

ACO KlassikDrain K200/KS200

Subassembly Installation and Reference Guide

User Guide for Autodesk AutoCAD Civil 3D files

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1. Introduction

This document describes the installation, configuration and use of the ACO KlassikDrain subassembly component for AutoCAD Civil 3D 2022.

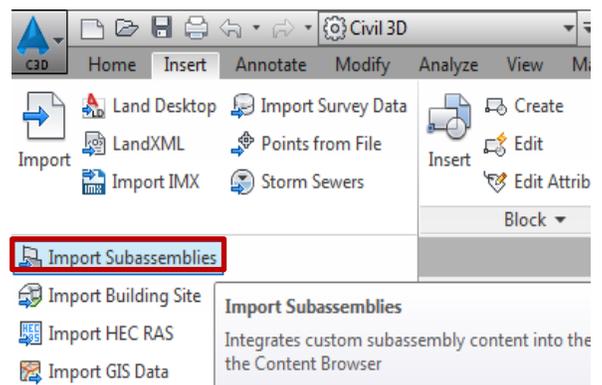
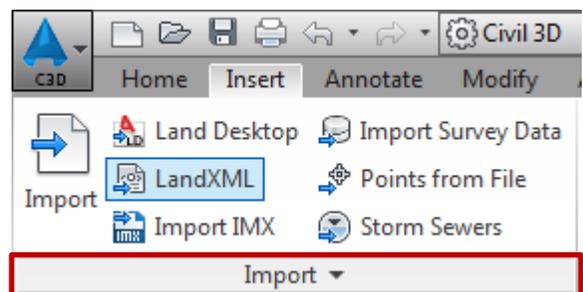


2. Installing the ACO KlassikDrain subassembly

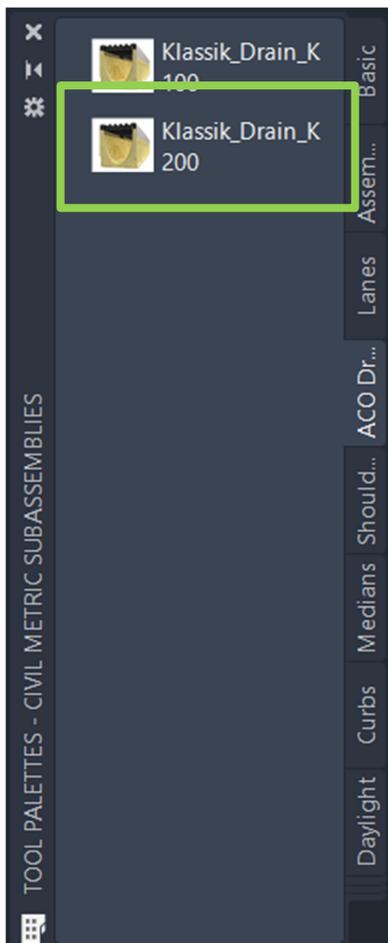
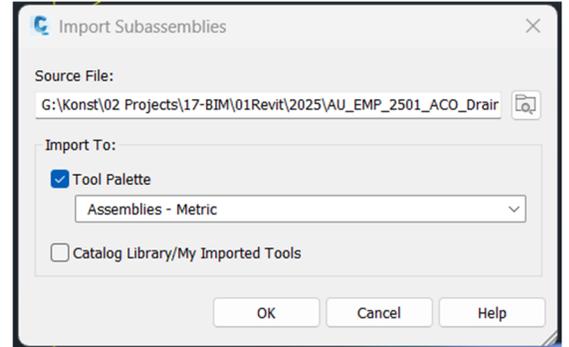
The KlassikDrain sub-assembly is available as a .pkt file which contains the subassembly .dll file and associated configuration files for installing the subassembly in Civil 3D.

To install the subassembly, click on the Import panel title on the Insert ribbon.

Choose import subassemblies



Browse the location of the ACO KlassikDrain K200/KS200.pkt file, and choose a tool palette to import to, or create a new palette. The subassembly can also optionally be added to the user Catalog Library. The tool palette in civil 3D will now show the ACO KlassikDrain K200/KS200 subassembly. Note that by right-clicking in the tool palette, the palette can be customized by creating a separate item for the ACO KlaasikDrain K200/KS200, as shown here.



