
Feature Codes – Full Descriptions

Design Manual
Chapter 40
Design Survey
Specifications

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AST - Above Ground Storage Tank

Point = Yes

Line = No

DTM Inclusion = No

Shoot the center of all above ground tanks with this feature except LP tanks. Examples include storage tanks that contain chlorine, hazardous fluids, and gasoline or diesel fuel. Record the fluid material description in the PD field.

EXAMPLE: Point Description = 3.0' x 12.0' Chlorine Tank

BB - Billboards

Point = Yes

Line = No

DTM Inclusion = No

Shoot both ends of the billboard and create a survey chain from them. Describe any concrete footings, license numbers, and construction materials in the comments. Use the point description for the number of posts and concrete footings, license number and type of post & sign.

EXAMPLE: Point Description = Lions Club, 4 Post, 2.0' Cir Conc Footings, #78-325, Post & Wood Sign

BBB - Bottom of Bridge Beam

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to enter the low steel profile of bridge beams other than centerline. This feature is only required on bridge widening projects. The point description should start with the bridge ID number (BRG1, BRG2, etc.) and the beam number (Beam1, Beam2, Beam3, etc.)

EXAMPLE: Point Description = BRG1 Beam1

BCL - Bridge Centerline

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to enter the profile of all bridge decks. A shot should be taken at the beginning of the bridge, end of the bridge and over each pier. Additional shots may be required so that the

maximum distance between shots is 50'. The point description should contain the bridge ID number (BRG1, BRG2, etc.)

EXAMPLE: Point Description = BRG1

BD - Bridge Deck

Point = Yes

Line = No

DTM Inclusion = No

Use this feature on all bridge deck shots. A bridge deck point is used to code all shots that fall on the floor of a bridge. Point examples include beginning/end of bridge deck, the gutter along the wheel guard as well as all other points that represent the deck of a bridge. This feature is also used to draw the outline of the deck in the plan view. The point description should contain the bridge ID number (BRG1, BRG2, etc.) and the side of the bridge the shots are on (East, West, etc.).

EXAMPLES: Point Description = BRG1 W End Bridge, BRG4 S Over Pier, BRG2 N Gutter

BIN - Grain Bins, Corn Cribs, Etc.

Point = Yes

Line = No

DTM Inclusion = No

Use this feature for a circular bin. Shoot one shot on the center of the bin. The diameter of the bin should be recorded in the point description field.

EXAMPLE: Point Description = 30.0' Dia

BL - Breakline (Field)

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature in DTM surveys to enter shots along a ground break. Shoot the required spacing necessary along the break-line to create 3-D string-lines.

EXAMPLE: Point Description = Toe, Top, Dirt, Conc, etc.

BLD - Building

Point = Yes

Line = Yes

DTM Inclusion = No

All buildings except latrine, circular bin, or silo. BLD can also be used for canopy of buildings, pump island canopies, foundations and buildings. BLD is to be used at the corners of the feature, with a survey chain number, to draw a line in the shape of the feature. The description for buildings should be the type of building or the name of the business. The address of a building should be recorded in the comments.

EXAMPLE: Point Description = 906 1st Street, Foundation

BLS - Bridge Low Steel

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to enter the profile of the bottom of the lowest beam on all bridges. The point description should start with the bridge ID number (BRG1, BRG2, etc.) and a description of where the shot was taken.

EXAMPLE: Point Description = BRG1 SE Beam

BM - Benchmark

Point = Yes

Line = No

DTM Inclusion = No

Use this feature in ALL surveys when a bench is located.

EXAMPLE: Point Description = I.H.C BM Inlet HDWL

BNK - Stream Banks

Point = Yes

Line = Yes

DTM Inclusion = Yes

This feature code is to be used to represent the farthest outside edge of all stream banks. Use this feature code with a survey chain number to draw a line along all banks of streams, rivers and draws.

EXAMPLE: *Point Description Not Used*

BRG - Bridge

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with survey chains on all items needed to create a plan view drawing of all bridges, including the wheel guards, sidewalks, wings and abutments. The description should also contain the bridge ID number.

EXAMPLES: Point Description = BRG1 Top Abut, BRG2 Top Handrail, BRG1 Top Wheelguard

C - Center of Road

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature in all surveys to shoot a break-line profile on a mainline or a side road centerline. This is used as a breakline only. The centerline alignment shown on the plans is created in a separate process.

EXAMPLES: Point Description = IA 30, Oak St, L-27

CAV - Cave

Point = Yes

Line = No

DTM Inclusion = No

This feature code will place a symbol at the entrance of a cave. Take one shot at the cave opening.

EXAMPLE: *Point Description Not Used*

CEL - Cell Phone Tower

Point = Yes

Line = No

DTM Inclusion = No

This feature will place a symbol representing a cell phone tower. Take one shot at the center of the tower at the base. Enter the diameter and owner in the point description field.

EXAMPLE: Point Description = Verizon, 6.0' Dia

CIS - Cistern

Point = Yes

Line = No

DTM Inclusion = No

This feature will place a symbol representing a cistern. Take one shot at the approximate centerline of cistern. Enter the diameter of cistern in the point description field.

EXAMPLE: Point Description = 10.0' Dia

CON - Concrete or AC Slab

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature when you shoot any PCC or HMA that is not a road, entrance or parking lot.

EXAMPLES: Point Description = CONC or AC

CP - Control Point

Point = Yes

Line = No

DTM Inclusion = No

Use this feature in all surveys when any project control point is shot. The comment should include type of point and if the point was set or found.

