Superstructure School

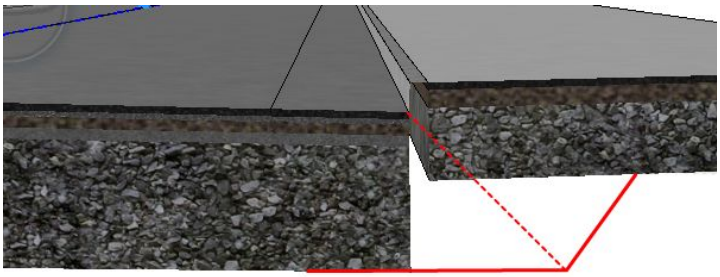
- best practice

February, 2019

The “Superstructure School” is meant to be a little document with tips and tricks that you can include in you designs. We get supportcases every week regarding handling of pavement and will through this Superstructure School look into some of these and other examples.

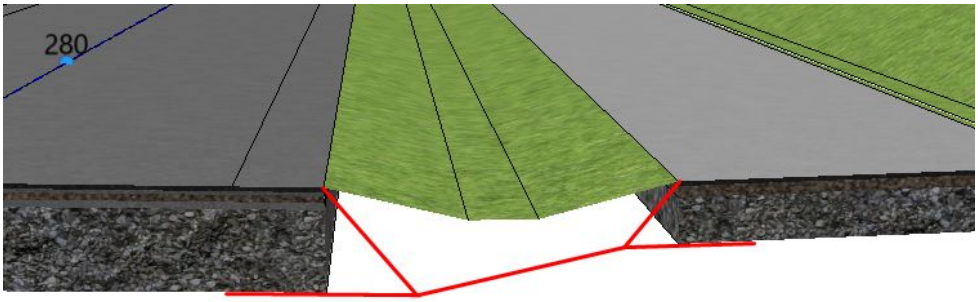
Pavement transitions between road and walk/bike areas

In this walk-through we will look at how to improve the results so that we can get satisfying loadbearing capasity and have pavement where we need it in the areas between road and walk/bike areas.



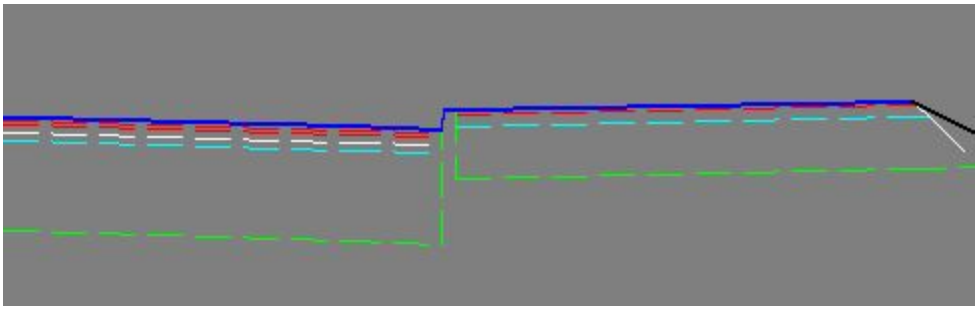
Trimble Solutions Sandvika AS
Leif Tronstads plass 4, 1337 Sandvika
+47 67 81 70 00
contact.scandinavia@trimble.com
https://www.novapoint.com

Trimble



Kerbstone and sidewalk

In situations with a kerbstone and sidewalk there might be a vertical jump in the pavement that needs handling. In addition the pavement thickness is here thinner than it is for the road.



The pavement description that we have here has removed the pavement layers under the kerbstone. The idea is good since the user wants to consider the volume that the kerbstone represents in this area, but we don't recommend considering the kerbstone and necessary concrete slab in this way. The quantities that the kerbstone and concrete slab represents should be handled and calculated as a post process.

