

City of Brentwood

CAD DRAWING STANDARDS

1. **Introduction:** The objective of setting up a *Layering Standard* to be used in Digital Mapping Systems is to reduce redundancy and duplication in map maintenance. This section defines the minimum standards for such digital submissions.

The format for digital submissions of the graphical data, which will be accepted by the City, shall be in the DWG, DXF or SHP format.

2. **Standard Layers:** The City has broken down its layer convention to three categories, those being Modifier, Group and Root:

Modifier_Group_Root: For Example: EX_H2O_M12, would denote an existing 12" Water Main Line.

Two to four characters per category separated by an underscore (_) are used. This restricts the length of any layer name to a maximum of twelve characters, which is all that will appear on AutoCAD's layer manager.

Any drawing symbols and/or text styles other than the standard AutoCAD fonts used must be saved as separate drawing files.

3. **Modifier:** The Modifier category is used to describe the proceeding Group category. In this category, there should only be a maximum of two characters before the underscore (i.e., EX_ for existing, PR_ for proposed, etc.).
4. **Group:** The Group category groups objects into related fields, such as water, sanitary sewer, storm drainage, etc.
5. **Root:** The Root category is used to break down the Group category into smaller divisions of objects to be worked with individually or in groups.
6. **'Read-Me' Layer:** A 'Read-Me' layer (X_READ_ME) shall be included on each drawing for "not-to-be-plotted information" on file organization. Any new layers added to the standard layers shall be documented on the Read-Me Layer.
7. **Border:** When working in paper space, all information contained in the border of the drawing (including text, logos, etc.) shall be placed under the BORDER layer.

8. **Color vs. Pen Weight** - The City utilizes a color vs. Pen weight (black ink) configuration in plotting a hard copy of a drawing. The following pen to color assignments may be used or as a reference only:

Color Vs. Pen Weight Table

Pen Weight (mm)	Color Number	Color Description
0.08 mm	1	Red
0.17 mm	2	Yellow
0.25 mm	3	Green
0.34 mm	4	Cyan
0.42 mm	5	Blue
0.51 mm	6	Magenta
0.59 mm	7	Black
0.68 mm	8	Light Gray
0.78 mm	9	Brown
0.85 mm	10	Dark Green
0.93 mm	11	Dark Blue
1.01 mm	12	Orange
1.10 mm	13	Purple
1.18 mm	14	Medium Gray
1.27 mm	15	Dark Gray
	All others	All others

9. **Standard Layers** (Group and Root)

The “??” in all of the following layering conventions represents the modifier of the information. The following lists show the layering guidelines that have been established, and being in the format of layer name, linetype/block symbol/element, and description.

10. Channelization Features

??_CHNL_AR*	{SYMBOL}	LANE CONTROL ARROWS
??_CHNL_BA	{SYMBOL}	CONCRETE BARRIER
??_CHNL_BD	{SYMBOL}	BARRICADE
??_CHNL_BL	CONTINUOUS	BIKE LANE
??_CHNL_DL	{SYMBOL}	DELINEATORS
??_CHNL_LG*	{SYMBOL}	STREET LEGEND
??_CHNL_LM	{SYMBOL}	LANE MARKERS
??_CHNL_MS	CONTINUOUS	MISCELLANEOUS
??_CHNL_SI	{SYMBOL}	SIGNAGE
??_CHNL_TS	{SYMBOL}	TRAFFIC SIGNAL
??_CHNL_TX	{TEXT}	TEXT
??_CHNL_WC	CONTINUOUS	WHITE CONT STRIPING
??_CHNL_WD	DASHED	WHITE DASH STRIPING
??_CHNL_YC	CONTINUOUS	YELLOW CONT STRIPING
??_CHNL_YD	DASHED	YELLOW DASH STRIPING

* - By size or type of facilities

11. Contour Features

??_CNTR_CN	DASHDOT	CONTOUR
??_CNTR_DI	DASHDOT	DEPRESSION INDEX CONTOUR
??_CNTR_DT	DASHDOT	DEPRESSION INTERMEDIATE CONTOUR
??_CNTR_EL	CONTINUOUS	ELEVATIONS
??_CNTR_IN	DIVIDE	INDEX CONTOUR
??_CNTR_IT	DIVIDE	INTERMEDIATE CONTOUR
??_CNTR_MS	CONTINUOUS	MISCELLANEOUS
??_CNTR_SU	DIVIDE	SUPPLEMENTAL CONTOUR
??_CNTR_TX	{TEXT}	TEXT

