

Appendix A7

The information in the following tables apply to Design and Survey Topo and RW data on projects using the Named Level convention.

DESIGN DATA

The following table identifies the featureline, alignment, point, profile, profile view and section view styles in the Ct_2016_Design.dwt template.

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Feature Line Styles	_No Display	No Display	N/a
Feature Line Styles	c3d_Corridor All-Views	Displayed in All Views - No vertex markers in Profile Uses the c3d-CORRIDOR Layer Properties	Continuous 0 0.012
Feature Line Styles	c3d_Corridor Model-View	Displayed only in Model View Uses the c3d-CORRIDOR Layer Properties	Continuous 0 0.012
Feature Line Styles	c3d_GRADING All-Views	Displayed in All Views - No vertex markers in Profile Uses the c3d-GRADING Layer Properties	Continuous 0 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Feature Line Styles	df_BASIN	Displays Line in Plan Model and Profile - No vertex markers in Profile. Marker visible in Section. Uses the Layer Properties of df_BASIN	Continuous 9 0.012
Feature Line Styles	df_FLOW-LINE	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of df_FLOW-LINE	rd-flowline_c3d 1 0.012
Feature Line Styles	mc_CURB	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of mc_CURB	Continuous 8 0.012
Feature Line Styles	rd_DITCH-TOP	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_DITCH-TOP	Continuous 15 0.012
Feature Line Styles	rd_HMA-DIKE	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_HMA-DIKE	Continuous 13 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Feature Line Styles	rd_MATCHLINE	Displays Line in Plan and Model Uses the Layer Properties of rd_MATCHLINE	LC6-dash_dot_dot_c3d 5 0.005
Feature Line Styles	rd_RIGHT-OF-WAY	Displays Line in Plan and Model Uses the Layer Properties of rd_RIGHT-OF-WAY	Continuous 6 0.012
Feature Line Styles	rd_ROCK-SLOPE-PROTECTION	Rock Slope Protection	Continuous 0 0.012
Feature Line Styles	rd_SAW-CUT-LINE	Displays Line in Plan and Model Uses the Layer Properties of rd_SAW-CUT-LINE	Continuous 5 0.005
Feature Line Styles	rd_SLOPE-BENCH	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_SLOPE-BENCH	Continuous 15 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Feature Line Styles	rd_SLOPE-CATCH	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_SLOPE-CATCH	Continuous 15 0.012
Feature Line Styles	rd_SLOPE-CATCH-CUT	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_SLOPE-CATCH-CUT	Continuous 3 0.012
Feature Line Styles	rd_SLOPE-CATCH-FILL	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_SLOPE-CATCH-FILL	Continuous 5 0.012
Feature Line Styles	rd_SLOPE-HP	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_SLOPE-HP	Continuous 3 0.012
Feature Line Styles	rd_STRING-LINE	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of rd_STRING-LINE	Continuous 0 0.005

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Feature Line Styles	tcd_BARRIER-CONC	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of tcd_BARRIER-CONC	rd-barrier_c3d 0 0.012
Feature Line Styles	tcd_TRAFFIC-STRIFE	Displays Line in Plan and Model Uses the Layer Properties of tcd_TRAFFIC-STRIFE	Continuous 3 0.012
Feature Line Styles	wall	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of wall_	Continuous 13 0.012
Feature Line Styles	wpc_TEMP-EARTH-BERM	Displays Line in Plan Model and Profile - No vertex markers in Profile Uses the Layer Properties of wpc_TEMP-EARTH-BERM	sw-TEB_c3d 15 0.012
Point Styles	X High Points	Design - High Points	Marker, Label rd_SURFACE-POINT Continuous 2 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Point Styles	X Low Points	Design - Low Points	Marker, Label rd_SURFACE- POINT Continuous 3 0.012
Alignment Styles	_Analysis	Non-standard style used to display warnings and the direction of the alignment entities. If the entities aren't all pointing in the same direction then the alignment report and station labels will be incorrect.	Line align_ Continuous 0 0.012
Alignment Styles	Align-Drainage Culvert	Drainage alignment Culverts	Line align_CULVERT Continuous 9 0.020
Alignment Styles	Align-Drainage Culvert [Analysis]	Drainage alignment Culverts Analysis	Line align_CULVERT Continuous 2 0.020

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	Align-Drainage Ditch	Drainage alignment Ditches	Line align_DITCH Continuous 9 0.020
Alignment Styles	Align-Drainage Ditch [Analysis]	Drainage alignment Ditches	Line align_DITCH Continuous 2 0.020
Alignment Styles	Align-Frontage Rd	Alignment for Frontage Roads	Line align_DITCH Continuous 14 0.020
Alignment Styles	Align-Frontage Rd [Analysis]	For the Analysis of Alignments for Frontage Roads	Line align_DITCH Continuous 14 0.020

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	Align-Local ST	Alignment for the Local Streets	Line align_FRONTAGE Continuous 10 0.020
Alignment Styles	Align-Mainline	Alignment for the Mainline Road	Line align_MAIN Continuous 0 0.024
Alignment Styles	Align-Mainline [Analysis]	For the Analysis of the Alignment for the Mainline Roads	Line align_MAIN Continuous 0 0.024
Alignment Styles	Align-Ramp	Alignment for On and Off Ramps	Line align_RAMP Continuous 13 0.020

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	Align-Ramp [Analysis]	For the Analysis of Alignments for On and Off Ramps	Line align_RAMP Continuous 13 0.020
Alignment Styles	Align- Roundabout	Alignment for a Roundabout	Line align_ROUNDABO UT Continuous 14 0.024
Alignment Styles	Align- Secondary HWY	Alignment for a Secondary Highway	Line align_SECONDAR Y-HWY Continuous 8 0.024
Alignment Styles	Align- Temporary	Alignment for Temporary Roads	Line align_TEMP Continuous 12 0.020

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	Align-Temporary [Analysis]	For the Analysis of Alignments for Temporary Roads	Line align_TEMP Continuous 12 0.020
Alignment Styles	Align-Wall-Retaining	Retaining Wall Alignment	Line align_WALL_RW Continuous 7 0.020
Alignment Styles	Align-Wall-Sound	Sound Wall Alignment	Line align_WALL_SW Continuous 14 0.020
Alignment Styles	Barrier-Concrete	Concrete Barriers	Line tcd_BARRIER- CONC rd-BARRIER_c3d 8 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	Barrier-Rail	Guard Rail	Line tcd_RAILING rd-mbgr-p_c3d 14 0.012
Alignment Styles	Ditch-Bottom	Bottom of Ditches	Line rd_DITCH-BOTTOM Continuous 15 0.012
Alignment Styles	Ditch-Top	Top of Ditches	Line rd_DITCH-TOP Continuous 15 0.012
Alignment Styles	Edge of Pavement	Edge of Pavement	Line rd_EP Continuous 0 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	Edge of Shoulder	Edge of Shoulder	Line rd_ES Continuous 0 0.012
Alignment Styles	Edge of Traveled Way	Edge of Traveled Way	Line rd_ETW Continuous 0 0.012
Alignment Styles	Flow Line	Flow Lines	Line rd_FLOW-LINE rd-flowln_c3d 1 0.012
Alignment Styles	Matchline	Matchline between adjacent corridors for volumes and slopestakes	Line rd_MATCHLINE LC6-dash_dot_dot_c3d 5 0.005

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	RW	New Right of Way Requierments	Line rd_RIGHT-OF-WAY Continuous 6 0.012
Alignment Styles	RW Easement	New Right of Way Easement Requierments	Line rd_RIGHT-OF-WAY-TCE Continuous 0 0.012
Alignment Styles	Saw Cut Line		Line rd_SAW-CUT-LINE Continuous 5 0.005
Alignment Styles	Slope-Catch	Grading Catch at existing ground surface for both cut and fill.	Line rd_SLOPE-CATCH Continuous 15 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Alignment Styles	Slope-Catch-Cut	Grading Catch in Cut conditions	Line rd_SLOPE-CATCH-CUT Continuous 3 0.012
Alignment Styles	Slope-Catch-Fill	Grading Catch in Fill conditions	Line rd_SLOPE-CATCH-FILL Continuous 5 0.012
Alignment Styles	Slope-Hinge	Grading Hinge Point	Line rd_SLOPE-HP Continuous 3 0.012
Profile Styles	Existing Ground	Original ground profile	rd_PROFILE-OG LC2-medium_dash_c3d 12 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Profile Styles	Existing Ground and Display in Model View	Original ground profile	rd_PROFILE-OG LC2-medium_dash_c3d 12 0.012
Profile Styles	Finish Grade	Finish Profile	rd_PROFILE-FINISH Continuous 4 0.012
Profile Styles	Finish Grade and Display in Model View	Finish Profile	rd_PROFILE-FINISH Continuous 4 0.012
Profile View Styles	Profile [H50]	<p>Vertical scale of 1"=5' intended for use in a base file with a horizontal scale of 1"=50'</p> <p>This style will accommodate a profile view 1400' long at 50 scale. When placed manually (a layout tab in paperspace), be sure to modify the station range to include 1400'.</p> <p>This will accommodate a profile view 45' high at 1"=5'</p>	border_DATUM-LINE Continuous 0 0.012

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Profile View Styles	Profile [H50] [Analysis]	<p>Displays the View title, Grid Horizontal Major lines and Grid Vertical Major lines.</p> <p>Vertical scale of 1"=5'. Horizontal scale of 1"=50'. This style will accommodate a profile view 1400' long at 50 scale. When placed manually (a layout tab in paperspace), be sure to modify the station range to include 1400'.</p> <p>This will accommodate a profile view 45' high at 1"=5'</p>	<p>border_DATUM-LINE</p> <p>Continuous</p> <p>0</p> <p>0.012</p>
Section View Styles	1X Exaggeration	View axes turned off. 1x Exaggeration	<p>border_SHEET</p> <p>Continuous</p> <p>0</p> <p>0.024</p>
Section View Styles	1X Exaggeration [20 Scale]	View axes turned off. 1x Exaggeration	<p>border_SHEET</p> <p>Continuous</p> <p>0</p> <p>0.024</p>
Section View Styles	2X Exaggeration	View axes turned off. 2x Exaggeration	<p>border_SHEET</p> <p>Continuous</p> <p>0</p> <p>0.024</p>

Feature Group	Civil 3D Style (Survey Figure or Point)	Feature Description	Feature Attributes Layer Linetype or Block Color Weight
Section View Styles	DR 1X Exaggeration	View axiis turned off. 1x Exaggeration	border_SHEET Continuous 0 0.024

R/W MAPPING DATA FILES

TEMPLATE - CT_2016_RW_MAPPING.DWT

Ct_2016_RW_Mapping.dwt, contains layers, styles, and page setups required to create drawings for R/W and Survey mapping products.

When creating map sheets, the appropriate border is imported from one of the map sheet border templates described later in this section.

Features & Object Styles

Feature Groups

The following table identifies the of R/W feature groups.

Feature Group	Description
General	General features are used for calculations and general display including open and closed found point symbols.
Control	Control related features include project control, found monuments & R/W, and directional information.
Existing Elements	Existing elements include existing, superceded & relinquished R/W, and existing roadway alignments, easements & title encumbrances.
Landnet Elements	Landnet elements include city, county, state, & federal boundaries, federal participation areas, subdivision boundaries, townships & ranges, section lines & ranchos, quarter section lines & government tracts, government lots & subsections, parcel & ownership lines, and interior lot lines.
Miscellaneous Elements	Miscellaneous elements include Consent to Common Use Agreements (CCUA), Joint Use Agreements (JUA), freeway lease areas, unassigned supplemental reference areas, abandonment & vacation areas, and Surveyor's retracement data.
Parcel Coloring & Hatching	Parcel coloring & hatching features include styles to color parcel easements, underlying fee areas, parcel take & remainder areas, Director's Deed areas, and relinquishments.
Proposed Elements	Proposed elements include proposed R/W, roadway alignments, and permanent & temporary easements.

R/W Feature Listing

The following table lists the R/W features and the associated Civil 3D Style or Layer and Feature Group.

Description	Civil 3D Style/Layer	Element	Group
Abandonment Area	rw_MISC_Abandonment	Polyline	Miscellaneous
Calculated general non-plotting point data	calc_no_plot	COGO Point	General
Calculated general point data	calc	COGO Point	General
Calculated non-plotting R/W point data	calc_RW_no_plot	COGO Point	General
Calculated R/W point data	calc_RW	COGO Point	General
Calculated search point	calc_SEARCH	COGO Point	General
City, County, State & Federal Boundaries	rw_LANDNET_Public_Boundary	Polyline	Landnet
Consent to Common Use Agreement (CCUA) (Centerline)	rw_MISC_CCUA_align	Polyline	Miscellaneous
Consent to Common Use Agreement (CCUA) (Sideline)	rw_MISC_CCUA	Polyline	Miscellaneous
Director's Deed [Stipling]	Director's Deed [Stipling]	Parcel	Parcel
Easement & underlying fee coloring	Easement & UF [various colors]	Parcel	Parcel
Existing access control alignments The ticks are defined by a linetype	Existing Access Control LT (ticks by linetype)	Alignment	Existing

Description	Civil 3D Style/Layer	Element	Group
Existing access control alignments The ticks are defined by the Alignment Label Set	Existing Access Control LT (ticks by style)	Alignment	Existing
Existing access control point locations	calc_RW_EXIST_Access	COGO Point	Existing
Existing alignment point data	calc_ALIGN_EXIST	COGO Point	Existing
Existing Conventional RW (Fee or Easement)	Existing Conventional RW	Alignment	Existing
Existing Easement [Centerline]	Existing Easement [Centerline]	Alignment	Existing
Existing Easement [Sideline]	Existing Easement [Sideline]	Alignment	Existing
Existing easement point data	calc_EASE_EXIST	COGO Point	Existing
Existing Frontage Road Alignment	Existing Frontage Road Alignment	Alignment	Existing
Existing Mainline Alignment	Existing Mainline Alignment	Alignment	Existing
Existing Previous RW	rw_RW_EXIST_Previous	Polyline	Existing
Existing Public Roadway Alignment	Existing Public Roadway Alignment	Alignment	Existing
Existing Public Utility Easement [Centerline]	rw_EASE_EXIST_Public_Utility_align	Polyline	Existing
Existing Public Utility Easement [Sideline]	rw_EASE_EXIST_Public_Utility	Polyline	Existing
Existing R/W point data	calc_RW_EXIST	COGO Point	Existing
Existing Ramp Alignment	Existing Ramp Alignment	Alignment	Existing
Existing Title Encumbrance	rw_EASE_EXIST_Title_Encumbrance	Polyline	Existing

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Description	Civil 3D Style/Layer	Element	Group
Federal Participation	rw_LANDNET_Fed_Part	Polyline	Landnet
Found point	su_ctrl_FD	COGO Point	Control
Found point - C/L monument	su_ctrl_FD_CL	COGO Point	Control
Found point - no record	su_ctrl_FD_no_record	COGO Point	Control
Found point - not plotted	su_ctrl_FD_no_plot	COGO Point	Control
Found point - offset line monument	su_ctrl_FD_Offset_Line	COGO Point	Control
Found point - RW monument	su_ctrl_FD_RW	COGO Point	Control
Found Point - section corner	su_ctrl_FD_Section	COGO Point	Control
Found point - station line monument	su_ctrl_FD_Station_Line	COGO Point	Control
Freeway Lease Area	rw_MISC_FLA	Polyline	Miscellaneous
General point data with filled circle	_General [closed circle]	COGO Point	General
General point data with open circle	_General [open circle]	COGO Point	General
Interior Lot Lines	rw_LANDNET_Interior_Lot	Polyline	Landnet
Joint Use Agreement (JUA) (Centerline)	rw_MISC_JUA_align	Polyline	Miscellaneous
Joint Use Agreement (JUA) (Sideline)	rw_MISC_JUA	Polyline	Miscellaneous
Landnet point data	calc_LANDNET	COGO Point	Landnet
Landnet section corner point data	calc_LANDNET_Section	COGO Point	Landnet
Miscellaneous point data	calc_MISC	COGO Point	Miscellaneous

Description	Civil 3D Style/Layer	Element	Group
Parcels & Ownership Lines	rw_LANDNET_Parcels_Ownership	Polyline	Landnet
Photo Control Monument - horizontal	su_ctrl_Photo_H	COGO Point	Control
Photo Control Monument - horizontal & vertical	su_ctrl_Photo_HV	COGO Point	Control
Photo Control Monument - vertical	su_ctrl_Photo_V	COGO Point	Control
Primary Control Monument - horizontal	su_ctrl_Primary_H	COGO Point	Control
Primary Control Monument - horizontal & vertical	su_ctrl_Primary_HV	COGO Point	Control
Primary Control Monument - vertical	su_ctrl_Primary_V	COGO Point	Control
Project Control Monument - horizontal	su_ctrl_Project_H	COGO Point	Control
Project Control Monument - horizontal & vertical	su_ctrl_Project_HV	COGO Point	Control
Project Control Monument - vertical	su_ctrl_Project_V	COGO Point	Control
Proposed access control alignments The ticks are defined by a linetype	Proposed Access Control LT (ticks by linetype)	Alignment	Proposed
Proposed access control alignments The ticks are defined by the Alignment Label Set	Proposed Access Control LT (ticks by style)	Alignment	Proposed
Proposed access control point locations	calc_RW_PROPOSED_Access	COGO Point	Proposed

Description	Civil 3D Style/Layer	Element	Group
Proposed alignment point data	calc_ALIGN_PROPOSED	COGO Point	Proposed
Proposed Conventional RW (Fee or Easement)	Proposed Conventional RW	Alignment	Proposed
Proposed Drainage Easement	Proposed Drainage Easement	Alignment	Proposed
Proposed Easement [Centerline]	Proposed Easement [Centerline]	Alignment	Proposed
Proposed Easement [Sideline]	Proposed Easement [Sideline]	Alignment	Proposed
Proposed easement point data	calc_EASE_PROPOSED	COGO Point	Proposed
Proposed Frontage Road Alignment	Proposed Frontage Road Alignment	Alignment	Proposed
Proposed Mainline Alignment	Proposed Mainline Alignment	Alignment	Proposed
Proposed R/W point data	calc_RW_PROPOSED	COGO Point	Proposed
Proposed Ramp Alignment	Proposed Ramp Alignment	Alignment	Proposed
Proposed Slope Easement	Proposed Slope Easement	Alignment	Proposed
Proposed Temporary Construction Easement	Proposed Temporary Construction Easement	Alignment	Proposed
Proposed Temporary Drainage Easement	Proposed Temporary Drainage Easement	Alignment	Proposed
Proposed Temporary General Easement	Proposed Temporary General Easement	Alignment	Proposed
Proposed Temporary Slope Easement	Proposed Temporary Slope Easement	Alignment	Proposed

Description	Civil 3D Style/Layer	Element	Group
Quarter Section & USPLS Government Tracts	rw_LANDNET_Qtr_Section_Tract	Polyline	Landnet
Relinquished R/W (Conventional - Fee or Easement)	rw_RW_EXIST_Relinquished_Conventional	Polyline	Existing
Relinquished R/W Access Control (Left)	rw_RW_EXIST_Relinquished_Access_Left	Polyline	Existing
Relinquished R/W Access Control (Right)	rw_RW_EXIST_Relinquished_Access_Right	Polyline	Existing
Relinquishments hatching, NE or NW angled	_Relinquishments [Hatching - NE angled]	Parcel	Parcel
Remainder coloring	Remainder [various colors]	Parcel	Parcel
Section Lines & Ranchos	rw_LANDNET_Section_Rancho	Polyline	Landnet
Subdivision Boundaries	rw_LANDNET_Subdiv_Boundary	Polyline	Landnet
Superceded R/W (Conventional - Fee or Easement)	rw_RW_EXIST_Superceded_Conventional	Polyline	Existing
Superceded R/W Access Control (Left)	rw_RW_EXIST_Superceded_Access_Left	Polyline	Existing
Superceded R/W Access Control (Right)	rw_RW_EXIST_Superceded_Access_Right	Polyline	Existing
Supplemental Control Monument - horizontal	su_ctrl_Supp_H	COGO Point	Control
Supplemental Control Monument - horizontal & vertical	su_ctrl_Supp_HV	COGO Point	Control
Supplemental Control Monument - vertical	su_ctrl_Supp_V	COGO Point	Control

Description	Civil 3D Style/Layer	Element	Group
Surveyor's Retracement Data	rw_retracement	Polyline	Miscellaneous
Take coloring	Take [various colors]	Parcel	Parcel
Township & Range Lines	rw_LANDNET_Town_Range	Polyline	Landnet
Unassigned Supplemental Reference Area	rw_MISC_Supplemental_Reference	Polyline	Miscellaneous
USPLS Government Lots & Subsections	rw_LANDNET_Govt_Lot_Sub_Section	Polyline	Landnet
Vacation Area	rw_MISC_Vacation	Polyline	Miscellaneous

Point Description Key Sets

When points are inserted into a drawing, the raw description of each point is evaluated by the Description Key Sets. When a raw description matches a Description Key, the properties defined in the key are assigned to the COGO Point or Survey Point.

Caltrans Field Surveys Description Key Set

Used with survey and MTLs topo data.

Code	Style	Point Label Style	Format	Point Object Layer
BLC	su_ctrl_FD	Name Description	Block Corner	topo_su_ctrl_point_FD
CLH	su_ctrl_FD_CL	Name Description	Ctr Line Monument Horizontal	topo_su_ctrl_point_FD
CLHV	su_ctrl_FD_CL	Name Description	Ctr Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
CLNR	su_ctrl_FD_CL	Name Description	St CL, fd, no record	topo_su_ctrl_point_FD
CLPC	su_ctrl_FD_CL	Name Description	St CL, PC	topo_su_ctrl_point_FD
CLPT	su_ctrl_FD_CL	Name Description	St CL, PT	topo_su_ctrl_point_FD
CPCC	su_ctrl_FD_CL	Name Description	St CL, PCC	topo_su_ctrl_point_FD
CPI	su_ctrl_FD_CL	Name Description	St CL, PI	topo_su_ctrl_point_FD
CPOC	su_ctrl_FD_CL	Name Description	St CL, POC	topo_su_ctrl_point_FD
CPOT	su_ctrl_FD_CL	Name Description	St CL, POT	topo_su_ctrl_point_FD
CPRC	su_ctrl_FD_CL	Name Description	St CL, PRC	topo_su_ctrl_point_FD
CTRL	SU CTRL	SU Points Label CTRL	Generic Point - Control monumentati on	topo_su_ctrl_point_MON
FDLINE	SU Figure Points [CTRL]	SU Points Label CTRL	Generic Line - Ownership Lines	topo_su_ctrl_LINE_PTS_info _only
FDLN	SU Figure Points [CTRL]	SU Points Label CTRL	Generic Line - Ownership Lines	topo_su_ctrl_LINE_PTS_info _only

Code	Style	Point Label Style	Format	Point Object Layer
FDNR	su_ctrl_FD_no_record	Name Description	Fd Pt, no record	topo_su_ctrl_point_FD
FDPT	su_ctrl_FD	Name Description	Generic Point - Ownership	topo_su_ctrl_point_FD
FDR	su_ctrl_FD	Name Description	Fd Pt, record	topo_su_ctrl_point_FD
FRLC	su_ctrl_FD	Name Description	Frac Lot Corner	topo_su_ctrl_point_FD
LTC	su_ctrl_FD	Name Description	Lot Corner	topo_su_ctrl_point_FD
MC	su_ctrl_FD	Name Description	Meander Corner	topo_su_ctrl_point_FD
OSH	su_ctrl_FD_Offset_Line	Name Description	O/S Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
OSHV	su_ctrl_FD_Offset_Line	Name Description	O/S Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
PHH	su_ctrl_Photo_H	SU Points Label CTRL	Photo Control Monument Horizontal	topo_su_ctrl_point_MON
PHHV	su_ctrl_Photo_HV	SU Points Label CTRL	Photo Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
PHV	su_ctrl_Photo_V	SU Points Label CTRL	Photo Control Monument Vertical	topo_su_ctrl_point_MON
PLSO	su_ctrl_FD	Name Description	PLS Corner, other	topo_su_ctrl_point_FD
PMC	su_ctrl_FD	Name Description	Parcel Corner	topo_su_ctrl_point_FD

Code	Style	Point Label Style	Format	Point Object Layer
PMH	su_ctrl_Primary_H	SU Points Label CTRL	Primary Control Monument Horizontal	topo_su_ctrl_point_MON
PMHV	su_ctrl_Primary_HV	SU Points Label CTRL	Primary Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
PMV	su_ctrl_Primary_V	SU Points Label CTRL	Primary Control Monument Vertical	topo_su_ctrl_point_MON
PRH	su_ctrl_Project_H	SU Points Label CTRL	Project Control Monument Horizontal	topo_su_ctrl_point_MON
PRHV	su_ctrl_Project_HV	SU Points Label CTRL	Project Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
PRV	su_ctrl_Project_V	SU Points Label CTRL	Project Control Monument Vertical	topo_su_ctrl_point_MON
QC	su_ctrl_FD_Section	Name Description	Quarter Corner	topo_su_ctrl_point_FD
RC	su_ctrl_FD	Name Description	Rancho Corner	topo_su_ctrl_point_FD
RO	su_ctrl_FD	Name Description	Rancho, other	topo_su_ctrl_point_FD
RW	su_ctrl_FD_RW	Name Description	R/W Monument	topo_su_ctrl_point_FD
SC	su_ctrl_FD_Section	Name Description	Section Corner found monument	topo_su_ctrl_point_FD

Code	Style	Point Label Style	Format	Point Object Layer
SLH	su_ctrl_FD_Station_Line	Name Description	Station Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
SLHV	su_ctrl_FD_Station_Line	Name Description	Station Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
SRCH	calc_SEARCH	SU Points Label CTRL	Search Coordinate	rw_topo_point
SUH	su_ctrl_Supp_H	SU Points Label CTRL	Supp. Control Monument Horizontal	topo_su_ctrl_point_MON
SUHV	su_ctrl_Supp_HV	SU Points Label CTRL	Supp. Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
SUV	su_ctrl_Supp_V	SU Points Label CTRL	Supp. Control Monument Vertical	topo_su_ctrl_point_MON
TC	su_ctrl_FD_Section	Name Description	Township Corner	topo_su_ctrl_point_FD
TRC	su_ctrl_FD	Name Description	Tract Corner	topo_su_ctrl_point_FD
WC	su_ctrl_FD	Name Description	Witness Corner	topo_su_ctrl_point_FD

Caltrans Right of Way Description Key Set

Used with calculated R/W data.

Code	Style	Point Label Style	Format	Point Object Layer
ABAND	calc_MISC	Name Description	Abandonment	rw_MISC_point
CALCP	calc	Name Description	Plotted Calculated Point	rw_topo_point
CCUA	calc_MISC	Name Description	Consent to Common Use Agreement (Sideline)	rw_MISC_point
CCUA A	calc_MISC	Name Description	Consent to Common Use Agreement (Centerline)	rw_MISC_point
DD	calc_MISC	Name Description	Director's Deed, Easement, Quitclaim	rw_MISC_point
DE	calc_EASE_PROPOSED	Name Description	New Drainage Easement	rw_EASE_PROPOSED_point
FLA	calc_MISC	Name Description	Freeway Lease Area	rw_MISC_point
FP	su_ctrl_FD_no_plot	Name Description	Non-plotted Found Point	topo_su_ctrl_point_FD_no_plot
FPP	su_ctrl_FD	Name Description	Plotted Found Point	topo_su_ctrl_point_FD
JUA	calc_MISC	Name Description	Joint Use Agreement (Sideline)	rw_MISC_point

Code	Style	Point Label Style	Format	Point Object Layer
JUAA	calc_MISC	Name Description	Joint Use Agreement (Centerline)	rw_MISC_point
LF	calc_LANDNET	Name Description	Landnet Federal Participation	rw_LANDNET_point
LI	calc_LANDNET	Name Description	Landnet Interior Lot Lines	rw_LANDNET_point
LL	calc_LANDNET	Name Description	Landnet USPLS Government Lots & Subsections	rw_LANDNET_point
LP	calc_LANDNET	Name Description	Landnet Parcel & Ownership lines	rw_LANDNET_point
LPB	calc_LANDNET	Name Description	Landnet City, County, State, & Federal Boundaries	rw_LANDNET_point
LQ	calc_LANDNET_Section	Name Description	Landnet Quarter Section and USPLS Government Tract	rw_LANDNET_point
LS	calc_LANDNET_Section	Name Description	Landnet Section Lines & Ranchos	rw_LANDNET_point

Code	Style	Point Label Style	Format	Point Object Layer
LSB	calc_LANDNET	Name Description	Landnet Subdivision Boundaries	rw_LANDNET_point
LT	calc_LANDNET_Section	Name Description	Landnet Township & Range	rw_LANDNET_point
NA	calc_ALIGN_PROPOSED	Name Description	New Mainline Alignment Centerline	align_point_PROPOSED
NAC	calc_RW_PROPOSED_Access	Name Description	Access Control Opening	rw_RW_PROPOSED_point
NCL	calc_RW_PROPOSED	Name Description	New R/W Access Control (Left)	rw_RW_PROPOSED_point
NCR	calc_RW_PROPOSED	Name Description	New R/W Access Control (Right)	rw_RW_PROPOSED_point
NE	calc_EASE_PROPOSED	Name Description	New Easement (Sideline)	rw_EASE_PROPOSED_point
NEA	calc_EASE_PROPOSED	Name Description	New Easement (Centerline)	rw_EASE_PROPOSED_point
NFA	calc_ALIGN_PROPOSED	Name Description	New Frontage Road Alignment Centerline	align_point_PROPOSED
NR	calc_RW_PROPOSED	Name Description	New Conventional R/W (Fee or Easement)	rw_RW_PROPOSED_point

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Code	Style	Point Label Style	Format	Point Object Layer
NRA	calc_ALIGN_PROPOSE D	Name Descrip tion	New Ramp Alignment Centerline	align_point_PROPOSED
REF	calc_MISC	Name Descrip tion	Unassigne d Suppleme ntal Reference Area	rw_MISC_point
REL	calc_RW_EXIST	Name Descrip tion	Relinquish ed Conventio nal R/W (Fee or Easement)	rw_RW_EXIST_point
RELL	calc_RW_EXIST	Name Descrip tion	Relinquish ed R/W Access Control (Left)	rw_RW_EXIST_point
RELR	calc_RW_EXIST	Name Descrip tion	Relinquish ed R/W Access Control (Right)	rw_RW_EXIST_point
RET	calc	Name Descrip tion	Surveyor's Retraceme nt Data	rw_topo_point
RWP	calc_RW_no_plot	Name Descrip tion	Non- plotted R/W Data	rw_RW_EXIST_point_no _plot
RWPP	calc_RW	Name Descrip tion	Plotted R/W Data	rw_RW_EXIST_point
SC	calc_no_plot	Name Descrip tion	Non- plotted Survey Calculated data	rw_topo_Calcs_no_plot

Code	Style	Point Label Style	Format	Point Object Layer
SCP	calc	Name Description	Plotted Survey Calculated data	rw_topo_point
SE	calc_EASE_PROPOSED	Name Description	New Slope Easement	rw_EASE_PROPOSED_point
TCE	calc_EASE_PROPOSED	Name Description	Temporary Construction Easement	rw_EASE_PROPOSED_point
TDE	calc_EASE_PROPOSED	Name Description	Temporary Drainage Easement	rw_EASE_PROPOSED_point
TE	calc_EASE_PROPOSED	Name Description	Temporary General Easement	rw_EASE_PROPOSED_point
TMP	calc_no_plot	Name Description	Temporary Calculated Data	rw_topo_Calcs_no_plot
TSE	calc_EASE_PROPOSED	Name Description	Temporary Slope Easement	rw_EASE_PROPOSED_point
VAC	calc_MISC	Name Description	Vacation	rw_MISC_point
XA	calc_ALIGN_EXIST	Name Description	Existing Mainline Alignment Centerline	align_point_EXIST
XAC	calc_RW_EXIST_Access	Name Description	Existing Access Control Opening	rw_RW_EXIST_point
XCL	calc_RW_EXIST	Name Description	Existing R/W Access Control (Left)	rw_RW_EXIST_point

Code	Style	Point Label Style	Format	Point Object Layer
XCR	calc_RW_EXIST	Name Description	Existing R/W Access Control (Right)	rw_RW_EXIST_point
XE	calc_EASE_EXIST	Name Description	Existing Easement (Sideline)	rw_EASE_EXIST_point
XEA	calc_EASE_EXIST	Name Description	Existing Easement (Centerline)	rw_EASE_EXIST_point
XFA	calc_ALIGN_EXIST	Name Description	Existing Frontage Road Alignment Centerline	align_point_EXIST
XPA	calc_ALIGN_EXIST	Name Description	Existing Public Roadway Alignment Centerline	align_point_EXIST
XPR	calc_RW_EXIST	Name Description	Existing Previous R/W	rw_RW_EXIST_point
XR	calc_ALIGN_EXIST	Name Description	Existing Ramp Alignment	align_point_EXIST
XRA	calc_RW_EXIST	Name Description	Existing Conventional R/W (Fee or Easement)	rw_RW_EXIST_point
XS	calc_RW_EXIST	Name Description	Superseded Conventional R/W (Fee or Easement)	rw_RW_EXIST_point

Code	Style	Point Label Style	Format	Point Object Layer
XSL	calc_RW_EXIST	Name Description	Superceded R/W Access Control (Left)	rw_RW_EXIST_point
XSR	calc_RW_EXIST	Name Description	Superceded R/W Access Control (Right)	rw_RW_EXIST_point
XTE	calc_EASE_EXIST	Name Description	Existing Title Encumbrance	rw_EASE_EXIST_point
XU	calc_EASE_EXIST	Name Description	Existing Public Utility Easement (Sideline)	rw_EASE_EXIST_point
XUA	calc_EASE_EXIST	Name Description	Existing Public Utility Easement (Centerline)	rw_EASE_EXIST_point

Extended Point Properties

Two extended point properties are available for R/W mapping data when working with points, user-defined properties and point groups.

User-Defined Property Classifications

The following User-Defined Properties are in drawings created with the ***Ct_2016_RW_Mapping.dwt*** template.

- ***CgPoint.DTMAttribute*** - options for *ground* or *feature*. Used to indicate whether the point should be included in a surface (*ground*) or not (*feature*).
- ***Description (TSS or CAiCE)*** - TSS or CAiCE's Description created during TSS or Caltrans CAiCE XML import
- ***Comment (CAiCE)*** - CAiCE's Comment created during Caltrans CAiCE XML import

Point Groups

The following Point Groups are in drawings created with the ***Ct_2016_RW_Mapping.dwt*** template.

- ***_All Points***
 - All COGO and Survey Points in the drawing are automatically included in the group.
- ***CSAC Control Points***
 - All CSAC Points with Feature set as *Control monument* are added to this group when the Points are imported from Shape files.
- ***CSAC Found Points***
 - All CSAC Points with Feature set as *Found point* are added to this group when the Points are imported from Shape files.
- ***_Hide All Points***
 - Includes all Points in the *_All Points*, Point Group. Used to temporarily set all Point and Point Label Styles to no display.