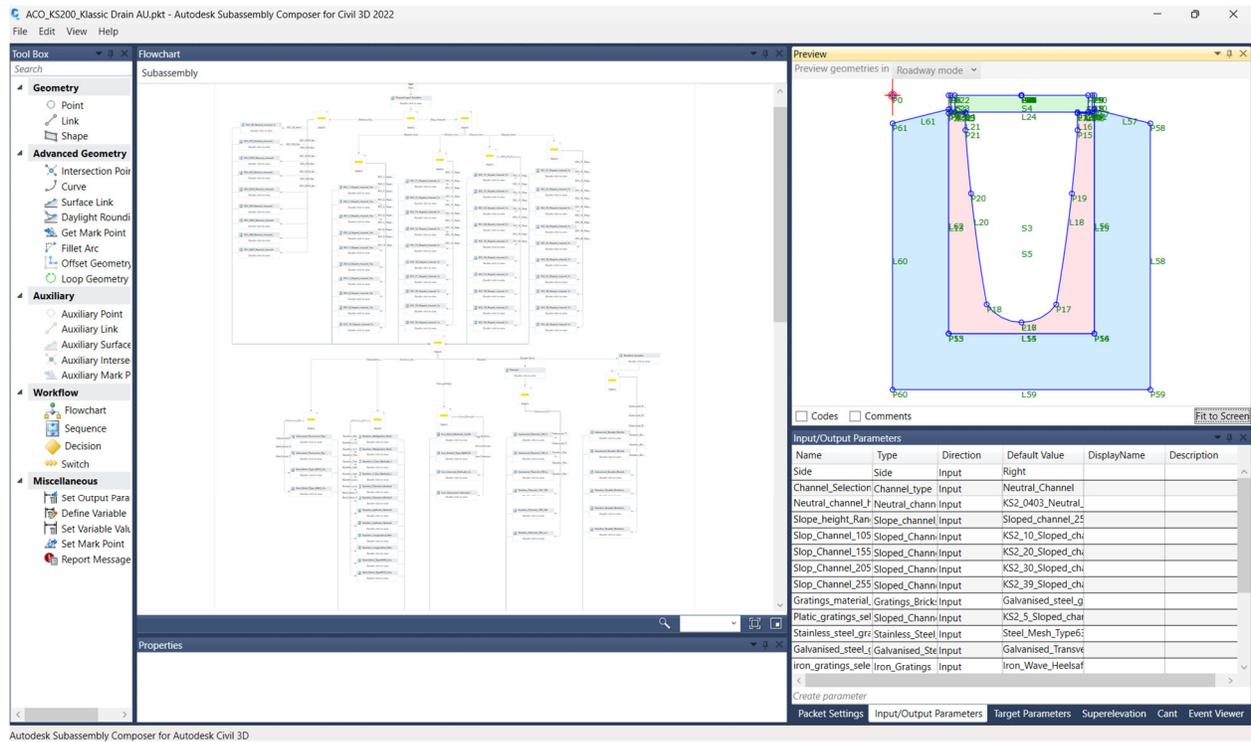
3. Using the ACO KlassikDrain K200/KS200 subassembly

The ACO KlassikDrain subassembly includes definitions for the following Edge rail type:

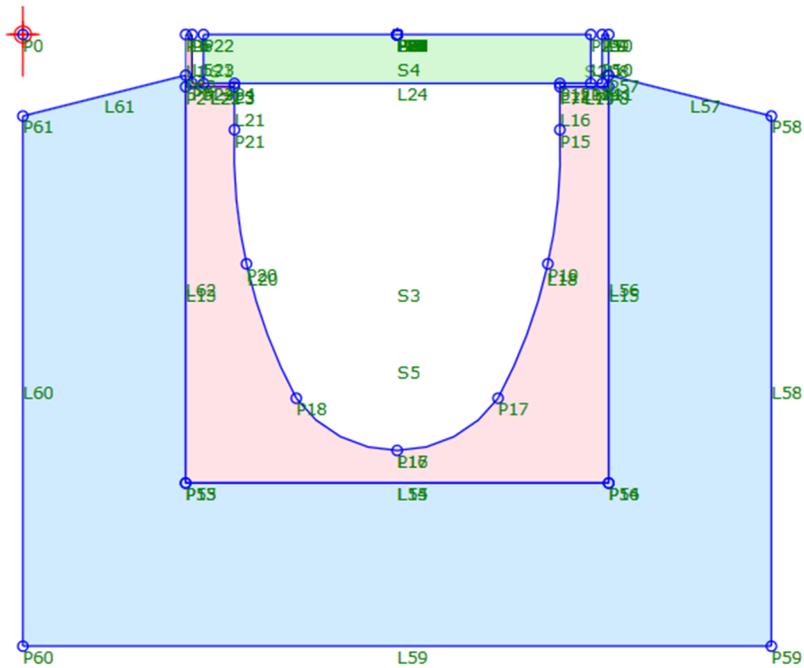
KlassikDrain K200/KS200 with Edge rail types:-

