

Challenge exercise: Create site topography

Link a DWG file to an existing model and create a toposurface from the contours in the DWG. Edit the contour settings of the toposurface and create a building pad around the model. Create a sub-region of the toposurface and assign a material to the sub-region. Add trees to align with the positions in the DWG.

Learning Objectives:

- Create a toposurface from a linked DWG file.
- Create a building pad.
- Create a sub-region of a toposurface and assign a material.
- Add landscaping and use alignment.

Complete the required activities:

1. Open the accompanying file **Site-Topography.rvt**.

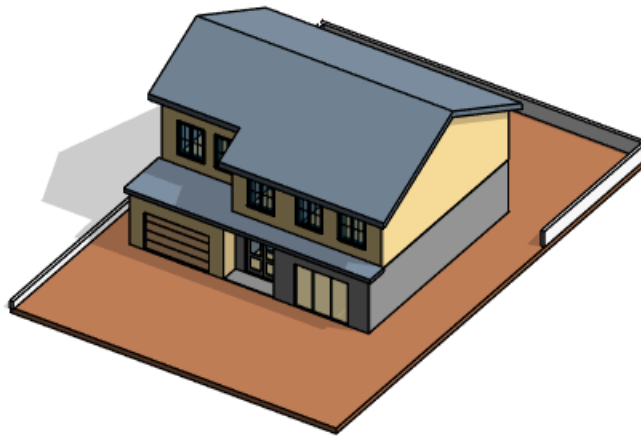


Figure 1. Site-Topography.rvt

Task 1:

1. Link the accompanying DWG file **Site-Layout-Contours.dwg**.
2. Align the DWG with the as indicated in the image below.

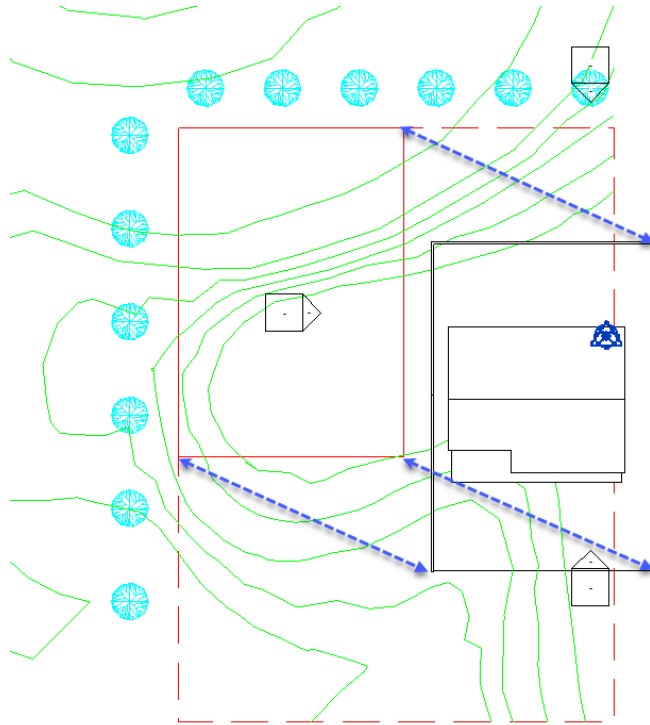


Figure 2. Align the DWG to the model as shown

Task 2:

1. Create a toposurface-based geometry drawn on the Site-Contours layer in the linked DWG file.
2. Simplify the surface using a 3" radius.

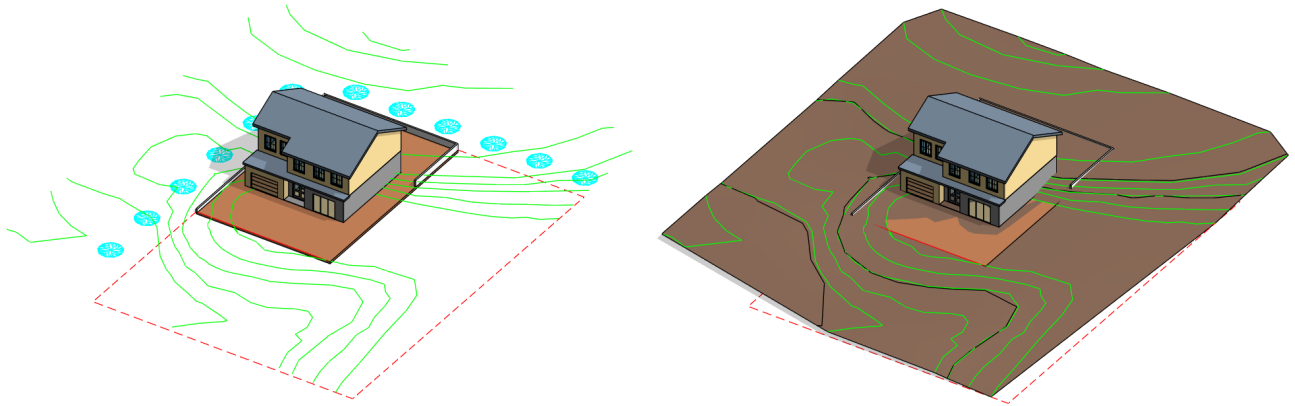


Figure 3. Create a toposurface from the DWG contours.