Extended Parcel Properties

User-Defined Property Classifications

The User-defined Property Classifications (UDP) for Parcels are used to uniquely identify the Parcels and sub-parcels, including the parcel number, sub-parcel number, title code, grantor, remarks, area type (e.g. Total, Required, Underlying Fee, Excess, or Remainder) and recording information. The UDP's are important in the preparation of the vestee block, they must be filled in correctly.

Note, a comma delimited CSV file is used to compile the UDP's during the preparation of the vestee block. Since commas separate information in a CSV file, commas **must not** be used in any of the Parcel UDP's. If a comma is required in any of the fields of the vestee block, then it can be added in the Excel spreadsheet after the CSV file is loaded and formatted.

The following UDP's for Parcels are in drawings created with the ***Ct_2016_RW_Mapping.dwt*** template.

- **APN** (optional): Assessor's Parcel Number - this can be labeled in the drawing, but it is not included in the Vestee Block.
- **Area Type**: Indicates the type of area that the parcel represents. Use one of the following options, *Do not use*, *Total*, *Required*, *Required UF*, *Excess*, *Excess UF*, or *Remainder*.
(Use ***Do not use*** if the Parcel is extraneous)
- **General Notes** (optional): General information about the Parcel - this can be labeled in the drawing, but it is not included in the Vestee Block.
- **Grantor**: Indicates the Grantor information. Only the first 27 characters will be used in the Vestee Block.
- **Indeterminate Area**: Indicates whether the entire area of ownership will be calculated. Use **Yes** if the Parcel is only partially calculated and the area should not be used for the overall area. The area will be labeled as *LARGE* in the vestee block.
- **Parcel Tax ID**: Represents the parent Caltrans Parcel number
(Use **999999** if the Parcel is extraneous)
- **Recording Date**: Indicates the recording date.
- **Recording Document #**: Indicates the recording document number.
- **Recording Type**: Indicates the recording type. Use one of the following options, *GD – Grant deed*, *ED – Easement deed*, *QC – Quitclaim*, *DD – Director's deed*,

DE – Director’s easement deed, DK – Director’s quitclaim deed, FOC – Final order of condemnation, HE – Highway easement deed, REL – Relinquishment, VAC – Vacation, JUA – Joint use agreement, CCUA – Consent to common use agreement, or No Code.

- **Remarks** (optional): Only the first 32 characters will be used in the Vestee Block.
- **Sub Parcel #**: Represents the Caltrans sub-Parcel number. All parcels that should be placed on the same row of the vestee block must have the same sub parcel #.
- **Title Code**: Indicates the use of the area. Use one of the following options, *F-Fee, E - Easement, TCE – Temporary Construction Easement, T – Other Temporary Easement, O - Other, or A – Access Rights Only.*

Will underlying fee be acquired?: Indicates whether underlying fee will be acquired.

CSAC Import SHP Survey Data Settings

The Shape file data is imported and stored in the drawing based on the settings defined in the **Import SHP Survey Data Settings**. The settings contain instructions to interpret the Shape file attributes and control how the COGO Points, AutoCAD Points, Feature Lines, Polylines, and 3D Polylines will be configured during the import process.

The **CSAC FCL files from TBC** settings option is pre-defined for the CSAC Shape files and is stored in the Civil 3D 2016 template, **Ct_2016_RW_Mapping.dwt**. The Caltrans SSHPI Line and Point settings files, *Ct-Survey_Data-Feature_Lines.XML* and *Ct-Survey_Data-Points.XML*, determine how the Lines and Points in the CSAC Shape files will be stored when they are imported into a Civil 3D drawing. Additional configuration of the settings is NOT required when the Caltrans CSAC FCL is used.

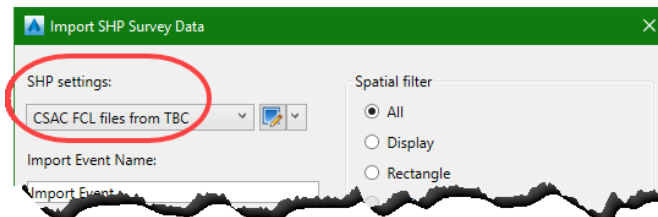


Figure 1 - Import SHP Survey Data

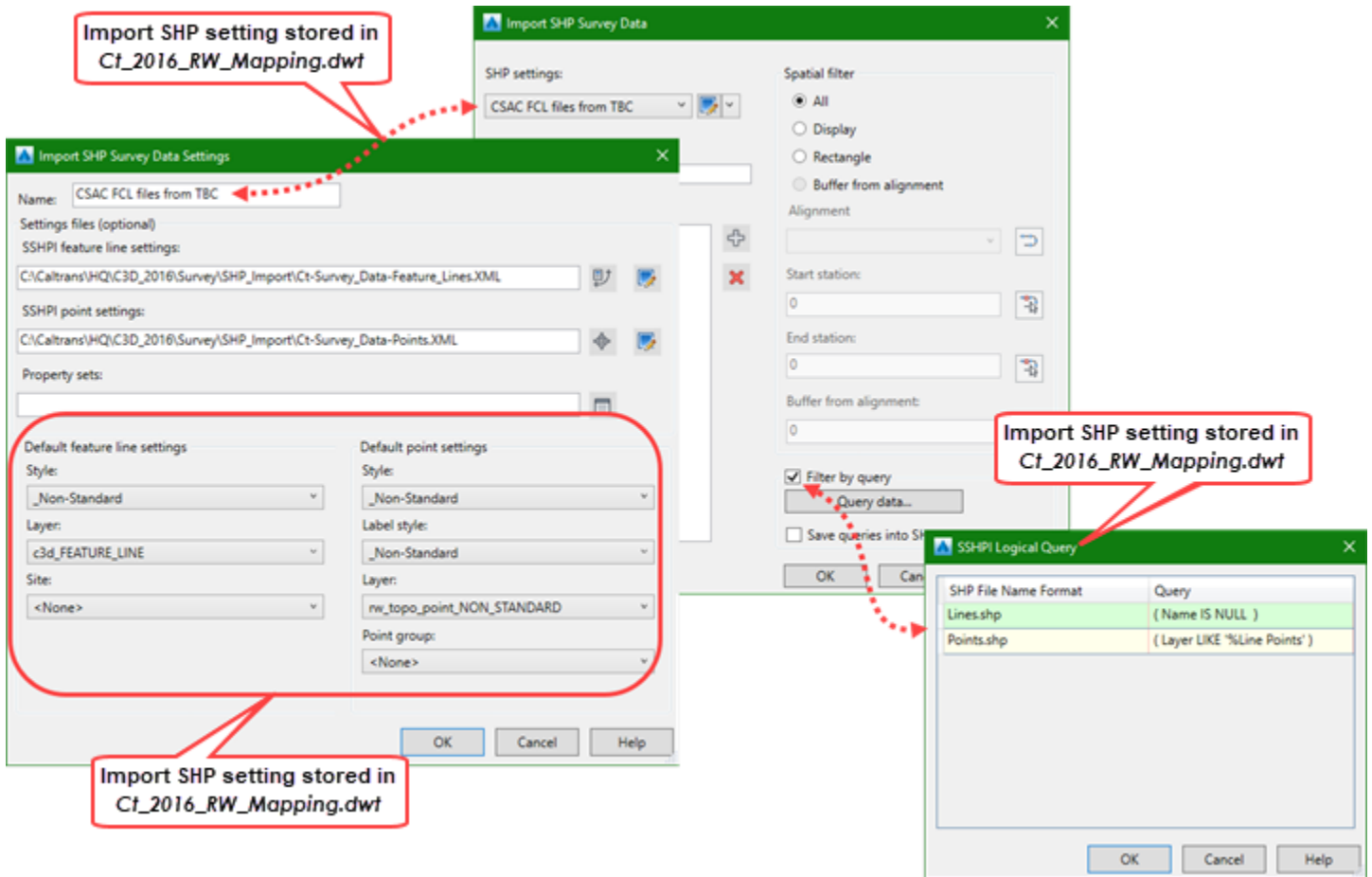


Figure 2 – Import SHP Survey Data

Non-standard objects

The **CSAC FCL files from TBC** settings includes options for Feature Lines and COGO Points that do not match any of the instructions provided in the Caltrans settings files.

For example, if a CSAC Attribute field is *Required*, such as **DTM_Type**, and the field is blank then the data will be imported with a non-standard style.

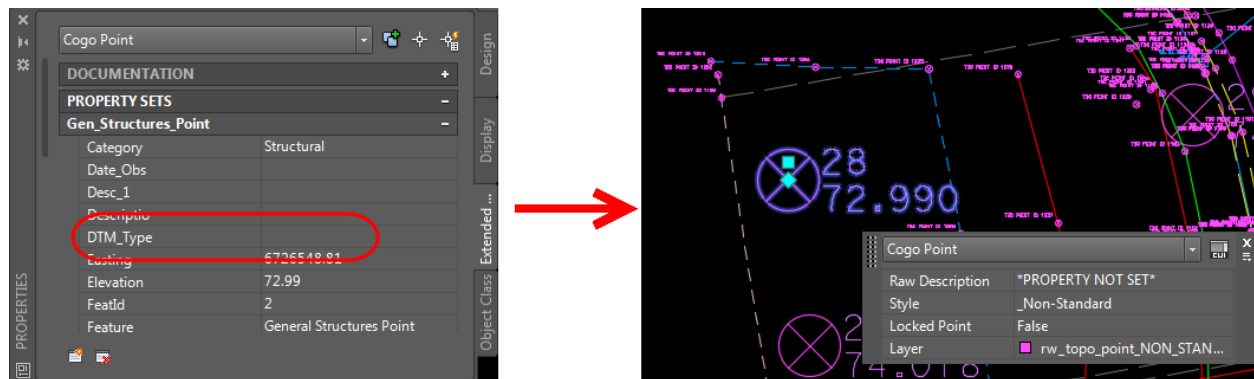


Figure 3 – Non standard style

Another situation where the data may not match the instructions provided in the Caltrans settings files is when a user creates their own Feature Code and an unexpected Shape file is imported.

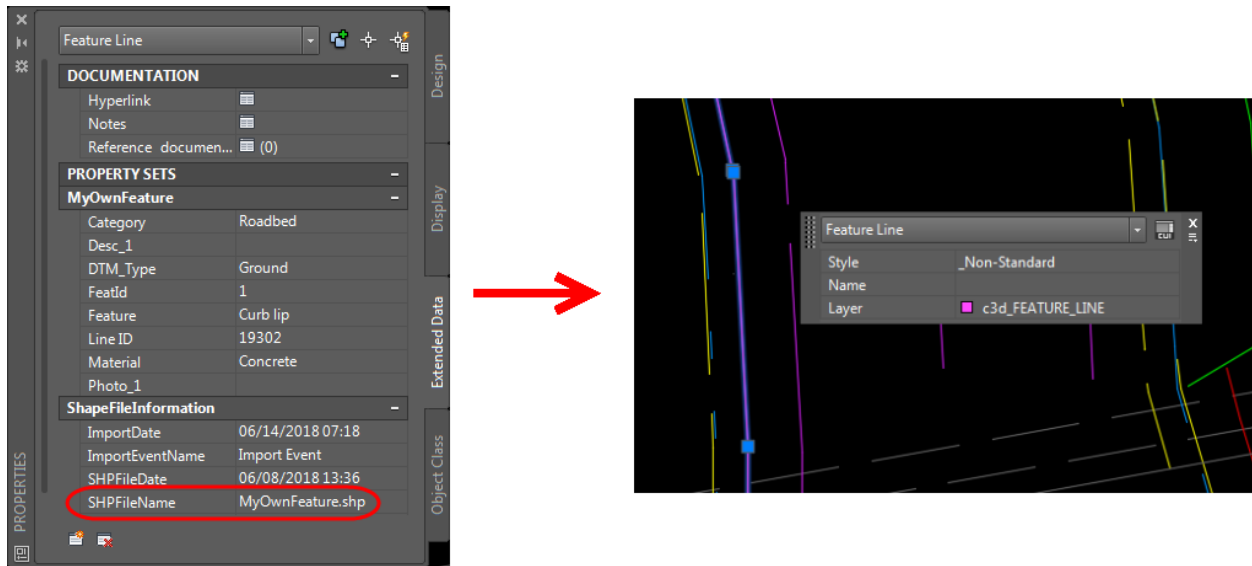


Figure 4 – Non standard featureline style

Filter by query

The **Filter by query** is used to include or exclude features from specific Shape files based on queries during import.

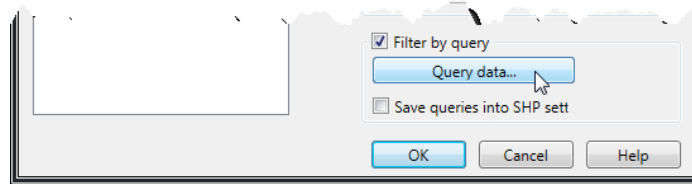


Figure 5 – Filtering features by query

TBC creates two separate project Shape files (*Lines.shp* & *Points.shp*) that would create duplicate features if imported into Civil 3D without queries. Queries are used to exclude some of these duplicate objects during import. One query is used to exclude all features in the ***Lines.shp*** file, to avoid duplications with the other linear Shape files. Another query is included to only import the Points used to create linework in TBC, *Line Points*, in the ***Points.shp*** file. These queries are pre-defined in the ***CSAC FCL files from TBC*** settings.

SHP File Name Format	Query
Lines.shp	(Name IS NULL)
Points.shp	(Layer = 'Feature Line Points')

Figure 6 – Predefined query

CSAC Property Set Definitions

The drawing template contains Property Sets for every CSAC Feature Attribute.

Property Set Definition	Property Set
Associated Files	File_1 - File_2
Associated Images	Photo_1 - Photo_3
Attributes	Aspect
Attributes	Asset_ID
Attributes	Color
Attributes	Count
Attributes	Location
Attributes	Marker
Attributes	Material
Attributes	Post_Type
Attributes	Service
Attributes	Shape
Control Information	Accuracy
Control Information	County
Control Information	ID_Name
Control Information	Mon_Ties
Control Information	Post mile
Control Information	Record
Control Information	Route
Dimensions	Depth
Dimensions	Diameter
Dimensions	Height
Dimensions	Length
Dimensions	Lip_Width
Dimensions	Width
Feature	Category
Feature	Desc_1 - Desc_3
Feature	DTM_Type
Feature	Feature
Feature	Type
Line Points	FeatureCod

Property Set Definition	Property Set
	Name
Point Information	Easting
Point Information	Elevation
Point Information	IgnoreElev
Point Information	Northing
Point Information	PointID
ShapeFileInformation	VersionFXL
Surface Status	InSurface

CSAC SHP Palette Queries

The **SHP Palette** contains a tool, **SSHPI Drawing Query**, to define queries using COGO Point Properties, Feature Line Properties, Point UDP's, and/or Property Sets. The queries filter all objects in the active drawing or in an XREF, creating a list of the objects meeting the criteria in the SHP Palette.

The Civil 3D 2016 template, **Ct_2016_RW_Mapping.dwt**, contains pre-defined queries to filter objects based on the value assigned to DTM_Type to assist with surface creation and to filter objects that have images and/or documents attached.

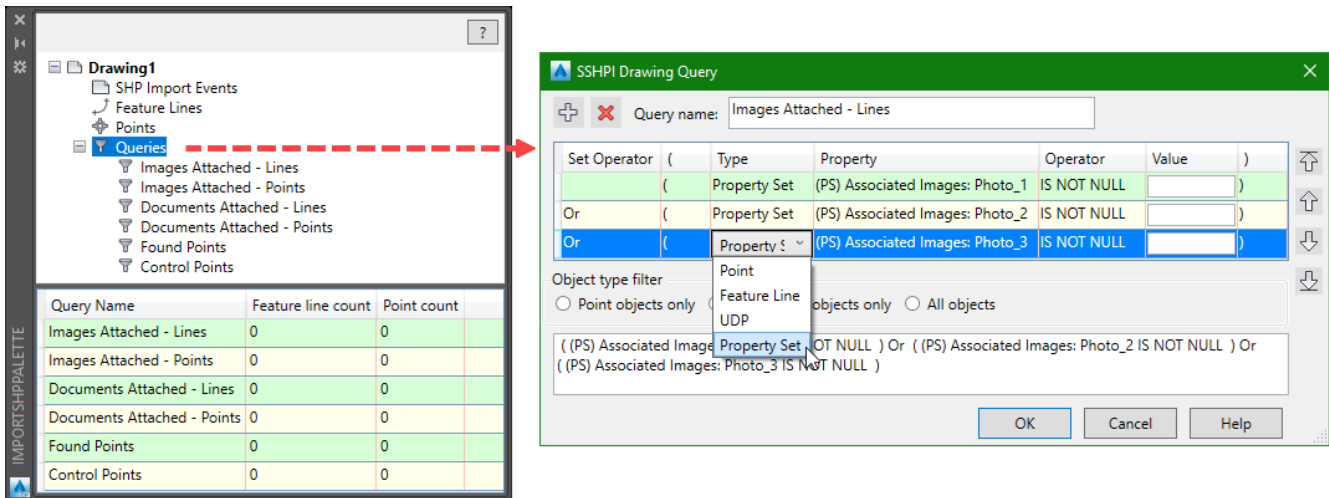


Figure 7 – SSHPI Drawing Query

The pre-defined queries include:

- Control Points
- Documents Attached – Lines
- Documents Attached – Points
- Found Points
- Images Attached – Lines
- Images Attached – Points

Label Styles

The following label styles are typically used in R/W and survey mapping products.

Point Label Styles

Name	Description
_No Display	Used to hide the label
Description	Labels the Point Description. The label can be dragged to the right or left but the line under the description is removed.
Name	Labels the Point Name
Name Description	Labels the Point Name & Description. The label can be dragged to the right or left but the line under the description is removed.
Number & Name Northing Easting Elevation Raw Description	Labels the Point Number, Name, Northing, Easting, Elevation & Raw Description. Use when labelling points for field search or stakeout. Points are exported using Point File Format NumberNameNED (pipe delimited)
Standard	Labels the Point Name, Elevation and the Raw Description
SU Points Label CTRL	Labels the name of Control points that are not included in Survey Figures.
Topo Points [Name]	Labels the name of topo points. The Point Style controls the layer of the label.

Parcel Area Label Styles

Name	Description
_All Parcel Data	Labels all of the Parcel UDP data
_None	Used to hide the label
Easement_Parcels Name (placed on non-plotting layer) (includes options for area in acres or sq ft)	Labels the Parcel name on the Easement_Parcels Site layer
Existing_Parcels Name (placed on non-plotting layer) (includes options for area in acres or sq ft)	Labels the Parcel name on the Existing_Parcels Site layer

Name	Description
Parcel_Annotation Name (placed on non-plotting layer) (includes options for area in acres or sq ft)	Labels the Parcel name on the Parcel_Annotation Site layer
Proposed_Parcels Name (placed on non-plotting layer) (includes options for area in acres or sq ft)	Labels the Parcel name on the Proposed_Parcels Site layer
Standard	Labels the Parcel name and area

Annotation Label Styles

Annotation Labels are associated to Civil 3D objects as well as Lines, Arcs, and Polylines. They are typically placed after an object is created and are independent objects.

The Line and Curve Label styles for the relevant Civil 3D and AutoCAD objects are grouped within a parent style containing the possible object components that will be displayed. The child styles are based on the parent and only display the components specified in the label name. The child styles should be selected when placing a label.

Many of the styles are dynamic, changing the label based upon the length of the line or curve. For example, the label will change from bearing & distance along the line to bearing over distance if the length of the line is too short. When the length is too short for either label, a warning symbol will be displayed that can be dragged out to display a stacked label or can be changed to a different label style.

The styles also include optional styles to place the labels at different offsets and to force the label to display specific components of the line or curve.

Label style names indicate the type of object they should be used to label because they may exhibit undesired text heights when used with the wrong object.

- **_2_POINTS*** - should only be used to annotate the bearing &/or distance between two points
- **_PLINE*** - should only be used to annotate Polylines, Lines and Curves
- **_ALIGN*** - should only be used to annotate Alignments
- **_PARCEL*** - should only be used to annotate Parcels.

The names also indicate the type of label and information about the placement of the label. For example,

- `_PLINE [.05 offset]` – Bearing - labels the bearing at an offset $\frac{1}{2}$ the text height above the line
- `_PLINE [.20 offset]` – Distance - labels the distance at an offset 2 times the text height above the line

General Label Styles

General Line Label Styles

Name	Description
_2_POINTS - Bearing & Distance (only for use with the Label type Line between 2 points)	Labels Bearing & Distance between 2 points. This type of label is NOT capable of changing the display based on the distance between the 2 points.
_2_POINTS - Bearing & Distance with crows feet (only for use with the Label type Line between 2 points)	Labels Bearing, Distance & the crows feet between 2 points. This type of label is NOT capable of changing the display based on the distance between the 2 points.
_BLOCK - Bearing & Distance (do not use with the Add Labels tool, only for use by block Label - Bearing_Distance between Points)	Labels Bearing, Distance & the crows feet along an undisplayed line with the block, Label - Bearing_Distance between Points
_PLINE - Bearing & Distance	Labels Bearing & Distance along the line, if the line is too short the bearing is labeled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Bearing & Distance with crows feet	Labels Bearing, Distance & the crows feet along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Crows Foot	Places the Crows Foot symbol at the beginning & the end of the segment.
_PLINE - Labels	Labels text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the tangent of a line or polylline

Name	Description
_PLINE - Symbol	Places the ANGLPT symbol at the start or end of the segment.
_PLINE - Table TAG	Labels the line with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_PLINE [.35 offset] Bearing & Distance options	Labels Bearing, Distance with an option for the crows feet along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
PLINE - Bearing & Distance [dual units]	Labels Bearing & dual units Distance along the line.
PLINE - Bearing & Distance with crows feet [dual units]	Labels Bearing, dual units Distance & the crows feet along the line.
Standard	Labels Bearing & Distance along the line, if the line is too short the bearing is labeled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

General Curve Label Styles

Name	Description
_PLINE - Crows Foot	Places the Crows Foot symbol at the beginning & ending of the segment.
_PLINE - Labels	Labels text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the curve of an arc or polyline
_PLINE - Radial Bearing	Radial bearing from the Radius Point to the BC or EC
_PLINE - Radius -- Delta -- Length	Radius, Delta and Length on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Radius -- Delta -- Length with crows feet	Radius, Delta, Length & crows feet on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Symbol	Places the ANGLPT symbol at the end of the segment.

Name	Description
_PLINE - Table TAG	Labels the curve with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_PLINE [.35 offset] - Radius -- Delta -- Length options	Radius, Delta, Length & crows feet on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
PLINE - Radius -- Delta - Length [dual units]	Radius, Delta and Length on one side of the curve with dual units.
PLINE - Radius -- Delta - Length with crows feet [dual units]	Radius, Delta, Length & crows feet on one side of the curve.
Standard	Radius, Delta and Length on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

General Note Label Styles

General Note labels are versatile, non-object-specific labels that can be placed anywhere in the drawing. These should be used when a specific location needs to be labelled, e.g. the station & offset relative to an alignment. AutoCAD annotation is typically used when the label is for descriptive text.

Name	Description
Northing & Easting (includes options for the dragging label to the left or right)	Labels the coordinates of the label location. The label can be dragged to the right or left but the line under the Northing disappears.
Parcel Data - all data	Labels all of the Parcel information and UDP's
Parcel Data - Notes Grantor APN	Labels the General Notes, Grantor & APN of the Parcel
Parcel Data - Vestee Block data	Labels the vestee block fields of the Parcel
Slanted Text	Used for notes or text with the slanted R/W font. The label can be dragged to the right or left and no line is drawn under the text.
Standard	Used for notes or text with the standard font. The label can be dragged to the right or left and no line is drawn under the text.
Standard Text	Used for notes or text with the standard font. The label can be dragged to the right or left and no line is drawn under the text.
Station & Alignment (includes options for the dragging label to the left or right)	Labels the station & alignment name of the label location after the user selects an alignment. The alignment can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the station disappears.
Station & Alignment - 2 Alignments (includes options for the dragging label to the left or right)	Labels the station & alignment name of the label location after the user selects 2 alignments. The alignments can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the stations disappear.

Name	Description
Station & Offset (includes options for the dragging label to the left or right)	Labels the station, offset (LT/RT), & alignment name of the label location after the user selects an alignment. The alignment can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the station & offset disappears.
Station only (includes options for the dragging label to the left or right)	Labels the station of the label location after the user selects an alignment. The alignment can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the station disappears.
XREF Point Name Description (includes options for the dragging label to the left or right)	To be used when labeling points that reside in an XREF

Alignment Label Styles

Alignment Line Label Styles

Name	Description
_ALIGN - Bearing & Distance	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Bearing & Distance with crows feet	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Crows Foot	Places the Crows Foot symbol at the beginning & the end of the segment.
_ALIGN - Labels	Includes options to label the alignment Name or text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the tangent of an alignment.
_ALIGN - Table TAG	Labels the alignment with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_ALIGN [.35 offset] - Bearing & Distance options	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
ALIGN - Bearing & Distance [dual units]	Labels Bearing & Distance along the line.
ALIGN - Bearing & Distance with crows feet [dual units]	Labels Bearing, Distance & crows feet along the line.
Standard	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

Alignment Curve Label Styles

Name	Description
_ALIGN - Bearing & Distance	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Bearing & Distance with crows feet	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Crows Foot	Places the Crows Foot symbol at the beginning & the end of the segment.
_ALIGN - Labels	Includes options to label the alignment Name or text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the tangent of an alignment.
_ALIGN - Table TAG	Labels the alignment with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_ALIGN [.35 offset] - Bearing & Distance options	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
ALIGN - Bearing & Distance [dual units]	Labels Bearing & Distance along the line.
ALIGN - Bearing & Distance with crows feet [dual units]	Labels Bearing, Distance & crows feet along the line.
Standard	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

Alignment Station Offset Label Styles

Name	Description
Standard	Labels the station, offset (LT/RT), & alignment name of the label location after the user selects an alignment. The alignment cannot be changed after the label is in place. The label can be dragged to the right or left but the line under the station & offset disappears.
Station & Offset (includes options for the dragging label to the left or right)	Labels the station, offset (LT/RT), & alignment name of the label location after the user selects an alignment. The alignment cannot be changed after the label is in place. The label can be dragged to the right or left but the line under the station & offset disappears.

Alignment Label Sets

Alignment Label Sets contain a set of label styles to display alignment stationing, ticks, and the markers placed at the alignment vertices.

Name	Description
_Geometry Point Stations Only	Non-standard style used for analysis when the major & minor stations and ticks get in the way. The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno.
_Non-plotting Stationing	The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno_no_plot.
_None	Used to hide the labels
Access Control ticks by style - Existing LT	Used along with alignments using Existing Access Control LT (ticks by style). Places a tick to the left at regular intervals along an alignment to depict access control on layer rw_RW_EXIST_Access_Left_Ticks. The Interval must be changed by the user when the map scale is changed. The default interval is set for 1"=50'.
Access Control ticks by style - Existing RT	Used along with alignments using Existing Access Control RT (ticks by style). Places a tick to the right at regular intervals along an alignment to depict access control on layer rw_RW_EXIST_Access_Right_Ticks. The Interval must be changed by the user when the map scale is changed. The default interval is set for 1"=50'.
Access Control ticks by style - Proposed LT	Used along with alignments using Proposed Access Control LT (ticks by style). Places a tick to the left at regular intervals along an alignment to depict access control on layer rw_RW_PROPOSED_Access_Left_Ticks. The Interval must be changed by the user when the map scale is changed. The default interval is set for 1"=50'.
Access Control ticks by style - Proposed RT	Used along with alignments using Proposed Access Control RT (ticks by style). Places a tick to the right at regular intervals along an alignment to depict access control on layer rw_RW_PROPOSED_Access_Right_Ticks. The Interval must be changed by the user when the map scale is changed. The default interval is set for 1"=50'.

Name	Description
Angle Point - Existing Easement	Places the cell, ANGLPT, at all the major geometry locations along an existing easement alignment on layer rw_EASE_EXIST_anno.
Angle Point - Existing RW	Places the cell, ANGLPT, at all the major geometry locations along an existing R/W alignment on layer rw_RW_EXIST_anno.
Angle Point - Proposed Easement	Places the cell, ANGLPT, at all of the major geometry locations along a new easement alignment on layer rw_EASE_PROPOSED_anno.
Angle Point - Proposed RW	Places the cell, ANGLPT, at all of the major geometry locations along a new R/W alignment on layer rw_RW_PROPOSED_anno.
Angle Point - Proposed Temporary Easement	Places the cell, ANGLPT, at all of the major geometry locations along a new temporary easement alignment on layer rw_EASE_PROPOSED_TEMP_anno.
Standard	The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno.
Stationing - Alignment [color]	The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno.
Stationing - Existing Frontage	The color of the Alignment Labels is 215 placed on layer align_anno_EXIST.
Stationing - Existing Mainline	The color of the Alignment Labels is 217 placed on layer align_anno_EXIST.
Stationing - Existing Public Roadway	The color of the Alignment Labels is 215 placed on layer align_anno_EXIST.
Stationing - Existing Ramp	The color of the Alignment Labels is 216 placed on layer align_anno_EXIST.
Stationing - Proposed Frontage	The color of the Alignment Labels is 220 placed on layer align_anno_PROPOSED.
Stationing - Proposed Mainline	The color of the Alignment Labels is 218 placed on layer align_anno_PROPOSED.
Stationing - Proposed Ramp	The color of the Alignment Labels is 219 placed on layer align_anno_PROPOSED.

Alignment Major Station

The Alignment Label Sets reference most of the Alignment Station labels except for the following access control tick Major Station labels. These labels are intended for use when an alignment drawing using one of the access control ticks by style alignment styles i.e., Access Control ticks by style - Existing LT, are displayed in details or map sheets that use different scales.

When a Viewport is created for details where the access control ticks are displayed and the Alignment is using one of the access control (ticks by style) styles, the access control tick style for the associated detail scale must also be displayed in the Model space of the drawing containing the Alignment and the associated detail layers must be VP frozen and thawed in the Viewports of the mapsheet Layouts. The layers can be VP frozen and thawed manually while in the Model space of the detail's Viewport using the Layer Manager.

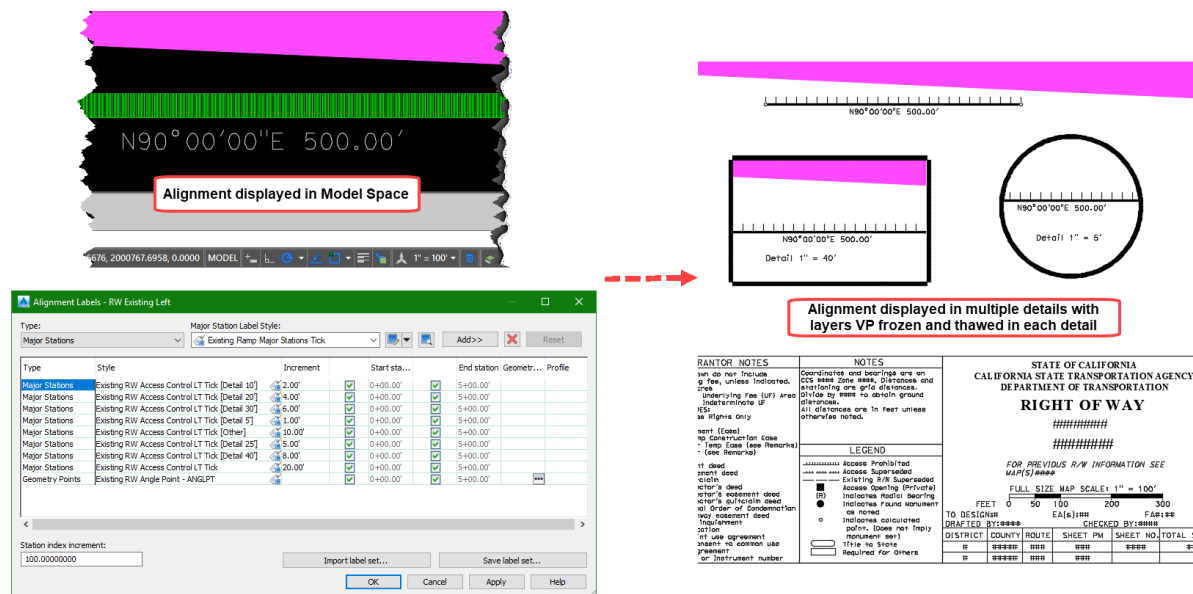


Figure 8 Right of way Alignment style and display information

The table on the following page lists label styles that should be used along with Access Control ticks by style - Existing LT. Similar label styles are available for Access Control ticks by style - Existing RT, Access Control ticks by style - Proposed LT, and Access Control ticks by style - Proposed RT.

Name	Description
Access Control ticks by style - Existing LT [Detail 5' - Interval 1']	<p>The Label Set Access Control ticks by style - Existing LT is used on alignments that are displayed in the basemap. This style is added when the alignment is displayed in a 1" = 5' map scale detail.</p> <p>Places additional ticks to the left at different intervals on layer rw_RW_EXIST_Access_Left_Ticks_Detail-5. The Interval must be set to 1'.</p>
Access Control ticks by style - Existing LT [Detail 10' - Interval 2']	<p>The Label Set Access Control ticks by style - Existing LT is used on alignments that are displayed in the basemap. This style is added when the alignment is displayed in a 1" = 5' map scale detail.</p> <p>Places additional ticks to the left at different intervals on layer rw_RW_EXIST_Access_Left_Ticks_Detail-10. The Interval must be set to 2'.</p>
Access Control ticks by style - Existing LT [Detail 20' - Interval 4']	<p>The Label Set Access Control ticks by style - Existing LT is used on alignments that are displayed in the basemap. This style is added when the alignment is displayed in a 1" = 5' map scale detail.</p> <p>Places additional ticks to the left at different intervals on layer rw_RW_EXIST_Access_Left_Ticks_Detail-20. The Interval must be set to 4'.</p>
Access Control ticks by style - Existing LT [Detail 25' - Interval 5']	<p>The Label Set Access Control ticks by style - Existing LT is used on alignments that are displayed in the basemap. This style is added when the alignment is displayed in a 1" = 5' map scale detail.</p> <p>Places additional ticks to the left at different intervals on layer rw_RW_EXIST_Access_Left_Ticks_Detail-25. The Interval must be set to 5'.</p>
Access Control ticks by style - Existing LT [Detail 30' - Interval 6']	<p>The Label Set Access Control ticks by style - Existing LT is used on alignments that are displayed in the basemap. This style is added when the alignment is displayed in a 1" = 5' map scale detail.</p> <p>Places additional ticks to the left at different intervals on layer rw_RW_EXIST_Access_Left_Ticks_Detail-30. The Interval must be set to 6'.</p>

Name	Description
<p>Access Control ticks by style - Existing LT [Detail 40' - Interval 8']</p>	<p>The Label Set Access Control ticks by style - Existing LT is used on alignments that are displayed in the basemap. This style is added when the alignment is displayed in a 1" = 5' map scale detail. Places additional ticks to the left at different intervals on layer rw_RW_EXIST_Access_Left_Ticks_Detail-40. The Interval must be set to 8'.</p>
<p>Access Control ticks by style - Existing LT [Other]</p>	<p>The Label Set Access Control ticks by style - Existing LT is used on alignments that are displayed in the basemap. This style is added when the alignment is displayed in a 1" = 5' map scale detail. Places additional ticks to the left at different intervals on layer rw_RW_EXIST_Access_Left_Ticks_Other. The Interval must be changed by the user when based on the detail the map scale.</p>

Parcel Label Styles

Parcel Line Label Styles

Name	Description
_PARCEL - Bearing & Distance	Labels Bearing & Distance along the parcel segment, if the line is too short the bearing is labeled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PARCEL - Bearing & Distance with crows feet	Labels Bearing, Distance & crows feet along the line, if the line is too short the bearing is labeled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PARCEL - Crows Foot	Places the Crows Foot symbol at the beginning & ending of the segment.
_PARCEL - Table TAG	Labels the line with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_PARCEL [.35 offset] - Bearing & Distance options	Labels Bearing, Distance & crows feet along the line, if the line is too short the bearing is labeled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
PARCEL - Bearing & Distance [dual units]	Labels Bearing & Distance along the parcel segment.
PARCEL - Bearing & Distance with crows feet [dual units]	Labels Bearing, Distance & crows feet along the line.
Standard	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance when in LABEL mode. The Table tag is displayed when in TAG mode.