K200 /KS200 Parts table

Channels and Accessories	Part No.	
	K200	KS200
K2-00 Neutral channel - (1m)³	145041	145441
K2-1 Sloped channel - (1m)	145001	145401
K2-2 Sloped channel - (1m)	145002	145402
K2-3 Sloped channel - (1m)	145003	145403
K2-4 Sloped channel - (1m)	145004	145404
K2-5 Sloped channel - (1m) ³	145005	145405
K2-6 Sloped channel - (1m)	145006	145406
K2-7 Sloped channel - (1m)	145007	145407
K2-8 Sloped channel - (1m)	145008	145408
K2-9 Sloped channel - (1m)	145009	145409
K2-10 Sloped channel - (1m) ³	145010	145410
K2-010 Neutral channel - (1m)³	145043	145443
K2-0103 Neutral channel - (0.5m)³	145044	145444
K2-11 Sloped channel - (1m)	145011	145411
K2-12 Sloped channel - (1m)	145012	145412
K2-13 Sloped channel - (1m)	145013	145413
K2-14 Sloped channel - (1m)	145014	145414
K2-15 Sloped channel - (1m) ³	145015	145415
K2-16 Sloped channel - (1m)	145016	145416
K2-17 Sloped channel - (1m)	145017	145417
K2-18 Sloped channel - (1m)	145018	145418
K2-19 Sloped channel - (1m)	145019	145419
K2-20 Sloped channel - (1m) ³	145020	145420
K2-020 Neutral channel - (1m)³	145045	145445
K2-0203 Neutral channel - (0.5m)³	145046	145446
K2-21 Sloped channel - (1m)	145021	145421
K2-22 Sloped channel - (1m)	145022	145422
K2-23 Sloped channel - (1m)	145023	145423
K2-24 Sloped channel - (1m)	145024	145424
K2-25 Sloped channel - (1m) ³	145025	145425
K2-26 Sloped channel - (1m)	145026	145426
K2-27 Sloped channel - (1m)	145027	145427
K2-28 Sloped channel - (1m)	145028	145428
K2-29 Sloped channel - (1m)	145029	145429
K2-30 Sloped channel - (1m) ³	145030	145430
K2-030 Neutral channel - (1m)³	145047	145447
K2-0303 Neutral channel - (0.5m)³	145048	145448
K2-31 Sloped channel - (1m)	145031	145431
K2-32 Sloped channel - (1m)	145032	145432
K2-33 Sloped channel - (1m)	145033	145433
K2-34 Sloped channel - (1m)	145034	145434
K2-35 Sloped channel - (1m) ³	145035	145435
K2-36 Sloped channel - (1m)	145036	145436
K2-37 Sloped channel - (1m)	145037	145437
K2-38 Sloped channel - (1m)	145038	145438
K2-39 Sloped channel - (1m)	145039	145439
K2-40 Sloped channel - (1m) ³	145040	145440
K2-040 Neutral channel - (1m)³	145049	145449
K2-0403 Neutral channel - (0.5m)³	145050	145450
K2-902 In-line pit (0.5m)	141819	141820



The subassembly also optionally includes haunching detail.



3.1 User Defined Parameter

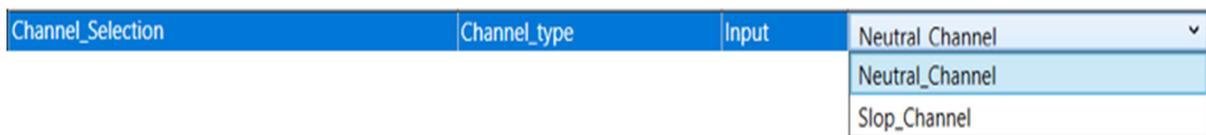
Name	Type	Direction	Default Value
Side	Side	Input	Right
Channel_Selection	Channel_type	Input	Neutral_Channel
Neutral_channel_height_selection	Neutral_channel_Height	Input	KS2_010_Neutral_channel_1m_145443
Slope_height_Range_Selection	Slope_channel_height_range	Input	Sloped_channel_255_To_300
Slop_Channel_105_to_150	Sloped_Channel_105_to_150	Input	KS2_10_Sloped_channel_1m_145410
Slop_Channel_155_to_200	Sloped_Channel_155_to_200	Input	KS2_20_Sloped_channel_1m_145420
Slop_Channel_205_to_250	Sloped_Channel_205_to_250	Input	KS2_30_Sloped_channel_1m_145430
Slop_Channel_255_to_300	Sloped_Channel_255_to_300	Input	KS2_39_Sloped_channel_1m_145439
Gratings_material_selection_and_Brickslot_selection	Gratings_Brickslots	Input	Galvanised_steel_gratings
Platic_gratings_selection	Sloped_Channel_105_to_150	Input	KS2_5_Sloped_channel_1m_145405
Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	Steel_Mesh_Type630Q_Grade_304_stainless_142407
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	Galvanised_Transverse_Type_607Q_Galvanised_142411
iron_gratings_selection	Iron_Gratinqs	Input	Iron_Wave_Heelsafe_AntiSlip_Type_680D_Ductile_iron_142462
Double_Brickslot_selection	Double_Brickslot	Input	Galvanised_Double_Brickslot_200_1000mm_142482
Twinslot_selection	Twinslot	Input	Galvanised_Twinslot_200_1000mm_142794
Haunching	Yes\No	Input	Yes
Haunching_class_selection	Haunch_Class_Selection	Input	Class_A_B
Haunch_Class_A_B_selection	Haunch_Class_A_B	Input	Asphalt_sloped_haunch_class_A_B
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	Asphalt_sloped_haunch_class_C_D

All the default values of the parameter can be edited by end-user. User can be able to select their required KlassikDrain, Grating and Haunch type.

3.2 KlassikDrain K200/KS200 with different Edge rail channel types

User can able to select their required KlassikDrain channel by using the parameter KlassikDrainType which has dropdown menu, with 49 different types of KlassikDrain channel, which includes Neutral and Slop channel.

initially user needs to select Neutral or Slop channel in Input/Output parameter table. There is channel_selection parameter with drop down menu.



If users select Neutral channel for height selection there is parameter Neutral_channel_height_selection using this user can select their required height.

