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## Chapter 9: Levels and Symbology

### Overview

Symbology includes which level, color, line style, and weight are associated with each element to be drawn. Following the symbology outlined in this chapter is essential for several reasons, but perhaps the most important reason is the standardization of the final output. Following the standard symbology will ensure that each element, line work, text, etc., will plot the same from drawing to drawing.

This chapter will detail the levels in use at CFLHD, the associated level symbology, the use of the CFLHD DGN library, and CFLHD level filters, including workflows for many of the new MicroStation 2004 Edition tools.

### Levels

Within MicroStation 2004 Edition, a design file may contain an unlimited number of levels in which data may be displayed. There are two primary ways in which to assign symbology to each element: first, the color, weight, and line style of the graphic elements are set independently. Second, a new addition introduced in MicroStation V8, is **ByLevel** symbology. With ByLevel symbology each level may have a pre-assigned color, line style, and weight. By selecting the desired level, these attributes are automatically set.

As discussed above, the level symbology for any level may be set individually. This includes the ability to set some attributes of elements to ByLevel and other attributes independently. More levels are used by CFLHD in MicroStation 2004 than the 63 available in previous versions.



While some manual drafting is necessary and expected, most design elements should be placed with the GEOPAK D&C manager, the **.ddb** file. This is the best way to insure that elements are placed with the proper symbology, for final output and for use at later stages for GEOPAK criteria files and for computing quantities.

### DGN Libraries

In MicroStation 2004, levels and the associated ByLevel symbology are stored in a DGN library, and may be attached to any MicroStation file. In order to maintain the X30 criteria and future versions of Geopak criteria files, the *FLH\_Combined.dgnlib* is controlled FLH wide. CFLHD designers and consultants will not be able to add new levels to the *FLH\_Combined.dgnlib* file.

DGN libraries may also contain information for text styles and dimension styles. See the appropriate chapter for these tools. The workflow below outlines how to attach levels contained in the DGN library to the current file.



For CFLHD employees, the standard DGN Library will be automatically attached while opening a design file using the Project Configuration (\*.pcf). Workflow 1, shown below, can be used to manually attach the DGN Libraries to a design file.

## Workflow 1: Attaching a level library

To access this workflow, follow this link:

[http://www.cflhd.gov/cadd/documents/Attaching a level library - \(Workflow 9.1\).pdf](http://www.cflhd.gov/cadd/documents/Attaching_a_level_library_(Workflow_9.1).pdf)

### Level Filters

Also new in MicroStation 2004 are **level filters**. With an unlimited number of levels it could easily become very cumbersome to navigate to the desired level. Level filters are designed to group levels together creating a more manageable set of levels. For example the FLH levels have been broken down to Design, Cross\_Sections, and Survey.

Selecting the appropriate filter will display only the desired levels. This does not turn the display of levels on or off, but simply allow the user to work with a smaller sub-set of levels.