Parcel Curve Label Styles

Name	Description
_PARCEL - Crows Foot	Places the Crows Foot symbol at the beginning & ending of the segment.
_PARCEL - Radius -- Delta -- Length	Radius, Delta & Length on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PARCEL - Radius -- Delta -- Length with crows feet	Radius, Delta, Length & crows feet on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PARCEL - Table TAG	Labels the curve with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_PARCEL [.35 offset] - Radius -- Delta -- Length options	Radius, Delta, Length & crows feet on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
PARCEL - Radius -- Delta -- Length [dual units]	Radius, Delta & Length on one side of the curve.
PARCEL - Radius -- Delta -- Length with crows feet [dual units]	Radius, Delta, Length & crows feet on one side of the curve.
Standard	Radius, Delta, and Length on one side of the curve when in LABEL mode and Table tag when in TAG mode.

Page Setups

A page setup defines the default printing configuration including the printer, paper size, page layout, plot style, etc. of the selected Model or Sheet layout. A default plot style table is referenced in each page setup, but it can be changed at any time.

- **PDF - 17 x 11** - creates a landscape 11" x 17" sheet in a PDF file with the *BW.STB* attached.
- **PDF - 11 x 17** - creates a portrait 11" x 17" sheet in a PDF file with the *BW.STB* attached.
- **PDF - 11 x 8.5** - creates a landscape 8.5" x 11" sheet in a PDF file with the *BW.STB* attached.
- **PDF - 8.5 x 11** - creates a portrait 8.5" x 11" sheet in a PDF file with the *BW.STB* attached.
- **PDF 17 x 11 - half size - RW_All-Color.STB** - creates a landscape 11" x 17" sheet in a PDF file with the *RW_All-Color.STB* attached.
- **PDF 17 x 11 - half size - RW_Parcels-Color_Lines-BW.STB** - creates a landscape 11" x 17" sheet in a PDF file with the *RW_Parcels-Color_Lines-BW.STB* attached.
- **PDF 17 x 11 - half size - RW_Parcels-GreyScale_Lines-BW.STB** - creates a landscape 11" x 17" sheet in a PDF file with the *RW_Parcels-GreyScale_Lines-BW.STB* attached.
- **PDF 18 x 26 - full size - BW.STB** - creates a portrait 18" x 26" sheet in a PDF file with the *BW.STB* attached.
- **PDF 26 x 18 - full size - BW.STB** - creates a landscape 18" x 26" sheet in a PDF file with the *BW.STB* attached.
- **PDF 34 x 22 - full size - RW_All-Color.STB** - creates a landscape 22" x 34" sheet in a PDF file with the *RW_All-Color.STB* attached.
- **PDF 34 x 22 - full size - RW_Parcels-Color_Lines-BW.STB** - creates a landscape 22" x 34" sheet in a PDF file with the *RW_Parcels-Color_Lines-BW.STB* attached.
- **PDF 34 x 22 - full size - RW_Parcels-GreyScale_Lines-BW.STB** - creates a landscape 22" x 34" sheet in a PDF file with the *RW_Parcels-GreyScale_Lines-BW.STB* attached.
- **PDF 36 x 22 - Highway Map Book - RW_Parcels-Color_Lines-BW.STB** - creates a landscape 22" x 36" sheet in a PDF file with the *RW_Parcels-Color_Lines-BW.STB* attached.

R/W FIGURE PREFIX DATABASE

The R/W Figure Prefix Database assigns the object style and object layer to survey figures and determines whether figures are created as breakline. As a point file or XML file is imported into the database, the system monitors the incoming data and when it encounters automatic linework with a known prefix, the correct style is applied to the figure.

R/W map features are only imported into a Survey Database when transferring data from a CAiCE project to Civil 3D. A Figure Prefix Database is available to remap the CAiCE feature coded linework to the appropriate layer. The resulting Survey Figures must be exploded and stored as one of the elements specified in the Features & Object Styles table.

The **Caltrans RW Mapping XML - 2016** Figure Prefix Database is only used when transferring R/W map data from a CAiCE project into a Civil 3D 2016 Survey Database. (Note, The **Caltrans Topo TSS** Figure Prefix Database should only be used when importing data into a Civil 3D 2012 Survey Database.)

Name	Layer	Style
ABAND	rw_MISC	RW ABAND
CCUA	rw_MISC_CCUA	RW CCUA
CCUAA	rw_MISC_CCUA_align	RW CCUAA
FDLINE-F	topo_su_ctrl_LNWK	SU FDLINE
FDLINE-G	topo_su_ctrl_LNWK	SU FDLINE
FDLN-F	topo_su_ctrl_LNWK	SU FDLINE
FDLN-G	topo_su_ctrl_LNWK	SU FDLINE
FLA	rw_MISC_FLA	RW FLA
JUA	rw_MISC_JUA	RW JUA
JUAA	rw_MISC_JUA_align	RW JUAA
LF	rw_LANDNET_Fed_Part	RW LF
LI	rw_LANDNET_Interior_Lot	RW LI
LL	rw_LANDNET_Govt_Lot_Sub_Section	RW LL
LP	rw_LANDNET_Parcels_Ownership	RW LP
LPB	rw_LANDNET_Public_Boundary	RW LPB
LQ	rw_LANDNET_Qtr_Section_Tract	RW LQ

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Name	Layer	Style
LS	rw_LANDNET_Section_Rancho	RW LS
LSB	rw_LANDNET_Subdiv_Boundary	RW LSB
LT	rw_LANDNET_Town_Range	RW LT
NA	align_MAIN_PROPOSED	RW NA
NCL	rw_RW_PROPOSED	RW NCL
NCR	rw_RW_PROPOSED	RW NCR
NE	rw_EASE_PROPOSED	RW NE
NEA	rw_EASE_PROPOSED_align	RW NEA
NFA	align_FRONTAGE_PROPOSED	RW NFA
NR	rw_RW_PROPOSED	RW NR
NRA	align_RAMP_PROPOSED	RW NRA
REF	rw_MISC	RW REF
REL	rw_RW_EXIST_Relinquished	RW REL
RELL	rw_RW_EXIST_Relinquished	RW RELL
RELR	rw_RW_EXIST_Relinquished	RW RELR
RET	rw_retracement	RW RET
TCE	rw_EASE_PROPOSED_TEMP	RW TCE
TDE	rw_EASE_PROPOSED_TEMP	RW TDE
TE	rw_EASE_PROPOSED_TEMP	RW TE
TSE	rw_EASE_PROPOSED_TEMP	RW TSE
VAC	rw_MISC	RW VAC
XA	align_MAIN_EXIST	RW XA
XCL	rw_RW_EXIST	RW XCL
XCR	rw_RW_EXIST	RW XCR
XE	rw_EASE_EXIST	RW XE
XEA	rw_EASE_EXIST_align	RW XEA
XFA	align_FRONTAGE_EXIST	RW XFA
XPA	align_LOCAL-ST_EXIST	RW XPA
XPR	rw_RW_EXIST	RW XPR
XR	rw_RW_EXIST	RW XR
XRA	align_RAMP_EXIST	RW XRA
XS	rw_RW_EXIST_Superceded	RW XS
XSL	rw_RW_EXIST_Superceded	RW XSL

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Name	Layer	Style
XSR	rw_RW_EXIST_Superceded	RW XSR
XTE	rw_EASE_EXIST	RW XTE
XU	rw_EASE_EXIST	RW XU
XUA	rw_EASE_EXIST_align	RW XUA

R/W MAP SHEET BORDERS

Nine templates are available to create the different R/W & Surveys map sheet borders within a layout. The map sheet layouts can be created one at a time from within a drawing layout, with View Frames or with the Sheet Set Manager.

All the borders contain Attributes and blocks to label the map type, map scale, and project related information. The Attributes can be modified using a Sheet Set or manually.

Layers are used to separate elements typically plotted on different maps. For example, Appraisal Map specific data is on layer ***rw_map_anno_Appraisal_Map*** while Record Map specific data is on layer ***rw_map_anno_Record_Map***, and the cut lines for 22" x 34" maps are on layer ***border_rw_22x34_Cut_Lines*** while the cut lines for 22" x 36" maps are on layer ***border_rw_22x36_Cut_Lines***.

Unless noted otherwise, the templates contain borders with the following pre-defined map annotation scales;

- 1" x 5'
- 1" x 10'
- 1" x 20'
- 1" x 25'
- 1" x 30'
- 1" x 40'
- 1" x 50'
- 1" x 60'
- 1" x 100'
- 1" x 200'
- 1" x 300'
- 1" x 400'
- 1" x 500'
- 1" x 600'
- 1" x 1000'
- 1" x 2000'

The border templates also contain pre-defined detail masks, making it easier to work with details in the Layout. The pre-defined masks are small pockets in the main Viewport of the R/W map borders that can be used to hide data behind a detail's viewport. The pre-defined masks are on a non-plotting layer and their linework will not appear on the final plot.

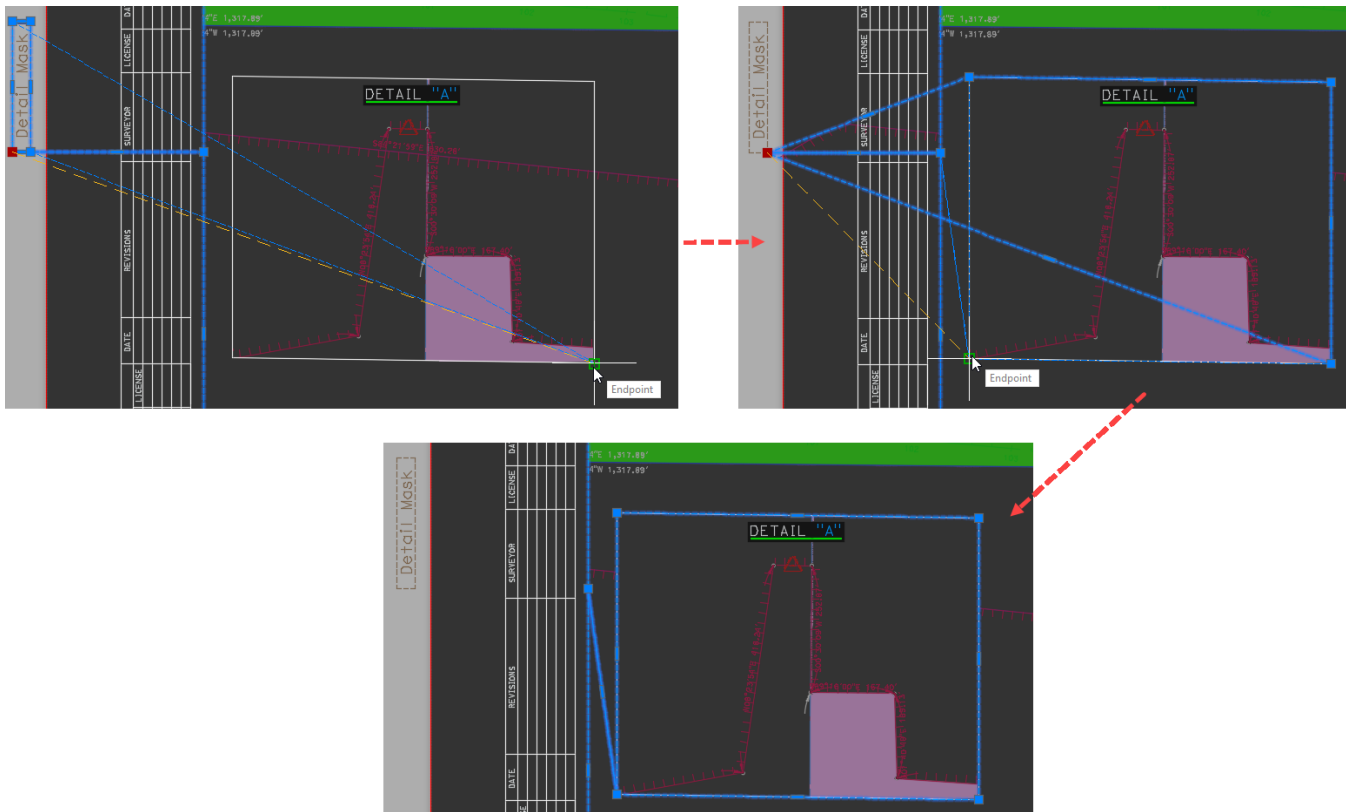


Figure 9 – Right of Way Map sheet border templates – mask information

The following map sheet border templates are available;

- ***8.5x11-Horizontal_and_Vertical_Map.dwt*** – this template is used to create 8 ½” x 11” map sheet borders with options for either portrait or landscape display.
 - A single map annotation scale is provided. After the border is created, the scale bar and the Viewport’s Annotation scale must be set to the desired scale. An option for “No Scale” is provided on the scale bar.
 - Map Types using this border include;

▪ Deed Map	▪ Joint Use Agreement Map
▪ Director’s Deed Map	▪ Lease Area Map
▪ Exhibit Map	▪ Protection Map
▪ Freeway Lease Area	▪ Resolution of Necessity Map
▪ Hardship Map	▪ Transfer of Jurisdiction Map
- ***Appraisal_Record_Map.dwt*** - this template is used to create landscape 34” x 22” Appraisal and Record map sheet borders. The template contains an AutoCAD table configured for the vestee block data.
 - A Page Setup option is included to plot the map sheet to 36” x 22” for the Highway Map Book.

- ***Appraisal_Record_Map_Index.dwt*** - this template is used to create landscape 34" x 22" Appraisal and Record Index map sheet borders.
 - A single map annotation scale is provided. After the border is created, the scale bar and the Viewport's Annotation scale must be set to the desired scale. An option for "No Scale" is provided on the scale bar.
 - A Page Setup option is included to plot the map sheet to 36" x 22" for the Highway Map Book.
- ***Federal_Application_Map.dwt*** - this template is used to create landscape 34" x 22" Federal Application map sheet borders.
 - A Page Setup option is included to plot the map sheet to 36" x 22" for the Highway Map Book.
- ***Federal_Application_Map_Index.dwt*** - this template is used to create landscape 34" x 22" Federal Application Index map sheet borders.
 - A single map annotation scale is provided. After the border is created, the scale bar and the Viewport's Annotation scale must be set to the desired scale. An option for "No Scale" is provided on the scale bar.
 - A Page Setup option is included to plot the map sheet to 36" x 22" for the Highway Map Book.
- ***Record_of_Survey-Horizontal.dwt*** - this template is used to create landscape 18" x 26" Record of Survey map sheet borders.
- ***Record_of_Survey-Vertical.dwt*** - this template is used to create portrait 18" x 26" Record of Survey map sheet borders.
- ***Relinquishment_Vacation_Map.dwt*** - this template is used to create landscape 34" x 22" Relinquishment or Vacation map sheet borders.
 - A Page Setup option is included to plot the map sheet to 36" x 22" for the Highway Map Book.
- ***State_Application_Map.dwt*** - this template is used to create landscape 34" x 22" State Application map sheet borders.
 - A Page Setup option is included to plot the map sheet to 36" x 22" for the Highway Map Book.

R/W BLOCK LIBRARY

The R/W Block library, ***RW_SU_BlockLibrary.dwg***, contains the following types of Blocks;

- Parcel bubbles
- R/W & ROS map sheet symbols including; highway symbols, line break and line extension symbols, dart pointers, parcel hook, etc.
- R/W & ROS map sheet labels including; CITY OF labels, SECTION labels, etc.
- ROS statements including; Surveyor's Statement, Basis of Bearings, etc.
- Tables for manually entering line & curve data

Block Attribute Definitions and Action Parameters

Many of the blocks for the R/W & Survey mapping process contain attribute definitions and action parameters to assist with the map delineation.

- **Attribute Definition** – identified by the BLUE text that is modified with the Attribute Editor.
 - Blocks containing text defined as Attribute Definitions can be modified after they are placed in a drawing.

For example, the parcel bubble Blocks contain an Attribute Definition for the parcel number. After placing the Block, the parcel number can be entered into the Attribute Definition.

Note, Attribute Definitions in the R/W Blocks display BLUE in the drawing but the text plots BLACK.

- **Action Parameters**

Blocks containing Action Parameters can be manipulated after they are placed in a drawing. When a Block is selected, different grips identify the Action Parameters depending upon the action to be performed.

- **Visibility Parameters** – Identified with an upside-down triangle grip ▼ used to display or hide different features of the Block. For example, the fill color of a parcel bubble can be changed to the appropriate parcel color.
- **Linear Parameters** – Identified with a triangle grip pointing to the right ► used to lengthen or shorten the Block.
- **Rotation Parameters** – Identified with a circle grip ● used to rotate the Block.
- **Move Grip** – Identified with a square grip ■ used to move the Block.

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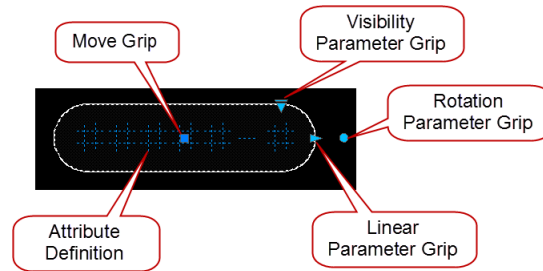


Figure 10 – Action Parameters

R/W SHEET SET TEMPLATE

A sheet set template, ***CT_RW_Master.dst***, can be used to create a sheet set to organize all the R/W & Survey map drawings and sheets for a project. The sheet set contains fields matching the attribute definitions included in the border sheets for the Appraisal and Record Map Sheets, Director's Deed Map Sheets, Relinquishment map Sheets, etc.

The following fields are in sheet sets created with the ***CT_RW_Master.dst*** template;

- Checked by
- County
- County (2nd)
- District
- District (2nd)
- Drafted by
- EA
- Exhibit Number
- FA#
- Grid Conversion
- ID
- Map Number
- Map Type
- Previous R/W Maps
- Project Datum CCS
- Project PM Limits
- Project PM Limits (2nd)
- Project Surveyor
- Project Zone
- Route
- Route (2nd)
- Sheet PM

- Sheet PM (2nd)
- To Design Date
- Total Number of Sheets

TOPOGRAPHIC DATA FILES

Two templates contain all the layers, styles, and page setups required to create drawings for processing and delivering different types of topo data,

Ct_2016_Topo_Surveys_MTLS.dwt and ***Ct_2016_Topo_Aerial_Photo.dwt***. Either template can be used to create the final *EG_Surface* and *EG_Linework_Points* drawings.

- ***Ct_2016_Topo_Surveys_MTLS.dwt*** – used to create drawings with Caltrans Data Collection (CTDC) and Caltrans Survey Asset Collection (CSAC) Survey data and Mobile Terrestrial Laser Scanning (MTLS) data.
- ***Ct_2016_Topo_Aerial_Photo.dwt*** - used to create drawings with aerial Light Detection and Ranging (LiDAR) scanned data and photogrammetric (photo) data.

TEMPLATE - CT_2016_TOPO_SURVEYS_MTLS.DWT

Features & Object Styles

Feature Groups

The following table identifies the CSAC and MTLS feature groups.

Feature Group [Abbreviation]	Description
General	General features include miscellaneous breaklines and spot elevation points.
Control [ctrl]	Control related features include project control, found monuments & R/W, and directional information.
Hydrographic [hydro]	Hydrographic features include natural and manmade open & closed drainage facilities including banks, canals, catch basins, cleanouts, culverts, ditches, drainage inlets, headwalls, lakes, pools, rivers, streams, lakes, drainage vents, and weirs.
Roadbed [rdbed]	Roadbed features include the portion of the roadway extending from curb line to curb line or shoulder line to shoulder line. Note, divided highways are considered to have two roadbeds. Roadbed features include cattle guards, curbs & dikes along the road, roadbed breaks & edges, and valley gutters. Many of these features can be coded for ground surface or bridge deck surface areas.
Roadside [rdside]	Roadside features lie in the area adjoining the outer edge of the roadbed extending outside of the right of way line when

Feature Group [Abbreviation]	Description
	<p>necessary. Extensive areas between the roadbeds of a divided highway may also be considered roadside.</p> <p>Roadside features include bollards, driveways, flag poles, fences & gates, mailboxes, breaks & edges in original ground and paved areas, parking lots, railroad features, sidewalks both on ground surface and bridge deck surface areas, tanks, trails, etc.</p>
Structures [str]	<p>The Structures grouping is subdivided into three groups to assist with 3D surface creation: ground, bridge deck, and bridge underside.</p> <p>Ground features include bridge abutments & wingwalls, bridge bents, footings of columns & piers, buildings, carports, decks, patios, and walls.</p> <p>Bridge deck features include bridge rails, paving notches, and other features on the bridge deck. Many of the roadbed features can be coded for bridge deck surface areas including asphalt, concrete and curb features.</p> <p>Bridge underside features include faces of columns & piers, girders, soffits, and other features on the underside of the bridge structure.</p>
Traffic Control [tcd]	<p>Traffic control devices include barriers, crash cushions, guide post & pavement markers, signs, and pavement marking.</p>
Utilities [ut]	<p>Utility features include call boxes, fire hydrants, hosebibs, lighting, manholes, overhead & underground facilities, poles, pull boxes, pumps, sprinklers, standpipes, RR & traffic signals, transmission towers, valves, vaults, gas & sewer vents, and wells.</p>
Vegetation [veg]	<p>Vegetation features includes brush, orchards, trees, and vineyards.</p>

CSAC Feature Listing

The following table lists the CSAC features and the associated Civil 3D Styles and Feature Group.

Name	Description	Civil 3D Style/Layer	Line	Point	Group
ABUT	Bridge abutment	su_ABUT	✓		Structures
AC	Asphalt roadbed edges - ground	su_rdbed_AC_EDGE	✓		Roadbed
AC	Asphalt roadbed edges - bridge deck	su_rdbed_AC_EDGE_deck	✓		Roadbed
AC	Asphalt roadside edges - ground	su_rdside_AC_EDGE	✓		Roadside
AC	Asphalt roadside edges - bridge deck	su_rdside_AC_EDGE_deck	✓		Roadside
AGUTL	Aboveground utility facility - markout or positive location - unknown or other - single location or line	su_UG	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - electric - single location or line	su_UG_ELEC	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - fiber optics - single location or line	su_UG_FIBER	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - gasoline - single location or line	su_UG_GAS	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - irrigation - single location or line	su_UG_IRRIG	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - joint - single location or line	su_UG_JOINT	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - natural gas - single location or line	su_UG_NAT_GAS	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - oil - single location or line	su_UG_OIL	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - reclaimed water - single location or line	su_UG_RCW	✓	✓	Utilities

Name	Description	Civil 3D Style/Layer	Line	Point	Group
AGUTL	Aboveground utility facility - markout or positive location - sewer - single location or line	su_UG_SEWER	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - steam - single location or line	su_UG_STEAM	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - storm - single location or line	su_UG_STORM	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - telecomm - single location or line	su_UG_TELEC	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - television - single location or line	su_UG_TV	✓	✓	Utilities
AGUTL	Aboveground utility facility - markout or positive location - water - single location or line	su_UG_WATER	✓	✓	Utilities
ACBK	Asphalt roadbed grade breaks - ground	su_rdbed_AC_BRK	✓		Roadbed
ACBK	Asphalt roadbed grade breaks - bridge deck	su_rdbed_AC_BRK_de ck	✓		Roadbed
ACBK	Asphalt roadside grade breaks - ground	su_rdside_AC_BRK	✓		Roadside
ACBK	Asphalt roadside edges - bridge deck	su_rdside_AC_BRK_d eck	✓		Roadside
ASTK	As-staked point	su_ctrl_AS_STAKED		✓	Control
BBAR	Barrier - bottom - concrete - ground	su_BARR_BOT_CONC	✓		Traffic Control
BBAR	Barrier - bottom - all barrier types - bridge deck	su_BARR_BOT_deck	✓		Traffic Control
BIKE	Bike rack	su_BIKE	✓	✓	Roadside
BLDGF	Building faces including residential, commercial, bus stops, carports, decks, patios, etc. - ground	su_BLDG_FACE	✓		Structures
BLDGF	Building faces including residential, commercial, bus stops, carports, decks, patios, etc. - bridge deck	su_BLDG_FACE_deck	✓		Structures

Name	Description	Civil 3D Style/Layer	Line	Point	Group
BLDGO H	Building overhangs including residential, commercial, bus stops, carports, decks, patios, etc.	su_BLDG_OH	✓		Structures
BRB	Bridge rail – bottom - ground	su_BRDG_RAIL_BOT	✓		Structures
	Bridge rail - bottom - bridge deck	su_BRDG_RAIL_BOT_ deck	✓		Structures
BRT	Bridge rail - top - ground	su_BRDG_RAIL_TOP	✓		Structures
	Bridge rail - top - bridge deck	su_BRDG_RAIL_TOP_ deck	✓		Structures
BRK	Miscellaneous roadbed grade breaks - except asphalt, concrete, dirt, & rock - ground	su_rdbed_MISC_BRK	✓		Roadbed
BRK	Miscellaneous roadbed grade breaks - except asphalt, concrete, dirt, & rock - bridge deck	su_rdbed_MISC_BRK_ deck	✓		Roadbed
BRK	Miscellaneous roadside grade breaks - except asphalt, concrete, dirt & rock - ground	su_rdside_MISC_BRK	✓		Roadside
BRK	Miscellaneous roadside grade breaks - bridge deck	su_rdside_MISC_BRK_ deck	✓		Roadside
BWW	Bridge wingwall	su_BRDG_WW	✓		Structures
CAB	Cabinet - center or outline - unknown or other	su_CAB	✓	✓	Utilities
CAB	Cabinet - center or outline - electric	su_CAB_ELEC	✓	✓	Utilities
CAB	Cabinet - center or outline - fiber optic	su_CAB_FIBER	✓	✓	Utilities
CAB	Cabinet - center or outline - telecomm (voice & data)	su_CAB_TELEC	✓	✓	Utilities
CAB	Cabinet - center or outline - television	su_CAB_TV	✓	✓	Utilities
CALL	Call box	su_CALL		✓	Utilities
CBOT	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic
CC	Crash cushion - single location or multiple in a line or outline - ground	su_CC	✓	✓	Traffic Control

Name	Description	Civil 3D Style/Layer	Line	Point	Group
CC	Crash cushion - single location or multiple in a line or outline - bridge deck	su_CC_deck	✓	✓	Traffic Control
CEDGE	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic
CLO	Cleanout - drain, sewer, storm, pool, etc.	su_CLO		✓	Hydrographic
COL	Column, bent or pier - corner or face or outline	su_COL	✓	✓	Structures
	Column, bent or pier - center	su_COL_CTR		✓	Structures
COND	Conduit - unknown or other - single location or line	su_COND	✓	✓	Utilities
COND	Conduit - electric	su_COND_ELEC	✓		Utilities
COND	Conduit - fiber optic	su_COND_FIBER	✓		Utilities
COND	Conduit - telecomm (voice & data)	su_COND_TELEC	✓		Utilities
COND	Conduit - television	su_COND_TV	✓		Utilities
CTLG	Cattle guard	su_CTLG	✓		Roadbed
CTOP	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic
CULV	Culvert - top & bottom - single location or line	su_CULV	✓	✓	Hydrographic
CWWB	Culvert wingwall - bottom	su_CULV_WW	✓		Hydrographic
CWWT	Culvert wingwall - top	su_CULV_WW	✓		Hydrographic
DBOT	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic
DEDGE	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic

Name	Description	Civil 3D Style/Layer	Line	Point	Group
DFOPE N	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic
DI	Drainage inlet - center - rectangular - ground	su_DI_RECT		✓	Hydrographic
DI	Drainage inlet - center - rectangular - bridge deck	su_DI_RECT_deck		✓	Hydrographic
DI	Drainage inlet - center - round - ground	su_DI_RND		✓	Hydrographic
DI	Drainage inlet - center - round - bridge deck	su_DI_RND_deck		✓	Hydrographic
DI	Drainage inlet - center - overside, side inlet, etc. - ground	su_DI		✓	Hydrographic
DI	Drainage inlet - center - overside, side inlet, etc. - bridge deck	su_DI_deck		✓	Hydrographic
DI	Drainage inlet - outline - ground	su_DI	✓		Hydrographic
DI	Drainage inlet - outline - bridge deck	su_DI_deck	✓		Hydrographic
DIKB	Dike along roadbed - bottom - ground	su_DIKE_BOT	✓		Roadbed
DIKB	Dike along roadbed - bottom - bridge deck	su_DIKE_BOT_deck	✓		Roadbed
DIKB	Dike, miscellaneous - bottom - ground	su_misc_DIKE_BOT	✓		Roadside
DIKB	Dike, miscellaneous - bottom - bridge deck	su_misc_DIKE_BOT_deck	✓		Roadside
DIKT	Dike along roadbed - top - ground	su_DIKE_TOP	✓		Roadbed
DIKT	Dike along roadbed - top - bridge deck	su_DIKE_TOP_deck	✓		Roadbed
DIKT	Dike, miscellaneous - top - ground	su_misc_DIKE_TOP	✓		Roadside
DIKT	Dike, miscellaneous - top - bridge deck	su_misc_DIKE_TOP_deck	✓		Roadside
DIRT	Dirt roadbed edges - ground	su_rdbed_DIRT_EDGE	✓		Roadbed
DIRT	Dirt roadbed edges - bridge deck	su_rdbed_DIRT_EDGE_deck	✓		Roadbed

Name	Description	Civil 3D Style/Layer	Line	Point	Group
DIRT	Dirt roadside edges - ground	su_rdside_DIRT_EDG E	✓		Roadside
DIRT	Dirt roadside edges - bridge deck	su_rdside_DIRT_EDG E_Deck	✓		Roadside
DIRTBK	Dirt roadbed grade breaks - ground	su_rdbed_DIRT_BRK	✓		Roadbed
DIRTBK	Dirt roadbed grade breaks - bridge deck	su_rdbed_DIRT_BRK_ deck	✓		Roadbed
DIRTBK	Dirt roadside grade breaks - ground	su_rdside_DIRT_BRK	✓		Roadside
DIRTBK	Dirt roadside grade breaks - bridge deck	su_rdside_DIRT_BRK_ deck	✓		Roadside
DTOP	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic
DWS	ADA detectable warning surface - ground	su_DWS	✓		Roadside
EDGE	Miscellaneous roadbed edges - except asphalt, concrete, dirt, & rock - ground	su_rdbed_MISC_EDG E	✓		Roadbed
EDGE	Miscellaneous roadbed edges - except asphalt, concrete, dirt, & rock - bridge deck	su_rdbed_MISC_EDG E_deck	✓		Roadbed
EDGE	Miscellaneous roadside edges - except asphalt, concrete, dirt & rock - ground	su_rdside_MISC_EDG E	✓		Roadside
EDGE	Miscellaneous roadside edges - bridge deck	su_rdside_MISC_EDG E_deck	✓		Roadside
ELEC	Electrolier - post location	su_EL		✓	Utilities
ESA	Environmentally sensitive area	su_ESA	✓	✓	Roadside
ETW	Striping - fog stripes along ETW - ground	su_STRIPE_Fog_ETW	✓		Traffic Control
ETW	Striping - fog stripes along ETW - bridge deck	su_STRIPE_Fog_ETW_ deck	✓		Traffic Control
EW	Open water features including lakes, ponds, pools, rivers, streams - edges	su_WATER	✓		Hydrographic
EXPJT	Bridge expansion joint	su_BRDG_EXP_JT	✓		Structures
FD	Found point	su_ctrl_FD		✓	Control

Name	Description	Civil 3D Style/Layer	Line	Point	Group
FDCL	Found point - C/L monument	su_ctrl_FD_CL		✓	Control
FDNR	Found point - no record	su_ctrl_FD_no_record		✓	Control
FDRW	Found point - R/W monument	su_ctrl_FD_RW		✓	Control
FDSC	Found point - section corner	su_ctrl_FD_section		✓	Control
FENCE	Fence - ground	su_FENCE	✓		Roadside
	Fence - bridge deck	su_FENCE_deck	✓		Roadside
FES	Flared end section - lip end	su_FES		✓	Hydrographic
FH	Fire hydrant	su_FH		✓	Utilities
FL	Culvert - flowline - single location or line	su_CULV_FL	✓	✓	Hydrographic
FL	Curb along roadbed - flowline - ground	su_CURB_FL	✓		Roadbed
FL	Curb along roadbed - flowline - bridge deck	su_CURB_FL_deck	✓		Roadbed
FL	Flowlines of all water & drainage facilities except culverts	su_hydro_FL	✓		Hydrographic
FL	Curb, miscellaneous - flowline - ground	su_misc_CURB_FL	✓		Roadside
FL	Curb, miscellaneous - flowline - bridge deck	su_misc_CURB_FL_deck	✓		Roadside
FL	Flowlines, roadbed - except curb flowlines - ground	su_rdbed_FL	✓		Roadbed
FL	Flowlines, roadbed - except curb flowlines - bridge deck	su_rdbed_FL_deck	✓		Roadbed
FL	Flowlines - roadside - ground	su_rdside_FL	✓		Roadside
FL	Flowlines - roadside - bridge deck	su_rdside_FL_deck	✓		Roadside
FP	Flag pole	su_FP		✓	Roadside
FRAIL	Face of barrier – at grade - thrie-beam, cable, other railing – ground	su_BARR_FACE_RAIL	✓		Traffic Control
GATE	Gate post - ground	su_GATE_POST		✓	Roadside
GATE	Gate post - bridge deck	su_GATE_POST		✓	Roadside
GATE	Gate - ground	su_GATE	✓		Roadside
GATE	Gate - bridge deck	su_GATE_deck	✓		Roadside