EXAMPLES: Point Description = Found 1/2" Iron Pin 6" Deep, Set 5/8" Re-Rod

CRP - Approximate Corporation Line

Point = Yes

Line = Yes

DTM Inclusion = No

This feature requires at least two shots with a survey chain number to draw a corporation line. Description should contain town name.

EXAMPLE: Point Description = Approx. City Of Ames Corp Line

CS - Curve to Spiral

Point = Yes

Line = Yes

DTM Inclusion = No

Used to store a point at the point of change from circular curve to spiral.

EXAMPLE: Point Description = FND Hinge Nail

CU - Curb

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use one survey chain to draw the back of the curb. Use the point description field to describe the overall width of the curb and gutter. Also note the curb size in the point description field. The curb line can be shot through the intakes as if the intake isn't there.

EXAMPLE: Point Description = 2.5' C&G with 6" Curb

CUL - Culverts

Point = Yes

Line = Yes

DTM Inclusion = No

This feature is to be used for all reinforced concrete box culverts to draw the culvert in the plan view of the file. These include shots at the outside corner of the barrel on the top back corner of the headwall and the inside edges on the top of the wing walls.

EXAMPLES: Point Description = Corner Box, Top Edge Wing

D - Draws, Side Ditches, Gutter Water Flow or Surface Water Flow Downstream

Point = Yes

Line = Yes

DTM Inclusion = Yes

This feature places drainage arrows on a stream, draw, side ditch, gutter, surface water flow, etc. The survey chain should start at the highest elevation of the draw.

EXAMPLES: *Point Description Not Used*

DAB - Drainage Area Boundary

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature to draw a survey chain around each drainage area. Use the point description field to record which pipe the drainage area drains to.

EXAMPLE: Point Description = STA 126+35 24" RCP

DIK - Center of Dike or Dam

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature to draw a survey chain along the center of a dike or dam. Use the point description field to record the type of structure and the approximate width of the top.

EXAMPLE: Point Description = 10.0' Wide

DTM - Photogrammetry Control Check

Point = Yes

Line = No

DTM Inclusion = No

The terrain model check feature, DTM, can be used as a single shot. This shot will be used in-house to check the accuracy of the finished Data Terrain Model. This feature should be used a minimum of 3 times every 1000 feet, in random groups of three. The terrain will determine the need for this feature.

EXAMPLE: *Point Description Not Used*

DU - Draws, Side Ditches, Gutter Water Flow or Surface Water Flow Upstream

Point = Yes

Line = Yes

DTM Inclusion = Yes

This feature is for drainage arrows on a stream, draw, side ditch, gutter, surface water flow, etc. The DU feature can be used to shoot drainage in the opposite direction as feature D. The survey chain should start at the lowest surveyed point of the draw.

EXAMPLE: *Point Description Not Used*

EB - Electrical Box

Point = Yes

Line = No

DTM Inclusion = No

When using this feature in ALL surveys, shoot the center of an electrical pedestal. Use the point description field to describe the owner and the dimensions of the box.

EXAMPLE: Point Description = MidAmerican, 2.0' X 3.0'

EG - Edge of Gravel Road

Point = Yes

Line = Yes

DTM Inclusion = Yes

This feature code is to be used with a survey chain on all roads with a gravel surface.

EXAMPLES: Point Description = Gravel or Dirt

EL1B thru EL5B - Underground Electric Line (Quality B)

EL1C thru EL5C - Underground Electric Line (Quality C)

EL1D thru EL5D - Underground Electric Line (Quality D)

Point = Yes

Line = Yes

DTM Inclusion = No

Use these feature codes with a survey chain number to draw underground electric lines. The feature and point description should be consistent with the utility owners in the index file. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = Alliant

ENP - Edge of Entrance, Paved

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature on all paved (asphalt or concrete) entrances and parking lots. Examples of this feature will include all residential entrances, community entrances and community parking lots. The point description should be either AC or Conc.

EXAMPLES: Point Description = Conc or AC

ENT - Entrance

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature with a survey chain to shoot the centerline of all entrances.

EXAMPLES: Point Description = Field, Farm, Commercial, Residential

ENU - Edge of Entrance, Unpaved

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature on all unpaved entrances and parking lots. Examples of this feature will include all residential entrances, community entrances and community parking lots.

EXAMPLES: Point Description = Gravel or Dirt

EP - Edge of Pavement

Point = Yes

Line = Yes

DTM Inclusion = Yes

This feature is to be used on all concrete and asphalt state, county, municipal and private roads. Not to be used for edges of paved entrances

EXAMPLES: Point Description = Conc or AC

EW - Edge of Water

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature with a survey chain to locate the edge of water along all streams at least 10' wide, ponds and ponding areas, except swamps.

EXAMPLE: Point Description Not Used

FCL - Chain Link or Security Fence

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain on any chain link or security fence. Description should contain height of fence.

EXAMPLES: Point Description = 6.0', 8.0'

FENO - FENO Control Monument

Point = Yes

Line = Yes

DTM Inclusion = No

Used to store a point where a FENO control monument was set.

EXAMPLE: Point Description = Set FENO 6" Deep

FHD - Fire Hydrant

Point = Yes

Line = No

DTM Inclusion = No

Use the FHD feature to place a symbol representing a fire hydrant. Take the shot on the center of the hydrant. Description should contain owner.