Neutral_channel_height_selection	Neutral_channel_Height	Input	KS2 010 Neutral channel 1m 145443
Slope_height_Range_Selection	Slope_channel_height_range	Input	KS2_00_Neutral_channel_1m_145441
Slop_Channel_105_to_150	Sloped_Channel_105_to_150	Input	KS2_010_Neutral_channel_1m_145443
Slop_Channel_155_to_200	Sloped_Channel_155_to_200	Input	KS2_0103_Neutral_channel_0_5m_145444
Slop_Channel_205_to_250	Sloped_Channel_205_to_250	Input	KS2_020_Neutral_channel_1m_145445
Slop_Channel_255_to_300	Sloped_Channel_255_to_300	Input	KS2_0203_Neutral_channel_0_5m_145446
Gratings_material_selection_and_Brickslot_selection	Gratings_Brickslots	Input	KS2_030_Neutral_channel_1m_145447
Platic_gratings_selection	Sloped_Channel_105_to_150	Input	KS2_0303_Neutral_channel_0_5m_145448
Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	KS2_040_Neutral_channel_1m_145449
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	KS2_0403_Neutral_channel_0_5m_145450

If users select Slop channel for height selection there is parameter Slope_height_Range_Selection using this user needs to select their height range which between 105 to 150, 155 to 200, 205 to 255 and 255 to 300. Which because Autodesk sub assembly composer have enumeration restriction with max 16 nos.

Slope_height_Range_Selection	Slope_channel_height_range	Input	Sloped channel 255 To 300
Slop_Channel_105_to_150	Sloped_Channel_105_to_150	Input	Sloped_channel_105_To_150
Slop_Channel_155_to_200	Sloped_Channel_155_to_200	Input	Sloped_channel_155_To_200
Slop_Channel_205_to_250	Sloped_Channel_205_to_250	Input	Sloped_channel_205_To_250
Slop_Channel_255_to_300	Sloped_Channel_255_to_300	Input	Sloped_channel_255_To_300

After selecting the height range by using drop down menu user can select their required height.

Slop_Channel_105_to_150	Sloped_Channel_105_to_150	Input	KS2 10 Sloped channel 1m 145410
Slop_Channel_155_to_200	Sloped_Channel_155_to_200	Input	KS2_1_Sloped_channel_1m_145401
Slop_Channel_205_to_250	Sloped_Channel_205_to_250	Input	KS2_2_Sloped_channel_1m_145402
Slop_Channel_255_to_300	Sloped_Channel_255_to_300	Input	KS2_3_Sloped_channel_1m_145403
Gratings_material_selection_and_Brickslot_selection	Gratings_Brickslots	Input	KS2_4_Sloped_channel_1m_145404
Platic_gratings_selection	Sloped_Channel_105_to_150	Input	KS2_5_Sloped_channel_1m_145405
Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	KS2_6_Sloped_channel_1m_145406
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	KS2_7_Sloped_channel_1m_145407
iron_gratings_selection	Iron_Gratings	Input	KS2_8_Sloped_channel_1m_145408
<			KS2_9_Sloped_channel_1m_145409
Create parameter			KS2_10_Sloped_channel_1m_145410

Slop_Channel_155_to_200	Sloped_Channel_155_to_200	Input	KS2 20 Sloped channel 1m 145420
Slop_Channel_205_to_250	Sloped_Channel_205_to_250	Input	KS2_11_Sloped_channel_1m_145411
Slop_Channel_255_to_300	Sloped_Channel_255_to_300	Input	KS2_12_Sloped_channel_1m_145412
Gratings_material_selection_and_Brickslot_selection	Gratings_Brickslots	Input	KS2_13_Sloped_channel_1m_145413
Platic_gratings_selection	Sloped_Channel_105_to_150	Input	KS2_14_Sloped_channel_1m_145414
Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	KS2_15_Sloped_channel_1m_145415
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	KS2_16_Sloped_channel_1m_145416
iron_gratings_selection	Iron_Gratings	Input	KS2_17_Sloped_channel_1m_145417
<			KS2_18_Sloped_channel_1m_145418
Create parameter			KS2_19_Sloped_channel_1m_145419
			KS2_20_Sloped_channel_1m_145420

Slop_Channel_205_to_250	Sloped_Channel_205_to_250	Input	KS2_30_Sloped_channel_1m_145430
Slop_Channel_255_to_300	Sloped_Channel_255_to_300	Input	KS2_21_Sloped_channel_1m_145421
Gratings_material_selection_and_Brickslot_selection	Gratings_Brickslots	Input	KS2_22_Sloped_channel_1m_145422
Platic_gratings_selection	Sloped_Channel_105_to_150	Input	KS2_23_Sloped_channel_1m_145423
Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	KS2_24_Sloped_channel_1m_145424
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	KS2_25_Sloped_channel_1m_145425
iron_gratings_selection	Iron_Gratings	Input	KS2_26_Sloped_channel_1m_145426
<			KS2_27_Sloped_channel_1m_145427
Create parameter			KS2_28_Sloped_channel_1m_145428
			KS2_29_Sloped_channel_1m_145429
			KS2_30_Sloped_channel_1m_145430

Slop_Channel_255_to_300	Sloped_Channel_255_to_300	Input	KS2_39_Sloped_channel_1m_145439
Gratings_material_selection_and_Brickslot_selection	Gratings_Brickslots	Input	KS2_31_Sloped_channel_1m_145431
Platic_gratings_selection	Sloped_Channel_105_to_150	Input	KS2_32_Sloped_channel_1m_145432
Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	KS2_33_Sloped_channel_1m_145433
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	KS2_34_Sloped_channel_1m_145434
iron_gratings_selection	Iron_Gratings	Input	KS2_35_Sloped_channel_1m_145435
<			KS2_36_Sloped_channel_1m_145436
Create parameter			KS2_37_Sloped_channel_1m_145437
			KS2_38_Sloped_channel_1m_145438
			KS2_39_Sloped_channel_1m_145439
			KS2_40_Sloped_channel_1m_145440

3.3 KlassikDrain K200/KS200 grating types

User needs to select grating material or brickslot using the parameter Gratings_material_selection_and_Brickslot_selection

Gratings_material_selection_and_Brickslot_selection	Gratings_Brickslots	Input	Double Brickslot
Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	Galvanised_steel_gratings
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	Stainless_Steel_gratings
iron_gratings_selection	Iron_Gratings	Input	Iron_gratings
Double_Brickslot_selection	Double_Brickslot	Input	Double_Brickslot
Twinslot_selection	Twinslot	Input	Twinslot

After material selection from that drop down menu each material have multiple gratings using the parameter of material selected user can select their required gratings.

