InfraWorks and Civil 3D for Rail Projects

Best Practices to Transfer Data

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About the speaker

Cesare is an experienced Digital Engineering Manager and an early adopter of digital delivery technologies. He has more than 15 years' continuous experience using different authoring packages and has interest in researching, developing and implementing digital engineering strategies, methodologies and workflows.

Cesare also brings a strong expertise in developing automation to fulfil delivery requirements, bringing a strong knowledge in different programming languages and computational design. His key competency areas include: BIM standards development, implementation and enforcement; BIM execution plan development and implementation; automated workflows to support digital engineering standards and productivity.

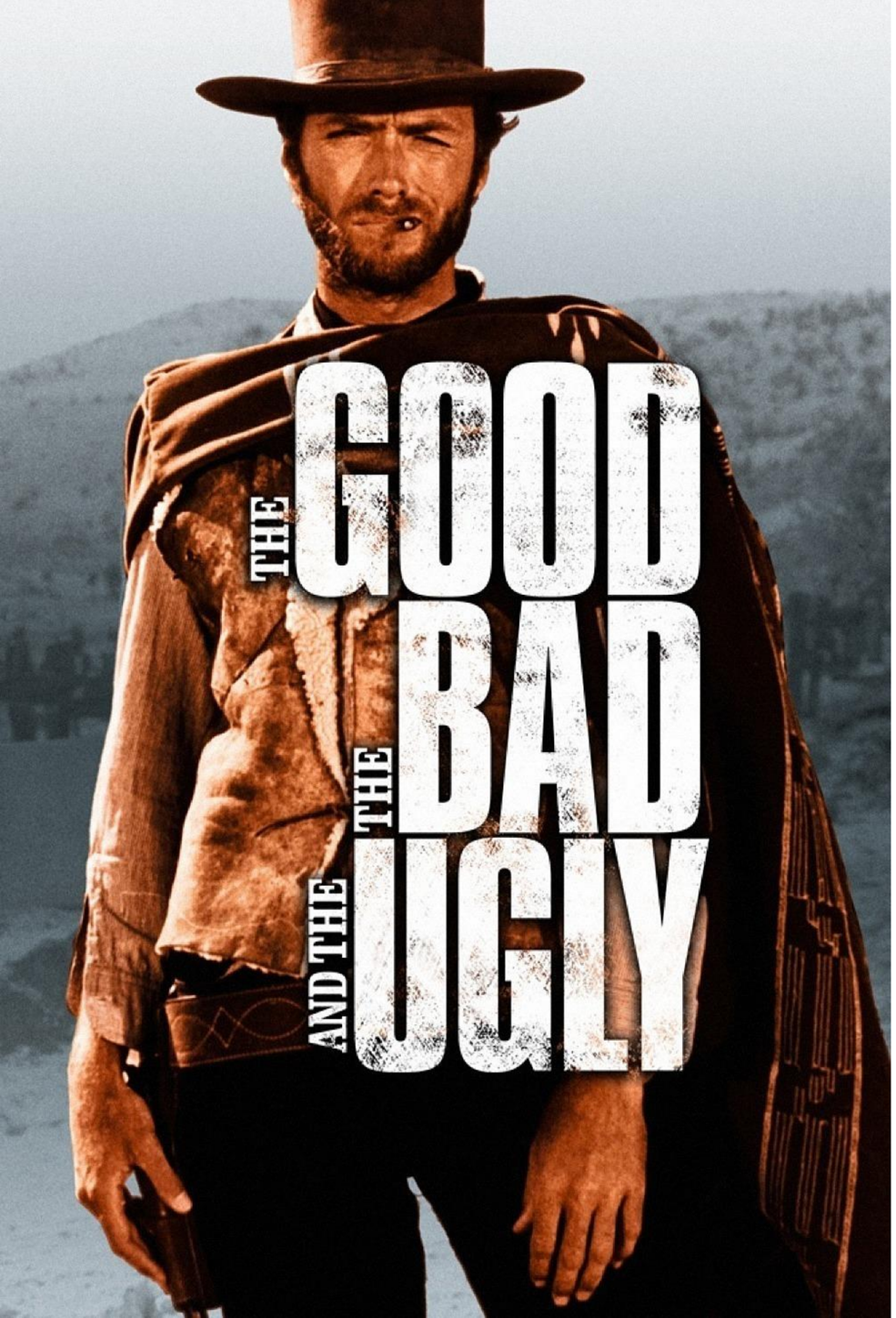
“Parmigiana di melanzane”

- **Main Ingredients**
  - 3 pounds large eggplants, sliced lengthwise into 1/4-inch slices
  - 2 tablespoons coarse salt, or as needed
  - 5 cups vegetable oil for frying
  - 2 tablespoons flour for dredging
- **Tomato Sauce**
  - 2 tablespoons extra-virgin olive oil
  - 1/2 onion, finely chopped
  - 3 cloves garlic, halved
  - 3 (15 ounce) cans tomato puree
  - 8 leaves fresh basil leaves, halved
  - salt to taste
  - 1 1/2 (16 ounce) packages fresh mozzarella cheese, sliced
  - 2 1/2 cups freshly grated Parmesan cheese

- Place a single layer of eggplant slices in a colander sitting on a plate and sprinkle with coarse salt. Cover with a second layer and sprinkle with salt. Repeat with remaining eggplant. Place a plate on top and add a weight to put pressure on the eggplant slices. Let stand at room temperature for about 1 hour.
- Rinse eggplant slices under running cold water to wash off all the salt. Pat dry on all sides with paper towels.
- Heat oil in a deep skillet over medium-high heat. Dredge eggplant slices in flour on both sides and add to the hot oil, working in batches. Deep fry eggplant until golden, 2 to 3 minutes per side.
- Drain on paper towels.
- Heat olive oil in a large pot over medium heat; cook garlic and onion until soft and translucent, about 5 minutes. Add tomato puree, 4 basil leaves, and salt. Cook, stirring often, until sauce starts to thicken, about 20 minutes.
- Remove sauce from heat. Discard garlic and stir in remaining 4 leaves basil.
- Preheat oven to 350 degrees F (175 degrees C).
- Spread a layer of tomato sauce over the bottom of a baking dish. Cover with a single layer of eggplant slices. Top with more sauce, mozzarella slices, and Parmesan cheese.
- Continue making layers, a total of 3 to 5, finishing with tomato sauce and grated Parmesan cheese.
- Bake in the preheated oven until heated through and bubbling, 30 to 40 minutes. Remove from oven and let stand for 20 minutes before serving.

Agenda

- The Good, The Bad, The Ugly
- Setup a collaborative and productive environment for rapid optioneering
- What’s next
- Lesson Learnt



Our three characters

Let do a little game and at the end of the presentation we will try to read the results

http://etc.ch/m8md

Optioneering for large scale projects

- High Speed Rail
- Potential 2 options
  - High Speed Rail → New alignment for 250km/h to 400km/h
  - Faster Rail → Upgrade existing alignment for 160km/h to 200km/h trains
- Special tilt trains that can tilt 5 degrees when going into a corner potentially to be used to increase speed on current network
- Been under investigation since the early 1980s & every federal government since has looked into its feasibility

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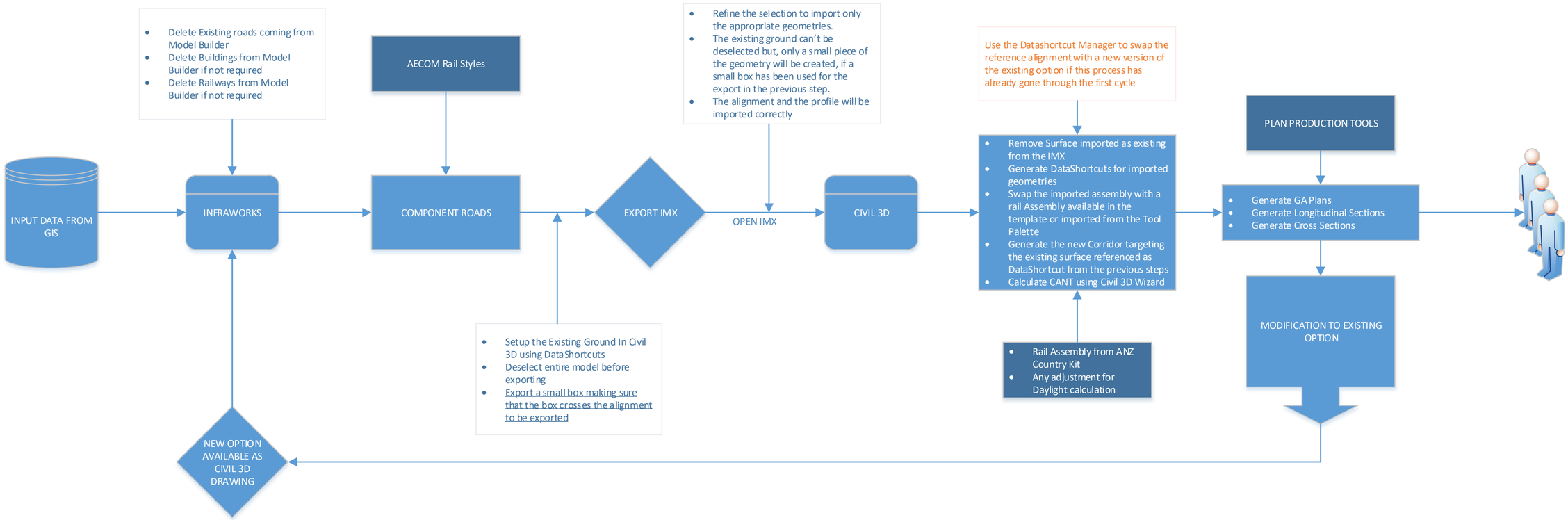
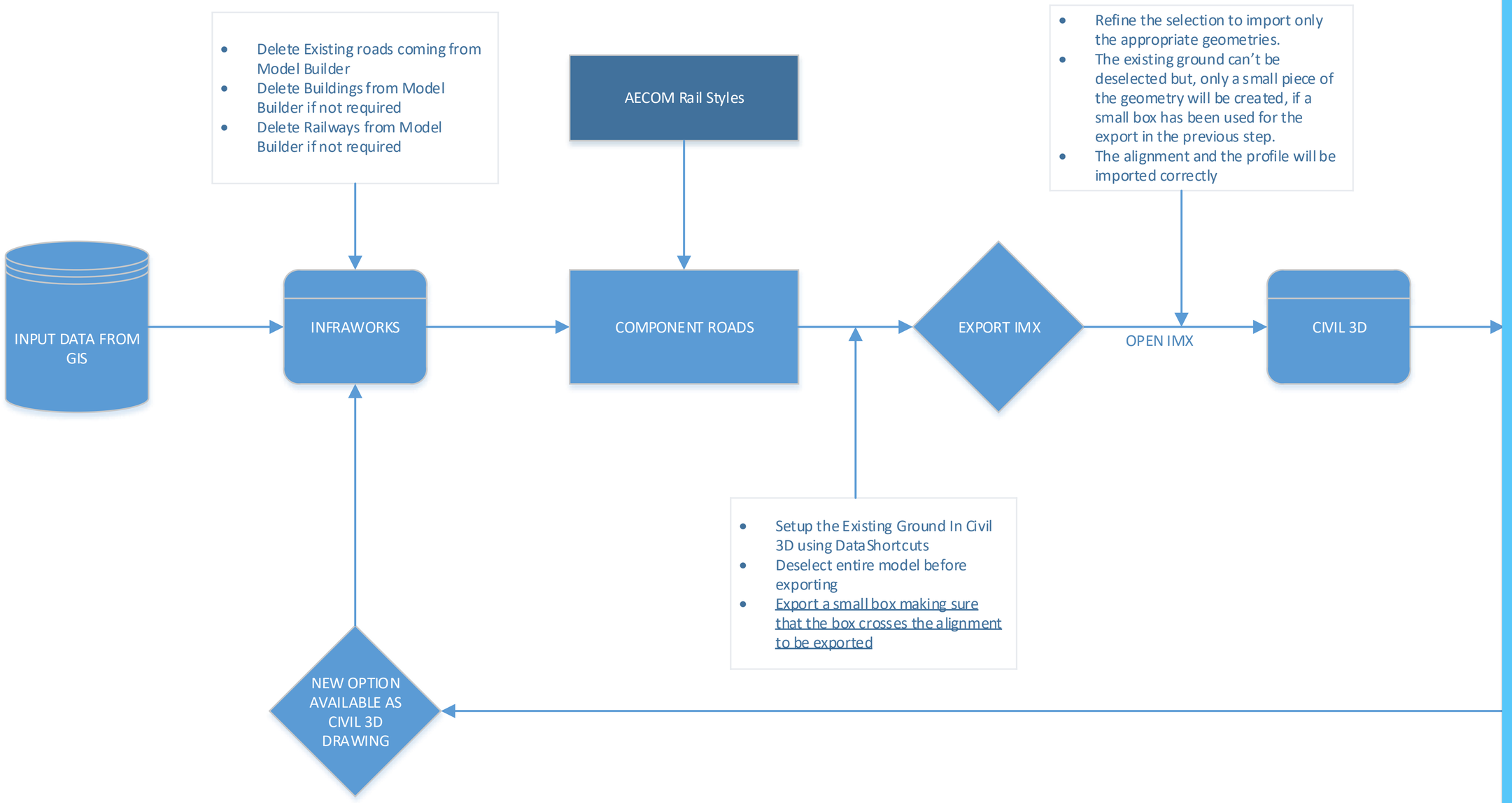
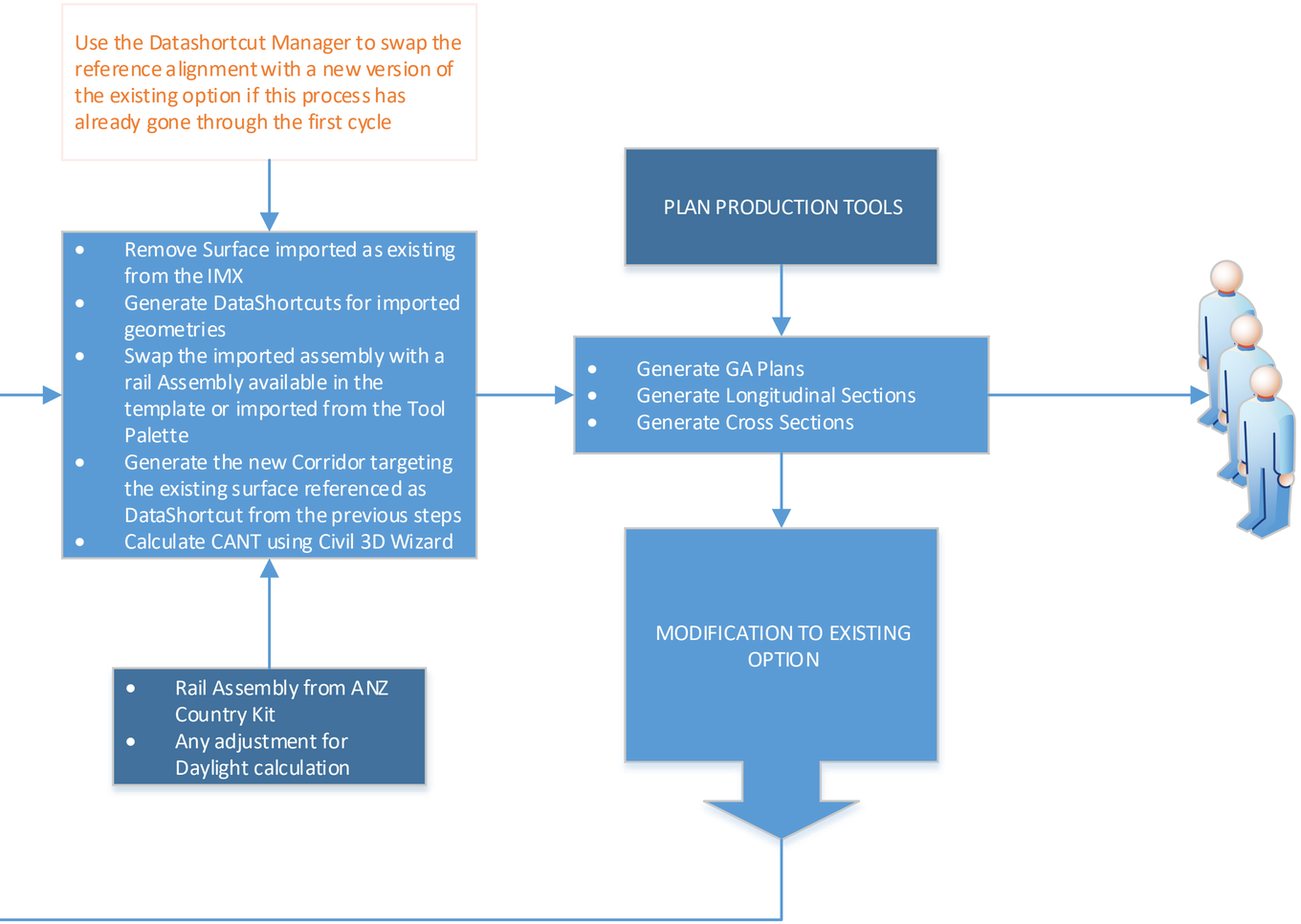
High Level Workflow



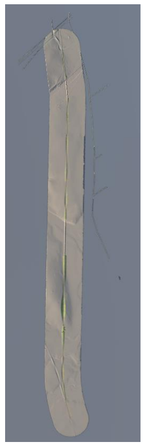
High Level Workflow



High Level Workflow



Infraworks dataset



1m DEM
(offset 250m)

25m DEM
(offset 2000m)

Existing roads, rail, water bodies, major utilities

Aerial photo

- Being preliminary design, Infraworks was chosen as the best software to develop these options
- A GIS portal was already in use to display the alignments & constraints to the client & internally. GIS team provided all of the data for the Infraworks models
- An Infraworks model was created for every deviation and saved in the BIM 360
- 1m DEM in close proximity to the alignment (Not the best idea, maybe 5m was more appropriate)

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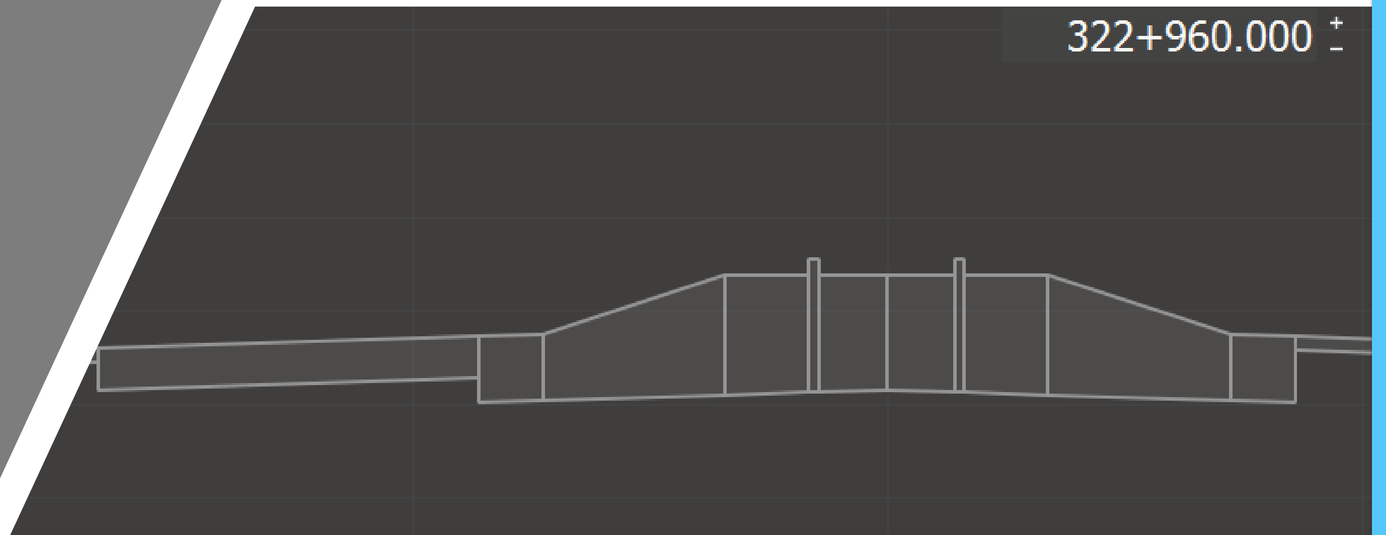
Infraworks dataset

GOOD

- Generally easy to knock up a quick alignment
- They look pretty
- Bridges especially look great
- Video creation is extremely easy
- Exporting web viewable models
- Templates have pavement profiles allowing boxed volume calculations



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Infraworks dataset (Cons)

- **Speed**
  - Model regeneration & profiling of alignments took a long time
  - 10km long routes were a struggle
  - 30km option was painful to the extent that the vertical needed to be modelled in Civil 3D
  - Computer CPU is maxxed out, whilst graphic card is barely used

- **Exporting**
  - Cannot export strings or sections directly out of IW
  - Must export to Civil 3D
  - IMX exports are massive & take a long time to export
  - FBX exports are pretty much useless

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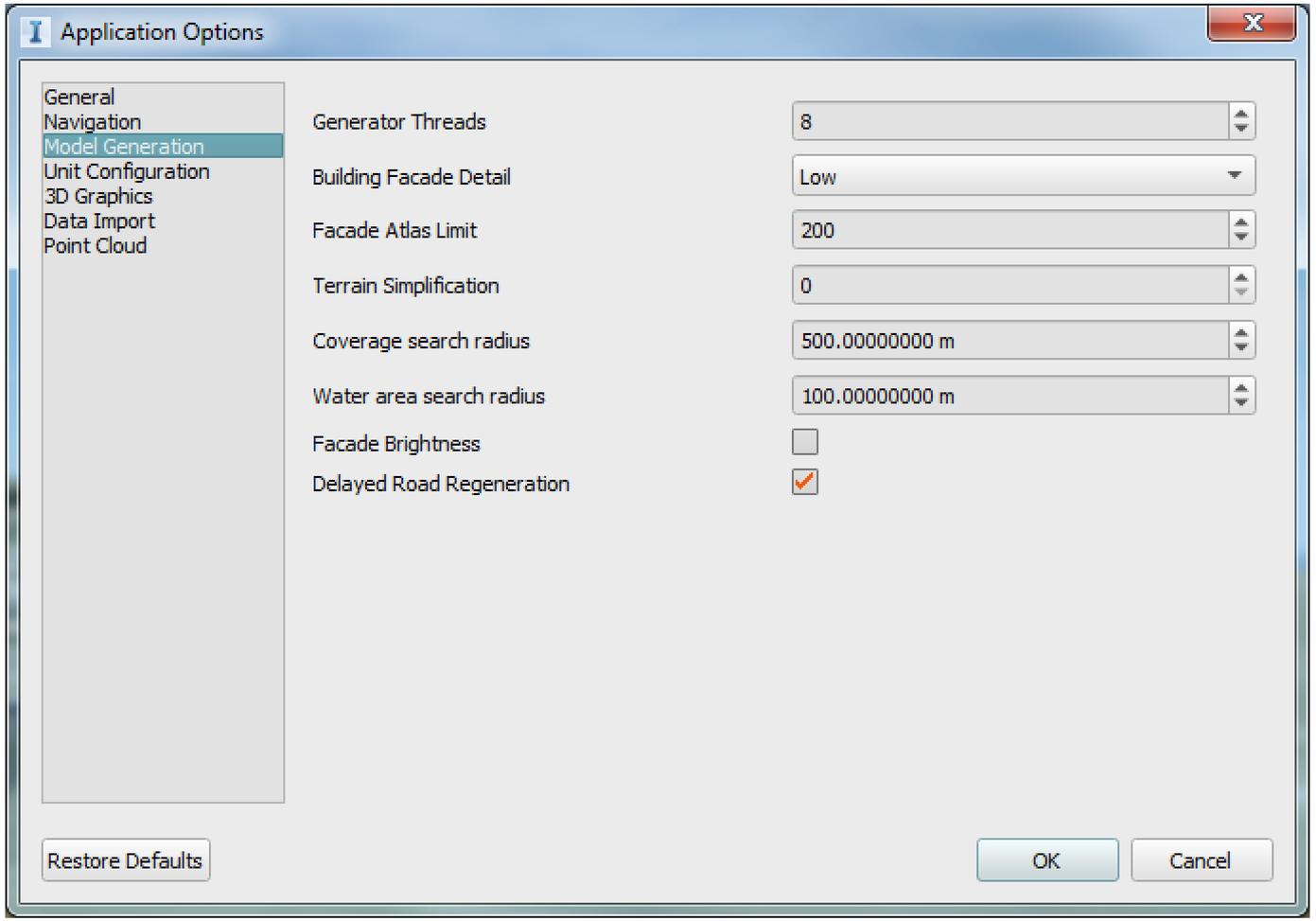
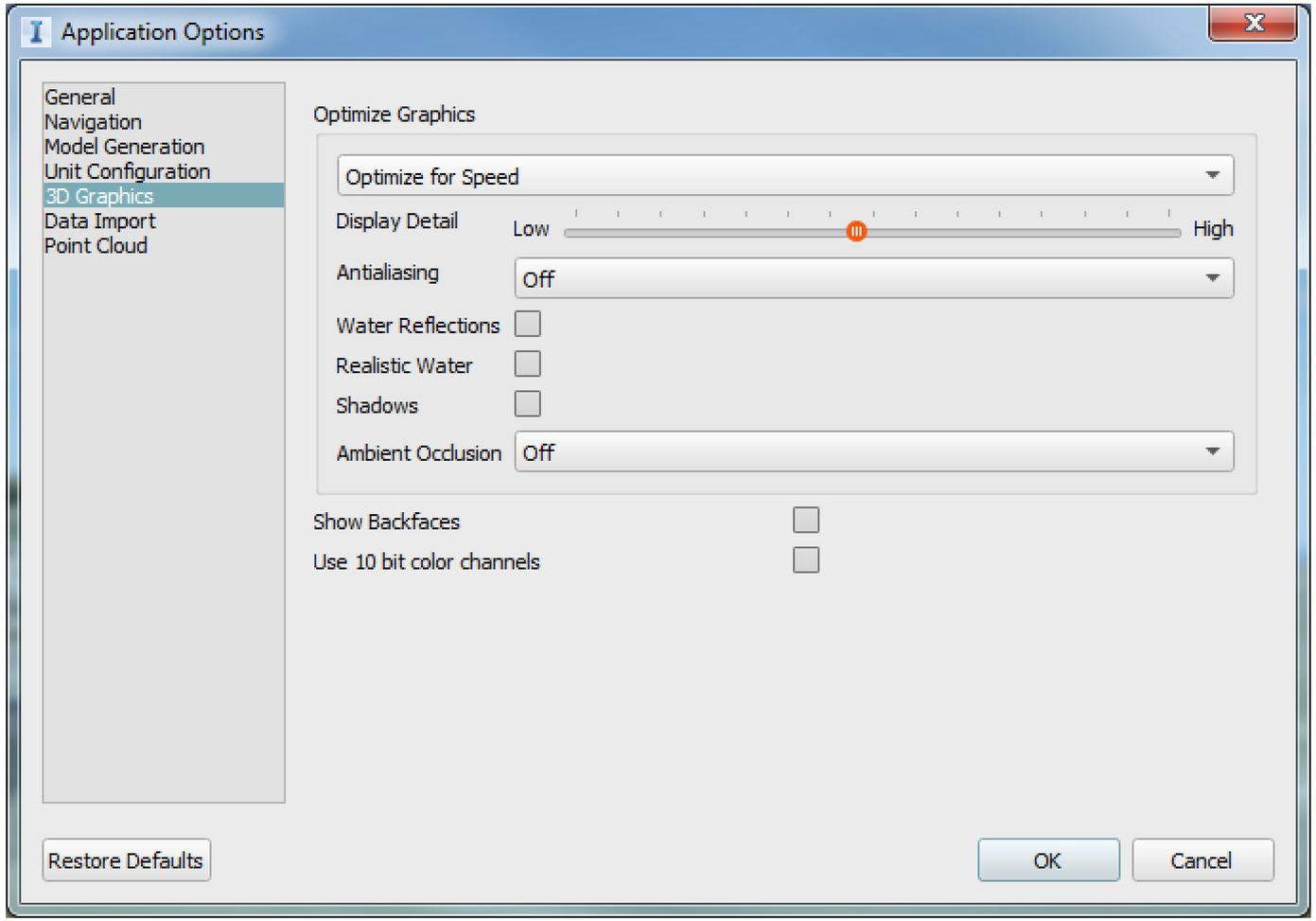
Performance Setup

Performance options



- Activate the **Delayed Road Regeneration**

Performance options



- Optimize for speed

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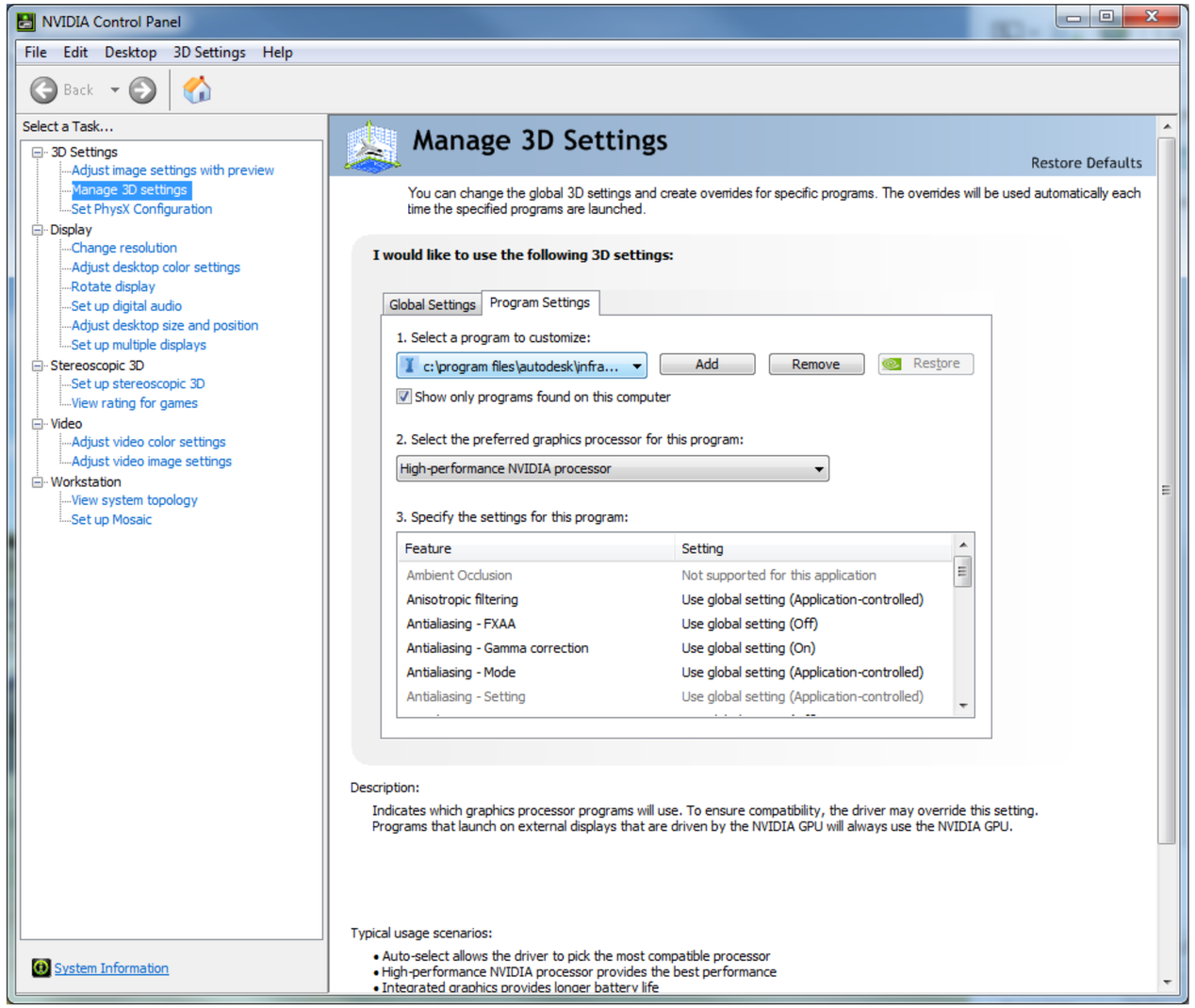
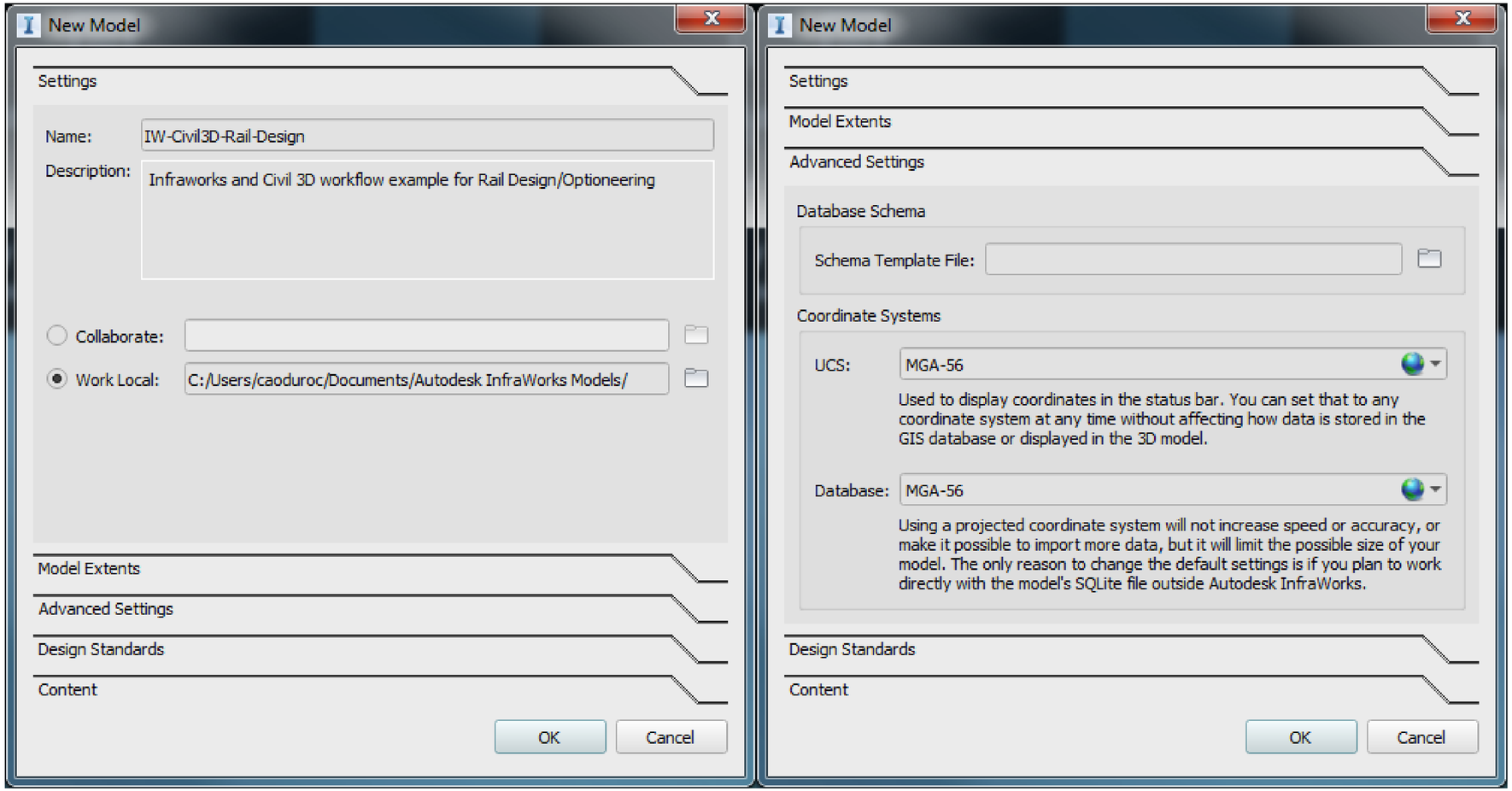
Performance options



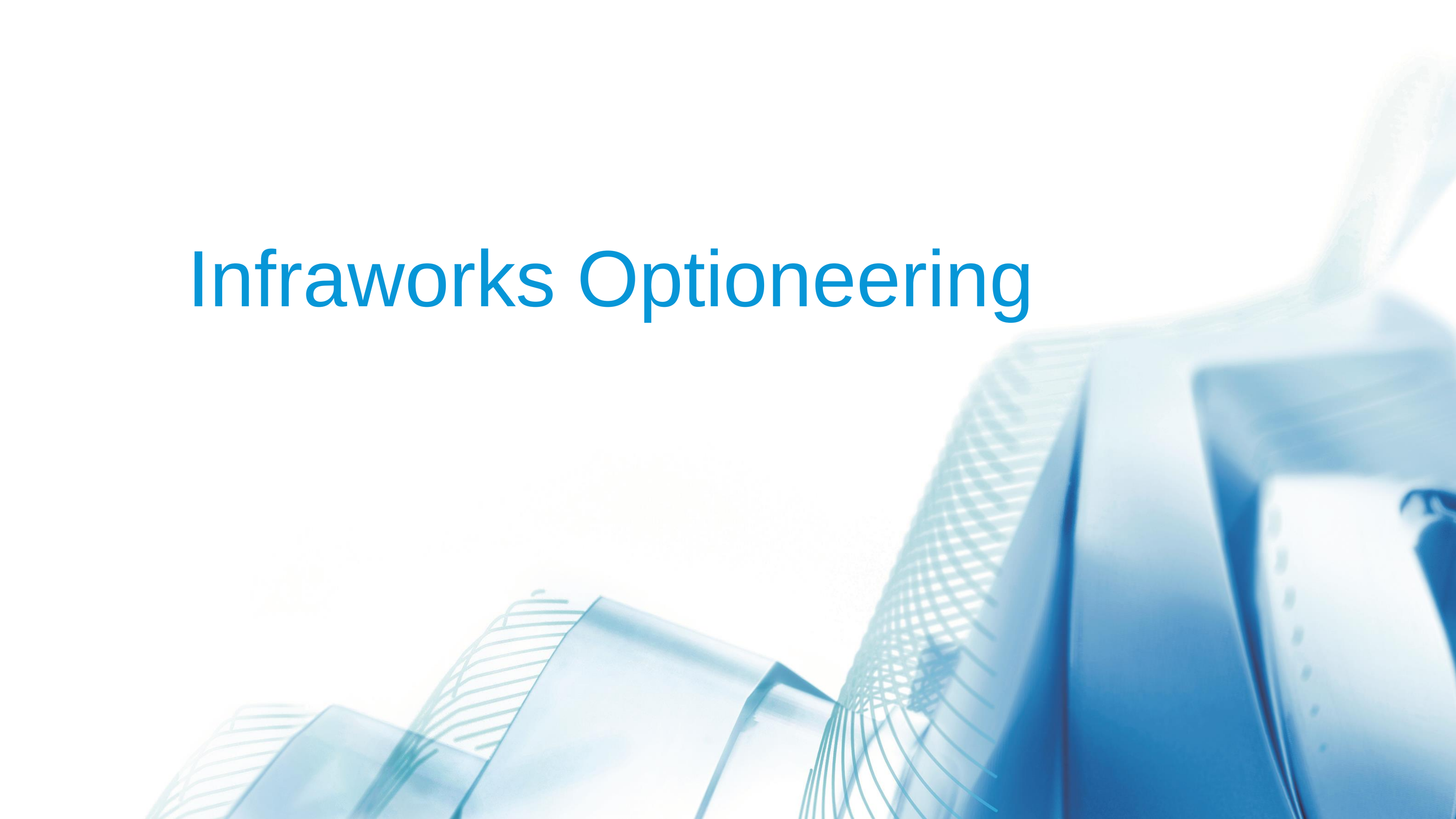
- Add Infraworks in the list of programs that uses NVIDIA GPU processor, from the NVIDIA Control Panel

Create Infraworks model

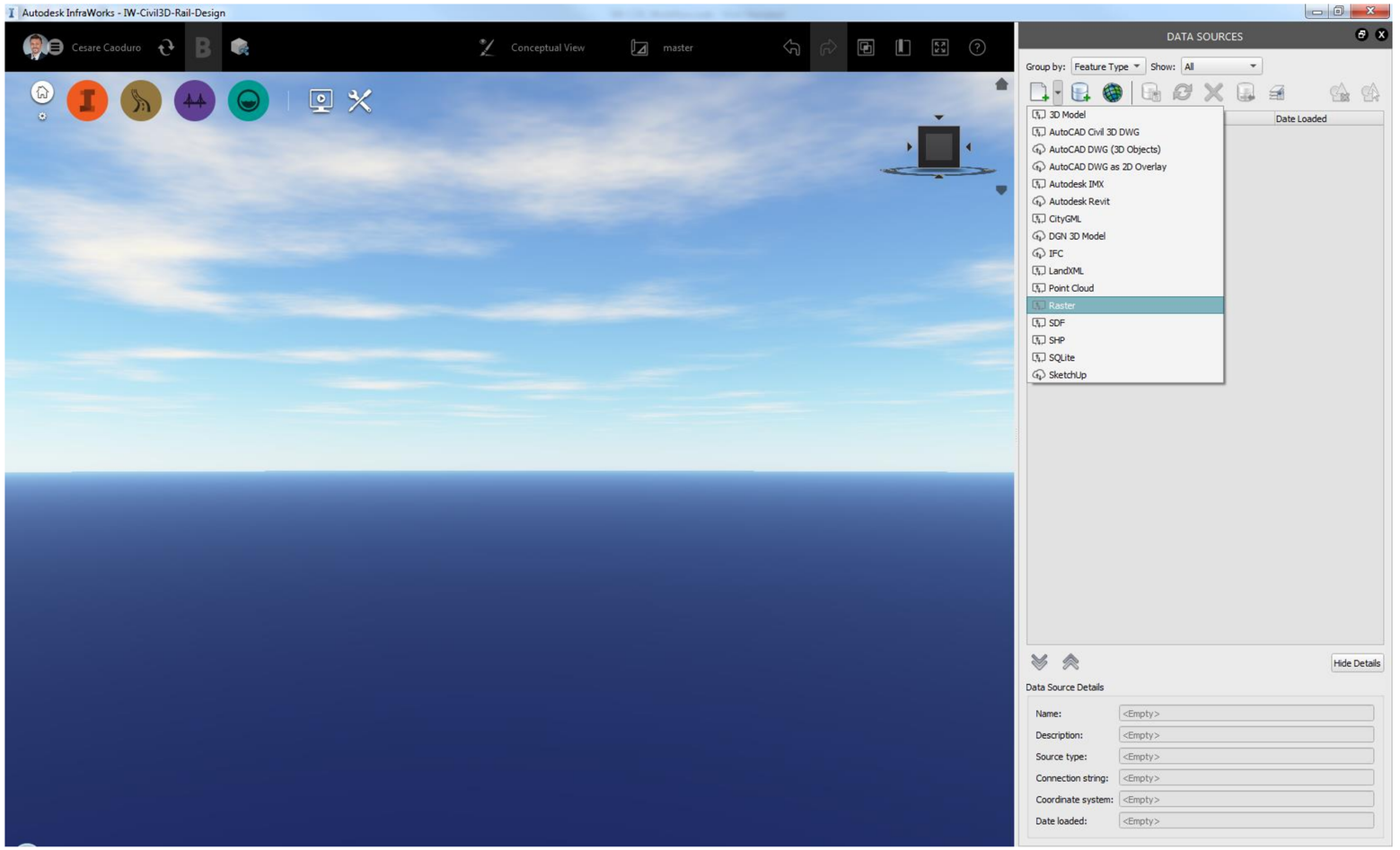


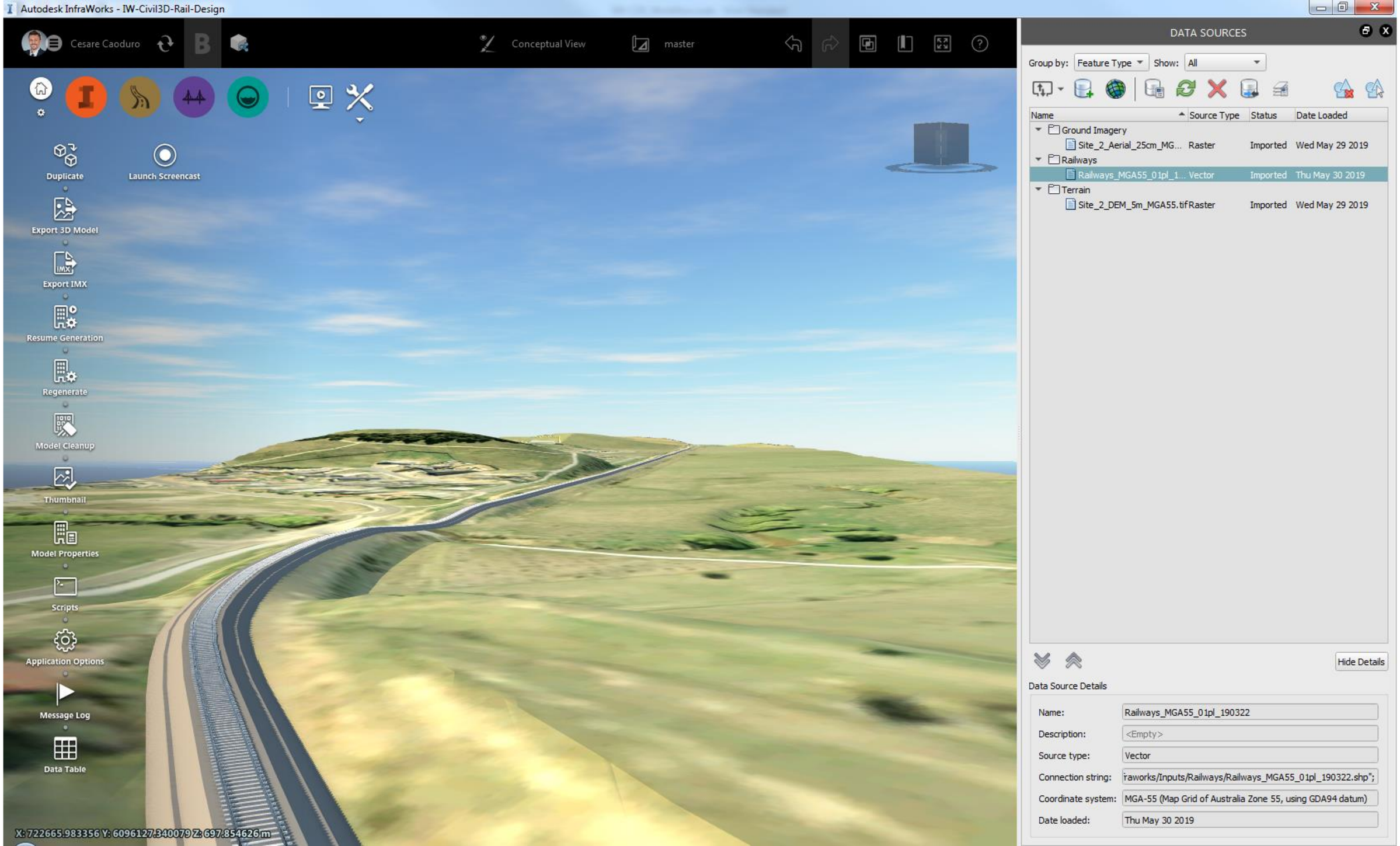
- Create a new Infraworks model
- Assign the correct coordinate system

