STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROTOCOL FOR LINE WEIGHT, COLOR, LEVEL, SIZE, GRID REFERENCE, STANDARD UNITS, FONTS AND SYMBOLOGY FOR MICROSTATION PRODUCED CONTRACT PLANS

December, 1999

CHAPTER 5 - CADD DATA AND FILE FORMAT

SECTION	DESCRIPTION
5.01	**Working Units For CADD Drawings**
5.01.01	General
5.01.02	Reasons For Establishing A Standard Working Unit
5.01.03	CADD Working Units
5.01.04	Global Origin

CHAPTER 5 - CADD DATA FORMAT

5.01 Working Units And Global Origin For CADD Drawings

5.01.01 General

The Design Plane is the digital CADD surface that the drawing is created on and is composed of points where the graphic elements are placed. Each point has an associated X and Y position (X,Y and Z positions for 3-Dimensional drawings). The accuracy of these points is dependent on the Intergraph System's Units of Resolution (UOR). The Design Plane has 4,294,967,296 UORs in the x-axis and in the y-axis (also in the z-axis for 3-Dimensional Files).

A UOR is the smallest increment of precision to which the drawing data can be stored in the system; i.e., the drawing resolution. The UOR is defined by the user and is done by assigning values to the working units known as Master Units (MU), Sub Units (SU), and Positional Units (PU). The maximum area which can be included in a drawing is reduced as the precision is increased.

5.01.02 Reasons for Establishing A Standard Working Unit

Uniformity in the drawing Working Unit definition enables operators to become accustomed to working with a known system; permits users of the CADD drawings to be assured of the drawing precision; and promotes transfer of drawing data.

The use of a standard Working Unit facilitates using previously created drawings, or portions of drawings, into new drawings. The text sizes, line dimensions, symbolization, etc. are based on this definition.

5.01.03 CADD Working Units

Except for drawings of an unusual scale, such as state and island maps, the standard Working Units for CADD drawings shall be the following :

Master Units (MU) - - 357,913 (Feet)

Sub Units (SU) - - - - - - 12 (Inches)

Positional Units (PU) - 1,000 (1000th of an Inch)

This means that the 4,294,967,296 addressable UORs are divided into Master Units of Feet, Subunits of 12 inches to the Foot, and Positional Units of 1,000 parts to each inch. This gives 357,913 Feet as the maximum X and Y dimensions (X, Y and Z dimensions for 3-Dimensional drawings) of the drawing i.e., the system can accomodate drawings covering 357,913 square feet, approximately 68 square miles, with these unit definitions.

For Island and State type of maps, such as developed by the Highway Planning Mapping Section, the following Working Units shall be used :

Master Units (MU) - 3,579,130 (Feet)

Sub Units (SU) - - - - - - 12 (Inches)

Positional Units (PU) - - -10 (10th of an Inch)

This gives 35,791,300 Feet as the maximum X and Y dimension of the drawing (X,Y and Z dimensions for 3-Dimensional drawings); i.e., the system can accomodate drawings covering 35,791,300 square feet, approximately 6,780 square miles, with these unit definitions.

5.01.04 Global Origin

The Global Origin is the reference point of the Design Plane. The standard Global Origin is set for the coordinate 0,0 to be in the exact center of the Design Plane (For coordinate 0,0,0 to be in the exact center of the Design Cube for 3-Dimensional Files). The Global Origin may be changed for special cases.

CHAPTER 6 - CADD DRAWING STANDARDS AND GUIDELINES

SECTION	DESCRIPTION
6.01	**Standard CADD Drawing Levels**
6.01.01	General
6.01.02	Geographical Type Of Drawings
6.01.03	Geographical Highway Maps
6.01.04	Non-Geographical Type Of Drawings
6.02	**CADD Drafting Conventions**
6.02.01	Drafting Guidelines For CADD Contract Plans
6.02.02	Drafting Guidelines For Other Type of CADD Drawings
6.03	**Font Library**
6.04	**Color Table**
6.05	**Pentables**

CHAPTER 6 - CADD DRAWING STANDARDS AND GUIDELINES

6.01 Standard CADD Drawing Levels

6.01.01 General

The CADD permits the separation of data by levels or layers. Similar types of data should be drawn on the same level. Each level is analogous to a tracing sheet in manual drafting, however, with the CADD file there are 63 different levels or layers that data can be drawn on. The CADD allows one, all or any combination of levels to be seen at one time. To make effective use of the CADD capabilities to create specific drawings by combining certain levels and to have standardization and uniformity, the CADD drawings created shall follow the Level Schemes described in the following Subsections. It is very important that the elements are placed on the correct levels. The CADD user shall use the customized menus to place elements and text in their files to eliminate and/or reduce key-in errors.

6.01.02 Geographical Type of Drawings

Geographical types of drawings are those where the elements are drawn to their on-ground locations (x & y coordinates for 2-dimensional files and x,y & z coordinates for 3-dimensional files). Geographical drawings can be drawn with actual or assumed coordinate values.

Examples of Geographical types of drawings include topographical survey maps; roadway base maps; roadway, utility, drainage, traffic signal, highway lighting and pavement marking and signing plans; right-of-way maps; easement maps; etc. Generally, geographical oriented maps or plans are created by combining various levels of a base map or using the base map as an underlay (Reference File). The CADD user shall follow the Level Scheme as shown in Figure 6.01-1 when creating Geographical type of drawings.

6.01.03 Geographical Highway Maps

The Geographical Highway Maps are those that are created by using the digital United States Geological Survey maps as the base or underlay (Reference File). The CADD user shall follow the Level Scheme as shown in Figure 6.01-2 when creating Geographical Highway Maps.

6.01.04 Non-Geographical Type of Drawings

Non-geographical types of drawings are those where elements are not drawn to any specific on-ground location. Examples include typical sections; cross sections; profiles; detail type of drawings; etc. The CADD user shall follow the Level Scheme as shown in Figures 6.02-1 to 6.02-4 depending on the

type of non-geographical drawing.

HIGHWAYS DIVISION CADD DRAWING LEVELS FOR GEOGRAPHICAL DRAWINGS

LEVEL	DESCRIPTION	WT	LC	CO	
1	Baseline element & symbol	4	0	4	(yellow)
	(Cadastral Section)	2	0	4	(yellow)
2	Alternate baseline element & symbol	4	0	12	(lt. mustard)
	(Cadastral section)	2	0	12	(lt. mustard)
3	Text	4	0	0	(white)
4	Exist. Highway structures	2	2	19	(aqua)
5	New Highway structures	4	0	19	"
6	Exist. edge of pavement & shoulders	2	2	2	(green)
7	New edge of pavement & shldr.	4	0	0	(white)
8	Exist. curb/gutter/sidewalk	2	2	2	(green)
9	New curb/gutter/sidewalk	4	0	0	(white)
10	ICS, TDP point I.D. nos.				
11	Misc. symbols & annotation				
12	Cut/Fill slopes	2	0	8	(tan)
13	Topographic ground shots	2	2	8	(tan)
14	Misc. exist. structures	2	2	9	(med. green)
	Misc. new structures	4	0	9	(med. green)
15	Pavement Reconstruction Limits	4	0	0	(white)
	" " Hatching	1	0	0	"
	Cold Planing Limits	4	0	0	(white)
	" " Cross-Hatching	1	0	0	"
16	Construction Parcel	6	6	6	(orange)
17	Access Control	6	*	1	(blue)
18	Cadastral Section Text				
19	Exist. Easements	4	5	**	
20	Original Land Ct., Property Lines, and Subdivision	0	0	2	(green)

Figure 6.01-1
9/2/93

LEVEL	DESCRIPTION	WT	LC	CO
20	Original Grants, Land Commision Awards and Royal Patents	0	6	3 (red)
21	Final Land Ct., Property Lines, Subdivisions and Remnants	2	0	2 (green)
	Final Grants, Land Commision Awards and Royal Patents	2	6	3 (red)
22	Exist. Right-of-Way (Contract Plans)	4	6	1 (blue)
	Exist. Right-of-Way (Cadastral Section)	8	0	1 (blue)
23	Traverse	0	2	0 (white)
24	New Right-of-Way (Contract Plans)	4	6	1 (blue)
	New Right-of-Way (Cadastral Section)	12	0	1 (blue)
	New Easements (Cadastral Section)	8	5	1 (blue)
25	Triangles & border for TDP			
26	"			
27	"			
28	"			
29	"			
30	Contours for TDP			
31	"			
32	"			
33	"			
34	"			
35	Text For Utility Symbols			
36	Water (exist.)	2	4	16 (very lt. blue)
	Water (new)	4	4	16 "

Figure 6.01-1
9/2/93

LEVEL	DESCRIPTION	WT	LC	CO
37	Electric (exist.)	2	4	24 (orange)
	Electric (new)	4	4	24 "
38	Telephone (exist.)	2	4	22 (lt. mustard)
	Telephone (new)	4	4	22 "
39	Sewer (exist.)	2	4	23 (blue)
	Sewer (new)	4	4	23 "
40	Gas (exist.)	2	4	8 (tan)
	Gas (new)	4	4	8 "
	Misc. utilities (exist.)	2	4	15 (lt. purple)
	Misc. utilities (new)	4	4	15 "
41	Drain (exist.)	2	2	13 (lt. yellow)
42	Drain (new)	4	0	13 (lt. yellow)
43	Sprinkler system (exist.)	2	2	16 (very lt. blue)
	Sprinkler system (new)	4	2	16 (very lt. blue)
44	Landscaping (exist.)	2	2	10 (chartreuse)
	Landscaping (new)	4	2	10 "
45	Fence (exist)	2	7	7 (gray)
	Fence (new)	4	7	7 "
46	Boundary Points	2	*	0 (white)
47	Guardrails (exist.)	2	3	25 (lt. pink)
48	unused			
49	Topographic Water Shots (streams, lakes, ocean, etc.)	2	2	16 (very lt. blue)
50	Users level			
51	Point Elevations			
52	Cadastral State Plane Grids	0	0	6 (orange)
53	Cadastral Geodetic Grids	0	0	3 (red)
54	Guardrails (new)	4	0	25 (lt. pink)
55	Pavement marking (exist.)	2	0	4 (yellow)
	Pavement marking (new)	4	0	4 "
56	Traffic signs (exist.)	2	0	21 (white)
	Traffic signs (new)	4	0	21 "