Stainless_steel_gratings_selection	Stainless_Steel_gratings	Input	Steel Mesh Tvpe630Q Grade_304_stainless_142407
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Ing	Stainless_Wedgewire_Heelsafe_Type_647D_Grade_304_stainless_142219
iron_gratings_selection	Iron_Gratings	Ing	Stainless_Wedgewire_Heelsafe_Type_648D_Grade_304_stainless_142220
Double_Brickslot_selection	Double_Brickslot	Ing	Stainless_5_Star_Heelsafe_AntiSlip_Type_643D_Grade_304_stainless_142221
Twinslot_selection	Twinslot	Ing	Stainless_5_Star_Heelsafe_AntiSlip_Type_644D_Grade_304_stainless_142222
Haunching	Yes/No	Ing	Stainless_Twinwire_Heelsafe_AntiSlip_Type_641D_Grade_304_stainless_142558
Haunching_class_selection	Haunch_Class_Selection	Ing	Stainless_Twinwire_Heelsafe_AntiSlip_Type_642D_Grade_304_stainless_142559
Haunch_Class_A_B_selection	Haunch_Class_A_B	Ing	Stainless_Splitwire_Heelsafe_AntiSlip_Type_639D_Grade_304_stainless_142571
Haunch_Class_C_D_selection	Haunch_Class_C_D	Ing	Stainless_Splitwire_Heelsafe_AntiSlip_Type_640D_Grade_304_stainless_142572
<			Stainless_Longitudinal_Heelsafe_AntiSlip_Type_616D_Grade_304_stainless_143137
Create parameter			Stainless_Longitudinal_Heelsafe_AntiSlip_Type_617D_Grade_304_stainless_143136
			Steel_Mesh_Type630Q_Grade_304_stainless_142407
			Steel_Mesh_Type631Q_Grade_304_stainless_142408

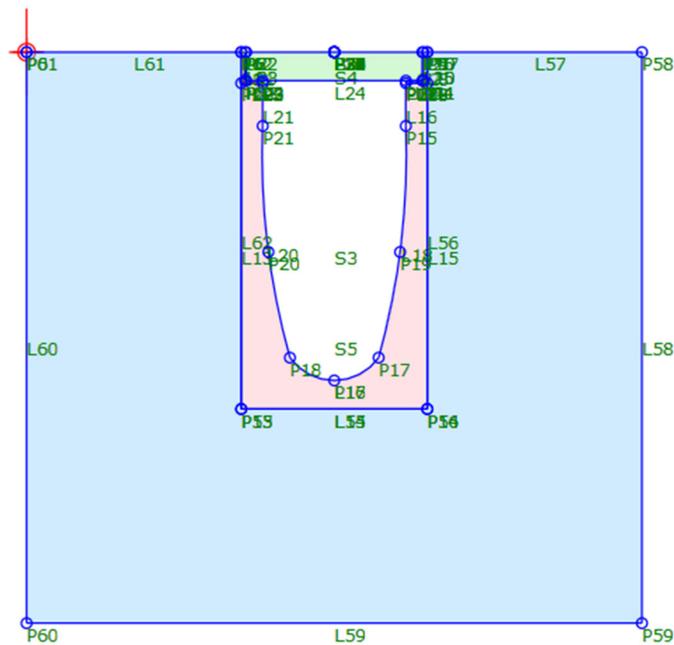
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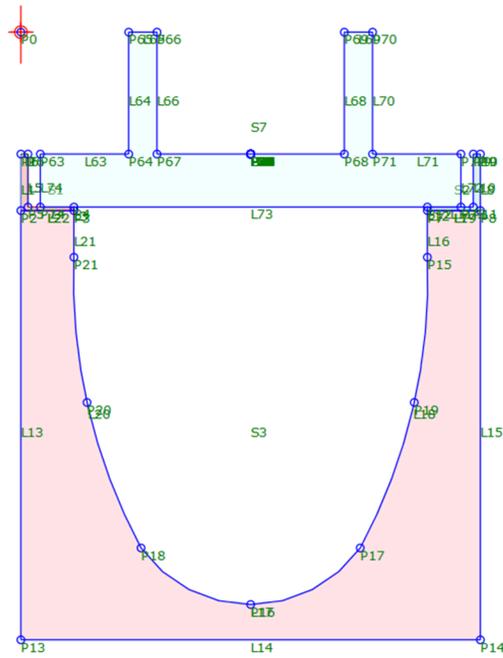
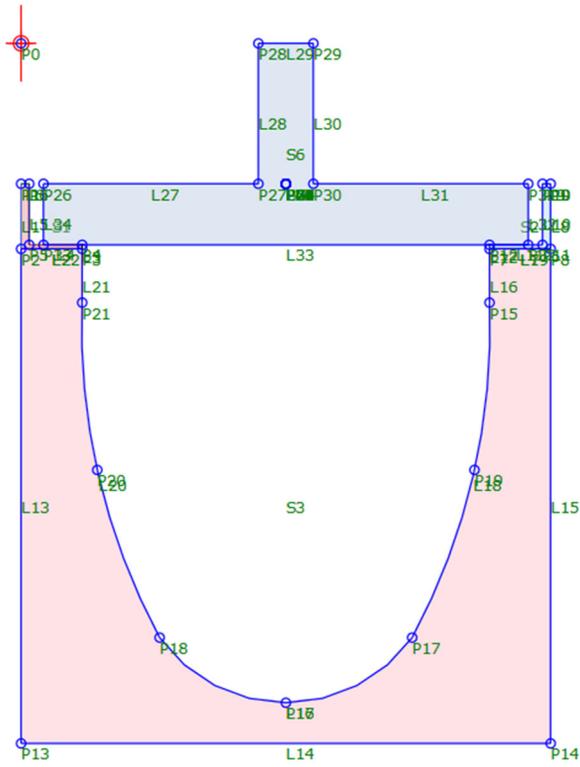
Galvanised_steel_gratings_selection	Galvanised_Steel_gratings	Input	Galvanised Transverse Type 607Q Galvanised 142411
iron_gratings_selection	Iron_Gratings	Input	Galvanised_Transverse_Type_607Q_Galvanised_142411
Double_Brickslot_selection	Double_Brickslot	Input	Galvanised_Transverse_Type_608Q_Galvanised_142412
Twinslot_selection	Twinslot	Input	Steel_Mesh_Type_605Q_Galvanised_142405
Haunching	Yes\No	Input	Steel_Mesh_Type_606Q_Galvanised_142406