Infraworks Optioneering



Add data sources




Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Conceptual View
master
Duplicate
Launch Screencast
Export 3D Model
Export IMX
Resume Generation
Regenerate
Model Cleanup
Thumbnail
Model Properties
Scripts
Application Options
Message Log
Data Table
X: 722665.983356 Y: 6096127.340079 Z: 697.854626 m
DATA SOURCES
Group by: Feature Type
Show: All
Name
Source Type
Status
Date Loaded
Ground Imagery
Site_2_Aerial_25cm_MG... Raster Imported Wed May 29 2019
Railways
Railways_MGA55_01pl_1... Vector Imported Thu May 30 2019
Terrain
Site_2_DEM_5m_MGA55.tif Raster Imported Wed May 29 2019
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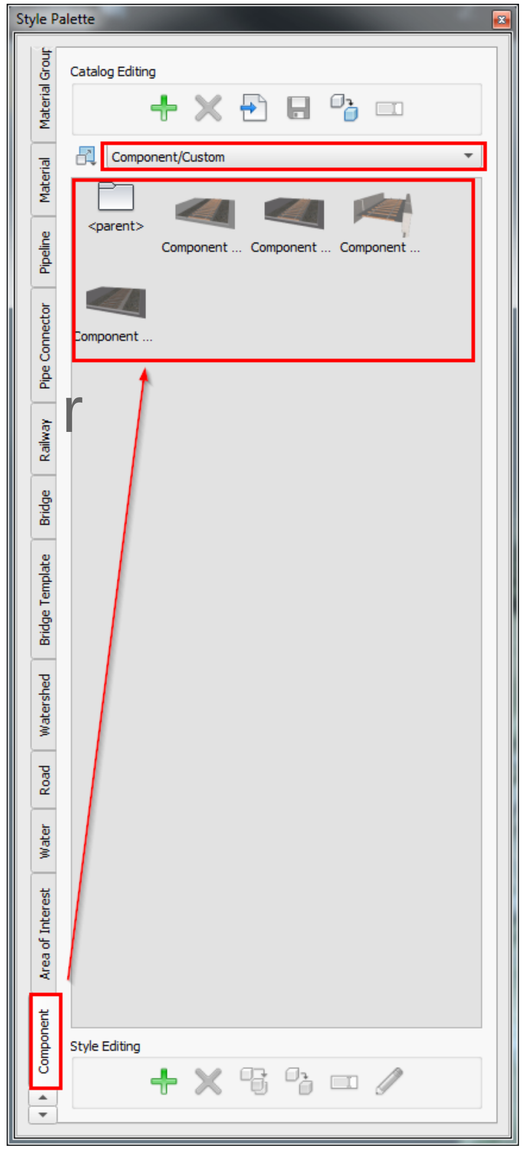
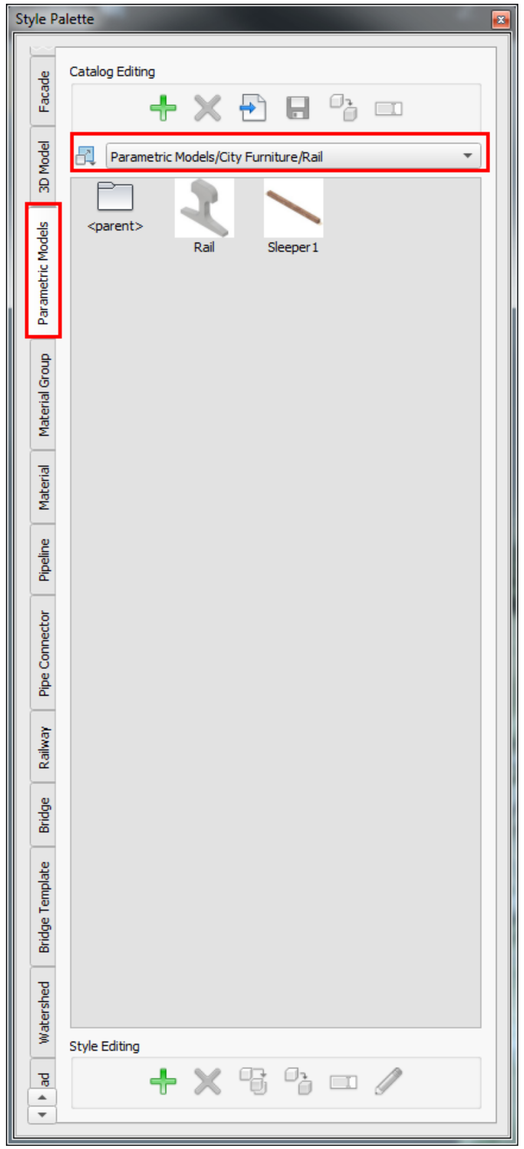
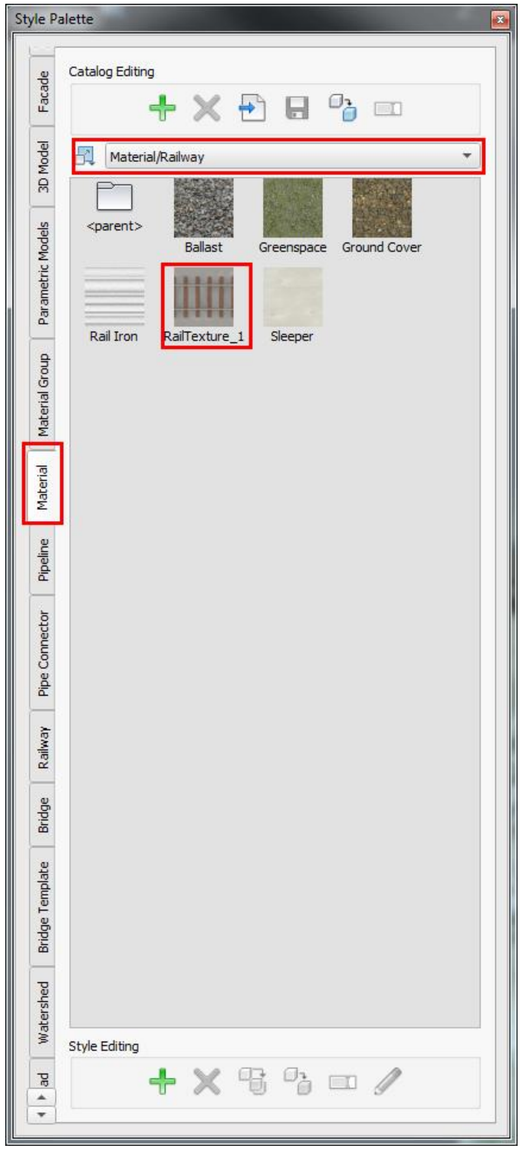
Coordinate system: MGA-55 (Map Grid of Australia Zone 55, using GDA94 datum)
Date loaded: Thu May 30 2019

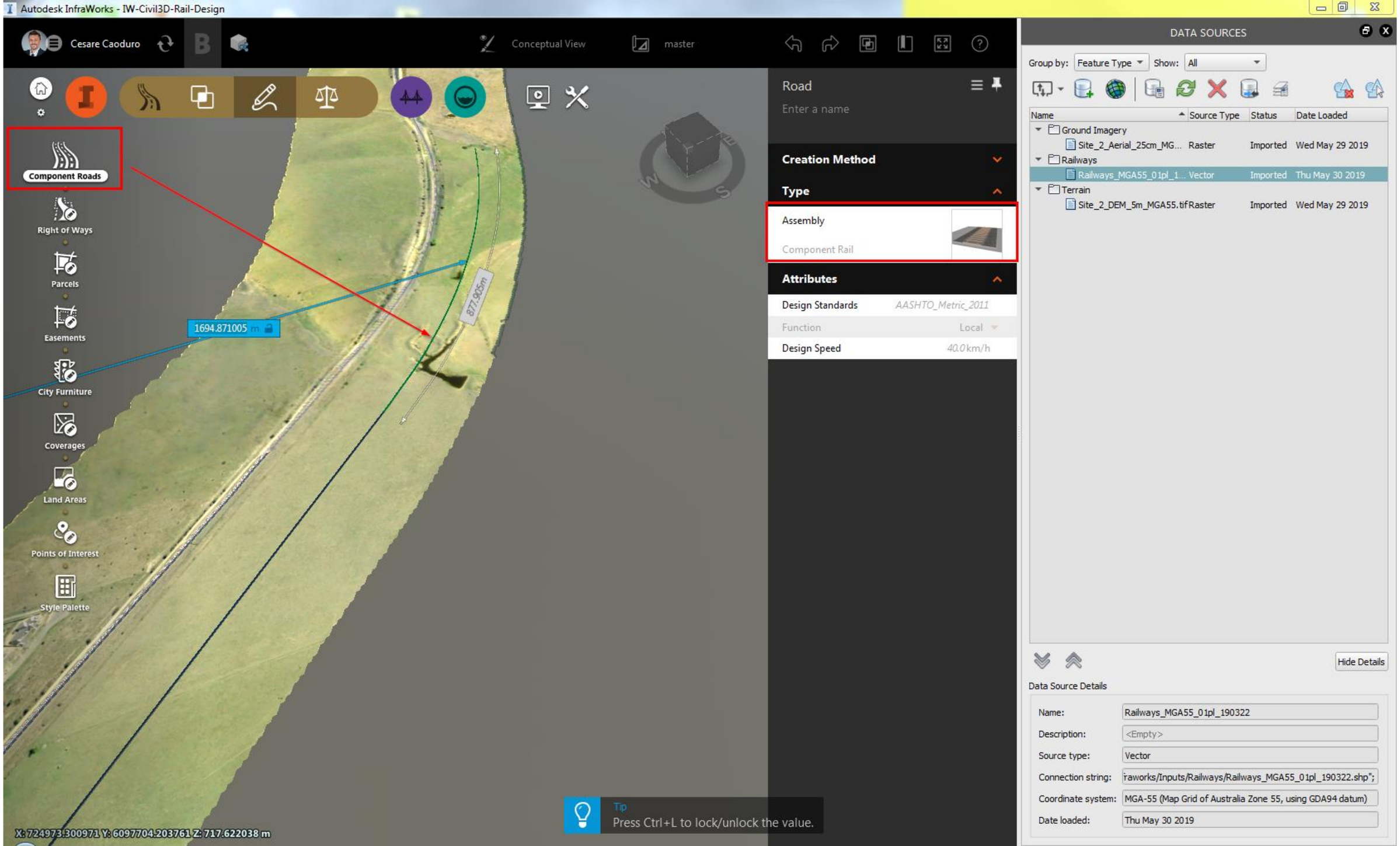
Rail Component Content







- Verify content is available in the Style Palette


Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Conceptual View
master
Component Roads
Right of Ways
Parcels
Easements
City Furniture
Coverages
Land Areas
Points of Interest
Style Palette
1694.871005 m
871.905m
Road
Enter a name
Creation Method
Type
Assembly
Component Rail
Attributes
Design Standards AASHTO_Metric_2011
Function Local
Design Speed 40.0 km/h
DATA SOURCES
Group by: Feature Type
Show: All
Name
Source Type
Status
Date Loaded
Ground Imagery
Site_2_Aerial_25cm_MG... Raster Imported Wed May 29 2019
Railways
Railways_MGA55_01pl_1... Vector Imported Thu May 30 2019
Terrain
Site_2_DEM_5m_MGA55.tif Raster Imported Wed May 29 2019
Hide Details
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Coordinate system: MGA-55 (Map Grid of Australia Zone 55, using GDA94 datum)
Date loaded: Thu May 30 2019
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Press Ctrl+L to lock/unlock the value.
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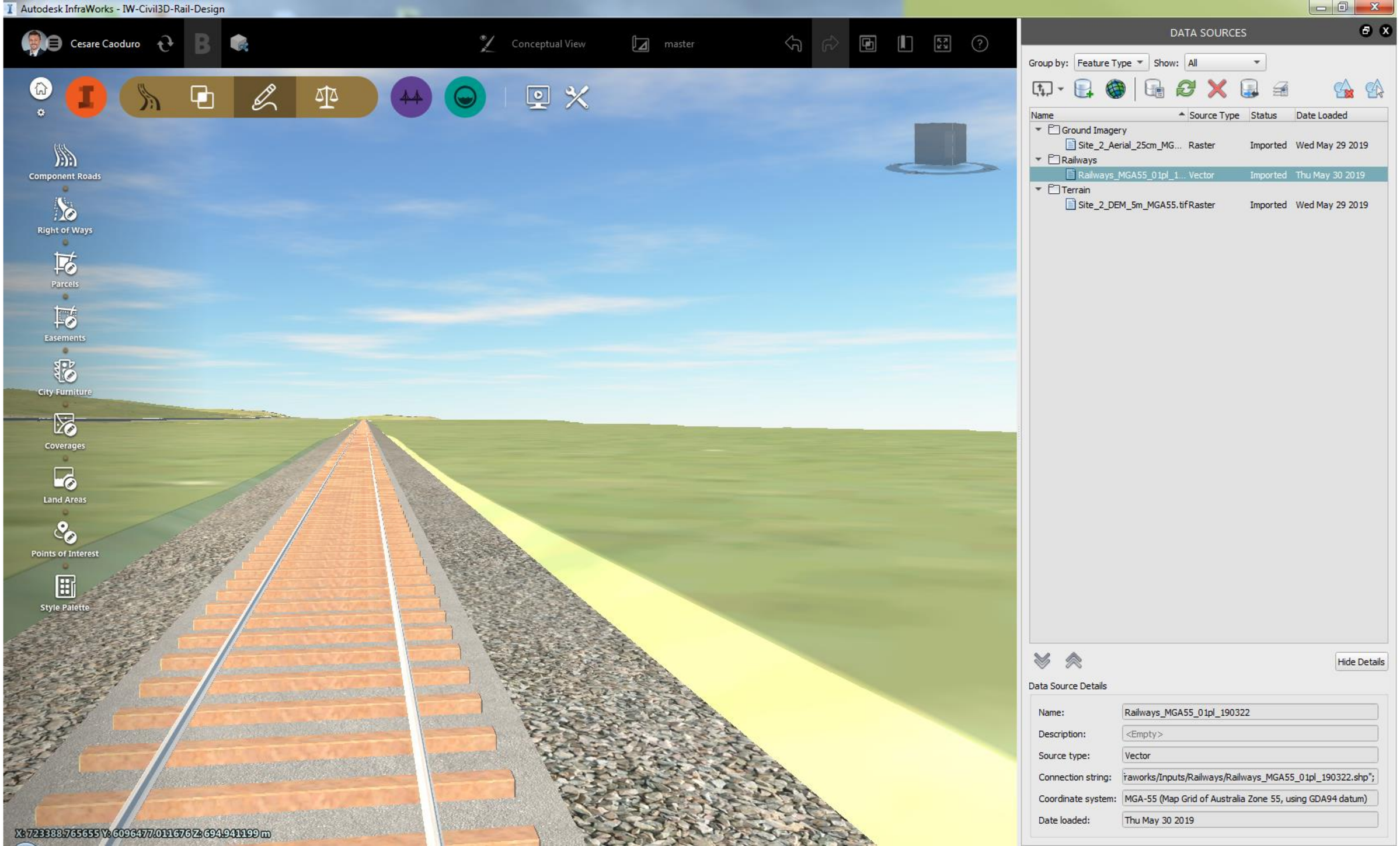
Autodesk InfraWorks - IW-Civil3D-Rail-Design
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Conceptual View
master
Component Roads
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Style Palette
X: 723388.765655 Y: 6096477.011676 Z: 694.941199 m
DATA SOURCES
Group by: Feature Type
Show: All
Name
Source Type
Status
Date Loaded
Ground Imagery
Site_2_Aerial_25cm_MG... Raster Imported Wed May 29 2019
Railways
Railways_MGA55_01pl_1... Vector Imported Thu May 30 2019
Terrain
Site_2_DEM_5m_MGA55.tif Raster Imported Wed May 29 2019
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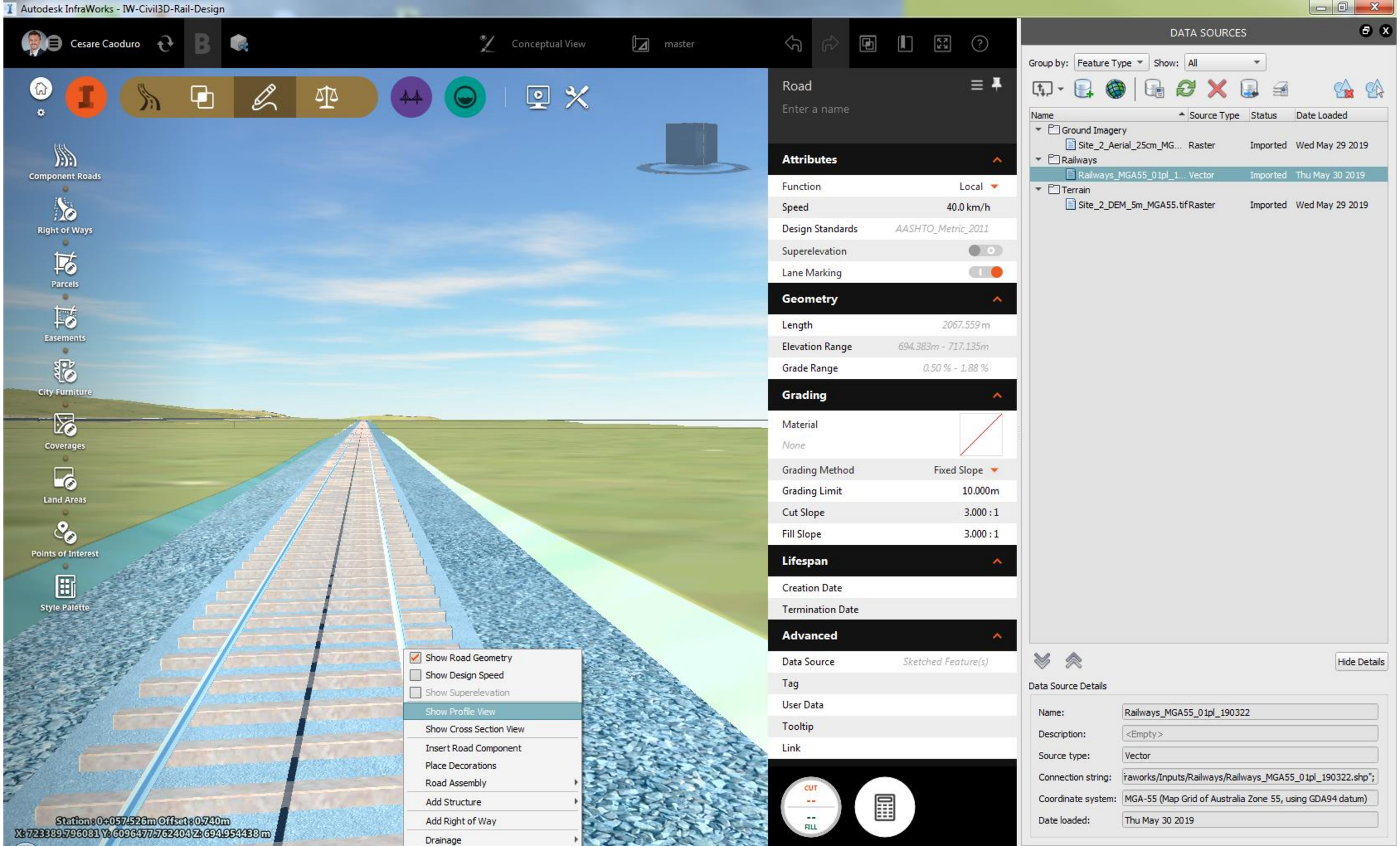
Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Conceptual View
master
Component Roads
Right of Ways
Parcels
Easements
City Furniture
Coverages
Land Areas
Points of Interest
Style Palette
Show Road Geometry
Show Design Speed
Show Superelevation
Show Profile View
Show Cross Section View
Insert Road Component
Place Decorations
Road Assembly
Add Structure
Add Right of Way
Drainage
Station : 0+057.526m Offset : 0.740m
X: 723389.796081 Y: 6096477.762404 Z: 694.954438 m
Road
Enter a name
Attributes
Function Local
Speed 40.0 km/h
Design Standards AASHTO_Metric_2011
Superelevation
Lane Marking
Geometry
Length 2067.559 m
Elevation Range 694.383m - 717.135m
Grade Range 0.50 % - 1.88 %
Grading
Material
None
Grading Method Fixed Slope
Grading Limit 10.000m
Cut Slope 3.000 : 1
Fill Slope 3.000 : 1
Lifespan
Creation Date
Termination Date
Advanced
Data Source Sketched Feature(s)
Tag
User Data
Tooltip
Link
CUT
FILL
DATA SOURCES
Group by: Feature Type
Show: All
Name
Source Type
Status
Date Loaded
Ground Imagery
Site_2_Aerial_25cm_MG... Raster Imported Wed May 29 2019
Railways
Railways_MGA55_01pl_1... Vector Imported Thu May 30 2019
Terrain
Site_2_DEM_5m_MGA55.tif Raster Imported Wed May 29 2019
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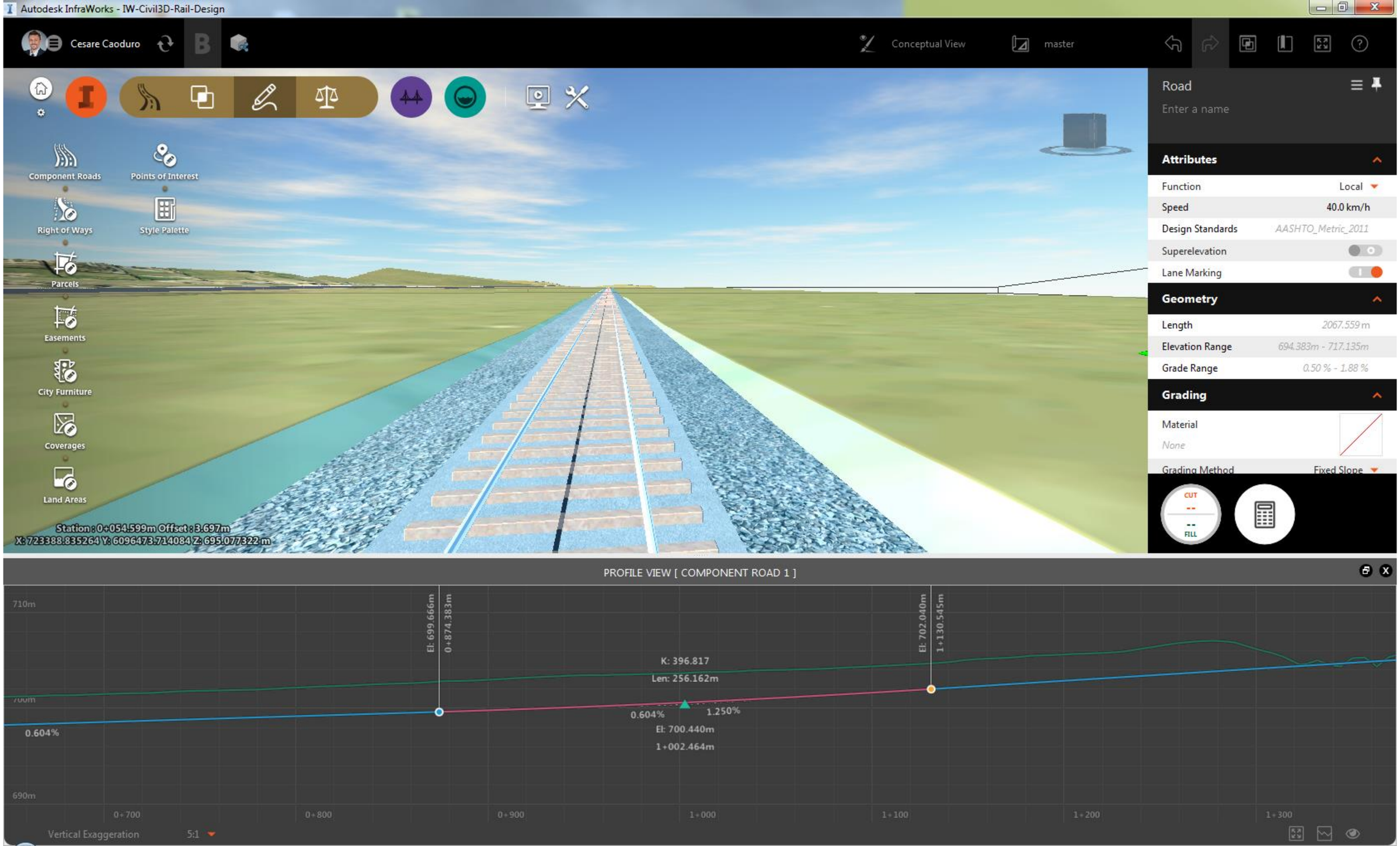
Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Conceptual View
master
Component Roads
Points of Interest
Right of Ways
Style Palette
Parcels
Easements
City Furniture
Coverages
Land Areas
Station : 0+054.599m Offset : 3.697m
X: 723388.835264 Y: 6096473.714084 Z: 695.077322 m
Road
Enter a name
Attributes
Function
Local
Speed
40.0 km/h
Design Standards
AASHTO_Metric_2011
Superelevation
Lane Marking
Geometry
Length
2067.559 m
Elevation Range
694.383m - 717.135m
Grade Range
0.50 % - 1.88 %
Grading
Material
None
Grading Method
Fixed Slope
CUT
FILL
PROFILE VIEW [COMPONENT ROAD 1]
710m
690m
El: 699.666m
0+874.383m
El: 702.040m
1+130.545m
K: 396.817
Len: 256.162m
0.604%
1.250%
0.604%
El: 700.440m
1+002.464m
0+700
0+800
0+900
1+000
1+100
1+200
1+300
Vertical Exaggeration
5:1


Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Engineering View
Option1
Option1
master
Add
Component Roads
Right of Ways
Parcels
Easements
City Furniture
Coverages
Land Areas
Points of Interest
Style Palette
710.0
700.0
Attributes
Function
Local
Speed
40.0 km/h
Design Standards
AASHTO_Metric_2011
Superelevation
Lane Marking
Geometry
Length
2067.559 m
Elevation Range
694.383m - 717.135m
Grade Range
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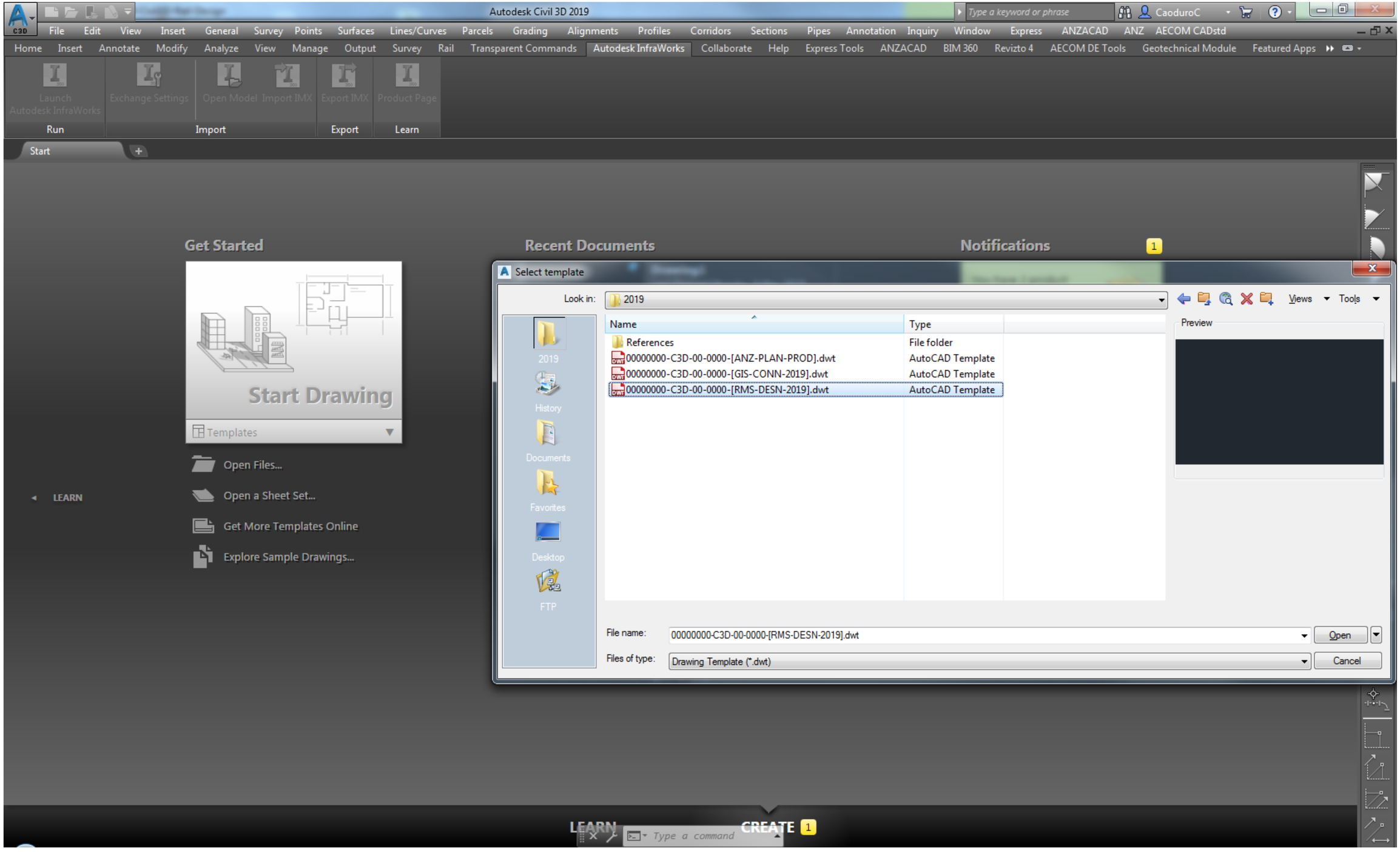
Grading
Material
None
Grading Method
Fixed Slope
Grading Limit
10.000m
Cut Slope
3.000 : 1
Fill Slope
3.000 : 1
Lifespan
Creation Date
Termination Date
Advanced
Data Source
Sketched Feature(s)
Tag
User Data
Tooltip
Link
CUT
FILL
Station : 0+735.794m Offset : 26.604m
X: 723982.485159 Y: 6096808.722001 Z: 701.808723 m


Autodesk Civil 3D 2019
Type a keyword or phrase
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File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Launch Autodesk InfraWorks
Exchange Settings
Open Model
Import IMX
Export IMX
Product Page
Run
Import
Export
Learn
Start
Get Started
Start Drawing
Templates
Open Files...
Open a Sheet Set...
Get More Templates Online
Explore Sample Drawings...
LEARN
Recent Documents
Notifications
1
Select template
Look in:
2019
Views
Tools
Name
Type
References
File folder
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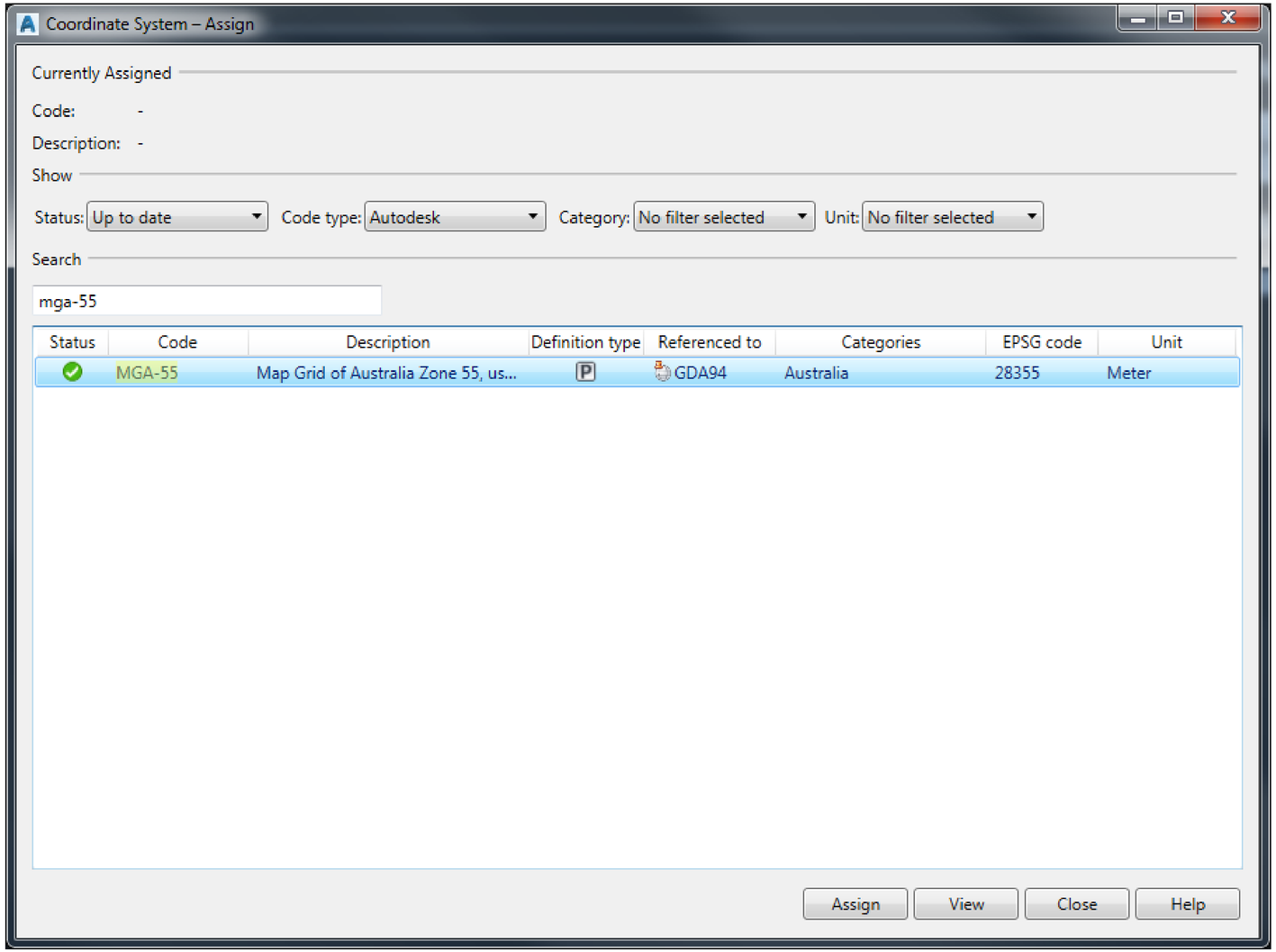
AutoCAD Template
00000000-C3D-00-0000-[RMS-DESN-2019].dwt
AutoCAD Template
Preview
2019
History
Documents
Favorites
Desktop
FTP
File name:
00000000-C3D-00-0000-[RMS-DESN-2019].dwt
Open
Files of type:
Drawing Template (*.dwt)
Cancel
LEARN
Type a command
CREATE
1



Assign the appropriate coordinate system using _**MAPCSASSIGN**

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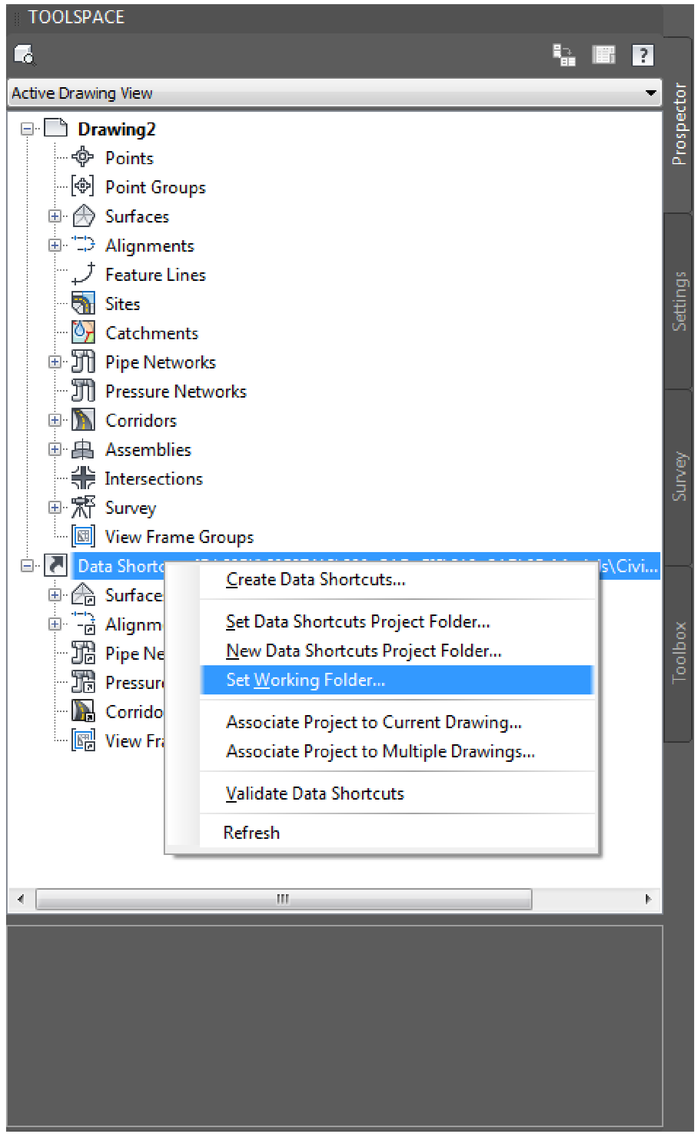
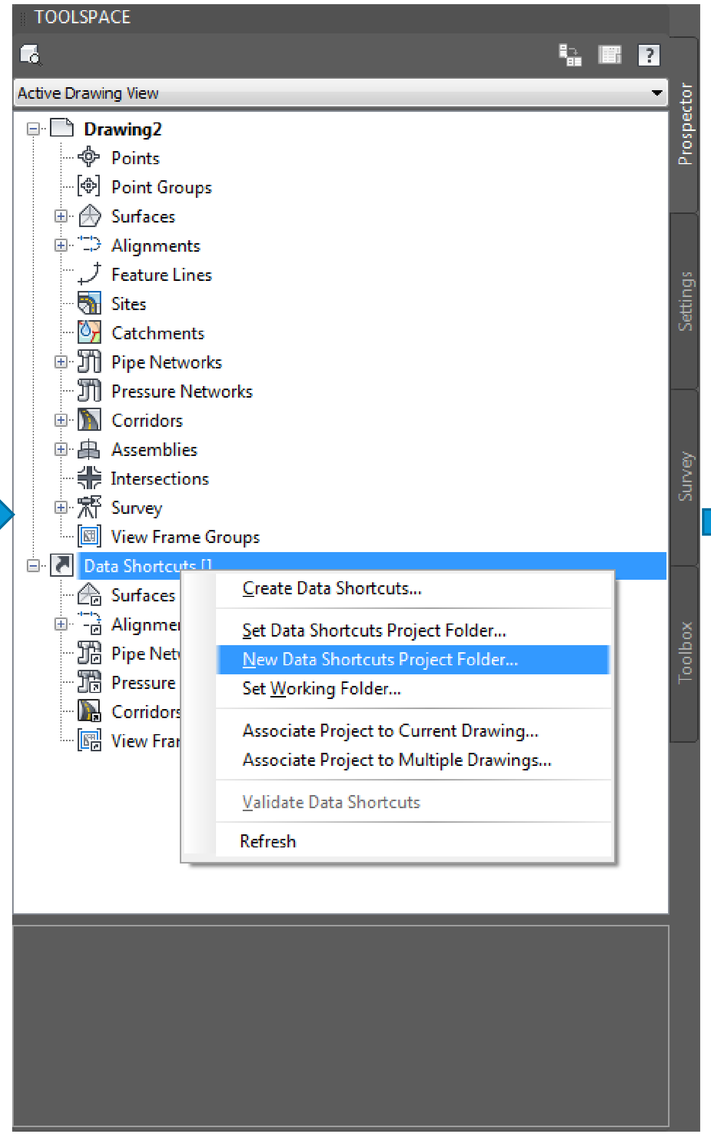
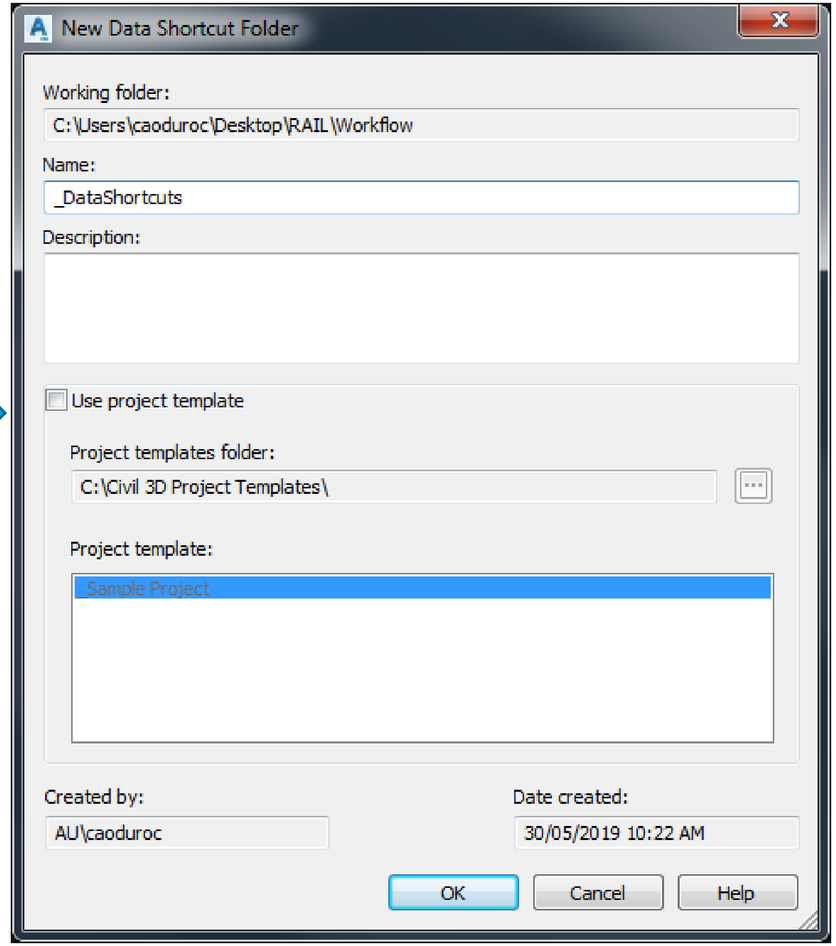
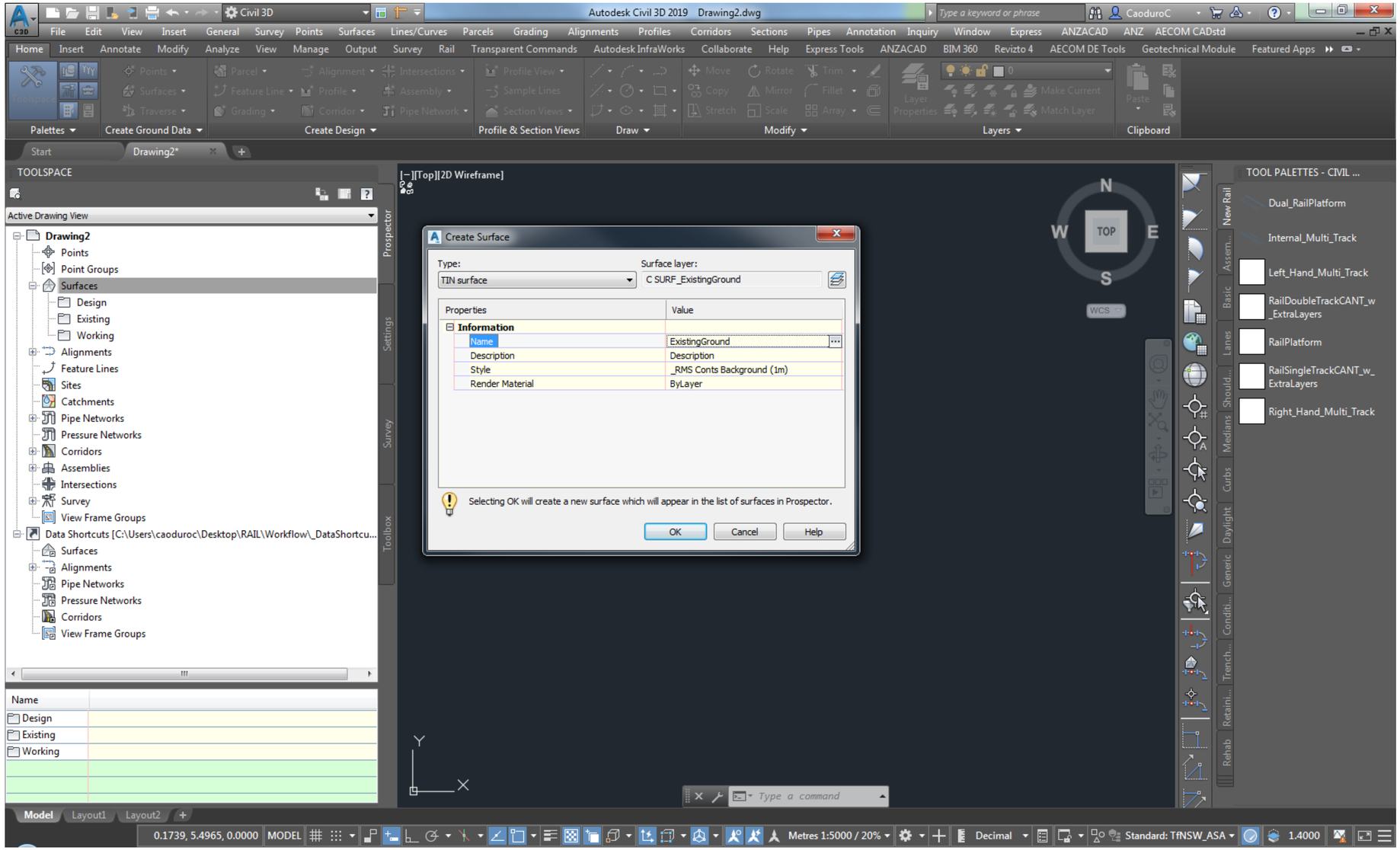
Establish Data Shortcuts