Name	Description	Civil 3D Style/Layer	Line	Point	Group
GMKR	Marker - guide post - ground	su_MARKER_GUIDE		✓	Traffic Control
GMKR	Marker - guide post - bridge deck	su_MARKER_GUIDE_deck		✓	Traffic Control
GRDR	Bridge girder - bottom	su_GIRDER	✓		Structures
GUY	Guy anchor or Guy wire - line from anchor to post or line from post to post	su_GUY	✓	✓	Utilities
HB	Hose bib	su_HB		✓	Utilities
HDWL	Headwall - top & bottom	su_HDWL	✓		Hydrographic
HP	Dirt roadside grade breaks - ground	su_rdside_DIRT_BRK	✓		Roadside
HP	Miscellaneous roadside grade breaks - except asphalt, concrete, dirt & rock - ground	su_rdside_MISC_BRK	✓		Roadside
HP	Rock roadside grade breaks	su_rdside_ROCK_BRK	✓		Roadside
HWM	High water mark	su_HWAT		✓	Hydrographic
HWM	Open water features including lakes, ponds, pools, rivers, streams - high water marks	su_WATER	✓		Hydrographic
HYDRO	Miscellaneous hydrographic point features or linear features including catch basins, etc.	su_hydro_MISC	✓	✓	Hydrographic
ITS	Intelligent Transportation System Node – census station, CCTV camera, drone dock, vehicle charging station, etc.	su_ITS		✓	Utilities
KRAIL	Barrier - bottom - K-rail - ground	su_BARR_BOT_K-RAIL	✓		Traffic Control
LIP	Curb along roadbed - lip	su_CURB_LIP	✓		Roadbed
	Curb, miscellaneous - lip	su_misc_CURB_LIP	✓		Roadside
LL	Striping – lane line stripes - ground	su_STRIPE_LL	✓		Traffic Control
	Striping – lane line stripes - bridge deck	su_STRIPE_LL_deck	✓		Traffic Control

Name	Description	Civil 3D Style/Layer	Line	Point	Group
LTG	Lighting - decorative lamp post, electrolier, landscape lighting, light fixtures, recessed lights, etc.	su_LTG		✓	Utilities
MAIL	Mailbox - single location or multiple in a line	su_MAIL	✓	✓	Roadside
MH	Manhole - center - unknown or other	su_MH		✓	Utilities
MH	Manhole - center - electric	su_MH_ELEC		✓	Utilities
MH	Manhole - center - fiber optic	su_MH_FIBER		✓	Utilities
MH	Manhole - center - joint	su_MH_JOINT		✓	Utilities
MH	Manhole - center - sewer	su_MH_SEWER		✓	Utilities
MH	Manhole - center - storm	su_MH_STORM		✓	Utilities
MH	Manhole - center - telecomm (voice & data)	su_MH_TELEC		✓	Utilities
MH	Manhole - center - television	su_MH_TV		✓	Utilities
MKR	Marker - miscellaneous - ground	su_MARKER_MISC		✓	Traffic Control
MKR	Marker - miscellaneous - bridge deck	su_MARKER_MISC_deck		✓	Traffic Control
MTR	Meter - center - unknown or other	su_METER		✓	Utilities
MTR	Meter - center - electric	su_METER_ELEC		✓	Utilities
MTR	Meter - center - gasoline	su_METER_GAS		✓	Utilities
MTR	Meter - center - water	su_METER_WATER		✓	Utilities
MWALL B	Wall - bottom - masonry including sound walls & other non-retaining walls - ground	su_WALL_BOT_MASON	✓		Structures
MWALL B	Wall - bottom - masonry including sound walls & other non-retaining walls - bridge deck	su_WALL_BOT_MASON_deck	✓		Structures
n/a	Linework indicating the direction to or from a feature	topo_su_ctrl_DIRECTION_info_only	✓		Control
n/a	Spot elevations & mass points in bridge deck DTM areas	topo_su_dtm_brk_spot_deck_info_only		✓	varies
n/a	Spot elevations & mass points in ground DTM areas	topo_su_dtm_brk_spot_info_only		✓	varies
n/a	Spot elevations & mass points in bridge underside DTM areas	topo_su_dtm_brk_spot_underside_info_only		✓	Structures

Name	Description	Civil 3D Style/Layer	Line	Point	Group
n/a	Random breaklines in bridge deck DTM areas	topo_su_dtm_brk_spot_deck_info_only	✓		varies
n/a	Random breaklines in ground DTM areas	topo_su_dtm_brk_spot_info_only	✓		varies
n/a	Random breaklines in subterranean DTM areas	topo_su_dtm_brk_spot_subterranean_info_only	✓		Roadside
n/a	Random breaklines in bridge underside DTM areas	topo_su_dtm_brk_spot_underside_info_only	✓		Structures
OHUTL	Overhead facility - traffic control, unknown or other	su_OH	✓		Utilities
OHUTL	Overhead facility - electric	su_OH_ELEC	✓		Utilities
OHUTL	Overhead facility - fiber optic	su_OH_FIBER	✓		Utilities
OHUTL	Overhead facility - joint	su_OH_JOINT	✓		Utilities
OHUTL	Overhead facility - telecomm (voice & data)	su_OH_TELEC	✓		Utilities
OHUTL	Overhead facility - television	su_OH_TV	✓		Utilities
ORCH	Orchard - outline	su_ORCH	✓		Vegetation
OSD	Overside drain	su_DRAIN_SIDE	✓		Hydrographic
PB	Pullbox - center - rectangular - unknown or other	su_PB_RECT		✓	Utilities
PB	Pullbox - center - rectangular - electric	su_PB_RECT_ELEC		✓	Utilities
PB	Pullbox - center - rectangular - fiber optic	su_PB_RECT_FIBER		✓	Utilities
PB	Pullbox - center - rectangular - joint	su_PB_RECT_JOINT		✓	Utilities
PB	Pullbox - center - rectangular - telecomm (voice & data)	su_PB_RECT_TELEC		✓	Utilities
PB	Pullbox - center - rectangular - television	su_PB_RECT_TV		✓	Utilities
PB	Pullbox - center - rectangular - water	su_PB_RECT_WATER		✓	Utilities
PB	Pullbox - center - round - unknown or other	su_PB_RND		✓	Utilities
PB	Pullbox - center - round - electric	su_PB_RND_ELEC		✓	Utilities
PB	Pullbox - center - round - fiber optic	su_PB_RND_FIBER		✓	Utilities

Name	Description	Civil 3D Style/Layer	Line	Point	Group
PB	Pullbox - center - round - joint	su_PB_RND_JOINT		✓	Utilities
PB	Pullbox - center - round - telecomm (voice & data)	su_PB_RND_TELEC		✓	Utilities
PB	Pullbox - center - round - television	su_PB_RND_TV		✓	Utilities
PB	Pullbox - center - round - water	su_PB_RND_WATER		✓	Utilities
PB	Pull box - outline - unknown or other	su_PB	✓		Utilities
PB	Pull box - outline - electric	su_PB_ELEC	✓		Utilities
PB	Pull box - outline - fiber optic	su_PB_FIBER	✓		Utilities
PB	Pull box - outline - joint	su_PB_JOINT	✓		Utilities
PB	Pull box - outline - telecomm (voice & data)	su_PB_TELEC	✓		Utilities
PB	Pull box - outline - television	su_PB_TV	✓		Utilities
PB	Pull box - outline - water	su_PB_WATER	✓		Utilities
PCC	Concrete roadbed edges - ground	su_rdbed_CONC_EDGE	✓		Roadbed
PCC	Concrete roadbed edges - bridge deck	su_rdbed_CONC_EDGE_deck	✓		Roadbed
PCC	Concrete roadside edges - ground	su_rdside_CONC_EDGE	✓		Roadside
PCC	Concrete roadside edges - bridge deck	su_rdside_CONC_EDGE_deck	✓		Roadside
PCCBK	Concrete roadbed grade breaks - ground	su_rdbed_CONC_BRK	✓		Roadbed
PCCBK	Concrete roadbed grade breaks - bridge deck	su_rdbed_CONC_BRK_deck	✓		Roadbed
PCCBK	Concrete roadside grade breaks - ground	su_rdside_CONC_BRK	✓		Roadside
PCCBK	Concrete roadside grade breaks - bridge deck	su_rdside_CONC_BRK_deck	✓		Roadside
PEDBTN	Pedestrian button	su_Pedestrian_BTN		✓	Utilities
PEDP	Pedestrian button pole	su_Pedestrian_BTN_POLE		✓	Utilities
PEDSIG	Pedestrian signal	su_Pedestrian_SIG		✓	Utilities
PIPR	Bollards, protective pipes, etc.	su_BOLLARD		✓	Roadside
PMH	Primary Control Monument - horizontal	su_ctrl_Primary_H		✓	Control

Name	Description	Civil 3D Style/Layer	Line	Point	Group
PMHV	Primary Control Monument - horizontal & vertical	su_ctrl_Primary_HV		✓	Control
PMV	Primary Control Monument - vertical	su_ctrl_Primary_V		✓	Control
PMKR	Marker - pavement - reflective & non-reflective - single location or multiple in a line - ground	su_MARKER_PAVE	✓	✓	Traffic Control
PMKR	Marker - pavement - reflective & non-reflective - single location or multiple in a line - bridge deck	su_MARKER_PAVE_deck	✓	✓	Traffic Control
PN	Bridge paving notch	su_PN	✓		Structures
POLE	Pole - center - unknown or other	su_POLE		✓	Utilities
POLE	Pole - center - electric	su_POLE_ELEC		✓	Utilities
POLE	Pole - center - fiber optic	su_POLE_FIBER		✓	Utilities
POLE	Pole - center - joint	su_POLE_JOINT		✓	Utilities
POLE	Pole - center - telecomm (voice & data)	su_POLE_TELEC		✓	Utilities
POLE	Pole - center - television	su_POLE_TV		✓	Utilities
PRH	Project Control Monument - horizontal	su_ctrl_Project_H		✓	Control
PRHV	Project Control Monument - horizontal & vertical	su_ctrl_Project_HV		✓	Control
PRV	Project Control Monument - vertical	su_ctrl_Project_V		✓	Control
PRKMT R	Parking meter	su_Parking_Meter		✓	Traffic Control
PTEL	Public telephone	su_TELE		✓	Utilities
PUMP	Pump - center or pump & pump house outline	su_PUMP	✓	✓	Utilities
RDBED	Miscellaneous roadbed point features - ground	su_rdbed_MISC		✓	Roadbed
RDBED	Miscellaneous roadbed point features - bridge deck	su_rdbed_MISC_deck		✓	Roadbed
RDSIDE	Miscellaneous roadside point or line features - ground	su_rdside_MISC	✓	✓	Roadside
	Miscellaneous roadside point or line features - bridge deck	su_rdside_MISC_deck	✓	✓	Roadside

Name	Description	Civil 3D Style/Layer	Line	Point	Group
RIPARIAN	Open water features including lakes, ponds, pools, rivers, streams - threads	su_WATER	✓		Hydrographic
ROCK	Rock roadbed edges	su_rdbed_ROCK_EDGE	✓		Roadbed
ROCK	Rock roadside edges	su_rdside_ROCK_EDGE	✓		Roadside
ROCKBREAK	Rock roadbed grade breaks	su_rdbed_ROCK_BRK	✓		Roadbed
	Rock roadside grade breaks	su_rdside_ROCK_BRK	✓		Roadside
RP	Reference point - bore hole, bridge pin, monument tie, settlement pin, etc.	su_ctrl_Reference		✓	Control
RRA	Railroad Appurtenances including control box, switch, etc.	su_RR_APPR		✓	Roadside
RRBB	Railroad ballast - bottom - ground	su_RR_BALL	✓		Roadside
RRBB	Railroad ballast - bottom - bridge deck	su_RR_BALL_deck	✓		Roadside
RRBT	Railroad ballast - top - ground	su_RR_BALL	✓		Roadside
	Railroad ballast - top - bridge deck	su_RR_BALL_deck	✓		Roadside
RRPOST	Railroad gate post	su_RR_POST		✓	Roadside
RRRAIL	Railroad rail - individual rail for vertical & horizontal clearance requirements - ground	su_RR_RAIL	✓		Roadside
RRRAIL	Railroad rail - individual rail for vertical & horizontal clearance requirements - bridge deck	su_RR_RAIL_deck	✓		Roadside
RRSIG	Railroad signal	su_RR_SIG		✓	Utilities
RRTRK	Railroad track - displays both rails where the right rail is the true location and the left rail is an approximate location - ground	su_RR_TRACK	✓		Roadside
RRTRK	Railroad track - displays both rails where the right rail is the true location and the left rail is an approximate location - bridge deck	su_RR_TRACK_deck	✓		Roadside
RWALLB	Wall - bottom - retaining	su_WALL_BOT_RETAIN	✓		Structures

Name	Description	Civil 3D Style/Layer	Line	Point	Group
SIGN	Sign - hanging or other type - single location or line from end to end of sign	su_SIGN	✓	✓	Traffic Control
SIGN	Sign - cantilever - post location or line from post to end of sign	su_SIGN_CANT	✓	✓	Traffic Control
SIGN	Sign - overhead bridge - single post location or line from post to post	su_SIGN_OH	✓	✓	Traffic Control
SIGN	Sign - single post - post location	su_SIGN_SINGLE		✓	Traffic Control
SIGN	Sign - multi-post - line from post to post	su_SIGN_MULTI	✓		Traffic Control
SLD	Slide - monitoring point or edges	su_SLIDE	✓	✓	Roadside
SLP	Bridge abutment slope	su_ABUT_SLP	✓		Structures
SLP	Open drainage facilities including banks, canals, catch basins, ditches, slope protection, spillways - all aspects except flowlines	su_DF_OPEN	✓		Hydrographic
SOFF	Bridge soffit	su_SOFFIT	✓		Structures
SP	Standpipe	su_SP		✓	Utilities
SPR	Sprinkler	su_SPR		✓	Utilities
STR	Miscellaneous structures point or linear features not on the bridge	su_str_MISC	✓	✓	Structures
STR	Miscellaneous bridge deck point or linear features	su_str_MISC_deck	✓	✓	Structures
STR	Miscellaneous bridge underside point or linear features	su_str_MISC_underside	✓	✓	Structures
STRP	Striping - dashed & solid except for lane line and fog stripes - ground	su_STRIPE	✓		Traffic Control
	Striping - dashed & solid except for lane line and fog stripes - bridge deck	su_STRIPE_deck	✓		Traffic Control
SUBTERR	Subterranean features	su_SUBTERR	✓		Roadside
SUH	Supplemental Control Monument - horizontal	su_ctrl_Supp_H		✓	Control
SUHV	Supplemental Control Monument - horizontal & vertical	su_ctrl_Supp_HV		✓	Control

Name	Description	Civil 3D Style/Layer	Line	Point	Group
SUV	Supplemental Control Monument - vertical	su_ctrl_Supp_V		✓	Control
SW	Sidewalk - ground	su_SW	✓		Roadside
SW	Sidewalk - bridge deck	su_SW_deck	✓		Roadside
TANK	Tank - center or outline	su_TANK	✓	✓	Utilities
TBAR	Barrier - top - all barrier types - ground	su_BARR_TOP	✓		Traffic Control
TBAR	Barrier - top - all barrier types - bridge deck	su_BARR_TOP_deck	✓		Traffic Control
Feature Code (Point ID)	Control - Line points	su_ctrl_Line_Points		✓	Control
Feature Code (Point ID)	Hydrographic - Line points	su_hydro_Line_Points		✓	Hydrographic
Feature Code (Point ID)	Roadbed - Line points	su_rdbed_Line_Points		✓	Roadbed
Feature Code (Point ID)	Roadside - Line points	su_rdside_Line_Points		✓	Roadside
Feature Code (Point ID)	Structures - Line points	su_str_Line_Points		✓	Structures
Feature Code (Point ID)	Traffic Control - Line points	su_tcd_Line_Points		✓	Traffic Control
Feature Code (Point ID)	Utilities - Line points	su_ut_Line_Points		✓	Utilities

Name	Description	Civil 3D Style/Layer	Line	Point	Group
Feature Code (Point ID)	Vegetation - Line points	su_veg_Line_Points		✓	Vegetation
THR	Open water features including lakes, ponds, pools, rivers, streams - threads	su_WATER	✓		Hydrographic
TOC	Curb along roadbed - top - ground	su_CURB_TOP	✓		Roadbed
TOC	Curb along roadbed - top - bridge deck	su_CURB_TOP_deck	✓		Roadbed
TOC	Curb, miscellaneous - top - ground	su_misc_CURB_TOP	✓		Roadside
TOC	Curb, miscellaneous - top - bridge deck	su_misc_CURB_TOP_deck	✓		Roadside
TOE	Dirt roadside grade breaks - ground	su_rdside_DIRT_BRK	✓		Roadside
TOE	Miscellaneous roadside grade breaks - except asphalt, concrete, dirt & rock - ground	su_rdside_MISC_BRK	✓		Roadside
TOE	Rock roadside grade breaks	su_rdside_ROCK_BRK	✓		Roadside
TOP	Dirt roadside grade breaks - ground	su_rdside_DIRT_BRK	✓		Roadside
TOP	Miscellaneous roadside grade breaks - except asphalt, concrete, dirt & rock - ground	su_rdside_MISC_BRK	✓		Roadside
TOP	Rock roadside grade breaks	su_rdside_ROCK_BRK	✓		Roadside
TREE	Tree	su_TREE		✓	Vegetation
TS	Traffic signal - pole location	su_TRAF_SIG		✓	Utilities
TTOW	Transmission tower - outline	su_TTOW	✓		Utilities
UGUTL	Underground utility facility - markout or positive location - unknown or other - single location or line	su_UG	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - electric - single location or line	su_UG_ELEC	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - fiber optics - single location or line	su_UG_FIBER	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - gasoline - single location or line	su_UG_GAS	✓	✓	Utilities

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Name	Description	Civil 3D Style/Layer	Line	Point	Group
UGUTL	Underground utility facility - markout or positive location - irrigation - single location or line	su_UG_IRRIG	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - joint - single location or line	su_UG_JOINT	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - natural gas - single location or line	su_UG_NAT_GAS	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - oil - single location or line	su_UG_OIL	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - reclaimed water - single location or line	su_UG_RCW	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - sewer - single location or line	su_UG_SEWER	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - steam - single location or line	su_UG_STEAM	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - storm - single location or line	su_UG_STORM	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - telecomm - single location or line	su_UG_TELEC	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - television - single location or line	su_UG_TV	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - water - single location or line	su_UG_WATER	✓	✓	Utilities
UTL	Miscellaneous utilities point or linear features	su_ut_MISC	✓	✓	Utilities
UTLA	Utility appurtenances	su_ut_APPR		✓	Utilities
UTLPED	Pedestal - center - unknown or other	su_PED		✓	Utilities
UTLPED	Pedestal - center - electric	su_PED_ELEC		✓	Utilities
UTLPED	Pedestal - center - fiber optic	su_PED_FIBER		✓	Utilities

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Name	Description	Civil 3D Style/Layer	Line	Point	Group
UTLPED	Pedestal - center - joint	su_PED_JOINT		✓	Utilities
UTLPED	Pedestal - center - telecomm (voice & data)	su_PED_TELEC		✓	Utilities
UTLPED	Pedestal - center - television	su_PED_TV		✓	Utilities
V	Valve - unknown or other	su_VALVE		✓	Utilities
V	Valve - gasoline	su_VALVE_GAS		✓	Utilities
V	Valve - irrigation	su_VALVE_IRRIG		✓	Utilities
V	Valve - water	su_VALVE_WATER		✓	Utilities
VEG	Miscellaneous vegetation point or linear features	su_veg_MISC	✓	✓	Vegetation
VENT	Vent - center - unknown or other	su_VENT	✓	✓	Utilities
VENT	Vent - center - drainage facility	su_VENT_DF	✓	✓	Hydrographic
VENT	Vent - center - gasoline	su_VENT_GAS	✓	✓	Utilities
VENT	Vent - center - natural gas	su_VENT_NAT-GAS	✓	✓	Utilities
VENT	Vent - center - sewer	su_VENT_SEWER	✓	✓	Utilities
VENT	Vent - center - steam	su_VENT_STEAM	✓	✓	Utilities
VENT	Vent - center – storm drain	su_VENT_STORM	✓	✓	Utilities
VINE	Vineyard - rows & outline	su_VINE	✓		Vegetation
VLT	Vault - center or outline - unknown or other	su_VAULT	✓	✓	Utilities
VLT	Vault - center or outline - electric	su_VAULT_ELEC	✓	✓	Utilities
VLT	Vault - center or outline - joint	su_VAULT_JOINT	✓	✓	Utilities
WALLT	Wall - top - masonry & retaining - ground	su_WALL_TOP	✓		Structures
WALLT	Wall - top - masonry & retaining - bridge deck	su_WALL_TOP_deck	✓		Structures
WEIR	Weir	su_WEIR	✓		Hydrographic
WELL	Well	su_WELL		✓	Utilities
WPH	Work point - horizontal	su_ctrl_Workpoint_H		✓	Control
WPHV	Work point - horizontal & vertical	su_ctrl_Workpoint_HV		✓	Control
WPV	Work point - vertical	su_ctrl_Workpoint_V		✓	Control

MTLS Feature Listing

The following table lists the MTLS features and the associated Civil 3D Styles and Feature Group.

Name	Description	Civil 3D Style/Layer	Line	Point	Group
ABUT	Bridge abutment	ml_ABUT	✓		Structures
AC	Asphalt roadbed edges - ground	ml_rdbed_AC_EDGE	✓		Roadbed
AC	Asphalt roadbed edges - bridge deck	ml_rdbed_AC_EDGE_deck	✓		Roadbed
AC	Asphalt roadside edges - ground	ml_rdside_AC_EDGE	✓		Roadside
ACBK	Asphalt roadbed grade breaks - ground	ml_rdbed_AC_BRK	✓		Roadbed
ACBK	Asphalt roadbed grade breaks - bridge deck	ml_rdbed_AC_BRK_deck	✓		Roadbed
ACBK	Asphalt roadside grade breaks - ground	ml_rdside_AC_BRK	✓		Roadside
BBAR	Barrier - bottom - concrete - ground	ml_BARR_BOT_CONC	✓		Traffic Control
BBAR	Barrier - bottom - all barrier types - bridge deck	ml_BARR_BOT_deck	✓		Traffic Control
BLDGF	Building faces including residential, commercial, bus stops, carports, decks, patios, etc. - ground	ml_BLDG_FACE	✓		Structures
BLDGO H	Building overhangs including residential, commercial, bus stops, carports, decks, patios, etc.	ml_BLDG_OH	✓		Structures
BRB	Bridge rail - bottom	ml_BRDG_RAIL_BOT	✓		Structures
BRK	Miscellaneous roadbed grade breaks - except asphalt, concrete, dirt, & rock - ground	ml_rdbed_MISC_BRK	✓		Roadbed
BRK	Miscellaneous roadbed grade breaks - except asphalt, concrete, dirt, & rock - bridge deck	ml_rdbed_MISC_BRK_deck	✓		Roadbed
BRK	Miscellaneous roadside grade breaks - except asphalt, concrete, dirt & rock - ground	ml_rdside_MISC_BRK	✓		Roadside
BWW	Bridge wingwall	ml_BRDG_WW	✓		Structures
CAB	Cabinet - center or outline - unknown or other	ml_CAB	✓	✓	Utilities

Name	Description	Civil 3D Style/Layer	Line	Point	Group
CALL	Call box	ml_CALL		✓	Utilities
CC	Crash cushion - single location or multiple in a line or outline - ground	ml_CC	✓	✓	Traffic Control
CLO	Cleanout - drain, sewer, storm, pool, etc.	ml_CLO		✓	Hydrographic
COL	Column, bent or pier - centerline, corner or face or outline	ml_COL	✓		Structures
COND	Conduit - unknown or other - single location or line	ml_COND	✓		Utilities
CTLG	Cattle guard	ml_CTLG	✓		Roadbed
CULV	Culvert - top & bottom - single location or line	ml_CULV	✓	✓	Hydrographic
CWW	Culvert wingwall - top & bottom	ml_CULV_WW	✓		Hydrographic
DFOPE N	Open drainage facilities including banks, canals, catch basins, ditches, spillways - all aspects except flowlines	ml_DF_OPEN	✓		Hydrographic
DI	Drainage inlet - center - rectangular - ground	ml_DI_RECT		✓	Hydrographic
DI	Drainage inlet - center - rectangular - bridge deck	ml_DI_RECT_deck		✓	Hydrographic
DI	Drainage inlet - center - round - ground	ml_DI_RND		✓	Hydrographic
DI	Drainage inlet - center - round - bridge deck	ml_DI_RND_deck		✓	Hydrographic
DI	Drainage inlet - outline - ground	ml_DI	✓		Hydrographic
DI	Drainage inlet - outline - bridge deck	ml_DI_deck	✓		Hydrographic
DIKB	Dike along roadbed - bottom - ground	ml_DIKE_BOT	✓		Roadbed
	Dike, miscellaneous - bottom - ground	ml_misc_DIKE_BOT	✓		Roadside
DIKT	Dike along roadbed - top - ground	ml_DIKE_TOP	✓		Roadbed
	Dike, miscellaneous - top - ground	ml_misc_DIKE_TOP	✓		Roadside
DIRT	Dirt roadbed edges - ground	ml_rdbed_DIRT_EDGE	✓		Roadbed
DIRT	Dirt roadside edges - ground	ml_rdside_DIRT_EDGE	✓		Roadside

Name	Description	Civil 3D Style/Layer	Line	Point	Group
DIRTBK	Dirt roadbed grade breaks - ground	ml_rdbed_DIRT_BRK	✓		Roadbed
	Dirt roadside grade breaks - ground	ml_rdside_DIRT_BRK	✓		Roadside
DWS	ADA detectable warning surface - ground	ml_DWS	✓		Roadside
ECCTV	Closed circuit TV camera	MI_ECCTV		✓	Utilities
EDGE	Miscellaneous roadbed edges - except asphalt, concrete, dirt, & rock - ground	ml_rdbed_MISC_EDGE	✓		Roadbed
EDGE	Miscellaneous roadbed edges - except asphalt, concrete, dirt, & rock - bridge deck	ml_rdbed_MISC_EDGE_deck	✓		Roadbed
EDGE	Miscellaneous roadside edges - except asphalt, concrete, dirt & rock - ground	ml_rdside_MISC_EDGE	✓		Roadside
ELEC	Electrolier - post location	ml_EL	✓	✓	Utilities
ETW	Striping - fog stripes along ETW - ground	ml_STRIPE_Fog_ETW	✓		Traffic Control
ETW	Striping - fog stripes along ETW - bridge deck	ml_STRIPE_Fog_ETW_deck	✓		Traffic Control
EW	Open water features including lakes, ponds, pools, rivers, streams - edges	ml_WATER	✓		Hydrographic
EW-study	Edges of water bodies from unregistered point cloud data in study ground DTM areas	ml_WATER_study	✓		Hydrographic
FENCE	Fence - ground	ml_FENCE	✓		Roadside
FES	Flared end section - lip end	ml_FES		✓	Hydrographic
FH	Fire hydrant	ml_FH		✓	Utilities
FL	Culvert - flowline - single location or line	ml_CULV_FL	✓	✓	Hydrographic
FL	Curb along roadbed - flowline - ground	ml_CURB_FL	✓		Roadbed
FL	Curb along roadbed - flowline - bridge deck	ml_CURB_FL_deck	✓		Roadbed
FL	Flowlines of all water & drainage facilities except culverts	ml_hydro_FL	✓		Hydrographic
FL	Curb, miscellaneous - flowline - ground	ml_misc_CURB_FL	✓		Roadside

Name	Description	Civil 3D Style/Layer	Line	Point	Group
FL	Flowlines, roadbed - except curb flowlines - ground	ml_rdbed_FL	✓		Roadbed
FL	Flowlines, roadbed - except curb flowlines - bridge deck	ml_rdbed_FL_deck	✓		Roadbed
FL	Flowlines - roadside - ground	ml_rdside_FL	✓		Roadside
FL	Flowlines from unregistered point cloud data in study ground DTM areas	ml_hydro_FL_study	✓		Hydrographic
FP	Flag pole	ml_FP		✓	Roadside
FRAIL	Face of barrier – at grade - thrie-beam, cable, other railing – ground	ml_BARR_FACE_RAIL	✓		Traffic Control
GATE	Gate post - ground	ml_GATE_POST		✓	Roadside
	Gate - ground	ml_GATE	✓		Roadside
GMKR	Marker - guide post - ground	ml_MARKER_GUIDE		✓	Traffic Control
GRDR	Bridge girder - bottom	ml_GIRDER	✓		Structures
GUY	Guy anchor or Guy wire - line from anchor to post or line from post to post	ml_GUY	✓	✓	Utilities
HB	Hose bib	ml_HB		✓	Utilities
HDWL	Headwall - top & bottom	ml_HDWL	✓		Hydrographic
HWM	High water mark	ml_HWAT		✓	Hydrographic
HYDRO	Miscellaneous hydrographic point features or linear features including catch basins, etc.	ml_hydro_MISC	✓	✓	Hydrographic
KRAIL	Barrier - bottom - K-rail - ground	ml_BARR_BOT_K-RAIL	✓		Traffic Control
LIP	Curb along roadbed - lip	ml_CURB_LIP	✓		Roadbed
	Curb, miscellaneous - lip	ml_misc_CURB_LIP	✓		Roadside
LL	Striping – lane line stripes - ground	ml_STRIPE_LL	✓		Traffic Control
	Striping – lane line stripes - bridge deck	ml_STRIPE_LL_deck	✓		Traffic Control
LOOP	Loop detector	ml_LoopDetector	✓		
LTG	Lighting - decorative lamp post, electrolier, landscape lighting, light fixtures, recessed lights, etc.	ml_LTG		✓	Utilities

Name	Description	Civil 3D Style/Layer	Line	Point	Group
MAIL	Mailbox - single location or multiple in a line	ml_MAIL	✓	✓	Roadside
MH	Manhole - center - unknown or other	ml_MH		✓	Utilities
MKR	Marker - miscellaneous - ground	ml_MARKER_MISC		✓	Traffic Control
MTR	Meter - center - unknown or other	ml_METER		✓	Utilities
MVP	Motor vehicle pullout	MI_MVP		✓	Roadbed
MWALL B	Wall - bottom - masonry including sound walls & other non-retaining walls - ground	ml_WALL_BOT_MAS ON	✓		Structures
n/a	Boundary outlining ground not visible areas (GNV)	topo_ml_bndy_gnv_inf o_only	✓		General
n/a	Linework indicating the direction to or from a feature	topo_ml_ctrl_DIRECTI ON_info_only	✓		Control
n/a	Random breaklines in bridge deck DTM areas	topo_ml_dtm_brk_spo t_deck_info_only	✓		General
n/a	Spot elevations & mass points in bridge deck DTM areas	topo_ml_dtm_brk_spo t_deck_info_only		✓	General
n/a	Random breaklines in ground DTM areas	topo_ml_dtm_brk_spo t_info_only	✓		General
n/a	Spot elevations & mass points in ground DTM areas	topo_ml_dtm_brk_spo t_info_only		✓	General
n/a	Random breaklines in bridge underside DTM areas	topo_ml_dtm_brk_spo t_underside_info_only	✓		General
n/a	Spot elevations & mass points in bridge underside DTM areas	topo_ml_dtm_brk_spo t_underside_info_only		✓	General
n/a	Breaklines from unregistered point cloud data in study bridge deck DTM areas	topo_ml_study_brk_sp ot_deck_info_only	✓		General
n/a	Spot elevations & mass points from unregistered point cloud data in study bridge deck DTM areas	topo_ml_study_brk_sp ot_deck_info_only		✓	General
n/a	Breaklines from unregistered point cloud data in study ground DTM areas	topo_ml_study_brk_sp ot_info_only	✓		General
n/a	Spot elevations & mass points from unregistered point cloud data in study ground DTM areas	topo_ml_study_brk_sp ot_info_only		✓	General

Name	Description	Civil 3D Style/Layer	Line	Point	Group
n/a	Breaklines from unregistered point cloud data in study bridge underside DTM areas	topo_ml_study_brk_spt ot_underside _info_only	✓		General
n/a	Spot elevations & mass points from unregistered point cloud data in study bridge underside DTM areas	topo_ml_study_brk_spt ot_underside _info_only		✓	General
OHUTL	Overhead facility - traffic control, unknown or other	ml_OH	✓		Utilities
ORCH	Orchard - outline	ml_ORCH	✓		Vegetation
OSD	Overside drain	ml_DRAIN_SIDE	✓		Hydrographic
PB	Pullbox - center - rectangular - unknown or other	ml_PB_RECT		✓	Utilities
PCC	Concrete roadbed edges - ground	ml_rdbed_CONC_EDGE	✓		Roadbed
PCC	Concrete roadbed edges - bridge deck	ml_rdbed_CONC_EDGE_deck	✓		Roadbed
PCC	Concrete roadside edges - ground	ml_rdside_CONC_EDGE	✓		Roadside
PCCBK	Concrete roadbed grade breaks - ground	ml_rdbed_CONC_BREAK	✓		Roadbed
PCCBK	Concrete roadbed grade breaks - bridge deck	ml_rdbed_CONC_BREAK_deck	✓		Roadbed
PCCBK	Concrete roadside grade breaks - ground	ml_rdside_CONC_BREAK	✓		Roadside
PEDBTN	Pedestrian button	ml_Pedestrian_BTN		✓	Utilities
PEDP	Pedestrian button pole	ml_Pedestrian_BTN_POLE		✓	Utilities
PEDSIG	Pedestrian signal	ml_Pedestrian_SIG		✓	Utilities
PIPR	Bollards, protective pipes, etc.	ml_BOLLARD		✓	Roadside
PMKR	Marker - pavement - reflective & non-reflective - single location or multiple in a line - ground	ml_MARKER_PAVE	✓	✓	Traffic Control
PN	Bridge paving notch	ml_PN	✓		Structures
POLE	Pole - center - unknown or other	ml_POLE		✓	Utilities
PRKMT R	Parking meter	ml_Parking_Meter		✓	Traffic Control

Name	Description	Civil 3D Style/Layer	Line	Point	Group
PTEL	Public telephone	ml_TELE		✓	Utilities
PUMP	Pump - center or pump & pump house outline	ml_PUMP	✓	✓	Utilities
RDBED	Miscellaneous roadbed point features - ground	ml_rdbed_MISC		✓	Roadbed
RDSIDE	Miscellaneous roadside point or line features - ground	ml_rdside_MISC	✓	✓	Roadside
ROCK	Rock roadbed edges	ml_rdbed_ROCK_EDGE	✓		Roadbed
ROCK	Rock roadside edges	ml_rdside_ROCK_EDGE	✓		Roadside
ROCKBK	Rock roadbed grade breaks	ml_rdbed_ROCK_BREAK	✓		Roadbed
ROCKBK	Rock roadside grade breaks	ml_rdside_ROCK_BREAK	✓		Roadside
RRA	Railroad Appurtenances including control box, switch, etc.	ml_RR_APPR		✓	Roadside
RRB	Railroad ballast – top & bottom - ground	ml_RR_BALL	✓		Roadside
RRPOST	Railroad gate post	ml_RR_POST		✓	Roadside
RRRAIL	Railroad rail - individual rail for vertical & horizontal clearance requirements - ground	ml_RR_RAIL	✓		Roadside
RRSIG	Railroad signal	ml_RR_SIG		✓	Utilities
RRTRK	Railroad track - displays both rails where the right rail is the true location and the left rail is an approximate location - ground	ml_RR_TRACK	✓		Roadside
RWALLB	Wall - bottom - retaining	ml_WALL_BOT_RETAIN	✓		Structures
SIGN	Sign - cantilever - post location or line from post to end of sign	ml_SIGN_CANT	✓	✓	Traffic Control
SIGN	Sign - multi-post - line from post to post	ml_SIGN_MULTI	✓	✓	Traffic Control
SIGN	Sign - overhead bridge - single post location or line from post to post	ml_SIGN_OH	✓	✓	Traffic Control

Name	Description	Civil 3D Style/Layer	Line	Point	Group
SIGN	Sign - single post - post location	ml_SIGN_SINGLE		✓	Traffic Control
SLD	Slide - monitoring point or edges	ml_SLIDE	✓	✓	Roadside
SOFF	Bridge soffit	ml_SOFFIT	✓		Structures
SP	Standpipe	ml_SP		✓	Utilities
SPR	Sprinkler	ml_SPR		✓	Utilities
STR	Miscellaneous structures point or linear features not on the bridge	ml_str_MISC	✓	✓	Structures
STR	Miscellaneous bridge deck point or linear features	ml_str_MISC_deck	✓	✓	Structures
STR	Miscellaneous bridge underside point or linear features	ml_str_MISC_underside	✓	✓	Structures
STRP	Striping - dashed & solid except for lane line and fog stripes - ground	ml_STRIPE	✓		Traffic Control
STRP	Striping - dashed & solid except for lane line and fog stripes - bridge deck	ml_STRIPE_deck	✓		Traffic Control
SW	Sidewalk - ground	ml_SW	✓		Roadside
	Sidewalk - bridge deck	ml_SW_deck	✓		Roadside
TANK	Tank - center or outline	ml_TANK	✓	✓	Utilities
TBAR	Barrier - top - all barrier types - ground	ml_BARR_TOP	✓		Traffic Control
TBAR	Barrier - top - all barrier types - bridge deck	ml_BARR_TOP_deck	✓		Traffic Control
TERMLT	Barrier - guardrail terminator - left	ml_BARR_TERM_Lt		✓	Traffic Control
TERMR T	Barrier - guardrail terminator - right	ml_BARR_TERM_Rt		✓	Traffic Control
TOC	Curb along roadbed - top - ground	ml_CURB_TOP	✓		Roadbed
TOC	Curb along roadbed - top - bridge deck	ml_CURB_TOP_deck	✓		Roadbed
TOC	Curb, miscellaneous - top - ground	ml_misc_CURB_TOP	✓		Roadside
TREE	Tree	ml_TREE		✓	Vegetation
TS	Traffic signal - pole location	ml_TRAF_SIG		✓	Utilities
TTOW	Transmission tower - outline	ml_TTOW	✓	✓	Utilities
UGUTL	Underground utility facility - markout or positive location - unknown or other - single location or line	ml_UG	✓	✓	Utilities

Name	Description	Civil 3D Style/Layer	Line	Point	Group
UTL	Miscellaneous utilities point or linear features	ml_ut_MISC	✓	✓	Utilities
UTLA	Utility appurtenances	ml_ut_APPR		✓	Utilities
UTLMKR	Marker - utility	ml_MARKER_UTIL	✓	✓	Utilities
UTLPED	Pedestal - center - unknown or other	ml_PED		✓	Utilities
V	Valve - unknown or other	ml_VALVE		✓	Utilities
VEG	Miscellaneous vegetation point or linear features	ml_veg_MISC	✓	✓	Vegetation
VENT	Vent - center - unknown or other	ml_VENT		✓	Utilities
VINE	Vineyard - rows & outline	ml_VINE	✓		Vegetation
VLT	Vault - center or outline - unknown or other	ml_VAULT	✓	✓	Utilities
WALLT	Wall - top - masonry & retaining - ground	ml_WALL_TOP	✓		Structures
WEIR	Weir	ml_WEIR	✓		Hydrographic
WELL	Well	ml_WELL		✓	Utilities

Point Description Key Sets

When points are inserted into a drawing, the raw description of each point is evaluated by the Description Key Sets. When a raw description matches a Description Key, the properties defined in the key are assigned to that Point.

