8110 - IDENTIFYING AND EVALUATING CULTURAL RESOURCES – (Public)

Recording Cultural Resource Locations
Using Global Position System (GPS) Technology

Purpose and Objective. This guidance describes minimum requirements for recording BLM cultural resource locations using GPS technology. The BLM has required the use of GPS to record all cultural resource locations since April 1, 2004.

The GPS has become a major tool both for traditional mapping applications and for Geographic Information System (GIS). The main objective of this guidance is to improve the overall reliability of site location information recorded by cultural resource specialists, including cooperators, contractors, and permittees; and to support the standardization and expansion of GIS applications for cultural resource management.

Accuracy Standard. The accuracy standard for cultural resource location data shall be a mean error of +/-12.5 meters or less, at a 95 percent confidence level. This mean error requirement is consistent with the National Map Accuracy Standard for 1:24,000 scale quadrangles and Federal Geographic Data Committee (FGDC) reporting requirements. This degree of accuracy can be achieved with a variety of contemporary GPS equipment. Appropriate equipment is defined as GPS technology that meets the accuracy standard.

Field Observation Standards – GPS. Cultural resources shall be located by reporting a minimum of one GPS-observed coordinate taken in the approximate estimated visible center (centroid) of the resource. The centroid need not be perfectly central to a site, but it must lie in the site's approximate center for map-plotting purposes. Multiple coordinates shall be used to define the approximate centerline of a linear resource (e.g., trail), if field judgment suggests that a single centroid is insufficient to record its location. More points, lines or polygons may be taken for other mapping purposes, including recording project area boundaries, site datums or markers, or internal attributes. Applicability of this standard for recording isolated finds shall be a State-level decision.

Field Observation Standards – UTM. In addition, cultural resource locations shall be reported using the Universal Transverse Mercator (UTM) coordinate system, North American Datum 1983 (NAD83). This is the same standard used for the National Register of Historic Places. A State Historic Preservation Office may also request that locations be reported in a State-specific coordinate system. Consequently, it is important that all reported coordinates clearly identify the coordinate system used.

Alternative Field Observation Methods. In situations where GPS observations are not practical or possible due to geography, vegetation, satellite availability, or the presence of hazardous materials, the recorder should locate the resource using GPS offset equipment

and capabilities, map coordinates, or a combination of GPS and other techniques. Such non-GPS methods must be described in the site or project area record.

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Recording Standard: The location observations shall be reported on the appropriate part of a resource recording form, in the narrative description of the resource, or both, and shall include the following information:

- The UTM coordinates with the UTM zone. For all coordinates, the datum reference must be reported.
- The coordinate system for observations should be recorded in an obvious way (e.g. "UTM Zone 10 NAD83 centroid coordinate: N4986000 E302000 meters")
- The probable error must also be recorded in narrative, if the error terms for a given coordinate are known (e.g., "GPS observations were differentially processed to an average error of less than 5m root mean standard deviation [RMS]").
- Receiver type, correction status, length of observation and number of observation points, position dilution of precision (PDOP), and horizontal error estimates must be recorded with the location whenever GPS equipment and software provides such information.
- Discrepancies between GPS locations and USGS quadrangle locations should be noted on the site record. Because GPS locations are mathematically precise coordinates, a point plotted from GPS may appear to be in an incorrect location on a USGS quadrangle.

Standards may be exceeded. These are minimum standards and should not be used to lessen any applicable State or Federal standard or reduce site location accuracy from conventional mapping methods. There may be situations where more accurate location information is desirable or required. For instance, State Offices may apply more stringent standards for intra-site mapping, excavation unit and datum locations. In all instances, the most accurate and capable equipment available shall be used to meet the needs of the types of data that are being recorded, even if it exceeds the accuracy standards in this guidance. Appropriate GPS experts within Washington Office, National Centers, State and Field Offices should be consulted as needed.