Figure 6.01-1
r6/1/99

LEVEL	DESCRIPTION	WT	LC	CO	
57	Traffic signal (exist.)	2	2	20	(flesh)
	Traffic signal (new)	4	0	20	"
58	Highway lighting (exist.)	2	2	3	(red)
	Highway lighting (new)	4	0	3	"
59	Traffic control				
60	Border sheet				
61	As-built postings	4	0	29	(hot pink)
62	Half-Size Label Ticks For Half-Size Plots				
63	SAVE - DO NOT USE				

NOTE:

* Element is a cell

** Color is the same as Type of Easement
(i.e. Drain easement is same color as drain)

Figure 6.01-1
9/2/93

LEVELS USED FOR GENERAL HIGHWAY MAPPING/SPECS

1 – INTERSTATE ROAD SYSTEM
CO=3, WT=1, LC=7, CPK=30'(TOTAL WIDTH 60')
A–DIVIDED HWY. BY CENTERLINE OR BARRIER, CPK=75'(TOTAL WIDTH 150')
B–DIVIDED HWY. BY MEDIAN, CPK=60'(MEDIAN WIDTH 30')
(TOTAL WIDTH 150' TREES & LANDSCAPING)
C–RAMPS CPK 20'(TOTAL WIDTH 40')
D–INTERCHANGES BETWEEN INCOMING & OUTGOING VIADUCTS, CPK=15'

2 – INTERSTATE ROAD SYSTEM CENTER LINE
CO=3, WT=1, LC=7,CREATED WITH AUTO CHAIN

3 – FAP HIGHWAYS/FREEWAYS & EXPRESSWAY
CO=25(COLOR DISPLAY SAME AS CO=11), WT=1, LC=7,
CPK=30'(TOTAL WIDTH 60')
A–DIVIDED HWY. BY CENTERLINE OR BARRIER, CPK=75'(TOTAL WIDTH 150')
B–DIVIDED HWY. BY MEDIAN, CPK=60'(MEDIAN WIDTH 30')
(TOTAL WIDTH 150'–TREES & LANDSCAPING)

4 – FAP HIGHWAYS/FREEWAY & EXPRESSWAY CENTER LINE
CO=25(COLOR DISPLAY SAME AS CO=1), WT=1, LC=7
CREATED WITH AUTO CHAIN

5 – FAS HIGHWAYS/PRINCIPAL ARTERIAL
CO=26(COLOR DISPLAY SAME AS CO=17), WT=1, LC=7,
CPK=30(TOTAL WIDTH 60')
A–DIVIDED HWY. BY CENTERLINE OR BARRIER, CPK=75'(TOTAL WIDTH 150')
B–DIVIDED HWY. BY MEDIAN, CPK=60'(MEDIAN WIDTH 30')
(TOTAL WIDTH 150'–TREES & LANDSCAPING)

6 – FAS HIGHWAYS/PRINCIPAL ARTERIAL CENTER LINE
CO=26(COLOR DISPLAY SAME AS CO=17), WT=1, LC=7
CREATED WITH AUTO CHAIN

7 – FASC HIGHWAYS/MINOR ARTERIAL
CO=0, WT=1, LC=7, CPK=30'(TOTAL WIDTH 60')
A–DIVIDED HWY. BY CENTERLINE OR BARRIER CPK=75'(TOTAL WIDTH 150')
B–DIVIDED WHY. BY MEDIAN, CPK=60'(MEDIAN WIDTH 30')
(TOTAL WIDTH 150'–TREES & LANDSCAPING)

8 – FASC/MINOR ARTERIAL CENTER LINE
CO=0, WT=1, LC=7, CREATED WITH AUTO CHAIN

9 – FAU HIGHWAYS/MAJOR COLLECTOR
CO=19(COLOR DISPLAY SAME AS CO=28), WT=1, LC=7,
CPK=20'(TOTAL WIDTH 40')

10 – FAU HIGHWAYS/MAJOR COLLECTOR CENTER LINE
CO=19(COLOR DISPLAY SAME AS CO=28), WT=1, LC=7
CREATED WITH AUTO CHAIN

11 – MINOR COLLECTOR
CO=15, WT=1, LC=7, CPK=30'(TOTAL WIDTH 60')
A–DIVIDED HWY. BY CENTERLINE OR BARRIER, CPK=75'(TOTAL WIDTH 150')
B–DIVIDED HWY. BY MEDIAN, CPK=60'(MEDIAN WIDTH 30')

LEVELS USED FOR GENERAL HIGHWAY MAPPING/SPECS

12 – MINOR COLLECTOR CENTER LINE
CO=15, WT=1 LC=7, CREATE WITH AUTO CHAIN

13 – STATE HIGHWAY SYSTEM TEXT
TH =150', TW=150', LS=75', FT=29, WT=0, CO=3(lv=1), 25(lv=3), 26(lv=5), 0(lv=7),19(lv=9), 15(lv=11)

14 – COUNTY ROAD SYSTEM
CO=4, WT=0, LC=0, CPK=20'(TOTAL WIDTH 40'), DIRT ROAD/ PRIMITIVE(LC=2)

15 – TEXT COUNTY ROAD SYSTEM
TH=100', TW=100', LS=50', FT=29, CO=4, WT=0

16 – COUNTY ROAD SYSTEM CENTER LINE
WT=0, LC=0, CO=4, PRIMITIVE (LC=2) CREATED WITH AUTO CHAIN

17 – PROPOSED STATE HIGHWAYS
CO=25, WT=1, CPK=30'(TOTAL WIDTH 60'), LC=1
A–DIVIDED HWY. BY CENTERLINE OR BARRIER, CPK=75'(TOTAL WIDTH 150')
B–DIVIDED HWY. BY MEDIAN, CPK=60'(MEDIAN WIDTH 30')

18 – TEXT PROPOSED STATE HIGHWAYS
TH=150', TW=150', LS=75', FT=29,
CO=25(COLOR DISPLAY SAME AS CO=11), WT=0

19 – REVISED ROAD UPDATED (ALL NEW ROAD ELEMENTS)
PLACED ACCORDING TO RESPECTIVE COLORS
CO=3,25,26,0,19,15,4

20 – SHORELINE
CO=1, WT=1, LC=0

21 – TEXT SHORELINE
CO=1, WT=0, FT=45
BAYS–TH=250', TW=250', LS=125'
OCEAN–TH=600', TW=600', LS=300'

22 – STREAMS
CO=1, WT=0, LC=0,(INTERMITTENT STREAMS CO=18, WT=0, LC=2)
FLUME BRACKET(AS LINE TERMINATOR) 30' @ 45 DEGREES
WATER TUNNEL BRACKET (AS LINE TERMINATOR) 30' @ 45 DEGREES

23 – TEXT STREAMS
TH=125', TW=125', LS=100', FT=45, CO=1, WT=0,
CHAR. SPACING=50' UPPER & LOWER CASE

24 – LAKES/PONDS (SHAPE)
CO=1, WT=0, LC=0

25 – TEXT LAKES
TH=150', TW=150', LS=75', FT=45, CO=1, WT=0

26 – BRIDGES/OVERPASS/UNDERPASS USING APPROPRIATE CELLS

27 – VACANT

28 – VACANT

LEVELS USED FOR GENERAL HIGHWAY MAPPING/SPECS

29 – TEXT CITIES/TOWNS
TH=200', TW=200', LS=100', FT=29, CO=0, WT=0
CITIES=UPPER CASE, TOWNS=LOWER CASE

30 – TEXT CULTURAL FEATURES
TH=125', TW=125', LS=50', FT=29, CO=0, WT=0
UPPER & LOWER CASE

31 – VACANT

32 – PARTIAL ADJUSTED & URBANIZED AREA BOUNDARY
CO=12, WT=3, LC=5(ADJUSTED), LC=6(URBANIZED)
CPK=100' FROM ANY OTHER BOUNDARY OR LINE

33 – CENSUS URBAN BOUNDARY
CO=10, WT=3, LC=4
CPK=100' FROM ANY OTHER BOUNDARY OR LINE

34 – ADJUSTED & URBANIZED AREA BOUNDARY
CO=29(COLOR DISPLAY SAME AS CO=14), WT=3,
LC=4(ADJUSTED BOUNDARY), LC=6(URBANIZED AREA BOUNDARY),
CPK=100' FROM ANY OTHER BOUNDARY OR LINE

35 – TEXT CENSUS BOUNDARY
TH=200', TW=200', LS=100', FT=29
CO=29(COLOR DISPLAY SAME AS CO=14), WT=0

36 – DISTRICT BOUNDARY
CO=6(COLOR DISPLAY SAME AS CO=24), WT=3, LC=3

37 – TEXT DISTRICT BOUNDARY LINE
TH=200', TW=250', LS=150', FT=29, CO=6, WT=0, CHAR. SPACING=50',
DISTRICT AREA (TH=250', TW=750', LS=200', FT=29, CO=6, WT=0)

38 – FOREST BOUNDARY
CO=2, WT=0, LC=0

39 – TEXT FOREST BOUNDARY
TH=200', TW=250', LS=100', FT=29, CO=2, WT=0

40 – FOREST SHAPE
CO=6, WT=0, LC=0, AP=DOT3, PD=50',50'

41 – MILITARY BOUNDARY
CO=8, WT=0, LC=0

42 – TEXT MILITARY BOUNDARY
TH=200', TW=250', LS=100', FT=29, CO=8, WT=0
OR
TH=100', TW=100', LS=50', FT=29, CO=8, WT=0

43 – MILITARY SHAPE
CO=6, WT=0, LC=0, AP=DOT2, PD=100',100'