Caltrans Field Surveys Description Key Set:

Civil 3D Point Label Style = Topo Points [Name|Elevation|Description]

Code	Style	Point Label Style	Format	Point Object Layer
ABUT	SU Figure Points [STR]	Topo Points *	Bridge, abutment	topo_su_str_LINE_PTS_info_only
AC	SU Figure Points [RDBED]	Topo Points *	AC, misc, edge	topo_su_rdbed_LINE_PTS_info_only
ACBK	SU Figure Points [RDBED]	Topo Points *	AC, misc, breakline	topo_su_rdbed_LINE_PTS_info_only
ACFL	SU Figure Points [RDBED-FL]	Topo Points *	AC, misc, FL	topo_su_rdbed_LINE_PTS_info_only
ACM	SU Figure Points [RDSIDE]	Topo Points *	AC edge, misc	topo_su_rdside_LINE_PTS_info_only
ASTK	su_ctrl_AS_STAKED	Name	As-staked point	topo_su_ctrl_point_AS_STAKED
BB	SU Figure Points [RDSIDE]	Topo Points *	Back of bench	topo_su_rdside_LINE_PTS_info_only
BBWK	SU Figure Points [STR_DECK]	Topo Points *	Bridge, back of walk/curb	topo_su_str_LINE_PTS_deck_info_only
BCAB	SU Figure Points [UTIL-4]	Topo Points *	Buried cable	topo_su_ut_LINE_PTS_info_only
BCON	SU Figure Points [TC]	Topo Points *	Barrier, concrete	topo_su_tcd_LINE_PTS_info_only
BDRN	su_DI_RND_deck	Topo Points *	Bridge, deck drain	topo_su_hydro_df_STR_deck_drop
BEP	SU Figure Points [STR_DECK]	Topo Points *	Bridge, edge of pavement	topo_su_str_LINE_PTS_deck_info_only
BETW	SU Figure Points [STR_DECK]	Topo Points *	Bridge, edge of traveledway	topo_su_str_LINE_PTS_deck_info_only
BLC	su_ctrl_FD	Name	Block Corner	topo_su_ctrl_point_FD

Code	Style	Point Label Style	Format	Point Object Layer
BLDG	SU Figure Points [STR]	Topo Points *	Building, face	topo_su_str_LINE_PTS_info_only
BLDR	SU Figure Points [STR]	Topo Points *	Building, roof overhang	topo_su_str_LINE_PTS_info_only
BRB	SU Figure Points [STR_DECK]	Topo Points *	Bridge barrier rail, bottom	topo_su_str_LINE_PTS_deck_info_only
BRF	SU Figure Points [RDSIDE]	Topo Points *	Fence, board	topo_su_rdside_LINE_PTS_info_only
BRT	SU Figure Points [STR_DECK]	Topo Points *	Bridge barrier rail, top	topo_su_str_LINE_PTS_deck_info_only
BSOF	SU Figure Points [STR_UNDERSIDE]	Topo Points *	Bridge, soffit	topo_su_str_LINE_PTS_underside_info_only
BSTP	SU Figure Points [STR_DECK]	Topo Points *	Bridge, pavement stripe	topo_su_str_LINE_PTS_deck_info_only
BSWB	SU Figure Points [STR_DECK]	Topo Points *	Bridge curb, edge, bottom	topo_su_str_LINE_PTS_deck_info_only
BSWT	SU Figure Points [STR_DECK]	Topo Points *	Bridge curb, edge, top	topo_su_str_LINE_PTS_deck_info_only
BTHR	SU Figure Points [TC]	Topo Points *	Barrier, thrie	topo_su_tcd_LINE_PTS_info_only
BUAO	SU BUAO	Topo Points *	Bridge, utility access opening	topo_su_str_MISC_underside_drop
BUS	SU BUS	Topo Points *	Bus Stop	topo_su_str_BLDG_drop
BWF	SU Figure Points [RDSIDE]	Topo Points *	Fence, barbed wire	topo_su_rdside_LINE_PTS_info_only
BWW	SU Figure Points [STR]	Topo Points *	Bridge, Wingwall	topo_su_str_LINE_PTS_info_only
CAB	su_CAB	Topo Points *	Cabinet, utililty	topo_su_ut_CAB
CABEL	su_CAB_ELEC	Topo Points *	Cabinet, utililty electric	topo_su_ut_CAB
CABFIBER	su_CAB_FIBER	Topo Points *	Cabinet, utililty fiber optic	topo_su_ut_CAB
CABTL	su_CAB_TELEC	Topo Points *	Cabinet, utililty telecomm	topo_su_ut_CAB

Code	Style	Point Label Style	Format	Point Object Layer
CABTV	su_CAB_TV	Topo Points *	Cabinet, utility tv	topo_su_ut_CAB
CALL	su_CALL	Topo Points *	Call box	topo_su_ut_MISC
CARL	SU Figure Points [STR]	Topo Points *	Carport, edge covered	topo_su_str_LINE_PTS_info_only
CBSN	SU Figure Points [HYDRO]	Topo Points *	Catch basin	topo_su_hydro_LINE_PTS_info_only
CC	su_CC	Topo Points *	Crash Cushion, ground	topo_su_tcd_MISC_drop
CCDECK	su_CC_deck	Topo Points *	Crash Cushion, bridge deck	topo_su_tcd_MISC_deck_drop
CFL	SU Figure Points [HYDRO]	Topo Points *	Canal, FL	topo_su_hydro_LINE_PTS_info_only
CLF	SU Figure Points [RDSIDE]	Topo Points *	Fence, chain link	topo_su_rdside_LINE_PTS_info_only
CLH	su_ctrl_FD_CL	Name	Ctr Line Monument Horizontal	topo_su_ctrl_point_FD
CLHV	su_ctrl_FD_CL	Name	Ctr Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
CLNR	su_ctrl_FD_CL	Name	St CL, fd, no record	topo_su_ctrl_point_FD
CLO	su_CLO	Topo Points *	Cleanout	topo_su_hydro_df_MISC_drop
CLPC	su_ctrl_FD_CL	Name	St CL, PC	topo_su_ctrl_point_FD
CLPT	su_ctrl_FD_CL	Name	St CL, PT	topo_su_ctrl_point_FD
COL	su_COL_CTR	Topo Points *	Bent/Column/Pier	topo_su_str_COL_drop
COLCTR	su_COL_CTR	Topo Points *	Bent/Column/Pier, circular center	topo_su_str_COL_drop
COLM	SU Figure Points [STR]	Topo Points *	Bent/Column/Pier, linear ends	topo_su_str_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
COLPT	su_COL	Topo Points *	Bent/Column/Pier, centerline, corner or face	topo_su_str_COL_drop
COND	SU Figure Points [UTIL-4]	Topo Points *	Conduit	topo_su_ut_LINE_PTS_info_only
CONDP	su_COND	Topo Points *	Conduit, single location	topo_su_ut_COND
CPCC	su_ctrl_FD_CL	Name	St CL, PCC	topo_su_ctrl_point_FD
CPI	su_ctrl_FD_CL	Name	St CL, PI	topo_su_ctrl_point_FD
CPOC	su_ctrl_FD_CL	Name	St CL, POC	topo_su_ctrl_point_FD
CPOT	su_ctrl_FD_CL	Name	St CL, POT	topo_su_ctrl_point_FD
CPRC	su_ctrl_FD_CL	Name	St CL, PRC	topo_su_ctrl_point_FD
CROP	SU Figure Points [VEG]	Topo Points *	Crop, edge	topo_su_veg_LINE_PTS_info_only
CTLG	SU Figure Points [RDBED]	Topo Points *	Cattle guard	topo_su_rdbed_LINE_PTS_info_only
CTOP	SU Figure Points [HYDRO]	Topo Points *	Canal, top	topo_su_hydro_LINE_PTS_info_only
CTRL	SU CTRL	Name	Generic Point - Control monumentation	topo_su_ctrl_point_FD
CULT	SU Figure Points [HYDRO]	Topo Points *	Culvert, top	topo_su_hydro_LINE_PTS_info_only
CULV	SU Figure Points [HYDRO]	Topo Points *	Culvert, pipe, FL	topo_su_hydro_LINE_PTS_info_only
CULVFL	su_CULV_FL	Topo Points *	Culvert flowline, point	topo_su_hydro_df_CULV_drop
CULVP	su_CULV	Topo Points *	Culvert, point	topo_su_hydro_df_CULV_drop
CUVT	SU CUVT	Topo Points *	Culvert, top elevation	topo_su_hydro_df_CULV_drop
CWW	SU Figure Points [HYDRO]	Topo Points *	Culvert, wingwall	topo_su_hydro_LINE_PTS_info_only
DECK	SU Figure Points [STR]	Topo Points *	Deck, wood, edge	topo_su_str_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
DECKMISC	su_str_MISC_deck	Topo Points *	Miscellaneous bridge deck point feature	topo_su_str_MISC_deck_drop
DFL	SU Figure Points [HYDRO]	Topo Points *	Ditch, FL	topo_su_hydro_LINE_PTS_info_only
DI	su_DI_RECT	Topo Points *	DI, rectangle	topo_su_hydro_df_STR_drop
DICO	SU DICO	Topo Points *	DI, curb open/no grate	topo_su_hydro_df_STR_drop
DIKB	SU Figure Points [RDBED]	Topo Points *	Dike, bottom	topo_su_rdbed_LINE_PTS_info_only
DIKT	SU Figure Points [RDBED]	Topo Points *	Dike, top	topo_su_rdbed_LINE_PTS_info_only
DIMISC	su_DI	Topo Points *	DI, miscellaneous	topo_su_hydro_df_STR_drop
DIMISCDECK	su_DI_deck	Topo Points *	DI, miscellaneous, bridge deck	topo_su_hydro_df_STR_deck_drop
DIRECT	su_DI_RECT	Topo Points *	DI, rectangle	topo_su_hydro_df_STR_drop
DIRECTDECK	su_DI_RECT_deck	Topo Points *	DI, rectangle, bridge deck	topo_su_hydro_df_STR_deck_drop
DIRND	su_DI_RND	Topo Points *	DI, round	topo_su_hydro_df_STR_drop
DIRNDDECK	su_DI_RND_deck	Topo Points *	DI, round, bridge deck	topo_su_hydro_df_STR_deck_drop
DIRO	su_DI_RND	Topo Points *	DI, round	topo_su_hydro_df_STR_drop
DISD	SU DISD	Topo Points *	DI, side inlet, FL	topo_su_hydro_df_STR_drop
DRWY	SU Figure Points [RDSIDE]	Topo Points *	Driveway, edge	topo_su_rdside_LINE_PTS_info_only
DTOP	SU Figure Points [HYDRO]	Topo Points *	Ditch, top	topo_su_hydro_LINE_PTS_info_only
EDC	su_CLO	Topo Points *	Drain edge, cleanout	topo_su_hydro_df_MISC_drop

Code	Style	Point Label Style	Format	Point Object Layer
EDO	SU EDO	Topo Points *	Drain edge, outlet	topo_su_hydro_df_STR_drop
EDV	su_VENT_DF	Topo Points *	Drain edge, vent	topo_su_hydro_df_MISC_drop
EL	su_EL	Topo Points *	Electrolier	topo_su_ut_LTG
ELC	SU Figure Points [UTIL-3]	Topo Points *	Cable, electrical	topo_su_ut_LINE_PTS_info_only
ELMH	su_MH_ELEC	Topo Points *	Manhole, electrical	topo_su_ut_MH
EM	su_METER_ELEC	Topo Points *	Electric meter	topo_su_ut_METER
ENT	SU Figure Points [HYDRO]	Topo Points *	Taper entrance	topo_su_hydro_LINE_PTS_info_only
EOD	SU Figure Points [STR_DECK]	Topo Points *	Bridge, edge deck	topo_su_str_LINE_PTS_deck_info_only
EOR	SU Figure Points [RDBED]	Topo Points *	Road, edge, unsurfaced	topo_su_rdbed_LINE_PTS_info_only
EP	SU Figure Points [RDBED]	Topo Points *	Pavement edge	topo_su_rdbed_LINE_PTS_info_only
ES	SU Figure Points [RDBED]	Topo Points *	Shoulder edge, surfaced	topo_su_rdbed_LINE_PTS_info_only
ETW	SU Figure Points [TC]	Topo Points *	Traveledway edge	topo_su_tcd_LINE_PTS_info_only
EW	SU Figure Points [HYDRO]	Topo Points *	Lake, pond, swamp, water edge	topo_su_hydro_LINE_PTS_info_only
FB	SU Figure Points [RDSIDE]	Topo Points *	Front of bench	topo_su_rdside_LINE_PTS_info_only
FDCL	su_ctrl_FD_CL	Name	Found Point - centerline	topo_su_ctrl_point_FD
FDLINE	SU Figure Points [CTRL]	Name Description	Generic Line - Ownership Lines	topo_su_ctrl_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
FDLN	SU Figure Points [CTRL]	Name Description	Generic Line - Ownership Lines	topo_su_ctrl_LINE_PTS_info_only
FDNR	su_ctrl_FD_no_record	Name	Fd Pt, no record	topo_su_ctrl_point_FD
FDPT	su_ctrl_FD	Name	Found Point	topo_su_ctrl_point_FD
FDPTSECT	su_ctrl_FD_Section	Name	Found Point - section corner	topo_su_ctrl_point_FD
FDR	su_ctrl_FD	Name	Fd Pt, record	topo_su_ctrl_point_FD
FES	su_FES	Topo Points *	Flared end section	topo_su_hydro_df_STR_drop
FH	su_FH	Topo Points *	Fire hydrant	topo_su_ut_MISC
FIBO	SU Figure Points [UTIL-5]	Topo Points *	Cable, fiber optic	topo_su_ut_LINE_PTS_info_only
FLC	SU Figure Points [RDBED-FL]	Topo Points *	Curb FL	topo_su_rdbed_LINE_PTS_info_only
FP	su_FP	Topo Points *	Flag pole	topo_su_rdside_MISC_drop
FRLC	su_ctrl_FD	Name	Frac Lot Corner	topo_su_ctrl_point_FD
GATEP	su_GATE_POST	Topo Points *	Gate post, free & hinged ends	topo_su_rdside_FENCE_drop
GATEPDECK	su_GATE_POST_deck	Topo Points *	Gate post, free & hinged ends, bridge deck	topo_su_rdside_FENCE_deck_drop
GF	SU GF	Topo Points *	Gate post, free end	topo_su_rdside_FENCE_drop
GH	SU GH	Topo Points *	Gate post, hinged end	topo_su_rdside_FENCE_drop
GLN	SU Figure Points [UTIL-2]	Topo Points *	Gas, natural	topo_su_ut_LINE_PTS_info_only
GLP	SU Figure Points [UTIL-7]	Topo Points *	Gas, petroleum	topo_su_ut_LINE_PTS_info_only
GM	su_METER_GAS	Topo Points *	Gas meter	topo_su_ut_METER
GSLD	SU Figure Points [RDSIDE]	Topo Points *	Gate, sliding	topo_su_rdside_LINE_PTS_info_only

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Code	Style	Point Label Style	Format	Point Object Layer
GUY	su_GUY	Topo Points *	Guy anchor	topo_su_ut_POLE
GV	su_VALVE_GAS	Topo Points *	Gas valve	topo_su_ut_VALVE
HB	su_HB	Topo Points *	Hose bib	topo_su_ut_APPR
HDWB	SU Figure Points [HYDRO]	Topo Points *	Headwall, bottom	topo_su_hydro_LINE_PTS_info_only
HEAD	SU Figure Points [HYDRO]	Topo Points *	Headwall, top	topo_su_hydro_LINE_PTS_info_only
HORZ	SU HORZ	Topo Points *	Horizontal Drain	topo_su_hydro_df_STR_drop
HP	SU Figure Points [RDSIDE]	Topo Points *	Hinge point	topo_su_rdside_LINE_PTS_info_only
HWAT	su_HWAT	Topo Points *	High Water	topo_su_hydro_WATER_drop
HYDRL	SU Figure Points [HYDRO]	Topo Points *	Generic Line - Hydro, Drainage, & Irrigation	topo_su_hydro_LINE_PTS_info_only
HYDRMISC	su_hydro_MISC	Topo Points *	Miscellaneous Hydro, Drainage, & Irrigation	topo_su_hydro_MISC_drop
HYDRP	su_hydro_MISC	Topo Points *	Generic Point - Hydro, Drainage, & Irrigation	topo_su_hydro_MISC_drop
INTT	SU INTT	Topo Points *	Orchard, tree (interior)	topo_su_veg_MISC_drop
IRRV	su_VALVE_IRRIG	Topo Points *	Valve irrigation	topo_su_ut_APPR
ITS	su_ITS	Topo Points *	Intelligent Transportation System Node	topo_su_ut_MISC
LINEPTS	su_Line_Points	Topo Points *	TBC Line Points	topo_su_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
LINEPTSCTRL	su_ctrl_Line_Points	Topo Points *	TBC Line Points	topo_su_ctrl_LINE_PTS_info_only
LINEPTSDECK	su_str_Line_Points_deck	Topo Points *	TBC Line Points	topo_su_str_LINE_PTS_deck_info_only
LINEPTSHYDRO	su_hydro_Line_Points	Topo Points *	TBC Line Points	topo_su_hydro_LINE_PTS_info_only
LINEPTSRRDBED	su_rdbed_Line_Points	Topo Points *	TBC Line Points	topo_su_rdbed_LINE_PTS_info_only
LINEPTSRRDSIDE	su_rdside_Line_Points	Topo Points *	TBC Line Points	topo_su_rdside_LINE_PTS_info_only
LINEPTSSTR	su_str_Line_Points	Topo Points *	TBC Line Points	topo_su_str_LINE_PTS_info_only
LINEPTSTCD	su_tcd_Line_Points	Topo Points *	TBC Line Points	topo_su_tcd_LINE_PTS_info_only
LINEPTSUNDER	su_str_Line_Points_underside	Topo Points *	TBC Line Points	topo_su_str_LINE_PTS_underside_info_only
LINEPTSUTIL	su_ut_Line_Points	Topo Points *	TBC Line Points	topo_su_ut_LINE_PTS_info_only
LINEPTSVEG	su_veg_Line_Points	Topo Points *	TBC Line Points	topo_su_veg_LINE_PTS_info_only
LIP	SU Figure Points [RDBED]	Topo Points *	Curb lip	topo_su_rdbed_LINE_PTS_info_only
LL	SU Figure Points [TC]	Topo Points *	Lane line	topo_su_tcd_LINE_PTS_info_only
LOCT	su_SLIDE	Topo Points *	Slide (monitoring)	topo_su_rdside_SLIDE_drop
LP	su_LTG	Topo Points *	Lamp post, decorative	topo_su_ut_LTG
LR	SU Figure Points [RDSIDE]	Topo Points *	Railroad Track, left rail	topo_su_rdside_LINE_PTS_info_only
LTC	su_ctrl_FD	Name	Lot Corner	topo_su_ctrl_point_FD
LTG	su_LTG	Topo Points *	Lighting	topo_su_ut_LTG
MANL	SU Figure Points [RDSIDE]	Topo Points *	Generic Line - Man-made General Feature	topo_su_rdside_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
MANP	su_rdside_MISC	Topo Points *	Generic Point - Man-made General Feature	topo_su_rdside_MISC_drop
MARK	su_MARKER_GUIDE	Topo Points *	Guide post/marker	topo_su_tcd_MARKER_drop
MARKGD	su_MARKER_GUIDE	Topo Points *	Guide post/marker - ground	topo_su_tcd_MARKER_drop
MARKGDDECK	su_MARKER_GUIDE_deck	Topo Points *	Guide post/marker - bridge deck	topo_su_tcd_MARKER_deck_drop
MARKMISC	su_MARKER_MISC	Topo Points *	Miscellaneous post/marker - ground	topo_su_tcd_MARKER_drop
MARKMISCD ECK	su_MARKER_MISC_deck	Topo Points *	Miscellaneous post/marker - bridge deck	topo_su_tcd_MARKER_deck_drop
MARKPAVE	su_MARKER_PAVE	Topo Points *	Pavement marker - ground	topo_su_tcd_MARKER_drop
MARKPAVE DECK	su_MARKER_PAVE_deck	Topo Points *	Pavement marker - bridge deck	topo_su_tcd_MARKER_deck_drop
MARKUTIL	su_MARKER_UTIL	Topo Points *	Utility marker	topo_su_ut_MARKER
MB	su_MAIL	Topo Points *	Mail box	topo_su_rdside_MISC_drop
MBGR	SU Figure Points [TC]	Topo Points *	Guard rail, face, metal	topo_su_tcd_LINE_PTS_info_only
MBS	SU Figure Points [RDSIDE]	Topo Points *	Mail boxes	topo_su_rdside_LINE_PTS_info_only
MC	su_ctrl_FD	Name	Meander Corner	topo_su_ctrl_point_FD
MH	su_MH [True size]	Topo Points *	\$1' diameter manhole, unknown or other	topo_su_ut_MH

Code	Style	Point Label Style	Format	Point Object Layer
MHEL	su_MH_ELEC [True size]	Topo Points *	\$1' diameter manhole, electric	topo_su_ut_MH
MHFIBER	su_MH_FIBER [True size]	Topo Points *	\$1' diameter manhole, fiber optic	topo_su_ut_MH
MHJT	su_MH_JOINT [True size]	Topo Points *	\$1' diameter manhole, joint	topo_su_ut_MH
MHSD	su_MH_STORM [True size]	Topo Points *	\$1' diameter manhole, storm	topo_su_ut_MH
MHSS	su_MH_SEWER [True size]	Topo Points *	\$1' diameter manhole, sewer	topo_su_ut_MH
MHTL	su_MH_TELEC [True size]	Topo Points *	\$1' diameter manhole, telecomm	topo_su_ut_MH
MHTV	su_MH_TV [True size]	Topo Points *	\$1' diameter manhole, TV	topo_su_ut_MH
MTR	su_METER	Topo Points *	Meter, unknown or other	topo_su_ut_METER
MREL	su_METER_ELEC	Topo Points *	Meter, electric	topo_su_ut_METER
MTRGAS	su_METER_GAS	Topo Points *	Meter, gas	topo_su_ut_METER
MTRWAT	su_METER_WATER	Topo Points *	Meter, water	topo_su_ut_METER
MWB	SU Figure Points [STR]	Topo Points *	Wall, misc, bottom	topo_su_str_LINE_PTS_info_only
MWT	SU Figure Points [STR]	Topo Points *	Wall, misc, top	topo_su_str_LINE_PTS_info_only
OCAB	SU Figure Points [UTIL-4]	Topo Points *	Overhead cable	topo_su_ut_LINE_PTS_info_only
ODRN	SU Figure Points [HYDRO]	Topo Points *	Drain, overside	topo_su_hydro_LINE_PTS_info_only
OG	SU Figure Points [RDSIDE]	Topo Points *	Original ground	topo_su_rdside_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
OGFL	SU Figure Points [RDSIDE-FL]	Topo Points *	Original Ground, flowline	topo_su_rdside_LINE_PTS_info_only
ORCH	SU Figure Points [VEG]	Topo Points *	Orchard, edge	topo_su_veg_LINE_PTS_info_only
OSH	su_ctrl_FD_CL	Name	O/S Line Monument Horizontal	topo_su_ctrl_point_FD
OSHV	su_ctrl_FD_CL	Name	O/S Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
PAT	SU Figure Points [STR]	Topo Points *	Patio, edge	topo_su_str_LINE_PTS_info_only
PB	su_PB_RECT	Topo Points *	Pull/Utility box, unknown or other	topo_su_ut_PB
PBEL	su_PB_RECT_ELEC	Topo Points *	Pull/Utility box, electric	topo_su_ut_PB
PBFTTV	su_PB_RECT_TV	Topo Points *	Pull/Utility box, TV	topo_su_ut_PB
PBJT	su_PB_RECT_JOINT	Topo Points *	Pull/Utility box, joint	topo_su_ut_PB
PBRECT	su_PB_RECT	Topo Points *	Pull/Utility box, rectangular, unknown or other	topo_su_ut_PB
PBRECTEL	su_PB_RECT_ELEC	Topo Points *	Pull/Utility box, rectangular, electric	topo_su_ut_PB
PBRECTFIBER	su_PB_RECT_FIBER	Topo Points *	Pull/Utility box, rectangular, fiber optic	topo_su_ut_PB
PBRECTJT	su_PB_RECT_JOINT	Topo Points *	Pull/Utility box, rectangular, joint	topo_su_ut_PB

Code	Style	Point Label Style	Format	Point Object Layer
PBRECTTL	su_PB_RECT_TELE C	Topo Points *	Pull/Utility box, rectangular, telecomm	topo_su_ut_PB
PBRECTTV	su_PB_RECT_TV	Topo Points *	Pull/Utility box, rectangular, TV	topo_su_ut_PB
PBRECTWAT	su_PB_RECT_WATE R	Topo Points *	Pull/Utility box, rectangular, rectangular, water	topo_su_ut_PB
PBRND	su_PB_RND	Topo Points *	Pull/Utility box, round, unknown or other	topo_su_ut_PB
PBRNDEL	su_PB_RND_ELEC	Topo Points *	Pull/Utility box, round, electric	topo_su_ut_PB
PBRNDFIBER	su_PB_RND_FIBER	Topo Points *	Pull/Utility box, round, fiber optic	topo_su_ut_PB
PBRNDJT	su_PB_RND_JOINT	Topo Points *	Pull/Utility box, round, joint	topo_su_ut_PB
PBRNDTL	su_PB_RND_TELEC	Topo Points *	Pull/Utility box, round, telecomm	topo_su_ut_PB
PBRNDTV	su_PB_RND_TV	Topo Points *	Pull/Utility box, round, TV	topo_su_ut_PB
PBRNDWAT	su_PB_RND_WATER	Topo Points *	Pull/Utility box, round, water	topo_su_ut_PB
PBWAT	su_PB_RECT_WATE R	Topo Points *	Pull/Utility box, water	topo_su_ut_PB
PCBK	SU Figure Points [RDBED]	Topo Points *	Concrete, misc, breakline	topo_su_rdbed_LINE_PTS_ info_only
PCC	SU Figure Points [RDBED]	Topo Points *	Concrete, misc, edge	topo_su_rdbed_LINE_PTS_ info_only
PCCM	SU Figure Points [RDSIDE]	Topo Points *	Concrete edge, misc	topo_su_rdside_LINE_PTS_ info_only
PCFL	SU Figure Points [RDBED-FL]	Topo Points *	Concrete, misc, FL	topo_su_rdbed_LINE_PTS_ info_only

Code	Style	Point Label Style	Format	Point Object Layer
PED	su_PED_TV	Topo Points *	Pedestal, telephone	topo_su_ut_MISC
PEDBTN	su_Pedestrian_BTN	Topo Points *	Pedestrian button	topo_su_ut_LTG
PEDEL	su_PED_ELEC	Topo Points *	Pedestal, electric	topo_su_ut_MISC
PEDFIBER	su_PED_FIBER	Topo Points *	Pedestal, fiber optic	topo_su_ut_MISC
PEDJT	su_PED_JOINT	Topo Points *	Pedestal, joint	topo_su_ut_MISC
PEDPOLE	su_Pedestrian_BTN_POLE	Topo Points *	Pedestrian button pole	topo_su_ut_LTG
PEDSIG	su_Pedestrian_SIG	Topo Points *	Pedestrian signal	topo_su_ut_LTG
PEDTL	su_PED_TELEC	Topo Points *	Pedestal, telecomm	topo_su_ut_MISC
PEDTV	su_PED_TV	Topo Points *	Pedestal, TV	topo_su_ut_MISC
PEDUNKN	su_PED	Topo Points *	Pedestal, unknown or other	topo_su_ut_MISC
PHH	SU PHH	SU Points Label CTRL	Photo Control Monument Horizontal	topo_su_ctrl_point_MON
PHHV	SU PHHV	SU Points Label CTRL	Photo Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
PHV	SU PHV	SU Points Label CTRL	Photo Control Monument Vertical	topo_su_ctrl_point_MON
PIPR	su_BOLLARD	Topo Points *	Protective pipe	topo_su_rdside_MISC_drop
PLSO	su_ctrl_FD	Name	PLS Corner, other	topo_su_ctrl_point_FD
PMC	su_ctrl_FD	Name	Parcel Corner	topo_su_ctrl_point_FD

Code	Style	Point Label Style	Format	Point Object Layer
PMH	su_ctrl_Primary_H	SU Points Label CTRL	Primary Control Monument Horizontal	topo_su_ctrl_point_MON
PMHV	su_ctrl_Primary_HV	SU Points Label CTRL	Primary Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
PMRK	SU Figure Points [TC]	Topo Points *	Markers, pavement, non-reflective	topo_su_tcd_LINE_PTS_info_only
PMV	su_ctrl_Primary_V	SU Points Label CTRL	Primary Control Monument Vertical	topo_su_ctrl_point_MON
PN	SU Figure Points [STR_DECK]	Topo Points *	Bridge, paving notch	topo_su_str_LINE_PTS_deck_info_only
POLE	su_POLE	Topo Points *	Pole, unknown or other	topo_su_ut_POLE
POLEEL	su_POLE_ELEC	Topo Points *	Pole, electric	topo_su_ut_POLE
POLEFIBER	su_POLE_FIBER	Topo Points *	Pole, fiber optic	topo_su_ut_POLE
POLEJT	su_POLE_JOINT	Topo Points *	Pole, joint	topo_su_ut_POLE
POLETL	su_POLE_TELEC	Topo Points *	Pole, telecomm	topo_su_ut_POLE
POLETV	su_POLE_TV	Topo Points *	Pole, TV	topo_su_ut_POLE
POLL	su_POLE	Topo Points *	Pole line	topo_su_ut_POLE
POOL	SU Figure Points [HYDRO]	Topo Points *	Pool, edge	topo_su_hydro_LINE_PTS_info_only
PRF	SU Figure Points [RDSIDE]	Topo Points *	Fence, pipe rail	topo_su_rdside_LINE_PTS_info_only
PRH	su_ctrl_Project_H	SU Points Label CTRL	Project Control Monument Horizontal	topo_su_ctrl_point_MON

