InRoads – WSDOT InRoads Retaining Wall Templates

C:\Users\Public\CAE\Standards\WSDOT\Libraries\WSDOT_templates.itl

The WSDOT retaining wall components and templates are intended to provide the basis for designing walls in InRoads. These are included in the **WSDOT_templates.itl** standard template library.

Type 2 Retaining Wall Overview

The Type 2 retaining wall is derived from the WSDOT Standard Plans. The specific wall information can be found at:

http://www.wsdot.wa.gov/publications/fulltext/Standards/english/PDF/d10.15-01_e.pdf

This retaining wall has dynamic footing widths and depths, depending on the wall height. The components in the wall template library reflect the wall specifications.

According to the WSDOT Design Manual section 730, this type 2 retaining wall can be applied in cut or fill situations.

http://www.wsdot.wa.gov/publications/manuals/fulltext/M22-01/730.pdf
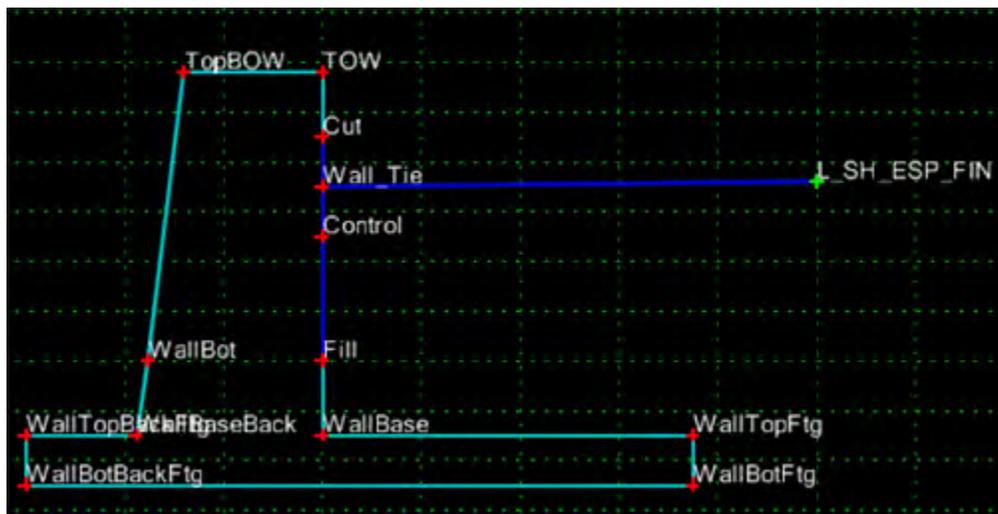
The wall is fully constrained, primarily to the left edge of finished shoulder. The basic template contains three components: a wall tie component connecting the wall to the edge of finished shoulder; the actual wall component and a cut/fill component within the wall component that intercepts cut or fill conditions.

The **Wall Tie** component is an end condition, and the wall is a closed component. The **CF** cut/fill component within the wall is an end condition, and as such is assigned priorities when multiple wall components are stacked on top of each other to build a template. The wall component is a child of the cut/fill component, so when the cut or fill conditions are met, the cut/fill component displays along with its corresponding wall component.

Wall Heights

The template library contains a **Wall Heights** folder that includes **RW5** through **RW35**. These are sized according to the WSDOT Standard Plans.

RWall Type 2 Templates

The template library contains a typical section folder that includes the 31 wall heights. This can be modified to fit your specific situation.

Creating a Wall Template

To create a template from scratch, first create an empty template. Then drag each component that you need from the wall height folder into the template.

The templates are very similar in size, especially the smaller wall heights, and they share several common points. Some of these points are intended to be merged, while others need to be distinct for each wall component.

When you drag a component over another one, InRoads automatically merges some of these points. It is necessary to unmerge these template points in order to maintain the unique points for each component. Right-click on the last component that you used and select the **Unmerge Component Points** command.

These newly unmerged points will be stripped of one or both or their template point constraints, and will be displayed as yellow or green points. In the wall template, these points are typically affected:

Point	Action
Wall_Tie	Right-click on this point and select **Merge Points**. Delete the copy of the Wall_Tie point (typically named **Wall_Tie1**).
Control	Right-click on this point and select **Merge Points**. Delete the copy of the Control point (typically named **Copy of Control**).
TOW	Edit the **TOW** point, and rename the **Copy of TOW** point to the number that corresponds to the wall height component. For example, if TOW5-8 already exist, name the latest **TOW** point to **TOW9** and set the point constraints accordingly.
TopBOW	Edit the point and set the point constraints to be horizontal relative to its **TOW** top of wall point, and vertical relative to its **Fill** point.
WallBot	Edit the point and set the point constraint to Vertical Minimum relative to the **Wall_Tie** point as well as its **Fill** point.
WallTopBackFtg	Edit the point and set the horizontal point constraint to the shoulder proposed edge of pavement (for example **L_ESP_FIN**).
WallTopFtg	Edit the point and set the horizontal point constraint to the shoulder proposed edge of pavement (for example **L_ESP_FIN**).

Right-click on the **Wall-Tie** component and select **Delete Component**. Chose the copy of the **Wall_Tie** component (typically named **Wall_Tie1**).

Sometimes it is necessary to recreate points. For example, the fill points can get 'lost' and combined with other wall template points. If this happens, right-click on the appropriate cut/fill component and then select **Insert Point**. Insert the point and add the necessary point constraints. Use the RWall Type 2 template as an example.

The **CF** end conditions may need to be adjusted when you recreate points and constraints. The processing priority decreases as the wall height increases. For example, the **CF5** end condition component has a priority of "1", while the **CF35** component has a priority of "31".

Backfill for Walls and Shoring & Cribbing

To account for structure excavation, backfill for walls and shoring & cribbing, insert the appropriate closed components on the base RWALL Type 2 template.

Summary

The RWall Type 2 components are a starting point for building retaining walls in InRoads. These will need to be modified as necessary to accommodate project-specific criteria.

For questions or comments on this tech note, contact your regional CAE Support Coordinator or the WSDOT CAE Help Desk at (360) 709-**8013**.