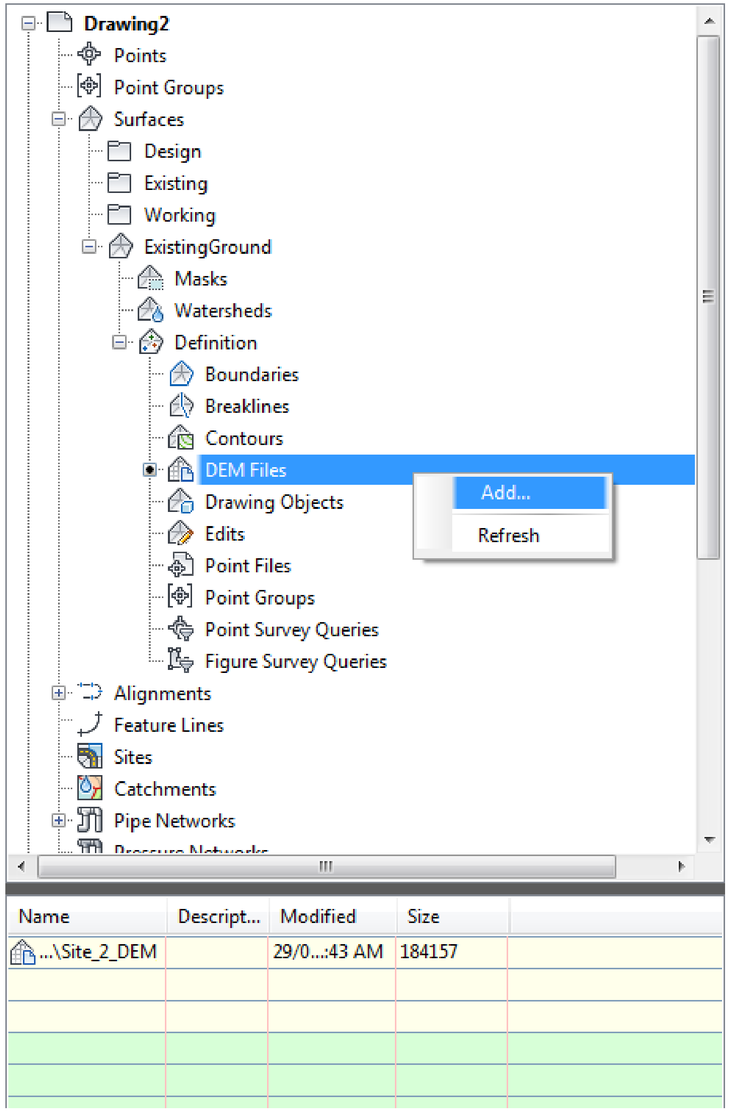


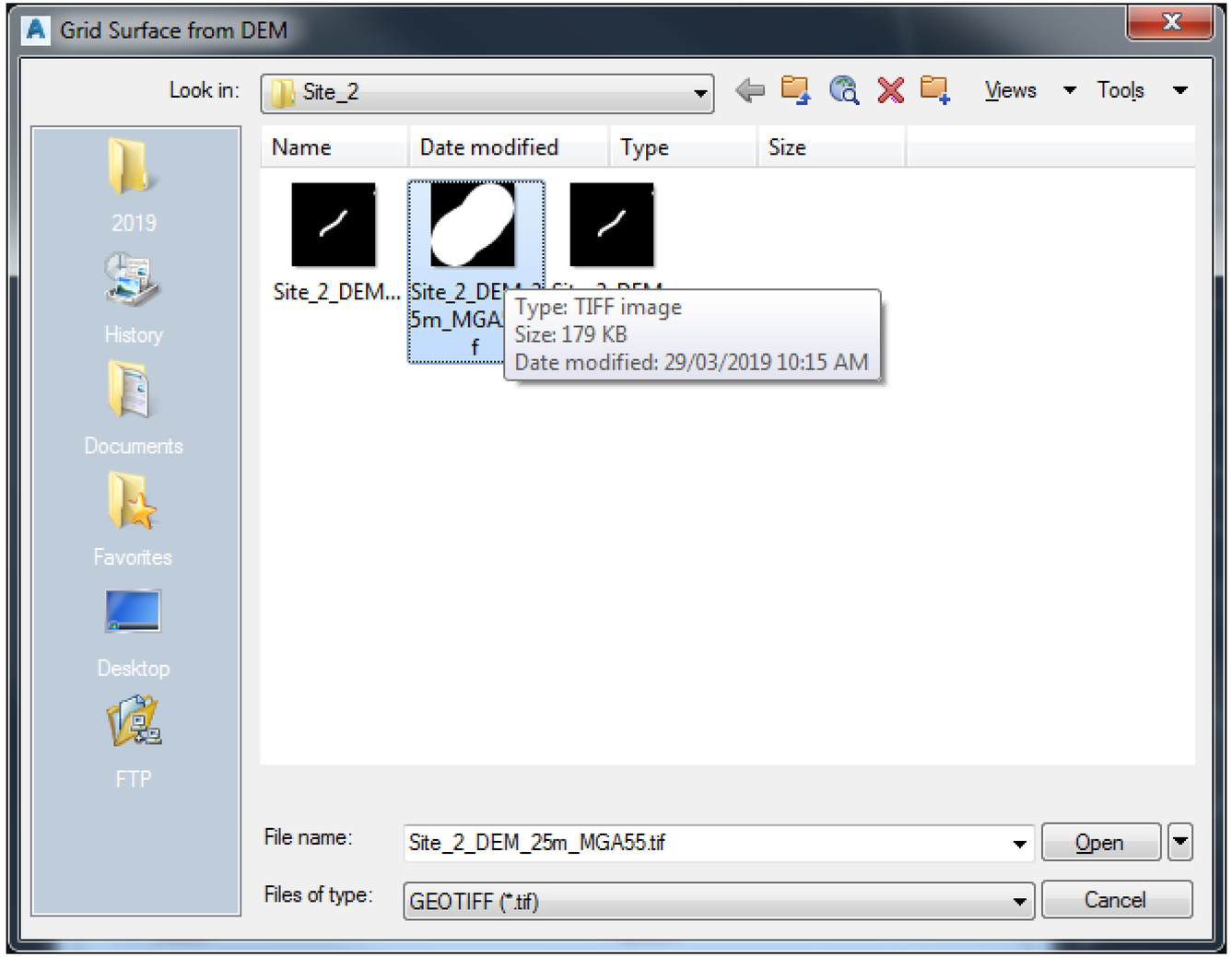


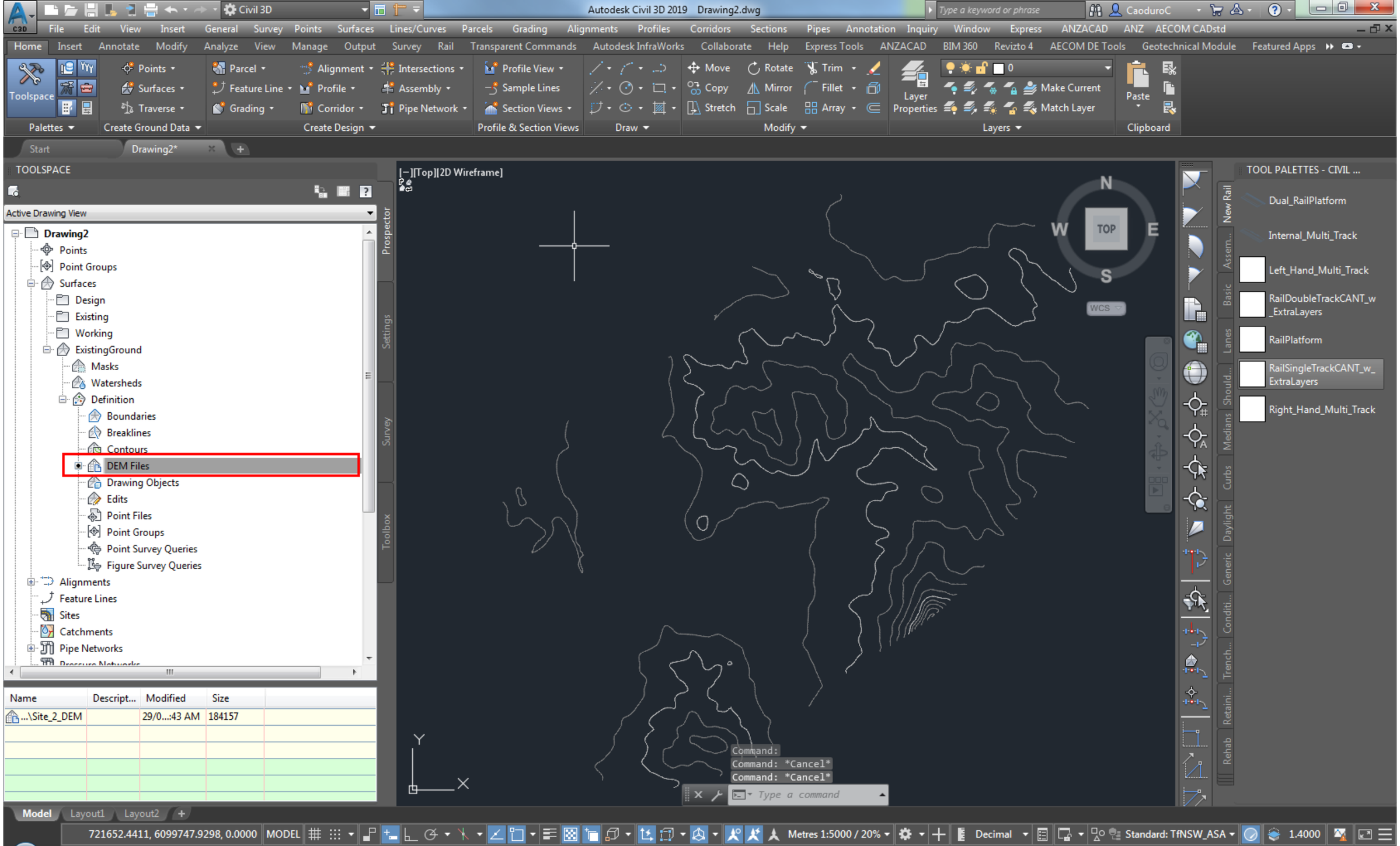
Create Existing Surface



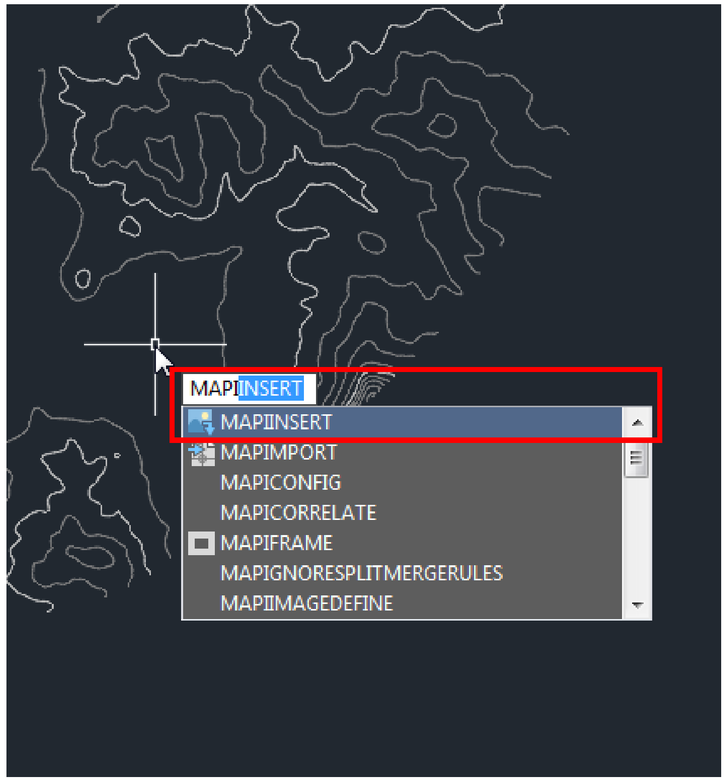
Create Existing Surface

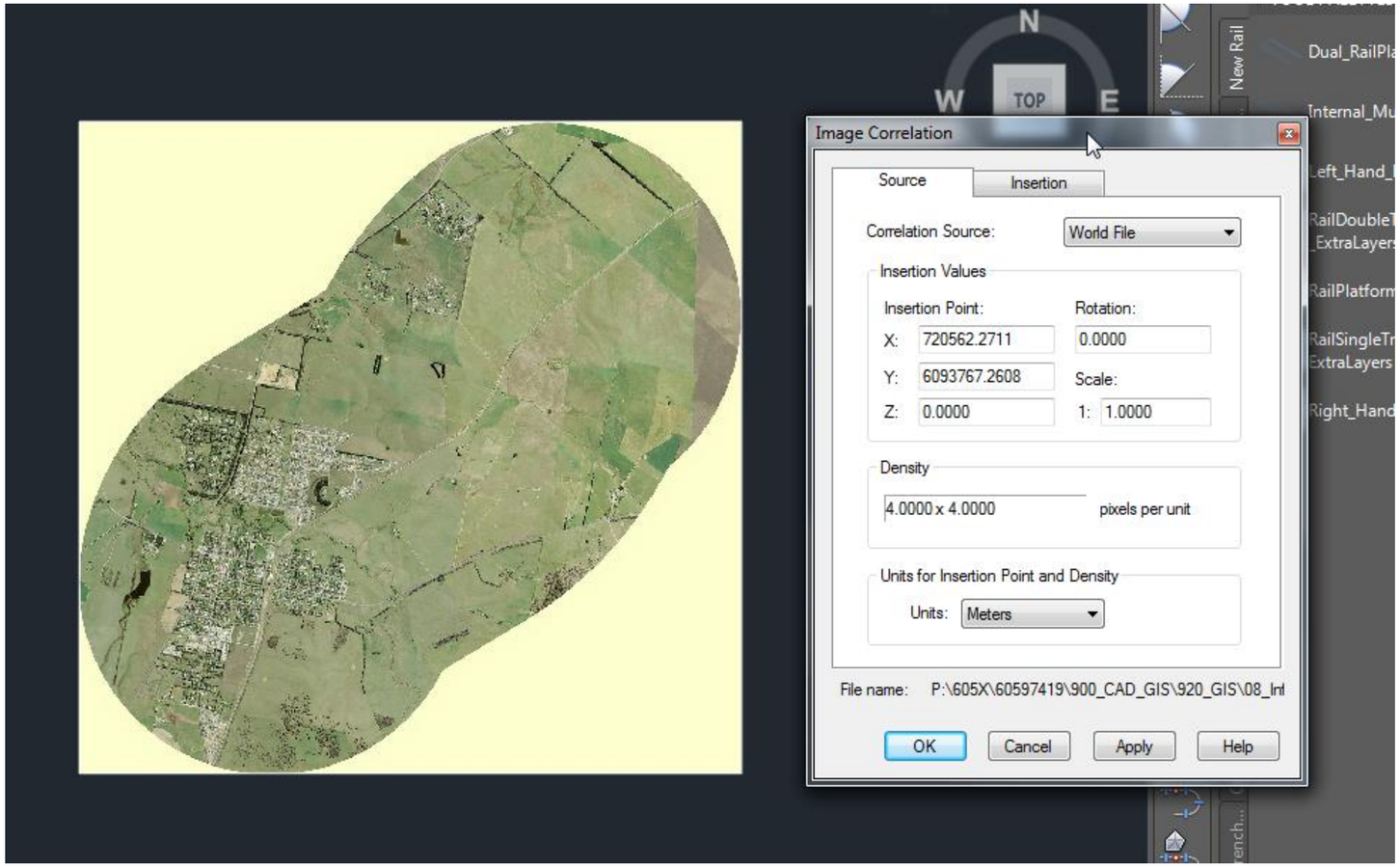




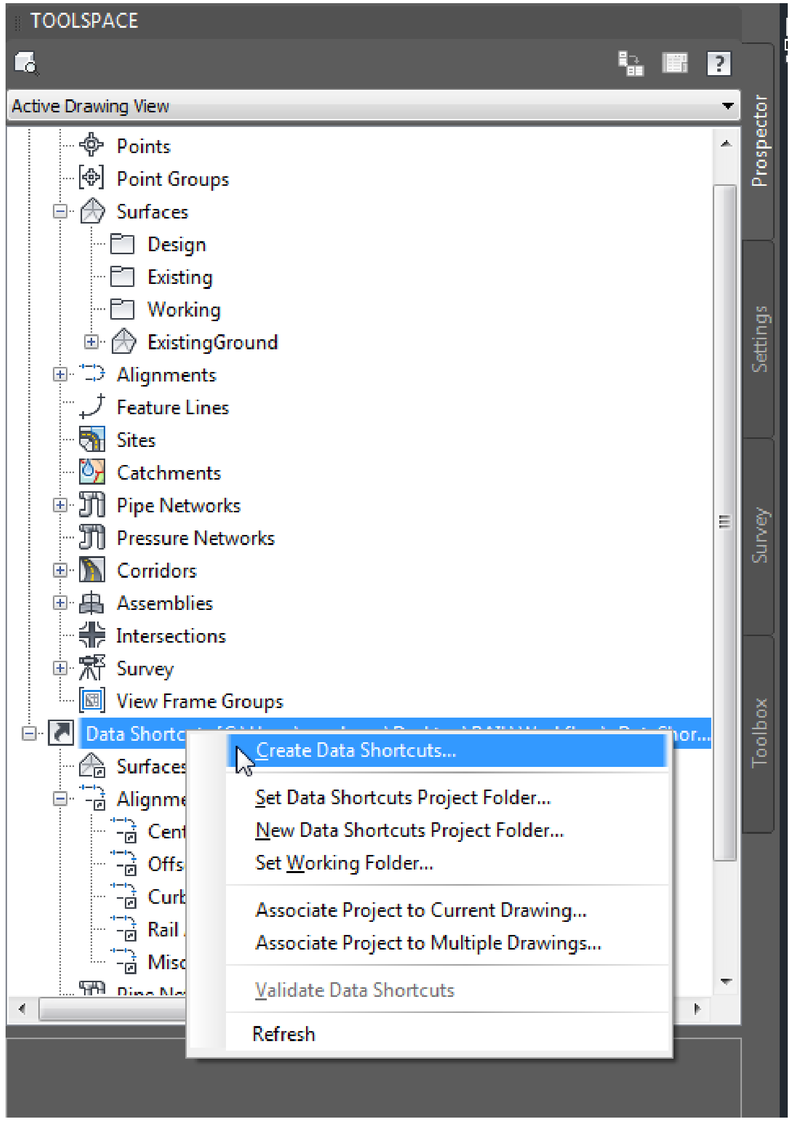

Civil 3D
Autodesk Civil 3D 2019 Drawing2.dwg
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Toolspace
Points
Surfaces
Traverse
Parcel
Feature Line
Grading
Alignment
Profile
Corridor
Intersections
Assembly
Pipe Network
Profile View
Sample Lines
Section Views
Move
Rotate
Trim
Copy
Mirror
Fillet
Stretch
Scale
Array
Layer Properties
Make Current
Match Layer
Paste
Palettes
Create Ground Data
Create Design
Profile & Section Views
Draw
Modify
Layers
Clipboard
Start
Drawing2*
TOOLSPACE
Active Drawing View
Drawing2
Points
Point Groups
Surfaces
Design
Existing
Working
ExistingGround
Masks
Watersheds
Definition
Boundaries
Breaklines
Contours
DEM Files
Drawing Objects
Edits
Point Files
Point Groups
Point Survey Queries
Figure Survey Queries
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Prospector
Settings
Survey
Toolbox
Name
Descript...
Modified
Size
...\Site_2_DEM
29/0...:43 AM
184157
[−][Top][2D Wireframe]
N
W
TOP
E
S
WCS
Command:
Command: *Cancel*
Command: *Cancel*
Type a command
TOOL PALETTES - CIVIL ...
New Rail
Assem...
Basic
Lanes
Should...
Medians
Curbs
Daylight
Generic
Conditi...
Trench...
Retaini...
Rehab
Dual_RailPlatform
Internal_Multi_Track
Left_Hand_Multi_Track
RailDoubleTrackCANT_w_ExtraLayers
RailPlatform
RailSingleTrackCANT_w_ExtraLayers
Right_Hand_Multi_Track
Model
Layout1
Layout2
721652.4411, 6099747.9298, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000

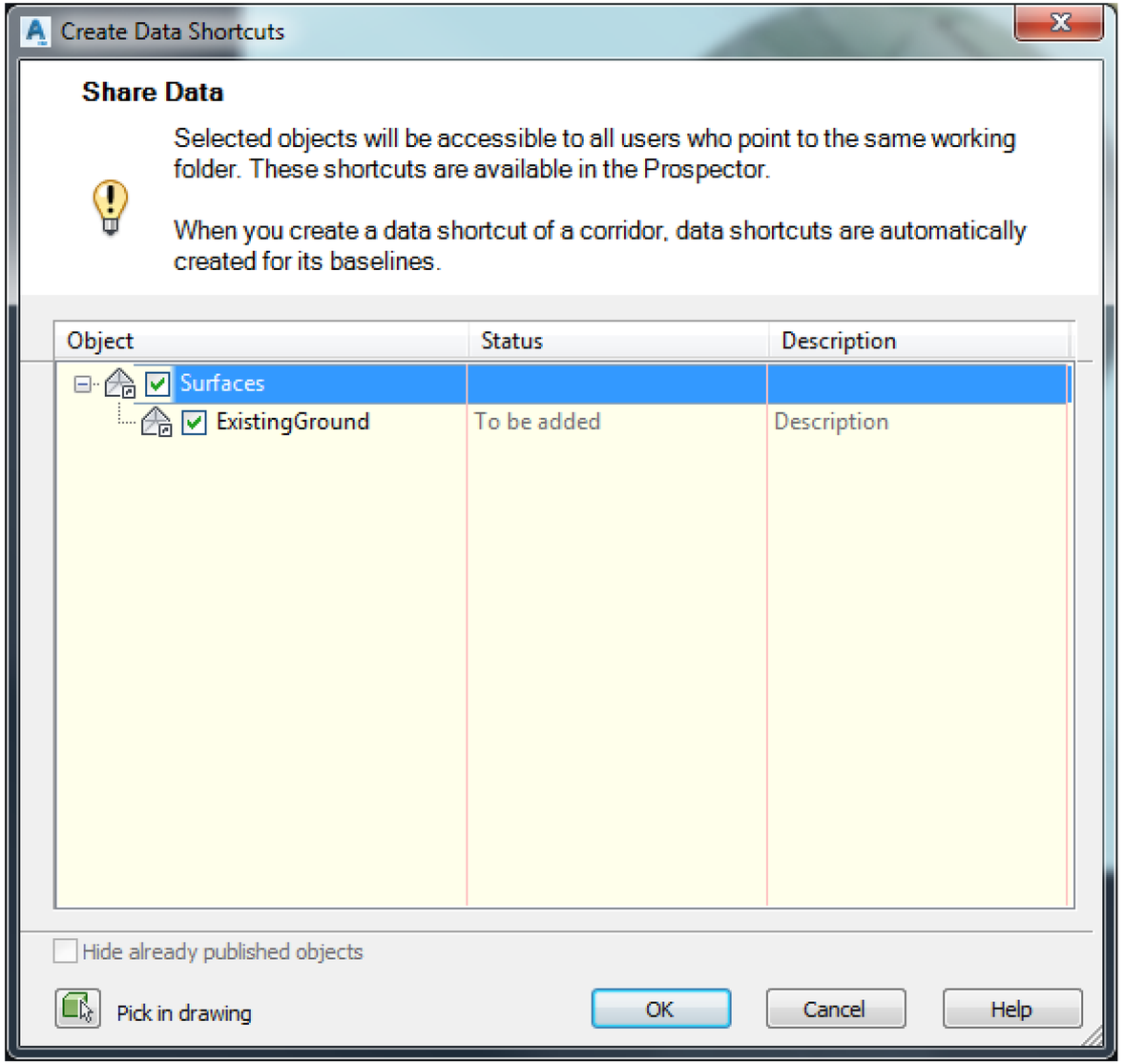
Reference the Aerial





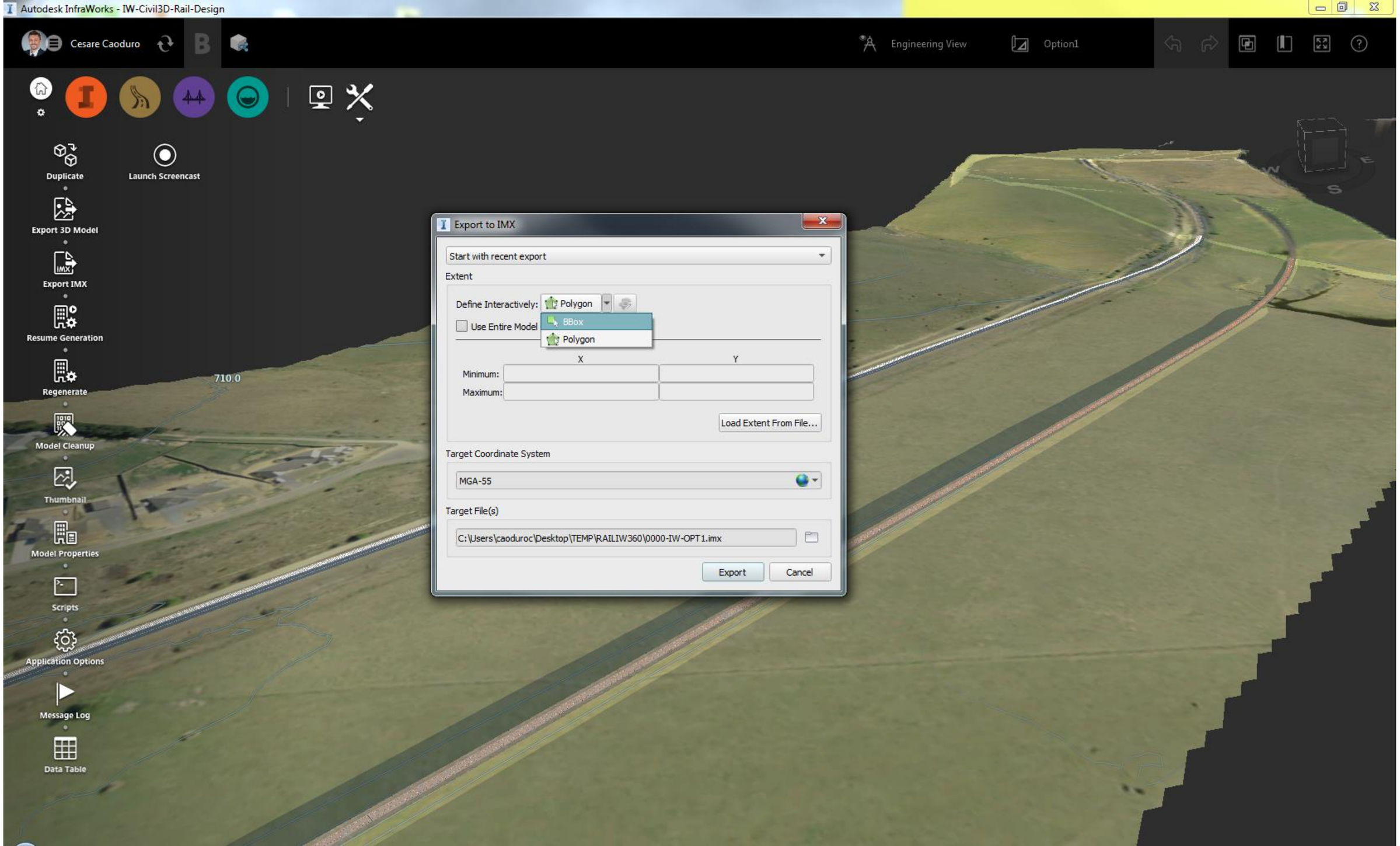
Create Surface Data Shortcut

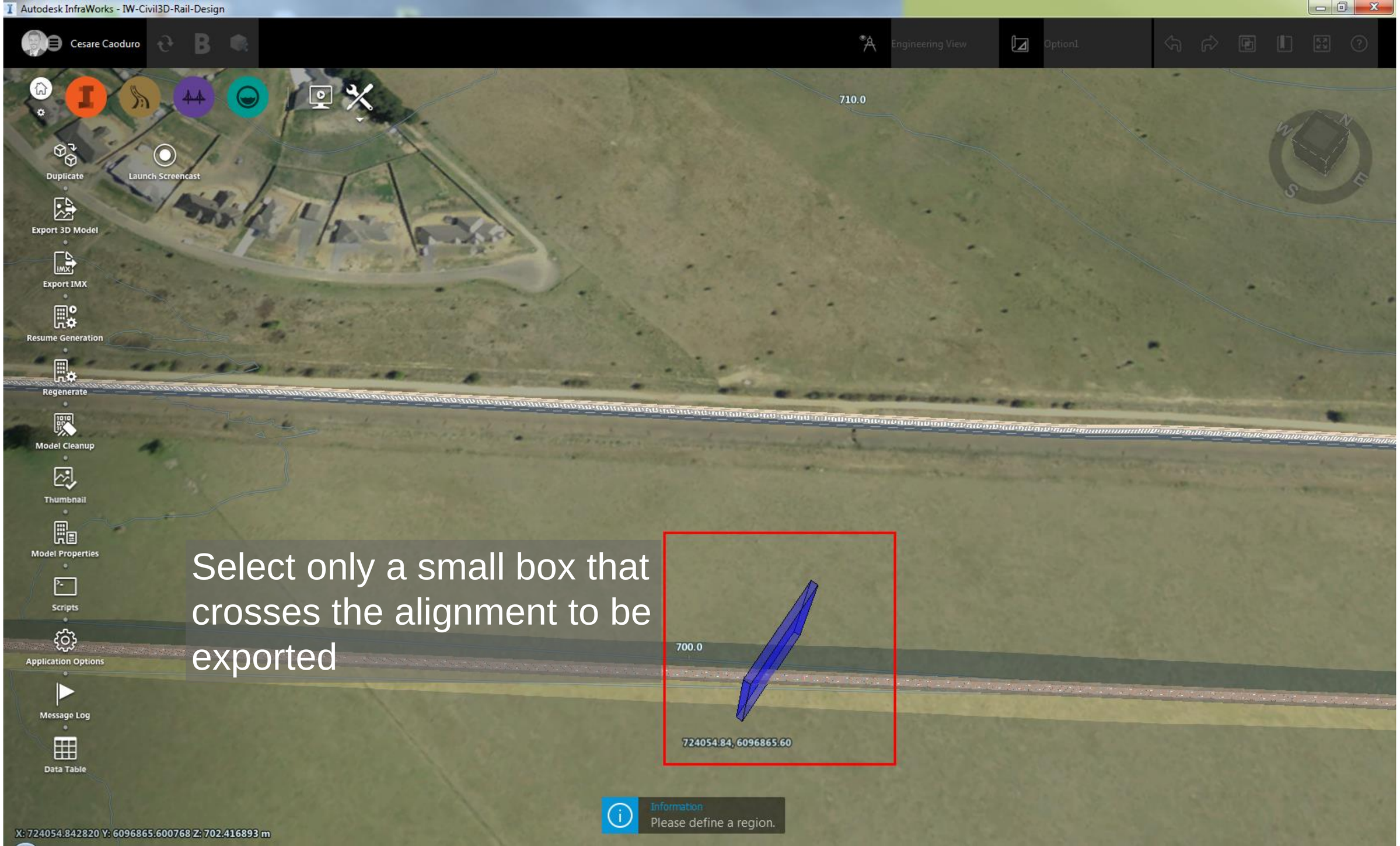




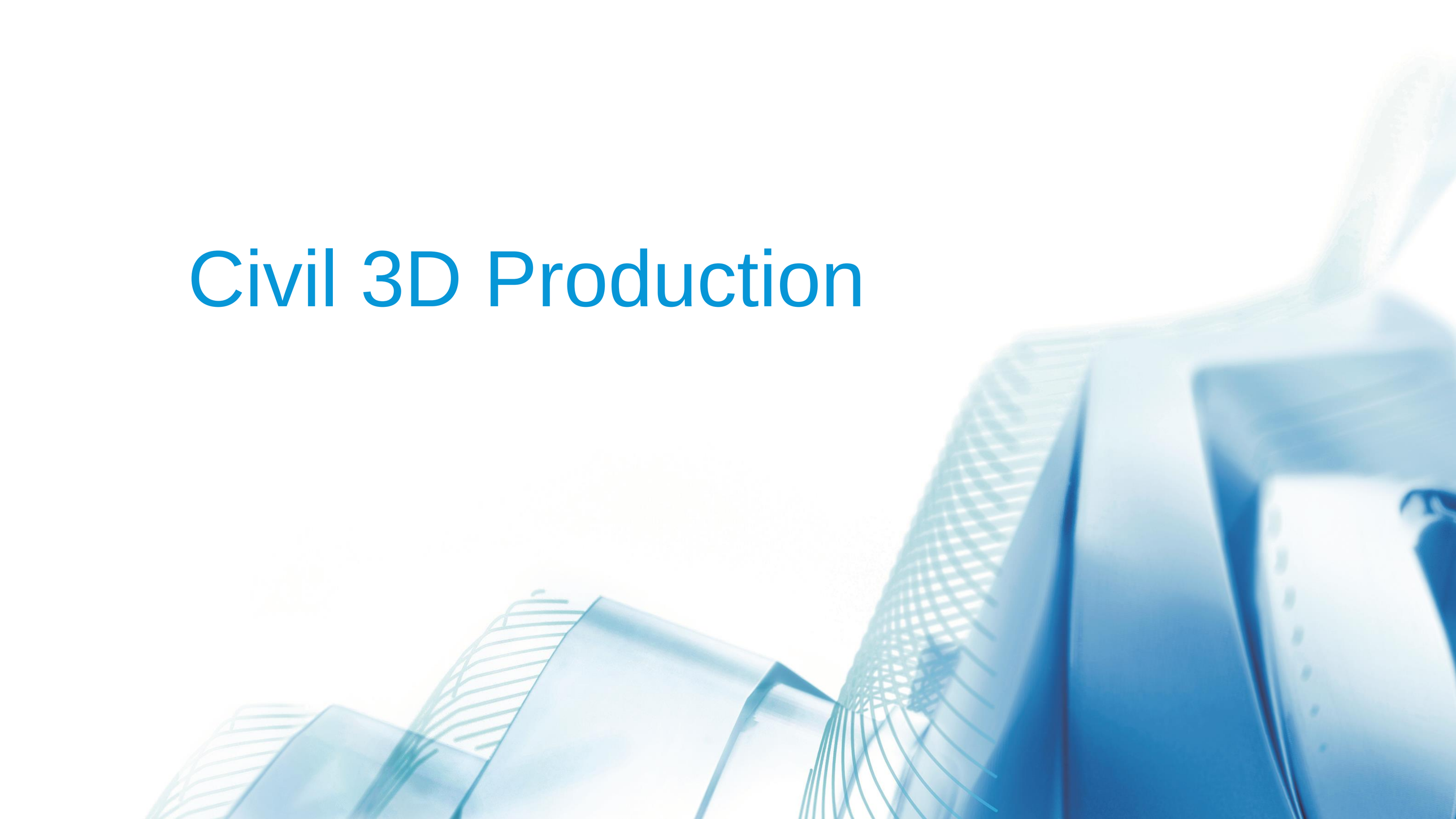
Export IMX

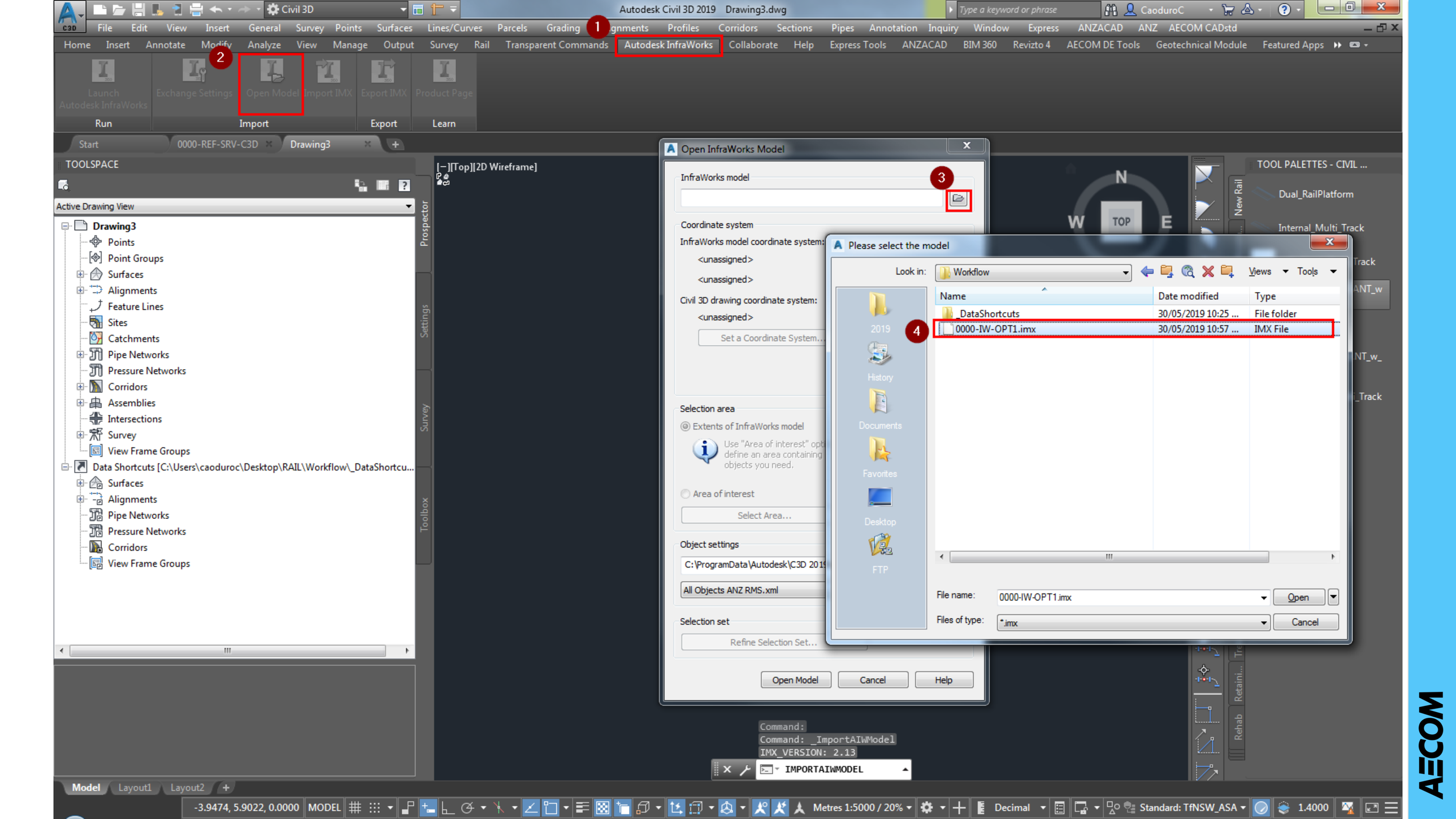

Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Engineering View
Option1
Duplicate
Launch Screencast
Export 3D Model
Export IMX
Resume Generation
Regenerate
Model Cleanup
Thumbnail
Model Properties
Scripts
Application Options
Message Log
Data Table
710.0
700.0

