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**These standards are intended for use with CFL Shape Cluster Criteria (SSC)**



## Chapter 1: GEOPAK Introduction

### Purpose

GEOPAK Civil Engineering Suite V8i (SelectSeries 2) (GEOPAK), the civil engineering design software in use at the Federal Highway Administration's Central Federal Lands Highway Division (CFLHD), is complex software with many options to select from while working on projects for or at CFLHD. This manual is not intended to teach the novice user how to use GEOPAK, but rather how CFLHD intends GEOPAK to be used on CFLHD projects. As with any powerful software, and many complex processes, there are many different ways to accomplish a given task. This manual will outline the necessary procedures to ensure proper adherence to CFLHD standards for project design.

### Overview of GEOPAK V8i

The V8i edition of GEOPAK has been updated to take advantage of all of the new features of MicroStation V8i (SelectSeries 2). In each of the following chapters we will outline the CFLHD standard as well as discuss the more pertinent new tools available.



## Files Used

There are many types of GEOPAK files in use at CFLHD. In many cases you will use the default files delivered with GEOPAK, as these take their settings from the AASHTO green book. This chapter will outline the files used by CFLHD and GEOPAK, paying particular attention to those that are specific to CFLHD, which must be substituted for the default GEOPAK files. The following chapters discuss in detail where to find these files, how to attach them, and information that will be helpful on the use of CFLHD files.

<b>.GPK</b>	GEOPAK coordinate geometry file	Created the first time COGO is accessed. The CFLHD Lead Designer will assign a file name to use.
<b>.SMD</b>	Survey manager database	Controls how survey information, feature codes, are interpreted by GEOPAK.
<b>.SEP</b>	Superelevation preferences	Controls how superelevation is calculated by GEOPAK
<b>.PRJ</b>	Project manager	Stores information for use by the GEOPAK project manager.
<b>.DAT</b>	Data file used to Create .TIN	Contains string and point information used to create DTM's.
<b>.TIN</b>	Triangulated irregular network	Triangulation based on the points stored in the .DAT file
<b>.DDB</b>	D&C manager database	Hierarchical database containing information concerning functional classification and display preferences for each feature and item used in a MicroStation design file.
<b>.X08, .X10</b>	Criteria file	Previous version of CFLHD criteria files.
<b>.X30</b>	Criteria file	Current version of CFLHD criteria files.

Table 1.1: GEOPAK Files

Of the files listed above, the **.SMD**, **.SEP**, **.DDB**, and all criteria files, are specific to CFLHD projects and must be used in place of the GEOPAK defaults.

For the locations of the files listed above, see MicroStation Chapter 2, Directory Structures. CFLHD consultants are required to download these files from the FLH website. Required CFLHD standard files used by Geopak Typical Section Generator are available through the download **V8\_Resource.zip**. Detailed use of each of these files, as well as directions for finding or downloading, is contained in the chapter relating to each tool.

The following GEOPAK chapters cover the topics listed below:

- Geopak Preferences
- Project Manager
- Survey Manager
- DTM Tools
- Design and Computation Manager
- Horizontal and Vertical Design
- Cross-Sections
- Plan & Profile Sheet Clipping
- Quantities



- Reports
- Earthwork



Consultants working on CFLHD projects must download current versions of all CFLHD standard files at the start of each project. CFLHD standard files may be updated from time to time; however, files current at the start of each project will typically be used for the duration of the project. The Project Manager will notify the consultant if an updated file needs to be used during a project.

## GEOPAK V8i Tools

Please visit the CFLHD CADD Help and Reference page:

<http://flh.fhwa.dot.gov/resources/cadd/cfl/>