44 – GRID TICKS(SHEET BORDER/FRAME)
CO=0, WT=0, LC=0

LEVELS USED FOR GENERAL HIGHWAY MAPPING/SPECS

45 – COORDINATE GRID TEXT
TH=150', TW=150', LS=75', FT=1, CO=0, WT=0
SHEET TITLE
TH=1000', TW=1000', LS=500', FT=43, CO=0, WT=0

46 – 1:1000 SCALE GRID
CO= , WT=

47 – 1:2000 SCALE GRID
CO= , WT=

48 – 1:3000 SCALE GRID
CO= , WT=

49 – CONTOURS
CO=23(COLOR DISPLAY SAME AS CO=1), WT=0

50 – USER LEVEL
ALL ELEMENTS USER DOES NOT WANT PLOTTED OUT
COMPLETE PATH/FILE NAME LOWER RIGHT OF PLOT SHEET
FT=0, CO=3, WT=1, TX=400'(2000 SCALE)

51 – CONTROL POINTS FOR DIGITIZING
CO=20, WT=10

52 – LANDING STIP/AIRPORT & PERIMETER
CO=27(COLOR DISPLAY SAME AS CO=18), WT=0

53 – VACANT

54 – RAILROAD
CO=20, WT=0

55 – URBAN MAP/FUNCTIONAL CLASSIFICATION MAP TEXT

56 – VACANT

57 – VACANT

58 – VACANT

59 – VACANT

60 – BORDER CELL

61 – VACANT

62 – VACANT

63 – DO NOT USE

6.02 CADD Drafting Conventions

6.02.01 Drafting Guidelines For CADD Contract Plans

The text and symbology (weight, linestyle, and color) requirements for CADD Contract Plan Sheets have been standardized to provide uniform CADD Contract Plan Drawings throughout the Division. See Figures 6.02-1 to 6.02-4 for the CADD Drafting Guidelines for the element symbology and text parameters.

6.02.02 Drafting Guidelines For Other Type of CADD Drawings

Each office has developed their own CADD Drafting Standards for other type of drawings because of the many different types of drawings created.

The Lead Operator will be responsible to document the CADD Drafting Standards used by his office for these type of drawings and give this information to the CADD Manager.

CADD TEXT WEIGHTS, COLOR, LEVEL, WEIGHT AND FONT

FOR CONTRACT PLANS

DESCRIPTION	WEIGHT	COLOR	LEVEL	HEIGHT	FONT
Existing Features	2*	0	3**	3/16" ***	27
Planned Construction Features (New Work)	4	0	3**	3/16" ***	27
Sub-Titles	6	0	3**	1/4"	27
Main Titles	8	0	3**	5/16"	27
F.A. Block Title Block	3	0	3**	5/32"	27
Main Title (Line 1)	10	0	3**	1/4"	27
Limits (Line 2)	6	0	3**	3/16"	27
Project Name & No. (lines 3,4 & 5)	6	0	3**	3/16"	27
Scale/Date	3	0	3**	5/32"	27
Sheet No.	6	0	3**	5/32"	27
Plan Sheet No.	0	0	3**	3/8"	30

NOTE :

* Text weight for existing features may be same as new work.

** Levels 1 & 2 may also be used for Text as determined by each Section

*** HWY-DB and HWY-DH Text Height = 5/32"

Figure 6.02-1
7/19/93

CADD LINE WEIGHT, LINESTYLE, COLOR AND LEVELS

FOR CONTRACT PLANS

PLAN TYPE DRAWINGS

DESCRIPTION	WEIGHT	LINESTYLE	COLOR	LEVEL
Existing Features	2 ***	2 *	****	****
Planned Construction Features (New Work)	4	0	"	"
Existing Utilities	2	4 *	"	"
New Utilities	4	4 *	"	"
Contours				
Existing (Minor/Major)	0/2	5	"	"
New	4	0	"	"
Right of Way Line	5	6*	"	"
Property Line	4	6*	"	"
Easements	7	5	"	"
Baseline or Station Line of Highway	4	0	"	"
Centerline for Highway	4	0	"	"
Dimension Line	2	0	0	3
Break Line	2	0	0	3
Section Line **	6	0	0	3
Match Line **	6	0	0	3

NOTE :

* Linestyle Modified With Pentable.

** Element is a cell

*** Existing Features for Structural Plans are Weight=0.

**** The Symbology and Level for Plan Drawings will follow the Highways Division CADD Drawing Levels For Geographical Drawings.

CADD LINE WEIGHTS, LINESTYLE, COLOR AND LEVELS

FOR CONTRACT PLANS

DETAIL TYPE OF DRAWINGS

DESCRIPTION	WEIGHT	LINESTYLE	COLOR	LEVEL
Existing Features	2	2 *	2	1
Planned Construction Features (New Work)	4	0	0	2
Existing Utilities	2	4 *	2	1
New Utilities	4	4 *	0	2
Right Of Way Line **	5	0	0	2
Baseline or Station Line of Hwy. **	5	0	0	2
Centerline for Highway **	5	0	0	2
Dimension and Leader Lines	2	0	0	3
Break Line	2	0	0	3
Centerline for Detail **	1	0	0	3
Section Line **	5	0	0	3
Cross Section Plans				
Existing Ground	3	2 *	2	1
New Grade	5	0	0	2
Profile and/or Elevation Plans				
Existing Ground	3	2 *	2	1
New Grade	5	0	0	2

NOTE :

* Linestyle Modified With Pentable.

** Element is a cell

CADD LINE WEIGHT, LINESTYLE, COLOR AND LEVLES

FOR CONTRACT PLANS

STRUCTURAL TYPE OF DRAWINGS

DESCRIPTION	WEIGHT	LINESTYLE	COLOR	LEVEL
Concrete				
Existing	0	0	30	40
Hidden	4	2	2	22
New	4	0	2	21
Metal				
Existing	0	0	45	40
Hidden	4	2	17	24
New	4	0	17	23
Wood				
Existing	0	0	12	40
Hidden	4	2	6	28
New	4	0	6	27
Grade				
Existing	0	3	13	40
Hidden	2	2	2	30
New	2	0	2	29
Reinforcing				
Existing	3	3	49	40
Hidden	8	5	4	26
New	8	0	4	25
Concrete Joints	5	0	14	33
Dimension and Leader Lines	1	0	0	3
Break Line	1	0	0	3
Centerline for Detail				
3/8" Long Dash	1	4*	51	3
1" Long Dash	1	4*	0	3
5" Long Dash	1	4*	50	3
Section Line **	6	0	0	3

NOTE :

* Linestyle Modified With Pentable.

** Element is a cell

Figure 6.02-4
7/19/93

6.03 Highways Font Library

The Engineering CADD Office has developed a standard Highways Font Library called 'fontlib'. The CADD System Engineer will maintain and revise the Highways Font Library. The Lead Operator shall request to the CADD System Engineer for any revisions or additions to the Highways Font Library. The CADD System Engineer may assign the revisions to the Lead Operator if the font is unique to the Lead Operator's office. The Highways Font Library is located in the '/usr/ip32/mstation/font' subdirectory. (See Figures 6.03-1 to 6.03-9 For The Highways Font Library).

The Highways Font Library contains special characters, as the baseline, centerline, plus/minus etc. characters that uses certain keys to input. The keys that were used to input these special characters will display on the workstation screen, however, when the file is plotted the special characters will be plotted. (See Figure 6.03-10 For these special characters).

November 20, 1995

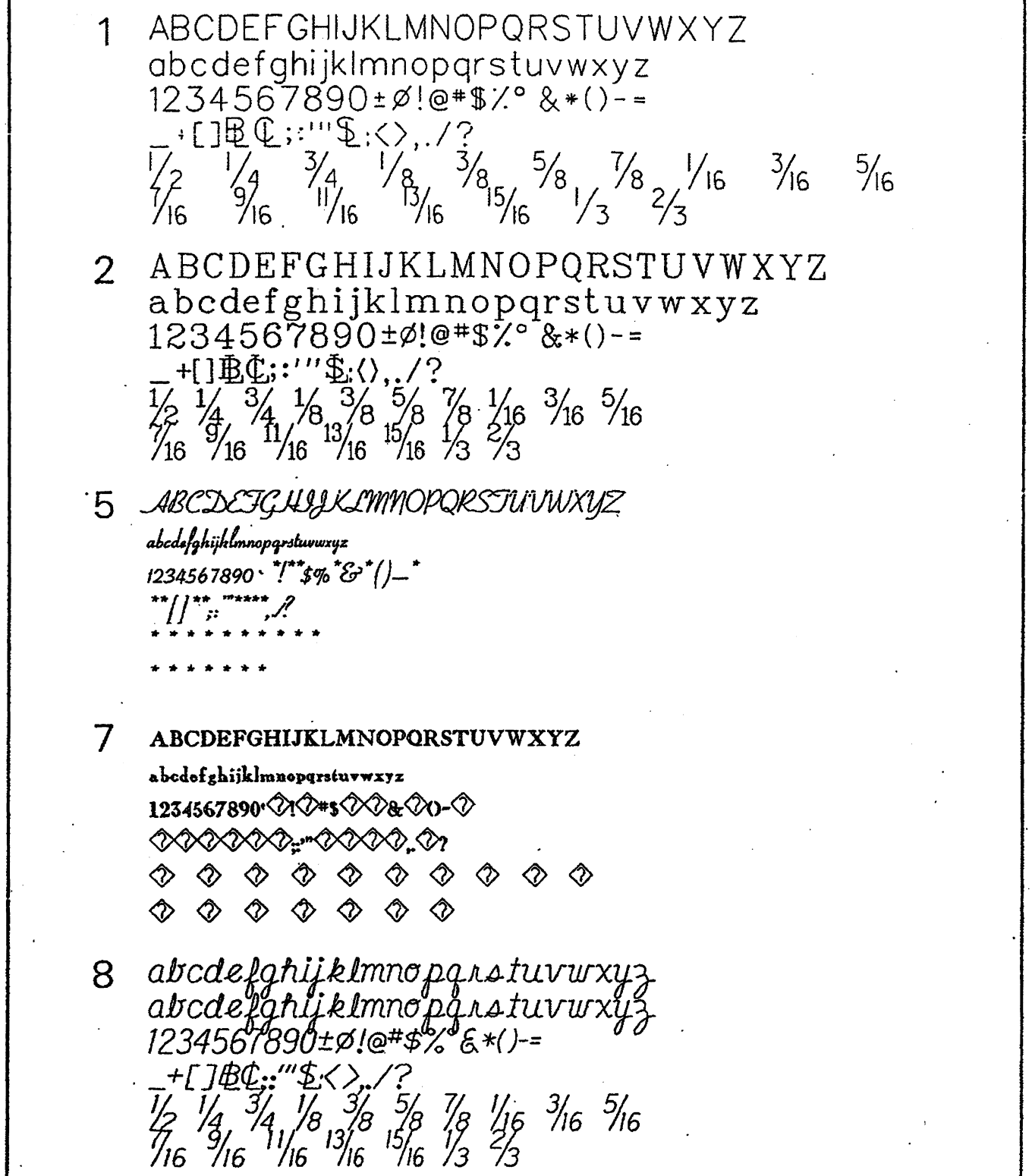
HIGHWAYS DIVISION CADD FONTS - hwyd.rsc

Revision Date: 20-MAR-1995

All character fonts are stick fonts unless TYPE is designated as BIT.
BIT fonts are low-resolution bit stream fonts (filled fonts).