Code	Style	Point Label Style	Format	Point Object Layer
PRHV	su_ctrl_Project_HV	SU Points Label CTRL	Project Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
PRKM	su_Parking_Meter	Topo Points *	Parking meter	topo_su_tcd_MISC_drop
PRV	su_ctrl_Project_V	SU Points Label CTRL	Project Control Monument Vertical	topo_su_ctrl_point_MON
PTEL	su_TELE	Topo Points *	Public telephone	topo_su_ut_MISC
PUMH	SU Figure Points [UTIL-1]	Topo Points *	Pump House	topo_su_ut_LINE_PTS_info _only
PUMP	su_PUMP	Topo Points *	Pump	topo_su_ut_APPR
QC	su_ctrl_FD_Section	Name	Quarter Corner	topo_su_ctrl_point_FD
RBRK	SU Figure Points [RDBED]	Topo Points *	Breakline, pavement	topo_su_rdbed_LINE_PTS_ info_only
RC	su_ctrl_FD	Name	Rancho Corner	topo_su_ctrl_point_FD
RCA	SU Figure Points [HYDRO]	Topo Points *	Culvert, reinforced concrete arch	topo_su_hydro_LINE_PTS_ info_only
RCB	SU Figure Points [HYDRO]	Topo Points *	Culvert, reinforced concrete box	topo_su_hydro_LINE_PTS_ info_only
RDSDMISC	su_rdside_MISC	Topo Points *	Miscellaneous roadside on ground	topo_su_rdside_MISC_drop
RDSDMISCDECK	su_rdside_MISC_dec k	Topo Points *	Miscellaneous roadside on bridge deck	topo_su_rdside_MISC_deck _drop
RDWYL	SU Figure Points [RDBED]	Topo Points *	Generic Line - Roadway Delineation	topo_su_rdbed_LINE_PTS_ info_only
RDWYMISC	su_rdbed_MISC	Topo Points *	Miscellaneous roadbed on ground	topo_su_rdbed_MISC_drop

Code	Style	Point Label Style	Format	Point Object Layer
RDWYMISCD ECK	su_rdbed_MISC_deck	Topo Points *	Miscellaneous roadbed on bridge deck	topo_su_rdbed_MISC_deck_drop
RDWYP	su_rdbed_MISC	Topo Points *	Generic Point - Roadbed delineation	topo_su_rdbed_MISC_drop
REFR	su_ctrl_Reference	Topo Points *	Reference point	topo_su_ctrl_point_MON
RIV	SU Figure Points [HYDRO]	Topo Points *	River or stream, edge	topo_su_hydro_LINE_PTS_info_only
RMRK	su_MARKER_PAVE	Topo Points *	Markers, pavement, reflective	topo_su_tcd_MARKER_drop
RO	su_ctrl_FD	Name	Rancho, other	topo_su_ctrl_point_FD
ROCK	SU Figure Points [RDSIDE]	Topo Points *	Rock area	topo_su_rdside_LINE_PTS_info_only
RR	SU Figure Points [RDSIDE]	Topo Points *	Railroad track, right rail	topo_su_rdside_LINE_PTS_info_only
RRA	su_RR_APPR	Topo Points *	Railroad, appurtenances	topo_su_rdside_RR_drop
RRGA	su_RR_POST	Topo Points *	Railroad, gate post	topo_su_rdside_RR_drop
RRSG	su_RR_SIG	Topo Points *	Railroad, signal	topo_su_ut_LTG
RRSW	su_RR_APPR	Topo Points *	Railroad, switch	topo_su_rdside_RR_drop
RW	su_ctrl_FD_RW	Name	R/W Monument	topo_su_ctrl_point_FD
RWB	SU Figure Points [STR]	Topo Points *	Wall, retaining, bottom	topo_su_str_LINE_PTS_info_only
RWT	SU Figure Points [STR]	Topo Points *	Wall, retaining, top	topo_su_str_LINE_PTS_info_only
SC	su_ctrl_FD_Section	Name	Section Corner found monument	topo_su_ctrl_point_FD
SDMH	su_MH_STORM	Topo Points *	Manhole, storm	topo_su_ut_MH

Code	Style	Point Label Style	Format	Point Object Layer
SDR	SU Figure Points [HYDRO]	Topo Points *	Storm drain	topo_su_hydro_LINE_PTS_info_only
SDRN	SU Figure Points [HYDRO]	Topo Points *	Drain, slotted	topo_su_hydro_LINE_PTS_info_only
SIGN	su_SIGN	Topo Points *	Sign, hanging or other type	topo_su_tcd_SIGN_drop
SINB	su_SIGN_OH	Topo Points *	Sign, overhead, bridge	topo_su_tcd_SIGN_drop
SINC	su_SIGN_CANT	Topo Points *	Sign, overhead, cantilever	topo_su_tcd_SIGN_drop
SINM	SU SINM	Topo Points *	Sign, multi-post	topo_su_tcd_SIGN_drop
SINS	su_SIGN_SINGLE	Topo Points *	Sign, single post	topo_su_tcd_SIGN_drop
SLD	SU Figure Points [RDSIDE]	Topo Points *	Slide, edge	topo_su_rdside_LINE_PTS_info_only
SLDP	su_SLIDE	Topo Points *	Slide (monitoring)	topo_su_rdside_SLIDE_drop
SLH	su_ctrl_FD_CL	Name	Station Line Monument Horizontal	topo_su_ctrl_point_FD
SLHV	su_ctrl_FD_CL	Name	Station Line Monument Horizontal & Vertical	topo_su_ctrl_point_FD
SLP	SU Figure Points [HYDRO]	Topo Points *	Slope protection	topo_su_hydro_LINE_PTS_info_only
SP	su_SP	Topo Points *	Standpipe	topo_su_ut_APPR
SPLY	SU Figure Points [HYDRO]	Topo Points *	Spillway, edge	topo_su_hydro_LINE_PTS_info_only
SPR	su_SPR	Topo Points *	Sprinkler	topo_su_ut_APPR
SRCH	point_SEARCH	Name Description	Search Coordinate	rw_topo_point

Code	Style	Point Label Style	Format	Point Object Layer
SS	SU Figure Points [UTIL-6]	Topo Points *	Sewer	topo_su_ut_LINE_PTS_info_only
SSMH	su_MH_SEWER	Topo Points *	Manhole, sewer	topo_su_ut_MH
SSP	su_UG_SEWER	Topo Points *	Sanitary sewer, point	topo_su_ut_UG
STHR	SU Figure Points [HYDRO]	Topo Points *	Stream, thread	topo_su_hydro_LINE_PTS_info_only
STRMISC	su_str_MISC	Topo Points *	Miscellaneous structures point feature	topo_su_str_MISC_drop
STRP	SU Figure Points [TC]	Topo Points *	Stripes, Pavement	topo_su_tcd_LINE_PTS_info_only
SUH	su_ctrl_Supp_H	SU Points Label CTRL	Supp. Control Monument Horizontal	topo_su_ctrl_point_MON
SUHV	su_ctrl_Supp_HV	SU Points Label CTRL	Supp. Control Monument Horizontal & Vertical	topo_su_ctrl_point_MON
SUV	su_ctrl_Supp_V	SU Points Label CTRL	Supp. Control Monument Vertical	topo_su_ctrl_point_MON
SW	SU Figure Points [RDSIDE]	Topo Points *	Sidewalk, edge, front/back	topo_su_rdside_LINE_PTS_info_only
SWB	SU Figure Points [STR]	Topo Points *	Wall, sound wall, bottom	topo_su_str_LINE_PTS_info_only
SWT	SU Figure Points [STR]	Topo Points *	Wall, sound wall, top	topo_su_str_LINE_PTS_info_only
TANK	su_TANK	Topo Points *	Tank, center	topo_su_rdside_MISC_drop
TANP	SU Figure Points [RDSIDE]	Topo Points *	Tank, propane, ends	topo_su_rdside_LINE_PTS_info_only
TC	su_ctrl_FD_Section	Name	Township Corner	topo_su_ctrl_point_FD
TELC	SU Figure Points [UTIL-5]	Topo Points *	Cable, telephone	topo_su_ut_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
TLMH	su_MH_TELEC	Topo Points *	Manhole, telecomm	topo_su_ut_MH
TOB	SU Figure Points [HYDRO]	Topo Points *	Bank, top	topo_su_hydro_LINE_PTS_info_only
TOC	SU Figure Points [RDBED]	Topo Points *	Curb top, front/back	topo_su_rdbed_LINE_PTS_info_only
TOE	SU Figure Points [RDSIDE]	Topo Points *	Toe of slope	topo_su_rdside_LINE_PTS_info_only
TOP	SU Figure Points [RDSIDE]	Topo Points *	Top of slope	topo_su_rdside_LINE_PTS_info_only
TOWL	SU Figure Points [UTIL-4]	Topo Points *	Transmission tower, edge	topo_su_ut_LINE_PTS_info_only
TOWP	SU TOWP	Topo Points *	Transmission tower, center	topo_su_ut_MISC
TRC	su_ctrl_FD	Name	Tract Corner	topo_su_ctrl_point_FD
TREE	su_TREE	Topo Points *	Tree	topo_su_veg_TREE_drop
TRFSG	su_TRAF_SIG	Topo Points *	Traffic signal	topo_su_ut_LTG
TRL	SU Figure Points [RDSIDE]	Topo Points *	Trail, center	topo_su_rdside_LINE_PTS_info_only
TS	su_TRAF_SIG	Topo Points *	Traffic signal	topo_su_ut_LTG
TVC	SU Figure Points [UTIL-5]	Topo Points *	Cable, television	topo_su_ut_LINE_PTS_info_only
UG	su_UG	Topo Points *	Underground utility, unknown or other	topo_su_ut_UG
UGEL	su_UG_ELEC	Topo Points *	Underground utility, electric	topo_su_ut_UG
UGFIBER	su_UG_FIBER	Topo Points *	Underground utility, fiber optic	topo_su_ut_UG
UGGAS	su_UG_GAS	Topo Points *	Underground utility, gasoline	topo_su_ut_UG
UGIRRIG	su_UG_IRRIG	Topo Points *	Underground utility, irrigation	topo_su_ut_UG

Code	Style	Point Label Style	Format	Point Object Layer
UGJT	su_UG_JOINT	Topo Points *	Underground utility, joint	topo_su_ut_UG
UGNGAS	su_UG_NAT_GAS	Topo Points *	Underground utility, natural gas	topo_su_ut_UG
UGOIL	su_UG_OIL	Topo Points *	Underground utility, oil	topo_su_ut_UG
UGRCW	su_UG_RCW	Topo Points *	Underground utility, reclaimed water	topo_su_ut_UG
UGSD	su_UG_STORM	Topo Points *	Underground utility, storm drain	topo_su_ut_UG
UGSS	su_UG_SEWER	Topo Points *	Underground utility, sanitary sewer	topo_su_ut_UG
UGSTM	su_UG_STEAM	Topo Points *	Underground utility, steam	topo_su_ut_UG
UGTELE	su_UG_TELEC	Topo Points *	Underground utility, telecomm	topo_su_ut_UG
UGTV	su_UG_TV	Topo Points *	Underground utility, television	topo_su_ut_UG
UGWAT	su_UG_WATER	Topo Points *	Underground utility, water	topo_su_ut_UG
UNDERSIDE MISC	su_str_MISC_underside	Topo Points *	Miscellaneous bridge underside point feature	topo_su_str_MISC_underside_drop
UTLA	su_ut_APPR	Topo Points *	Utility Appurtenance	topo_su_ut_APPR
UTLL	SU Figure Points [UTIL-4]	Topo Points *	Generic Line - Utilities	topo_su_ut_LINE_PTS_info_only
UTLM	su_MARKER_UTIL	Topo Points *	Utility marker	topo_su_ut_MARKER
UTLMISC	su_ut_MISC	Topo Points *	Miscellaneous utilities point	topo_su_ut_MISC

Code	Style	Point Label Style	Format	Point Object Layer
UTLP	su_ut_MISC	Topo Points *	Generic Point - Utilities	topo_su_ut_MISC
VEGE	SU Figure Points [VEG]	Topo Points *	Vegetation, edge	topo_su_veg_LINE_PTS_info_only
VEGL	SU Figure Points [VEG]	Topo Points *	Generic Line - Natural & Vegetation Feature	topo_su_veg_LINE_PTS_info_only
VEGMISC	su_veg_MISC	Topo Points *	Miscellaneous vegetation point	topo_su_veg_MISC_drop
VEGP	su_veg_MISC	Topo Points *	Generic Point - Natural & Vegetation Feature	topo_su_veg_MISC_drop
VENT	su_VENT	Topo Points *	Vent, utility, unknown or other	topo_su_ut_MISC
VENTGAS	su_VENT_GAS	Topo Points *	Vent, utility, gasoline	topo_su_ut_MISC
VENTNGAS	su_VENT_NAT-GAS	Topo Points *	Vent, utility, natural gas	topo_su_ut_MISC
VENTSD	su_VENT_DF	Topo Points *	Vent, utility, storm drain	topo_su_ut_MISC
VENTSS	su_VENT_SEWER	Topo Points *	Vent, utility, sanitary sewer	topo_su_ut_MISC
VENTSTM	su_VENT_STEAM	Topo Points *	Vent, utility, steam	topo_su_ut_MISC
VGUT	SU Figure Points [RDBED-FL]	Topo Points *	Valley gutter	topo_su_rdbed_LINE_PTS_info_only
VLT	su_VAULT	Topo Points *	Vault, utility, unknown or other	topo_su_ut_VAULT
VLTEL	su_VAULT_ELEC	Topo Points *	Vault, utility, electric	topo_su_ut_VAULT
VLTJT	su_VAULT_JOINT	Topo Points *	Vault, utility, joint	topo_su_ut_VAULT

Code	Style	Point Label Style	Format	Point Object Layer
VLV	su_VALVE	Topo Points *	Valve, unknown	topo_su_ut_VALVE
VLVGAS	su_VALVE_GAS	Topo Points *	Valve, gasoline	topo_su_ut_VALVE
VLVIRRG	su_VALVE_IRRIG	Topo Points *	Valve, irrigation	topo_su_ut_VALVE
VLVWAT	su_VALVE_WATER	Topo Points *	Valve, water	topo_su_ut_VALVE
VY	SU Figure Points [VEG]	Topo Points *	Vineyard, edge	topo_su_veg_LINE_PTS_info_only
WBOX	SU Figure Points [HYDRO]	Topo Points *	Weir box	topo_su_hydro_LINE_PTS_info_only
WC	su_ctrl_FD	Name	Witness Corner	topo_su_ctrl_point_FD
WDGR	SU Figure Points [TC]	Topo Points *	Guard rail, face, wood	topo_su_tcd_LINE_PTS_info_only
WEIR	SU Figure Points [HYDRO]	Topo Points *	Weir	topo_su_hydro_LINE_PTS_info_only
WELL	su_WELL	Topo Points *	Well	topo_su_ut_APPR
WL	SU Figure Points [UTIL-1]	Topo Points *	Water line	topo_su_ut_LINE_PTS_info_only
WM	su_METER_WATER	Topo Points *	Water meter	topo_su_ut_METER
WMF	SU Figure Points [RDSIDE]	Topo Points *	Fence, wire mesh	topo_su_rdside_LINE_PTS_info_only
WPH	su_ctrl_Workpoint_H	SU Points Label CTRL	Work Point Horizontal	topo_su_ctrl_point_MON
WPHV	su_ctrl_Workpoint_HV	SU Points Label CTRL	Work Point Horizontal & Vertical	topo_su_ctrl_point_MON
WPV	su_ctrl_Workpoint_V	SU Points Label CTRL	Work Point Vertical	topo_su_ctrl_point_MON
WRF	SU Figure Points [RDSIDE]	Topo Points *	Fence, wood rail	topo_su_rdside_LINE_PTS_info_only

Code	Style	Point Label Style	Format	Point Object Layer
WV	su_VALVE_WATER	Topo Points *	Water valve	topo_su_ut_VALVE

MTLS Description Key Set

Point Label Style = Topo Points [Name|Elevation|Description]

Code	Style	Point Label Style	Format	Point Object Layer
CAB_ml	ml_CAB	Topo Points *	Cabinet, utility	topo_ml_POINT_DTM_None
CALL_ml	ml_CALL	Topo Points *	Call box	topo_ml_POINT_DTM_None
CC_ml	ml_CC	Topo Points *	Crash Cushion	topo_ml_POINT_DTM_None
CLO_ml	ml_CLO	Topo Points *	Cleanout	topo_ml_POINT_DTM_None
CULVFL_ml	ml_CULV_FL	Topo Points *	Culvert flowline, point	topo_ml_POINT_DTM_Ground
CULVP_ml	ml_CULV	Topo Points *	Culvert, point	topo_ml_POINT_DTM_None
DECKDIRECT_ml	ml_DI_RECT_deck	Topo Points *	DI, rectangle, bridge deck	topo_ml_POINT_DTM_None
DECKDIRND_ml	ml_DI_RND_deck	Topo Points *	DI, round, bridge deck	topo_ml_POINT_DTM_None
DECKMISC_ml	ml_str_MISC_deck	Topo Points *	Miscellaneous bridge deck point features	topo_ml_POINT_DTM_None
DIRECT_ml	ml_DI_RECT	Topo Points *	DI, rectangle	topo_ml_POINT_DTM_None
DIRND_ml	ml_DI_RND	Topo Points *	DI, round	topo_ml_POINT_DTM_None
ECCTV_ml	ml_ECCTV	Topo Points *	Closed circuit TV camera	topo_ml_POINT_DTM_None
EL_ml	ml_EL	Topo Points *	Electrolier	topo_ml_POINT_DTM_None
FES_ml	ml_FES	Topo Points *	Flared end section	topo_ml_POINT_DTM_None
FH_ml	ml_FH	Topo Points *	Fire hydrant	topo_ml_POINT_DTM_None
FP_ml	ml_FP	Topo Points *	Flag pole	topo_ml_POINT_DTM_None
GATEP_ml	ml_GATE_POST	Topo Points *	Gate post, free & hinged ends	topo_ml_POINT_DTM_None
GUY_ml	ml_GUY	Topo Points *	Guy anchor	topo_ml_POINT_DTM_None
HB_ml	ml_HB	Topo Points *	Hose bib	topo_ml_POINT_DTM_None

Code	Style	Point Label Style	Format	Point Object Layer
HWAT_ml	ml_HWAT	Topo Points *	High Water	topo_ml_POINT_DTM_None
HYDRMISC_ml	ml_hydro_MISC	Topo Points *	Generic Point - Hydro, Drainage, & Irrigation	topo_ml_POINT_DTM_None
LOOP_ml	ml_LoopDetector	Topo Points *	Loop detector	topo_ml_POINT_DTM_None
LTG_ml	ml_LTG	Topo Points *	Lighting	topo_ml_POINT_DTM_None
MARKGD_ml	ml_MARKER_GUIDE	Topo Points *	Guide post/marker	topo_ml_POINT_DTM_None
MARKMISC_ml	ml_MARKER_MISC	Topo Points *	Guide post/marker	topo_ml_POINT_DTM_None
MARKPAVE_ml	ml_MARKER_PAVE	Topo Points *	Guide post/marker	topo_ml_POINT_DTM_None
MARKUTIL_ml	ml_MARKER_UTIL	Topo Points *	Utility marker	topo_ml_POINT_DTM_None
MB_ml	ml_MAIL	Topo Points *	Mail box	topo_ml_POINT_DTM_None
MH_ml	ml_MH	Topo Points *	Manhole, unknown	topo_ml_POINT_DTM_None
MTR_ml	ml_METER	Topo Points *	Electric meter	topo_ml_POINT_DTM_None
MVP_ml	MI_MVP	Topo Points *	Motor vehicle pullout	topo_ml_POINT_DTM_None
PBRECT_ml	ml_PB_RECT	Topo Points *	Pull/Utility box, unknown, rectangular	topo_ml_POINT_DTM_None
PBRND_ml	ml_PB_RND	Topo Points *	Pull/Utility box, unknown, round	topo_ml_POINT_DTM_None
PED_ml	ml_PED	Topo Points *	Pedestal	topo_ml_POINT_DTM_None
PEDBTN_ml	ml_Pedestrian_BTN	Topo Points *	Pedestrian button	topo_ml_POINT_DTM_None
PEDPOLE_ml	ml_Pedestrian_BTN_POLE	Topo Points *	Pedestrian button pole	topo_ml_POINT_DTM_None
PEDSIG_ml	ml_Pedestrian_SIG	Topo Points *	Pedestrian signal	topo_ml_POINT_DTM_None
PIPR_ml	ml_BOLLARD	Topo Points *	Protective pipe	topo_ml_POINT_DTM_None
POLE_ml	ml_POLE	Topo Points *	Pole	topo_ml_POINT_DTM_None

Code	Style	Point Label Style	Format	Point Object Layer
PRKM_ml	ml_Parking_Meter	Topo Points *	Parking meter	topo_ml_POINT_DTM_None
PTEL_ml	ml_TELE	Topo Points *	Public telephone	topo_ml_POINT_DTM_None
PUMP_ml	ml_PUMP	Topo Points *	Pump	topo_ml_POINT_DTM_None
RDSDMISC_ml	ml_rdside_MISC	Topo Points *	Generic Point - Man-made General Feature	topo_ml_POINT_DTM_None
RDWYMISC_ml	ml_rdbed_MISC	Topo Points *	Generic Point - Roadway Delineation	topo_ml_POINT_DTM_Ground
RRGA_ml	ml_RR_POST	Topo Points *	Railroad, gate post	topo_ml_POINT_DTM_None
RRSG_ml	ml_RR_SIG	Topo Points *	Railroad, signal	topo_ml_POINT_DTM_None
RRSW_ml	ml_RR_APPR	Topo Points *	Railroad, switch	topo_ml_POINT_DTM_None
SINB_ml	ml_SIGN_OH	Topo Points *	Sign, overhead, bridge	topo_ml_POINT_DTM_None
SINCANT_ml	ml_SIGN_CANT	Topo Points *	Sign, cantilever	topo_ml_POINT_DTM_None
SINM_ml	ml_SIGN_MULTI	Topo Points *	Sign, multi-post	topo_ml_POINT_DTM_None
SINS_ml	ml_SIGN_SINGLE	Topo Points *	Sign, single post	topo_ml_POINT_DTM_None
SLDP_ml	ml_SLIDE	Topo Points *	Slide (monitoring)	topo_ml_POINT_DTM_None
SP_ml	ml_SP	Topo Points *	Standpipe	topo_ml_POINT_DTM_None
SPR_ml	ml_SPR	Topo Points *	Sprinkler	topo_ml_POINT_DTM_None
STRMISC_ml	ml_str_MISC	Topo Points *	Miscellaneous structures point feature	topo_ml_POINT_DTM_None
TANK_ml	ml_TANK	Topo Points *	Tank, center	topo_ml_POINT_DTM_None
TERML_ml	ml_BARR_TERM_Lt	Topo Points *	Barrier - guardrail terminator - left	topo_ml_POINT_DTM_None
TERMR_ml	ml_BARR_TERM_Rt	Topo Points *	Barrier - guardrail terminator - right	topo_ml_POINT_DTM_None

Code	Style	Point Label Style	Format	Point Object Layer
TOWP_ml	ml_TTOW	Topo Points *	Transmission tower, center	topo_ml_POINT_DTM_ None
TREE_ml	ml_TREE	Topo Points *	Tree	topo_ml_POINT_DTM_ None
TRFSG_ml	ml_TRAF_SIG	Topo Points *	Traffic signal	topo_ml_POINT_DTM_ None
UG_ml	ml_UG	Topo Points *	Sanitary sewer, point	topo_ml_POINT_DTM_ None
UNDERSIDE MISC_ml	ml_str_MISC_under side	Topo Points *	Miscellaneous bridge underside point features	topo_ml_POINT_DTM_ None
UTLA_ml	ml_ut_APPR	Topo Points *	Utility Appurtenance	topo_ml_POINT_DTM_ None
UTLMISC_ml	ml_ut_MISC	Topo Points *	Miscellaneous utilities point	topo_ml_POINT_DTM_ None
VEGMISC_ml	ml_veg_MISC	Topo Points *	Miscellaneous vegetation point	topo_ml_POINT_DTM_ None
VENT_ml	ml_VENT	Topo Points *	Vent, utility	topo_ml_POINT_DTM_ None
VLT_ml	ml_VAULT	Topo Points *	Vault, utility	topo_ml_POINT_DTM_ None
VLV_ml	ml_VALVE	Topo Points *	Valve, unknown	topo_ml_POINT_DTM_ None
WELL_ml	ml_WELL	Topo Points *	Well	topo_ml_POINT_DTM_ None

Extended Point Properties

Two extended point properties are available for survey topo data when working with points and surfaces, user-defined properties and point groups.

User-Defined Property Classifications

- **CgPoint.DTMAttribute** - options for ground or feature. Used to indicate whether the point should be included in a surface or not.
- **Description (TSS or CAiCE)** - TSS or CAiCE's Description created during TSS or Caltrans CAiCE XML import
- **Comment (CAiCE)** - CAiCE's Comment created during Caltrans CAiCE XML import

Point Groups

The following Point Groups are in drawings created with the **Ct_2016_Topo_Surveys_MTLS.dwt** template.

- **_All Points**
 - All COGO and Survey Points in the drawing are automatically included in the group.
- **CSAC Line Points – *display OFF***
 - Used to quickly select or turn off the display of Points used to create lines in Trimble Business Center (TBC). All CSAC Points on TBC layers with "Line Points" in the name are added to this group when the Points are imported from Shape files.
- **CSAC Control Points**
 - All CSAC Points with Feature set as *Control monument* are added to this group when the Points are imported from Shape files.
- **CSAC Found Points**
 - All CSAC Points with Feature set as *Found point* are added to this group when the Points are imported from Shape files.
- **CSAC Feature Points**
 - All CSAC Points with DTM_Type = None are added to this group when the Points are imported from Shape files. These Points are not intended for use in any surface.
- **CSAC Ground Points**
 - All CSAC Points with DTM_Type = Ground are added to this group when the Points are imported from Shape files. These Points are intended for use in a ground surface.
- **CSAC Bridge Deck Points**

- All CSAC Points with DTM_Type = Bridge deck are added to this group when the Points are imported from Shape files. These Points are intended for use in a bridge deck surface.
- **CSAC Bridge Underside Points**
 - All CSAC Points with DTM_Type = Bridge underside are added to this group when the Points are imported from Shape files. These Points are intended for use in a surface representing the underside of a bridge.
- **Feature Points**
 - Automatically queries CTDC Points with DTMAtribute = feature. These Points are not intended for any surfaces.
- **Ground Points**
 - Automatically queries CTDC Points with DTMAtribute = ground. These Points are used in ground surfaces.
- **_Hide All Points**

Includes all Points in the _All Points, Point Group. Used to temporarily set all Point and Point Label Styles to no display.

CSAC Import SHP Survey Data Settings

The Shape file data is imported and stored in the drawing based on the settings defined in the **Import SHP Survey Data Settings**. The settings contain instructions to interpret the Shape file attributes and control how the COGO Points, AutoCAD Points, Feature Lines, Polylines, and 3D Polylines will be configured during the import process.

The **CSAC FCL files from TBC** settings option is pre-defined for the CSAC Shape files and is stored in the Civil 3D 2016 template: *Ct_2016_Topo_Surveys_MTLS.dwt*. The Caltrans SSHPI Line and Point settings files, *Ct-Survey_Data-Feature_Lines.XML* and *Ct-Survey_Data-Points.XML*, determine how the Lines and Points in the CSAC Shape files will be stored when they are imported into a Civil 3D drawing. Additional configuration of the settings is NOT required when the Caltrans CSAC FCL is used.

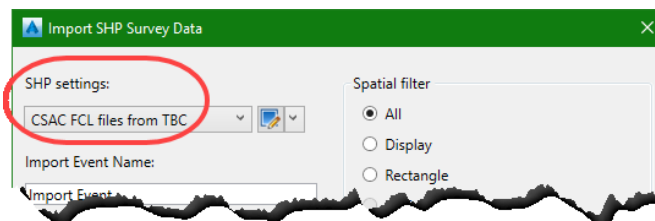


Figure 11 – Import SHP from TBC

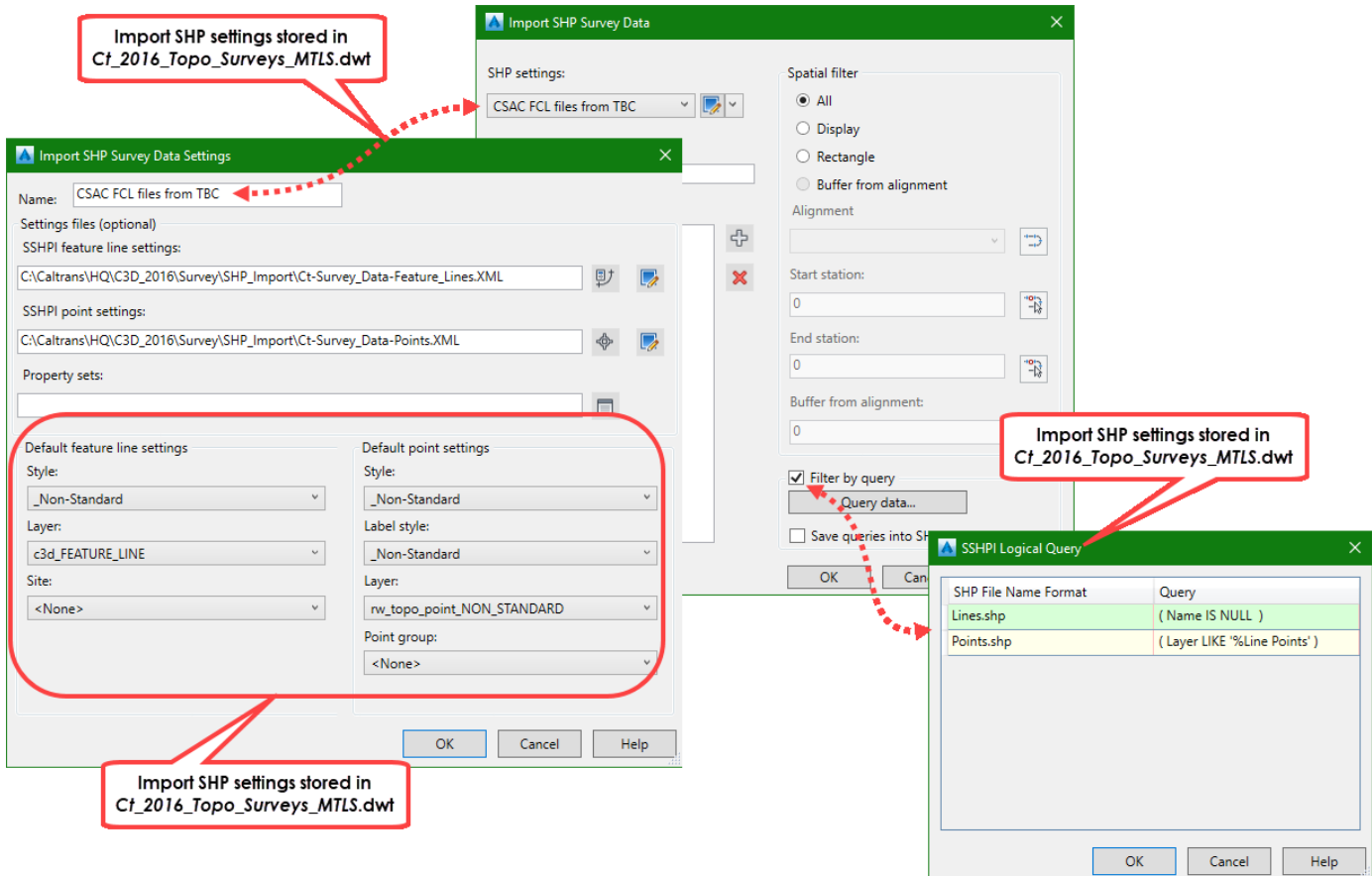


Figure 12 – Import SHP from TBC settings

Non-standard objects

The **CSAC FCL files from TBC** settings includes options for Feature Lines and COGO Points that do not match any of the instructions provided in the Caltrans settings files.

For example, if a CSAC Attribute field is *Required*, such as **DTM_Type**, and the field is blank then the data will be imported with a non-standard style.

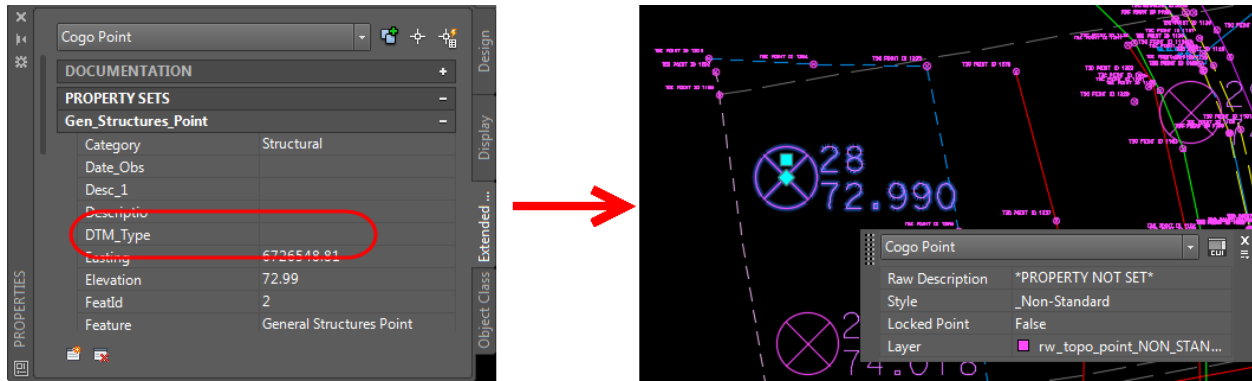


Figure 13 – Import SHP from TBC – Non standard Object

Another situation where the data may not match the instructions provided in the Caltrans settings files is when a user creates their own Feature Code and an unexpected Shape file is imported.

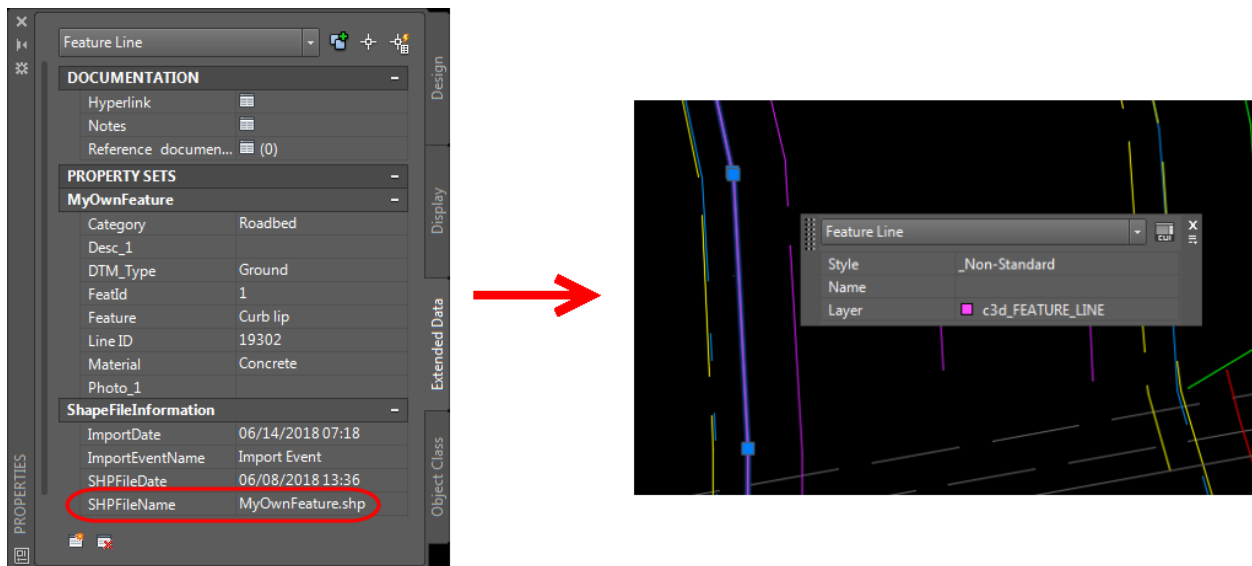


Figure 14 – Import SHP from TBC – Non standard feature line

Filter by query

The **Filter by query** is used to include or exclude features from specific Shape files based on queries during import.