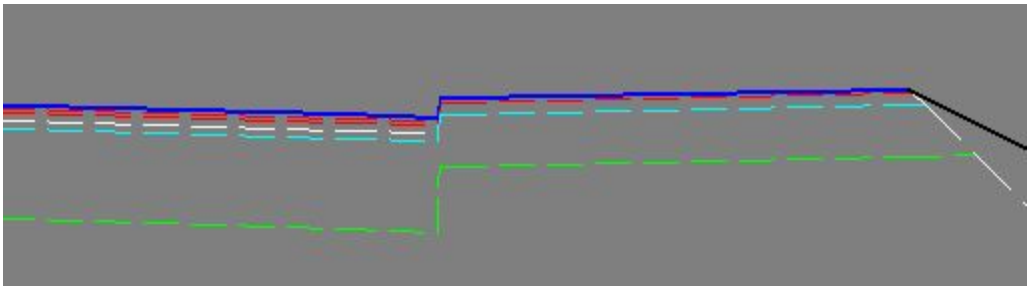
We therefore add the same pavement under the kerbstones as we have for the sidewalk.

Right side											
Carriageway											
1.01 R. Carriageway	0.040	0.030	0.000	0.060	0.060	0.000	0.700	0.000	0.000	0.001	0.891
Shoulder											
2.01 R. Asphaltshoulder	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	
2.05 R. Gravelshoulder	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	
Extra surfaces											
3.01 R.Ditchsurface1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.02 R.Ditchbottom	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.03 R.Ditchsurface3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.07 R.Kerbstoneface	0.040	0.000	0.000	0.100	0.000	0.000	0.400	0.000	0.000	0.001	0.541
3.08 R.Kerbstonetopsurfac	0.040	0.000	0.000	0.100	0.000	0.000	0.400	0.000	0.000	0.001	0.541
3.11 R.Sidewalk/bikepath	0.040	0.000	0.000	0.100	0.000	0.000	0.400	0.000	0.000	0.001	0.541

Pavement | Inner slope | Gradual layers | Rehabilitation | Median

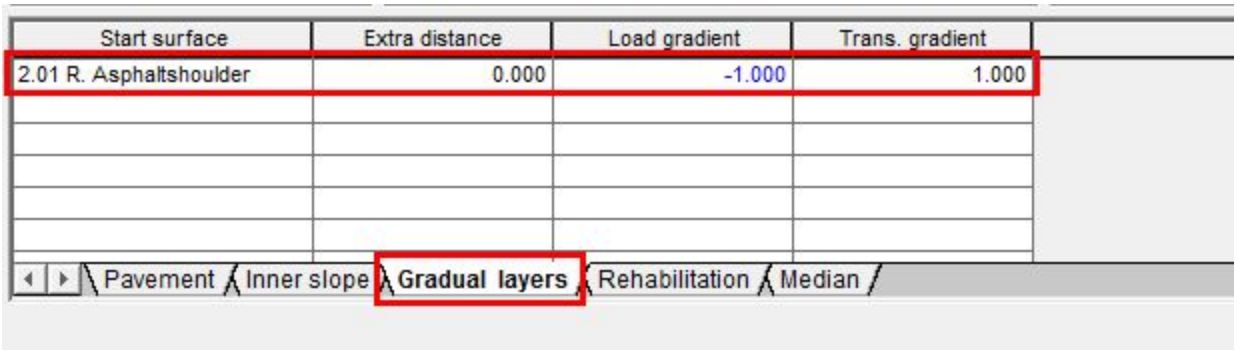
OK Cancel Apply Help

We see that the results change and we no longer have a hole in the pavement.