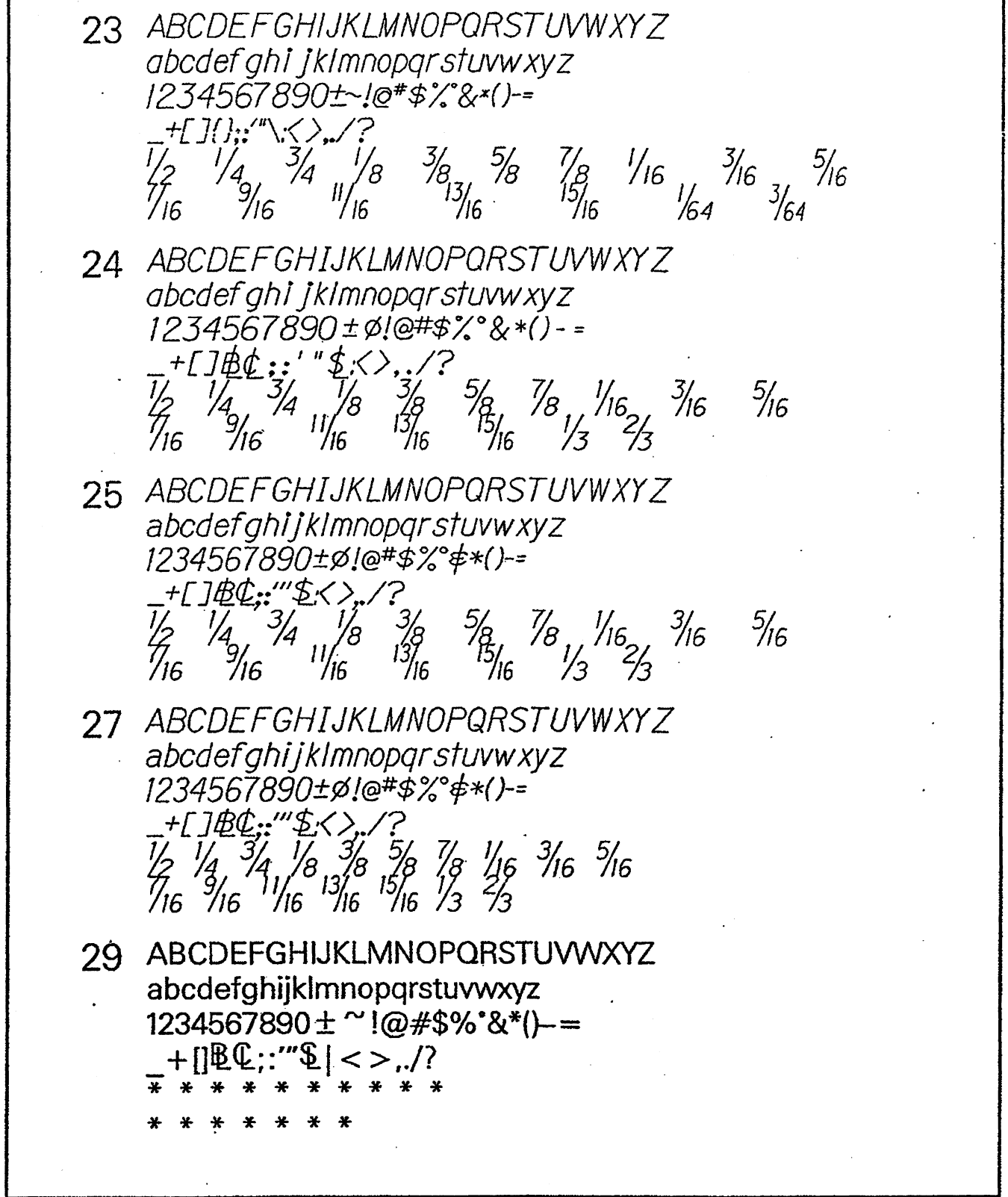
NO.	TYPE	NAME	DESCRIPTION
1		MOD WORKING	(modified) USTN WORKING
2		AS BUILT	(modified) FANCY FONT
5	BIT	SCRIPT	Ribbon 131
7		font007	INTERGRAPH FONT 7
8		SCRIPT2	(modified) Lowercase script
23		MODFONT23	Superceded w/27, used on old drawings
24		MOD23WIDE	Superceded w/27, used on old drawings
25		MOD23NARW	Superceded w/27, used on old drawings
27		HDOT STANDARD	(modified) ITALICS - HWY-D Standard
29	BIT	SWISS 722 L L	(modified) HWY-D Leroy Std, Light
30	BIT	SWISS 722 L	(modified) HWY-D Leroy Std
31	BIT	SWISS 722 B L	(modified) HWY-D Leroy Std, Bold
45	BIT	ALDINE 401 I L	
42		OUTLINE	(modified)
90	SYMB	ICS MODSURSYM	(modified) Cogo points
127		font127	fast font

Total Character Fonts: 15
Total Symbol Fonts: 1



HIGHWAYS FONT LIBRARY

Figure 6.03–1
11/20/95



HIGHWAYS FONT LIBRARY

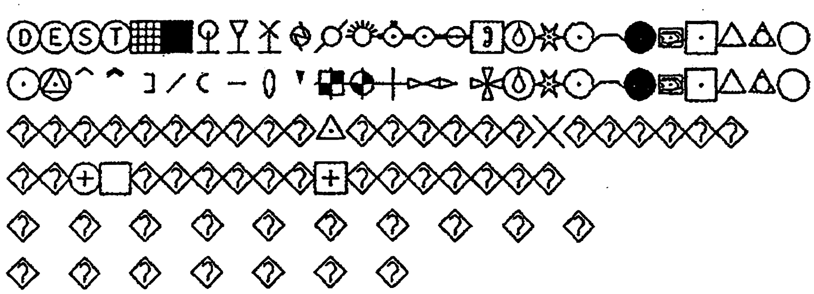
Figure 6.03–2
11/20/95

30 ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890± ~!@#$%°&*()–=
_+[]₤₵;:'"$|<>,./?
* * * * * * * * * *
* * * * * * *

31 **ABCDEFGHIJKLMNOPQRSTUVWXYZ**
abcdefghijklmnopqrstuvwxyz
1234567890± ~!@#$%°&*()–=
_+[]₤₵;:'"$|<>,./?
*** * * * * * * * * ***
*** * * * * * ***

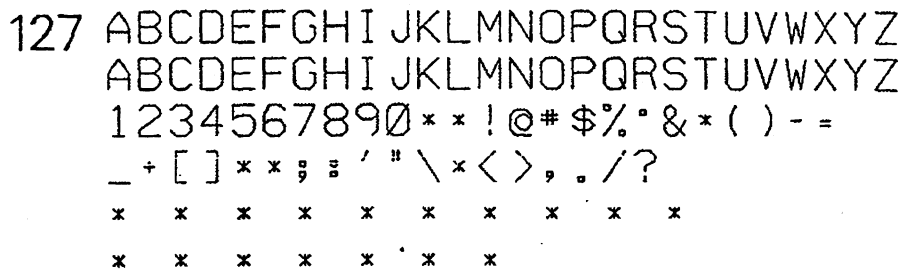
42 ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890◇◇!◇◇$ ◇◇& ◇( )-◇
◇◇◇◇◇◇;:◇◇◇◇◇< > ,./?
◇ ◇ ◇ ◇ ◇ ◇ ◇ ◇ ◇ ◇
◇ ◇ ◇ ◇ ◇ ◇ ◇

45 *ABCDEFGHIJKLMNOPQRSTUVWXYZ*
abcdefghijklmnopqrstuvwxyz
1234567890`~!@#$%^&()–=*
_+[]{};:'"\|<>,./?
* * * * * * * * * *
* * * * * * *

90 

HIGHWAYS FONT LIBRARY

Figure 6.03-3
11/20/95



HIGHWAYS FONT LIBRARY

Figure 6.03-4
11/20/95

MODIFIED CHARACTER KEYS

	LEFT BRACE	RIGHT BRACE	BACK SLASH	GRAVE	CAROT	TILDE	1/64	3/64
OLD KEYS	{	}	\	`	^	~	1/64	3/64
FONT 1	₤	₡	₤	±	°	ø	1/3	2/3
FONT 2	₤	₡	₤	±	°	ø	1/3	2/3
font 8	₤	₡	₤	±	°	ø	1/3	2/3
FONT 27, 28	₤	₡	₤	±	°	ø	1/3	2/3
FONT 29	₤	₡	₤	±	°			
FONT 30	₤	₡	₤	±	°			
FONT 31	₤	₡	₤	±	°			

6.04 Highways Color Table

The Engineering CADD Office has developed a standard Highways Color Table called 'color.tbl'. The CADD System Engineer will maintain and revise the Highways Color Table. The Lead Operator shall request to the CADD System Engineer for any revisions or additions to the Highways Color Table. The CADD System Engineer will copy the color table to all workstations under the '/usr/ip32/mstation/data' subdirectory during software upgrades. (See Figure 6.04-1 For The Highways Color Table).