12. Easement Features

??_ESMT_AE	HIDDEN	ACCESS EASEMENT
??_ESMT_CE	HIDDEN	CONSTRUCTION EASEMENT
??_ESMT_EC	HIDDEN	ECCID EASEMENT
??_ESMT_GE	HIDDEN	GAS EASEMENT
??_ESMT_IR	HIDDEN	IRRIGATION EASEMENT
??_ESMT_MS	CONTINUOUS	MISCELLANEOUS
??_ESMT_PGE	HIDDEN	PG&E EASEMENT
??_ESMT_PH	HIDDEN	TELEPHONE EASEMENT
??_ESMT_PU	HIDDEN	PUBLIC UTILITY EASEMENT
??_ESMT_RW	HIDDEN	RIGHT-OF-WAY EASEMENT
??_ESMT_SD	HIDDEN	STORM DRAINAGE EASEMENT
??_ESMT_SS	HIDDEN	SANITARY SEWER EASEMENT
??_ESMT_TP	HIDDEN	TEMPORARY EASEMENT
??_ESMT_TV	HIDDEN	TELEVISION EASEMENT
??_ESMT_TX	{TEXT}	TEXT
??_ESMT_WA	HIDDEN	WATER EASEMENT
??_ESMT_WL	HIDDEN	WELL EASEMENT

13. Gas Features

??_GAS_M*	DASHDOT	MAIN LINE
??_GAS_MS	CONTINUOUS	MISCELLANEOUS
??_GAS_MT*	{SYMBOL}	METER
??_GAS_LS*	DASHDOT	LATERAL SERVICE LINE
??_GAS_TX	{TEXT}	TEXT
??_GAS_VV*	{SYMBOL}	VALVE

* - By size or type of facilities

14. Grading Features

??_GRD_EL	DASHDOT	PAD ELEVATION
??_GRD_GB	CONTINUOUS	GRADE BREAK
??_GRD_HP	DASHDOT	HIGH POINT
??_GRD_MS	CONTINUOUS	MISCELLANEOUS
??_GRD_SG	CONTINUOUS	STREET GRADE
??_GRD_SLP	{SYMBOL}	TOP & TOE OF GRADED SLOPE
??_GRD_SL	DASHDOT WITH ARROW	SWALE-DIRECTION OF FLOW
??_GRD_TC	CONTINUOUS	TOP OF CURB
??_GRD_TX	{TEXT}	TEXT

15. Irrigation Features

??_IRRG_BF	{SYMBOL}	BACKFLOW ASSEMBLY
??_IRRG_BB*	{SYMBOL}	BUBBLER
??_IRRG_CA	CONTINUOUS	CANAL
??_IRRG_CTL	{SYMBOL}	IRRIGATION CONTROLLER
??_IRRG_LS*	HIDDEN	LATERAL SERVICE LINE
??_IRRG_M*	HIDDEN	MAIN LINE
??_IRRG_MS	CONTINUOUS	MISCELLANEOUS
??_IRRG_PS*	{SYMBOL}	POPUK SPRAY
??_IRRG_RW	PHANTOM	RIGHT-OF-WAY
??_IRRG_SP*	{SYMBOL}	SHRUB SPRAY
??_IRRG_SV	DOUBLE HIDDEN LINE	SLEEVE
??_IRRG_TX	{TEXT}	TEXT
??_IRRG_VV*	{SYMBOL}	VALVE

* - By size or type of facilities

16. Power Features

??_PWR_BX*	{SYMBOL}	STREET LIGHT BOX
??_PWR_LS*	CONTINUOUS	LATERAL SERVICE LINE
??_PWR_MH*	{SYMBOL}	MANHOLE
??_PWR_M*	PHANTOM	MAIN LINE
??_PWR_MS	CONTINUOUS	MISCELLANEOUS
??_PWR_PE	CONTINUOUS	PEDESTAL
??_PWR_POL	CONTINUOUS	POLE
??_PWR_TF	CONTINUOUS	TRANSFORMER
??_PWR_TL*	CONTINUOUS	TRANSMISSION LINE
??_PWR_TT	CONTINUOUS	TRANSMISSION TOWER
??_PWR_TX	{TEXT}	TEXT
??_PWR_VU*	{SYMBOL}	VAULT

