Sound Wall</u>
26 th wall	1200001234qz001	1200001234rz001
27 th wall	1200001234qz a 001	1200001234rz a 001
28 th wall	1200001234qz b 001	1200001234rz b 001
52 nd wall	1200001234qz z 001	1200001234rz z 001
53 rd wall	1200001234qz za 001	1200001234rz za 001
78 th wall	1200001234qz zza 001	1200001234rz zza 001

Note 5: The sheet number following each unique Print Sequence Code will begin with the number "001".

Naming Convention using "Project Number" and "Phase"

Examples:

"0400001234ia001" Drainage Plan
"0400001234ib001" Drainage Profiles
"0400001234ic001" Drainage Details
"0400001234id001" Drainage Quantities

This will allow the Print Sequence Code sheet number to be identical to the Sheet ID number.

C. Old Naming Convention – Using Expenditure Authorization (EA)

Example:	<u>Retaining Wall</u>	<u>Sound Wall</u>
26 th wall	c12345qz001	c12345rz001
27 th wall	c12345qz <u>a</u> 001	c12345rz <u>a</u> 001
28 th wall	c12345qz <u>b</u> 001	c12345rz <u>b</u> 001
52 nd wall	c12345qz <u>z</u> 001	c12345rz <u>z</u> 001
53 rd wall	c12345qz <u>z</u> <u>a</u> 001	c12345rz <u>z</u> <u>a</u> 001
78 th wall	c12345qz <u>z</u> <u>z</u> 001	c12345rz <u>z</u> <u>z</u> 001

Old Naming Convention using Expenditure Authorization (EA)

Examples:

“412345ia001” Drainage Plan
“412345ib001” Drainage Profiles
“412345ic001” Drainage Details
“412345id001” Drainage Quantities

For Mapping and Preliminary drawings

The District and Expenditure Authorization (EA) should be part of the file name plus either the letters **“aa”** or **“bb”** (i.e. c12345aa.dgn).

D. Drawing Codes - Mapping & Preliminary drawings

Mapping and preliminary CADD prepared drawings require a naming convention (CADD Alpha Code) in the electronic name of the file. This allows for easy identification of the type of drawing file it is. The CADD Alpha Code system utilized by Photogrammetry and Design is shown in the following table for mapping and preliminary drawings.

GEOGRAPHICAL DRAWINGS	NONGEOGRAPHICAL DRAWINGS	
DRAWING NAME	DRAWING NAME	CADD ALPHA CODE
Master Design Files *		aa
Master Topographic Files *		bb
3D Terrain Data		3d
	Scanned Drawings	cc
	Digitized Drawings	dd
	Created Drawings	ee
	Project File Directory	ff
	Route Adoption Map	gg
	Area of Interest Map	hh
	Strip Map	ii
	Freeway Agreement Map	jj
	New Connection Report Exhibit	kk
	PUC Exhibit (A, B, C etc.)	ll
	Geometric Approval Drawing	mm
Bridge Site Map		nn

Naming Convention using “Project Number” and “Phase”

The Project Number (which is composed of 2 digits representing the district and 8 digits representing a sequential number) should be part of the file name plus either the letters “**aa**” or “**bb**” (i.e. 1200007777aa.dgn).

For further information concerning the Master Design “**aa**” and Master Topographic “**bb**” files see Section 3.8 of this manual.