EXAMPLE: Point Description = City of Ames

FLG - Flag Pole

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to shoot a flag pole. The point description field should describe the base, if any.

EXAMPLE: Point Description = 24" Conc Base

FO1B thru FO15B - Underground Fiber Optic Line (Quality B)**FO1C thru FO15C - Underground Fiber Optic Line (Quality C)****FO1D thru FO15D - Underground Fiber Optic Line (Quality D)**

Point = Yes

Line = Yes

DTM Inclusion = No

This feature is to be used on all underground fiber optics cables. The feature and point description should be consistent with the utility owners in the index. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = Iowa Telecom

FP - Filler Pipe

Point = Yes

Line = No

DTM Inclusion = No

This feature will place a symbol at the filler pipe of an underground storage tank. Take one shot on the centerline of the filler cap. Enter the filler pipe dimension in the PD field.

EXAMPLE: Point Description = 6" Cap

FW - Wire Fence (Woven, Barb or High Tension)

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain on any fence made of woven, barb, or high tension wire.

EXAMPLES: Point Description = Woven, Barbed, High Tension

FWD - Wood Fence

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain on all board fences.

EXAMPLES: Point Description = 4.0', 6.0'

GDC - Cable Guardrail

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain on all guardrails with steel cable.

EXAMPLE: Point Description = 3 Cables

GDL - Steel Guardrail

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain on all guardrail with a steel rail.

EXAMPLE: Point Description = Steel

GH1B thru GH10B - Underground Gas High Pressure Line (Quality B)

GH1C thru GH10C - Underground Gas High Pressure Line (Quality C)

GH1D thru GH10D - Underground Gas High Pressure Line (Quality D)

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain on any high pressure buried gas line. The feature code should be consistent with the utility owners in the index file. The point description should be the diameter of the pipe and owner. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = Alliant, 4"

GL1B thru GL10B - Underground Gas Line (Quality B)

GL1C thru GL10C - Underground Gas Line (Quality C)

GL1D thru GL10D - Underground Gas Line (Quality D)

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain on any buried gas, petroleum, or crude oil line that is not under high pressure. The feature code should be consistent with the utility owners in the index file. The point description should be the size of the pipe and owner. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = Alliant, 4"

GP - Guard Posts (Less Than 4 Posts)

Point = Yes

Line = No

DTM Inclusion = No

Use this feature for posts that do not have a rail or cable connecting them and should be used when posts are not in a row or there are less than 4 of them. Possible examples of the GP feature could be a row of posts around a parking area or simply 1 or 2 posts placed where they will protect another object. When the feature GP is used the letters GP will be added beside the guardrail symbol. All guard posts in the survey corridor should be located.

NOTE: Use feature [GDL](#) if the posts have a guardrail or a cable.

EXAMPLES: Point Description = 1.0' X 1.0' Wood Post, 4" Post

GPR - Guard Posts (4 or More Posts)

Point = Yes

Line = Yes

DTM Inclusion = No

This is to be used for each post that is in a row of four or more posts. All guard posts in the survey corridor should be located. This feature is also for guard posts without a rail or cable.

EXAMPLES: Point Description = 1.0' X 1.0' Wood Post, 4" Post

GR - Ground Shots (Field Survey)

Point = Yes

Line = No

DTM Inclusion = Yes

Use this feature on all shots that do not have another feature and are good for elevation.

EXAMPLES: Point Description = Dirt, Conc

GRV - Grave

Point = Yes

Line = No

DTM Inclusion = No

The shot should be taken on the centerline of a grave. Note the name on the headstone in the point description.

EXAMPLE: Point Description = Murphy Headstone

GU - Gutter

Point = Yes

Line = Yes

DTM Inclusion = Yes

When shooting curb and gutter, two survey chains are required. The first gutter survey chain should be at the face of the curb. Draw this line into the curb line at the location of the curb drop. A second gutter survey chain should be used for the edge of the gutter. Use the point description field to describe the overall width of the curb and gutter. The gutter line can be shot through the intakes as if the intake isn't there.

EXAMPLE: Point Description = 2.5' Gutter

GV - Gas Valve or Vent

Point = Yes

Line = No

DTM Inclusion = No

This feature can be used for a gas vent or gas valve. Record the size of valve or vent in the point description field.

EXAMPLE: Point Description = 4"

HDG - Hedge

Point = Yes

Line = Yes

DTM Inclusion = No

This feature with a survey chain will draw a hedge symbol along the centerline of a hedge. Shoot a shot on the centerline of the hedge, at each end and at each change in direction of the hedge. Use the point description on all shots.

EXAMPLE: Point Description = 4.0' Yew

HS - Hydric Soil

Point = Yes

Line = No

DTM Inclusion = No

This feature should be used with a survey chain to delineate a hydric soil use. Wetland employees will flag hydric soils if they need to be included in our surveys. The point description should note the soil type.

EXAMPLE: Point Description = Hydric Soil

HT - Highline Tower

Point = Yes

Line = No

DTM Inclusion = No

This feature is to be used whenever there is a tower or poles supporting a high voltage power line. The feature is not meant to represent a particular type of pole or tower but to show a high voltage line. If the tower base is square, locate the approximate center. If it is two poles, locate the position approx. ½ way between the poles. The point description should be consistent with the utility owners in the index file. If the elevations of the lines are needed, use the feature UE for them.

EXAMPLE: Point Description = Alliant

IN - Storm Sewer Intake

Point = Yes

Line = No

DTM Inclusion = No

Use this feature one time at the location point of an intake. Use the Point Description field to record the dimensions and construction material of the well, condition, length of opening and drainage area.