HIGHWAYS DIVISION COLOR TABLE

NUMBER	COLOR	RED	GRN	BLUE
0	white	205	205	205
1	blue	20	150	255
2	green	0	255	0
3	red	255	0	0
4	yellow	255	255	0
5	flesh	235	185	185
6	orange	255	110	50
7	gray	150	150	150
8	tan	185	135	85
9	medium green	85	185	85
10	chartreuse	185	255	85
11	light pink	255	155	185
12	light mustard	255	200	100
13	light yellow	235	255	145
14 *	hot pink	255	35	185
15	light purple	175	175	255
16	very light blue	180	255	255
17	dark pink	205	50	150
18	very light pink	255	215	255
19	aqua	0	245	170
20	flesh	~~105~~ 235	~~125~~ 185	~~140~~ 185
21	white	205	205	205
22	light mustard	255	200	100
23	blue	20	150	255
24	orange	255	110	50

Figure 6.04-1
12/15/92

HIGHWAYS DIVISION COLOR TABLE

NUMBER	COLOR	RED	GRN	BLUE
25	light pink	255	155	185
26	dark pink	205	50	150
27	very light pink	255	215	255
28	aqua	0	245	170
29 *	hot pink	255	35	185
Highlight	bright white	255	255	255

* For Contract Plan Drawings, DO NOT use colors 14 & 29. These colors will be reserved for posting as-built drawings.

The following color pairs are the same colors :

0 & 21 - white
1 & 23 - blue
5 & 20 - flesh
6 & 24 - orange
11 & 25 - light pink
14 & 29 - hot pink
17 & 26 - dark pink
18 & 27 - very light pink
19 & 28 - aqua

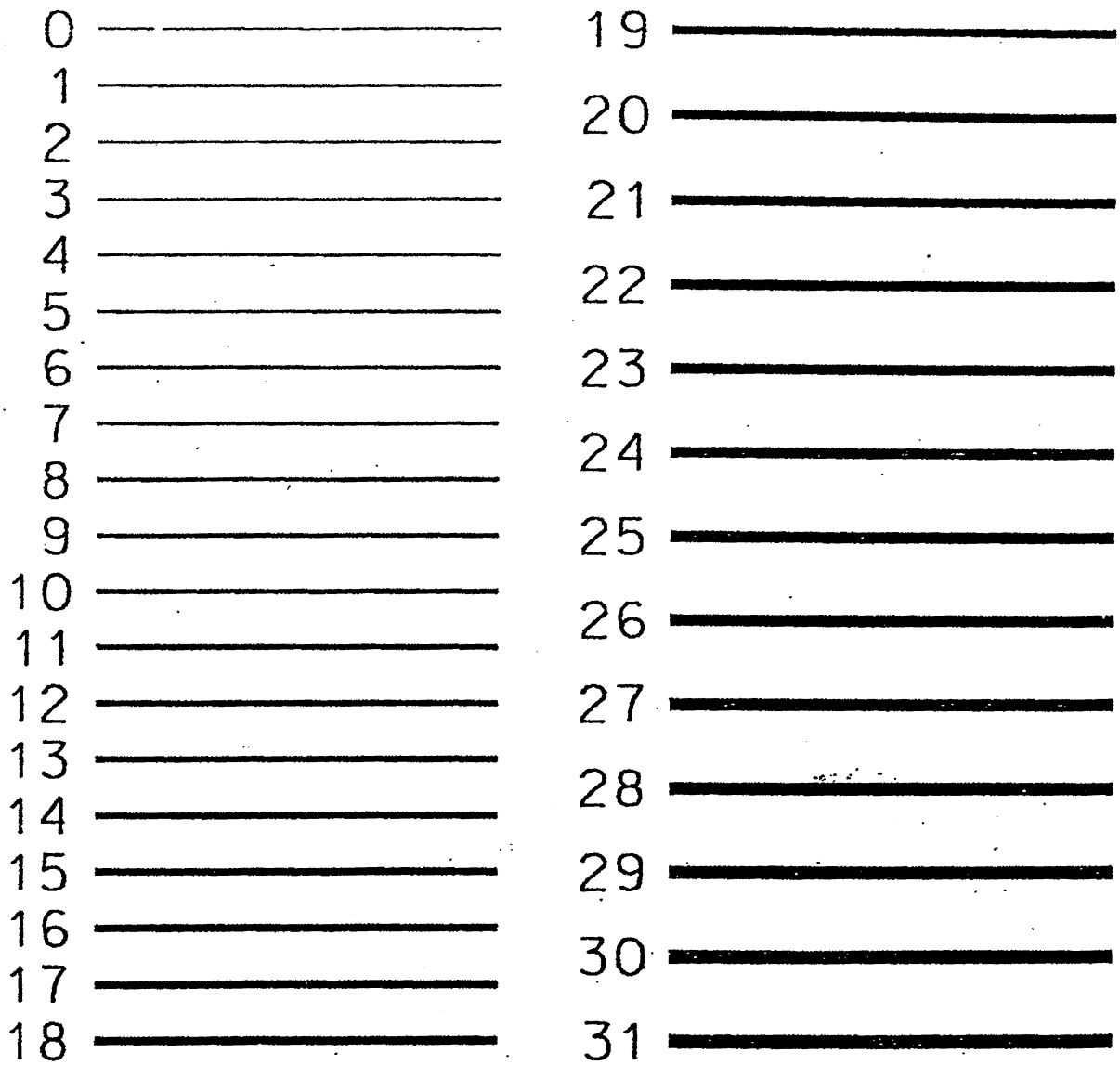
6.05 Highways Pen Tables

Pen Tables are used to selectively modify elements during the plotting process from how they were created in the design file. The Pen Table enables the user to change the symbology (linestyle or weight) of the element in the hardcopy plot. Lines can be modified to plot to any user defined linestyle or weight, however the symbology as seen on the CADD monitor is not changed.

Pen Tables are also used to assign pens in the Pen Plotter to a set of criteria, so each element is plotted by a pen based on the criteria that is set.

The Lead Operator may create customized Pen Tables for his office to modify the CADD files to meet his office criteria. All Pen Tables shall be reviewed and approved by the CADD Office. The Lead Operator shall be responsible for maintaining his office's customized Pen Tables and shall inform the CADD Office of any revisions.

Element Weights



```
! "ddstyle.tbl" r05/11/94
!
!  THIS TABLE IS  LINESTYLE TABLE FOR IPS PLOTTING
!  TO CHANGE THE EXIST. EP/CURB/GUTTER/SIDEWALK, UTILITIES AND R/W
!  LINESTYLES FOR HWY-DD BASE PLANS.
!
!  Revised 11/29/91
!
!  LINESTYLES 0, 2, 3, 4, AND 6 HAS BEEN ALTERED
!
!
!IF (LNAME .NE. 'IRAS*') THEN      !Use styles if not raster(Type 87/88)elements
IF (TYPE .NI. 7,17) THEN           !Use styles if not text-nodes or text
  IF (STYLE .EQ. 0) THEN
    IF (COLOR .EQ. 33) THEN
      STYLE = (1.0, 0.09375)       ! NEW CUT AND FILL
    ELSE
      STYLE = 0                    ! DEFAULT LINESTYLE LC=0
    ENDIF
  ELSE IF (STYLE .EQ. 1) THEN
    STYLE = (.03125, .03125)       ! DEFAULT LINESTYLE LC=1
!
!
!  LINESTYLE FOR EXISTING EP/CURB/GUTTER/SIDEWALK
!
  ELSE IF (STYLE .EQ. 2) THEN
    IF (COLOR .EQ. 2) THEN
      STYLE = (0.175, 0.075)       ! EXIST. EP/CURB/GUTTER/SIDEWALK
    ELSE IF (COLOR .EQ. 19) THEN
      STYLE = (0.175, 0.075)       ! BRIDGES
    ELSE
      STYLE = (.0625, .0625)       ! DEFAULT LINESTYLE LC=2
    ENDIF


  ELSE IF (STYLE .EQ. 3) THEN
    IF (COLOR .EQ. 32) THEN
      STYLE = (0.5, 0.09375)       ! SUPERELEVATION
    ELSE
      STYLE = (.125, .125)         ! DEFAULT LINESTYLE LC=3
    ENDIF


  LINESTYLE FOR UTILITIES (WATER,SEWER,ELECTRIC,TELEPHONE,DRAIN,GAS AND MISC.)

  ELSE IF (STYLE .EQ. 4) THEN
    IF (COLOR .EQ. 16) THEN
      STYLE = (0.25, 0.10)         ! WATER LINE LINESTYLE
    ELSE IF (COLOR .EQ. 23) THEN
      STYLE = (1.0, 0.15)          ! SEWER LINE LINESTYLE
    ELSE IF (COLOR .EQ. 24) THEN
      STYLE = (1.0, 0.15)          ! ELECTRIC LINE LINESTYLE
    ELSE IF (COLOR .EQ. 22) THEN
      STYLE = (1.0, 0.15)          ! TELEPHONE LINE LINESTYLE
    ELSE IF (COLOR .EQ. 13) THEN
      STYLE = (1.0, 0.15)          ! DRAIN LINE LINESTYLE
    ELSE IF (COLOR .EQ. 8) THEN
      STYLE = (1.0, 0.15)          ! GAS LINE LINESTYLE
    ELSE IF (COLOR .EQ. 15) THEN
      STYLE = (1.0, 0.15)          ! MISC. UTIL. LINE LINESTYLE
    ELSE
      STYLE = (.1, .0625, .03125, .0625)  ! DEFAULT LINESTYLE LC=4
    ENDIF
```

```
 ELSE IF (STYLE .EQ. 5) THEN
   STYLE = (.375, .0625)              ! DEFAULT LINESTYLE LC=5


   LINESTYLE FOR R/W
 ELSE IF (STYLE .EQ. 6) THEN
   IF (COLOR .EQ. 1) THEN
     STYLE = (2.5, .1, .2, .1, .2, .1)          ! RW LINE LINESTYLE
   ELSE IF (COLOR .EQ. 6) THEN
     STYLE = (1, .125)                          ! CONSTRUCTION PARCEL
   ELSE
     STYLE = (.125, .062, .03, .062, .03, .062) ! DEFAULT LINESTYLE LC=6
   ENDIF


 ELSE IF (STYLE .EQ. 7) THEN
   STYLE = (.125, .045, .062, .045)     ! DEFAULT LINESTYLE LC=7
 ENDIF
NDIF
ENDIF
```