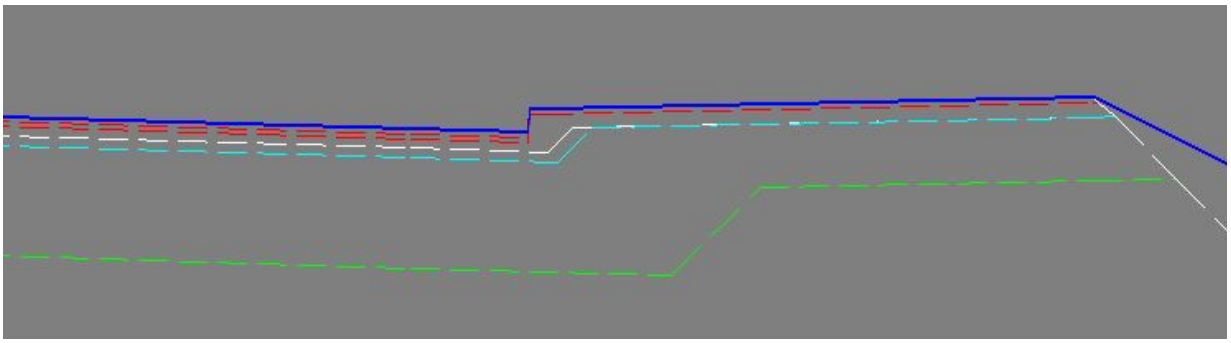


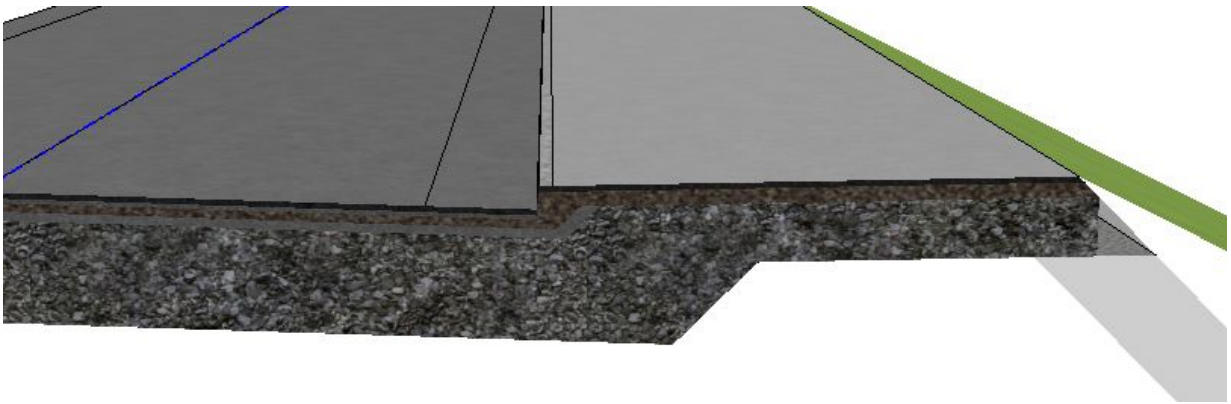
The transition that we want to have between the road and the sidewalk we can describe in “Gradual layers” in the pavement description.

We want to apply a load bearing angle when looking from the shoulder edge. The transition between the pavements should have a slope of 1:1.



The results now look alot better.