EXAMPLE: Point Description = 4' X 6', Good Condition, 3' Opening, DA=1.2 AC

INB - Intake (Beehive)

Point = Yes

Line = No

DTM Inclusion = No

This feature can be used for all round intakes including stand-pipes in fields. This shot should be taken at the center of the intake at the surface flowline.

EXAMPLE: Point Description = 18" CIR Beehive, 6" Inlet NE, 8" Outlet SW

LC - Approximate Lot Corner

Point = Yes

Line = No

DTM Inclusion = No

This feature is to be used with lot corners. The type of corner that is located should be noted in the comments. If a cap with an RLS # is found, note it in the comments. Point description should always read lot corner.

EXAMPLE: Point Description = Approx. Lot Corner, Found 1" Gas Pipe

LIN - LINE

Point = Yes

Line = Yes

DTM Inclusion = No

This feature should be used when you wish to create a line that will not become part of the DTM but will show on the plans. Examples of a line are the begin a/c surf, painted medians, railroad crossing mats and expansion joints.

EXAMPLES: Point Description = Begin AC, Expansion Joint

LP - LP Tank

Point = Yes

Line = No

DTM Inclusion = No

The LP tank symbol should be placed at an LP tank location. Take one shot at the center of the tank.

EXAMPLE: Point Description Not Used

LUM - Luminaire

Point = Yes

Line = No

DTM Inclusion = No

The feature will place a symbol of the pole. Shoot the centerline of each pole. Owner should be included in description.

EXAMPLES: Point Description = City of Ames 12" Steel, Private 8" Wood, etc.

MH - Manhole

Point = Yes

Line = No

DTM Inclusion = No

This feature will place a symbol on the MH location. Enter the diameter and owner of MH in the point description.

EXAMPLE: Point Description = City Of Ames, 30"

MIS - Miscellaneous

Point = Yes

Line = No

DTM Inclusion = No

The miscellaneous feature is to be used for an object requiring a single shot that does not match any other feature. This feature will be shown on the plans.

NOTE: This feature should be used as infrequently as possible.

EXAMPLE: Point Description = Guy Wire

MM - Mile Marker

Point = Yes

Line = No

DTM Inclusion = No

Shoot one shot on centerline of mile marker. Record the mile marker number in the point description.

EXAMPLE: Point Description = 212

OUT - Outlet

Point = Yes

Line = No

DTM Inclusion = No

This feature is to be used with any pipe drain or tile outlet. Take one shot on the outlet flowline. In the point description, record the size and type of pipe.

EXAMPLES: Point Description = 6" CMP, 8" VIT

PC - Point of Curvature

Point = Yes

Line = No

DTM Inclusion = No

Used to store a point of change from back tangent to circular curve.

EXAMPLE: Point Description = FND Hinge Nail

PCP - Photo Control Point

Point = Yes

Line = No

DTM Inclusion = No

Use this feature on Photo Control points that are not painted or paneled. Description should match information requested to collect.

EXAMPLES: Point Description = Power Pole, Corner Post, Manhole

PCT - Photo Control Target

Point = Yes

Line = No

DTM Inclusion = No

Use this feature on painted targets and photo control panels. Description should match information requested to collect.

EXAMPLE: Point Description = Painted Target

PI - Point of Intersection

Point = Yes

Line = No

DTM Inclusion = No

Used to store a point at the intersection of back and forward tangents of an alignment.

EXAMPLE: Point Description = FND Hinge Nail, Set Iron Pin

PIP - Pipe

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature when shooting all pipes, including reinforced concrete, arch, corrugated metal, cast iron and plastic. Shoot one shot at the flowline on each end of pipe and on each end of apron. A shot should also be taken at each horizontal or vertical break. The description should include pipe size and shot location.

EXAMPLES: Point Description = PIP23 Inlet 24" RCP, PIP1 Outlet 18" CMP, PIP3 Apron FL

PL - Photo Location

Point = Yes

Line = No

DTM Inclusion = No

A photo location point is usually a wooden post used as a reference location to take pictures of the wetland site. Pictures of the site are acquired over the five years post construction. Shoot the location of the post. A wetland site may have a large number of Photo Locations. The posts should be marked with something like "P-1" or "P-2" etc. Record the "P-1" or "P-2" label in the point description field.

EXAMPLE: Point Description = Location P-1

PLG - Photo Location General

Point = Yes

Line = No

DTM Inclusion = No

A photo location general point is used to show the location of a digital photo submitted with the Preliminary Survey. Shoot the ground at the location you take the picture. The point description should include the approx. direction faced when the picture was taken.

EXAMPLES: Point Description = SW, N, NE

POC - Point on Curve

Point = Yes

Line = No

DTM Inclusion = No

Used to store a point on a circular curve alignment.

POST - Point on Semi-Tangent (within curve limits)

Point = Yes

Line = No

DTM Inclusion = No

Used to store a point on the tangent of an alignment.

EXAMPLE: Point Description = FND Hinge Nail

PPA, PPB, PPC, PPD, PPE - Power Pole

Point = Yes

Line = No

DTM Inclusion = No

Use this feature with any power pole except highline towers. The point description should contain the owner name.

EXAMPLE: Point Description = Alliant

PR - Power Riser Pole

Point = Yes

Line = No

DTM Inclusion = No

This feature will draw a symbol for a power riser pole. What differentiates a power riser pole, versus a standard power pole, is that the riser pole is used to connect an overhead power line to an underground one. Use this feature with any power pole except highline towers. The point description should contain owner, if known.