iron_gratings_selection	Iron_Gratings	Input	Iron Wave Heelsafe AntiSlip Type 680D Ductile iron 1424
Double_Brickslot_selection	Double_Brickslot	Input	Iron_Wave_Heelsafe_AntiSlip_Type_680D_Ductile_iron_142462
Twinslot_selection	Twinslot	Input	Iron_Slotted_Type_660D_Ductile_iron_142177
Haunching	Yes\No	Input	Iron_Intercept_Heelsafe_AntiSlip_Type_676D_Ductile_iron_142173
Haunching_class_selection	Haunch_Class_Selection	Input	Iron_Galvanised_Intercept_Heelsafe_AntiSlip_Type_675D_Galvanised_iron_142174

Double_Brickslot_selection	Double_Brickslot	Input	Galvanised Double Brickslot 200 1000mm 142482
Twinslot_selection	Twinslot	Input	Galvanised_Double_Brickslot_200_1000mm_142482
Haunching	Yes\No	Input	Galvanised_Double_Brickslot_200_500mm_142483
Haunching_class_selection	Haunch_Class_Selection	Input	Galvanised_Double_Brickslot_200_access_unit_500mm_142484
Haunch_Class_A_B_selection	Haunch_Class_A_B	Input	Stainless_Double_Brickslot_200_1000mm_142485
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	Stainless_Double_Brickslot_200_500mm_142486
<			Stainless_Double_Brickslot_200_access_unit_500mm_142487

Twinslot_selection	Twinslot	Input	Galvanised Twinslot 200 1000mm 142794
Haunching	Yes\No	Input	Galvanised_Twinslot_200_1000mm_142794
Haunching_class_selection	Haunch_Class_Selection	Input	Galvanised_Twinslot_200_500mm_142795
Haunch_Class_A_B_selection	Haunch_Class_A_B	Input	Galvanised_Twinslot_200_access_unit_500mm_142478
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	Stainless_Twinslot_200_1000mm_142796
<			Stainless_Twinslot_200_500mm_142797
Create parameter			Stainless_Twinslot_200_access_unit_500mm_142481





3.4 Haunch types

To include Haunching we have provided decision option so user can select Yes/or No from the parameter Haunching. There are two different classes for haunching A-B and C-D

Haunching	Yes\No	Input	Yes
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There are two different classes for haunching A-B and C-D it can be decide by user, using Haunch class parameter drop down menu.

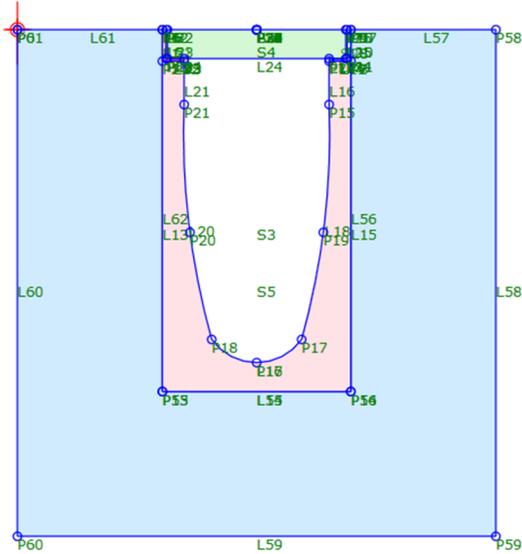
Haunch_Class	Haunch_Class_	Input	Class C D
Haunch_Class_A_B_selection	Haunch_Class_	Input	Class_A_B
Haunch_Class_C_D_selection	Haunch_Class_	Input	Class_C_D

Haunch class A-B which has four type of haunch and C-D which have five types of haunch user can easily select their haunch type with provided parameters.