3. Create a Building Pad that aligns with the floor in the model. Set the building pad's Offset From Level parameter to -1 foot.

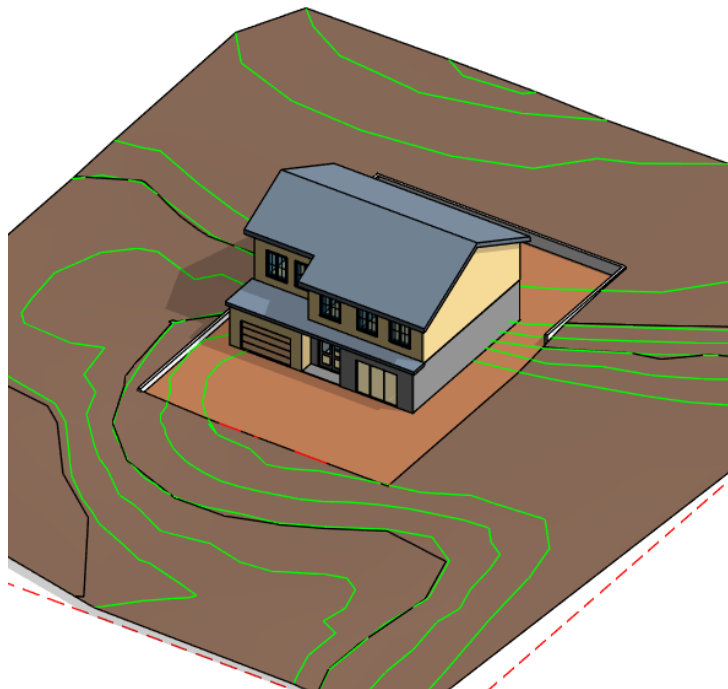


Figure 4. Create a building pad.

4. Edit the toposurface settings to display secondary contours at 3" intervals.

Task 3:

1. Create a toposurface Sub-Region using the dashed lines in the DWG as guidelines. Assign the material Grass to the sub-region.

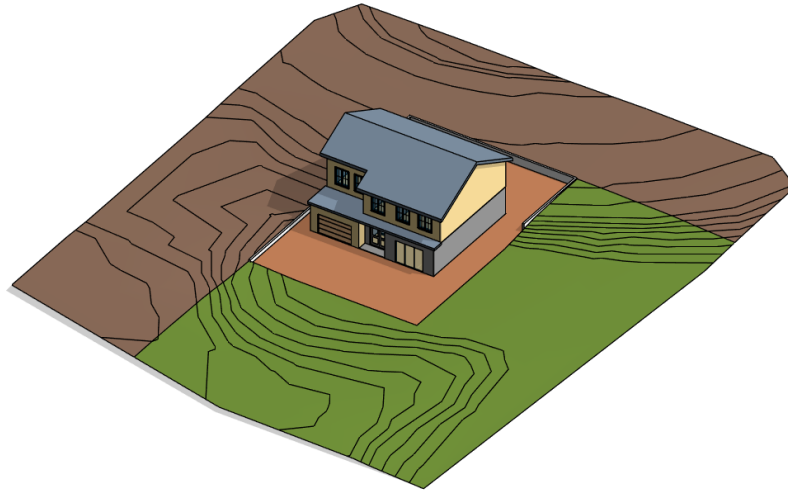


Figure 5. Sub-Region and updated contour settings.

2. Place the planting family RPC Tree – Deciduous:American Beech – 20' to align with the tree symbols in the DWG.
3. Unload the linked DWG from the model.



Figure 6. The completed exercise.

Assessment Criteria

The finished exercise is available for comparison in the file ***Site-Topography-finished.rvt***.

Task 1: (25% of Total)

- Open the Manage Links settings and check that the DWG is linked. (10%)
- The last step of the exercise is to unload the DWG. First check that it is unloaded and then reload the DWG. (5%)
- The DWG should be placed at Level 1 and the smaller red rectangle in the DWG should align with the external floor in the model. (10%)

Task 2: (45% of Total)

- Edit the toposurface to check that the points that make the surface are located on the contour lines in the DWG file. (15%)
- Check the number of points against the toposurface in the ***Site-Topography-finished.rvt*** file to determine if the simplify surface step was carried out. (10%)
- Select the building pad and check the Offset From Level parameter in the Properties palette is set to 1 foot. Check that the boundary of the building pad aligns with the external floor slab. (10%)
- The contours display can be visually compared to the image in this document or the ***Site-Topography-finished.rvt*** file. To check in the model for the exact setting, open the Site Settings in the Massing & Site tab, Model Site panel. (10%)

Task 3: (30% of Total)

- The sub-region should be visible in the model, and its edges should align with the boundary of the external floor slab and the edge of the toposurface as shown in the images and ***Site-Topography-finished.rvt*** file. (10%)
- Select the sub-region and check the Material parameter in the properties palette to ensure the Grass material has been applied. (5%)
- Open the Site floor plan view and set the visual style to Wireframe to see whether the RPC Tree family has been placed accurately compared to the tree symbols in the DWG. (10%)
- Check that the RPC Tree families are the RPC Tree – Deciduous:American Beech – 20' type. (5%)
- Checking that the DWG had been unloaded was the first step in this rubric.