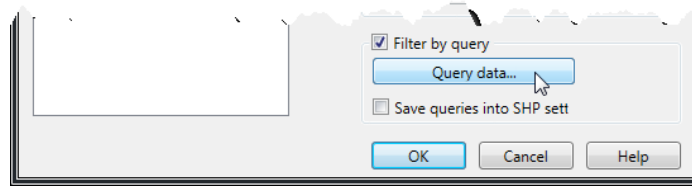


Figure 15 – Import SHP from TBC – Filter by query

TBC creates two separate project Shape files (*Lines.shp* & *Points.shp*) that would create duplicate features if imported into Civil 3D without queries. Queries are used to exclude some of these duplicate objects during import. One query is used to exclude all features in the ***Lines.shp*** file, to avoid duplications with the other linear Shape files. Another query is included to only import the Points used to create linework in TBC, *Line Points*, in the ***Points.shp*** file. These queries are pre-defined in the ***CSAC FCL files from TBC*** settings.

SHP File Name Format	Query
Lines.shp	(Name IS NULL)
Points.shp	(Layer = 'Feature Line Points')

Figure 16 – Import SHP from TBC – Queries

CSAC Property Set Definitions

The drawing template contains Property Sets for every CSAC Feature Attribute.

Property Set Definition	Property Set
Associated Files	File_1 - File_2
Associated Images	Photo_1 - Photo_3
Attributes	Aspect
Attributes	Asset_ID
Attributes	Color
Attributes	Count
Attributes	Location
Attributes	Marker
Attributes	Material
Attributes	Post_Type
Attributes	Service
Attributes	Shape
Control Information	Accuracy
Control Information	County
Control Information	ID_Name
Control Information	Mon_Ties
Control Information	Post mile
Control Information	Record
Control Information	Route
Dimensions	Depth
Dimensions	Diameter
Dimensions	Height
Dimensions	Length
Dimensions	Lip_Width
Dimensions	Width
Feature	Category
Feature	Desc_1 - Desc_3
Feature	DTM_Type
Feature	Feature
Feature	Type
Line Points	FeatureCod

Property Set Definition	Property Set
Line Points	Name
Point Information	Easting
Point Information	Elevation
Point Information	IgnoreElev
Point Information	Northing
Point Information	PointID
ShapeFileInformation	VersionFXL
Surface Status	InSurface

CSAC SHP Palette Queries

The **SHP Palette** contains a tool, **SSHPI Drawing Query**, to define queries using COGO Point Properties, Feature Line Properties, Point UDP's, and/or Property Sets. The queries filter all objects in the active drawing or in an XREF, creating a list of the objects meeting the criteria in the SHP Palette.

The Civil 3D 2016 template, *Ct_2016_Topo_Surveys_MTLS.dwt*, contains pre-defined queries to filter objects based on the value assigned to DTM_Type to assist with surface creation and to filter objects that have images and/or documents attached.

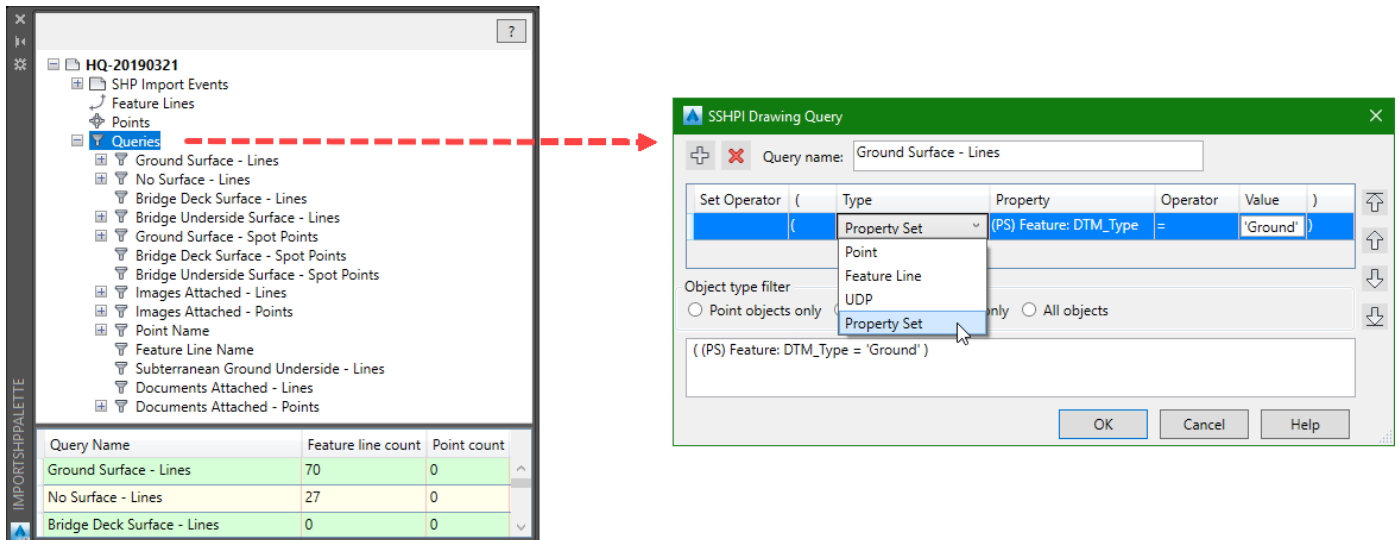


Figure 17 – SSHPI Drawing Query

The pre-defined queries include:

- Bridge Deck Surface – Lines
- Bridge Underside Surface – Lines
- Bridge Deck Surface – Spot Points
- Bridge Underside Surface – Spot Points
- Control Points
- Documents Attached – Lines
- Documents Attached – Points
- Feature Line Name
- Found Points
- Ground Surface – Lines
- Ground Surface – Spot Points
- Images Attached – Lines
- Images Attached – Points
- InSurface = Yes

- InSurface = No
- No Surface – Lines
- Point Name
- Subterranean Ground Underside – Lines

Alignment Styles

Name	Description
Analysis	<p>Non-standard style used to display warnings and the direction of the alignment entities. If the entities aren't all pointing in the same direction, then the alignment report and station labels will be incorrect.</p> <p>The color of the Alignment can be changed with the True Color setting in the Properties dialog box</p> <p>The Alignment is placed on the layer created when the Alignment is created.</p>
_No Display	Used to hide the Alignment.
_Non-plotting Alignment	<p>The color of the Alignment can be changed with the True Color setting in the Properties dialog box.</p> <p>The Alignment is placed on the layer align_no_plot.</p>
Alignment [color]	<p>The color of the Alignment can be changed with the True Color setting in the Properties dialog box.</p> <p>The Alignment is placed on the layer created when the Alignment is created.</p>
Standard	<p>The color of the Alignment can be changed with the True Color setting in the Properties dialog box.</p> <p>The Alignment is placed on the layer align.</p>

The color of the Alignment is originally controlled by the Style assigned to the Alignment. The color can be changed with the True Color setting in the Properties dialog box.

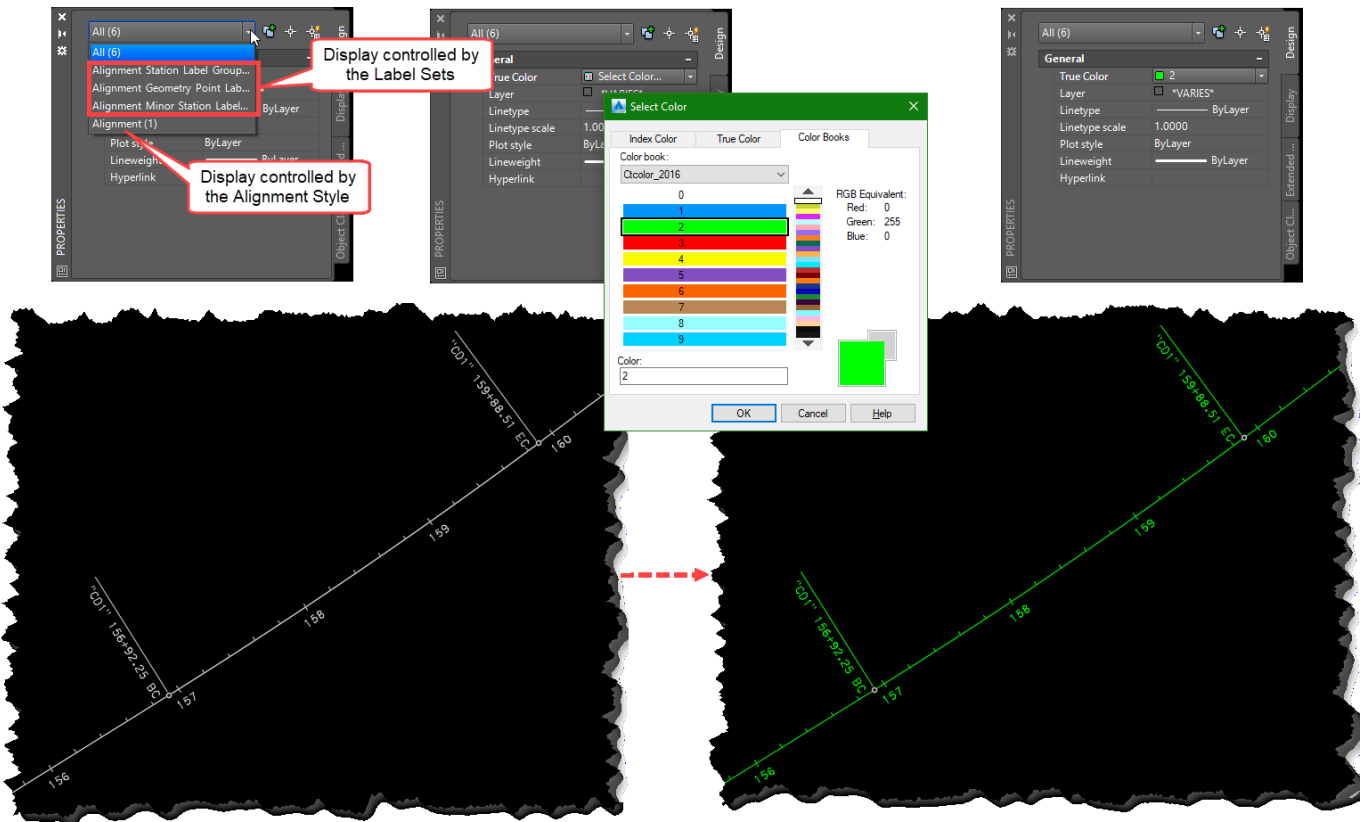


Figure 18 – Alignment styles – Color change

Surface Styles

Name	Description
_Border Only	
_Flat Slope Areas	Displays a red solid for slopes that fall within a user defined range. The range is set under the Surface Properties > Analysis tab for Slopes.
_No Display	Used to hide the surface
Accuracy - Aerial LiDAR	Uses Elevation Analysis to display a 2D Solid Light red indicates Aerial LiDAR grade accuracy
Accuracy - MTLs	Uses Elevation Analysis to display a 2D Solid Dark blue indicates MTLs grade accuracy
Accuracy - Photogrammetry	Uses Elevation Analysis to display a 2D Solid Dark red indicates photogrammetry grade accuracy
Accuracy - Survey	Uses Elevation Analysis to display a 2D Solid Light blue indicates survey grade accuracy
Banding - Elevation	
Banding - Slope	
Contours - 0.2' and 1' - Exist	Contours for existing ground at 0.2' and 1' intervals, typically used for bridge sites
Contours - 0.2' and 1' - Exist [Bridge deck]	Contours for existing bridge deck at 0.2' and 1' intervals
Contours - 0.2' and 1' - Finish	Contours for finished grade at 0.2' and 1' intervals, typically used for bridge sites
Contours - 1' and 5' - Exist	Contours for existing ground at 1' and 5' intervals
Contours - 1' and 5' - Finish	Contours for finished grade at 1' and 5' intervals
Contours - 2' and 10' - Exist	Contours for existing ground at 2' and 10' intervals
Contours - 2' and 10' - Finish	Contours for finished grade at 2' and 10' intervals
Contours & Triangles [5 scale vertical exaggeration]	Contours at 2' and 10' intervals & vertical exaggeration of 5 scale. For surface analysis & editing
Contours & Triangles [analysis & editing]	Contours at 2' and 10' intervals For surface analysis & editing
Slope Arrows	
Standard	
Triangles - Exist [Blue]	Existing ground triangles colored Blue
Triangles - Exist [Brown]	Existing ground triangles colored Brown
Triangles - Exist [Green]	Existing ground triangles colored Blue

Name	Description
Triangles - Exist [Grey]	Existing ground triangles colored Grey
Triangles - Exist [Orange]	Existing ground triangles colored Orange
Triangles - Exist [Purple]	Existing ground triangles colored Purple
Triangles - Exist [Red]	Existing ground triangles colored Red
Triangles - Exist [Tan]	Existing ground triangles colored Tan
Triangles - Exist [Yellow]	Existing ground triangles colored Yellow
Triangles - Finish	Finished ground triangles
Watersheds	Watersheds & contours for existing ground at 1' and 5' intervals

Cross Section Styles

Section View Styles

The Section View controls the display of the border, grid, alignment name, station and offset.

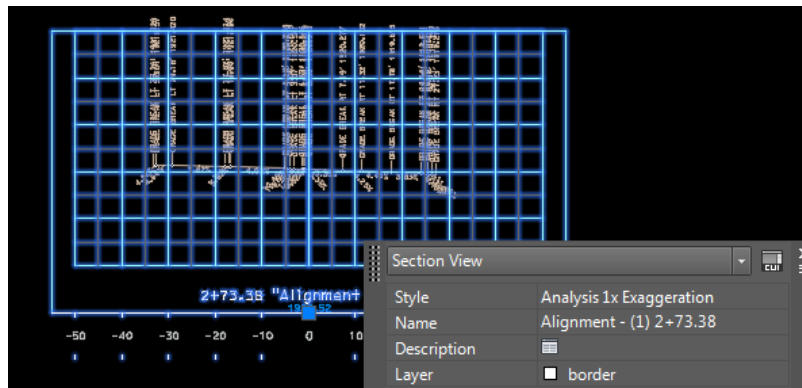


Figure 19 – Section View Style

Name	Description
Analysis 1x Exaggeration	The view axis is turned on. Horizontal scale is 1" = 10'.
Analysis 2x Exaggeration	The view axis is turned on. Horizontal scale is 1" = 10' and the vertical scale is 2x.
Production 1x Exaggeration	The view axis is turned off. Use Group Plot Style to display the grid. Horizontal scale is 1" = 10'.
Production 1x Exaggeration [20 Scale]	The view axis is turned off. Use Group Plot Style to display the grid. Horizontal scale is 1" = 20'.
Production 2x Exaggeration	The view axis is turned off. Use Group Plot Style to display the grid. Horizontal scale is 1" = 10' and the vertical scale is 2x.
Standard	The view axis is turned on. Horizontal scale is 1" = 10'.

Section Styles

The section is the surface representation within the display.

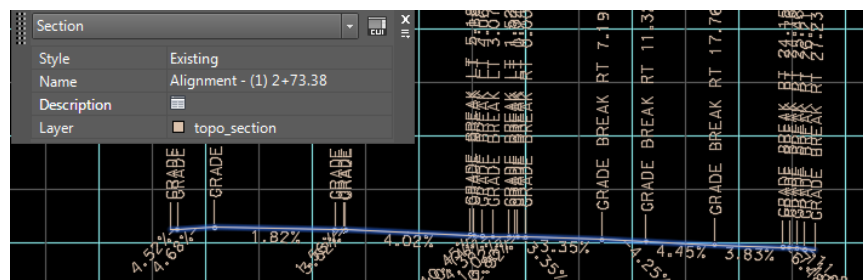


Figure 20 – Section style

Name	Description
Existing	Displays the surface in the section view with color 231
Proposed	Displays the surface in the section view with color 9
Standard	Displays the surface in the section view with color 231

Section Label Sets

Section Label Sets contain a set of label styles typically used by surveyors when a section view object is created. The individual label styles can be changed after the section view is created.

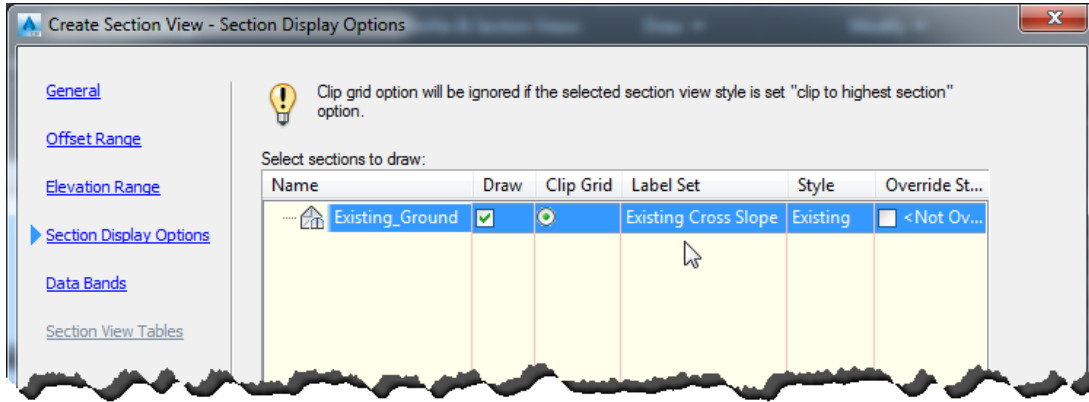


Figure 21 – Section Label Set

Name	Description
_No Display	Used to hide the labels
Existing Cross Slope	Labels only the cross slope with color 231
Existing Grade Break Offset Elevation	Labels the offset and elevation at the grade breaks with color 231
Existing Grade Break Offset Elevation & Cross Slope	Labels the offset and elevation at the grade breaks and the cross slope with color 231
Proposed Cross Slope	Labels only the cross slope with color 9
Proposed Grade Break Offset Elevation	Labels the offset and elevation at the grade breaks with color 231
Proposed Grade Break Offset Elevation & Cross Slope	Labels the offset and elevation at the grade breaks and the cross slope with color 231
Standard	Labels only the cross slope with color 231

Section Segment Label Styles

An expression is used to determine the rotation angle of the cross slope based on whether the text fits along the segment. If the text doesn't fit it rotates 45° LT or RT based on the offset. Other expressions are used to set the text height.

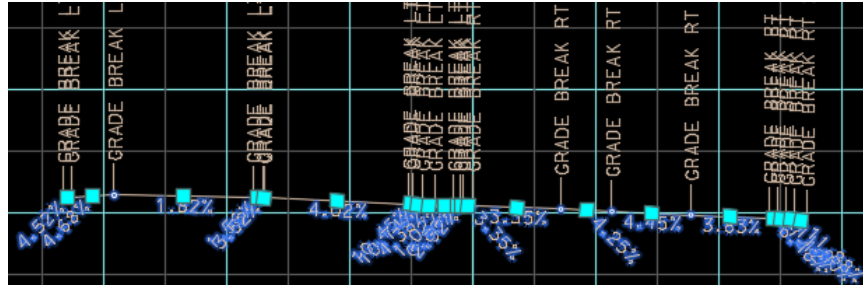


Figure 22 – Section Segment Label Set

Name	Description
Existing Cross Slope [along segment]	Displays the cross slope with color 231
Proposed Cross Slope [along segment]	Displays the cross slope with color 9
Standard	Displays the cross slope with color 231

Section Grade Break Label Styles

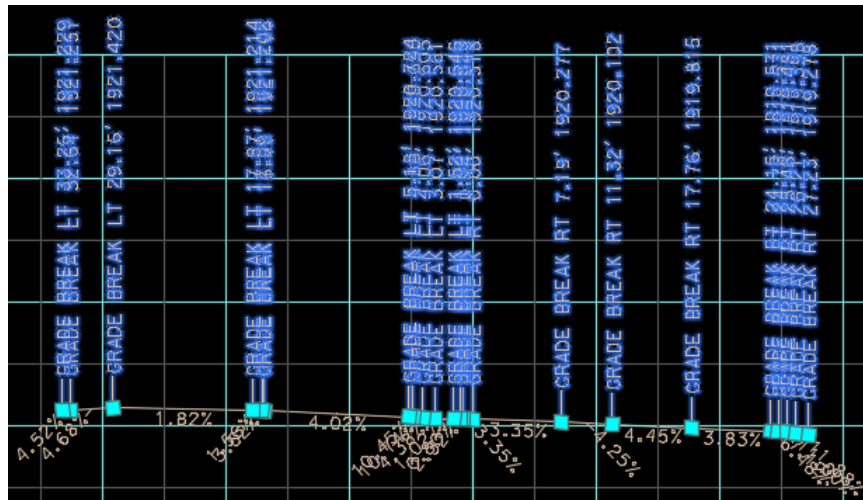


Figure 23 – Section Grade Break Label style

Name	Description
Existing Offset & Elevation [horizontal]	Displays the offset & elevation rotated horizontally with color 231.
Existing Offset & Elevation [vertical]	Displays the offset & elevation rotated vertically with color 231.
Proposed Offset & Elevation [horizontal]	Displays the offset & elevation rotated horizontally with color 9.

Proposed Offset & Elevation [vertical]	Displays the offset & elevation rotated vertically with color 9.
Standard	Displays the offset & elevation rotated vertically with color 231.

Section View Projection Label Styles

Name	Description
Name	Labels the Object Name
Name Offset Elevation & cross-referenced object [horizontal]	Labels the Object Name, Offset and Elevation horizontally along with the station & offset to a different alignment that is selected after the label is in place.
Name Offset Elevation & cross-referenced object [vertical]	Labels the Object Name, Offset and Elevation vertically along with the station & offset to a different alignment that is selected after the label is in place.
Name Offset Elevation [45° above 0.25]	Labels the Object Name, Offset and Elevation. The labels automatically rotate depending on the object's offset from centerline. The label is positioned 0.25" above the location on the cross section.
Name Offset Elevation [45° above 0.50]	Labels the Object Name, Offset and Elevation. The labels automatically rotate depending on the object's offset from centerline. The label is positioned 0.5" above the location on the cross section.
Name Offset Elevation [45° above 0.75]	Labels the Object Name, Offset and Elevation. The labels automatically rotate depending on the object's offset from centerline. The label is positioned 0.75" above the location on the cross section.
Name Offset Elevation [45° below 0.25]	Labels the Object Name, Offset and Elevation. The labels automatically rotate depending on the object's offset from centerline. The label is positioned 0.25" below the location on the cross section.
Name Offset Elevation [45° below 0.50]	Labels the Object Name, Offset and Elevation. The labels automatically rotate depending on the object's offset from centerline. The label is positioned 0.5" below the location on the cross section.
Name Offset Elevation [45° below 0.75]	Labels the Object Name, Offset and Elevation. The labels automatically rotate depending on the object's offset from centerline. The label is positioned 0.75" below the location on the cross section.

Name	Description
Name Offset Elevation [horizontal above]	Labels the Object Name, Offset and Elevation horizontally.
Name Offset Elevation [horizontal below]	Labels the Object Name, Offset and Elevation horizontally.
Name Offset Elevation [vertical above]	Labels the Object Name, Offset and Elevation vertically.
Name Offset Elevation [vertical below]	Labels the Object Name, Offset and Elevation vertically.
Point Code Offset Elevation [horizontal above]	Labels the Raw Description, Offset and Elevation horizontally.
Point Code Offset Elevation [horizontal below]	Labels the Raw Description, Offset and Elevation horizontally.
Point Code Offset Elevation [vertical above]	Labels the Point Code (Raw Desc.), Offset and Elevation relative to the sample line.
Point Code Offset Elevation [vertical below]	Labels the Point Code (Raw Desc.), Offset and Elevation relative to the sample line.
Standard	Labels the Object Name, Offset and Elevation. The labels automatically rotate depending on the object's offset from centerline. The label is positioned 0.5" below the location on the cross section.

Label Styles

Point Label Styles

Name	Description
_No Display	Used to hide the label
Description	Labels the Point Description. The label can be dragged to the right or left but the line under the description is removed.
Name	Labels the Point Name
Name Description	Labels the Point Name & Description. The label can be dragged to the right or left but the line under the description is removed.
Number & Name Northing Easting Elevation Raw Description	Labels the Point Number, Name, Northing, Easting, Elevation & Raw Description. Use when labelling points for field search or stakeout. Points are exported using Point File Format NumberNameNED (pipe delimited)
Standard	Labels the Point Name, Elevation and the Raw Description
SU Points Label CTRL	This labels the name of Control points that are not included in Survey Figures.
Topo Points [Name]	This labels the name of topo points. The Point Style controls the layer of the label.

Annotation Label Styles

Annotation Labels are associated to Civil 3D objects as well as Lines, Arcs, and Polylines. They are typically placed after an object is created and are independent objects.

The Line and Curve Label styles for the relevant Civil 3D and AutoCAD objects are grouped within a parent style containing the possible object components that will be displayed. The *child* styles are based on the parent and only display the components specified in the label name. The *child* styles should be selected when placing a label.

Many of the styles are dynamic, changing the label based upon the length of the line or curve. For example, the label will change from bearing & distance along the line to bearing over distance if the length of the line is too short. When the length is too short for either label a warning symbol will be displayed that can be dragged out to display a stacked label or can be changed to a different label style.

The style also includes optional styles to place the labels at different offsets and to force the label to display specific components of the line or curve.

Label style names indicate the type of object they should be used to label because they may exhibit undesired text heights when used with the wrong object.

- **_2_POINTS*** - should only be used to annotate the bearing &/or distance between two points
- **_PLINE*** - should only be used to annotate Polylines, Lines and Curves
- **_ALIGN*** - should only be used to annotate Alignments
- **_PARCEL*** - should only be used to annotate Parcels.

The names also indicate the type of label and information about the placement of the label. For example,

- **_PLINE [.05 offset] – Bearing** - labels the bearing at an offset ½ the text height above the line
- **_PLINE [.20 offset] – Distance** - labels the distance at an offset 2 times the text height above the line

General Label Styles

General Line Label Styles

Name	Description
<p>_2_POINTS - Bearing & Distance (only for use with the Label type <i>Line between 2 points</i>)</p>	<p>Labels Bearing & Distance between 2 points. This type of label is NOT capable of changing the display based on the distance between the 2 points.</p>
<p>_2_POINTS - Bearing & Distance with crows feet (only for use with the Label type <i>Line between 2 points</i>)</p>	<p>Labels Bearing, Distance & the crows feet between 2 points. This type of label is NOT capable of changing the display based on the distance between the 2 points.</p>
<p>_BLOCK - Bearing & Distance (do not use with the <i>Add Labels</i> tool, only for use by block <i>Label - Bearing_Distance between Points</i>)</p>	<p>Labels Bearing, Distance & the crows feet along an undisplayed line with the block, <i>Label - Bearing_Distance between Points</i></p>

Name	Description
_PLINE - Bearing & Distance	Labels Bearing & Distance along the line, if the line is too short the bearing is labeled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Bearing & Distance with crows feet	Labels Bearing, Distance & the crows feet along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Crows Foot	Places the Crows Foot symbol at the beginning & the end of the segment.
_PLINE - Labels	Labels text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the tangent of a line or polylline
_PLINE - Symbol	Places the ANGLPT symbol at the start or end of the segment.
_PLINE - Table TAG	Labels the line with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_PLINE [.35 offset] Bearing & Distance options	Labels Bearing, Distance with an option for the crows feet along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
PLINE - Bearing & Distance [dual units]	Labels Bearing & dual units Distance along the line.
PLINE - Bearing & Distance with crows feet [dual units]	Labels Bearing, dual units Distance & the crows feet along the line.
Standard	Labels Bearing & Distance along the line, if the line is too short the bearing is labeled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

General Curve Label Styles

Name	Description
_PLINE - Crows Foot	Places the Crows Foot symbol at the beginning & ending of the segment.
_PLINE - Labels	Labels text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the curve of an arc or polyline
_PLINE - Radial Bearing	Radial bearing from the Radius Point to the BC or EC
_PLINE - Radius -- Delta -- Length	Radius, Delta and Length on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Radius -- Delta -- Length with crows feet	Radius, Delta, Length & crows feet on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_PLINE - Symbol	Places the ANGLPT symbol at the end of the segment.
_PLINE - Table TAG	Labels the curve with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_PLINE [.35 offset] - Radius -- Delta -- Length options	Radius, Delta, Length & crows feet on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
PLINE - Radius -- Delta -- Length [dual units]	Radius, Delta and Length on one side of the curve with dual units.
PLINE - Radius -- Delta -- Length with crows feet [dual units]	Radius, Delta, Length & crows feet on one side of the curve.
Standard	Radius, Delta and Length on one side of the curve. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

General Note Label Styles

General Note labels are versatile, non-object-specific labels that can be placed anywhere in the drawing. These should be used when a specific location needs to be labelled, e.g. the station & offset relative to an alignment. AutoCAD annotation is typically used when the label is for descriptive text.

Name	Description
Northing & Easting (includes options for the dragging label to the left or right)	Labels the coordinates of the label location. The label can be dragged to the right or left but the line under the Northing disappears.
Slanted Text	Used for notes or text with the slanted R/W font. The label can be dragged to the right or left and no line is drawn under the text.
Standard	Used for notes or text with the standard font. The label can be dragged to the right or left and no line is drawn under the text.
Standard Text	Used for notes or text with the standard font. The label can be dragged to the right or left and no line is drawn under the text.
Station & Alignment (includes options for the dragging label to the left or right)	Labels the station & alignment name of the label location after the user selects an alignment. The alignment can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the station disappears.
Station & Alignment - 2 Alignments (includes options for the dragging label to the left or right)	Labels the station & alignment name of the label location after the user selects 2 alignments. The alignments can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the stations disappear.
Station & Offset (includes options for the dragging label to the left or right)	Labels the station, offset (LT/RT), & alignment name of the label location after the user selects an alignment. The alignment can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the station & offset disappears.
Station only (includes options for the dragging label to the left or right)	Labels the station of the label location after the user selects an alignment. The alignment can be changed at any time after the label is in place. The label can be dragged to the right or left but the line under the station disappears.
XREF Point Name Description (includes options for the dragging label to the left or right)	To be used when labeling points that reside in an XREF

Alignment Label Styles

Alignment Line Label Styles

Name	Description
_ALIGN - Bearing & Distance	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Bearing & Distance with crows feet	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Crows Foot	Places the Crows Foot symbol at the beginning & the end of the segment.
_ALIGN - Labels	Labels text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the tangent of an alignment
_ALIGN - Table TAG	Labels the alignment with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_ALIGN [.35 offset] - Bearing & Distance options	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
ALIGN - Bearing & Distance [dual units]	Labels Bearing & Distance along the line.
ALIGN - Bearing & Distance with crows feet [dual units]	Labels Bearing, Distance & crows feet along the line.
Standard	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

Alignment Curve Label Styles

Name	Description
_ALIGN - Bearing & Distance	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Bearing & Distance with crows feet	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
_ALIGN - Crows Foot	Places the Crows Foot symbol at the beginning & the end of the segment.
_ALIGN - Labels	Labels text that can be edited, "EXISTING R/W" OR "Proposed R/W" along the tangent of an alignment
_ALIGN - Table TAG	Labels the alignment with a Table Tag. The Table Style controls what is labeled when the TAG is selected.
_ALIGN [.35 offset] - Bearing & Distance options	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.
ALIGN - Bearing & Distance [dual units]	Labels Bearing & Distance along the line.
ALIGN - Bearing & Distance with crows feet [dual units]	Labels Bearing, Distance & crows feet along the line.
Standard	Labels Bearing & Distance along the line, if the line is too short the bearing is labelled over the distance. When the length is too short for any label a warning symbol will be displayed that can be dragged out for a stacked label or changed to a different label style.

Alignment Station Offset Label Styles

Name	Description
Standard	Labels the station, offset (LT/RT), & alignment name of the label location after the user selects an alignment. The alignment cannot be changed after the label is in place. The label can be dragged to the right or left but the line under the station & offset disappears.

Name	Description
Station & Offset (includes options for the dragging label to the left or right)	Labels the station, offset (LT/RT), & alignment name of the label location after the user selects an alignment. The alignment cannot be changed after the label is in place. The label can be dragged to the right or left but the line under the station & offset disappears.

Alignment Label Sets

Name	Description
_Geometry Point Stations Only	Non-standard style used for analysis when the major & minor stations and ticks get in the way. The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno.
_Non-plotting Stationing	The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno_no_plot.
_None	Used to hide the labels
Alignment Stationing [color]	The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno.
Standard	The color of the Alignment Labels can be changed with the True Color setting in the Properties dialog box. Labels placed on layer align_anno.

Page Setups

A page setup defines the default printing configuration including the printer, paper size, page layout, plot style, etc. of the selected Model or Sheet layout. A default plot style table is referenced in each page setup but it can be changed at any time.

- **PDF - 17 x 11** - creates a landscape 11" x 17" sheet in a PDF file with the *BW.STB* attached.
- **PDF - 11 x 17** - creates a portrait 11" x 17" sheet in a PDF file with the *BW.STB* attached.
- **PDF - 11 x 8.5** - creates a landscape 8.5" x 11" sheet in a PDF file with the *BW.STB* attached.
- **PDF - 8.5 x 11** - creates a portrait 8.5" x 11" sheet in a PDF file with the *BW.STB* attached.

TEMPLATE - CT_2016_TOPO_AERIAL_PHOTO.DWT

Features & Object StylesFeature Groups

Many of the features extracted from aerial and photo data are included in the DGN file for display purposes only, they are not imported into Civil 3D 2016.

The following table identifies only the topo feature groups that are imported into Civil 3D 2016.

Feature Group [Abbreviation]	Description
General	General features include miscellaneous breaklines and spot elevation points.
Hydrographic [hydro]	Hydrographic features include natural and manmade open drainage facilities including banks, canals, catch basins, ditches, lakes, pools, rivers, streams, and lakes.
Roadbed [rdbed]	Roadbed features include the portion of the roadway extending from curb line to curb line or shoulder line to shoulder line. Note, divided highways are considered to have two roadbeds. Roadbed features include curbs & dikes along the road and roadbed edges.
Roadside [rdside]	Roadside features lie in the area adjoining the outer edge of the roadbed extending outside of the right of way line when necessary. Extensive areas between the roadbeds of a divided highway may also be considered roadside. Roadside features include driveways, edges in original ground and paved areas, parking lots, sidewalks, trails, etc.
Structures [str]	The bridge deck feature in the Structures grouping includes paving notches.
Traffic Control [tcd]	Traffic control devices include pavement markings.

Aerial LiDAR Feature Listing

The following table lists the aerial LiDAR features and the associated Civil 3D Styles and Feature Group.