EXAMPLE: Point Description = MidAmerican

PRO - Elevation Profile

Point = Yes

Line = No

DTM Inclusion = No

Use this feature in ALL surveys when a miscellaneous elevation is needed. Applications of this feature include back and face of headwalls, top of openings, frost troughs, and any vertical breaks on box culverts and dirt and apron flowlines on box and pipe culverts. This feature is also used at the center top of bridge abutments. The description should list the Bridge ID number and the /shot location.

EXAMPLES: Point Description = PIP1 Dirt Flowline, CUL1 Top Opening, BRG1 Top Abut

PT - Curve to Tangent

Point = Yes

Line = No

DTM Inclusion = No

Used to store an alignment point at the change from circular curve to forward tangent.

EXAMPLE: Point Description = FND Hinge Nail

REF - Reference

Point = Yes

Line = No

DTM Inclusion = No

This feature is used on all points referenced to a control point.

EXAMPLE: Point Description = CP 300, Set Iron Pin 0.09 Deep, Conc. Mon, etc.

RET - Retaining Wall

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to draw a symbol representing a retaining wall. Use the point description field to describe the material and width of the wall. Shoot the split of the retaining wall at both ends and at every jog in the wall.

EXAMPLE: Point Description = 3.0' X 0.3' Wood Plank

RIP - Rip-Rap

Point = Yes

Line = Yes

DTM Inclusion = Yes

Take 2 or more shots with a survey chain number to draw a line along the approximate center of the area. Use the point description for approximate size of rip rap.

EXAMPLE: Point Description = 10.0' Wide

ROC - Rock Outcropping

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to draw a line along the edge of the rock outcropping nearest the survey centerline.

EXAMPLE: Point Description = Top Rock

ROW - Approximate Right-of-Way Rail

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for a row rail. Shoot the near edge of rail (nearest to centerline of highway).

EXAMPLE: Point Description Not Used

RR - Railroad

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature with a survey chain to shoot RR tracks and draw the RR track symbol. The point description should be track owner.

EXAMPLE: Point Description = Union Pacific

RRB - Railroad Signal Box

Point = Yes

Line = No

DTM Inclusion = No

Use this feature in ALL surveys when a signal box is shot. Describe the box size in the point description. Take the shot on the centerline of the box.

EXAMPLE: Point Description = 3.0' X 4.4'

RRF - Railroad Frog

Point = Yes

Line = No

DTM Inclusion = No

Use this feature in ALL surveys when a RR Frog is shot. The shot location should be at the intersection of the two rails.

EXAMPLE: Point Description Not Used

RRR - Top Railroad Rail

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature on top of rail profiles. Description should list rail location.

EXAMPLES: Point Description = North, South

RRS - Railroad Signal

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol that will represent a RR signal. Shoot the centerline of the signal and use the point description to describe the signal.

EXAMPLE: Point Description = With Stop Arm

RRW - Railroad Switch

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol that will represent a RR switch. Shoot the switch on the railroad centerline.

EXAMPLE: Point Description Not Used

RT - Radio Tower

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to record information on a radio tower. Take one shot on the centerline of the tower. Use the point description for the owner if known.

EXAMPLE: Point Description = KRNT

S - Soil Sampling Site

Point = Yes

Line = No

DTM Inclusion = No

A soil sampling site is usually defined by a metal post with a plastic sleeve. The sleeve is labeled with a permanent felt tip marker with something like "S-1" or "S-2" etc. Shoot one shot at the base of the post on the ground. Record the "S-1" or "S-2" marking in the point description field.

EXAMPLE: Point Description = S-1

SA1B thru SA5B - Underground Sanitary Sewer (Quality B)

SA1C thru SA5C - Underground Sanitary Sewer (Quality B)

SA1D thru SA5D - Underground Sanitary Sewer (Quality B)

Point = Yes

Line = Yes

DTM Inclusion = No

Use these features with a survey chain number to draw a line representing a sanitary sewer. One intake or manhole outside the survey limits must be shot to determine the grade of a sanitary

sewer line within the bounds of the survey. Use the point description for owner, size and direction of line. The feature code should be consistent with the utility index. The description should contain the owner name and pipe diameter. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = City Of Ames, 15"

SBR - Size of Bridge

Point = Yes

Line = No

DTM Inclusion = No

This shot should be taken at the center point of the bridge. This point is only used to relay the bridge information to later users of the survey information. The point description should start with the bridge ID number (BRG1, BRG2, etc.), size of bridge, type of bridge, design number and drainage area

EXAMPLE: Point Description = BRG1, 40' X 160', Pre-Stressed Conc Beam, Des. #2144,
DA=150 SQ Miles

SC - Spiral to Curve

Point = Yes

Line = No

DTM Inclusion = No

Used to store an alignment point at the change from circular curve to forward tangent.

EXAMPLE: Point Description = FND Hinge Nail

SCR - Section Corner

Point = Yes

Line = No

DTM Inclusion = No

This feature will draw a symbol for a section corner. Describe the section corner in the point description field. Note the type of corner that is located in the comments. If the stone has been certified as the corner stone by the District Land Surveyors, make a note in the file. If the point hasn't been certified make a comment such as Approx stone location.