Linestyles

0	Solid	
0	New cut and fill CO=33	1", .09375"
1	Dotted	.03125", .03125"
2	Medium dashed	.0625", .0625"
2	Exist. EP, curb, gutter, sidewalk and bridges CO=2, 19	.175", .075"
3	Long dashed	.125", .125"
3	Superelevation CO=32	.0625", .09375"
4	Dash-dot	1", .0625", .03125", .0625"
4	Water line CO=16	.25", .10"
4	Sewer, electric, telephone, drain, gas, misc. utility line CO=23, 24, 22, 13, 8, 15	1", .15"
5	Short dashed	.375", .0625"
6	Dash-dot-dot	.125", .062", .03", .062", .03", .062"
6	Right of way line CO=1	2.5", 1", .2", 1", .2", 1"
6	Construction Parcel CO=6	1", .125"
7	Long dashed-short dashed	.125", .045", .062", .045"

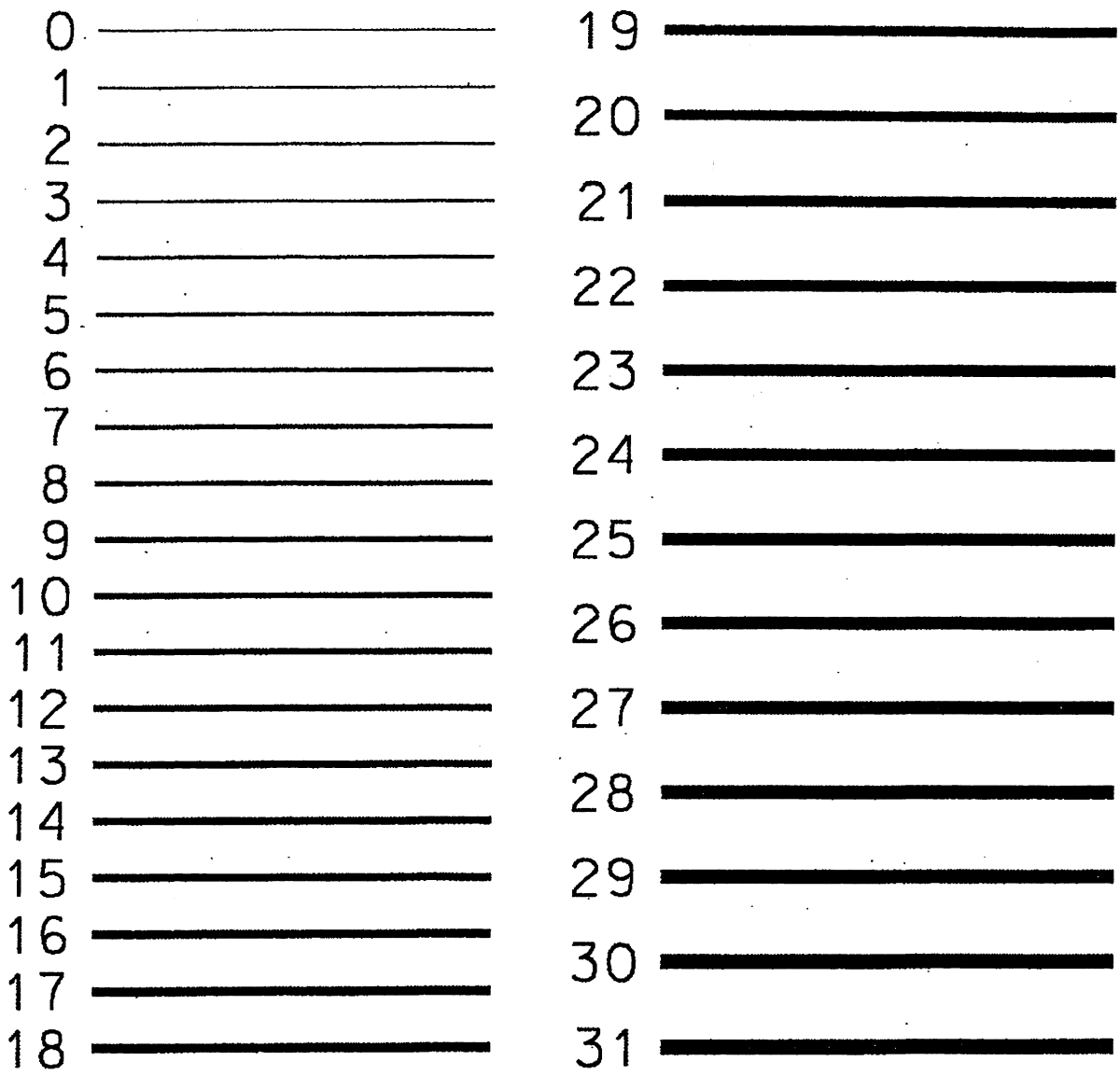
```
! "dbstyle.tbl" r02/12/94
!
! Bridge section pen table for full size plotting to IPLOT and IPS.
!
IF (TYPE .NI. 7,17) THEN
  IF (STYLE .EQ. 0) THEN
    STYLE = 0
  ELSE IF (STYLE .EQ. 1) THEN
    STYLE = (.03125, .03125)
  ELSE IF (STYLE .EQ. 2) THEN
    STYLE = (.0625, .0625)
  ELSE IF (STYLE .EQ. 3) THEN
    STYLE = (.125, .0625)
  ELSE IF (STYLE .EQ. 4) THEN
    IF (COLOR .EQ. 50) THEN
      STYLE = (5., .0625, .03125, .0625)
    ELSE IF (COLOR .EQ. 51) THEN
      STYLE = (.375, .0625, .03125, .0625)
    ELSE
      STYLE = (1., .0625, .03125, .0625)
    ENDIF
  ELSE IF (STYLE .EQ. 5) THEN
    STYLE = (.375, .0625)
  ELSE IF (STYLE .EQ. 6) THEN
    STYLE = (4., .0625, .03125, .0625, .03125, .0625)
  ELSE
    STYLE = (4., .0625, .125, .0625)
  ENDIF
ENDIF
```

Linestyles

Bridge Design Section - dbstyle.tbl

0	Solid	
1	Dotted	.03125", .03125"
2	Medium dashed	.0625", .0625"
3	Long dashed	.125", .0625"
4	Long centerline CO=50	1", .0625", .03125", .0625"
4	Short centerline CO=51	.25", .10"
4	Dash-dot	1", .0625", .03125", .0625"
5	Short dashed	.375", .0625"
6	R/w & Property line	4", .0625", .03125", .0625", .03125", .0625"
7	Baseline	4", .0625", .125", .0625"

Element Weights



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-099-1(15)	1995	1	17

Font=29
Tx=:.175

INDEX TO DRAWINGS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD PLANS SUMMARY
3	GENERAL NOTES & LEGEND
4	TYPICAL SECTIONS
5 – 7	PLANS
8 – 17	PAVEMENT MARKING & SIGNING PLANS, DETAILS & SUMMARIES

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

HONOLULU, HAWAII

PLANS FOR

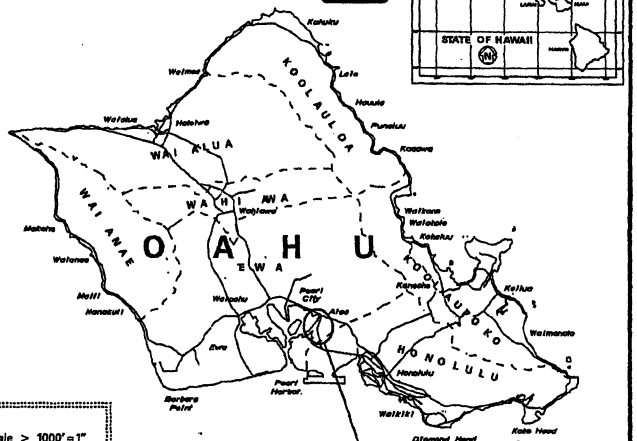
KAMEHAMEHA HIGHWAY RESURFACING

VICINITY OF HONOMANU STREET TO HALAWA DRIVE

FEDERAL AID PROJ. NO. STP-099-1(15)

DISTRICT OF EWA

ISLAND OF OAHU



LOCATION OF PROJECT

SCALE IN MILES

FONTS
6 = Ocean
27 = Landmarks (wt. 2)
29 = Side Roads
30 = Main Roads
45 = Inland Waters (wt. 2)

Change Dashed Roadway lines to Solid Lines

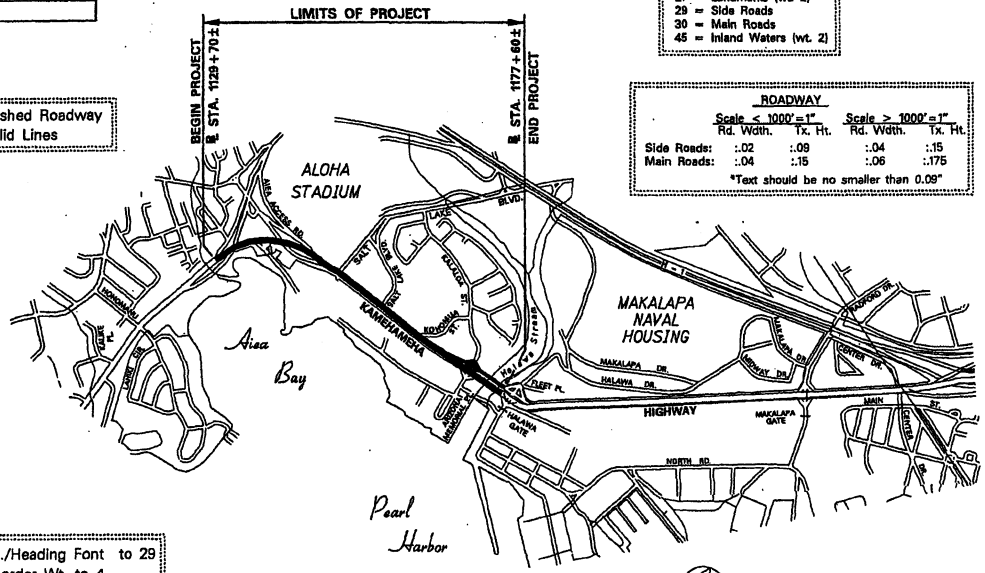
ROADWAY	Scale < 1000'=1"		Scale > 1000'=1"	
	Rd. Wdth.	Tx. Ht.	Rd. Wdth.	Tx. Ht.
Side Roads:	:.02	:.09	:.04	:.15
Main Roads:	:.04	:.15	:.06	:.175