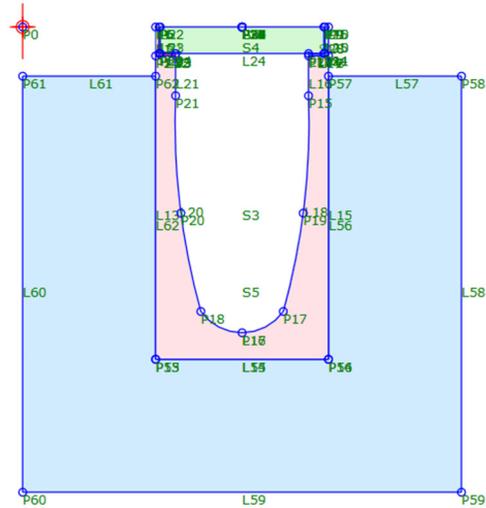
Haunch_Class_A_B_selection	Haunch_Class_	Input	Pavers to edge class A B
Haunch_Class_C_D_selection	Haunch_Class_	Input	Grass_haunch_to_top_Class_A_B
AntiSlipGrateShapeCode	String	Input	Pavers_to_edge_class_A_B
BrickSlotShape	String	Input	Asphalt_sloped_haunch_class_A_B
DrainBaseLink	String	Input	Concrete_haunch_to_top_class_A_B

Haunch_Class_C_D_selection	Haunch_Class_	Input	Asphalt haunch to top class C D
AntiSlipGrateShapeCode	String	Input	Pavers_to_edge_class_C_D
BrickSlotShape	String	Input	Pavers_haunch_to_top_class_C_D
DrainBaseLink	String	Input	Asphalt_sloped_haunch_class_C_D
DrainFormationCode	String	Input	Asphalt_haunch_to_top_class_C_D
<			Concrete_haunch_to_top_class_C_D