EXAMPLE: Point Description = Approx. NE Cor Sec 25, Found ½ in. rebar

SEP - Septic Tank

Point = Yes

Line = No

DTM Inclusion = No

This feature will draw a symbol for a septic tank. Take one shot at the approximate centerline of septic tank. Enter the approximate size in the point description.

NOTE: The property owner should be contacted for information regarding the leach bed on the septic tank. The MIS feature code can be used to draw a line around the approximate location of a known leach bed.

EXAMPLES: Point Description = 6.0' X 6.0', 60"

SF - Silt Fence

Point = Yes

Line = Yes

DTM Inclusion = No

Silt fences located within the perimeter of a wetland survey DTM should be located. Use this feature with a survey chain number to locate the fence.

EXAMPLE: Point Description Not Used

SG - Staff Gauge

Point = Yes

Line = No

DTM Inclusion = No

Defined by a metal post with inch graduations along the side of the post that is used to monitor elevations of a wetland site. Shoot two shots at each location, one shot at the base of the post and another at the zero marking on the post. One shot at the top of the PVC pipe and another inside the PVC on top of the gauge.

EXAMPLES: Point Description = Base, Zero, PVC Top and PVC Gauge

SH - Paved Shoulder

Point = Yes

Line = Yes

DTM Inclusion = Yes

This feature is to be used with a survey chain to draw a line along a paved shoulder, either ACC or PCC. The point description should describe the shoulder surface material.

EXAMPLES: Point Description = Conc or AS

SHR - Shrub

Point = Yes

Line = No

DTM Inclusion = No

This feature will draw a symbol for a shrub. Use the point description for size and type.

EXAMPLE: Point Description = 3.0' Yew

SI - Signs

Point = Yes

Line = No

DTM Inclusion = No

Most signs can be located using one shot at the center of the sign. If there is a concrete base or footings, describe this in your comments. Do not shoot the corners of the concrete base unless it is very large.

EXAMPLE: Point Description = Super 8 Motel, 3' Cir. Conc. Base

SL - Speed Limit Sign

Point = Yes

Line = No

DTM Inclusion = No

Use this feature for all speed limit signs to draw a symbol. Use the point description to record the speed limit of the sign.

EXAMPLE: Point Description = 25 MPH

SLN - Approximate Section Line

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to draw a section line. If the section corners have been located, use them with a survey chain number. If this section line is an approximation, note so in the point description.

EXAMPLES: Point Description = Found 1" Gas Pipe

SLO - Silo

Point = Yes

Line = No

DTM Inclusion = No

Use this feature for a silo. Shoot one shot on the center of the silo. The diameter of the silo should be in the point description.

EXAMPLE: Point Description = 20.0' Dia

SNK - Sink Hole

Point = Yes

Line = No

DTM Inclusion = Yes

Use this feature on all sink holes. Shoot one shot on the approx. center of a sink hole.

NOTE: In a DTM survey use the BL feature with a survey chain number to draw a line around the rim of a sink hole.

EXAMPLE: Point Description Not Used

SNP - Non-Paved Shoulder

Point = Yes

Line = Yes

DTM Inclusion = Yes

This feature is to be used with a survey chain to draw a line along a non-paved shoulder, either granular or earthen. The point description should describe the shoulder surface material.

EXAMPLE: Point Description = Gravel

SOP - Size of Culvert or Pipe

Point = Yes

Line = No

DTM Inclusion = No

This shot should be taken at the center of pipe and centerline of road intersection. This point is only used to relay the pipe or culvert information to later users of the survey information. The description of the SOP point should include the pipe ID, dimensions, condition, skew angle, drainage area and terrain type (F= FLAT, R = ROLLING, H= HILLY, VH= VERY HILLY).

EXAMPLE: Point Description = PIP51, 24" X 44' RCP, Fair Condition, Filling W\ Dirt,

Skew Angle= 44° RT AH, DA = 33 AC - H

SP - Stream Profile

Point = Yes

Line = No

DTM Inclusion = Yes

Use this feature on stream bed profile points. Use the point description field to describe the linear distance up or downstream from the survey centerline.

EXAMPLE: Point Description = 100' Upstream

PT - Curve to Tangent

Point = Yes

Line = No

DTM Inclusion = No

Used to store an alignment point at the change from circular curve to forward tangent.

EXAMPLE: Point Description = FND Hinge Nail

ST1B thru ST5B - Underground Storm Sewer (Quality B)

ST1C thru ST5C - Underground Storm Sewer (Quality C)

ST1D thru ST5D - Underground Storm Sewer (Quality D)

Point = Yes

Line = Yes

DTM Inclusion = No

Use these features with a survey chain to draw storm sewer lines. This feature should be shot at the same location as the MH and at the pipe's flowline elevation. One intake or manhole outside the survey limits must be shot to determine the grade of a storm sewer line within the bounds of the survey. Use the point description for owner, size and direction of line. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLES: Point Description = City of Ames 15" NE, IDOT 24" S

STP - Stump

Point = Yes

Line = No

DTM Inclusion = No

This shot should be taken at the center of a stump. Use the point description for stump size.

EXAMPLE: Point Description = 14"

SWK - Sidewalk

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature with a survey chain number to draw the edge of a sidewalk. The point description should include the width of the sidewalk. Use the feature code LIN to show the location of stairs.

EXAMPLE: Point Description Not Used

SWP - Swamp

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature with a survey chain number to draw a line around the edge of a swamp.

EXAMPLE: Point Description Not Used

TA - Tower Anchor

Point = Yes

Line = No

DTM Inclusion = No

Use this feature for any tower anchor including radio tower, grain elevator tower, etc. Use the point description for anchor footing size.