*Text should be no smaller than 0.09"

Wt. 10 for Circle & Leader Line

Border Wt. 4 & Text Attributes: th=:.079 ft=1 tw=:.12 wt=4

MILE POST 21.19 TO MILE POST 22.10



LAYOUT PLAN

GROSS LENGTH OF PROJECT. . . . . 0.907 MILES

NET LENGTH OF PROJECT. . . . . 0.885 MILES

Place North Arrow in this Approximate Area & Change Wt. to 4

DESIGN DESIGNATION

ADT (1994) 44,300

DESIGN ADT (2014) . . . 76,600

DHV . . . . . 6,900 . .

D . . . . . 85/15 . . .

T_{24} . . . . . 4.0 .%. .

V . . . . . 45. M.P.H.

Change Nos./Heading Font to 29 & Change Border Wt. to 4

8 4 0 8 16 32

SCALE IN HUNDRED FEET

Font=29
Tx=:.175

X* DESIGNED BY
X* P. S. & E. BY
X* PHONE
SEPT. 2000* DATE

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED:

DIR. OF TRANSPORTATION — DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	X	199x	0	0

GENERAL NOTES

1. The scope of work for this project consists of

2. The Contractor is reminded of the requirements of Subsection 108.01 - Subletting of Contract, which requires him to perform work amounting to not less than 50 percent of the total contract cost less deductible items. Non-compliance with this Subsection may be grounds for rejection of bid.

3. The Contractor's attention is directed to the following Sections of the Special Provisions : Subsection 107.13 - Public Convenience and Safety; Subsection 107.21 - Contractor's Responsibility For Utility Property And Services; and Section 645 -Traffic Control.

4. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.

5. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.

6. The exact locations and limits or areas to be filled with leveling course, reconstructed and cold planed shall be determined in the field by the Engineer.

7. The Contractor shall notify in writing, the Oahu Transit Services, Inc. Roads Supervision Office, 811 Middle St., Hon., HI 96819 (ph. #848-4571) seven (7) days prior to any paving operations.

8. The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.

9. The Contractor shall remove and dispose of all existing raised pavement markers and traffic tapes prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to Asphalt Concrete Pavement, Mix No. IV and will not be paid for separately.

10 All holes, depressions and wheel ruts shall be filled and compacted with Asphalt Concrete Pavement, Mix No. V prior to resurfacing. This work will be paid for under Asphalt Concrete Pavement, Mix No. V.

11. Smooth riding connections shall be constructed at all limits of resurfacing, including the beginning and end of project, connecting approaches, side streets and driveways as shown on the plans and/or as directed by the Engineer.

12. Dressing of shoulder, sidewalk and bus turnout shall consist of clearing, grubbing, grading, reshaping and compacting the unpaved shoulders with suitable material as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to the various contract items.

13. Existing drainage system will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to various contract items.

14. Earth swale shall be graded to drain. This work shall be considered incidental to the various contract items.

15. The contractor shall provide for access to and from all existing side streets at all times.

16. All saw cutting work shall be considered incidental to Excavation for Reconstruction of Weakened Pavement Areas.

LEGEND

- Reconstruction Areas
- Leveling Areas
- Cold Planing Areas
- Resurfacing Limits
- —e— Existing Electrical Line
- —E— New Electrical Line
- Existing Joint Pole
- Existing Power Pole
- Existing Electric Manhole
- Adjusted Elec. MH Frame/Cover
- New Electric Manhole
- —t— Existing Telephone Line
- —T— New Telephone Line
- Existing Telephone Pole
- Existing Telephone Manhole
- Adjusted Tele. MH Frame/Cover
- New Telephone Manhole
- —sc— Existing Signal Corps Line
- —SC— New Signal Corps Line
- —tv— Existing TV Cable
- —TV— New TV Cable
- —w—12— Existing 12" Water Line
- —W—12— New 12" Water Line
- Existing Water Manhole
- Adjusted Water MH Frame/Cover
- New Water Manhole
- Existing Water Air Valve
- Adjusted Water Air Valve
- New Water Air Valve
- Existing Water Valve Box
- Adjusted Water Valve Box
- New Water Valve Box
- Existing Water Meter
- Adjusted Water Meter
- New Water Meter
- Existing Fire Hydrant
- New Fire Hydrant
- —s—12— Existing Sewer Line
- —S—12— New 12" Sewer Line
- Existing Sewer Manhole
- Adjusted Sewer MH Frame/Cover
- New Sewer Manhole
- —g—6— Existing 6" Gas Line
- —G—6— New 6" Gas Line
- Existing Gas Valve Box
- Adjusted Gas Valve Box
- New Gas Valve Box
- Existing Gas Manhole
- Adjusted Gas MH Frame/Cover
- New Gas Manhole
- Existing Monument
- Adjusted Monument
- New Monument
- ---d--24--- Existing 24" Drain Line
- 24" RCP New 24 " RCP Drain Line
- Existing Storm Drain Manhole
- Adjusted Storm Drain MH Frame/Cover
- New Storm Drain Manhole
- Existing Grated Drop Inlet
- Existing Catch Basin
- Existing Traffic Sign
- Existing Highway Lighting Standard

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES AND LEGEND

XX
XX
XX

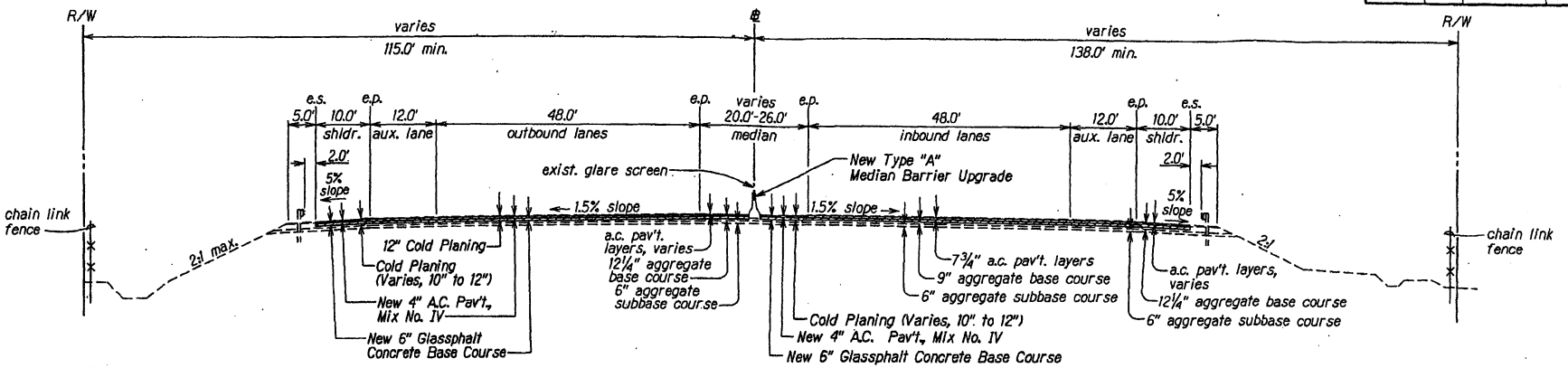
Scale: XX Date: XX, 199X

SHEET No. X OF X SHEETS

00

Fill in "Information Block" with information as directed by project manager. Information shall include but not be limited to sheet filename placed in "Note Book" block.

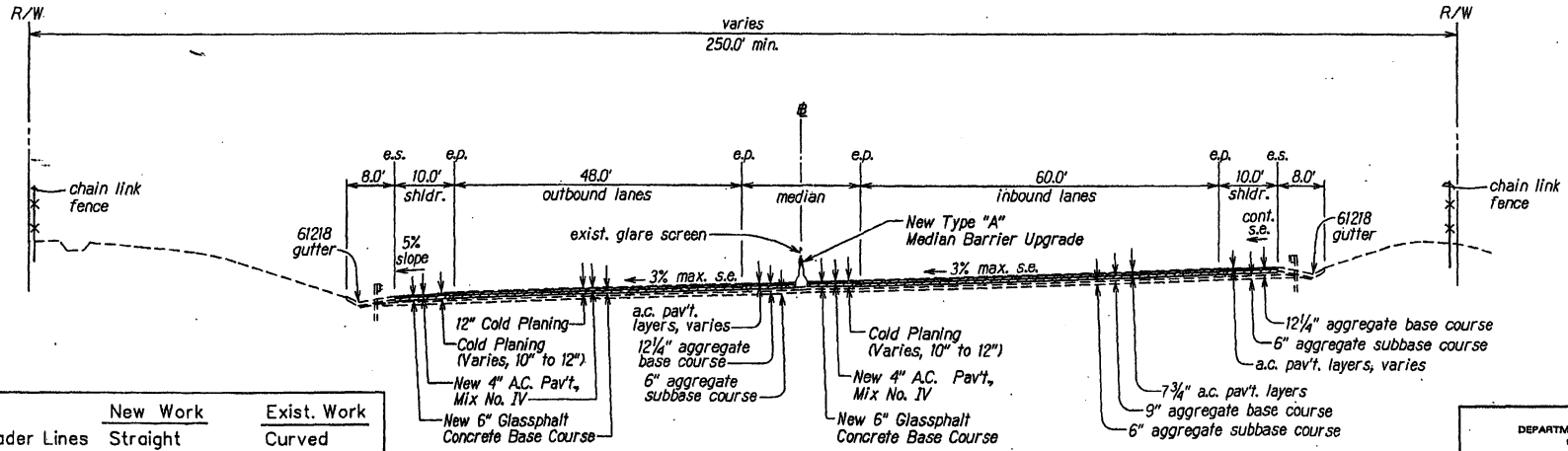
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	XX	199X	X	X