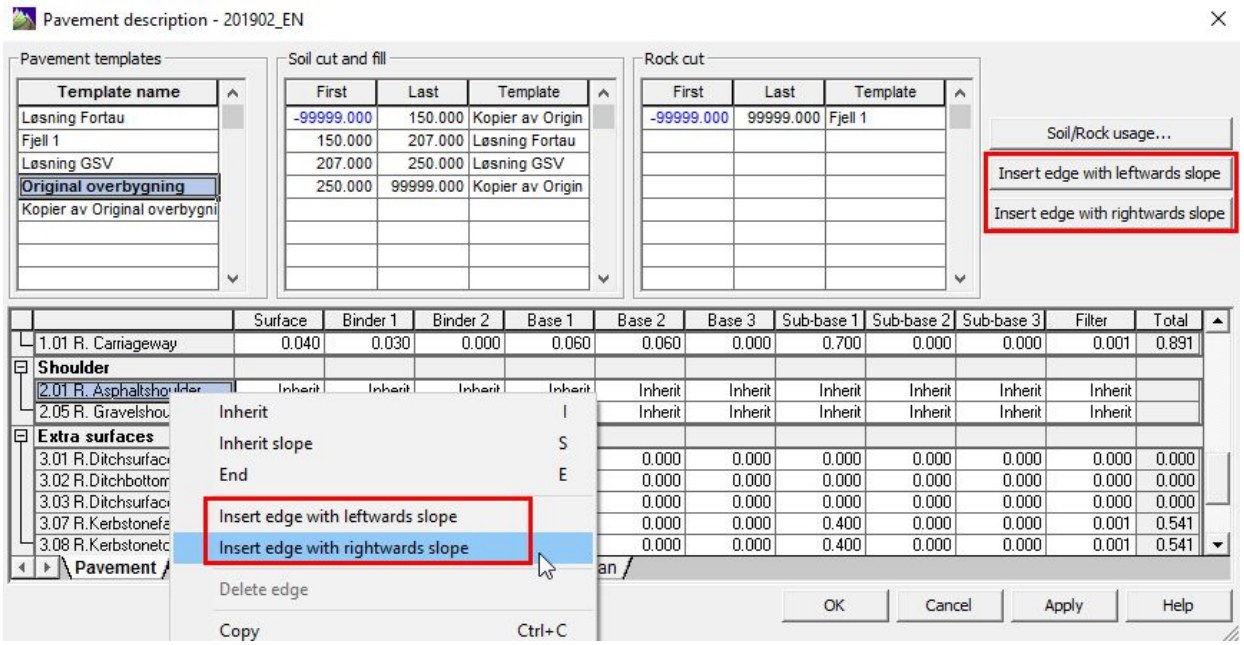
Walk/bike path separated by a traffic separator of gras

For the starting point of this model we are in a situation where we have removed the pavement in the area for the traffic separator. So far everything is done correctly, but the solution is not complete.

TIP: *The same principals can be used for other traffic separators, f.ex. one made of kerbstone and tiles.*

To improve the solution so that the load bearing angle for the two pavements is taken care of we need to use the functions for “Insert Edge” that we find in the normal pavement description.

The function is available as either separate buttons or in the right-click-menu for the surface.



When one want to use the Insert Edge we need to think about what side of the surface we want to put it on to extend the pavement in the right direction.

In the Insert Edge function we apply the slope of the edge and the necessary extra width that is needed for the specific pavement layer to be laid properly by the contractor.

In our situation we want to extend the pavement from roadshoulder 2.01 towards the right, and from the walk/bikepath 3.11 towards the left.

We choose a simple 1:1 slope with no extra widths on the inserted edge.

Width = 0.000

Slope = -1.000

We add this to the model.

-2.01 L. Shoulder	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	
Right side											
Carriageway											
1.01 R. Carriageway	0.040	0.030	0.000	0.060	0.060	0.000	0.700	0.000	0.000	0.001	0.891
Shoulder											
2.01 R. Asphaltshoulder	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	
Step Width RightW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Step Slope RightW	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
2.05 R. Gravelshoulder	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	Inherit	
Extra surfaces											
3.01 R.Ditchsurface1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.02 R.Ditchbottom	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.03 R.Ditchsurface3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.07 R.Kerbstoneface	0.040	0.000	0.000	0.100	0.000	0.000	0.400	0.000	0.000	0.001	0.541
3.08 R.Kerbstonetopsurfac	0.040	0.000	0.000	0.100	0.000	0.000	0.400	0.000	0.000	0.001	0.541
3.11 R.Sidewalk/bikepath	0.040	0.000	0.000	0.100	0.000	0.000	0.400	0.000	0.000	0.001	0.541
Step Width LeftW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Step Slope LeftW	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	

Pavement | Inner slope | Gradual layers | Rehabilitation | Median

The results will now be as we have defined it.