* - By size or type of facilities

17. Sanitary Sewer Features

??_SS_CO	CONTINUOUS	CLEAN OUT
??_SS_FM	CONTINUOUS	FORCE MAIN
??_SS_LF	CONTINUOUS	LIFT STATION
??_SS_LS*	HIDDEN	LATERAL SERVICE LINE
??_SS_MH*	{SYMBOL}	MANHOLE
??_SS_M*	HIDDEN	MAIN LINE
??_SS_MS	CONTINUOUS	MISCELLANEOUS
??_SS_TX	{TEXT}	TEXT

* - By size or type of facilities

18. Signalization Features

??_SGNL_DC	{SYMBOL}	DETECTORS
??_SGNL_M*	CONTINUOUS	MAIN LINE
??_SGNL_MS	CONTINUOUS	MISCELLANEOUS
??_SGNL_POL	CONTINUOUS	POLE
??_SGNL_SI	CONTINUOUS	TRAFFIC SIGNS
??_SGNL_TX	{TEXT}	TEXT
??_SGNL_VL	CONTINUOUS	EMERGENCY VEHICLE INDICATOR LIGHTS

* - By size or type of facilities

19. Storm Drainage Features

??_SD_CB	{SYMBOL}	CATCH BASIN
??_SD_CO	{SYMBOL}	CLEAN OUT
??_SD_CU	{SYMBOL}	CULVERT
??_SD_LS*	HIDDEN	LATERAL SERVICE LINE
??_SD_MH*	{SYMBOL}	MANHOLE
??_SD_M*	HIDDEN	MAIN LINE
??_SD_MS	CONTINUOUS	MISCELLANEOUS
??_SD_RA	{SYMBOL}	RIP RAP
??_SD_SLP	CONTINUOUS	SLOPE EMBANKMENT
??_SD_ST	{TEXT}	STATIONING
??_SD_TE	{SYMBOL}	TEST HOLE
??_SD_TX	{TEXT}	TEXT

* - By size or type of facilities

20. Street Features

??_STRT_BC	CONTINUOUS	BACK OF CURB
??_STRT_BD	{SYMBOL}	STREET BARRICADE
??_STRT_CL	CENTER	CENTER LINE
??_STRT_CR	CONTINUOUS	CURB LINE
??_STRT_DW	{SYMBOL}	DRIVEWAY
??_STRT_FC	CONTINUOUS	FACE OF CURB
??_STRT_GD	{SYMBOL}	GUARD RAIL
??_STRT_GR	CONTINUOUS	GRAVEL
??_STRT_GU	CONTINUOUS	GUTTER
??_STRT_HR	CONTINUOUS	HANDICAP RAMP
??_STRT_LRW	PHANTOM	LIMITED ACCESS RIGHT-OF-WAY
??_STRT_LT	{SYMBOL}	ELECTROLIER LIGHTS
??_STRT_MS	CONTINUOUS	MISCELLANEOUS
??_STRT_NS	{SYMBOL}	STREET NAME SIGN
??_STRT_PV	CONTINUOUS	PAVEMENT
??_STRT_RE	CONTINUOUS	RETAINING WALL
??_STRT_RW	PHANTOM	RIGHT-OF-WAY
??_STRT_SH	HIDDEN	SHOULDER
??_STRT_SN	CONTINUOUS	SOUND WALL
??_STRT_SW	CONTINUOUS	SIDEWALK
??_STRT_TC	CONTINUOUS	TOP OF CURB
??_STRT_TF	{SYMBOL}	ELECTRICAL TRANSFORMER
??_STRT_TN	HIDDEN	TRENCH
??_STRT_TX	{TEXT}	TEXT

21. Structure Features

??_STRC_BU	CONTINUOUS	BUILDING
??_STRC_CP	CONTINUOUS	CONCRETE PADS
??_STRC_DE	CONTINUOUS	DECK
??_STRC_FN	CONTINUOUS	FOUNDATION
??_STRC_MS	CONTINUOUS	MISCELLANEOUS
??_STRC_PO	CONTINUOUS	POOL
??_STRC_PP	CONTINUOUS	PAVED PADS
??_STRC_RE	CONTINUOUS	RETAINING WALL
??_STRC_TA	CONTINUOUS	TANKS
??_STRC_TH	CONTINUOUS	HOUSE TRAILER
??_STRC_TX	{TEXT}	TEXT
??_STRC_WE	CONTINUOUS	WELL