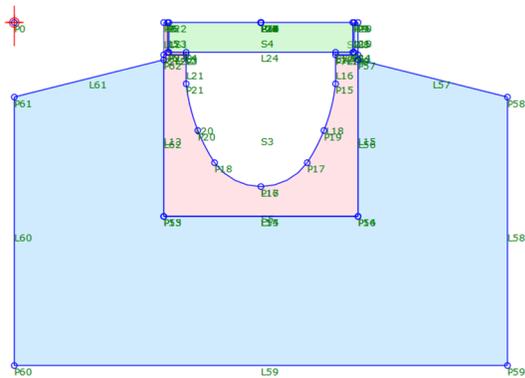
Create parameter



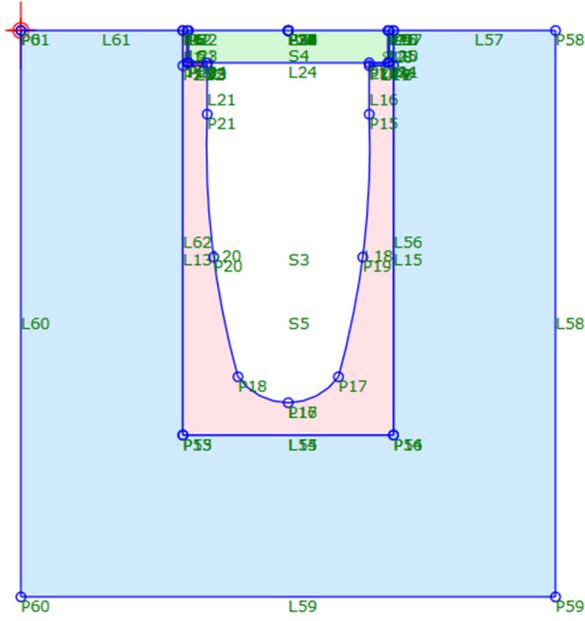
Grass haunch to top



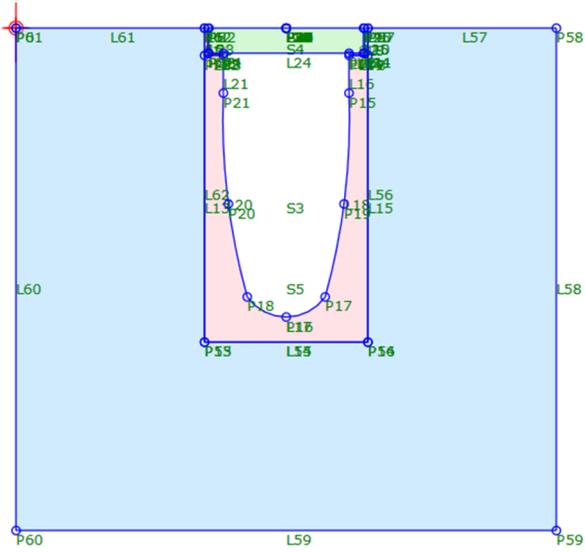
Pavers to edge



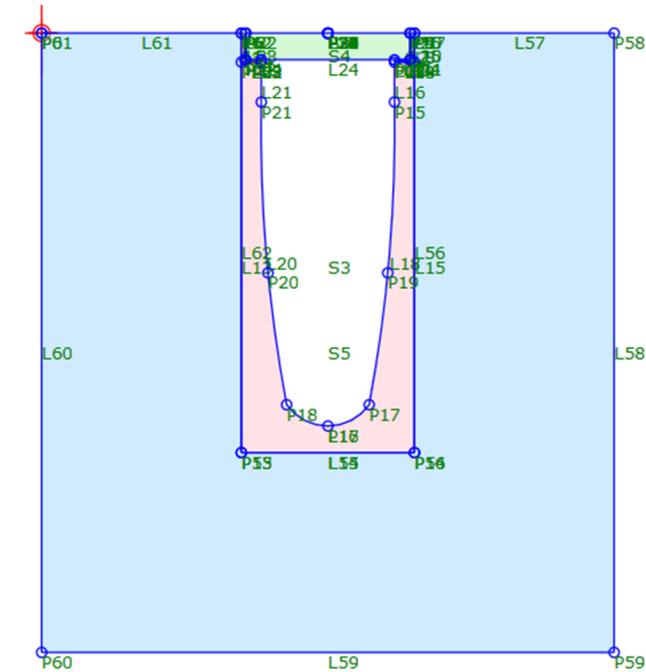
Asphalt sloped haunch



Concrete haunch to top



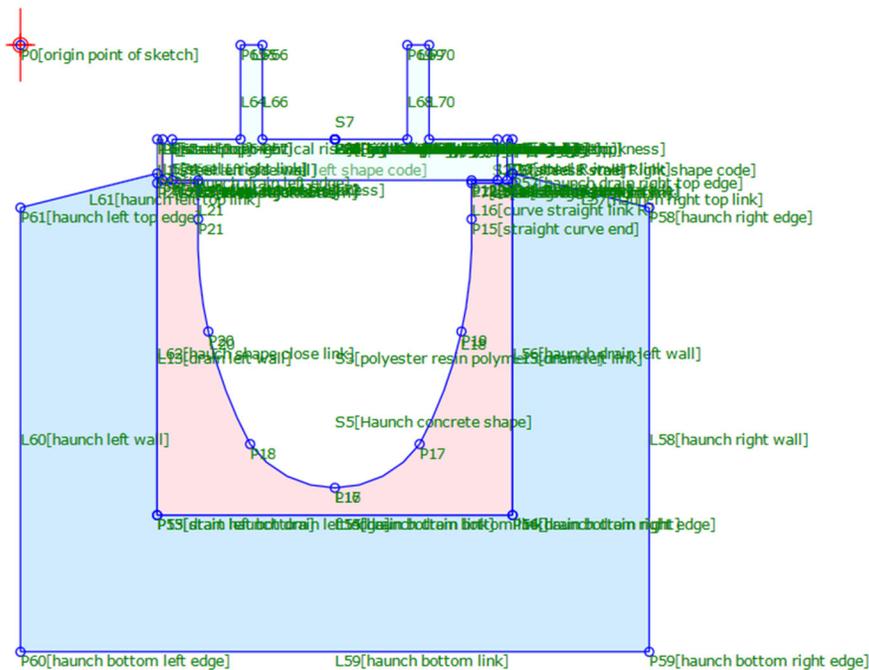
Pavers haunch to top



Asphalt haunch to top

3.5 Point Codes

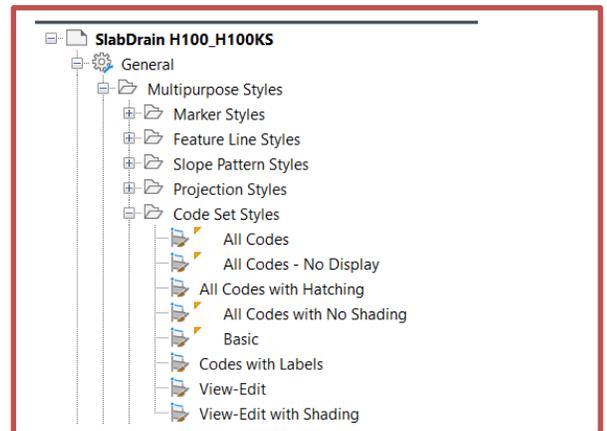
The point codes can be used in the code set styles to generate featurelines at the specific positions on the subassembly. The link codes can be used to display the outline of the subassembly in cross-sections, and also to create surface from the codes. The default values supplied with the subassembly include the standard codes of Top and Formation which are used universally to indicate a Top surface of the corridor model or a Formation surface of the corridor model respectively. The KlassikDrain is indicated by the default link code of KlassikDrain, and the default shape code of KlassikDrain. The grating is indicated by the default link code of edge rail, and the default shape code of edge rail. The haunching is indicated by the default link code of Haunch, and the default shape code of Haunch. All of these codes can be over-ridden by the user. The shape codes are used to enable hatching to be applied in the cross-section views, and also to enable volumes of materials to be generated.



4. Code Set Styles

Code Set Styles are used to control the appearance and labeling of the individual point, link, and shape components of the subassemblies. The many styles required are grouped into Code Sets. Code Set settings are located in the General collection on the Settings tab of the Tool space.

Different code set styles used in the KlassikDrain Code set style template as shown here.



4.1 Import Code Set Styles from one drawing to another

Open the drawing in which KlassikDrain Code Set style has to be imported.

- Run command IMPORTSTYLESANDSETTINGS
- Browse to the location of KlassikDrain Code Set Style template
- Select Styles as desired, check "Import Settings" toggle and click OK
- Warning will be displaying informing that duplicates styles may be overwritten
- Drawing will import styles and settings from KlassikDrain Code Set Style template to this template