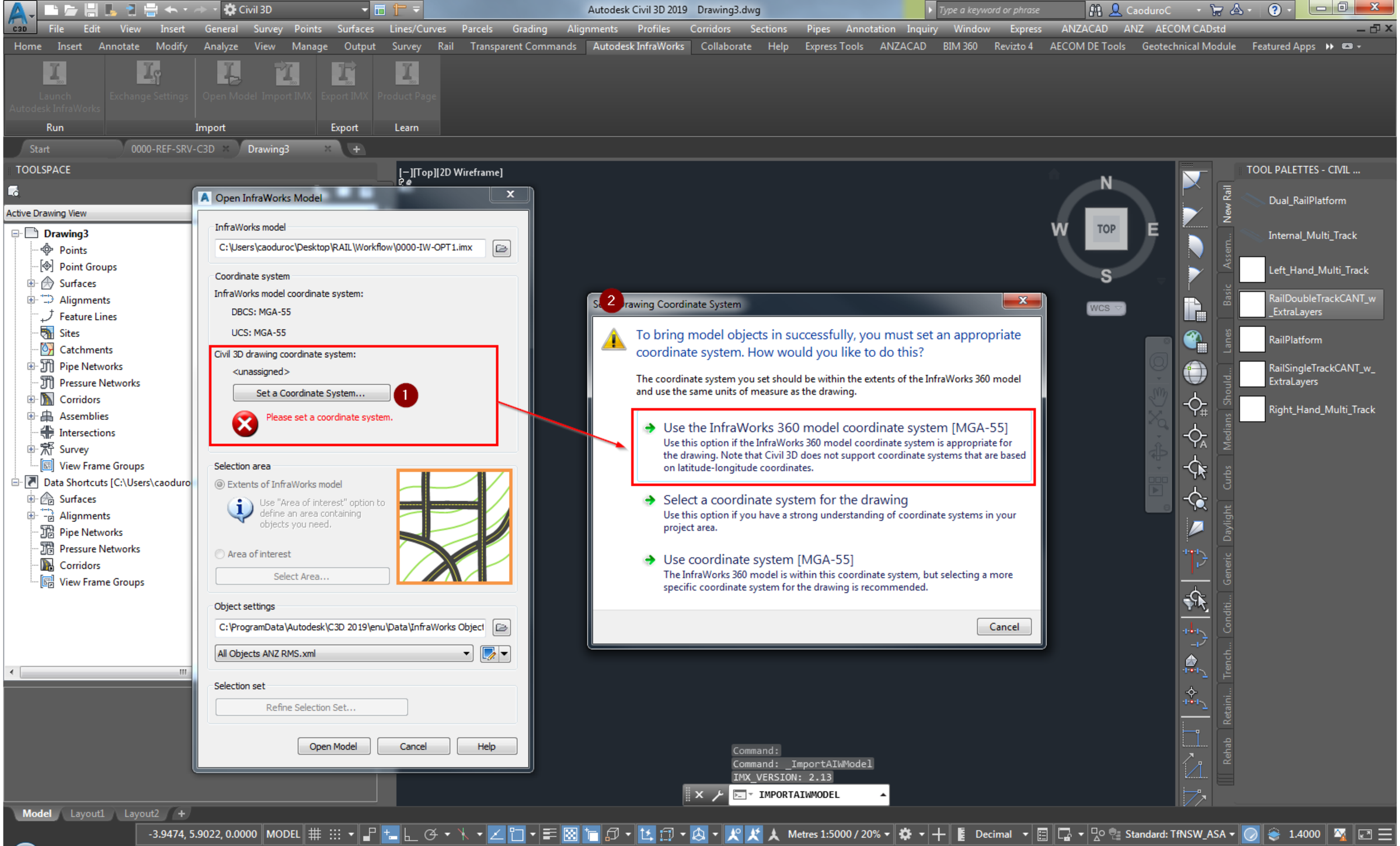

Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Engineering View
Option1
Duplicate
Launch Screencast
Export 3D Model
Export IMX
Resume Generation
Regenerate
Model Cleanup
Thumbnail
Model Properties
Scripts
Application Options
Message Log
Data Table
710.0
Export to IMX
Start with recent export
Extent
Define Interactively:
Polygon
BBox
Polygon
Use Entire Model
X
Y
Minimum:
Maximum:
Load Extent From File...
Target Coordinate System
MGA-55
Target File(s)
C:\Users\caoduroc\Desktop\TEMP\RAILIW360\0000-IW-OPT1.imx
Export
Cancel

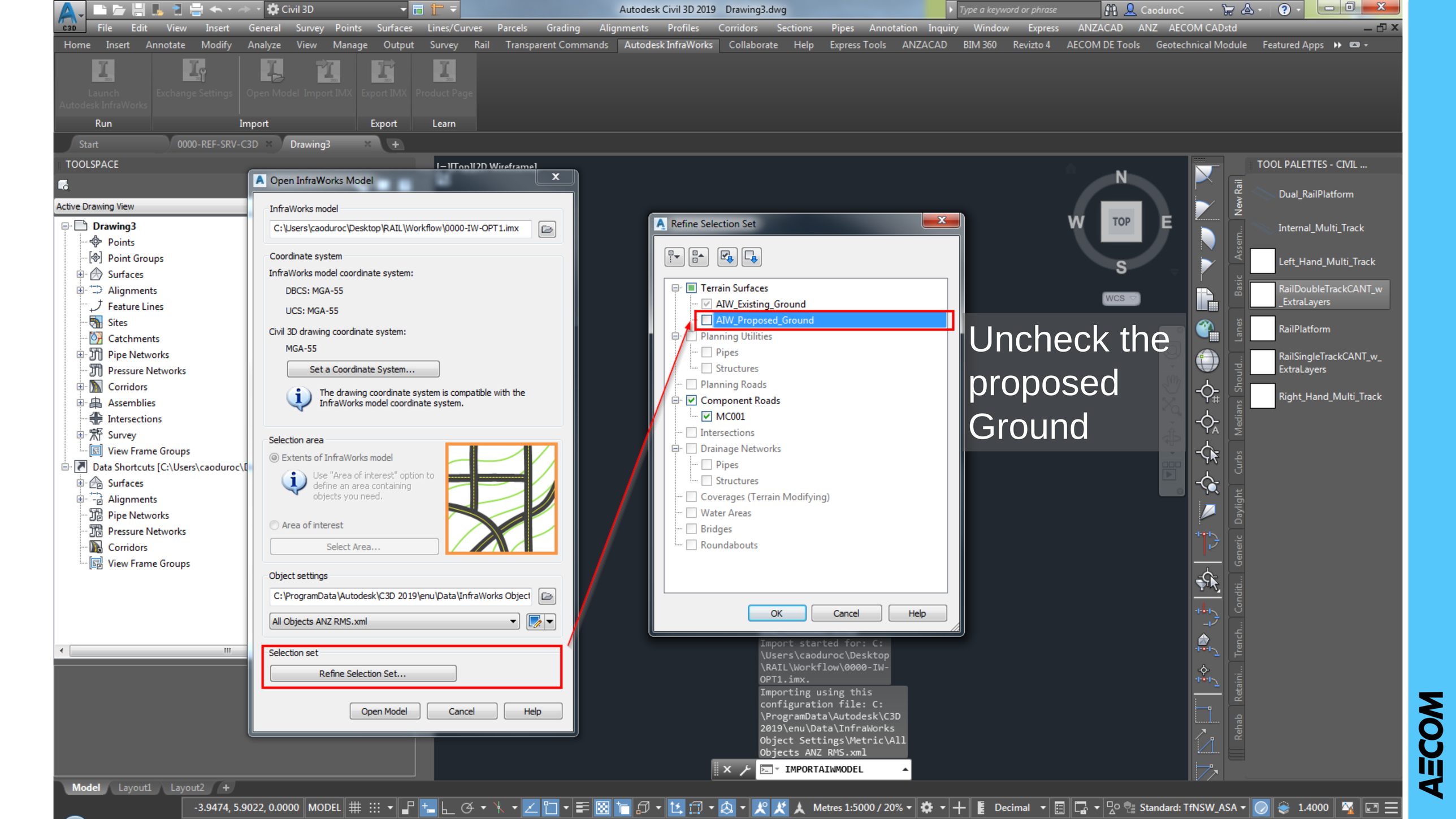

Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Engineering View
Option1
710.0
Duplicate
Launch Screencast
Export 3D Model
Export IMX
Resume Generation
Regenerate
Model Cleanup
Thumbnail
Model Properties
Scripts
Application Options
Message Log
Data Table
Select only a small box that crosses the alignment to be exported
700.0
724054.84, 6096865.60
Information
Please define a region.
X: 724054.842820 Y: 6096865.600768 Z: 702.416893 m

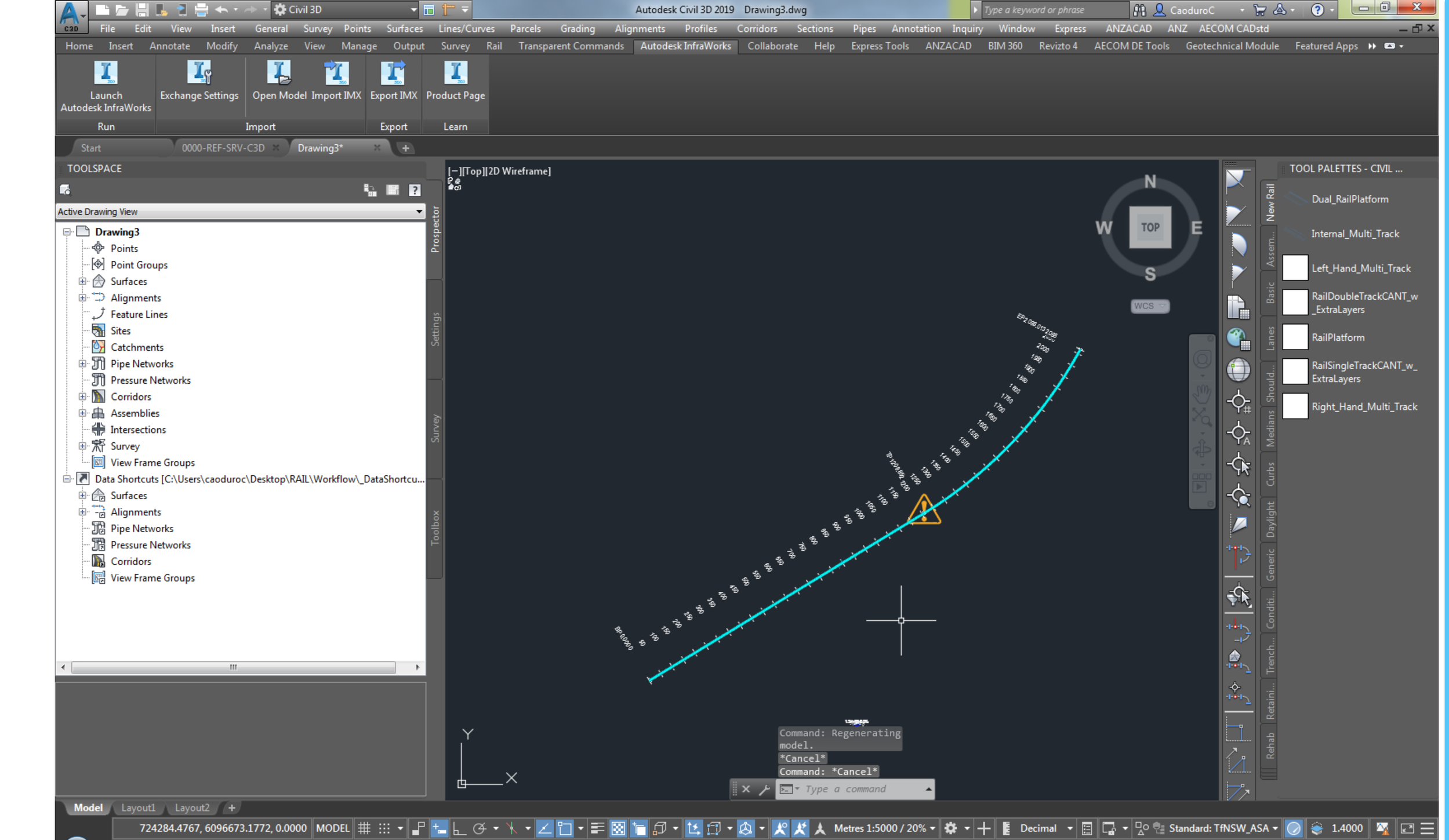
Civil 3D Production

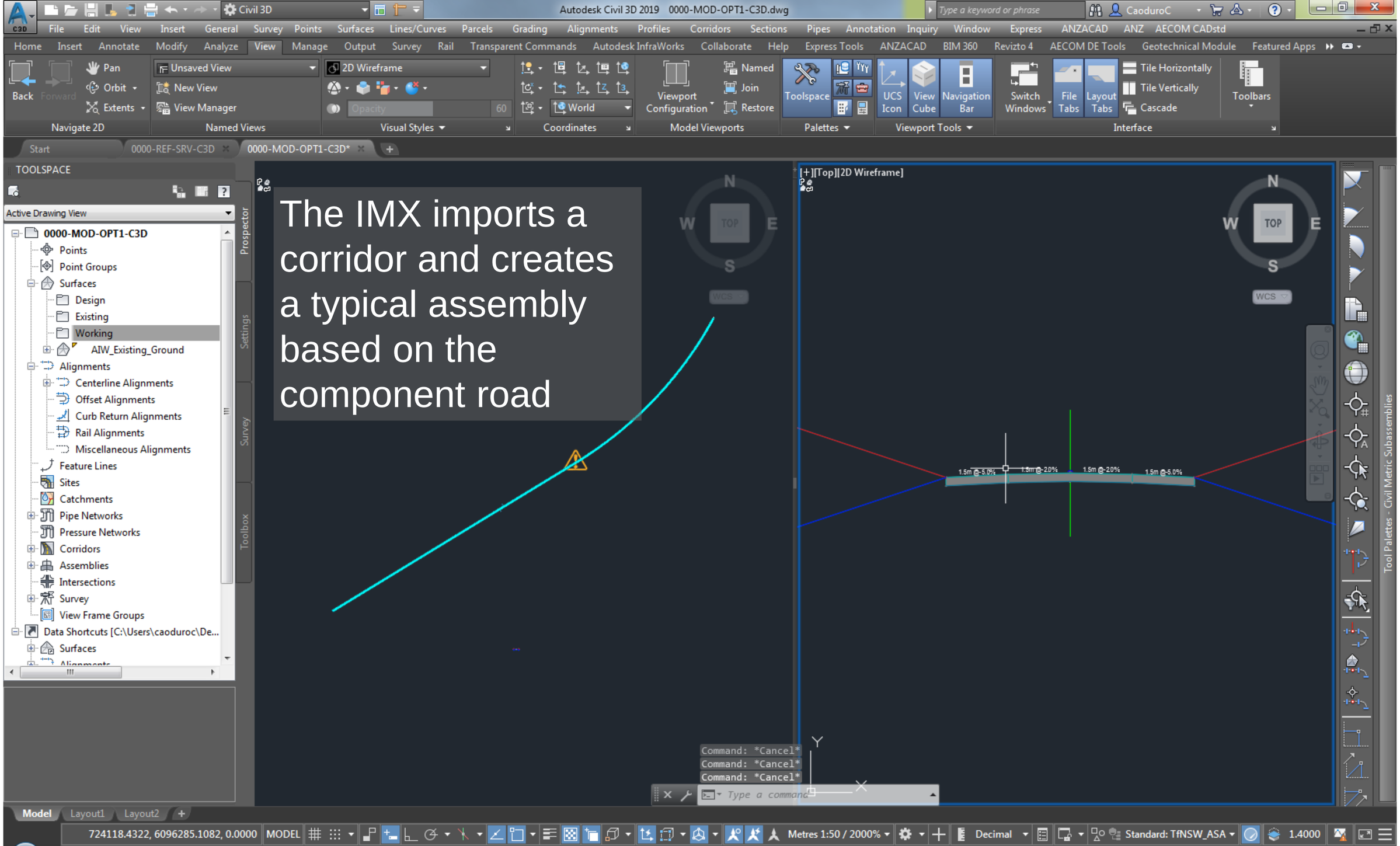


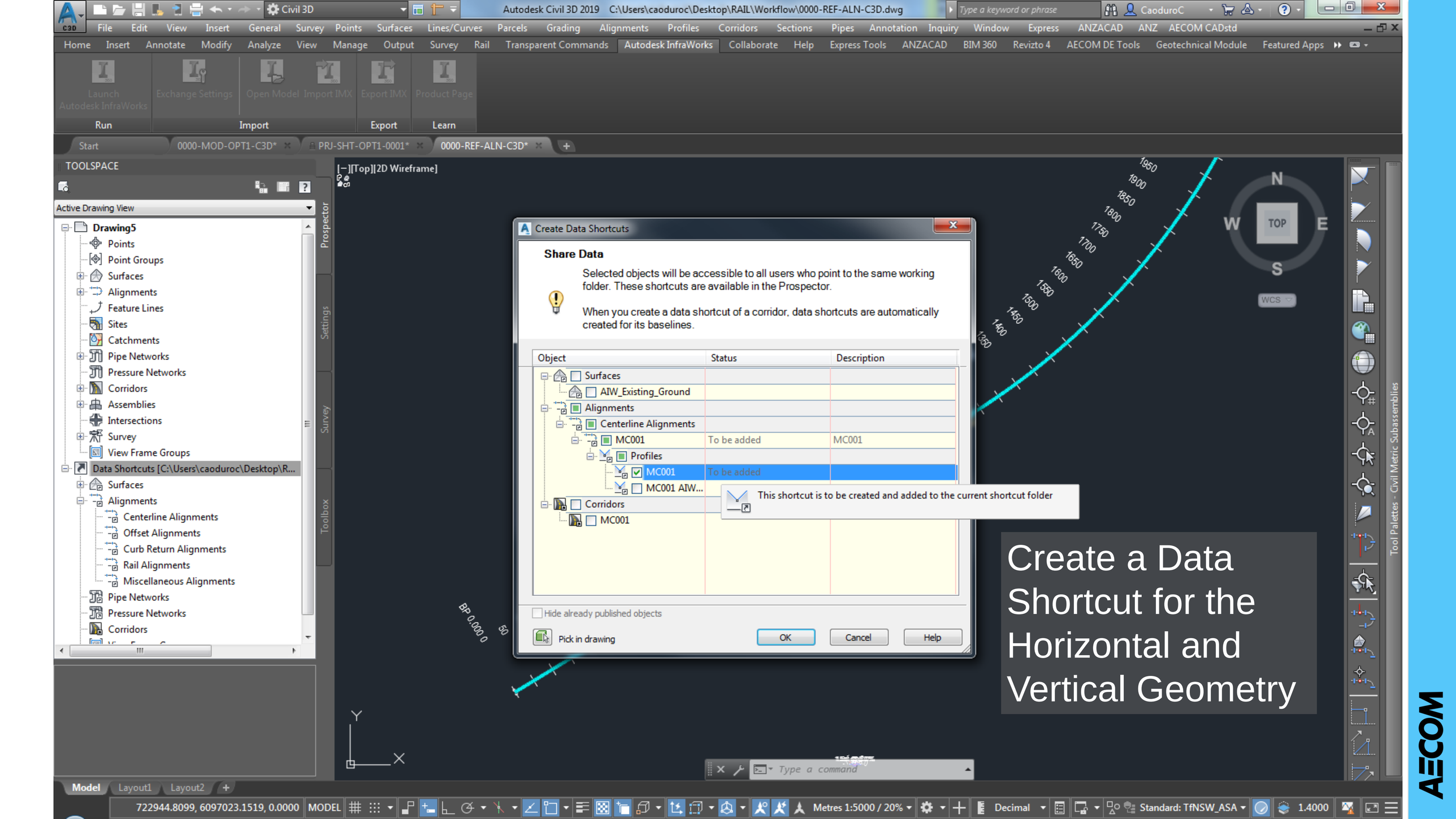

Autodesk Civil 3D 2019 Drawing3.dwg
Autodesk InfraWorks
Launch Autodesk InfraWorks
Exchange Settings
Open Model
Import IMX
Export IMX
Product Page
Run
Import
Export
Learn
TOOLSPACE
Active Drawing View
Drawing3
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataShortcu...
Open InfraWorks Model
InfraWorks model
Coordinate system
InfraWorks model coordinate system:
<unassigned>
Civil 3D drawing coordinate system:
Set a Coordinate System...
Selection area
Extents of InfraWorks model
Area of interest
Select Area...
Object settings
All Objects ANZ RMS.xml
Selection set
Refine Selection Set...
Open Model
Cancel
Help
Please select the model
Look in:
Workflow
Views
Tools
Name
Date modified
Type
_DataShortcuts
30/05/2019 10:25 ...
File folder
0000-IW-OPT1.imx
30/05/2019 10:57 ...
IMX File
File name:
0000-IW-OPT1.imx
Open
Files of type:
*.imx
Cancel
Command:
Command: _ImportAIWModel
IMX_VERSION: 2.13
IMPORTAIWMODEL
TOOL PALETTES - CIVIL ...
Dual_RailPlatform
Internal_Multi_Track
Model
Layout1
Layout2
-3.9474, 5.9022, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM

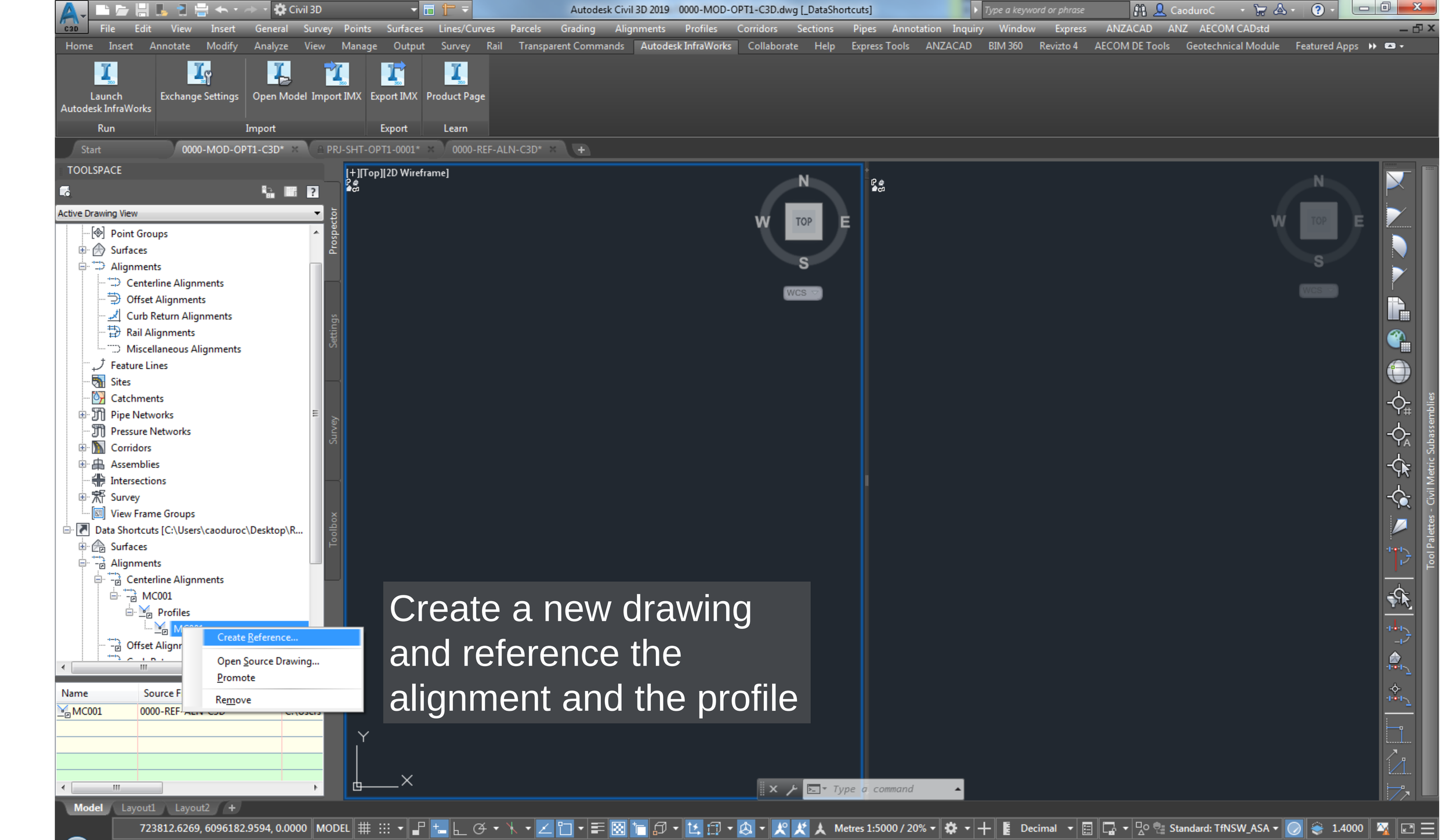

Autodesk Civil 3D 2019 Drawing3.dwg
Open InfraWorks Model
InfraWorks model
C:\Users\caoduroc\Desktop\RAIL\Workflow\0000-IW-OPT1.imx
Coordinate system
InfraWorks model coordinate system:
DBCS: MGA-55
UCS: MGA-55
Civil 3D drawing coordinate system:
<unassigned>
Set a Coordinate System...
1
Please set a coordinate system.
Selection area
Extents of InfraWorks model
Use "Area of interest" option to define an area containing objects you need.
Area of interest
Select Area...
Object settings
C:\ProgramData\Autodesk\C3D 2019\enu\Data\InfraWorks Object
All Objects ANZ RMS.xml
Selection set
Refine Selection Set...
Open Model
Cancel
Help
2
rawing Coordinate System
To bring model objects in successfully, you must set an appropriate coordinate system. How would you like to do this?
The coordinate system you set should be within the extents of the InfraWorks 360 model and use the same units of measure as the drawing.
Use the InfraWorks 360 model coordinate system [MGA-55]
Use this option if the InfraWorks 360 model coordinate system is appropriate for the drawing. Note that Civil 3D does not support coordinate systems that are based on latitude-longitude coordinates.
Select a coordinate system for the drawing
Use this option if you have a strong understanding of coordinate systems in your project area.
Use coordinate system [MGA-55]
The InfraWorks 360 model is within this coordinate system, but selecting a more specific coordinate system for the drawing is recommended.
Cancel
TOOLSPACE
Active Drawing View
Drawing3
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduro
Surfaces
Alignments
Pipe Networks
Pressure Networks
Corridors
View Frame Groups
[−][Top][2D Wireframe]
N
W
TOP
E
S
WCS
TOOL PALETTES - CIVIL ...
Dual_RailPlatform
Internal_Multi_Track
Left_Hand_Multi_Track
RailDoubleTrackCANT_w_ExtraLayers
RailPlatform
RailSingleTrackCANT_w_ExtraLayers
Right_Hand_Multi_Track
Command:
Command: _ImportAIWModel
IMX_VERSION: 2.13
IMPORTAIWMODEL
Model
Layout1
Layout2
-3.9474, 5.9022, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000

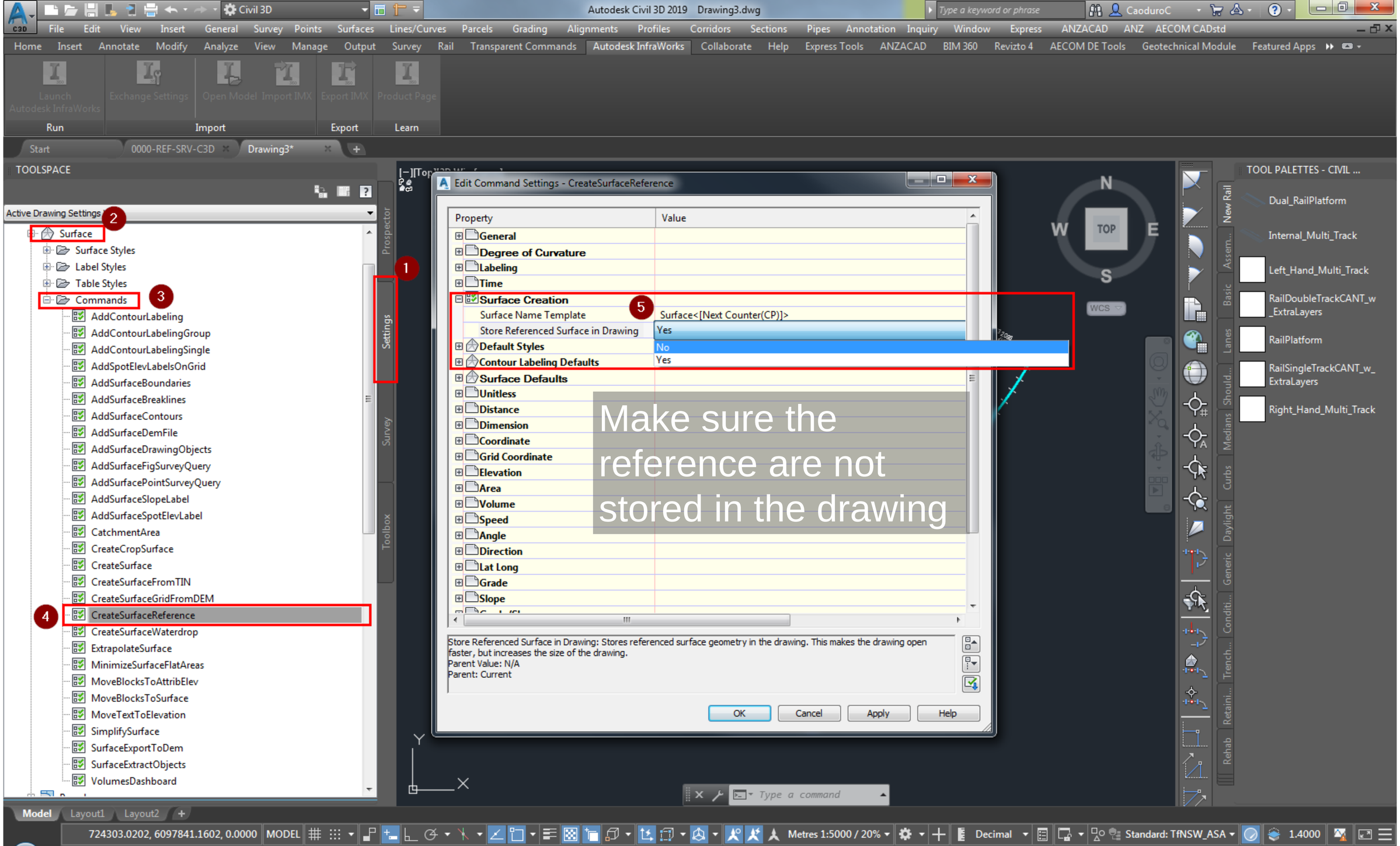

Autodesk Civil 3D 2019 Drawing3.dwg
Open InfraWorks Model
InfraWorks model
C:\Users\caoduroc\Desktop\RAIL\Workflow\0000-IW-OPT1.imx
Coordinate system
InfraWorks model coordinate system:
DBCS: MGA-55
UCS: MGA-55
Civil 3D drawing coordinate system:
MGA-55
Set a Coordinate System...
The drawing coordinate system is compatible with the InfraWorks model coordinate system.
Selection area
Extents of InfraWorks model
Use "Area of interest" option to define an area containing objects you need.
Area of interest
Select Area...
Object settings
C:\ProgramData\Autodesk\C3D 2019\enu\Data\InfraWorks Object
All Objects ANZ RMS.xml
Selection set
Refine Selection Set...
Open Model
Cancel
Help
Refine Selection Set
Terrain Surfaces
AIW_Existing_Ground
AIW_Proposed_Ground
Planning Utilities
Pipes
Structures
Planning Roads
Component Roads
MC001
Intersections
Drainage Networks
Pipes
Structures
Coverages (Terrain Modifying)
Water Areas
Bridges
Roundabouts
OK
Cancel
Help
Uncheck the proposed Ground
Import started for: C:\Users\caoduroc\Desktop\RAIL\Workflow\0000-IW-OPT1.imx.
Importing using this configuration file: C:\ProgramData\Autodesk\C3D 2019\enu\Data\InfraWorks Object Settings\Metric\All Objects ANZ RMS.xml
IMPORTAIWMODEL
TOOLSPACE
Active Drawing View
Drawing3
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts
TOOL PALETTES - CIVIL ...
Dual_RailPlatform
Internal_Multi_Track
Left_Hand_Multi_Track
RailDoubleTrackCANT_w_ExtraLayers
RailPlatform
RailSingleTrackCANT_w_ExtraLayers
Right_Hand_Multi_Track
Model
Layout1
Layout2
-3.9474, 5.9022, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000

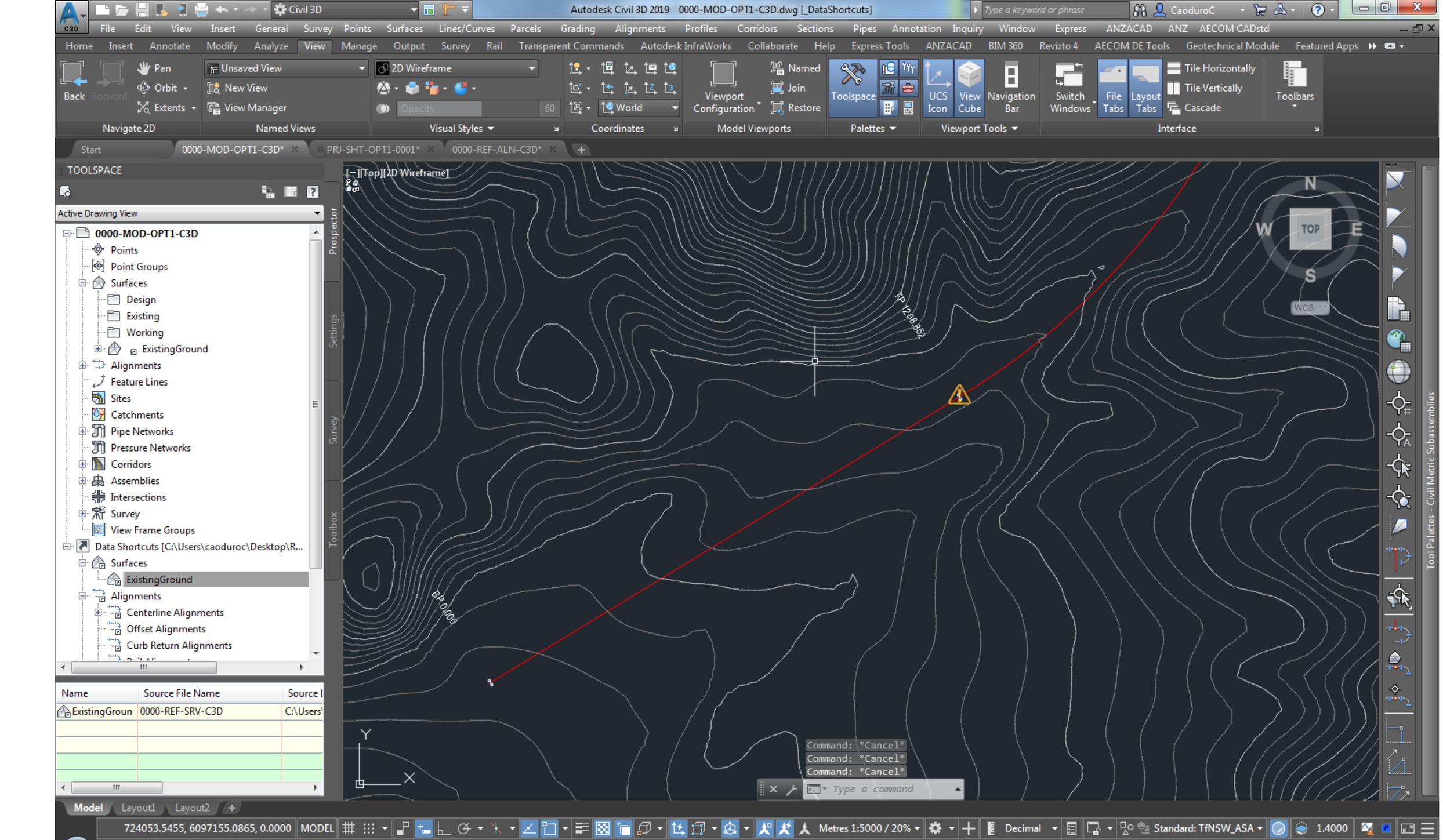

Civil 3D
Autodesk Civil 3D 2019 Drawing3.dwg
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Launch Autodesk InfraWorks
Exchange Settings
Open Model
Import IMX
Export IMX
Product Page
Run
Import
Export
Learn
Start
0000-REF-SRV-C3D
Drawing3*
TOOLSPACE
Active Drawing View
Drawing3
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataShortcu...
Surfaces
Alignments
Pipe Networks
Pressure Networks
Corridors
View Frame Groups
Prospector
Settings
Survey
Toolbox
[−][Top][2D Wireframe]
N
W
TOP
E
S
WCS
Command: Regenerating model.
Cancel
Command: *Cancel*
Type a command
TOOL PALETTES - CIVIL ...
New Rail
Assem...
Basic
Lanes
Should...
Medians
Curbs
Daylight
Generic
Conditi...
Trench...
Retaini...
Rehab
Dual_RailPlatform
Internal_Multi_Track
Left_Hand_Multi_Track
RailDoubleTrackCANT_w_ExtraLayers
RailPlatform
RailSingleTrackCANT_w_ExtraLayers
Right_Hand_Multi_Track
Model
Layout1
Layout2
724284.4767, 6096673.1772, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000

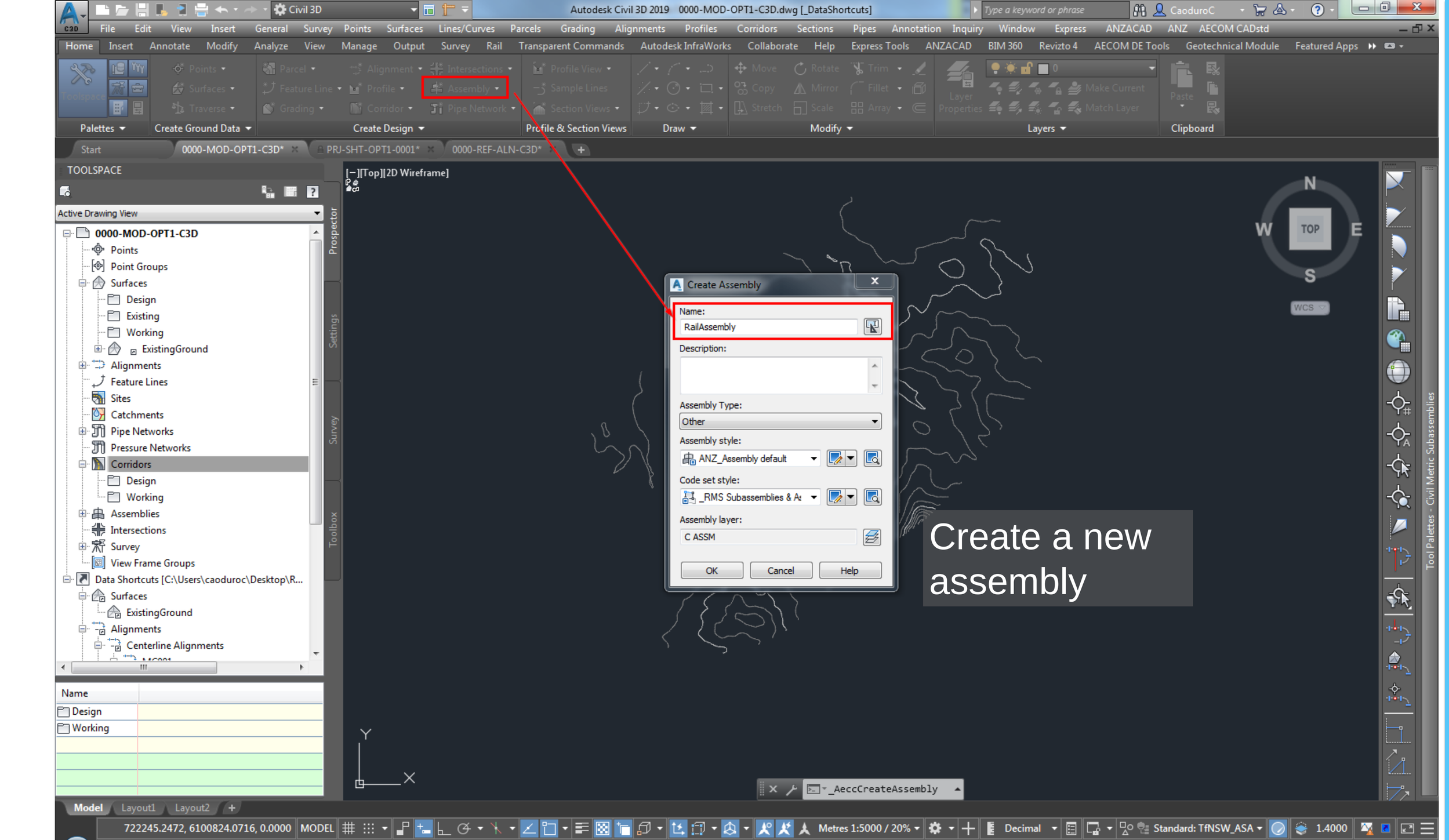

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Back Forward Pan Orbit Extents
Unsaved View New View View Manager
2D Wireframe
Opacity 60
World
Named Join Restore
Viewport Configuration
Toolspace
UCS Icon View Cube Navigation Bar
Switch Windows File Tabs Layout Tabs
Tile Horizontally Tile Vertically Cascade
Toolbars
Navigate 2D Named Views Visual Styles Coordinates Model Viewports Palettes Viewport Tools Interface
Start 0000-REF-SRV-C3D 0000-MOD-OPT1-C3D*
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Design
Existing
Working
AIW_Existing_Ground
Alignments
Centerline Alignments
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\De...
Surfaces
Prospector
Settings
Survey
Toolbox
The IMX imports a corridor and creates a typical assembly based on the component road
[+][Top][2D Wireframe]
N W TOP E S
WCS
1.5m @-5.0%
1.5m @-2.0%
1.5m @-2.0%
1.5m @-5.0%
Command: *Cancel*
Command: *Cancel*
Command: *Cancel*
Type a command
Tool Palettes - Civil Metric Subassemblies
Model Layout1 Layout2
724118.4322, 6096285.1082, 0.0000 MODEL
Metres 1:50 / 2000%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM

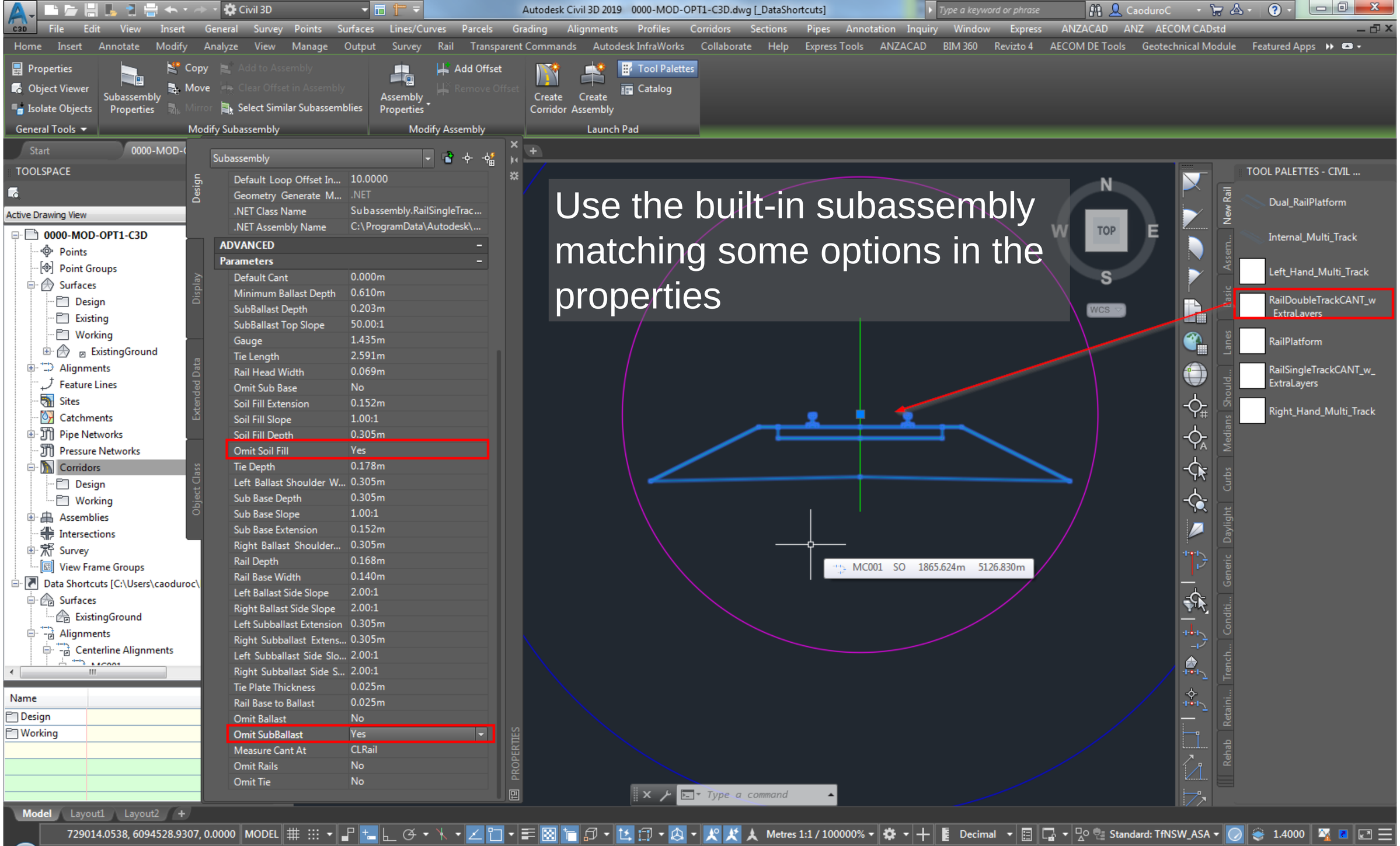

Create Data Shortcuts
Share Data
Selected objects will be accessible to all users who point to the same working folder. These shortcuts are available in the Prospector.
When you create a data shortcut of a corridor, data shortcuts are automatically created for its baselines.
Object
Status
Description
Surfaces
AIW_Existing_Ground
Alignments
Centerline Alignments
MC001
To be added
MC001
Profiles
MC001
To be added
MC001 AIW...
Corridors
MC001
This shortcut is to be created and added to the current shortcut folder
Hide already published objects
Pick in drawing
OK
Cancel
Help
Create a Data Shortcut for the Horizontal and Vertical Geometry

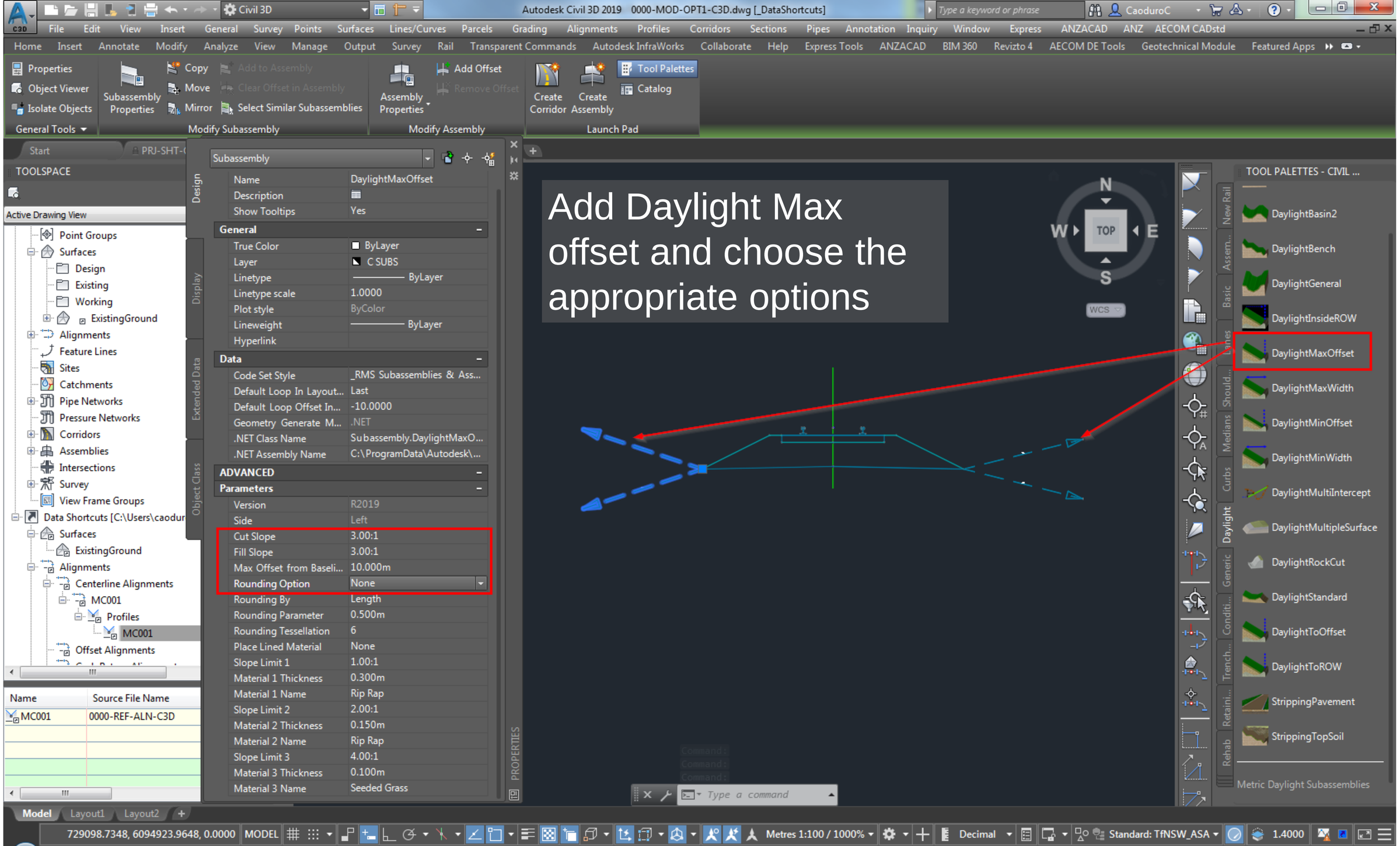

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Launch Autodesk InfraWorks
Exchange Settings
Open Model
Import IMX
Export IMX
Product Page
Run
Import
Export
Learn
TOOLSPACE
Active Drawing View
Point Groups
Surfaces
Alignments
Centerline Alignments
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\R...
Surfaces
Alignments
Centerline Alignments
MC001
Profiles
Create Reference...
Open Source Drawing...
Promote
Remove
Name
MC001
[+][Top][2D Wireframe]
N
W
TOP
E
S
WCS
Create a new drawing and reference the alignment and the profile
Model
Layout1
Layout2
723812.6269, 6096182.9594, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM


Civil 3D
Autodesk Civil 3D 2019 Drawing3.dwg
TOOLSPACE
Active Drawing Settings
Surface
Surface Styles
Label Styles
Table Styles
Commands
AddContourLabeling
AddContourLabelingGroup
AddContourLabelingSingle
AddSpotElevLabelsOnGrid
AddSurfaceBoundaries
AddSurfaceBreaklines
AddSurfaceContours
AddSurfaceDemFile
AddSurfaceDrawingObjects
AddSurfaceFigSurveyQuery
AddSurfacePointSurveyQuery
AddSurfaceSlopeLabel
AddSurfaceSpotElevLabel
CatchmentArea
CreateCropSurface
CreateSurface
CreateSurfaceFromTIN
CreateSurfaceGridFromDEM
CreateSurfaceReference
CreateSurfaceWaterdrop
ExtrapolateSurface
MinimizeSurfaceFlatAreas
MoveBlocksToAttribElev
MoveBlocksToSurface
MoveTextToElevation
SimplifySurface
SurfaceExportToDem
SurfaceExtractObjects
VolumesDashboard
1
2
3
4
Edit Command Settings - CreateSurfaceReference
Property
Value
General
Degree of Curvature
Labeling
Time
Surface Creation
Surface Name Template
Surface<[Next Counter(CP)]>
Store Referenced Surface in Drawing
Yes
No
Yes
Default Styles
Contour Labeling Defaults
Surface Defaults
Unitless
Distance
Dimension
Coordinate
Grid Coordinate
Elevation
Area
Volume
Speed
Angle
Direction
Lat Long
Grade
Slope
5
Store Referenced Surface in Drawing: Stores referenced surface geometry in the drawing. This makes the drawing open faster, but increases the size of the drawing.
Parent Value: N/A
Parent: Current
OK
Cancel
Apply
Help
Make sure the reference are not stored in the drawing
TOOL PALETTES - CIVIL ...
Dual_RailPlatform
Internal_Multi_Track
Left_Hand_Multi_Track
RailDoubleTrackCANT_w_ExtraLayers
RailPlatform
RailSingleTrackCANT_w_ExtraLayers
Right_Hand_Multi_Track
Model
Layout1
Layout2
724303.0202, 6097841.1602, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000


Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Back Forward Pan Orbit Extents
Unsaved View New View View Manager
2D Wireframe Opacity 60
World
Viewport Configuration Named Join Restore
Toolspace UCS Icon View Cube Navigation Bar
Switch Windows File Tabs Layout Tabs Tile Horizontally Tile Vertically Cascade
Toolbars
Navigate 2D Named Views Visual Styles Coordinates Model Viewports Palettes Viewport Tools Interface
Start 0000-MOD-OPT1-C3D* PRJ-SHT-OPT1-0001* 0000-REF-ALN-C3D*
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Design
Existing
Working
ExistingGround
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\R...
Surfaces
ExistingGround
Alignments
Centerline Alignments
Offset Alignments
Curb Return Alignments
Prospector
Settings
Survey
Toolbox
Name Source File Name Source
ExistingGroun 0000-REF-SRV-C3D C:\Users
[-][Top][2D Wireframe]
TP 1208.852
BP 0.000
N W TOP E S WCS
Command: *Cancel*
Command: *Cancel*
Command: *Cancel*
Type a command
Tool Palettes - Civil Metric Subassemblies
Model Layout1 Layout2
724053.5455, 6097155.0865, 0.0000 MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000


Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Assembly
Start
0000-MOD-OPT1-C3D*
PRJ-SHT-OPT1-0001*
0000-REF-ALN-C3D*
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Design
Existing
Working
ExistingGround
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\R...
Surfaces
ExistingGround
Alignments
Centerline Alignments
[−][Top][2D Wireframe]
Create Assembly
Name:
RailAssembly
Description:
Assembly Type:
Other
Assembly style:
ANZ_Assembly default
Code set style:
_RMS Subassemblies & As
Assembly layer:
C ASSM
OK
Cancel
Help
Create a new assembly
_AeccCreateAssembly
Model
Layout1
Layout2
722245.2472, 6100824.0716, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000


Use the built-in subassembly matching some options in the properties
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Properties
Object Viewer
Isolate Objects
Subassembly Properties
Copy
Move
Mirror
Add to Assembly
Clear Offset in Assembly
Select Similar Subassemblies
Assembly Properties
Add Offset
Remove Offset
Create Corridor
Create Assembly
Tool Palettes
Catalog
General Tools
Modify Subassembly
Modify Assembly
Launch Pad
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Design
Existing
Working
ExistingGround
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\
Surfaces
ExistingGround
Alignments
Centerline Alignments
Subassembly
Default Loop Offset In... 10.0000
Geometry Generate M... .NET
.NET Class Name Subassembly.RailSingleTrac...
.NET Assembly Name C:\ProgramData\Autodesk\...
ADVANCED
Parameters
Default Cant 0.000m
Minimum Ballast Depth 0.610m
SubBallast Depth 0.203m
SubBallast Top Slope 50.00:1
Gauge 1.435m
Tie Length 2.591m
Rail Head Width 0.069m
Omit Sub Base No
Soil Fill Extension 0.152m
Soil Fill Slope 1.00:1
Soil Fill Depth 0.305m
Omit Soil Fill Yes
Tie Depth 0.178m
Left Ballast Shoulder W... 0.305m
Sub Base Depth 0.305m
Sub Base Slope 1.00:1
Sub Base Extension 0.152m
Right Ballast Shoulder... 0.305m
Rail Depth 0.168m
Rail Base Width 0.140m
Left Ballast Side Slope 2.00:1
Right Ballast Side Slope 2.00:1
Left Subballast Extension 0.305m
Right Subballast Extens... 0.305m
Left Subballast Side Slo... 2.00:1
Right Subballast Side S... 2.00:1
Tie Plate Thickness 0.025m
Rail Base to Ballast 0.025m
Omit Ballast No
Omit SubBallast Yes
Measure Cant At CLRail
Omit Rails No
Omit Tie No
TOOL PALETTES - CIVIL ...
Dual_RailPlatform
Internal_Multi_Track
Left_Hand_Multi_Track
RailDoubleTrackCANT_w ExtraLayers
RailPlatform
RailSingleTrackCANT_w_ ExtraLayers
Right_Hand_Multi_Track
MC001 SO 1865.624m 5126.830m
Model
Layout1
Layout2
729014.0538, 6094528.9307, 0.0000
MODEL
Metres 1:1 / 100000%
Decimal
Standard: TfNSW_ASA
1.4000


Add Daylight Max offset and choose the appropriate options
Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Properties
Object Viewer
Isolate Objects
Subassembly Properties
Copy
Move
Mirror
Add to Assembly
Clear Offset in Assembly
Select Similar Subassemblies
Assembly Properties
Add Offset
Remove Offset
Create Corridor
Create Assembly
Tool Palettes
Catalog
General Tools
Modify Subassembly
Modify Assembly
Launch Pad
TOOLSPACE
Active Drawing View
Point Groups
Surfaces
Design
Existing
Working
ExistingGround
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caodur
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
Profiles
MC001
Offset Alignments
Name
Source File Name
MC001
0000-REF-ALN-C3D
Subassembly
Name DaylightMaxOffset
Description
Show Tooltips Yes
General
True Color ByLayer
Layer C SUBS
Linetype ByLayer
Linetype scale 1.0000
Plot style ByColor
Lineweight ByLayer
Hyperlink
Data
Code Set Style _RMS Subassemblies & Ass...
Default Loop In Layout... Last
Default Loop Offset In... -10.0000
Geometry Generate M... .NET
.NET Class Name Subassembly.DaylightMaxO...
.NET Assembly Name C:\ProgramData\Autodesk\...
ADVANCED
Parameters
Version R2019
Side Left
Cut Slope 3.00:1
Fill Slope 3.00:1
Max Offset from Baseli... 10.000m
Rounding Option None
Rounding By Length
Rounding Parameter 0.500m
Rounding Tessellation 6
Place Lined Material None
Slope Limit 1 1.00:1
Material 1 Thickness 0.300m
Material 1 Name Rip Rap
Slope Limit 2 2.00:1
Material 2 Thickness 0.150m
Material 2 Name Rip Rap
Slope Limit 3 4.00:1
Material 3 Thickness 0.100m
Material 3 Name Seeded Grass
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Model
Layout1
Layout2
729098.7348, 6094923.9648, 0.0000
MODEL
Metres 1:100 / 1000%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM

Civil 3D | Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts] | Type a keyword or phrase | CaoduroC

File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd

Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps

Toolspace | Points | Surfaces | Traverse | Parcel | Feature Line | Grading | Alignment | Profile | Corridor | Intersections | Assembly | Pipe Network | Profile View | Sample Lines | Section Views | Move | Copy | Stretch | Rotate | Mirror | Scale | Trim | Fillet | Array | Layer Properties | Make Current | Match Layer | Paste

Palettes | Create Ground Data | Profile & Section Views | Draw | Modify | Layers | Clipboard

Corridor

Rehab (

Corridor

Creates a corridor along the selected baseline

You specify the station range, assembly, and any necessary targets.

CreateCorridor

Press F1 for more help

Start | 0000-MOD-OPT1-C3D* | PRJ-

TOOLSPACE

Active Drawing View

- 0000-MOD-OPT1-C3D
  - Points
  - Point Groups
  - Surfaces
    - Design
    - Existing
    - Working
    - ExistingGround
  - Alignments
  - Feature Lines
  - Sites
  - Catchments
  - Pipe Networks
  - Pressure Networks
  - Corridors
    - Design
    - Working
  - Assemblies
  - Intersections
  - Survey
  - View Frame Groups
- Data Shortcuts [C:\Users\caoduroc\Desktop\R...
  - Surfaces
    - ExistingGround
  - Alignments
    - Centerline Alignments

Prospector | Settings | Survey | Toolbox

Name
Design
Working

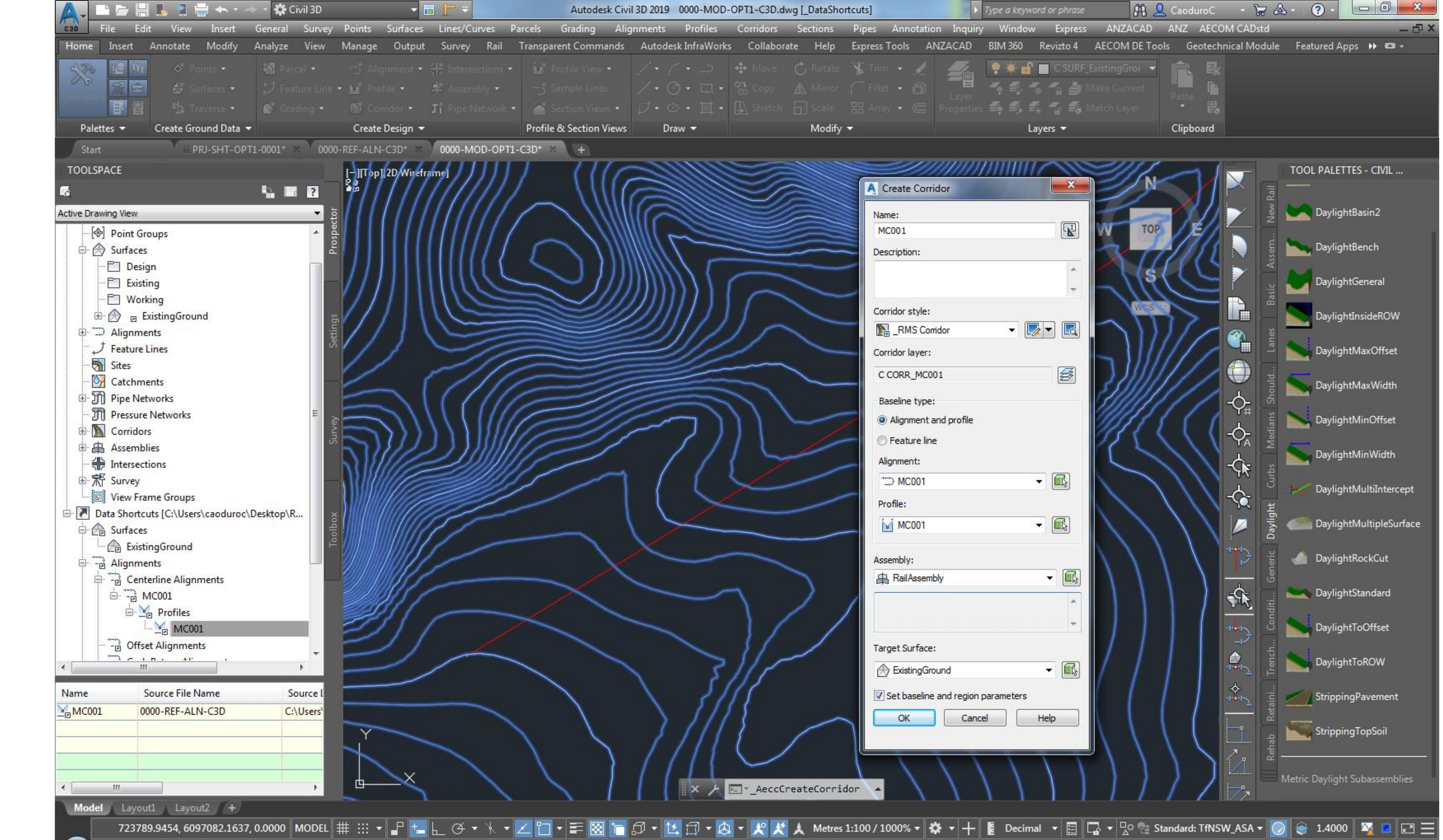
Tool Palettes - Civil Metric Subassemblies

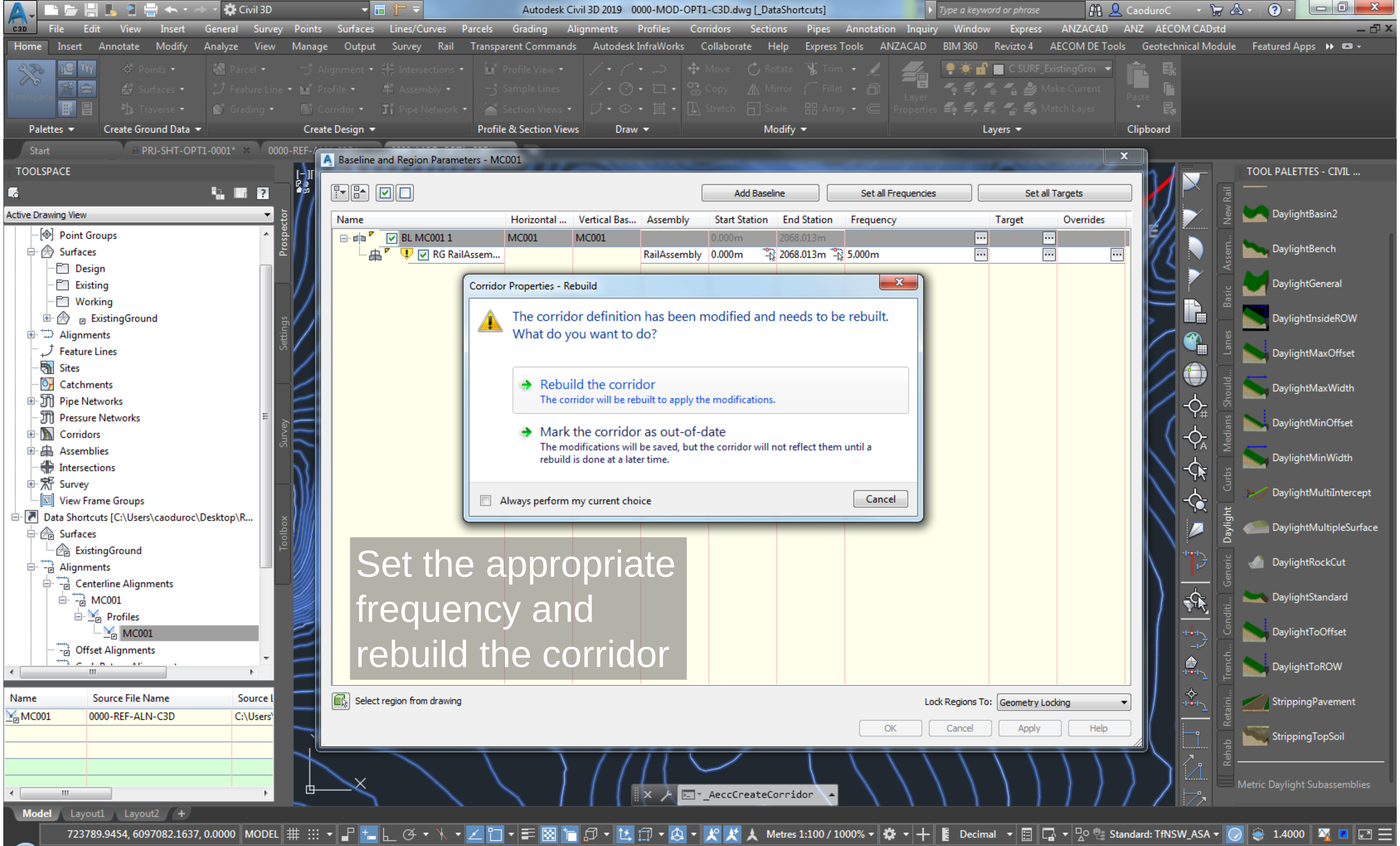
Type a command

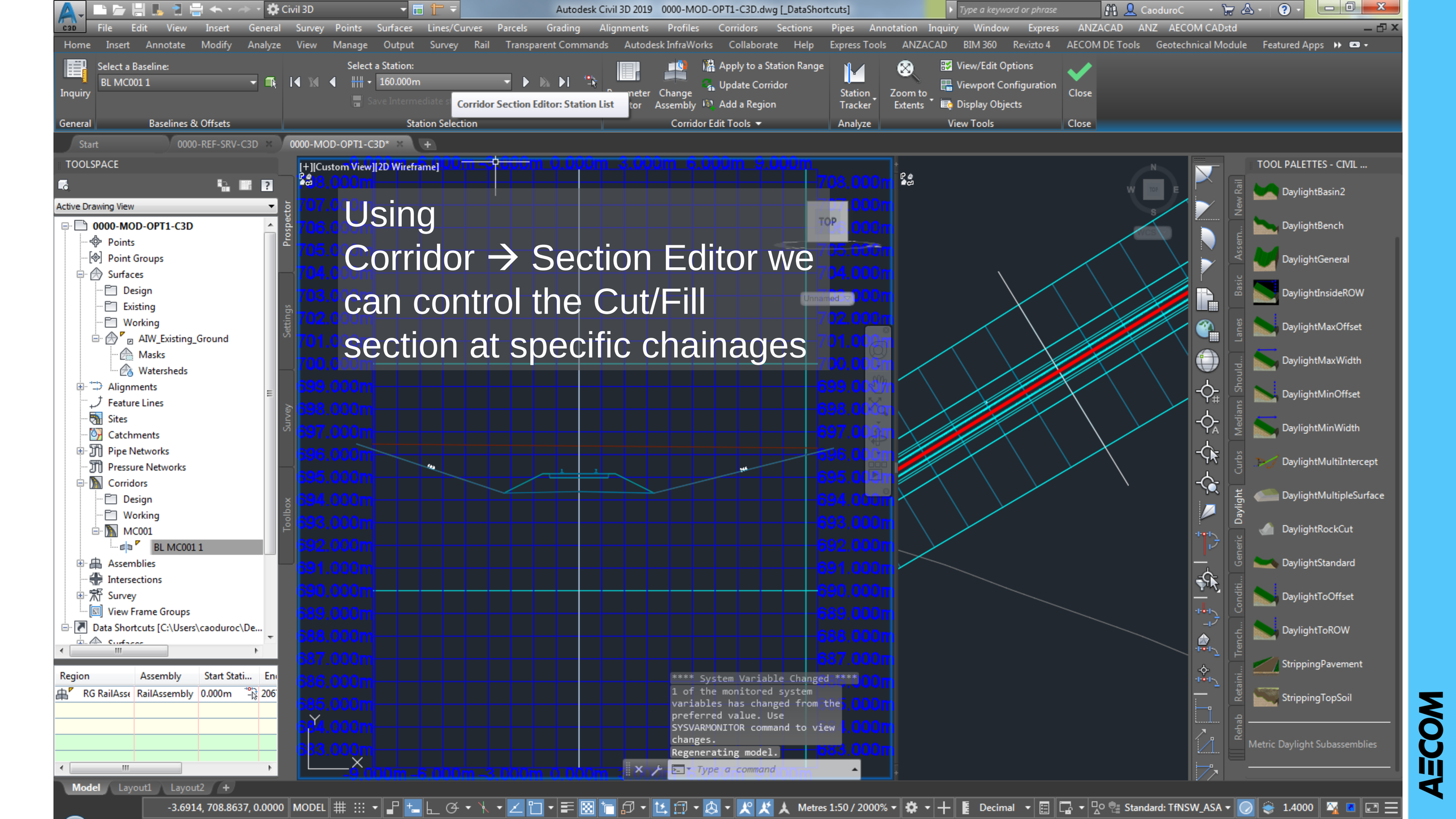
Model | Layout1 | Layout2

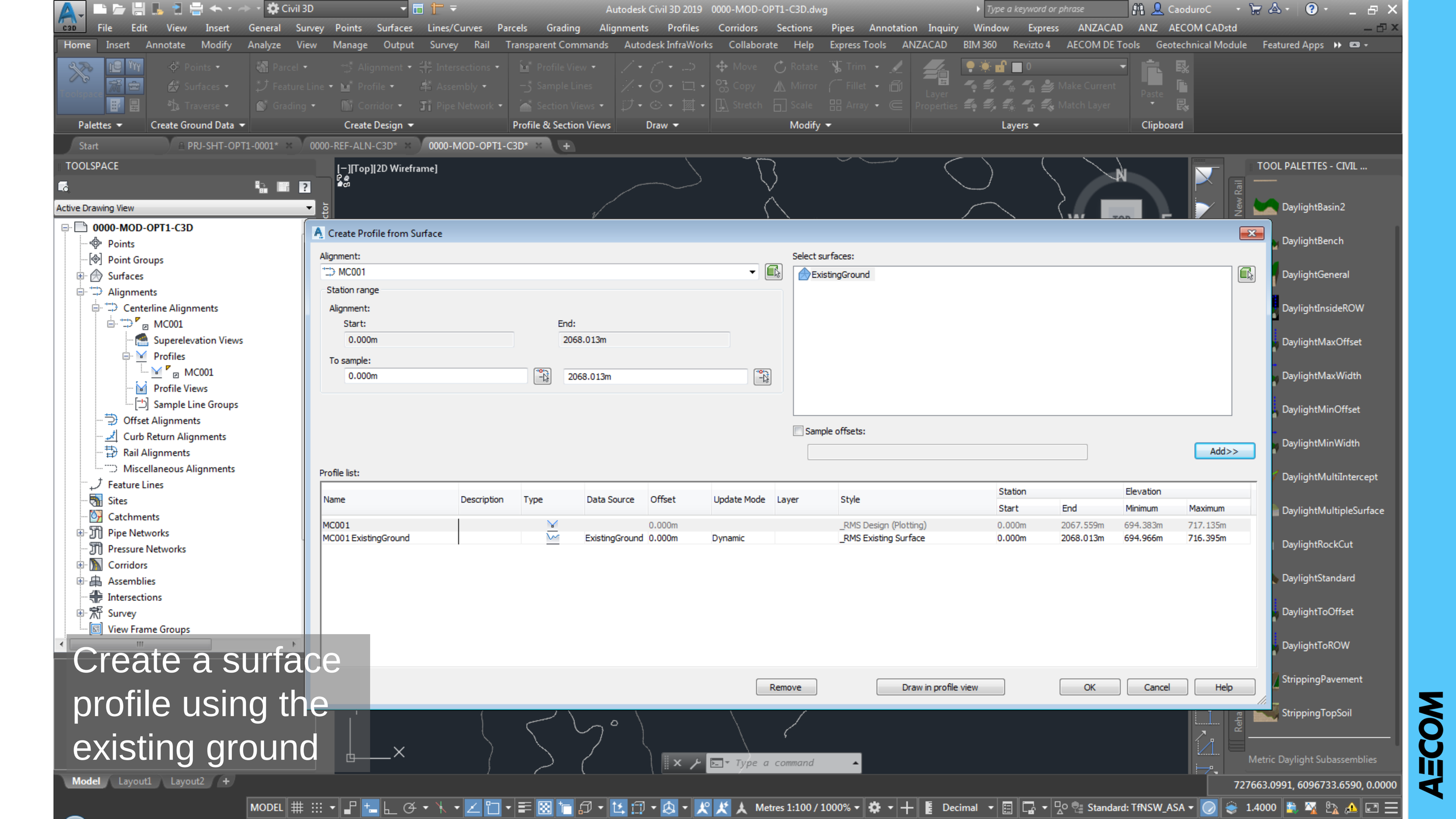
723528.1718, 6096852.6930, 0.0000 MODEL | Metres 1:5000 / 20% | Decimal | Standard: TfNSW_ASA | 1.4000

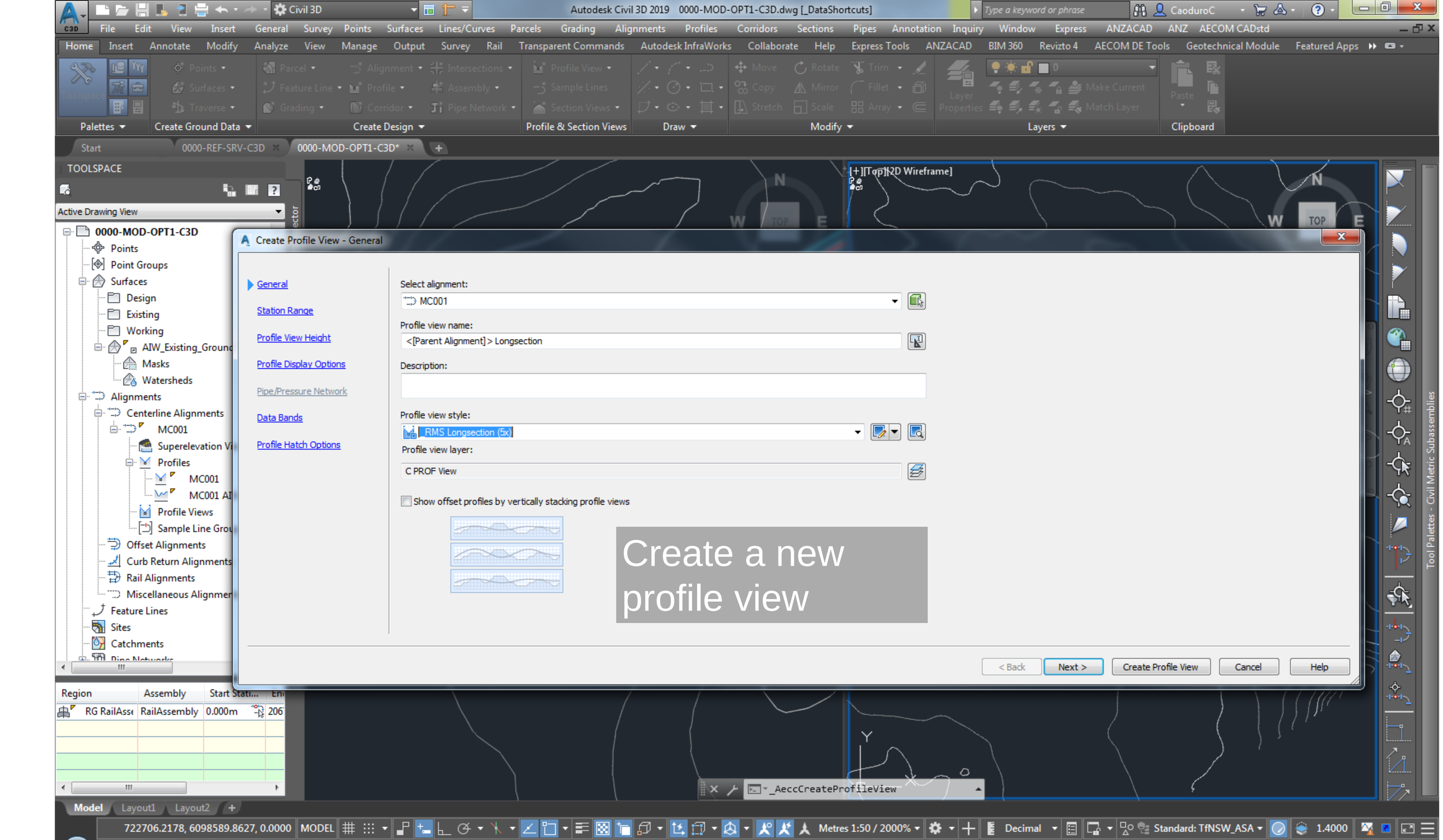
AECOM

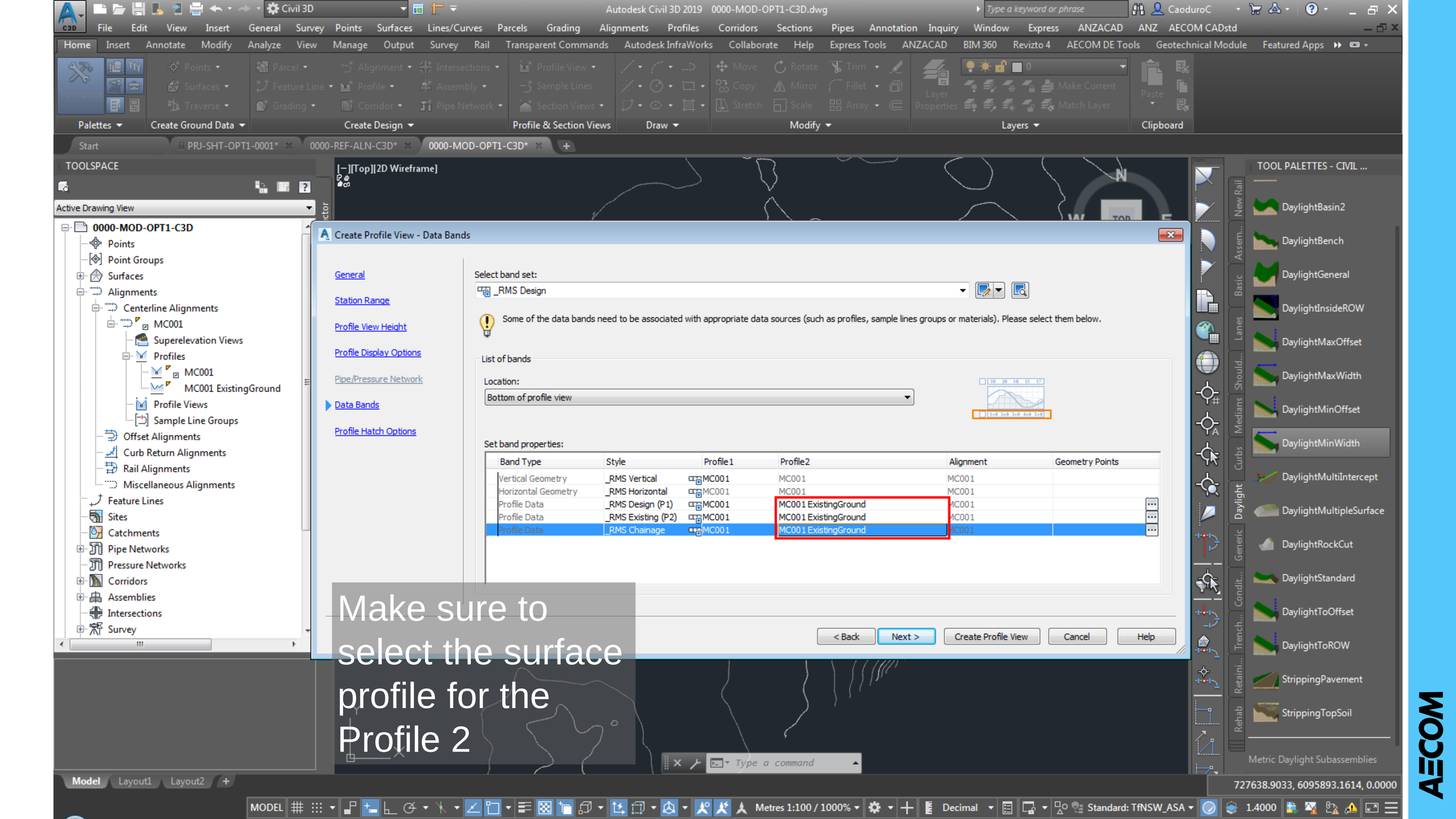

Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create Corridor
Name:
MC001
Description:
Corridor style:
_RMS Corridor
Corridor layer:
C CORR_MC001
Baseline type:
Alignment and profile
Feature line
Alignment:
MC001
Profile:
MC001
Assembly:
RailAssembly
Target Surface:
ExistingGround
Set baseline and region parameters
OK
Cancel
Help
TOOLSPACE
Active Drawing View
Point Groups
Surfaces
Design
Existing
Working
ExistingGround
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\R...
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
Profiles
MC001
Offset Alignments
Name
Source File Name
MC001
0000-REF-ALN-C3D
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
_AeccCreateCorridor
Model
Layout1
Layout2
723789.9454, 6097082.1637, 0.0000
MODEL
Metres 1:100 / 1000%
Decimal
Standard: TfNSW_ASA
1.4000

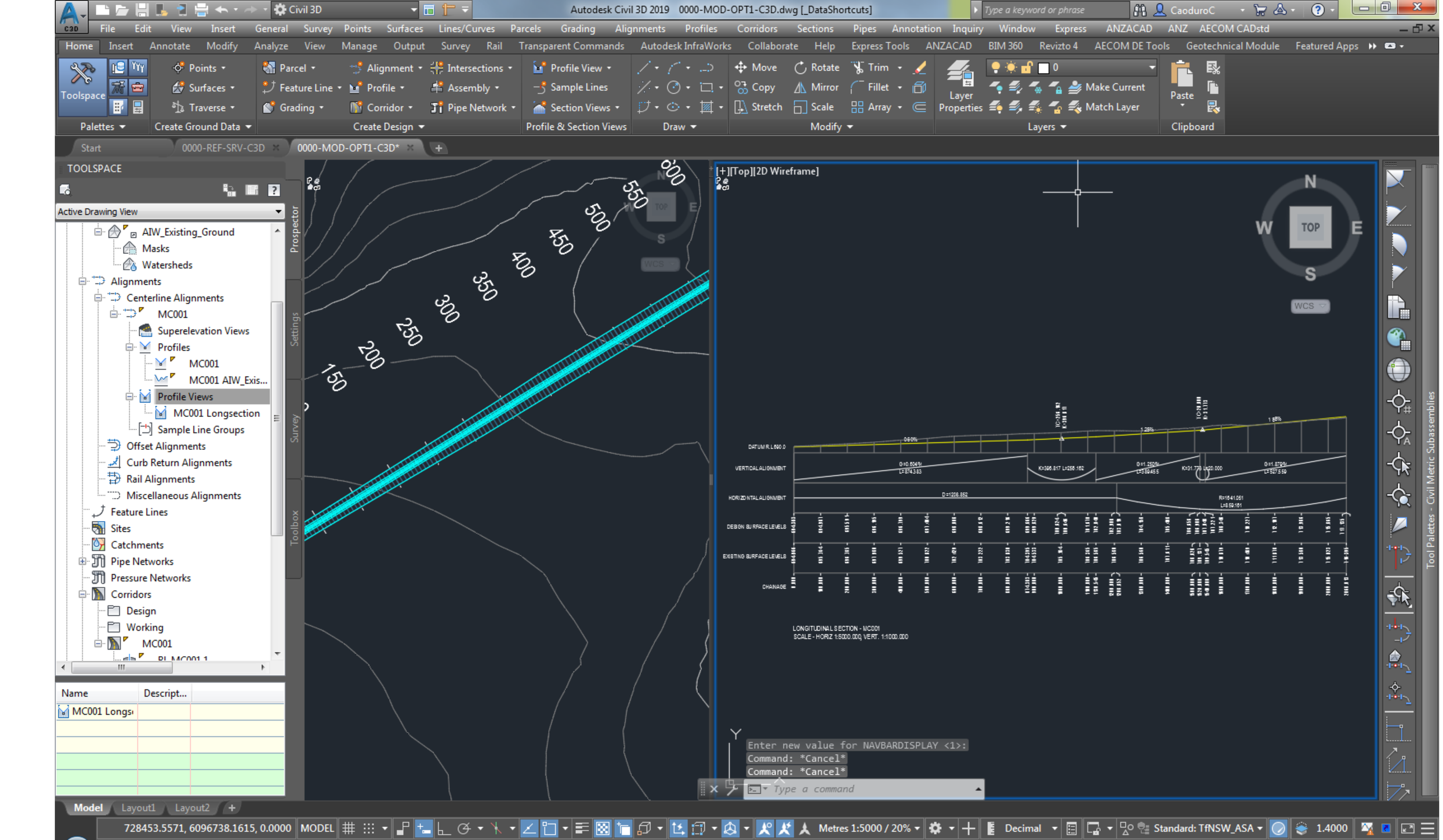

Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Baseline and Region Parameters - MC001
Add Baseline
Set all Frequencies
Set all Targets
Name
Horizontal ...
Vertical Bas...
Assembly
Start Station
End Station
Frequency
Target
Overrides
BL MC001 1
MC001
MC001
0.000m
2068.013m
RG RailAssem...
RailAssembly
0.000m
2068.013m
5.000m
Corridor Properties - Rebuild
The corridor definition has been modified and needs to be rebuilt.
What do you want to do?
Rebuild the corridor
The corridor will be rebuilt to apply the modifications.
Mark the corridor as out-of-date
The modifications will be saved, but the corridor will not reflect them until a rebuild is done at a later time.
Always perform my current choice
Cancel
Set the appropriate frequency and rebuild the corridor
Select region from drawing
Lock Regions To:
Geometry Locking
OK
Cancel
Apply
Help
TOOLSPACE
Active Drawing View
Point Groups
Surfaces
Design
Existing
Working
ExistingGround
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\R...
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
Profiles
MC001
Offset Alignments
Name
Source File Name
MC001
0000-REF-ALN-C3D
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
_AeccCreateCorridor
Model
Layout1
Layout2
723789.9454, 6097082.1637, 0.0000
MODEL
Metres 1:100 / 1000%
Decimal
Standard: TfNSW_ASA
1.4000


Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Select a Baseline:
BL MC001 1
Select a Station:
160.000m
Corridor Section Editor: Station List
Apply to a Station Range
Update Corridor
Add a Region
View/Edit Options
Viewport Configuration
Display Objects
Close
Start
0000-REF-SRV-C3D
0000-MOD-OPT1-C3D*
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Design
Existing
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
MC001
BL MC001 1
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\De...
[+][Custom View][2D Wireframe]
Using
Corridor → Section Editor we
can control the Cut/Fill
section at specific chainages
TOP
Region
Assembly
Start Stati...
RG RailAsse
RailAssembly
0.000m
**** System Variable Changed ****
1 of the monitored system
variables has changed from the
preferred value. Use
SYSVARMONITOR command to view
changes.
Regenerating model.
Type a command
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Model
Layout1
Layout2
-3.6914, 708.8637, 0.0000
MODEL
Metres 1:50 / 2000%
Decimal
Standard: TfNSW_ASA
1.4000

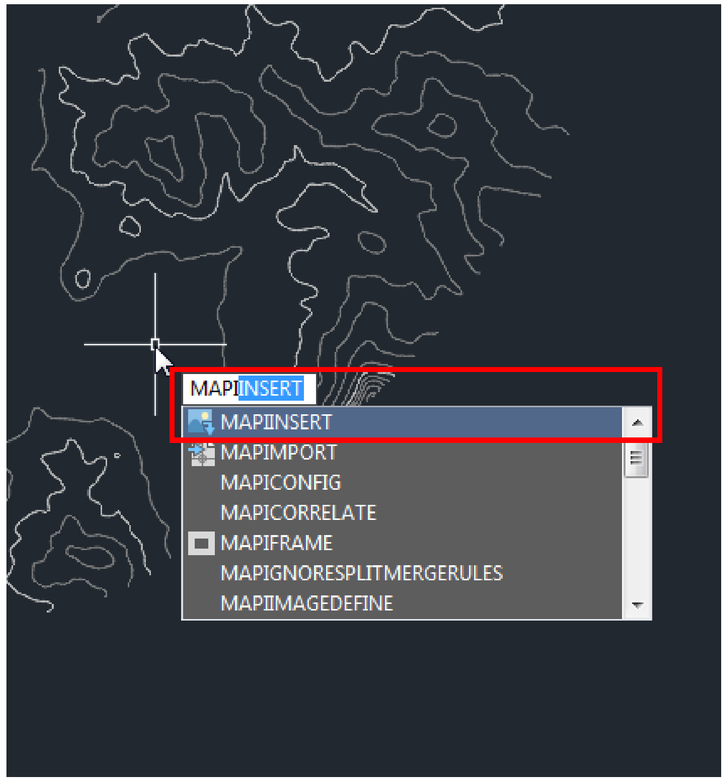

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg
Create Profile from Surface
Alignment:
MC001
Station range
Alignment:
Start:
End:
0.000m
2068.013m
To sample:
0.000m
2068.013m
Select surfaces:
ExistingGround
Sample offsets:
Add>>
Profile list:
Name
Description
Type
Data Source
Offset
Update Mode
Layer
Style
Station
Start
End
Elevation
Minimum
Maximum
MC001
0.000m
_RMS Design (Plotting)
0.000m
2067.559m
694.383m
717.135m
MC001 ExistingGround
ExistingGround
0.000m
Dynamic
_RMS Existing Surface
0.000m
2068.013m
694.966m
716.395m
Remove
Draw in profile view
OK
Cancel
Help
TOOLSPACE
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
Profile Views
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Create a surface profile using the existing ground
727663.0991, 6096733.6590, 0.0000
AECOM

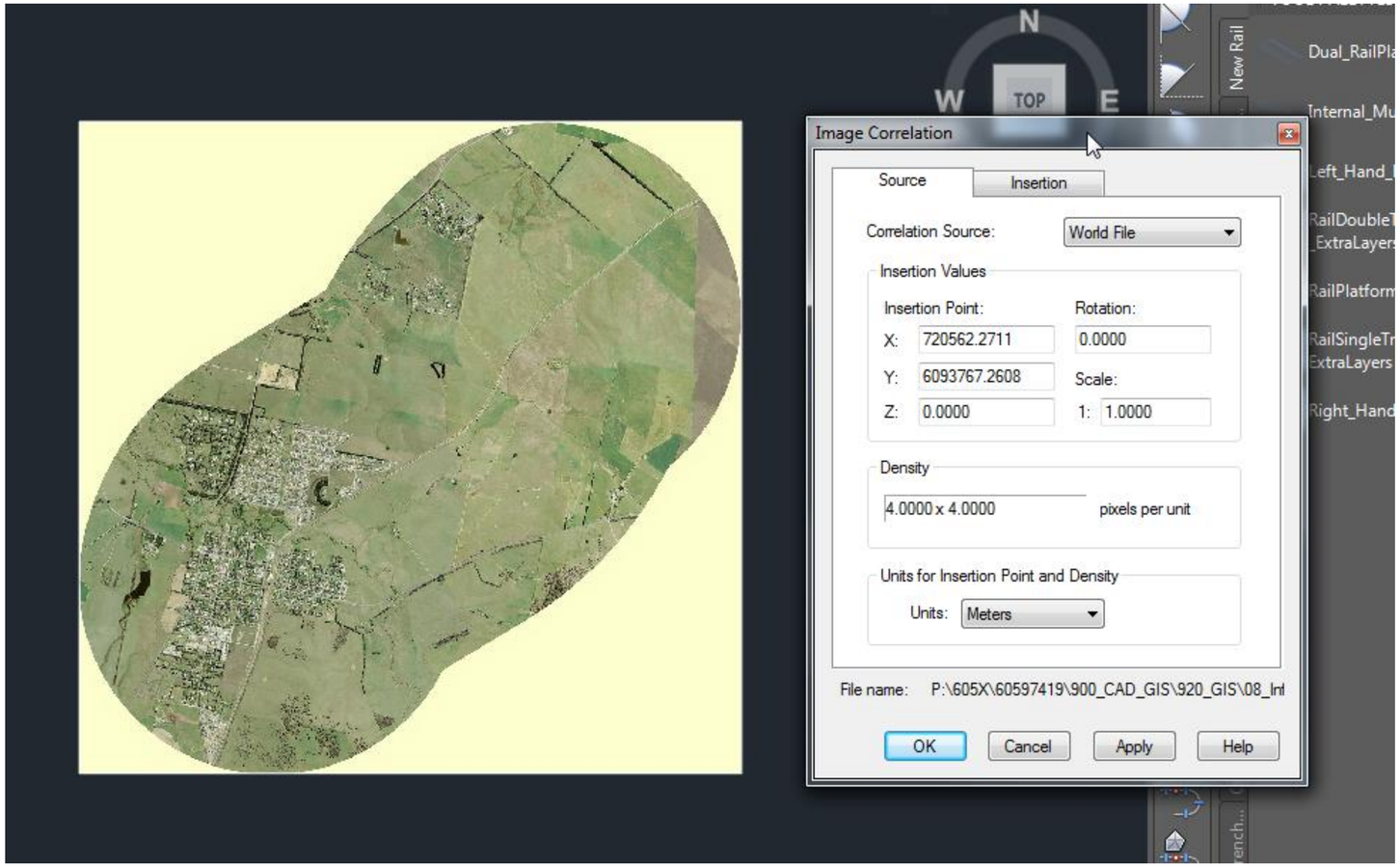

Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create Profile View - General
General
Station Range
Profile View Height
Profile Display Options
Pipe/Pressure Network
Data Bands
Profile Hatch Options
Select alignment:
MC001
Profile view name:
<[Parent Alignment]> Longsection
Description:
Profile view style:
RMS Longsection (5x)
Profile view layer:
C PROF View
Show offset profiles by vertically stacking profile views
< Back
Next >
Create Profile View
Cancel
Help
Create a new profile view
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Design
Existing
Working
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Profiles
Profile Views
Offset Alignments
Curb Return Alignments
Rail Alignments
Feature Lines
Sites
Catchments
[+][Top][2D Wireframe]
Region
Assembly
RG RailAsse
RailAssembly
0.000m
_AeccCreateProfileView
Model
Layout1
Layout2
722706.2178, 6098589.8627, 0.0000
MODEL
Metres 1:50 / 2000%
Decimal
Standard: TfNSW_ASA
1.4000
Tool Palettes - Civil Metric Subassemblies

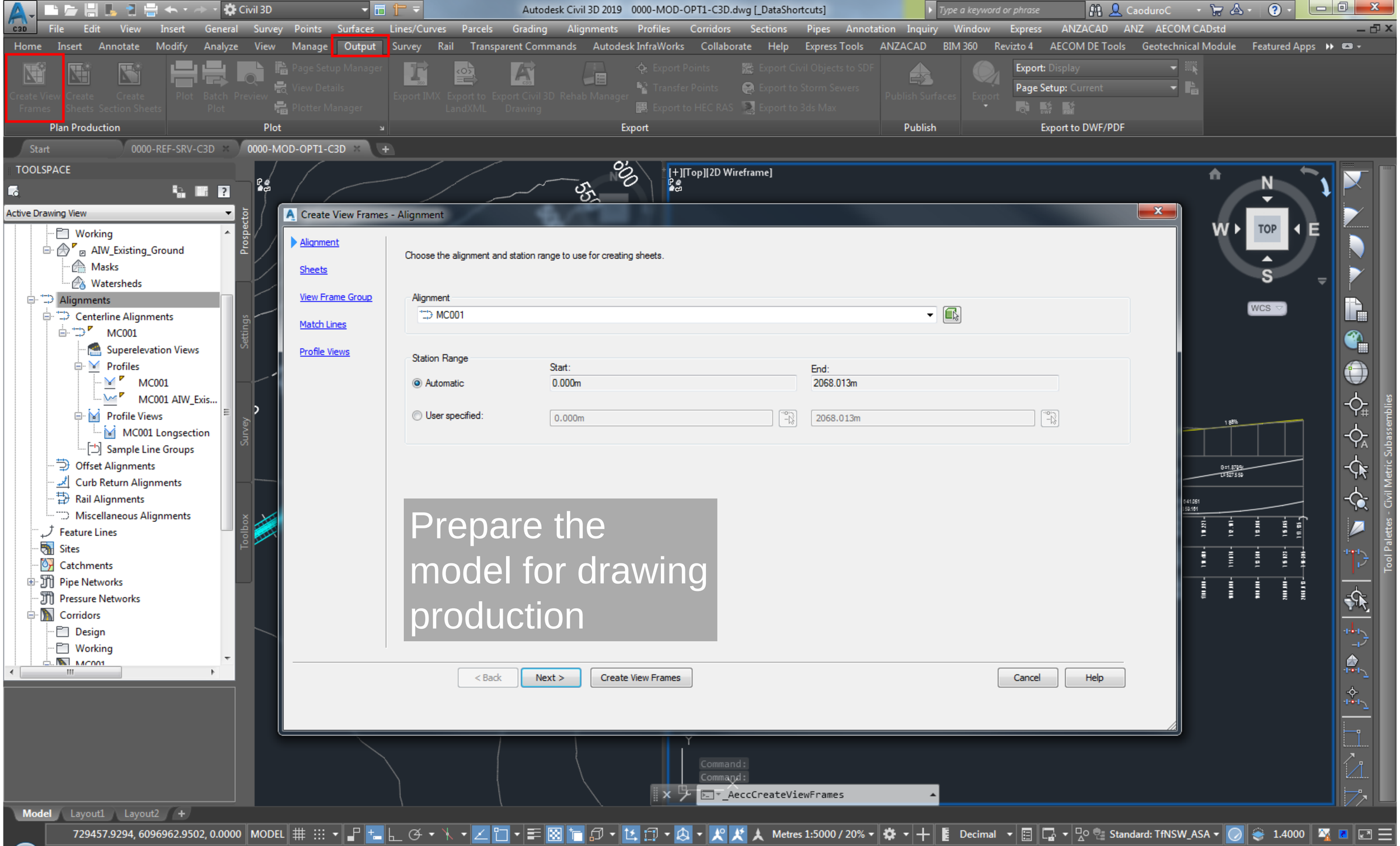

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg
Create Profile View - Data Bands
General
Station Range
Profile View Height
Profile Display Options
Pipe/Pressure Network
Data Bands
Profile Hatch Options
Select band set:
_RMS Design
Some of the data bands need to be associated with appropriate data sources (such as profiles, sample lines groups or materials). Please select them below.
List of bands
Location:
Bottom of profile view
Set band properties:
Band Type
Style
Profile1
Profile2
Alignment
Geometry Points
Vertical Geometry
_RMS Vertical
MC001
MC001
MC001
Horizontal Geometry
_RMS Horizontal
MC001
MC001
MC001
Profile Data
_RMS Design (P1)
MC001
MC001 ExistingGround
MC001
Profile Data
_RMS Existing (P2)
MC001
MC001 ExistingGround
MC001
Profile Data
_RMS Chainage
MC001
MC001 ExistingGround
MC001
< Back
Next >
Create Profile View
Cancel
Help
Make sure to select the surface profile for the Profile 2
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 ExistingGround
Profile Views
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Model
Layout1
Layout2
727638.9033, 6095893.1614, 0.0000

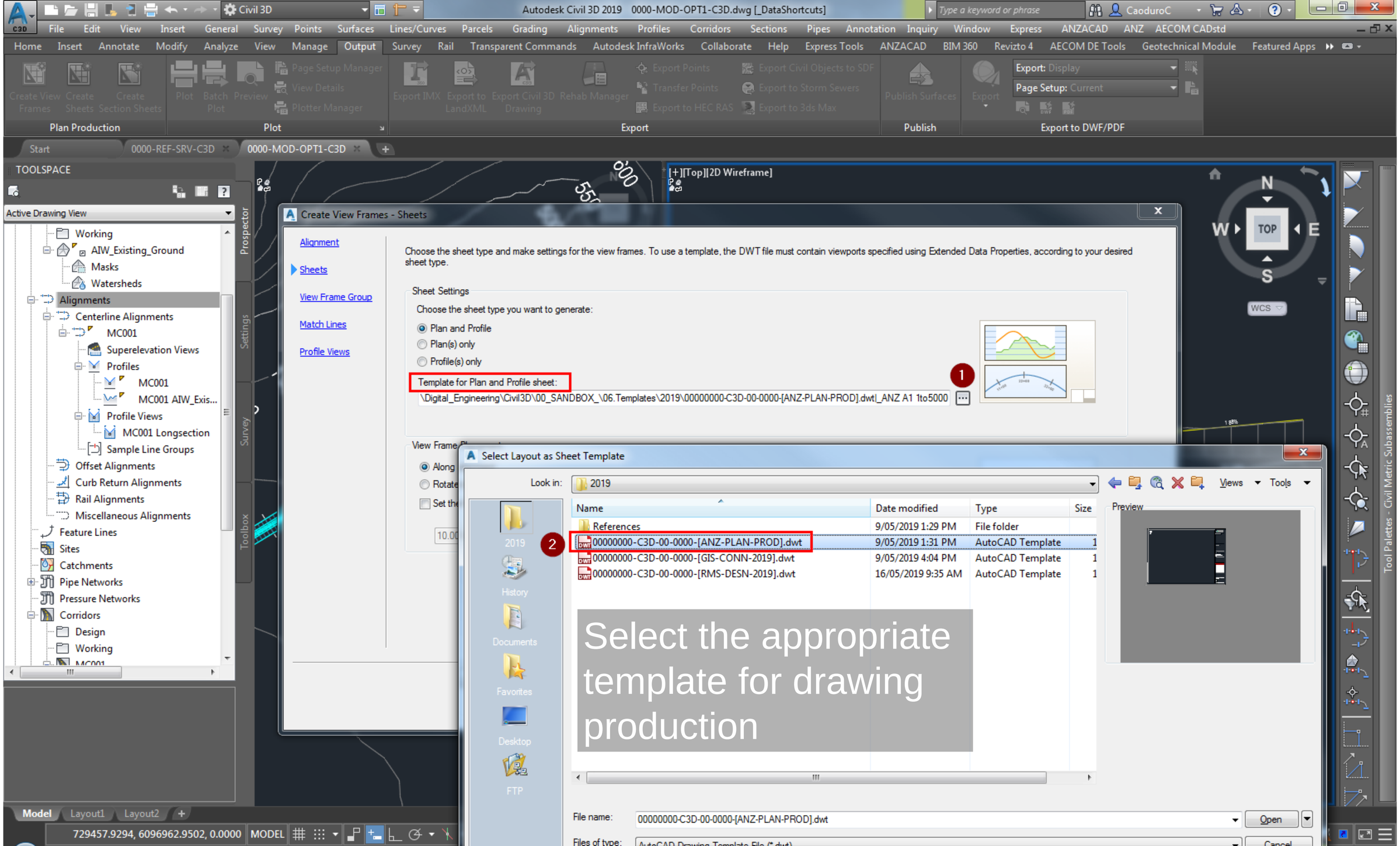

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Toolspace
Points
Surfaces
Traverse
Parcel
Feature Line
Grading
Alignment
Profile
Corridor
Intersections
Assembly
Pipe Network
Profile View
Sample Lines
Section Views
Move
Copy
Stretch
Rotate
Mirror
Scale
Trim
Fillet
Array
Layer Properties
Make Current
Match Layer
Paste
Palettes
Create Ground Data
Create Design
Profile & Section Views
Draw
Modify
Layers
Clipboard
Start
0000-REF-SRV-C3D
0000-MOD-OPT1-C3D*
TOOLSPACE
Active Drawing View
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
MC001
Prospector
Settings
Survey
Toolbox
Name
Descript...
MC001 Longs
[+][Top][2D Wireframe]
N
W
TOP
E
S
WCS
DATUM R.L 690.0
VERTICAL ALIGNMENT
HORIZONTAL ALIGNMENT
DESIGN SURFACE LEVELS
EXISTING SURFACE LEVELS
CHAINAGE
LONGITUDINAL SECTION - MC001
SCALE - HORIZ 1:5000.000, VERT. 1:1000.000
Enter new value for NAVBARDISPLAY <1>:
Command: *Cancel*
Command: *Cancel*
Type a command
Tool Palettes - Civil Metric Subassemblies
Model
Layout1
Layout2
728453.5571, 6096738.1615, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM

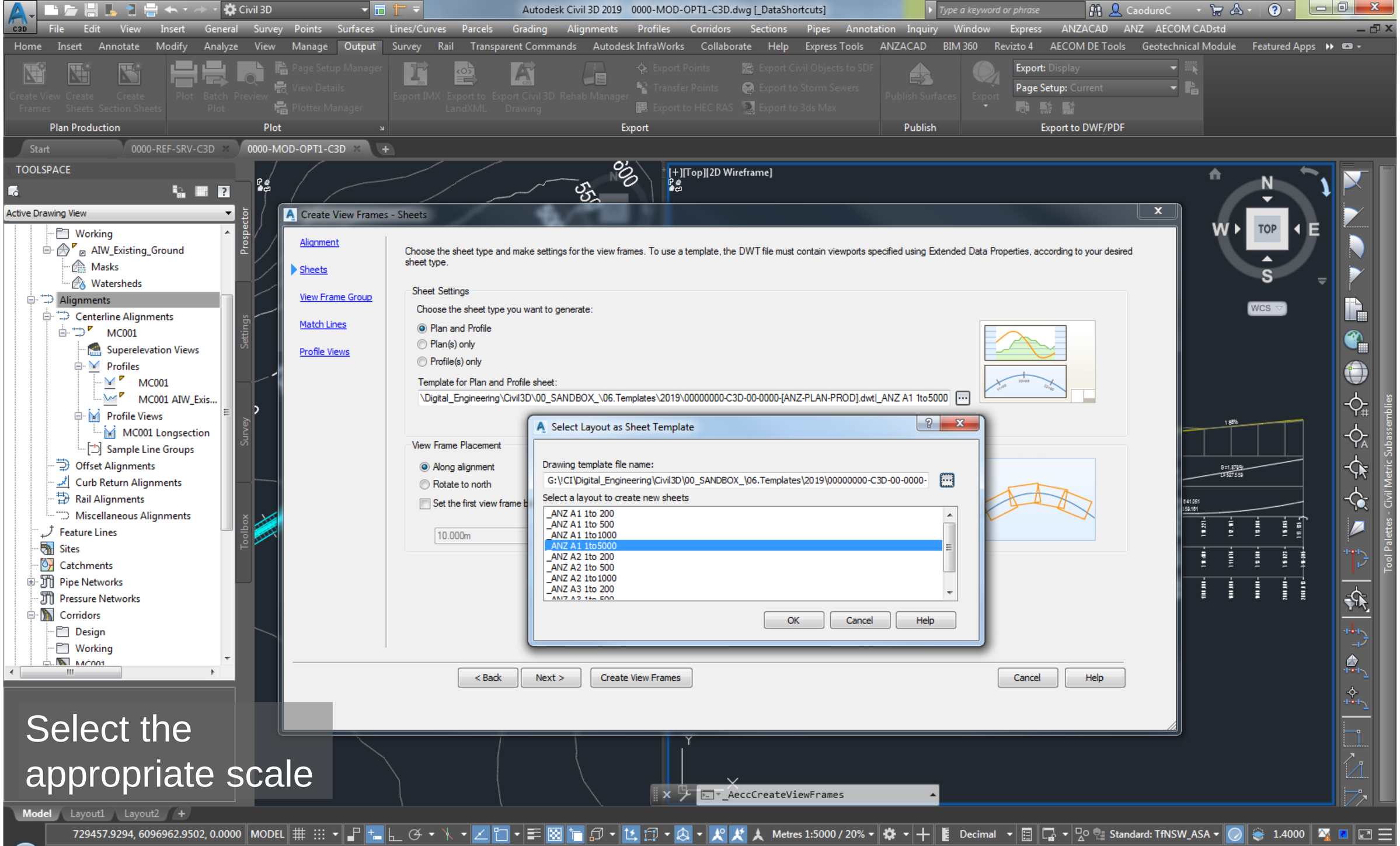
Reference the Aerial

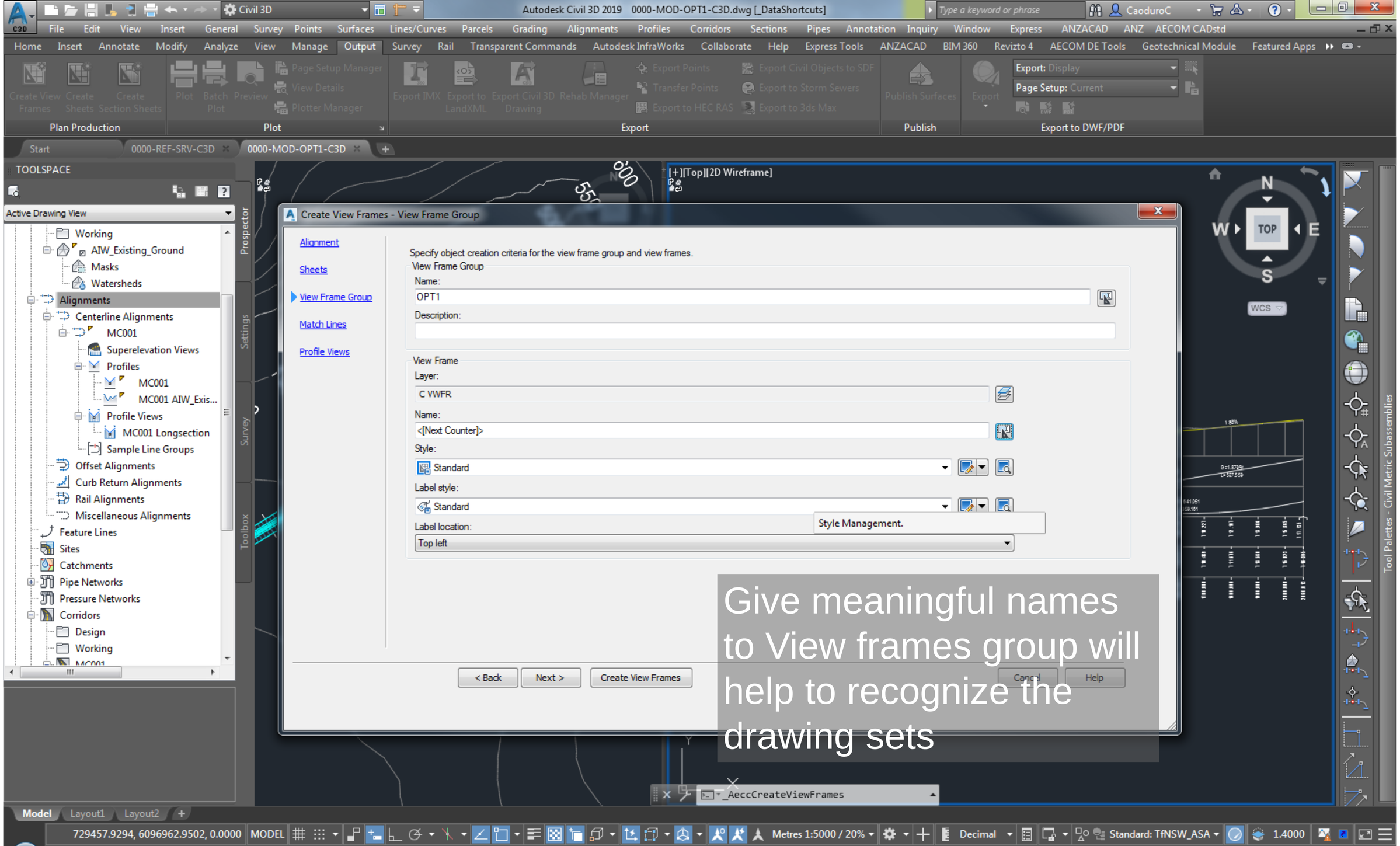


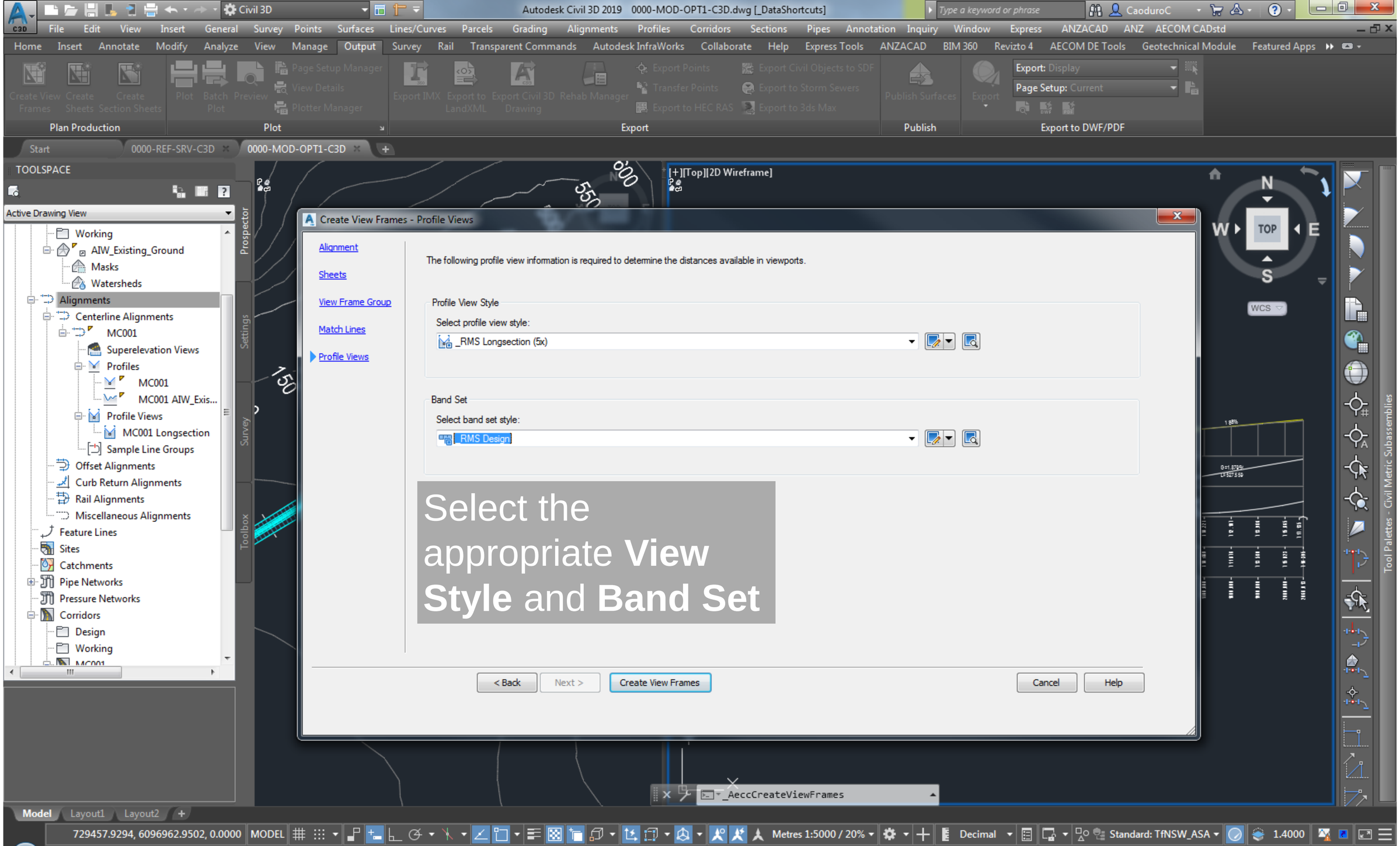


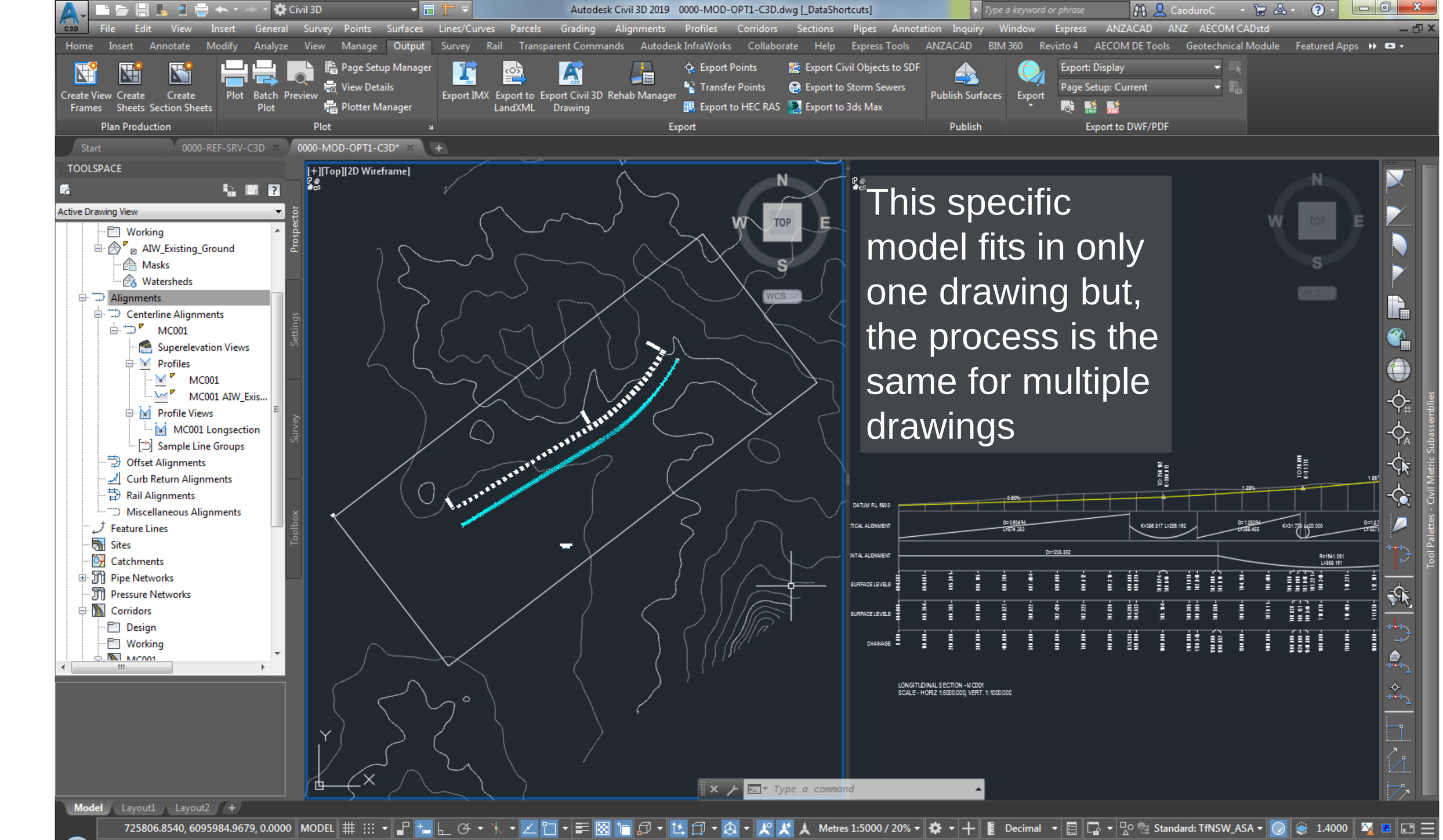

Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create View Frames
Create Sheets
Create Section Sheets
Plan Production
Plot
Batch Plot
Preview
Page Setup Manager
View Details
Plotter Manager
Export IMX
Export to LandXML
Export Civil 3D Drawing
Rehab Manager
Export Points
Transfer Points
Export to HEC RAS
Export Civil Objects to SDF
Export to Storm Sewers
Export to 3ds Max
Export
Publish Surfaces
Publish
Export: Display
Page Setup: Current
Export to DWF/PDF
Start
0000-REF-SRV-C3D
0000-MOD-OPT1-C3D
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
[+][Top][2D Wireframe]
Create View Frames - Alignment
Alignment
Sheets
View Frame Group
Match Lines
Profile Views
Choose the alignment and station range to use for creating sheets.
Alignment
MC001
Station Range
Start:
End:
Automatic
0.000m
2068.013m
User specified:
0.000m
2068.013m
Prepare the model for drawing production
< Back
Next >
Create View Frames
Cancel
Help
Command:
Command:
_AeccCreateViewFrames
Model
Layout1
Layout2
729457.9294, 6096962.9502, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
Tool Palettes - Civil Metric Subassemblies

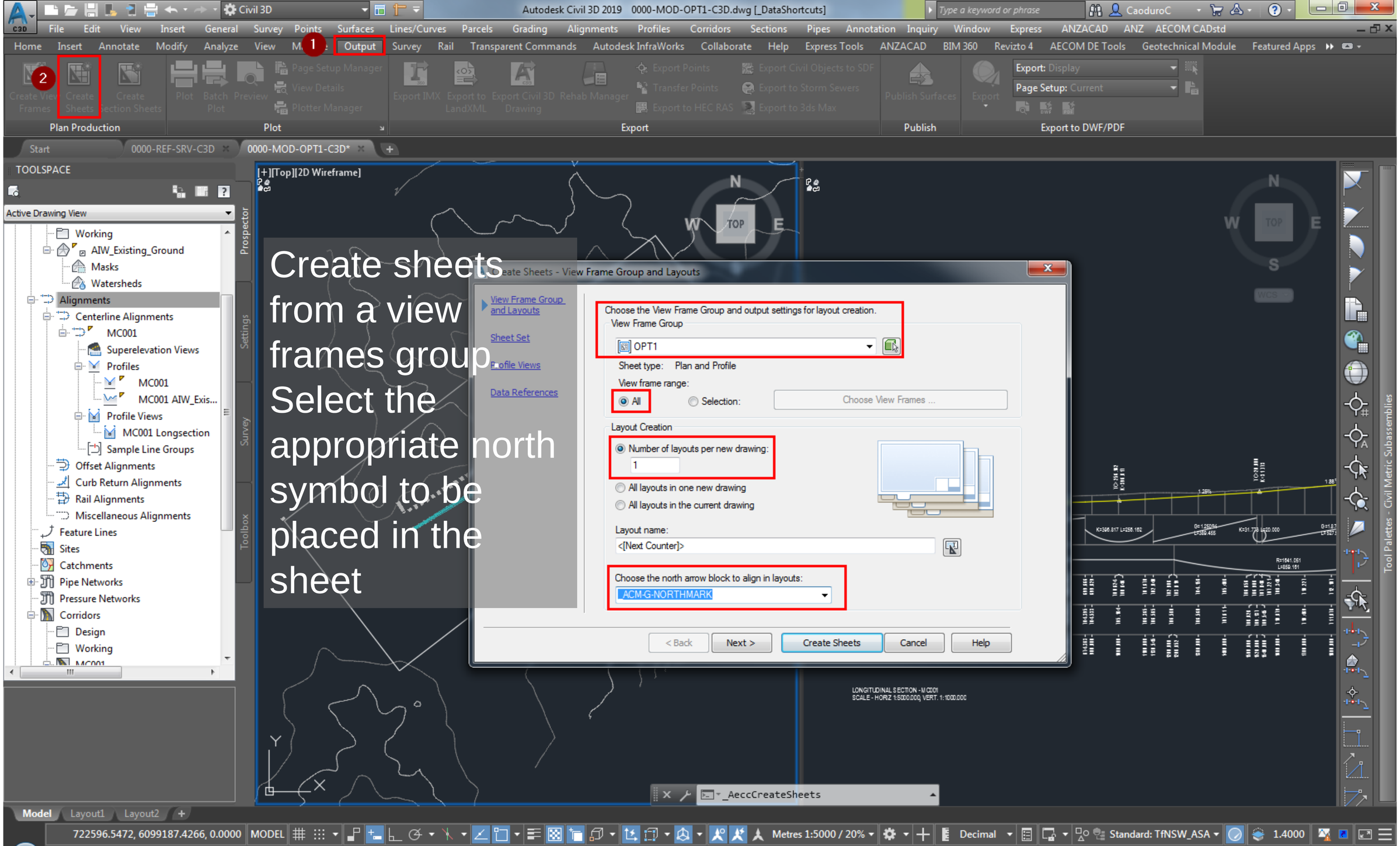

Create View Frames - Sheets
Alignment
Sheets
View Frame Group
Match Lines
Profile Views
Choose the sheet type and make settings for the view frames. To use a template, the DWT file must contain viewports specified using Extended Data Properties, according to your desired sheet type.
Sheet Settings
Choose the sheet type you want to generate:
Plan and Profile
Plan(s) only
Profile(s) only
Template for Plan and Profile sheet:
\Digital_Engineering\Civil3D\00_SANDBOX_\06.Templates\2019\00000000-C3D-00-0000-[ANZ-PLAN-PROD].dwt|_ANZ A1 1to5000
1
Select Layout as Sheet Template
Look in:
2019
Name
Date modified
Type
Size
References
9/05/2019 1:29 PM
File folder
00000000-C3D-00-0000-[ANZ-PLAN-PROD].dwt
9/05/2019 1:31 PM
AutoCAD Template
1
00000000-C3D-00-0000-[GIS-CONN-2019].dwt
9/05/2019 4:04 PM
AutoCAD Template
1
00000000-C3D-00-0000-[RMS-DESN-2019].dwt
16/05/2019 9:35 AM
AutoCAD Template
1
2
Preview
Select the appropriate template for drawing production
File name:
00000000-C3D-00-0000-[ANZ-PLAN-PROD].dwt
Open
Files of type:
Cancel
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
[+][Top][2D Wireframe]
Model
Layout1
Layout2
729457.9294, 6096962.9502, 0.0000
MODEL

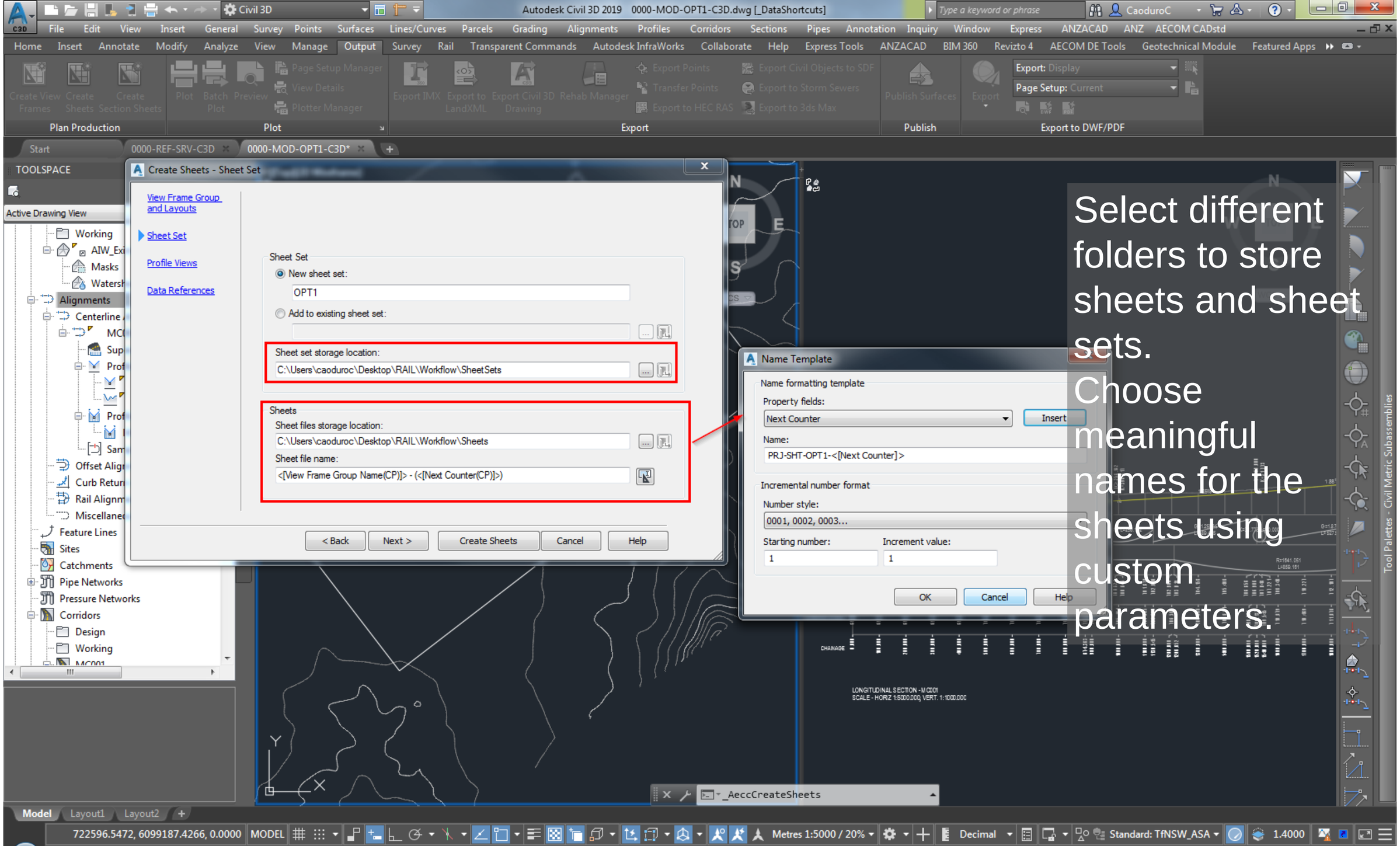

Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create View Frames - Sheets
Alignment
Sheets
View Frame Group
Match Lines
Profile Views
Choose the sheet type and make settings for the view frames. To use a template, the DWT file must contain viewports specified using Extended Data Properties, according to your desired sheet type.
Sheet Settings
Choose the sheet type you want to generate:
Plan and Profile
Plan(s) only
Profile(s) only
Template for Plan and Profile sheet:
\Digital_Engineering\Civil3D\00_SANDBOX_\06.Templates\2019\00000000-C3D-00-0000-[ANZ-PLAN-PROD].dwt|_ANZ A1 1to5000
View Frame Placement
Along alignment
Rotate to north
Set the first view frame b
10.000m
Select Layout as Sheet Template
Drawing template file name:
G:\!CI\Digital_Engineering\Civil3D\00_SANDBOX_\06.Templates\2019\00000000-C3D-00-0000-
Select a layout to create new sheets
_ANZ A1 1to 200
_ANZ A1 1to 500
_ANZ A1 1to1000
_ANZ A1 1to5000
_ANZ A2 1to 200
_ANZ A2 1to 500
_ANZ A2 1to1000
_ANZ A3 1to 200
OK
Cancel
Help
< Back
Next >
Create View Frames
Cancel
Help
[+][Top][2D Wireframe]
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
_AeccCreateViewFrames
Model
Layout1
Layout2
729457.9294, 6096962.9502, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
Select the appropriate scale
AECOM

