GEOPAK (2004 / 8.8) Edition Version History for Federal Highway Administration

Typical Section Generator X30 Criteria

IMPORTANT: THIS CRITERIA WILL NOT RUN ON GEOPAK V8.1. IT MUST BE RAN USING GEOPAK 2004MR VER. 08.05.02.59 EDITION AND MICROSTATION V 08.05.02.35 OR LATER. THE CRITERIA WILL NOT PROCESS IN EARLIER VERSIONS!

*** Revision History ***

- 12/13/2010 --> 1. Adjusted pavement closure to use angle from pavement slope or (ver. 47) the vertical option.
 - 2. Fixed a bug with the rockery wall foundation backfill.
- 3. Adjusted how the backfill is drawn on the top of the rockery wall.
- 09/01/2009 --> 1. Fixed bug with shoulder rollover on subgrade layers not being (ver. 46) at the correct slope.
- 2. Adjusted all text lables to be plotted with the same symbology and the label adhocs.
- $$\tt 3.$$ Adjusted label text and plotting instances to allow for proper tracing in the FHWA slope staking report VBA application.
- 03/04/2009 --> 1. Fixed a bug with sidewalk slope stake lines (ver. 45)
- 2. Fixed a bug with the MSE Wall Backfill line not stopping at pavement.
- 3. Fixed a bug with the GFMSE Wall Backfill line not stopping at pavement.
- 4. Fixed a problem with subgrade path for eop offsets with curbs
- 5. Fixed a problem with Cutwall Subgrade Template Report Path.

6. Fixed a problem with Rockery Wall Subgrade Template Report Text 12/23/2008 --> 1. Fixed a bug in the Criteria Control file for Metric Divided (ver. 44) highways calling the wrong version of the ERV file. 2. Made an adjustment to the MSE wall backfill depth to always provide positive drainage away from the wall regardless of the adhoc setting for Wall Backfill Depth. 3. Fixed a bug in the MSE wall where an additional distance was incorrectly being added to the adhoc attribute setting. 4. Fixed a bug on the MSE wall where the Wall Excavation Slope value when placed steeper than a 1:1 slope was not drawing properly. 5. Adjusted the Rockery wall design in the absence of a graded ditch such that the excavation line is now measured from the wall based on the adhoc Face Str Exc Width and not being drawn directly behind the back of the curb. 6. Added a new search path of dgn elements for the GFMSE wall for the subgrade template report. 7. Added subgrade search text for guardrail systems at subgrade hinge point. 8. Added search text at the inside toe of the cut wall CW9. 9. Added subgrade search text where the widening was a different cross slope than the pavement. 10. Added subgrade search text and a unique search path for the subgrade lines of a sidewalk adjacent to a curb. 11. Added search text to the edge of pavement when using a type 3 curb and offsetting the curb from the eop.

12. Added search text to a cut bench width endpoint behind a curb in a cut situation. 13. Added an internal variable at the top of the variables.x30 Criteria

to adjust the side road matchline tie slope to better handle earthwork tolerance issues.

10/22/2007 --> 1. Fixed two bugs on the GTSR MSE Wall relating to the (ver. 43) excavation connecting to the pavement subgrade or opposite foreslope.

10/19/2007 --> 1. Added help documentation for (ver. 42) a GTSR MSE Wall.

directory

10/19/2007 --> 1. Added Minimum Detour Width Label ONLY for a GTSR MSE Wall. (ver. 41)

2. When applying a typical section, a sample reinforcement length CSV file will be copied to the working for the GTSR MSE Wall.

10/19/2007 --> 1. Added support for a GTSR MSE Wall. Note, the documentation is not yet included (ver. 40) as this is being provided for testing.

10/16/2007 --> 1. Added help for type 3 guard wall. (ver. 39)

> 2. Fixed a bug where the type 3 guardwall was not drawing adjacent to pavement.

10/15/2007 --> 1. Added support for type 3 guard wall. (ver. 38) Note, the documentation is not yet included as this is being provided for testing.

09/27/2007 --> 1. Added support for multi-tier rockery walls. (ver. 37)

2. Revised the earthwork input file.

3. Revised the DDB files.

4. Revised the DGN Level Library.

09/18/2007 --> 1. Added support in the existing features typical section to label the edge of dirt roadways. This required a (ver. 36) new entry to be added to the DDB files as well as Criteria changes.