Name	Description	Civil 3D Style/Layer	Line	Point	Group
AC	Asphalt roadbed edges - ground	al_rdbed_AC_EDGE	✓		Roadbed
AC	Asphalt roadbed edges - bridge deck	al_rdbed_AC_EDGE_deck	✓		Roadbed
AC	Asphalt roadside edges - ground	al_rdside_AC_EDGE	✓		Roadside
DIKT	Dike along roadbed - top - ground	al_DIKE_TOP	✓		Roadbed
DIKT	Dike, miscellaneous - top - ground	al_misc_DIKE_TOP	✓		Roadside
DIRT	Dirt roadbed edges - ground	al_rdbed_DIRT_EDGE	✓		Roadbed
DIRT	Dirt roadside edges - ground	al_rdside_DIRT_EDGE	✓		Roadside
ETW	Striping - fog stripes along ETW - ground	al_STRIPE_Fog_ETW	✓		Traffic Control
ETW	Striping - fog stripes along ETW - bridge deck	al_STRIPE_Fog_ETW_deck	✓		Traffic Control
EW	Edges & high water marks of water features through natural or manmade structures	al_WATER_EDGE	✓		Hydrographic
EW-study	Edges of water bodies for +/- 2.5 ft surface	al_WATER_EDGE_study	✓		Hydrographic
FL	Flowlines of water features through natural or manmade structures	al_FL	✓		Hydrographic
FL-study	Flowlines for +/- 2.5 ft surface	al_FL_study	✓		Hydrographic
n/a	GNV breaklines in ground DTM areas	topo_al_dtm_brk_gnv_info_only	✓		General
n/a	Random breaklines in bridge deck DTM areas	topo_al_dtm_brk_spot_deck_info_only	✓		General
n/a	Spot elevations & mass points in bridge deck DTM areas	topo_al_dtm_brk_spot_deck_info_only		✓	General
n/a	Random breaklines in ground DTM areas	topo_al_dtm_brk_spot_info_only	✓		General
n/a	Spot elevations & mass points in ground DTM areas	topo_al_dtm_brk_spot_info_only		✓	General
n/a	GNV breaklines for +/- 2.5 ft surface in ground DTM areas	topo_al_study_brk_gnv_info_only	✓		General

Name	Description	Civil 3D Style/Layer	Line	Point	Group
n/a	Breaklines for +/- 2.5 ft surface in bridge deck DTM areas	topo_al_study_brk_spot_deck_info_only	✓		General
n/a	Mass points for +/- 2.5 ft surface in bridge deck DTM areas	topo_al_study_brk_spot_deck_info_only		✓	General
n/a	Breaklines for +/- 2.5 ft surface in ground DTM areas	topo_al_study_brk_spot_info_only	✓		General
n/a	Mass points for +/- 2.5 ft surface in ground DTM areas	topo_al_study_brk_spot_info_only		✓	General
PCC	Concrete roadbed edges - ground	al_rdbed_CONC_EDGE	✓		Roadbed
PCC	Concrete roadbed edges - bridge deck	al_rdbed_CONC_EDGE_deck	✓		Roadbed
PCC	Concrete roadside edges - ground	al_rdside_CONC_EDGE	✓		Roadside
PN	Bridge paving notch	al_PN	✓		Structures
ROCK	Rock roadbed edges	al_rdbed_ROCK_EDGE	✓		Roadbed
ROCK	Rock roadside edges	al_rdside_ROCK_EDGE	✓		Roadside
STRP	Striping - dashed & solid except for fog stripes - ground	al_STRIPE	✓		Traffic Control
STRP	Striping - dashed & solid except for fog stripes - bridge deck	al_STRIPE_deck	✓		Traffic Control
TOC	Curb along roadbed - top - ground	al_CURB_TOP	✓		Roadbed
TOC	Curb along roadbed - top - bridge deck	al_CURB_TOP_deck	✓		Roadbed
TOC	Curb, miscellaneous - top - ground	al_misc_CURB_TOP	✓		Roadside
TOC	Curb, miscellaneous - top - bridge deck	al_misc_CURB_TOP_deck	✓		Roadside

Photo Feature Listing

The following table lists the photo features and the associated Civil 3D Styles and Feature Group.

Name	Description	Civil 3D Style/Layer	Line	Point	Group
AC	Asphalt roadbed edges - ground	ph_rdbed_AC_EDGE	✓		Roadbed
	Asphalt roadbed edges - bridge deck	ph_rdbed_AC_EDGE_deck	✓		Roadbed
	Asphalt roadside edges - ground	ph_rdside_AC_EDGE	✓		Roadside
DIKT	Dike along roadbed - top - ground	ph_DIKE_TOP	✓		Roadbed
	Dike, miscellaneous - top - ground	ph_misc_DIKE_TOP	✓		Roadside
DIRT	Dirt roadbed edges - ground	ph_rdbed_DIRT_EDGE	✓		Roadbed
	Dirt roadside edges - ground	ph_rdside_DIRT_EDGE	✓		Roadside
ETW	Striping - fog stripes along ETW - ground	ph_STRIPE_Fog_ETW	✓		Traffic Control
	Striping - fog stripes along ETW - bridge deck	ph_STRIPE_Fog_ETW_deck	✓		Traffic Control
EW	Edges & high water marks of water features through natural or manmade structures	ph_WATER_EDGE	✓		Hydrographic
EW-study	Edges of water bodies for +/- 2.5 ft surface	ph_WATER_EDGE_study	✓		Hydrographic
FL	Flowlines of water features through natural or manmade structures	ph_FL	✓		Hydrographic
FL-study	Flowlines for +/- 2.5 ft surface	ph_FL_study	✓		Hydrographic
n/a	GNV breaklines in ground DTM areas	topo_ph_dtm_brk_gnv_info_only	✓		General
n/a	Random breaklines in bridge deck DTM areas	topo_ph_dtm_brk_spot_deck_info_only	✓		General
n/a	Spot elevations & mass points in bridge deck DTM areas	topo_ph_dtm_brk_spot_deck_info_only		✓	General
n/a	Random breaklines in ground DTM areas	topo_ph_dtm_brk_spot_info_only	✓		General
n/a	Spot elevations & mass points in ground DTM areas	topo_ph_dtm_brk_spot_info_only		✓	General
n/a	GNV breaklines for +/- 2.5 ft surface in ground DTM areas	topo_ph_study_brk_gnv_info_only	✓		General

Name	Description	Civil 3D Style/Layer	Line	Point	Group
n/a	Breaklines for +/- 2.5 ft surface in bridge deck DTM areas	topo_ph_study_brk_spot_deck_info_only	✓		General
n/a	Mass points for +/- 2.5 ft surface in bridge deck DTM areas	topo_ph_study_brk_spot_deck_info_only		✓	General
n/a	Breaklines for +/- 2.5 ft surface in ground DTM areas	topo_ph_study_brk_spot_info_only	✓		General
n/a	Mass points for +/- 2.5 ft surface in ground DTM areas	topo_ph_study_brk_spot_info_only		✓	General
PCC	Concrete roadbed edges - ground	ph_rdbed_CONC_EDGE	✓		Roadbed
PCC	Concrete roadbed edges - bridge deck	ph_rdbed_CONC_EDGE_deck	✓		Roadbed
PCC	Concrete roadside edges - ground	ph_rdside_CONC_EDGE	✓		Roadside
PN	Bridge paving notch	ph_PN	✓		Structures
ROCK	Rock roadbed edges	ph_rdbed_ROCK_EDGE	✓		Roadbed
ROCK	Rock roadside edges	ph_rdside_ROCK_EDGE	✓		Roadside
STRP	Striping - dashed & solid except for fog stripes - ground	ph_STRIPE	✓		Traffic Control
STRP	Striping - dashed & solid except for fog stripes - bridge deck	ph_STRIPE_deck	✓		Traffic Control
TOC	Curb along roadbed - top - ground	ph_CURB_TOP	✓		Roadbed
TOC	Curb along roadbed - top - bridge deck	ph_CURB_TOP_deck	✓		Roadbed
TOC	Curb, miscellaneous - top - ground	ph_misc_CURB_TOP	✓		Roadside
TOC	Curb, miscellaneous - top - bridge deck	ph_misc_CURB_TOP_deck	✓		Roadside

Alignment Styles

Same as noted above for Ct_2016_Topo_Surveys_MTLS.dwt

Surface Styles

Same as noted above for Ct_2016_Topo_Surveys_MTLS.dwt

Cross Section Styles

Same as noted above for Ct_2016_Topo_Surveys_MTLS.dwt

Label Styles

Same as noted above for Ct_2016_Topo_Surveys_MTLS.dwt

Page Setups

Same as noted above for Ct_2016_Topo_Surveys_MTLS.dwt

CSAC SSHPI LINE AND POINT SETTINGS

The SSHPI Line and Point settings files, *Ct-Survey_Data-Feature_Lines.XML* and *Ct-Survey_Data-Points.XML*, contain queries to parse the attributes of the data in the TBC Shape files. Based on the query results, the data is assigned a Civil 3D or AutoCAD object type (COGO Point, Feature Line, AutoCAD Point, Polyline, or 3D Polyline) with the specified Name, Style, Object Layer, and Point Group, if applicable.

Different Features created from the same Shape (.SHP) file

In many cases, different features can be created based on the attributes in the Shape file that were assigned in the field. For example, when **Asphalt_Breakline_*.shp** files are imported, 6 different features can be created as shown in the table below:

Civil 3D Object	DTM_Type	Aspect	Description
Feature Line	Ground or None	Grade break	Asphalt roadbed grade breaks – ground
Feature Line	Bridge deck	Grade break	Asphalt roadbed grade breaks - bridge deck
Feature Line	Ground or None	Flowline	Flowlines, roadbed - except curb flowlines - ground
Feature Line	Bridge deck	Flowline	Flowlines, roadbed - except curb flowlines - bridge deck
3D Polyline	Ground or None	Random breakline	Random breaklines in ground DTM areas
3D Polyline	Bridge deck	Random breakline	Random breaklines in bridge deck DTM areas

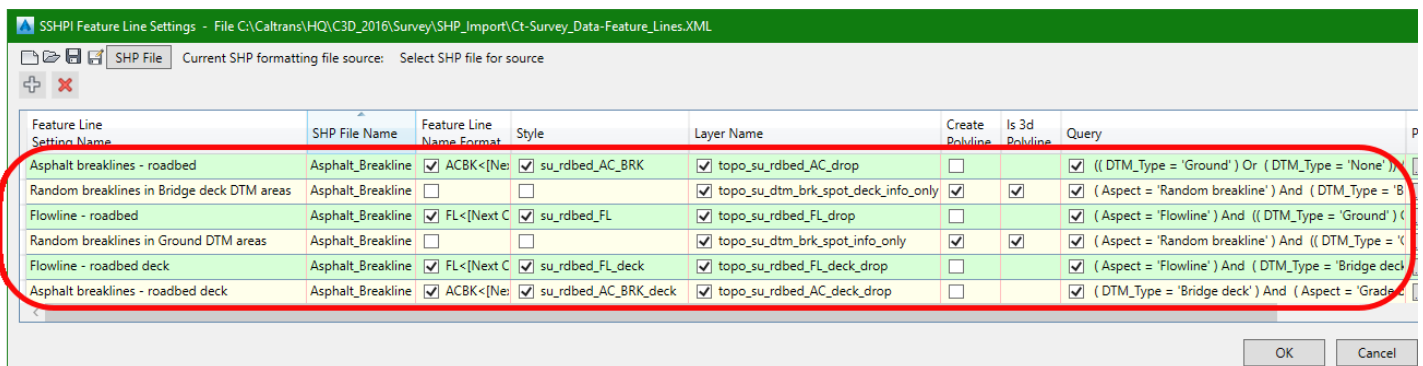


Figure 24 – SSHPI Feature Line Settings

When **Gen_Roadbed_Point.shp** files are imported, 4 different features can be created as shown in the table below:

Civil 3D Object	DTM_Type	Type	Point Group	Description
COGO Point	Ground or None	Other	CSAC Ground Points	Miscellaneous roadbed point features - ground
COGO Point	Bridge deck	Other	CSAC Bridge Deck Points	Miscellaneous roadbed point features - bridge deck
AutoCAD Point	Ground or None	Spot	n/a	Spot elevations & mass points in ground DTM areas
AutoCAD Point	Bridge deck	Spot	n/a	Spot elevations & mass points in bridge deck DTM areas

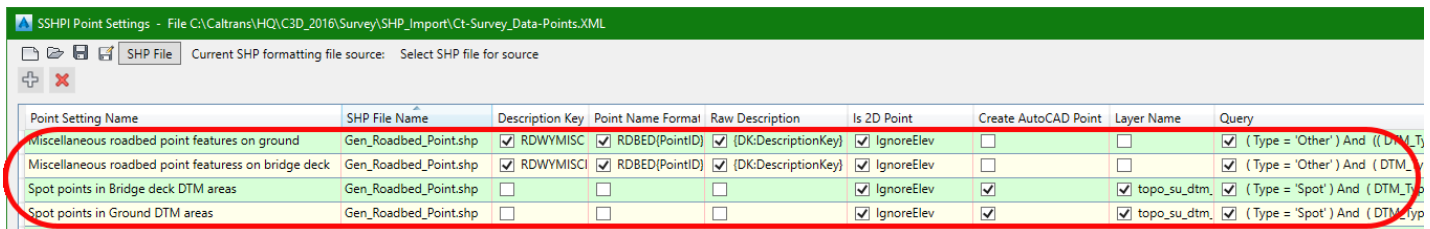


Figure 25 – SSHPI Point Settings

2D Points are created when “IgnoreElev” is set to Yes

Points with the attribute **IgnoreElev** set to **Yes** are stored as 2D COGO Points where the elevation of the Point is not set.

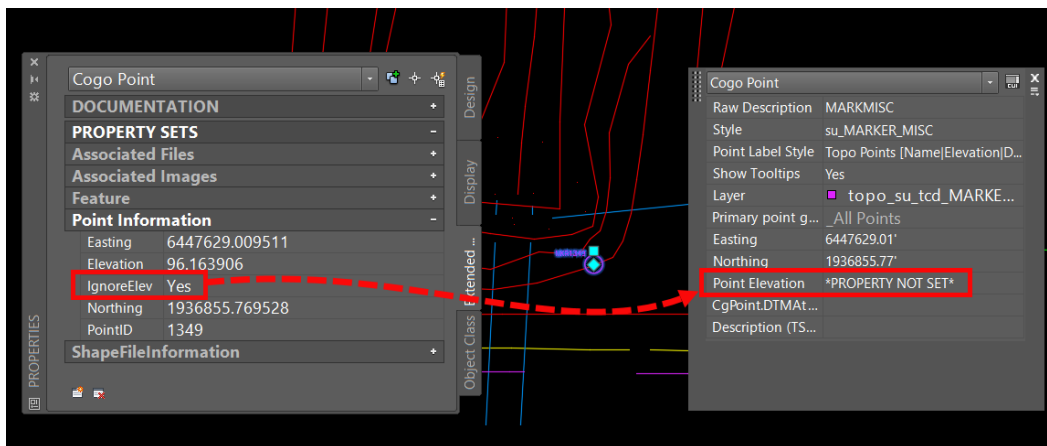


Figure 26 – COGO Points stored using IgnoreElev set to Yes

COGO Points are added to Point Groups

COGO Points are added to Point Groups based on the attribute **DTM_Type**.

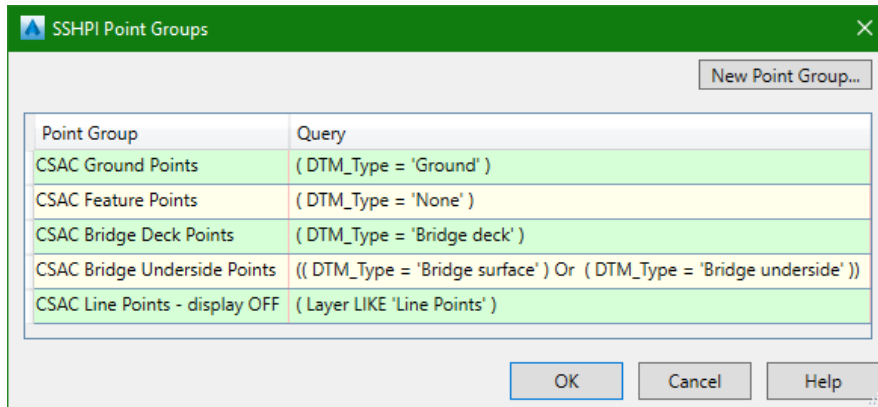


Figure 27 – SSHPI Point Groups

CTDC FIGURE PREFIX DATABASE

The CTDC Figure Prefix Database assigns the object style and object layer to survey figures and determines whether the figures are tagged as breakline. Figure prefixes with “-G” in the name are tagged as breaklines. As a point file or XML file is imported into the Survey Database, the system monitors the incoming data and when it encounters automatic linework with a known prefix, the correct style and settings are applied to the figure.

The Figure Prefix Database is only used with CTDC data that is collected in the TSS file format. Note: The TSS file format is being phased out with the CSAC Shape file format.

Two CTDC Figure Prefix Databases are available for use when importing data in TSS files. The table below lists the **Caltrans Topo TSS - 2016** Figure Prefix Database that should be used when TSS files are imported into a Civil 3D 2016 Survey Database. (Note, The **Caltrans Topo TSS** Figure Prefix Database should only be used when importing data into a Civil 3D 2012 Survey Database.)

Name	Layer	Style
ABUT-F	topo_su_str_ABUTWW_drop	SU ABUT
ABUT-G	topo_su_str_ABUTWW_drop	SU ABUT
AC-F	topo_su_rdbed_AC_drop	SU AC
AC-G	topo_su_rdbed_AC_drop	SU AC
ACBK-F	topo_su_rdbed_AC_drop	SU ACBK
ACBK-G	topo_su_rdbed_AC_drop	SU ACBK
ACFL-F	topo_su_rdbed_FL_drop	SU ACFL
ACFL-G	topo_su_rdbed_FL_drop	SU ACFL
ACM-F	topo_su_rdside_AC_drop	SU ACM
ACM-G	topo_su_rdside_AC_drop	SU ACM
BB-F	topo_su_rdside_MISC_drop	SU BB
BB-G	topo_su_rdside_MISC_drop	SU BB
BBWK-F	topo_su_rdbed_CONC_deck_drop	SU BBWK
BBWK-G	topo_su_rdbed_CONC_deck_drop	SU BBWK
BCAB-F	topo_su_ut_UG	SU BCAB
BCAB-G	topo_su_ut_UG	SU BCAB
BCON-F	topo_su_tcd_BARRIER_drop	SU BCON
BCON-G	topo_su_tcd_BARRIER_drop	SU BCON
BEP-F	topo_su_str_MISC_deck_drop	SU BEP
BEP-G	topo_su_str_MISC_deck_drop	SU BEP

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BETW-F	topo_su_tcd_MARKING_deck_drop	SU BETW
BETW-G	topo_su_tcd_MARKING_deck_drop	SU BETW
BLDG-F	topo_su_str_BLDG_drop	SU BLDG
BLDG-G	topo_su_str_BLDG_drop	SU BLDG
BLDR-F	topo_su_str_BLDG_drop	SU BLDR
BLDR-G	topo_su_str_BLDG_drop	SU BLDR
BRB-F	topo_su_str_BRDG_RAIL_deck_drop	SU BRB
BRB-G	topo_su_str_BRDG_RAIL_deck_drop	SU BRB
BRF-F	topo_su_rdside_FENCE_drop	SU BRF
BRF-G	topo_su_rdside_FENCE_drop	SU BRF
BRT-F	topo_su_tcd_BARRIER_deck_drop	SU BRT
BRT-G	topo_su_tcd_BARRIER_deck_drop	SU BRT
BSOF-F	topo_su_str_MISC_surface_drop	SU BSOF
BSOF-G	topo_su_str_MISC_surface_drop	SU BSOF
BSTP-F	topo_su_tcd_MARKING_deck_drop	SU BSTP
BSTP-G	topo_su_tcd_MARKING_deck_drop	SU BSTP
BSWB-F	topo_su_rdbed_CURB_deck_drop	SU BSWB
BSWB-G	topo_su_rdbed_CURB_deck_drop	SU BSWB
BSWT-F	topo_su_rdbed_CURB_deck_drop	SU BSWT
BSWT-G	topo_su_rdbed_CURB_deck_drop	SU BSWT
BTHR-F	topo_su_tcd_BARRIER_drop	SU BTHR
BTHR-G	topo_su_tcd_BARRIER_drop	SU BTHR
BWF-F	topo_su_rdside_FENCE_drop	SU BWF
BWF-G	topo_su_rdside_FENCE_drop	SU BWF
BWW-F	topo_su_str_ABUTWW_drop	SU BWW
BWW-G	topo_su_str_ABUTWW_drop	SU BWW
CARL-F	topo_su_str_BLDG_drop	SU CARL
CARL-G	topo_su_str_BLDG_drop	SU CARL
CBSN-F	topo_su_hydro_df_OPEN_drop	SU CBSN
CBSN-G	topo_su_hydro_df_OPEN_drop	SU CBSN
CFL-F	topo_su_hydro_FL_drop	SU CFL
CFL-G	topo_su_hydro_FL_drop	SU CFL

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CLF-F	topo_su_rdside_FENCE_drop	SU CLF
CLF-G	topo_su_rdside_FENCE_drop	SU CLF
COLM-F	topo_su_str_COL_drop	SU COLM
COLM-G	topo_su_str_COL_drop	SU COLM
COND-F	topo_su_ut_COND	SU COND
COND-G	topo_su_ut_COND	SU COND
CROP-F	topo_su_veg_MISC_drop	SU CROP
CROP-G	topo_su_veg_MISC_drop	SU CROP
CTLG-F	topo_su_rdbed_MISC_drop	SU CTLG
CTLG-G	topo_su_rdbed_MISC_drop	SU CTLG
CTOP-F	topo_su_hydro_df_OPEN_drop	SU CTOP
CTOP-G	topo_su_hydro_df_OPEN_drop	SU CTOP
CULT-F	topo_su_hydro_df_CULV_drop	SU CULT
CULT-G	topo_su_hydro_df_CULV_drop	SU CULT
CULV-F	topo_su_hydro_df_CULV_drop	SU CULV
CULV-G	topo_su_hydro_df_CULV_drop	SU CULV
CWW-F	topo_su_hydro_df_STR_drop	SU CWW
CWW-G	topo_su_hydro_df_STR_drop	SU CWW
DECK-F	topo_su_str_BLDG_drop	SU DECK
DECK-G	topo_su_str_BLDG_drop	SU DECK
DFL-F	topo_su_hydro_FL_drop	SU DFL
DFL-G	topo_su_hydro_FL_drop	SU DFL
DIKB-F	topo_su_rdbed_DIKE_drop	SU DIKB
DIKB-G	topo_su_rdbed_DIKE_drop	SU DIKB
DIKT-F	topo_su_rdbed_DIKE_drop	SU DIKT
DIKT-G	topo_su_rdbed_DIKE_drop	SU DIKT
DRWY-F	topo_su_rdside_MISC_drop	SU DRWY
DRWY-G	topo_su_rdside_MISC_drop	SU DRWY
DTOP-F	topo_su_hydro_df_OPEN_drop	SU DTOP
DTOP-G	topo_su_hydro_df_OPEN_drop	SU DTOP
ELC-F	topo_su_ut_CABLE	SU ELC
ELC-G	topo_su_ut_CABLE	SU ELC
ENT-F	topo_su_hydro_df_OPEN_drop	SU ENT
ENT-G	topo_su_hydro_df_OPEN_drop	SU ENT

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EOD-F	topo_su_str_BRDG_RAIL_deck_drop	SU EOD
EOD-G	topo_su_str_BRDG_RAIL_deck_drop	SU EOD
EOR-F	topo_su_rdbed_MISC_drop	SU EOR
EOR-G	topo_su_rdbed_MISC_drop	SU EOR
EP-F	topo_su_rdbed_MISC_drop	SU EP
EP-G	topo_su_rdbed_MISC_drop	SU EP
ES-F	topo_su_rdbed_MISC_drop	SU ES
ES-G	topo_su_rdbed_MISC_drop	SU ES
ETW-F	topo_su_tcd_MARKING_drop	SU ETW
ETW-G	topo_su_tcd_MARKING_drop	SU ETW
EW-F	topo_su_hydro_WATER_drop	SU EW
EW-G	topo_su_hydro_WATER_drop	SU EW
FB-F	topo_su_rdside_MISC_drop	SU FB
FB-G	topo_su_rdside_MISC_drop	SU FB
FDLINE-F	topo_su_ctrl_LNWK	SU FDLINE
FDLINE-G	topo_su_ctrl_LNWK	SU FDLINE
FDLN-F	topo_su_ctrl_LNWK	SU FDLINE
FDLN-G	topo_su_ctrl_LNWK	SU FDLINE
FIBO-F	topo_su_ut_CABLE	SU FIBO
FIBO-G	topo_su_ut_CABLE	SU FIBO
FLC-F	topo_su_rdbed_CURB_drop	SU FLC
FLC-G	topo_su_rdbed_CURB_drop	SU FLC
GLN-F	topo_su_ut_UG	SU GLN
GLN-G	topo_su_ut_UG	SU GLN
GLP-F	topo_su_ut_UG	SU GLP
GLP-G	topo_su_ut_UG	SU GLP
GSLD-F	topo_su_rdside_FENCE_drop	SU GSLD
GSLD-G	topo_su_rdside_FENCE_drop	SU GSLD
HDWB-F	topo_su_hydro_df_STR_drop	SU HDWB
HDWB-G	topo_su_hydro_df_STR_drop	SU HDWB
HEAD-F	topo_su_hydro_df_STR_drop	SU HEAD
HEAD-G	topo_su_hydro_df_STR_drop	SU HEAD

HP-F	topo_su_rdside_MISC_drop	SU HP
HP-G	topo_su_rdside_MISC_drop	SU HP
HYDRL-F	topo_su_rdbed_MISC_drop	SU HYDRL
HYDRL-G	topo_su_hydro_MISC_drop	SU HYDRL
LIP-F	topo_su_rdbed_CURB_drop	SU LIP
LIP-G	topo_su_rdbed_CURB_drop	SU LIP
LL-F	topo_su_tcd_MARKING_drop	SU LL
LL-G	topo_su_tcd_MARKING_drop	SU LL
LR-F	topo_su_rdside_RR_drop	SU LR
LR-G	topo_su_rdside_RR_drop	SU LR
MANL-F	topo_su_rdside_MISC_drop	SU MANL
MANL-G	topo_su_rdside_MISC_drop	SU MANL
MBGR-F	topo_su_tcd_BARRIER_drop	SU MBGR
MBGR-G	topo_su_tcd_BARRIER_drop	SU MBGR
MBS-F	topo_su_rdside_MISC_drop	SU MBS
MBS-G	topo_su_rdside_MISC_drop	SU MBS
MWB-F	topo_su_str_WALL_drop	SU MWB
MWB-G	topo_su_str_WALL_drop	SU MWB
MWT-F	topo_su_str_WALL_drop	SU MWT
MWT-G	topo_su_str_WALL_drop	SU MWT
OCAB-F	topo_su_ut_OH	SU OCAB
OCAB-G	topo_su_ut_OH	SU OCAB
ODRN-F	topo_su_hydro_df_STR_drop	SU ODRN
ODRN-G	topo_su_hydro_df_STR_drop	SU ODRN
OG-F	topo_su_rdside_MISC_drop	SU OG
OG-G	topo_su_rdside_MISC_drop	SU OG
OGFL-F	topo_su_rdside_FL_drop	SU OGFL
OGFL-G	topo_su_rdside_FL_drop	SU OGFL
ORCH-F	topo_su_veg_TREE_drop	SU ORCH
ORCH-G	topo_su_veg_TREE_drop	SU ORCH
PAT-F	topo_su_str_BLDG_drop	SU PAT
PAT-G	topo_su_str_BLDG_drop	SU PAT
PCBK-F	topo_su_rdbed_CONC_drop	SU PCBK
PCBK-G	topo_su_rdbed_CONC_drop	SU PCBK

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PCC-F	topo_su_rdbed_CONC_drop	SU PCC
PCC-G	topo_su_rdbed_CONC_drop	SU PCC
PCCM-F	topo_su_rdside_CONC_drop	SU PCCM
PCCM-G	topo_su_rdside_CONC_drop	SU PCCM
PCFL-F	topo_su_rdbed_FL_drop	SU PCFL
PCFL-G	topo_su_rdbed_FL_drop	SU PCFL
PMRK-F	topo_su_tcd_MARKER_drop	SU PMRK
PMRK-G	topo_su_tcd_MARKER_drop	SU PMRK
PN-F	topo_su_str_PN_deck_drop	SU PN
PN-G	topo_su_str_PN_deck_drop	SU PN
POLL-F	topo_su_ut_POLE	SU POLL
POLL-G	topo_su_ut_POLE	SU POLL
POOL-F	topo_su_hydro_WATER_drop	SU POOL
POOL-G	topo_su_hydro_WATER_drop	SU POOL
PRF-F	topo_su_rdside_FENCE_drop	SU PRF
PRF-G	topo_su_rdside_FENCE_drop	SU PRF
PUMH-F	topo_su_ut_APPR	SU PUMH
PUMH-G	topo_su_ut_APPR	SU PUMH
RBRK-F	topo_su_rdbed_MISC_drop	SU RBRK
RBRK-G	topo_su_rdbed_MISC_drop	SU RBRK
RCA-F	topo_su_hydro_df_CULV_drop	SU RCA
RCA-G	topo_su_hydro_df_CULV_drop	SU RCA
RCB-F	topo_su_hydro_df_CULV_drop	SU RCB
RCB-G	topo_su_hydro_df_CULV_drop	SU RCB
RDWYL-F	topo_su_rdbed_MISC_drop	SU RDWYL
RDWYL-G	topo_su_rdbed_MISC_drop	SU RDWYL
RIV-F	topo_su_hydro_WATER_drop	SU RIV
RIV-G	topo_su_hydro_WATER_drop	SU RIV
ROCK-F	topo_su_rdside_ROCK_drop	SU ROCK
ROCK-G	topo_su_rdside_ROCK_drop	SU ROCK
RR-F	topo_su_rdside_RR_drop	SU RR
RR-G	topo_su_rdside_RR_drop	SU RR
RWB-F	topo_su_str_WALL_drop	SU RWB
RWB-G	topo_su_str_WALL_drop	SU RWB

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RWT-F	topo_su_str_WALL_drop	SU RWT
RWT-G	topo_su_str_WALL_drop	SU RWT
SDR-F	topo_su_hydro_df_STR_drop	SU SDR
SDR-G	topo_su_hydro_df_STR_drop	SU SDR
SDRN-F	topo_su_hydro_df_STR_drop	SU SDRN
SDRN-G	topo_su_hydro_df_STR_drop	SU SDRN
SINB-F	topo_su_tcd_SIGN_drop	SU SINB
SINB-G	topo_su_tcd_SIGN_drop	SU SINB
SINM-F	topo_su_tcd_SIGN_drop	SU SINM
SINM-G	topo_su_tcd_SIGN_drop	SU SINM
SLD-F	topo_su_rdside_SLIDE_drop	SU SLD
SLD-G	topo_su_rdside_SLIDE_drop	SU SLD
SLP-F	topo_su_hydro_df_OPEN_drop	SU SLP
SLP-G	topo_su_hydro_df_OPEN_drop	SU SLP
SPLY-F	topo_su_hydro_df_OPEN_drop	SU SPLY
SPLY-G	topo_su_hydro_df_OPEN_drop	SU SPLY
SS-F	topo_su_ut_UG	SU SS
SS-G	topo_su_ut_UG	SU SS
STHR-F	topo_su_hydro_WATER_drop	SU STHR
STHR-G	topo_su_hydro_WATER_drop	SU STHR
STRP-F	topo_su_tcd_MARKING_drop	SU STRP
STRP-G	topo_su_tcd_MARKING_drop	SU STRP
SW-F	topo_su_rdside_SW_drop	SU SW
SW-G	topo_su_rdside_SW_drop	SU SW
SWB-F	topo_su_str_WALL_drop	SU SWB
SWB-G	topo_su_str_WALL_drop	SU SWB
SWT-F	topo_su_str_WALL_drop	SU SWT
SWT-G	topo_su_str_WALL_drop	SU SWT
TANP-F	topo_su_rdside_MISC_drop	SU TANP
TANP-G	topo_su_rdside_MISC_drop	SU TANP
TELC-F	topo_su_ut_CABLE	SU TELC
TELC-G	topo_su_ut_CABLE	SU TELC
TOB-F	topo_su_hydro_df_OPEN_drop	SU TOB
TOB-G	topo_su_hydro_df_OPEN_drop	SU TOB

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TOC-F	topo_su_rdbed_CURB_drop	SU TOC
TOC-G	topo_su_rdbed_CURB_drop	SU TOC
TOE-F	topo_su_rdside_MISC_drop	SU TOE
TOE-G	topo_su_rdside_MISC_drop	SU TOE
TOP-F	topo_su_rdside_MISC_drop	SU TOP
TOP-G	topo_su_rdside_MISC_drop	SU TOP
TOWL-F	topo_su_ut_MISC	SU TOWL
TOWL-G	topo_su_ut_MISC	SU TOWL
TRL-F	topo_su_rdside_MISC_drop	SU TRL
TRL-G	topo_su_rdside_MISC_drop	SU TRL
TVC-F	topo_su_ut_CABLE	SU TVC
TVC-G	topo_su_ut_CABLE	SU TVC
UTLL-F	topo_su_ut_CABLE	SU UTLL
UTLL-G	topo_su_ut_CABLE	SU UTLL
VEGE-F	topo_su_veg_MISC_drop	SU VEGE
VEGE-G	topo_su_veg_MISC_drop	SU VEGE
VEGL-F	topo_su_veg_MISC_drop	SU VEGL
VEGL-G	topo_su_veg_MISC_drop	SU VEGL
VGUT-F	topo_su_rdbed_FL_drop	SU VGUT
VGUT-G	topo_su_rdbed_FL_drop	SU VGUT
VY-F	topo_su_veg_MISC_drop	SU VY
VY-G	topo_su_veg_MISC_drop	SU VY
WBOX-F	topo_su_hydro_df_STR_drop	SU WBOX
WBOX-G	topo_su_hydro_df_STR_drop	SU WBOX
WDGR-F	topo_su_tcd_BARRIER_drop	SU WDGR
WDGR-G	topo_su_tcd_BARRIER_drop	SU WDGR
WEIR-F	topo_su_hydro_df_STR_drop	SU WEIR
WEIR-G	topo_su_hydro_df_STR_drop	SU WEIR
WL-F	topo_su_ut_UG	SU WL
WL-G	topo_su_ut_UG	SU WL
WMF-F	topo_su_rdside_FENCE_drop	SU WMF
WMF-G	topo_su_rdside_FENCE_drop	SU WMF
WRF-F	topo_su_rdside_FENCE_drop	SU WRF
WRF-G	topo_su_rdside_FENCE_drop	SU WRF

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