EXAMPLES: Point Description = 2.0" x 2.0" Conc, 36" Conc

TBO - Telephone Booth

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to shoot the center of a telephone booth or a drive up phone. Use the point description to describe owner.

EXAMPLE: Point Description = QWEST

TCB - Traffic Signal Control Box

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to shoot the center of a control box. Use the point description to describe the box size and owner.

EXAMPLE: Point Description = City of Ames, 36" X 48"

TDC - Deciduous Tree

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for a deciduous tree. Record the type and size information in the point description field.

EXAMPLE: Point Description = 24" Oak

TDL - Traffic Detection Loop

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature to draw a symbol for a traffic detection loop. Record enough points in a survey chain to draw the loop.

EXAMPLE: Point Description Not Used

TER - Centerline of Terrace

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature when shooting the centerline of a field terrace.

NOTE: In DTM surveys, break-lines must be shot along the bases of the terrace and along the top edges of the terrace with the feature code BL.

EXAMPLE: Point Description = 10.0' Wide

TEV - Tree Evergreen

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for an evergreen tree. Record the type and size information in the point description field.

EXAMPLE: Point Description = 18" Scotch Pine

TFR - Tree Fruit

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for a fruit tree. Record the type and size information in the point description field.

EXAMPLE: Point Description = 12" Cherry

TGP - Telegraph Pole

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for a telegraph pole. The shot should be taken on the centerline of the pole. The feature code should be consistent with the utility owners listed in the utility index file. The point description is optional, but if used should also be consistent with the utility owners in the index file.

EXAMPLE: Point Description = Burlington Northern Railroad

TIL - Tile

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature to draw a line along a tile location. Use the point description field to record the size of the tile line. If the size of tile is unknown, enter an approximate dimension in the point description field.

EXAMPLES: Point Description = 6" Plastic, 8" VIT

TL1B thru TL5B - Underground Telephone Line (Quality B)

TL1C thru TL5C - Underground Telephone Line (Quality C)

TL1D thru TL5D - Underground Telephone Line (Quality D)

Point = Yes

Line = Yes

DTM Inclusion = No

Use these features with a survey chain to draw underground telephone wires. The feature code should be consistent with the utility owners listed in the utility index file. The point description should be consistent with the utility legend in the index file. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = QWEST

TLNL - Treeline Left

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to draw the treeline symbol along the edge of a timber. This feature will draw the treeline symbol to the left. This means that you should use this feature if the centerline is to the left of the starting point of your survey chain. A point description is not necessary with this feature but one may be used if desired. This feature should not be used with a single row of trees. Trees with a single row should be one of the following TDC, TFR or TEV.

EXAMPLE: Point Description Not Used

TLNR - Treeline Right

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to draw the treeline symbol along the edge of a timber. This feature will draw the treeline symbol to the right. You should use this feature if the centerline is to the Right of the starting point of your survey chain. A point description is not necessary with this feature but one may be used if desired. This feature should not be used with a single row of trees. Trees with a single row should be one of the following TDC, TFR or TEV.

EXAMPLE: Point Description Not Used

TOP – Top Bridge Pier

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature to shoot points and create a survey chain from the top center of the two outside edges of bridge piers.

EXAMPLE: Point Description Not Used

TPA, TPB, TPC - Telephone Pole

Point = Yes

Line = No

DTM Inclusion = No

Use these features to draw the symbols for telephone poles. Shoot the shot on the centerline of the pole. The feature code and description should be consistent with the utility owners listed in the utility index file.

EXAMPLE: Point Description = QWEST

TPD - Telephone Pedestal

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for a telephone pedestal. Shoot the shot on the centerline of the pedestal. The point description should be consistent with the utility owners in the index file.

EXAMPLE: Point Description = QWEST

TR - Telephone Riser Pole

Point = Yes

Line = No

DTM Inclusion = No

This feature will draw a symbol for a telephone riser pole. A telephone riser pole is different from a regular pole in that it connects an overhead telephone line to an underground line. The point description should be consistent with utility owners in the index file.

EXAMPLE: Point Description = QWEST

TRL - Centerline of Trail

Point = Yes

Line = Yes

DTM Inclusion = Yes

Use this feature along with a survey chain to draw a line along the centerline of a trail. Use the point description to record the approximate width of the trail.

EXAMPLES: Point Description = 6' Conc, 10' AC, etc.

TS - Tangent to Spiral

Point = Yes

Line = No

DTM Inclusion = No

Used to store an alignment point at the back tangent to spiral.

EXAMPLE: Point Description = FND Hinge Nail

TSB - Telephone Switch Box

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to shoot the center of a switch box. Use the point description to describe the box owner and size.

EXAMPLE: Point Description = QWEST, 2.0' X 3.5'

TSG - Traffic Signal

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol on a traffic signal without a luminaire. Shoot the centerline of the signal and use the point description to describe the owner and the base size.

EXAMPLE: Point Description = City Of Ames, 24" Conc Base

TSL - Traffic Signal With Luminaire

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol of a traffic signal with luminaire. Shoot the centerline of the signal and use the point description to describe the owner and the base size.

EXAMPLE: Point Description = City Of Ames, 24" Conc Base

TV - Satellite Dish

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for a TV satellite dish. Take the shot on the centerline of a satellite dish. Use the point description to enter the base size.