09/18/2007 --> 1. Removed the tapering routine using text files. (ver. 29 - 35)

- 2. Added foundation depth to retaining walls. This required new adhocs for the walls.
- 3. Fixed a problem with symbology on the Gabion Face wall with earthwork.
- 4. Added Minimum Detour Width option to the WFL Parapet Wall.
- 5. Fixed a problem with the MSE wall and Min. Detour Width option.
- 6. Fixed a problem with MSE wall where the wall excavation slope was being drawn twice.
- 7. Added the option for backfill depth in front of the retaining walls. No longer will this key off of the existing ground location. If the tie at existing ground is still desired, simply set the wall backfill depth to a large number.
- 8. Added option to show a face width on the MSE Wall.
- 9. Fixed a problem with the SMSE wall where the top reinforcement line was not being drawn.
- 10. Added a check on the CFL Parapet wall to test for embedment depth and setback width when phase II profile option is used. If either of these values is not met, a warning message will be shown.
- 11. Corrected two problems with the GFMSE wall regarding symbologies and earthwork calculations.
- 12. Revised the earthwork input file.
- 13. Revised the DDB files.
- 14. Revised the DGN Level Library.
- 06/15/2007 --> 1. Made changes to text description adhoc attributes on (ver. 28) text in sections.
- 01/23/2007 --> 1. Modified the MSE wall to support the minimum detour (ver. 27) width.
- 12/07/2006 --> 1. Modified the plot parameter symbologies for existing (ver. 26) underground power and phone line labels.
- 11/30/2006 --> 1. The existing topsoil thickness override line was (ver. 25) incorrectly adjusting the depth to the right side of the

pavement when drawn between the two existing edges of pavement. This has been corrected.

- 11/06/2006 --> 1. Added third option to process by station range to (ver. 24) allow the user to have no Pause at first station in the specified range.
- 10/27/2006 --> 1. The message indicating a slope exception used (ver. 23) was incorrectly showing up when an approach road matchline was encountered.
- 10/27/2006 --> 1. The text "End Pro" was not being added to the end of the (ver. 22) overlay profile input file when processing by a station range. This has been corrected.
- 10/24/2006 --> 1. The daylight slope label was incorrectly showing a 1:0 (ver. 21) slope label in certain situations.
- 10/24/2006 --> 1. Aggregate shoulder widening cross slope (user defined),

 (ver. 20) now uses two adhoc attributes to allow for tapering from one cross section to the next.
- 10/13/2006 --> 1. Added support for an existing gravel roadway in the (ver. 17)

 existing features typical section. This can be used in conjunction with existing pavement as long as the gravel

 lines are out side of the pavement lines. They can also be

 used by them selves where no pavement is present. In any

 event it is required as with existing pavement, an even

 number of pairs of lines must exist.
- 2. A new Define Variable named "Process Station Range? Y or N" has been added to the criteria. If the user sets this to "Y", then they will be prompted for a beginning and ending station and region to process cross sections between. Of course, matching pattern line symbologies within the specified station range must exist before processing the cross sections in this range. This required a change t.o the criteria control file. So you need to re-apply your typical section to any previous runs to have the full benefits of this application. In addition, this also

required a MVBA to be included. Pause.mvba has been included and needs to be added to the workspace.

3. When processing the criteria, the criteria will now send

a command to tun off D&C's Place Influence. This is just

in case the user forgets when they proceed to process their

cross sections and have left D&C opened while processing.

Note however, it will not happen until after a couple of cross sections are processed.

10/02/2006 --> 1. Revised the symbologies of the type 3 curb both on the (ver. 12) surface as well as the top of pavement under the curb and behind the curb. All elements can now be unique symbologies. This was done to address issues with earthwork as well as clearing and seeding reports.

9/28/2006 --> 1. Added a new wall entitled SMSE wall for CFL. (ver. 11)

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2. Minor bug fixes for the CFL Parapet Wall, Soil Nail and Cut Wall. This required a new set of DDBs as well a new DGNLib and Earthwork Input File.

9/06/2006 --> 1. Added support to the CFL Parapet Wall to support a plan
(ver. 10) graphic line setting the boundary of the wall
excavation slope under the proposed pavement. This is used to assure

a minimum traffic lane width. This is explained in detail
in the adhoc attribute section of the help files.