LINES	Leader Lines	New Work	Exist. Work
Level	3	2	1
Weight	2	4	2
Color	0	0	2
Style	0	0	2

TYPICAL SECTION ON TANGENT BEGINNING OF PROJECT TO ℄ STA. 37+00 & ℄ STA. 51+00 TO ℄ STA. 55+00

Scale: 1"=10.0'



	New Work	Exist. Work
Leader Lines	Straight	Curved
Text Size	3/16"	3/16"
Text Case	Upper/Lower	Lower
Text Level	3	3
Text Weight	4	2
Text Color	0	2

TYPICAL SECTION ON CURVE BEGINNING OF PROJECT TO ℄ STA. 37+00 & ℄ SA. 51+00 TO ℄ STA. 55+00

Scale: 1"=10.0'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SECTIONS

XX

XX

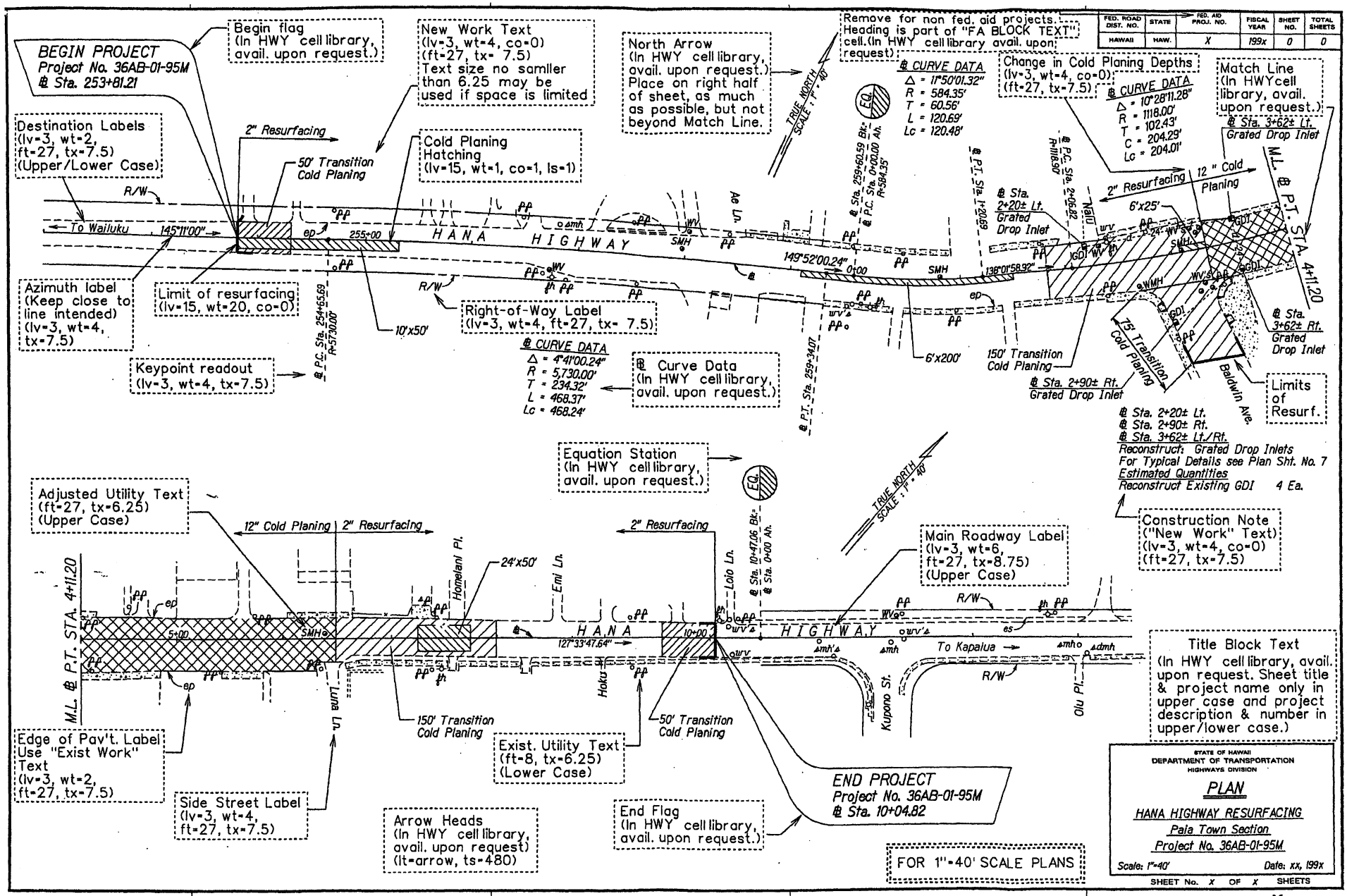
F.A. Project No. XX

Scale: As Shown Date: XX, 199X

SHEET No. X OF X SHEETS

Fill in "Information Block" with information as directed by project manager. Information shall include but not be limited to sheet filename placed in "Note Book" block.

X


BEGIN PROJECT
Project No. 36AB-01-95M
@ Sta. 253+81.21
Begin flag (In HWY cell library, avail. upon request.)
New Work Text (lv=3, wt=4, co=0) (ft=27, tx= 7.5) Text size no samller than 6.25 may be used if space is limited
North Arrow (In HWY cell library, avail. upon request.) Place on right half of sheet, as much as possible, but not beyond Match Line.
Remove for non fed. aid projects. Heading is part of "FA BLOCK TEXT" cell.(In HWY cell library avail. upon request)
FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS
HAWAII | HAW. | X | 199x | 0 | 0
Change in Cold Planing Depths (lv=3, wt=4, co=0) (ft=27, tx=7.5)
Match Line (In HWYcell library, avail. upon request.)
@ Sta. 3+62± Lt.
Grated Drop Inlet
Destination Labels (lv=3, wt=2, ft=27, tx=7.5) (Upper/Lower Case)
2" Resurfacing
50' Transition Cold Planing
Cold Planing Hatching (lv=15, wt=1, co=1, ls=1)
@ CURVE DATA
Δ = 11°50'01.32"
R = 584.35'
T = 60.56'
L = 120.69'
Lc = 120.48'
@ CURVE DATA
Δ = 10°28'11.28"
R = 1118.00'
T = 102.43'
C = 204.29'
Lc = 204.01'
12 " Cold Planing
2" Resurfacing
6'x25'
@ Sta. 2+20± Lt.
Grated Drop Inlet
M.L. @ P.T. STA. 4+11.20
To Wailuku
145°11'00"
HANA HIGHWAY
149°52'00.24"
136°01'58.92"
Azimuth label (Keep close to line intended) (lv=3, wt=4, tx=7.5)
Limit of resurfacing (lv=15, wt=20, co=0)
10'x50'
Right-of-Way Label (lv=3, wt=4, ft=27, tx= 7.5)
6'x200'
150' Transition Cold Planing
75' Transition Cold Planing
@ Sta. 3+62± Rt.
Grated Drop Inlet
@ Sta. 2+90± Rt.
Grated Drop Inlet
Baldwin Ave.
Limits of Resurf.
Keypoint readout (lv=3, wt=4, tx=7.5)
@ Curve Data (In HWY cell library, avail. upon request.)
@ CURVE DATA
Δ = 4°41'00.24"
R = 5,730.00'
T = 234.32'
L = 468.37'
Lc = 468.24'
@ Sta. 2+20± Lt.
@ Sta. 2+90± Rt.
@ Sta. 3+62± Lt./Rt.
Reconstruct: Grated Drop Inlets
For Typical Details see Plan Sht. No. 7
Estimated Quantities
Reconstruct Existing GDI 4 Ea.
Construction Note ("New Work" Text) (lv=3, wt=4, co=0) (ft=27, tx=7.5)
Equation Station (In HWY cell library, avail. upon request.)
TRUE NORTH SCALE: 1" = 40'
Adjusted Utility Text (ft=27, tx=6.25) (Upper Case)
12" Cold Planing
2" Resurfacing
24'x50'
Homelani Pl.
Emi Ln.
Loio Ln.
Main Roadway Label (lv=3, wt=6, ft=27, tx=8.75) (Upper Case)
M.L. @ P.T. STA. 4+11.20
HANA HIGHWAY
127°33'47.64"
To Kapalua
Kupono St.
Olu Pl.
Luna Ln.
Hoku
150' Transition Cold Planing
50' Transition Cold Planing
Exist. Utility Text (ft=8, tx=6.25) (Lower Case)
Edge of Pav't. Label Use "Exist Work" Text (lv=3, wt=2, ft=27, tx=7.5)
Side Street Label (lv=3, wt=4, ft=27, tx=7.5)
Arrow Heads (In HWY cell library, avail. upon request) (lt=arrow, ts=480)
End Flag (In HWY cell library, avail. upon request.)
END PROJECT
Project No. 36AB-01-95M
@ Sta. 10+04.82
FOR 1"=40' SCALE PLANS
Title Block Text (In HWY cell library, avail. upon request. Sheet title & project name only in upper case and project description & number in upper/lower case.)
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PLAN
HANA HIGHWAY RESURFACING
Pala Town Section
Project No. 36AB-01-95M
Scale: 1"=40'
Date: xx, 199x
SHEET No. X OF X SHEETS
Fill in "Information Block" with information as directed by project manager. Information shall include but not be limited to sheet filename placed in "Note Book" block.
r9/30/97
X