

DRAWING REQUIREMENTS FOR LAND SURVEYS

Final as of December 14, 2016

DRAWING REQUIREMENTS

Requirements for land survey drawings are as indicated below.

1. Drawings shall note all dimensions and elevations in imperial units at 1" = 20', 1" = 40' or 1" = 50' scale reviewed with and approved by Lehigh University. Include both a graphic and written scale on all drawings.
2. Drawing sheets shall be trim size 24" x 36" or 30" x 42" with 1.5" left and 0.5" top, bottom and right borders.
3. Show NORTH arrow and locate magnetic North directed to the top of the sheet.
4. Include legend of symbols and abbreviations used on the drawing(s).
5. Record all plan revisions in a revision block, including a date and description of the revision.
6. Features shall be represented as follows:
 - a. Represent surveyed features as points (i.e., coordinate geometry [COGO] points), lines (i.e., 2D polylines), or polygons (i.e., 2D closed polylines). Always represent feature types consistently.
 - b. Depict infrastructure junctions as COGO points located at the centroid of the feature. Infrastructure junctions (e.g., manholes) are surface-accessible features that connect and/or provide access to subsurface features.
 - c. Depict linear features (e.g., pipes, cables, etc.) as 2D polylines.
 - d. Depict stormwater management facilities or other major utility structures as 2D closed polylines.
 - e. Draw any feature that connects to a junction feature (e.g., a pipe connecting to a manhole) such that a single 2D polyline is snapped to the centroid of the junction feature.
 - f. Draw linear features such that polyline segments are broken by junctions, horizontal bends, or changes in attribute (i.e., material, dimension, etc.)
 - g. Assign a unique feature ID to each feature and label that feature on a corresponding CAD text layer.
 - h. Utility feature polylines shall be drawn to depict the direction of flow, with the beginning point of the line being the upstream terminus and the ending point of the line being the downstream terminus of the polyline.
 - i. Utility feature polylines shall be continuous and may only be broken at utility junctions or fittings.
 - j. No duplication of features.

7. Management of layers shall be as follows:
 - a. Organize CAD file layers to facilitate accurate migration of CAD data into GIS.
 - b. Prepare CAD drawings according to the following layer management requirements:
 - Limit CAD object types to COGO points, 2D polylines and 2D closed polylines.
 - Include a single CAD object type on any individual CAD layer.
 - Label unique feature IDs on a CAD text layer corresponding to the CAD object layers.
 - Include a 2D closed polyline layer defining the survey extent.
 - c. Features should be grouped on CAD layers by infrastructure type (i.e., sanitary sewer, telecommunications, etc.) and by CAD object type (point, 2D polyline, etc.). For example, sanitary sewer mains and sanitary sewer laterals are within the same infrastructure category (e.g., sanitary sewer) and would be represented with 2D polylines; therefore, these features types would be included on the same sanitary sewer polyline layer. Similarly, sanitary sewer manholes and vents are within the same infrastructure category, but would be represented with COGO points; therefore, manholes and vents would be drawn on a separate sanitary sewer CAD layer than the pipes. The following CAD layers represent this example:
 - Sanitary sewer polyline layers: “SS_Main” and “SS_Lateral”;
 - Sanitary sewer COGO layers: “SS_Manhole” and “SS_Vent”; and
 - Sanitary sewer text layer: “SS_Txt”.
8. Annotation and any associated leader lines shall be recorded in a text layer specific to that feature class and not placed in the feature layer. Annotation shall be aligned for legibility and shall not overlap a feature or other annotation.
9. Boundary and topographic information, where both are required, shall be on the same drawing unless otherwise requested by the Owner Architect.
10. State the horizontal and vertical elevation datum used to perform the survey on each drawing. Also state the control points to which the survey is tied.
11. The Surveyor shall sign and seal each drawing and shall state that to the best of the Surveyor's knowledge, information and belief, all information thereon is true and accurately shown.