9/05/2006 --> 1. Added support for Phase 2 Soil Nail Retaining Walls. This

(ver. 9) required two additional adhoc attributes be added to the soil nail wall DDB entry for wall chain and profile.

Both the profile and wall chain must be used for a phase

2 profile driven wall to be drawn.

2. Added support for Phase 2 Rockery Retaining Walls.

required two additional adhoc attributes be added to the rockery wall DDB entry for wall chain and profile.

phase 2

Both the profile and wall chain must be used for a profile driven wall to be drawn.

3. Fixed a problem when entering rise:run slope entries

the adhoc attributes for slope overrides where the

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was steeper than a 1:1 slope. In previous version it required the rise value always be the number 1. Now does not matter what the rise value is as long as the slope is specified in a rise:run format. As a side an adhoc slope value can always be entered as a slope as well, but do not include the percent sign.

example to enter a 1:1 slope you can alternately enter 100 for a 100% or 1:1 slope.

addition

4. The documentation has been updated to reflect the of the phase 2 walls mentioned above.

9/01/2006 --> 1. Plan view override DGN elements are now implemented to allow the designer to use plan graphics (ver. 8) to override certain redefinable variables. The following plan graphic override/taper lines are now supported: - Shoulder Foreslope - Ditch Foreslope - Ditch Foreslope Height - Flat Bottom Ditch Width - Custom Slope - Sub-excavation Depth - Existing Pavement Thickness 1 - Existing Pavement Thickness 2 - Existing Topsoil Thickness The updated help files explain in great detail how these are to function. Note the ability to taper from one cross section to the next will not work until GEOPAK 08.08.xx.xx is implemented. Versions prior to this will simply override the redefinable variable using the beginning value. 2. The Design and Computation Manager was updated to accommodate the new requirements of the override lines. This included moving the plan view slopes category. 3. A new adhoc was introduced to the slope override lines to control the number of decimal places to be shown on the slope labels. 4. The help files now contain a section on the new tapering method. In addition the adhoc section has been updated to show new adhocs and revised adhocs to currently supported entries. 5. A new diagram was added to the help files showing "Case C" embankment fill slope options behind curbs and or paved ditched.

8/26/2006 --> 1. CFL Parapet Wall Phase 2 profile design has been (ver. 7) implemented. Requirements are the designer must change both the adhocs profile and chain name for the phase 2 design from the default value of "none" to chain and profile names stored in Coordinate Geometry. 8/25/2006 --> 1. Labels for the backslope and wall height were added for the (ver. 6) soil nail wall. 2. The minimum embedment depth test location was changed for the CFL Parapet wall. The vertical distance is now tested from the bottom outside point of the footing vertically to the existing ground. 3. The English Typical Section table for the CFL Parapet Wall was modified to use a 6'-0" Minimum Setback distance. 4. A problem was found and corrected with the CFL Parapet wall if the existing ground "flattened out" near the footing, the largest possible template was being chosen for the wall. 5. The CFL Parapet Wall now has two new adhocs to control the front and back excavation slopes independently. 6. The CFL Parapet Wall has a new vertical line added at the back of the footing for earthwork purposes. 7. The CFL Parapet Wall now supports a new adhoc for wall backfill depth for the front side of the wall. 8. Portions of the CFL Parapet wall line work symbology have been modified for earthwork purposes. 9. CFL Parapet Wall height and setback distance are now

labeled on the cross sections as they are drawn.

10. Rockery Wall Height is now labeled.

8/23/2006 --> 1. The embankment fill slope behind proposed curbs and or (ver. 5) paved ditches will now recognize the fill slopes table.

To activate this option, the adhoc attribute entitled Embankment Fill Slope must be changed from a rise:run slope value to the letters ST (slope table).

Example of Slope Specification -> -1:2

Example of Slopes Table -> ST

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2. A new adhoc attribute has been added for the bench width behind a proposed curb and or paved ditch. adhoc attribute entitled "Force Bench Width" is used force the complete width of the Embankment Bench Width set to Y (yes). If the top of the curb is above ground, setting this to yes will force the full width the bench even if the bench crosses the existing line. If this is set to yes and the embankment bench goes under ground, the ditch foreslope and ditch width automatically be forced to a a zero distance. This result in the ditch backslope connecting to the ground using the cut slopes table. If this is set to but the entire bench is still above ground, the will then have no effect and the tie to ground process proceed as supported in previous versions.

