

SPECIFICATIONS FOR MAPPING GROUND TOPOGRAPHY AND PLANIMETRY

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I. Field procedures to be used for mapping:

A. Map all break lines, natural and cultural (manmade) features, utilities, etc.

1. Measurements shall be taken longitudinally along all natural and manmade features and along break lines.
2. Record a measurement along features at regular intervals and at all breaks so that the distance between recorded shots does not exceed 10 meters (33 feet).
 - a. Features typically include, but are not limited to: a) edge of road, b) roadway ditch, c) top of roadway cut, d) toe of roadway fill, e) drainage flow line, f) ridges, g) edge of water, h) retaining walls, i) culvert inverts, j) manholes, k) utility poles, boxes, elevation of low utility wire crossings, any evidence of underground utilities, etc.
 - b. All breaks and features which vary from the prevailing ground terrain by more than one half the contour interval shall be mapped.
3. Break lines shall have a unique point code according to the CFLHD feature codes. Begin Line (BL*), End Line (EL*) and Close Figure (CL*) codes shall be utilized along linear.
4. Take ground shots as needed, not to exceed 10 meters (33 feet) transversely and longitudinally to the direction of the roadway centerline. Additional shots should be taken where spot elevations need to be shown on the final map. These areas include all high points, ridge, swales, saddles and depressions. Also depict other locations pertinent to highway engineering, such as road intersections, road crests and sags, the centerline of a road at culvert crossings and the flow line of visible culvert inlets and outlets with a spot elevation.
5. Measurements to the lowest point of overhead utility lines must be recorded.
6. Measurements to planimetric features shall include the appropriate feature codes to describe the point according to the CFLHD feature code listing. Begin Line (BL*), End Line (EL*) and Close Figure (CL*) codes shall be utilized along linear features.
7. The CFLHD feature code listing should be consulted to determine if the feature would be included in the Digital Terrain Model.

8. Underground utilities must be marked by a competent utility location service and located on the map. The depth of the utility may be required.

II. Accuracy:

A. The digital terrain files generated from this field data shall be used for triangulation and cross section extraction and thus require a high degree of accuracy.

B. Measurements to well-defined features that are readily recoverable shall have a vertical accuracy of 30 mm and a horizontal accuracy of 30 mm, relative to the project control.

C. Vertical accuracy of all measurements to all spot elevations, ground shots, breaks in topography, etc. shall be measured to within 40 mm.

D. The derived DTM shall have a vertical accuracy of 60 mm.