22. Surface Features

??_SURF_BR	CONTINUOUS	BRUSH
??_SURF_CK	CONTINUOUS	CREEK
??_SURF_DH	PHANTOM	DITCH
??_SURF_DR	{SYMBOL}	AREA/SURFACE DRAIN
??_SURF_EM	CONTINUOUS	EMBANKMENT
??_SURF_FE*	CONTINUOUS	FENCE
??_SURF_HE	{SYMBOL}	HEDGE
??_SURF_IS	CONTINUOUS	ISLAND
??_SURF_LA	PHANTOM	LAKE/POND
??_SURF_MR	{HATCH PATTERN}	MARSH
??_SURF_MS	CONTINUOUS	MISCELLANEOUS
??_SURF_OR	{HATCH PATTERN}	ORCHARD
??_SURF_PA	PHANTOM	PARK
??_SURF_RO	CONTINUOUS	ROCK
??_SURF_RR	CONTINUOUS	RAILROAD
??_SURF_SE	PHANTOM	STREAM
??_SURF_SI	{SYMBOL}	SIGNAGE
??_SURF_SR	CONTINUOUS	SHRUBS
??_SURF_TI	CONTINUOUS	TRAIL
??_SURF_TR	CONTINUOUS	TREE
??_SURF_TX	{TEXT}	TEXT

* - By size or type of facilities

23. Survey Features

??_SRVY_AB	DIAGONAL LINES	ABUTTERS, RIGHTS RELIQUISHED
??_SRVY_BM	{SYMBOL}	BENCH MARK
??_SRVY_BN	CONTINUOUS	BOUNDARY
??_SRVY_CL	CENTER	CENTER LINE OF STREET, ETC.
??_SRVY_CT	CONTINUOUS	CITY LIMIT LINE
??_SRVY_GL	DASHDOT	GRADING LINE
??_SRVY_HW	CONTINUOUS	HIGH WATER LINE
??_SRVY_LL	CONTINUOUS	LOT LINE
??_SRVY_MO*	{SYMBOL}	MONUMENT
??_SRVY_MS	CONTINUOUS	MISCELLANEOUS
??_SRVY_PL	PHANTOM	PROPERTY LINE
??_SRVY_RS	{SYMBOL}	RAILROAD SPIKE
??_SRVY_RW	CONTINUOUS	RIGHT-OF-WAY LINE

* - By size or type of facilities

24. Telephone Features

??_TEL_BX	{SYMBOL}	TELEPHONE BOX
??_TEL_LS*	DASHDOT	LATERAL SERVICE LINE
??_TEL_MH*	{SYMBOL}	MANHOLE
??_TEL_M*	DASHDOT	MAIN LINE
??_TEL_MS	CONTINUOUS	MISCELLANEOUS
??_TEL_PE	CONTINUOUS	PEDESTAL
??_TEL_POL	{SYMBOL}	POLE
??_TEL_TT	{SYMBOL}	TRANSMISSION TOWER
??_TEL_TX	{TEXT}	TEXT
??_TEL_VU	{SYMBOL}	VAULT

* - By size or type of facilities

25. Television Features

??_TV_PE	CONTINUOUS	PEDESTAL
??_TV_PO	{SYMBOL}	POLE
??_TV_MH*	{SYMBOL}	MANHOLE
??_TV_M*	DASHDOT	MAIN LINE
??_TV_LS*	DASHDOT	LATERAL SERVICE LINE
??_TV_TT	CONTINUOUS	TRANSMISSION TOWER
??_TV_VU	CONTINUOUS	VAULT
??_TV_MS	CONTINUOUS	MISCELLANEOUS
??_TV_TX	{TEXT}	TEXT

* - By size or type of facilities

26. Water Features

??_H2O_AV	{SYMBOL}	AIR RELIEF VALVE
??_H2O_BO	{SYMBOL}	BLOWOFF
??_H2O_CAP	{SYMBOL}	CAP
??_H2O_FH	{SYMBOL}	FIRE HYDRANT
??_H2O_LS*	CONTINUOUS	LATERAL SERVICE LINE
??_H2O_M*	CONTINUOUS	MAIN LINE
??_H2O_MS	CONTINUOUS	MISCELLANEOUS
??_H2O_MT*	{SYMBOL}	METER
??_H2O_NP	CONTINUOUS	NON-POTABLE WATER LINE
??_H2O_TX	{TEXT}	TEXT
??_H2O_VV *	{SYMBOL}	VALVE

* - By size or type of facilities