- 3. A bug was fixed where the ditch foreslope height was zero height. An incorrect slope label and warning were being drawn.
- 4. Updates have been made to the MicroStation Project Configuration Files. Two new configurations have been The variables control the levels the cross section and profile cells will be drawn on. This however will supported in GEOPAK Suite 8.8.
- 5. Updates to several of the standards files have been

included. The cell library, D&C, DGNLib, Custom Line style

Resource file, Earthwork Input File and seed files have all

been updated and included in this release.

- 6. Reformatted this file for printing in landscape mode.
- 7. Revised the documentation to reflect the changes in and 2 above.

items 1

8/18/2006 --> 1. Labeling of custom ditch slopes is no longer rounded. The actual value of the adhoc attribute will be shown on (ver. 4) the slope line. 2. The distance text below the guardwall will now be drawn on the level name X_Label_Auto_Labeler. 3. The documentation for the typical sections contained an error mis-naming one of the adhoc attributes for curbs. This has been corrected. 4. The description for the redefinable variable named _d_RtRecoverableSlopeDist incorrectly referred to the left side of the pavement. This description has been corrected. 5. MSE Walls were not closing correctly in the vertical direction given certain design situations. This has been corrected. 6. If the MSE Wall plan graphic was not parallel to the base line, the wall excavation line was not being drawn at the proper slope. This has been corrected. 7. If a switch back line was encountered and not parallel t.o the baseline, the ditch or fill slope was being incorrectly effected. This has been corrected. However, the correction will only work when using GEOPAK Suite Build 08.08.01.90 or later. 8. Daylight slopes were not working correctly when the projected ditch slope started below ground then went above ground and then back below ground again within the ditch daylight test width. This has been corrected. 9. The median documentation had some errors in the titles of

the median types. This has been corrected.

10. Revised DDB files.

11. A new index file has been added and referenced in the MicroStation PCF file that will allow for Adhoc

Attribute

help during the drawing of the elements with D&C. In GEOPAK Suite 8.8 to be released in the near future, a question mark will now appear when using D&C to place elements containing adhoc attributes. Selecting the question mark will display a labeled cross section

view of

the element to be drawn.

1/19/2006 --> 1. Revised the Rehab Help file to remove surface thickness (ver. 3) 1 through 5. These redefinable variables are only used for new pavement typical section. 2. Fixed an error in the documentation for the type ${\bf 1}$ curb diagram. The curb height was incorrectly omitting the inclusion of the lip height. 3. Fixed a problem with Gabion faced walls and the front excavation width measuring from the wrong location. 4. Added profile grade report search text for the top back of gabion faced wall. 5. Added support in the existing features typical section to label existing guardrail. 6. Updated the earthwork input file to make sure all of the soil type name lengths were meeting requirements for a CFL application. 7. Updated the DDB files to be able to search for existing quardrails. 8. Updated the seed files to now also look for cells in the new cell library used by the criteria. 9. Updated the cell library. Now the criteria uses a new cell library file named FLH_Criteria.cel. 10. Updated the level library to now include placement symbology for the existing guardrails.

- 11. Included a seed earthwork run for users that will now allow earthwork to be ran using Project Manager. Information on this can be found here...

http://www.wfl.fha.dot.gov/geopak/idiot2004/earth.htm#run

- 12. Modified the cut and fill slope tables to match the defaults used in the X10 criteria.
- 13. Modified the PCF project Configuration Files to include

the new cell library.

1/05/2006 --> 1. Made some additions to the help files. Added in HTTP (ver. 2) links for tapering and setting up of a project. In addition fixed some spelling errors. 1/04/2006 --> 1. Fixed a problem where the tapering of ditches was causing a divide by zero error (ver. 1) 2. Added a "Define" variable to adjust the scale of the cells plotted by the criteria. This was done because CFL will be using two seed files with different working units for а short time of transition. 3. Modified the phase 2 MSE wall to allow for the varying of the wall foreslope thus providing all lifts a full thickness including the top lift. 4. Updated the GPK Merge VBA application to fix an error problem. 5. Changed the way phase two walls are designed. phase 2 wall designs now will use a chain and profile which are adhocs on the wall line. 6. Modified the documentation to reflect the new approach to the phase 2 wall design. Note there are now links in the help file which will give detailed phase 2 design assistance.

- 7. Corrected a documentation error on the set back tables the Fill and Parapet Walls.
 - 8. Added text labels to the phase 2 walls.

for