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Process of Stripping in InRoads for MTO:

1. Proposed design must be completed in the Roadway Designer and proposed dtm generated.
2. InRoads does not do stripping in the Roadway Designer, it calculates it when displaying your End Area Volumes after you display your cross section set.
3. Stripping is referred to as Unsuitable Materials. The same general process below could also be used for Muck Removal, etc.

Stripping Applied Across Entire Cross Section:
For a new alignment, assume stripping will be across the entire cross section. If you do not want stripping across the entire cross section or want to set a critical height in strip fill cases, follow the steps for an existing alignment. In the case of stripping across the entire section in both cut and fill follow these steps:
1. Under **Evaluation> End Areas Volumes**, use Unsuitable Materials by Station. Pick your station range and set style to stripping. Enter your strip cut and strip fill depths. Unless specified by the geotech report, use 0.3m for strip fill and 0.15m for strip cut. Press Add.
2. If you have different depths of stripping in different areas, repeat step one with the appropriate station range and stripping depths as needed to cover the different conditions desired. You can break out as many ranges as desired.
3. Unless specified by the geotech report, assume up to 100% of the stripping total (in greenfield area) is re-usable as topsoil.

Stripping Applied to Parts of Cross Section:
For an existing alignment, stripping will typically occur from your existing edge of shoulder to your toe/top of proposed slope. In addition, stripping typically occurs from your proposed rounding breakpoint to a maximum vertical depth of 1.2m. Alternative values for the critical height or offset from edge of shoulder may be specified in the geotech report.
In general you must create a closed shape in plan view that represents only those areas that are desired to be stripped. This closed shape is added as an interior feature (not triangulated) to your proposed dtm surface.

1. **Surface> View Surface> Perimeter**; display the exterior boundary of your proposed dtm.
2. **Surface> View Surface> Features**; pick your existing edge of shoulder features to display from your OG dtm. [Optional, simply use the shoulder lines from your topo file if the OG dtm does not have the features] If your stripping is to begin at an offset from the existing edge of shoulder, copy this line parallel to the desired offset.
3. **Surface> View Surface> Features**; pick your proposed rounding breakpoint lines to display.
4. **Surface> Design Surface> Generate Longitudinal Feature**; Surface can be default, set interval to 20, click generate graphics only. On controls tab, set

horizontal method to Offset from Primary Feature and the start and stop offset to 30m (or enough distance past your toe of slope). Vertical Offset set to 0. Click apply and select your breakpoint line twice followed by another click on the side outside the toe of slope. Repeat this step for both sides of the roadway. You will now see a new line parallel to the breakpoint line at the offset specified.

5. Join the ends of the two lines and create a closed shape on either side of the roadway. Be sure to create this as a shape rather than just lines.

6. **File> New**; on the surface tab create 4 new surfaces called Left BR, Left Isopach, Right BR, and Right Isopach

7. **File Import> Surface**; select the From Graphics tab. Pick the Left BR surface, load from single element, and point type set to exterior. Click Apply, then pick the left BR shape created in Step 5. Then, pick the Right BR surface and do the same for the right BR shape.

8. On the surfaces tab, right click on Left BR surface and select triangulate. Repeat for the Right BR surface. Display the triangles of both and rotate your view in 3d to check your results.

9. **Surface> Design Surface> Generate Isopach Surface**; The first surface is your og, the second surface is Left BR, and select Left Isopach for the Isopach surface. Check on the triangulate surface. On the Staking tab, set display mode to Triangle and turn off cut and fill text. Click apply. Repeat the same for the Right BR surface to create the Right Isopach.

10. **Surface> View Surface> Options**; click on planarize and set elevation to 0.

11. **Surface> View Surface> Contours**; select Left Isopach, set interval to 0.1. On the advanced tab, set elevation high AND low to 1.2. On the labels tab, turn off clipping. Click Apply. Repeat the same for the Right Isopach. These lines now represent the outside limit of your stripping.

12. If the 1.2m line if outside of the proposed exterior boundary, then the exterior boundary will be the limits of stripping. If the 1.2m line is inside the proposed exterior boundary, then the 1.2m line is the limit of stripping. Use create boundary (create region in Microstation) to create the desired closed shape(s) between the existing shoulder line and the controlling limit of stripping. You may have several shapes to create in your corridor.

13. **File> Import> Surface**; select the From Graphics tab. Pick your proposed surface, load from single element, Elevations set to Use Element Elevations (although elevation is not important for this shape; it could be 3d or 2d). Set seed name to stripping, feature style to stripping, and point type Interior. Set duplicate names to Rename and Check Exclude from Triangulation. Click Apply and then pick your stripping boundary graphics. Repeat as necessary for all of your boundaries. If you have a lot of shapes, an alternative is to choose load from layer (level). Be sure that all of your shapes are on the same layer and no other graphics exist on that layer.

14. Save your updated surface.

15. Keep your .dwg file with the stripping shapes for future use. If you need to update your proposed dtm from the Roadway Designer (and you WILL), you will want the shapes to re-import again.

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16. Once your cross sections are displayed, the next step is to calculate and display your End-Area Volumes. Stripping will be controlled under the Unsuitable Materials by Feature. Select the stripping features and set the desired stripping depth. Click Add. Note, this method computes both cut stripping and fill stripping with the same depth. If for example the fill stripping depth needs to be less than the cut stripping, process both using the cut stripping depth, then pro-rate your fill stripping total that you get in your end-area report.
17. On most reconstruction projects, unless specified by the geotech report, assume 70% of the stripping value is re-usable as topsoil.

Notes:

These tools are per InRoads version 08.09.01.42. Newer tools or options may be available in later releases.

An alternative to Step 3 thru 11 is to set a temporary point in your templates that will find og, when the br point reaches 1.2m above the existing ground and create a feature line.

In areas of Muskeg excavation, do not include stripping regardless of fill height.
In areas requiring grubbing, stripping is to be calculated but not reported as available for fill material.