EXAMPLES: Point Description = 4' X 4' Conc. Base, 24" Conc. Base

TV1B thru TV5B - Underground TV Cable (Quality B)

TV1C thru TV5C - Underground TV Cable (Quality C)

TV1D thru TV5D - Underground TV Cable (Quality D)

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to draw underground TV Cables. The feature code used should be consistent with the utility legend in the index file. The description should contain the owner name. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = Mediacom

TVP - TV Pedestal

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for a TV pedestal. Take the shot on the centerline of the pedestal. The point description is optional. The point description should be consistent with the index file.

EXAMPLE: Point Description = Mediacom

TW - Top of Water

Point = Yes

Line = No

DTM Inclusion = No

Use this feature on top of water shots. Use the point description field to describe the linear distance up or downstream from the survey centerline.

EXAMPLE: Point Description Not Used

UB - Utility Box

Point = Yes

Line = No

DTM Inclusion = No

This feature should be used when you locate any utility box that we do not have a specific feature code for. Take the shot at the center of the box. The description should contain the owner name and box size.

EXAMPLE: Point Description = Mediacom, 2.0' X 4.0' Conc

UE - Utility Elevation

Point = Yes

Line = No

DTM Inclusion = No

The feature UE is used when a utility elevation is located. The UE feature is used for bottom of basin and manhole lids that are part of an intake. The feature UE is also used when overhead electrical wires are located.

EXAMPLES: Point Description = INT1 Bottom Basin, INT41 24" Manhole, Low Wire

UPH - Utility Pothole Location

Point = Yes

Line = No

DTM Inclusion = No

The feature UPH is only used for an ASCE 38-02 guidelines Quality Level A utility location. The UPH description should contain the utility owners name, size and type of facility, and the location where the shot was taken.

EXAMPLES: Point Description = Alliant Energy, 8" High Pressure Gas, Top of Pipe

UST - Underground Storage Tanks

Point = Yes

Line = No

DTM Inclusion = No

Use this feature to draw a symbol for an underground storage tank. Shoot the approximate centerline of the UST location. Use the point description to enter the tank volume information.

EXAMPLES: Point Description = 4,000 Gal Diesel

UV - Utility Vault

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to shoot the perimeter of a utility vault. Use the point description to describe the vault owner and size. Record all elevations below the manhole lid with a feature UE.

EXAMPLE: Point Description = QWEST, 6.0' X 2.0'

VS - Valley Section

Point = Yes

Line = No

DTM Inclusion = No

Use this feature on all shots in a valley section.

EXAMPLES: Point Description = GR, BNK, EW, D, etc.

WC - Wild Card

Point = Yes

Line = No

DTM Inclusion = No

This feature should be used for all shots that you want to shoot but do not want shown on the plans. This will mainly be used for control checks such as backsights, elevation checks, etc.

EXAMPLES: Point Description = BS, EC

WEL - Well

Point = Yes

Line = No

DTM Inclusion = No

This feature should be used for monitoring wells at filling stations. Use the point description for size of lid. This feature should also be used for monitoring wells on wetland sites. Each monitoring well also has a calibration mark. Shoot one shot at the calibration mark and another on the rim of the PVC well. Record any labels found on the well in the point description field.

EXAMPLES: Point Description = 4.0' X 4.0' Wood Lid, Not In Use

WHD - Water Hydrant

Point = Yes

Line = No

DTM Inclusion = No

This shot should be taken at the center of the fire hydrant.

EXAMPLE: Point Description Not Used

WHU - Water Hookup

Point = Yes

Line = No

DTM Inclusion = No

Use for water hook ups or hydrants associated with RV parks or camp grounds.

EXAMPLE: Point Description Not Used

WL1B thru WL5B - Underground Water Line (Quality B)

WL1C thru WL5C - Underground Water Line (Quality C)

WL1D thru WL5D - Underground Water Line (Quality D)

Point = Yes

Line = Yes

DTM Inclusion = No

Use this feature with a survey chain to draw underground water lines. The feature code should be consistent with the property owners in the index file. The description should include owner name and pipe diameter. The correct feature chosen should be based on the utility company and the quality of the shot collected (Quality A-D) based on The American Society of Civil Engineers (ASCE) Standard titled *ASCE C-1 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

EXAMPLE: Point Description = Xenia, 4" Dia

WM - Wind Mill

Point = Yes

Line = No

DTM Inclusion = No

Use this feature for windmills. Take one shot on the centerline of the windmill. Use the point description field to record the base dimensions of the windmill.

EXAMPLE: Point Description Not Used

WND - Wind Turbine

Point = Yes

Line = No

DTM Inclusion = No

Use this feature for wind turbines. Take one shot at the center of the windmill's base. Use the point description field to record the base diameter and owner.

EXAMPLE: Point Description = MidAmerican, 18.0' Dia

WV - Water Valve

Point = Yes

Line = No

DTM Inclusion = No

This feature can be used for a vent or valve. Record the size of the valve and the ownership information in the point description field.

EXAMPLE: Point Description = 4"

Some of these features have been added back in for the GIS people. This information is needed for their work. Also, the utility codes changed to reflect the accuracy of the utility location on the projects.

Chronology of Changes to Design Manual Section:

040B-001 Feature Codes - Full Descriptions

6/25/2019	Revised Updated hyperlinks. Updated header logo and text.
1/22/2015	Revised Add in feature codes. Some feature codes were added back in for GIS people to complete their work.
5/8/2013	Revised Added new feature code UPH - Utility Pothole Location
9/30/2011	NEW New