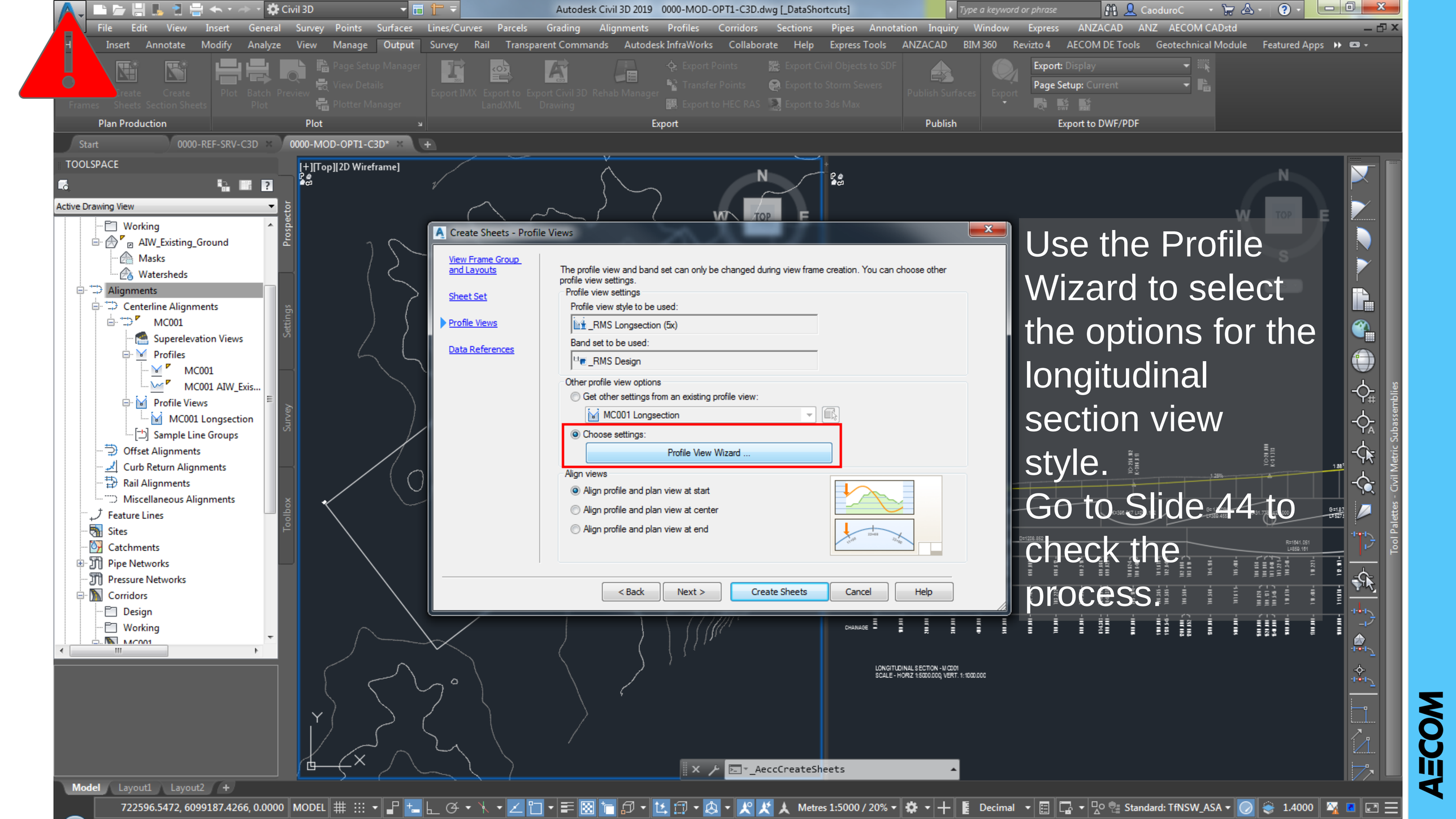

Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create View Frames - View Frame Group
Alignment
Sheets
View Frame Group
Match Lines
Profile Views
Specify object creation criteria for the view frame group and view frames.
View Frame Group
Name:
OPT1
Description:
View Frame
Layer:
C VWFR
Name:
<[Next Counter]>
Style:
Standard
Label style:
Standard
Label location:
Top left
Style Management.
< Back
Next >
Create View Frames
Cancel
Help
Give meaningful names to View frames group will help to recognize the drawing sets
_AeccCreateViewFrames
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
[+][Top][2D Wireframe]
TOP
WCS
Model
Layout1
Layout2
729457.9294, 6096962.9502, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000

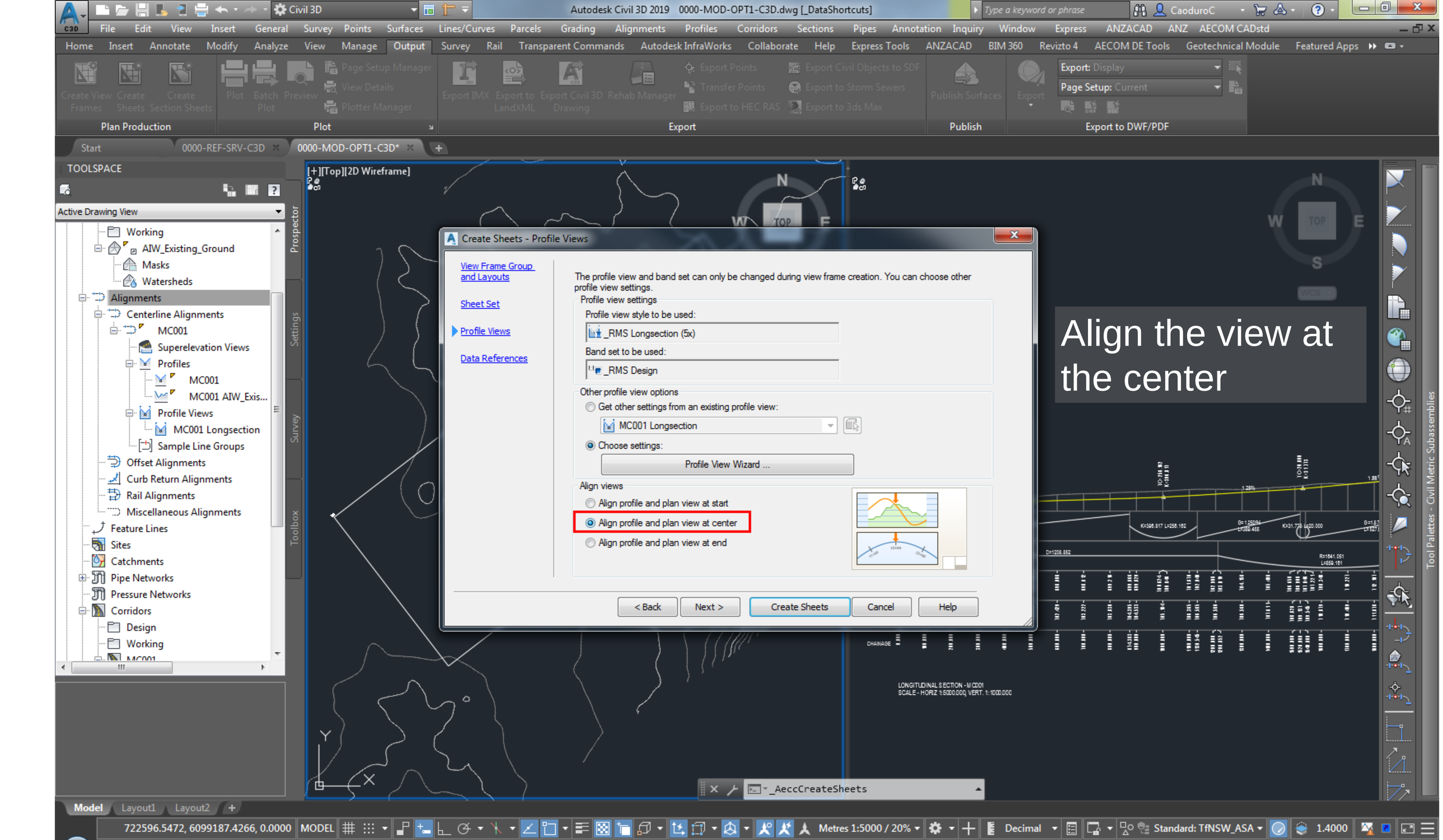

Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create View Frames - Profile Views
Alignment
Sheets
View Frame Group
Match Lines
Profile Views
The following profile view information is required to determine the distances available in viewports.
Profile View Style
Select profile view style:
_RMS Longsection (5x)
Band Set
Select band set style:
_RMS Design
< Back
Next >
Create View Frames
Cancel
Help
Select the appropriate View Style and Band Set
[+][Top][2D Wireframe]
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
_AeccCreateViewFrames
Model
Layout1
Layout2
729457.9294, 6096962.9502, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000

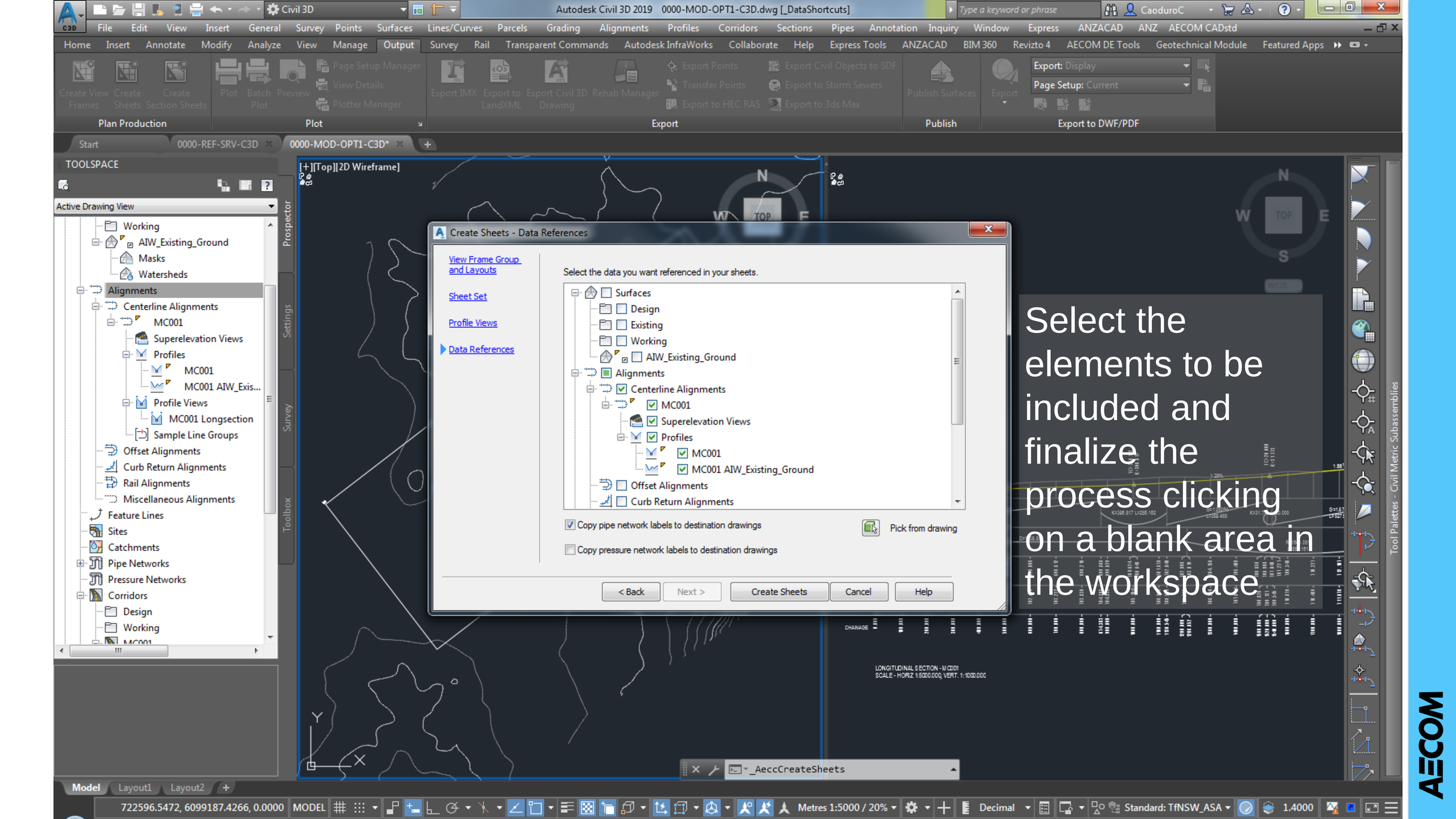

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Create View Frames
Create Sheets
Create Section Sheets
Plan Production
Plot
Batch Plot
Preview
Page Setup Manager
View Details
Plotter Manager
Plot
Export IMX
Export to LandXML
Export Civil 3D Drawing
Rehab Manager
Export Points
Transfer Points
Export to HEC RAS
Export Civil Objects to SDF
Export to Storm Sewers
Export to 3ds Max
Export
Publish Surfaces
Publish
Export: Display
Page Setup: Current
Export to DWF/PDF
Start
0000-REF-SRV-C3D
0000-MOD-OPT1-C3D*
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
Prospector
Settings
Survey
Toolbox
[+][Top][2D Wireframe]
N
W
TOP
E
S
WCS
Y
X
This specific model fits in only one drawing but, the process is the same for multiple drawings
DATUM R.L.600.0
LONGITUDINAL SECTION - MC001
SCALE - HORIZ 1:5000.000, VERT. 1:1000.000
Tool Palettes - Civil Metric Subassemblies
Type a command
Model
Layout1
Layout2
725806.8540, 6095984.9679, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM

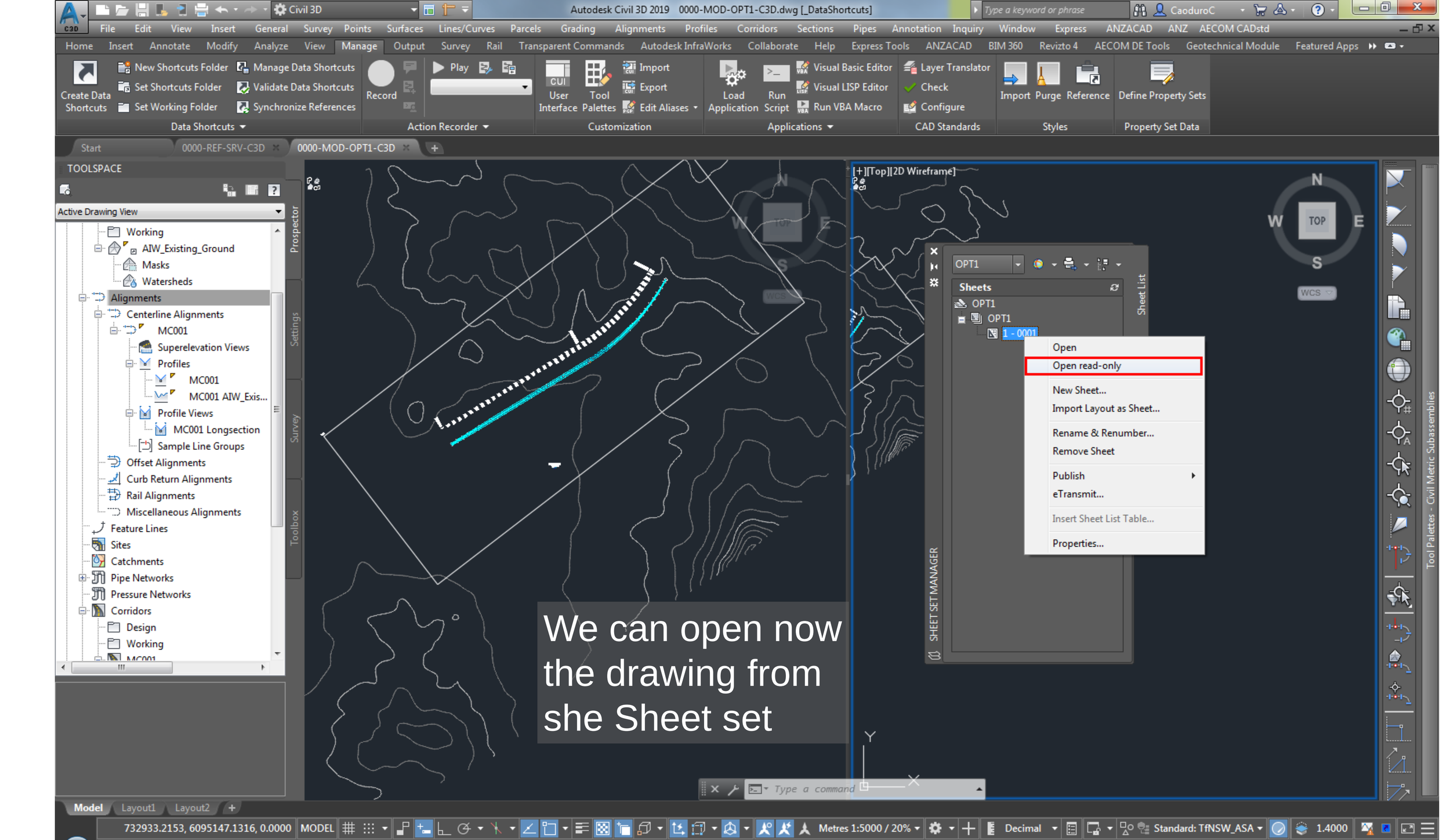

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Output
Create Sheets
Plan Production
Plot
Export
Publish
Export to DWF/PDF
Export: Display
Page Setup: Current
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
[+][Top][2D Wireframe]
Create Sheets - View Frame Group and Layouts
View Frame Group and Layouts
Sheet Set
Profile Views
Data References
Choose the View Frame Group and output settings for layout creation.
View Frame Group
OPT1
Sheet type: Plan and Profile
View frame range:
All
Selection:
Choose View Frames ...
Layout Creation
Number of layouts per new drawing:
1
All layouts in one new drawing
All layouts in the current drawing
Layout name:
<[Next Counter]>
Choose the north arrow block to align in layouts:
_ACM-G-NORTHMARK
< Back
Next >
Create Sheets
Cancel
Help
Create sheets from a view frames group Select the appropriate north symbol to be placed in the sheet
_AeccCreateSheets
Model
Layout1
Layout2
722596.5472, 6099187.4266, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
Tool Palettes - Civil Metric Subassemblies
AECOM

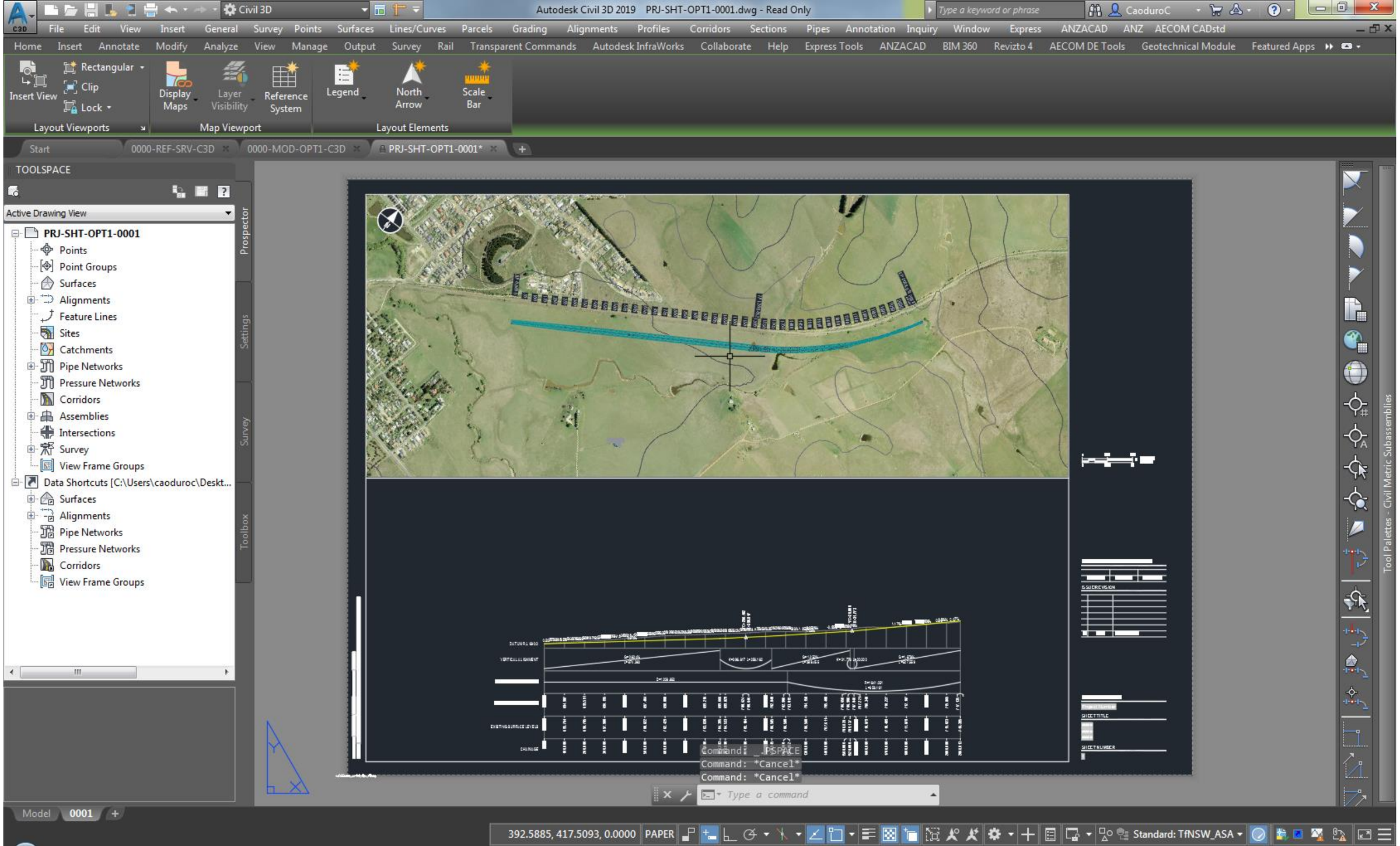

Create Sheets - Sheet Set
View Frame Group and Layouts
Sheet Set
Profile Views
Data References
Sheet Set
New sheet set:
OPT1
Add to existing sheet set:
Sheet set storage location:
C:\Users\caoduroc\Desktop\RAIL\Workflow\SheetSets
Sheets
Sheet files storage location:
C:\Users\caoduroc\Desktop\RAIL\Workflow\Sheets
Sheet file name:
<[View Frame Group Name(CP)]> - (<[Next Counter(CP)]>)
< Back
Next >
Create Sheets
Cancel
Help
Name Template
Name formatting template
Property fields:
Next Counter
Insert
Name:
PRJ-SHT-OPT1-<[Next Counter]>
Incremental number format
Number style:
0001, 0002, 0003...
Starting number:
1
Increment value:
1
OK
Cancel
Help
Select different folders to store sheets and sheet sets.
Choose meaningful names for the sheets using custom parameters.


Create Sheets - Profile Views
View Frame Group and Layouts
Sheet Set
Profile Views
Data References
The profile view and band set can only be changed during view frame creation. You can choose other profile view settings.
Profile view settings
Profile view style to be used:
_RMS Longsection (5x)
Band set to be used:
_RMS Design
Other profile view options
Get other settings from an existing profile view:
MC001 Longsection
Choose settings:
Profile View Wizard ...
Align views
Align profile and plan view at start
Align profile and plan view at center
Align profile and plan view at end
< Back
Next >
Create Sheets
Cancel
Help
Use the Profile Wizard to select the options for the longitudinal section view style.
Go to Slide 44 to check the process.


Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create Sheets - Profile Views
View Frame Group and Layouts
Sheet Set
Profile Views
Data References
The profile view and band set can only be changed during view frame creation. You can choose other profile view settings.
Profile view settings
Profile view style to be used:
_RMS Longsection (5x)
Band set to be used:
_RMS Design
Other profile view options
Get other settings from an existing profile view:
MC001 Longsection
Choose settings:
Profile View Wizard ...
Align views
Align profile and plan view at start
Align profile and plan view at center
Align profile and plan view at end
< Back
Next >
Create Sheets
Cancel
Help
Align the view at the center
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
[+][Top][2D Wireframe]
_AeccCreateSheets
Model
Layout1
Layout2
722596.5472, 6099187.4266, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
Tool Palettes - Civil Metric Subassemblies

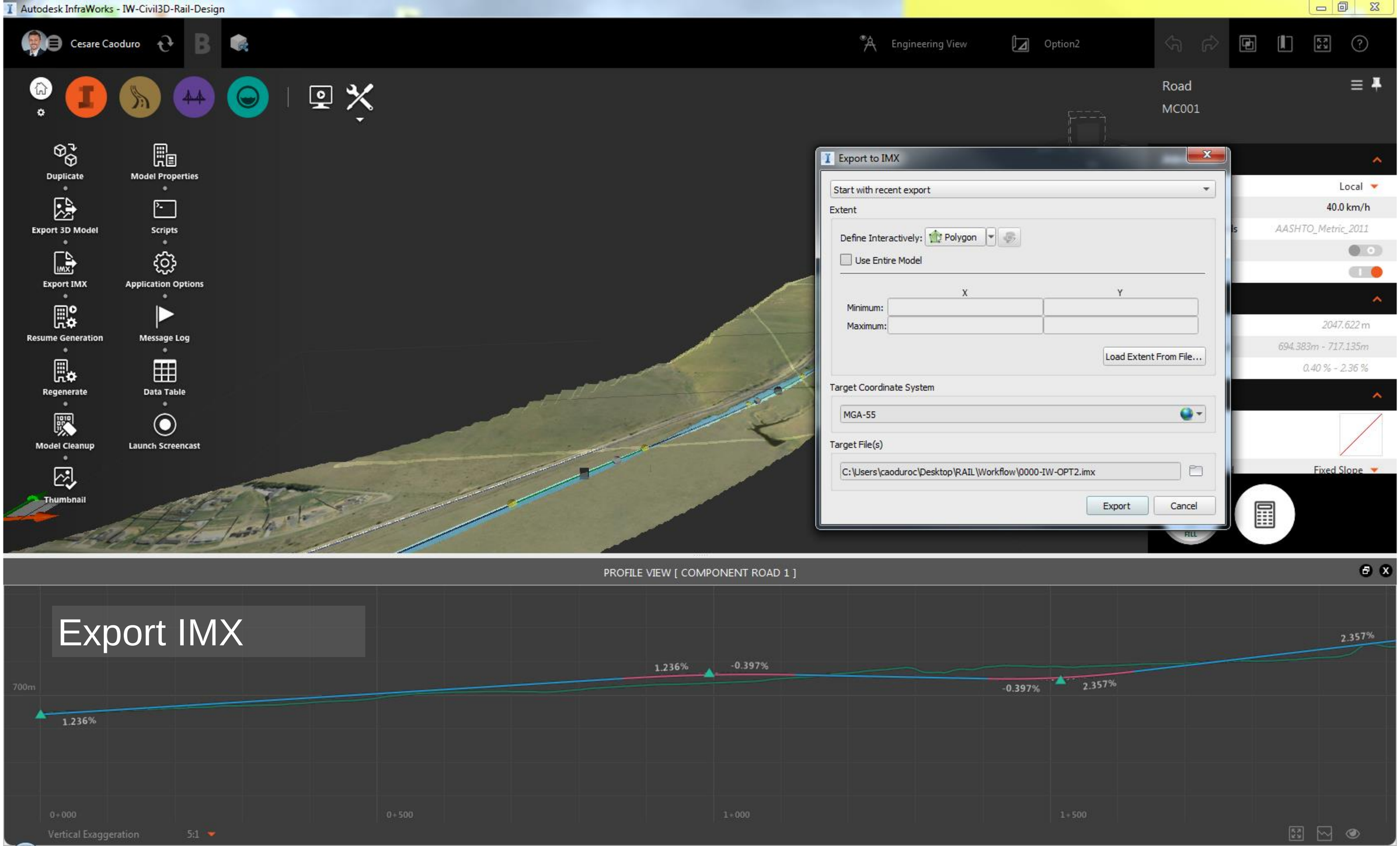

Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create Sheets - Data References
View Frame Group and Layouts
Sheet Set
Profile Views
Data References
Select the data you want referenced in your sheets.
Surfaces
Design
Existing
Working
AIW_Existing_Ground
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Existing_Ground
Offset Alignments
Curb Return Alignments
Copy pipe network labels to destination drawings
Copy pressure network labels to destination drawings
Pick from drawing
< Back
Next >
Create Sheets
Cancel
Help
Select the elements to be included and finalize the process clicking on a blank area in the workspace
TOOLSPACE
Active Drawing View
[+][Top][2D Wireframe]
_AeccCreateSheets
Model
Layout1
Layout2


Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Create Data Shortcuts
New Shortcuts Folder
Set Shortcuts Folder
Set Working Folder
Manage Data Shortcuts
Validate Data Shortcuts
Synchronize References
Data Shortcuts
Record
Play
Action Recorder
User Interface
Tool Palettes
Import
Export
Edit Aliases
Customization
Load Application
Run Script
Visual Basic Editor
Visual LISP Editor
Run VBA Macro
Applications
Layer Translator
Check
Configure
CAD Standards
Import
Purge
Reference
Styles
Define Property Sets
Property Set Data
Start
0000-REF-SRV-C3D
0000-MOD-OPT1-C3D
TOOLSPACE
Active Drawing View
Working
AIW_Existing_Ground
Masks
Watersheds
Alignments
Centerline Alignments
MC001
Superelevation Views
Profiles
MC001
MC001 AIW_Exis...
Profile Views
MC001 Longsection
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
Prospector
Settings
Survey
Toolbox
[+][Top][2D Wireframe]
N
W
TOP
E
S
WCS
OPT1
Sheets
OPT1
OPT1
1 - 0001
Sheet List
SHEET SET MANAGER
Open
Open read-only
New Sheet...
Import Layout as Sheet...
Rename & Renumber...
Remove Sheet
Publish
eTransmit...
Insert Sheet List Table...
Properties...
We can open now the drawing from she Sheet set
Type a command
Tool Palettes - Civil Metric Subassemblies
Model
Layout1
Layout2
732933.2153, 6095147.1316, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM

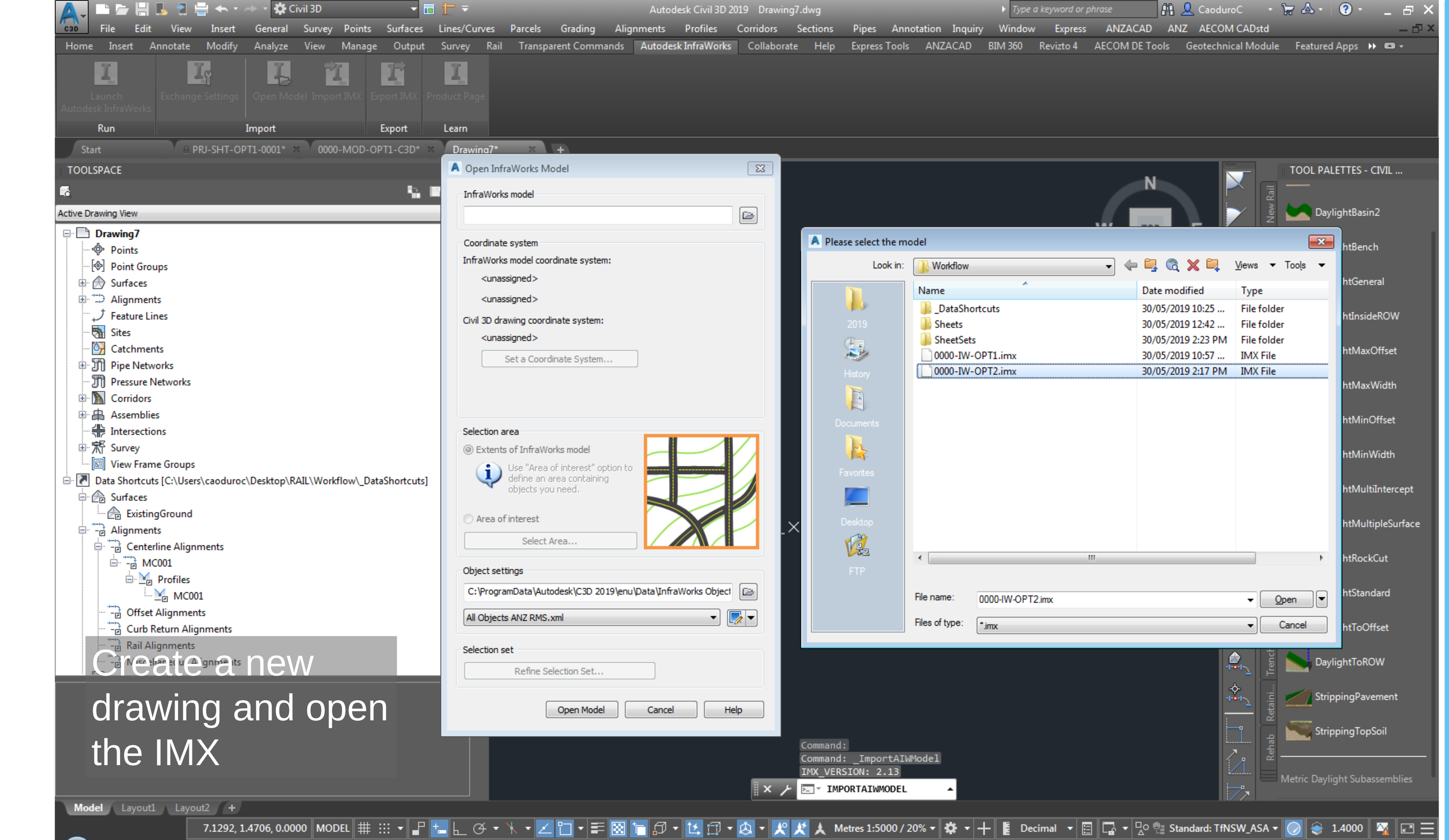

Civil 3D
Autodesk Civil 3D 2019 PRJ-SHT-OPT1-0001.dwg - Read Only
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Insert View
Rectangular
Clip
Lock
Layout Viewports
Display Maps
Layer Visibility
Reference System
Map Viewport
Legend
North Arrow
Scale Bar
Layout Elements
Start
0000-REF-SRV-C3D
0000-MOD-OPT1-C3D
PRJ-SHT-OPT1-0001*
TOOLSPACE
Active Drawing View
PRJ-SHT-OPT1-0001
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Deskt...
Surfaces
Alignments
Pipe Networks
Pressure Networks
Corridors
View Frame Groups
Prospector
Settings
Survey
Toolbox
Command: _PSPACE
Command: *Cancel*
Command: *Cancel*
Type a command
Tool Palettes - Civil Metric Subassemblies
Model
0001
392.5885, 417.5093, 0.0000
PAPER
Standard: TfNSW_ASA

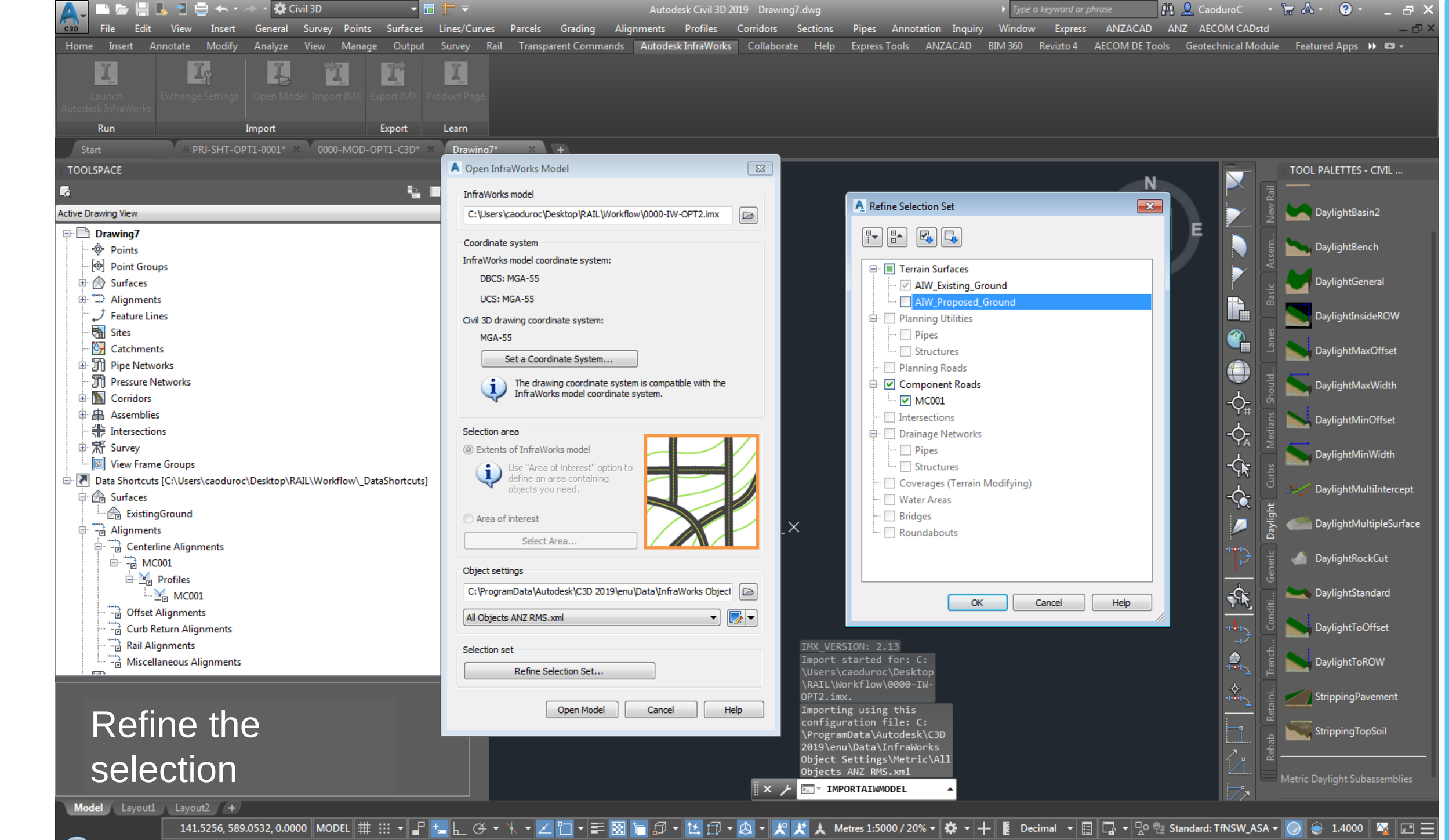
What if we update the option?

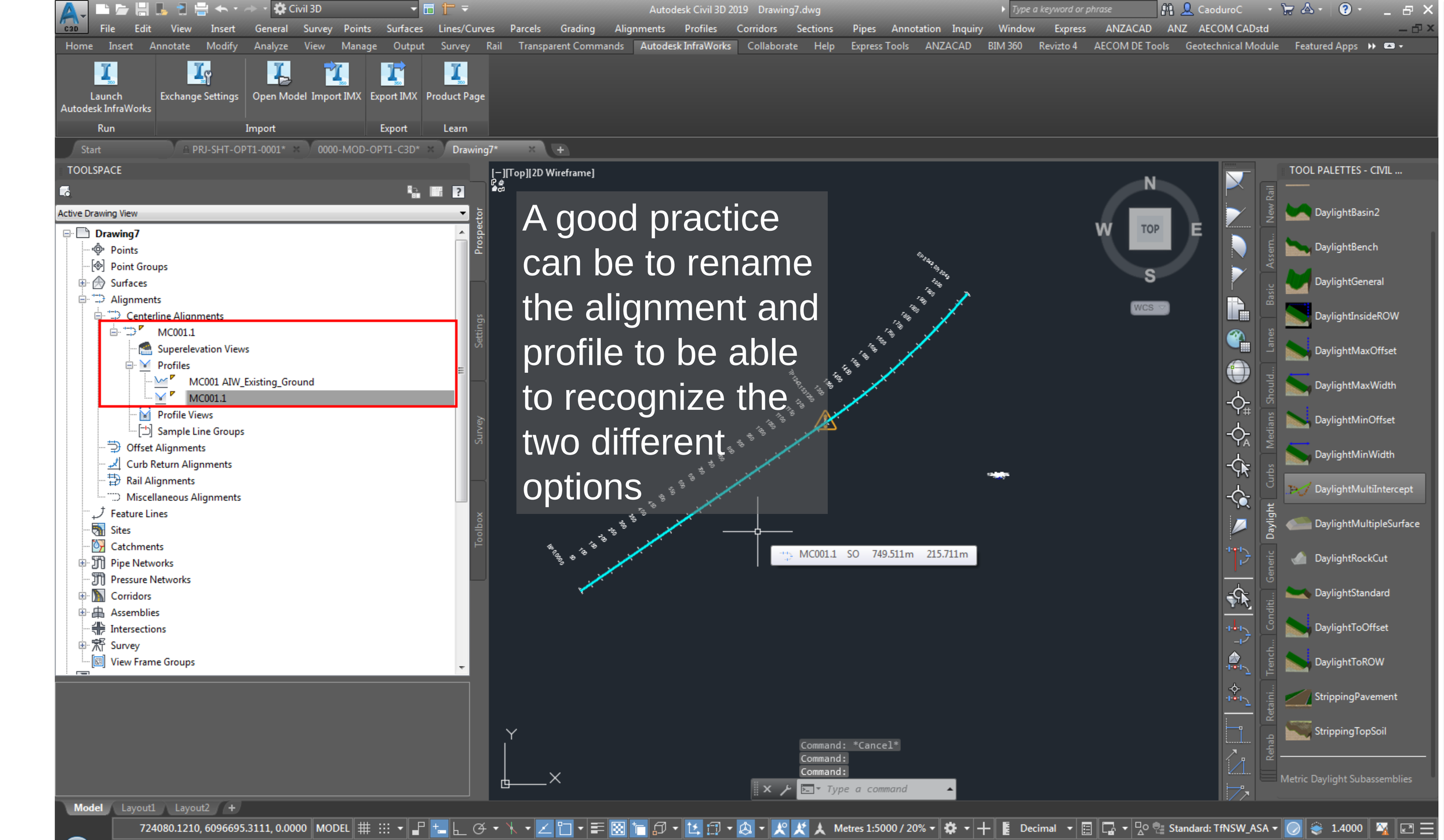

Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Engineering View
Option2
Updates in both horizontal and vertical geometry
Duplicate
Model Properties
Export 3D Model
Scripts
Export IMX
Application Options
Resume Generation
Message Log
Regenerate
Data Table
Model Cleanup
Launch Screencast
Thumbnail
Station : 1+781.977m Offset : 137.192m
X: 724875.690227 Y: 6097399.330347 Z: 710.560733 m
Road
MC001
Attributes
Function
Local
Speed
40.0 km/h
Design Standards
AASHTO_Metric_2011
Superelevation
Lane Marking
Geometry
Length
2047.622 m
Elevation Range
694.383m - 717.135m
Grade Range
0.40 % - 2.36 %
Grading
Material
None
Grading Method
Fixed Slope
CUT
FILL
PROFILE VIEW [COMPONENT ROAD 1]
700m
1.236%
1.236%
-0.397%
-0.397%
2.357%
2.357%
0+000
0+500
1+000
1+500
Vertical Exaggeration
5:1

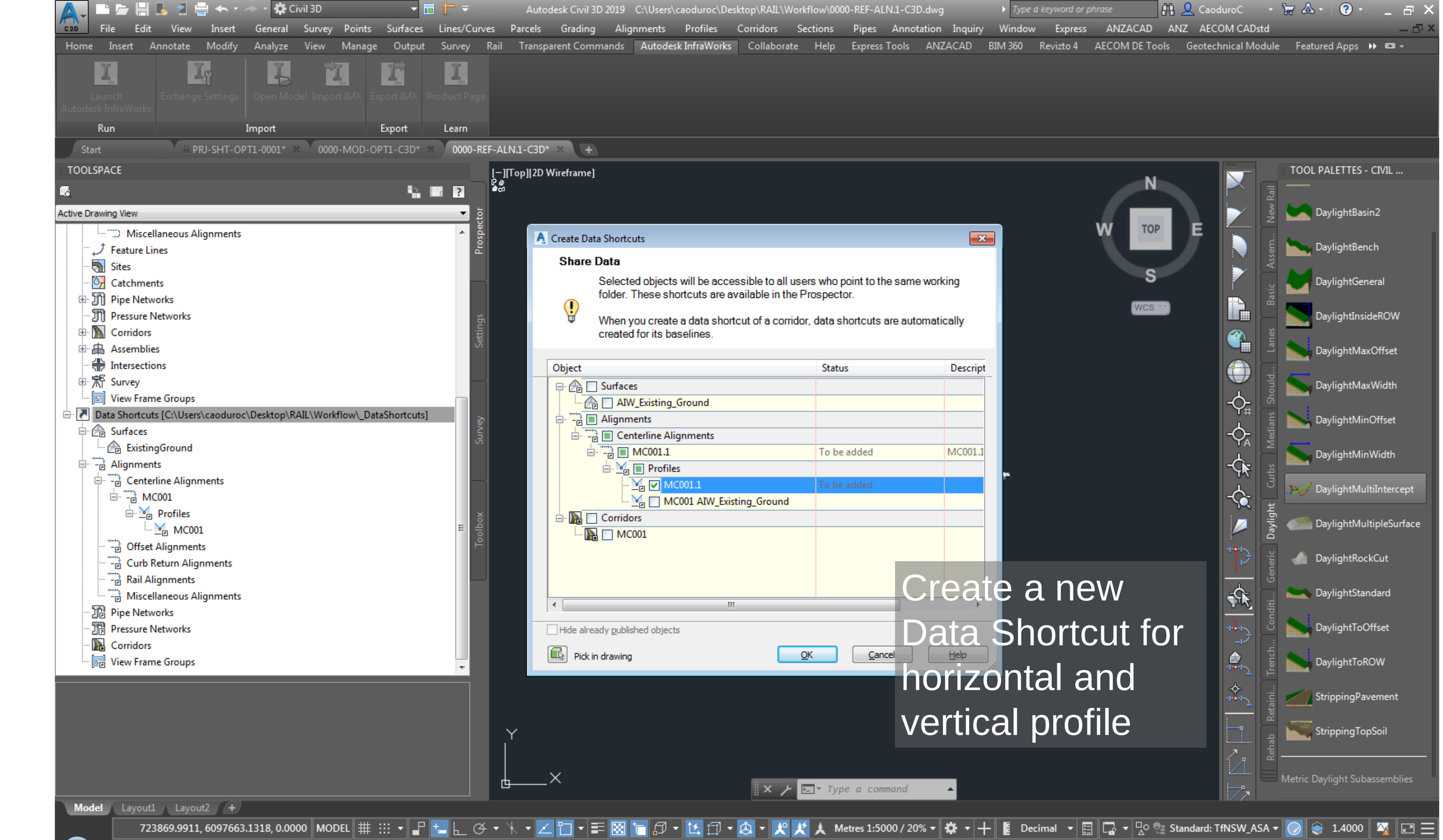

Autodesk InfraWorks - IW-Civil3D-Rail-Design
Cesare Caoduro
Engineering View
Option2
Road
MC001
Duplicate
Model Properties
Export 3D Model
Scripts
Export IMX
Application Options
Resume Generation
Message Log
Regenerate
Data Table
Model Cleanup
Launch Screencast
Thumbnail
Export to IMX
Start with recent export
Extent
Define Interactively:
Polygon
Use Entire Model
X
Y
Minimum:
Maximum:
Load Extent From File...
Target Coordinate System
MGA-55
Target File(s)
C:\Users\caoduroc\Desktop\RAIL\Workflow\0000-IW-OPT2.imx
Export
Cancel
Local
40.0 km/h
AASHTO_Metric_2011
2047.622 m
694.383m - 717.135m
0.40 % - 2.36 %
Fixed Slope
PROFILE VIEW [COMPONENT ROAD 1]
700m
1.236%
1.236%
-0.397%
-0.397%
2.357%
2.357%
0+000
0+500
1+000
1+500
Vertical Exaggeration
5:1

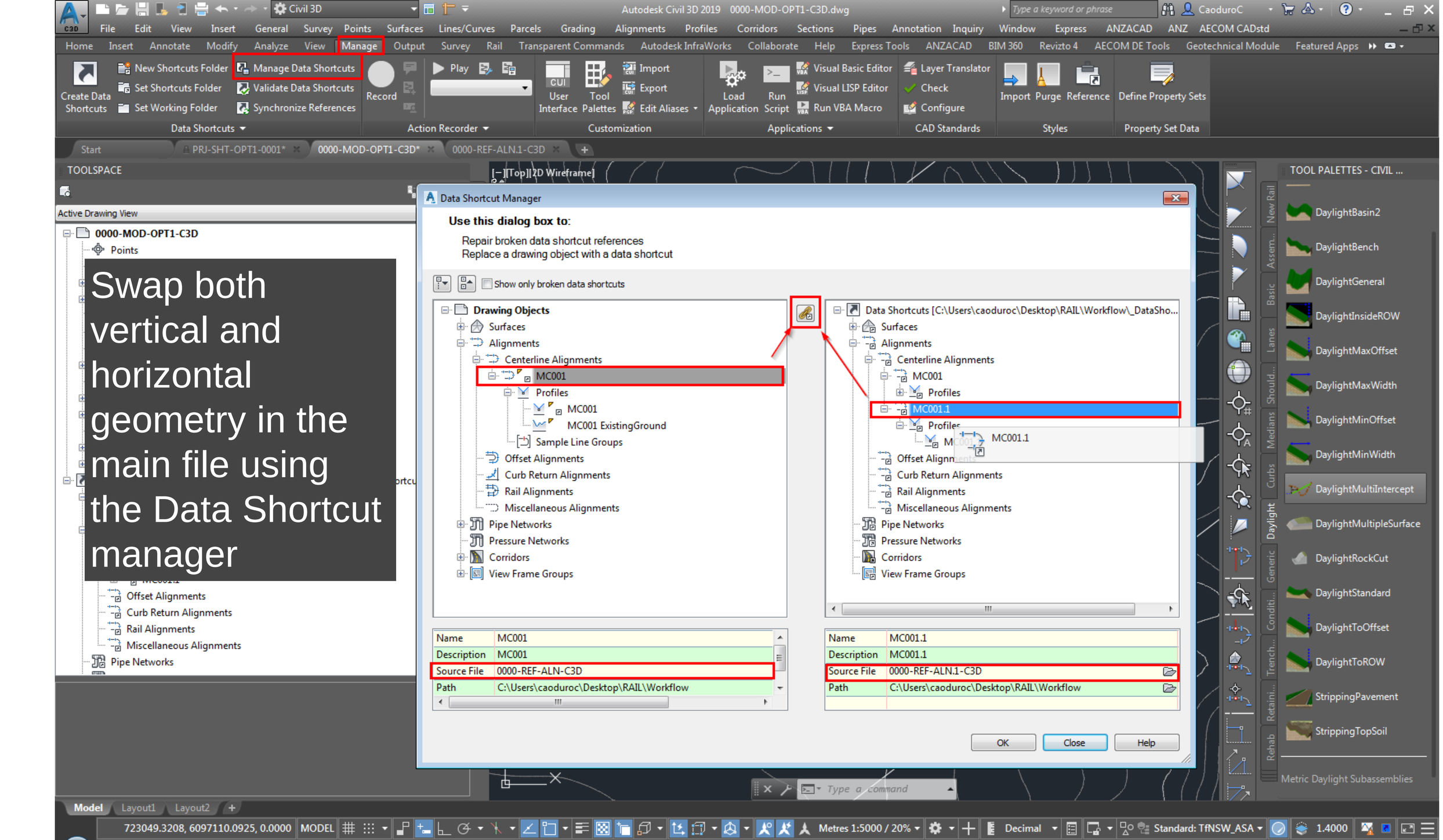
Export IMX

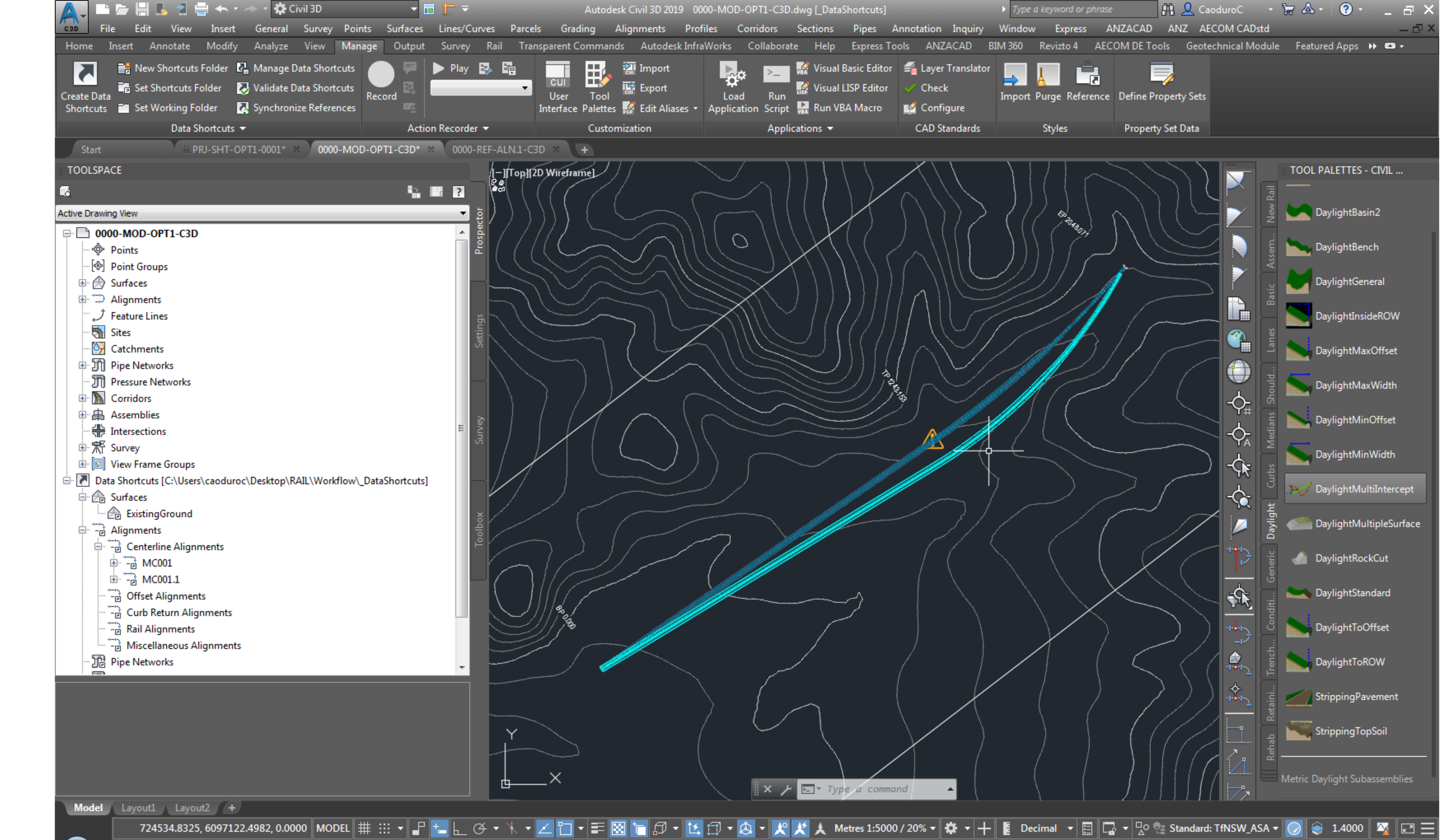

Civil 3D
Autodesk Civil 3D 2019 Drawing7.dwg
Open InfraWorks Model
InfraWorks model
Coordinate system
InfraWorks model coordinate system:
<unassigned>
<unassigned>
Civil 3D drawing coordinate system:
<unassigned>
Set a Coordinate System...
Selection area
Extents of InfraWorks model
Use "Area of interest" option to define an area containing objects you need.
Area of interest
Select Area...
Object settings
C:\ProgramData\Autodesk\C3D 2019\enu\Data\InfraWorks Object
All Objects ANZ RMS.xml
Selection set
Refine Selection Set...
Open Model
Cancel
Help
Please select the model
Look in: Workflow
Views
Tools
Name
Date modified
Type
_DataShortcuts 30/05/2019 10:25 ... File folder
Sheets 30/05/2019 12:42 ... File folder
SheetSets 30/05/2019 2:23 PM File folder
0000-IW-OPT1.imx 30/05/2019 10:57 ... IMX File
0000-IW-OPT2.imx 30/05/2019 2:17 PM IMX File
2019
History
Documents
Favorites
Desktop
FTP
File name: 0000-IW-OPT2.imx
Open
Files of type: *.imx
Cancel
TOOLSPACE
Active Drawing View
Drawing7
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataShortcuts]
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
Profiles
MC001
Offset Alignments
Curb Return Alignments
Rail Alignments
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Command:
Command: _ImportAIWModel
IMX_VERSION: 2.13
IMPORTAIWMODEL
Create a new drawing and open the IMX
Model
Layout1
Layout2
7.1292, 1.4706, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000

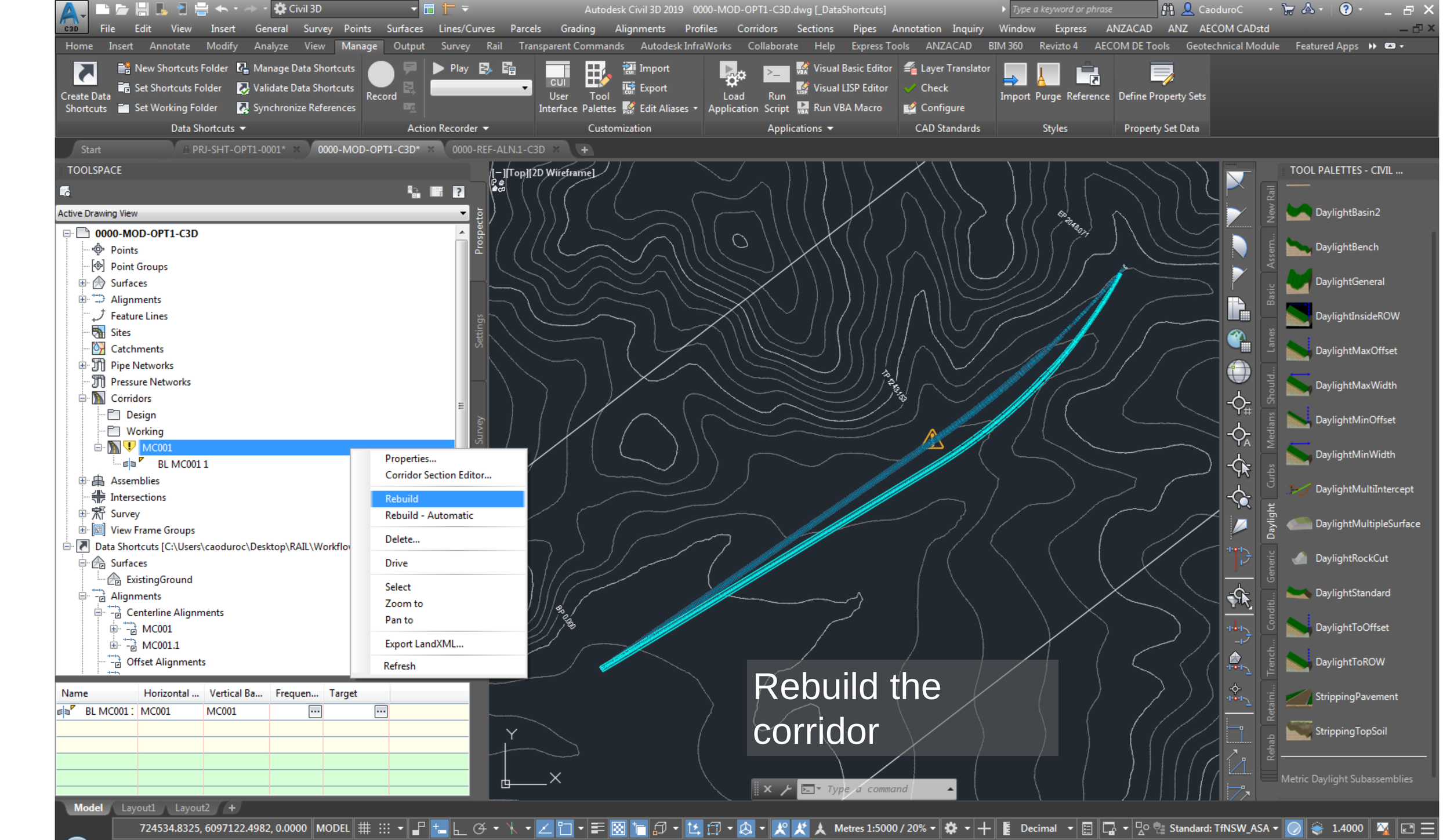

Civil 3D
Autodesk Civil 3D 2019 Drawing7.dwg
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Launch Autodesk InfraWorks
Exchange Settings
Open Model
Import IMX
Export IMX
Product Page
Run
Import
Export
Learn
Start
PRJ-SHT-OPT1-0001*
0000-MOD-OPT1-C3D*
Drawing7*
TOOLSPACE
Active Drawing View
Drawing7
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataShortcuts]
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
Profiles
MC001
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Open InfraWorks Model
InfraWorks model
C:\Users\caoduroc\Desktop\RAIL\Workflow\0000-IW-OPT2.imx
Coordinate system
InfraWorks model coordinate system:
DBCS: MGA-55
UCS: MGA-55
Civil 3D drawing coordinate system:
MGA-55
Set a Coordinate System...
The drawing coordinate system is compatible with the InfraWorks model coordinate system.
Selection area
Extents of InfraWorks model
Use "Area of interest" option to define an area containing objects you need.
Area of interest
Select Area...
Object settings
C:\ProgramData\Autodesk\C3D 2019\enu\Data\InfraWorks Object
All Objects ANZ RMS.xml
Selection set
Refine Selection Set...
Open Model
Cancel
Help
Refine Selection Set
Terrain Surfaces
AIW_Existing_Ground
AIW_Proposed_Ground
Planning Utilities
Pipes
Structures
Planning Roads
Component Roads
MC001
Intersections
Drainage Networks
Pipes
Structures
Coverages (Terrain Modifying)
Water Areas
Bridges
Roundabouts
OK
Cancel
Help
IMX_VERSION: 2.13
Import started for: C:\Users\caoduroc\Desktop\RAIL\Workflow\0000-IW-OPT2.imx.
Importing using this configuration file: C:\ProgramData\Autodesk\C3D 2019\enu\Data\InfraWorks Object Settings\Metric\All Objects ANZ RMS.xml
IMPORTAIWMODEL
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Refine the selection
Model
Layout1
Layout2
141.5256, 589.0532, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM

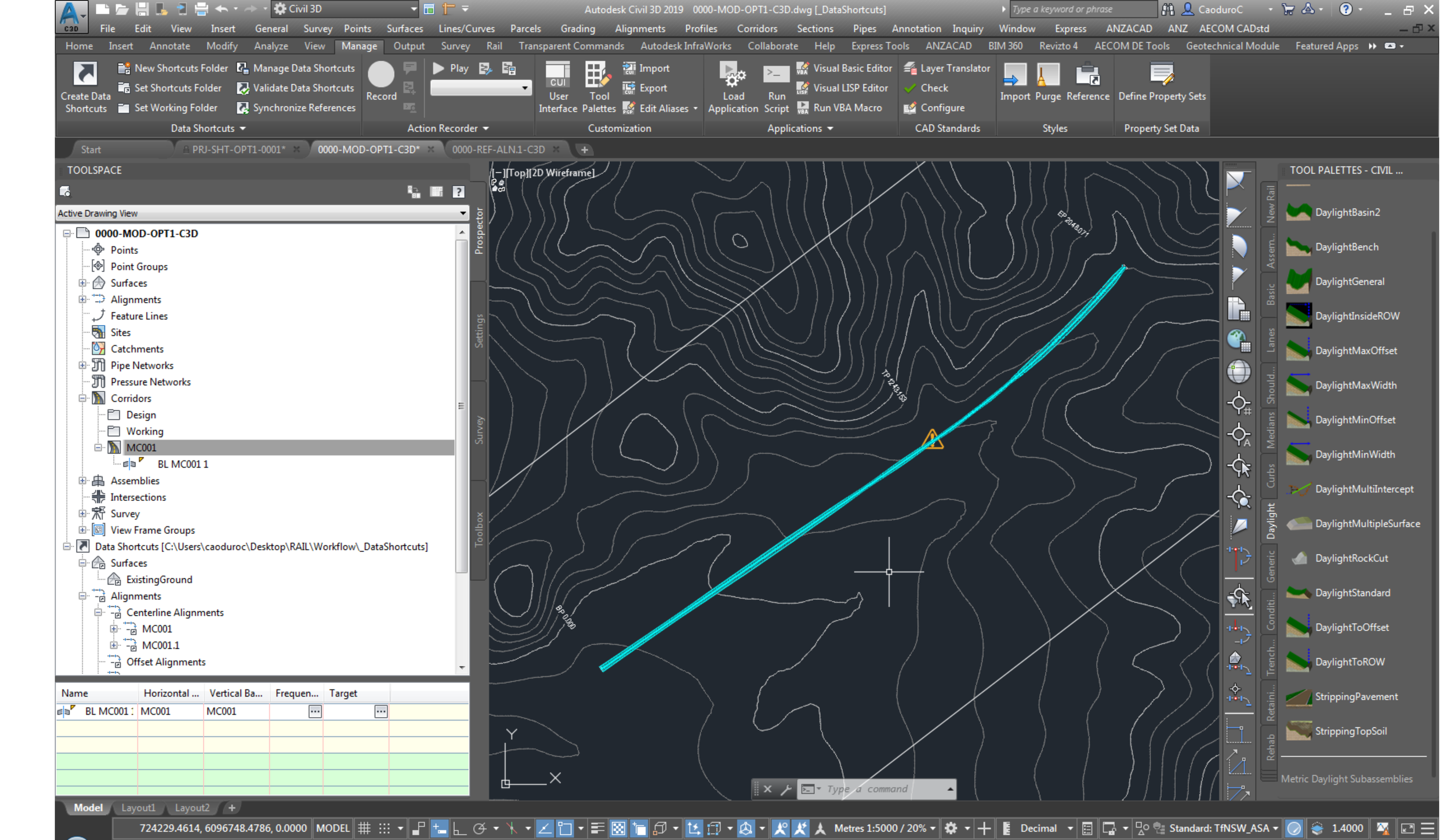

A good practice can be to rename the alignment and profile to be able to recognize the two different options
Drawing7
Points
Point Groups
Surfaces
Alignments
Centerline Alignments
MC001.1
Superelevation Views
Profiles
MC001 AIW_Existing_Ground
MC001.1
Profile Views
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
MC001.1 SO 749.511m 215.711m
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies


Civil 3D
Autodesk Civil 3D 2019 C:\Users\caoduroc\Desktop\RAIL\Workflow\0000-REF-ALN.1-C3D.dwg
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Launch Autodesk InfraWorks
Exchange Settings
Open Model
Import IMX
Export IMX
Product Page
Run
Import
Export
Learn
Start
PRJ-SHT-OPT1-0001*
0000-MOD-OPT1-C3D*
0000-REF-ALN.1-C3D*
TOOLSPACE
Active Drawing View
Miscellaneous Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataShortcuts]
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
Profiles
MC001
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Pipe Networks
Pressure Networks
Corridors
View Frame Groups
Prospector
Settings
Survey
Toolbox
[−][Top][2D Wireframe]
Create Data Shortcuts
Share Data
Selected objects will be accessible to all users who point to the same working folder. These shortcuts are available in the Prospector.
When you create a data shortcut of a corridor, data shortcuts are automatically created for its baselines.
Object
Status
Descript
Surfaces
AIW_Existing_Ground
Alignments
Centerline Alignments
MC001.1
To be added
MC001.1
Profiles
MC001.1
To be added
MC001 AIW_Existing_Ground
Corridors
MC001
Hide already published objects
Pick in drawing
OK
Cancel
Help
N
W
TOP
E
S
WCS
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
New Rail
Assem...
Basic
Lanes
Should...
Medians
Curbs
Daylight
Generic
Conditi...
Trench...
Retaini...
Rehab
Create a new Data Shortcut for horizontal and vertical profile
Type a command
Model
Layout1
Layout2
723869.9911, 6097663.1318, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000


Swap both vertical and horizontal geometry in the main file using the Data Shortcut manager
Data Shortcut Manager
Use this dialog box to:
Repair broken data shortcut references
Replace a drawing object with a data shortcut
Show only broken data shortcuts
Drawing Objects
Surfaces
Alignments
Centerline Alignments
MC001
Profiles
MC001
MC001 ExistingGround
Sample Line Groups
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Pipe Networks
Pressure Networks
Corridors
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataSho...
MC001.1
Name MC001
Description MC001
Source File 0000-REF-ALN.1-C3D
Path C:\Users\caoduroc\Desktop\RAIL\Workflow
Name MC001.1
Description MC001.1
Source File 0000-REF-ALN.1-C3D
Path C:\Users\caoduroc\Desktop\RAIL\Workflow
OK
Close
Help
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies


Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Type a keyword or phrase
CaoduroC
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
Home Insert Annotate Modify Analyze View Manage Output Survey Rail Transparent Commands Autodesk InfraWorks Collaborate Help Express Tools ANZACAD BIM 360 Revizto 4 AECOM DE Tools Geotechnical Module Featured Apps
Create Data Shortcuts
New Shortcuts Folder
Set Shortcuts Folder
Set Working Folder
Manage Data Shortcuts
Validate Data Shortcuts
Synchronize References
Data Shortcuts
Record
Play
Action Recorder
User Interface
Tool Palettes
Import
Export
Edit Aliases
Customization
Load Application
Run Script
Visual Basic Editor
Visual LISP Editor
Run VBA Macro
Applications
Layer Translator
Check
Configure
CAD Standards
Import
Purge
Reference
Styles
Define Property Sets
Property Set Data
Start
PRJ-SHT-OPT1-0001*
0000-MOD-OPT1-C3D*
0000-REF-ALN.1-C3D
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataShortcuts]
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
MC001.1
Offset Alignments
Curb Return Alignments
Rail Alignments
Miscellaneous Alignments
Pipe Networks
Prospector
Settings
Survey
Toolbox
[−][Top][2D Wireframe]
EP 2048071
TP 1243153
BP 0.000
Type a command
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
New Rail
Assem...
Basic
Lanes
Should...
Medians
Curbs
Daylight
Generic
Conditi...
Trench...
Retaini...
Rehab
Model
Layout1
Layout2
724534.8325, 6097122.4982, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000
AECOM


Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create Data Shortcuts
New Shortcuts Folder
Set Shortcuts Folder
Set Working Folder
Manage Data Shortcuts
Validate Data Shortcuts
Synchronize References
Data Shortcuts
Record
Play
Action Recorder
User Interface
Tool Palettes
Import
Export
Edit Aliases
Customization
Load Application
Run Script
Visual Basic Editor
Visual LISP Editor
Run VBA Macro
Applications
Layer Translator
Check
Configure
CAD Standards
Import
Purge
Reference
Styles
Define Property Sets
Property Set Data
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
MC001
BL MC001 1
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflo
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
MC001.1
Offset Alignments
Properties...
Corridor Section Editor...
Rebuild
Rebuild - Automatic
Delete...
Drive
Select
Zoom to
Pan to
Export LandXML...
Refresh
Name
Horizontal ...
Vertical Ba...
Frequen...
Target
BL MC001 :
MC001
MC001
[−][Top][2D Wireframe]
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Rebuild the corridor
Model
Layout1
Layout2
724534.8325, 6097122.4982, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000


Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
File Edit View Insert General Survey Points Surfaces Lines/Curves Parcels Grading Alignments Profiles Corridors Sections Pipes Annotation Inquiry Window Express ANZACAD ANZ AECOM CADstd
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Create Data Shortcuts
New Shortcuts Folder
Set Shortcuts Folder
Set Working Folder
Manage Data Shortcuts
Validate Data Shortcuts
Synchronize References
Data Shortcuts
Record
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User Interface
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Import
Export
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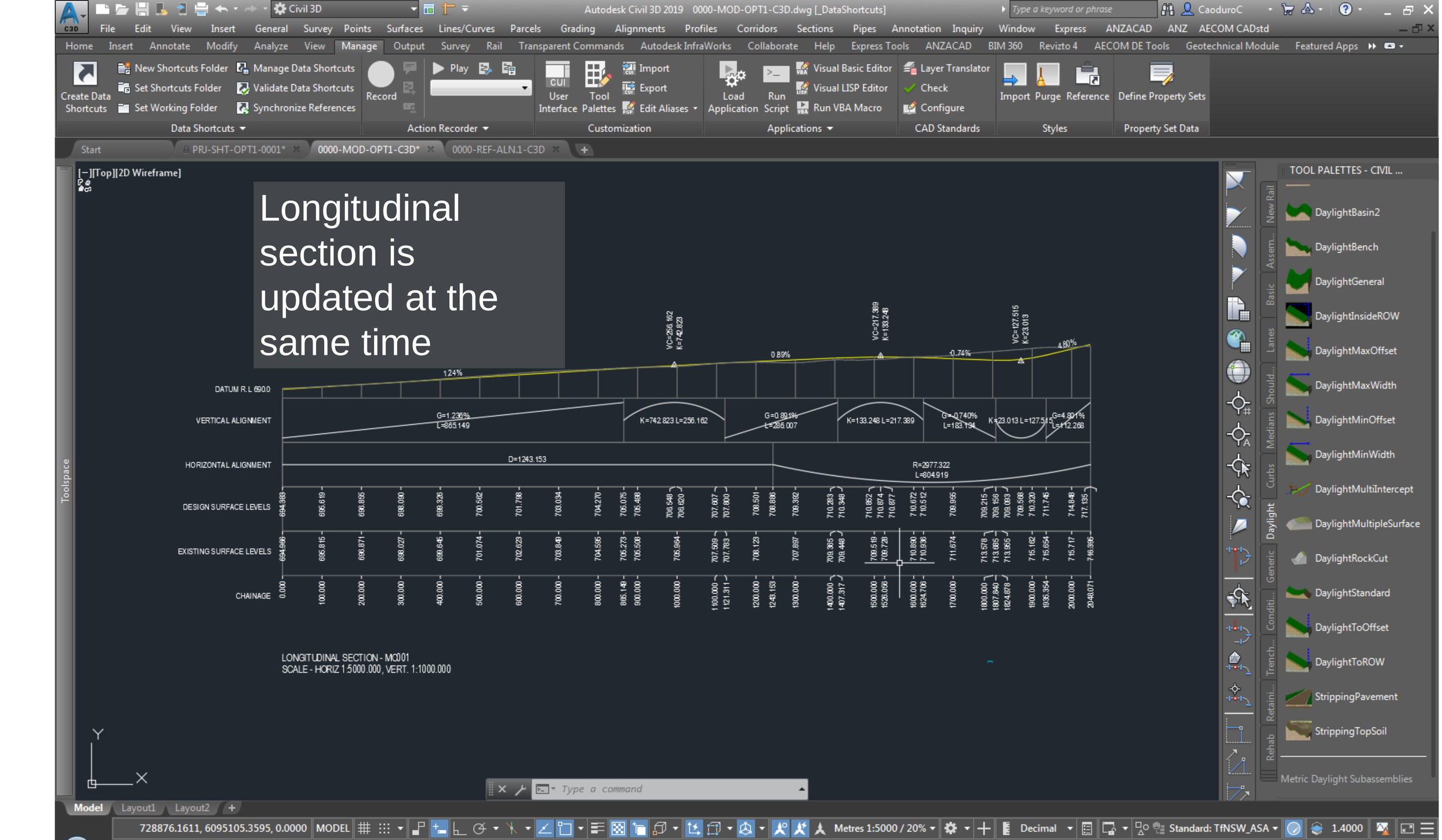
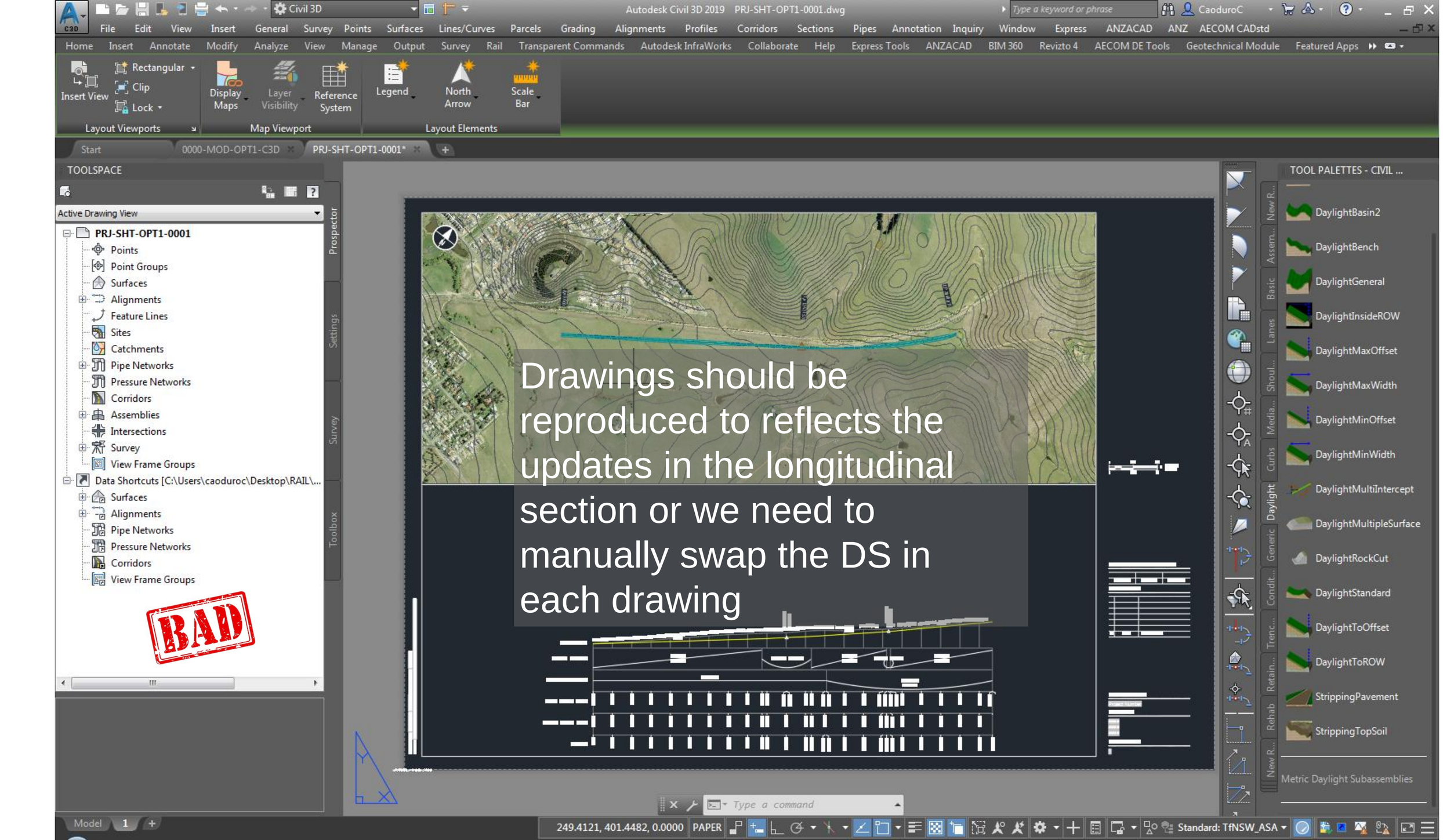
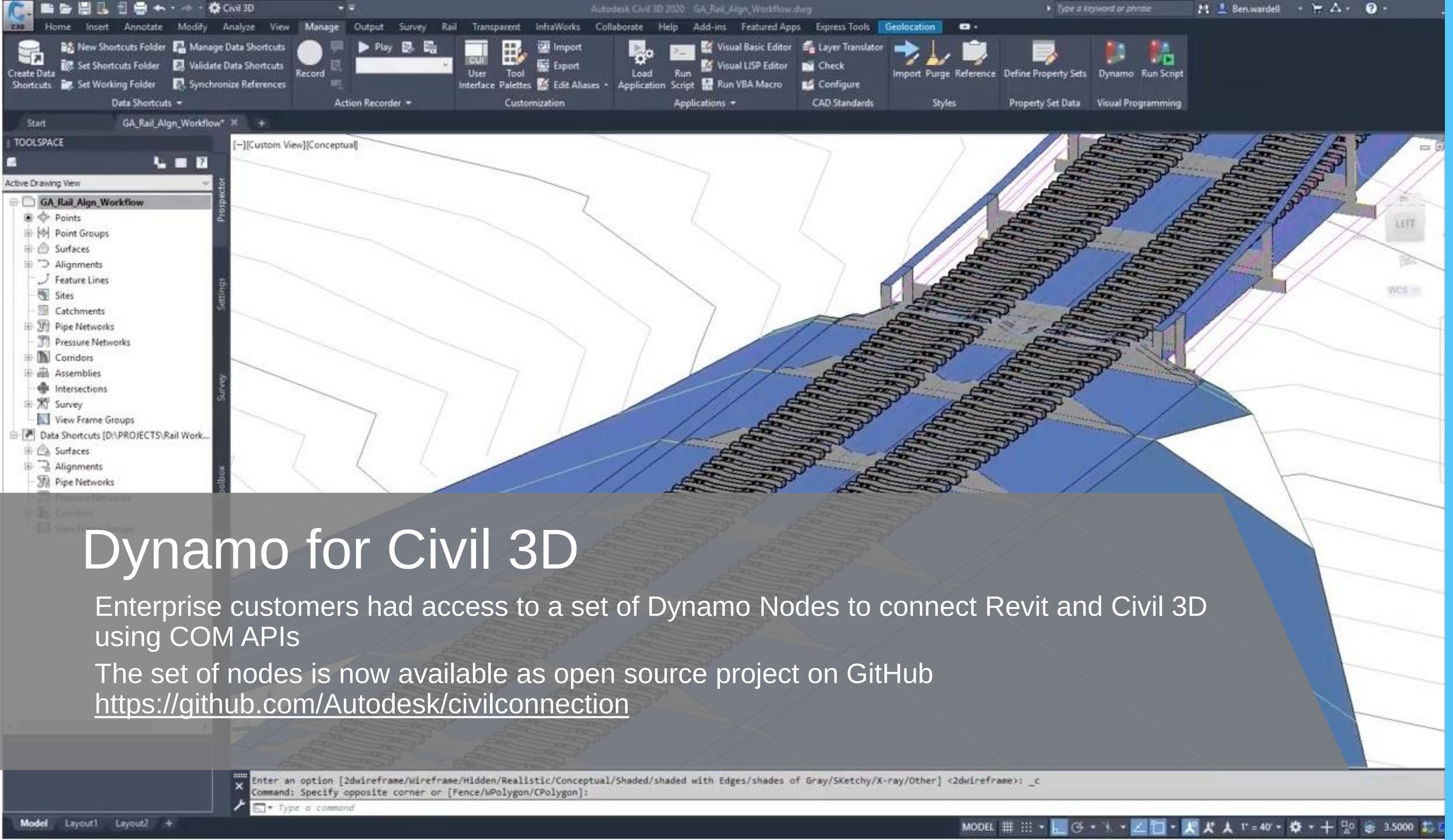
Customization
Load Application
Run Script
Visual Basic Editor
Visual LISP Editor
Run VBA Macro
Applications
Layer Translator
Check
Configure
CAD Standards
Import
Purge
Reference
Styles
Define Property Sets
Property Set Data
Start
PRJ-SHT-OPT1-0001*
0000-MOD-OPT1-C3D*
0000-REF-ALN.1-C3D
TOOLSPACE
Active Drawing View
0000-MOD-OPT1-C3D
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Design
Working
MC001
BL MC001 1
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\Workflow_DataShortcuts]
Surfaces
ExistingGround
Alignments
Centerline Alignments
MC001
MC001.1
Offset Alignments
Prospector
Settings
Survey
Toolbox
Name
Horizontal ...
Vertical Ba...
Frequen...
Target
BL MC001 :
MC001
MC001
[−][Top][2D Wireframe]
EP 2048071
TP 1243153
BP 0.000
Type a command
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
New Rail
Assem...
Basic
Lanes
Should...
Medians
Curbs
Daylight
Generic
Conditi...
Trench...
Retaini...
Rehab
Model
Layout1
Layout2
724229.4614, 6096748.4786, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000


Longitudinal section is updated at the same time
Civil 3D
Autodesk Civil 3D 2019 0000-MOD-OPT1-C3D.dwg [_DataShortcuts]
Create Data Shortcuts
New Shortcuts Folder
Set Shortcuts Folder
Set Working Folder
Manage Data Shortcuts
Validate Data Shortcuts
Synchronize References
Data Shortcuts
Record
Play
Action Recorder
User Interface
Tool Palettes
Import
Export
Edit Aliases
Customization
Load Application
Run Script
Visual Basic Editor
Visual LISP Editor
Run VBA Macro
Applications
Layer Translator
Check
Configure
CAD Standards
Import
Purge
Reference
Styles
Define Property Sets
Property Set Data
[−][Top][2D Wireframe]
VC=256.162 K=742.823
VC=217.389 K=133.248
VC=127.515 K=23.013
1.24%
0.89%
-0.74%
4.80%
DATUM R.L 690.0
VERTICAL ALIGNMENT
G=1.236% L=865.149
K=742.823 L=256.162
G=0.891% L=286.007
K=133.248 L=217.389
G=-0.740% L=183.194
K=23.013 L=127.515
G=4.801% L=112.268
HORIZONTAL ALIGNMENT
D=1243.153
R=2977.322 L=804.919
DESIGN SURFACE LEVELS
EXISTING SURFACE LEVELS
CHAINAGE
LONGITUDINAL SECTION - MC001
SCALE - HORIZ 1:5000.000, VERT. 1:1000.000
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Toolspace
Type a command
Model
Layout1
Layout2
728876.1611, 6095105.3595, 0.0000
MODEL
Metres 1:5000 / 20%
Decimal
Standard: TfNSW_ASA
1.4000


Civil 3D
Autodesk Civil 3D 2019 PRJ-SHT-OPT1-0001.dwg
Insert View
Rectangular
Clip
Lock
Display Maps
Layer Visibility
Reference System
Legend
North Arrow
Scale Bar
Layout Viewports
Map Viewport
Layout Elements
Start
0000-MOD-OPT1-C3D
PRJ-SHT-OPT1-0001*
TOOLSPACE
Active Drawing View
PRJ-SHT-OPT1-0001
Points
Point Groups
Surfaces
Alignments
Feature Lines
Sites
Catchments
Pipe Networks
Pressure Networks
Corridors
Assemblies
Intersections
Survey
View Frame Groups
Data Shortcuts [C:\Users\caoduroc\Desktop\RAIL\...
Surfaces
Alignments
Pipe Networks
Pressure Networks
Corridors
View Frame Groups
BAD
Drawings should be reproduced to reflects the updates in the longitudinal section or we need to manually swap the DS in each drawing
TOOL PALETTES - CIVIL ...
DaylightBasin2
DaylightBench
DaylightGeneral
DaylightInsideROW
DaylightMaxOffset
DaylightMaxWidth
DaylightMinOffset
DaylightMinWidth
DaylightMultiIntercept
DaylightMultipleSurface
DaylightRockCut
DaylightStandard
DaylightToOffset
DaylightToROW
StrippingPavement
StrippingTopSoil
Metric Daylight Subassemblies
Type a command
Model
249.4121, 401.4482, 0.0000
PAPER
Standard: TfNSW_ASA

What’s next

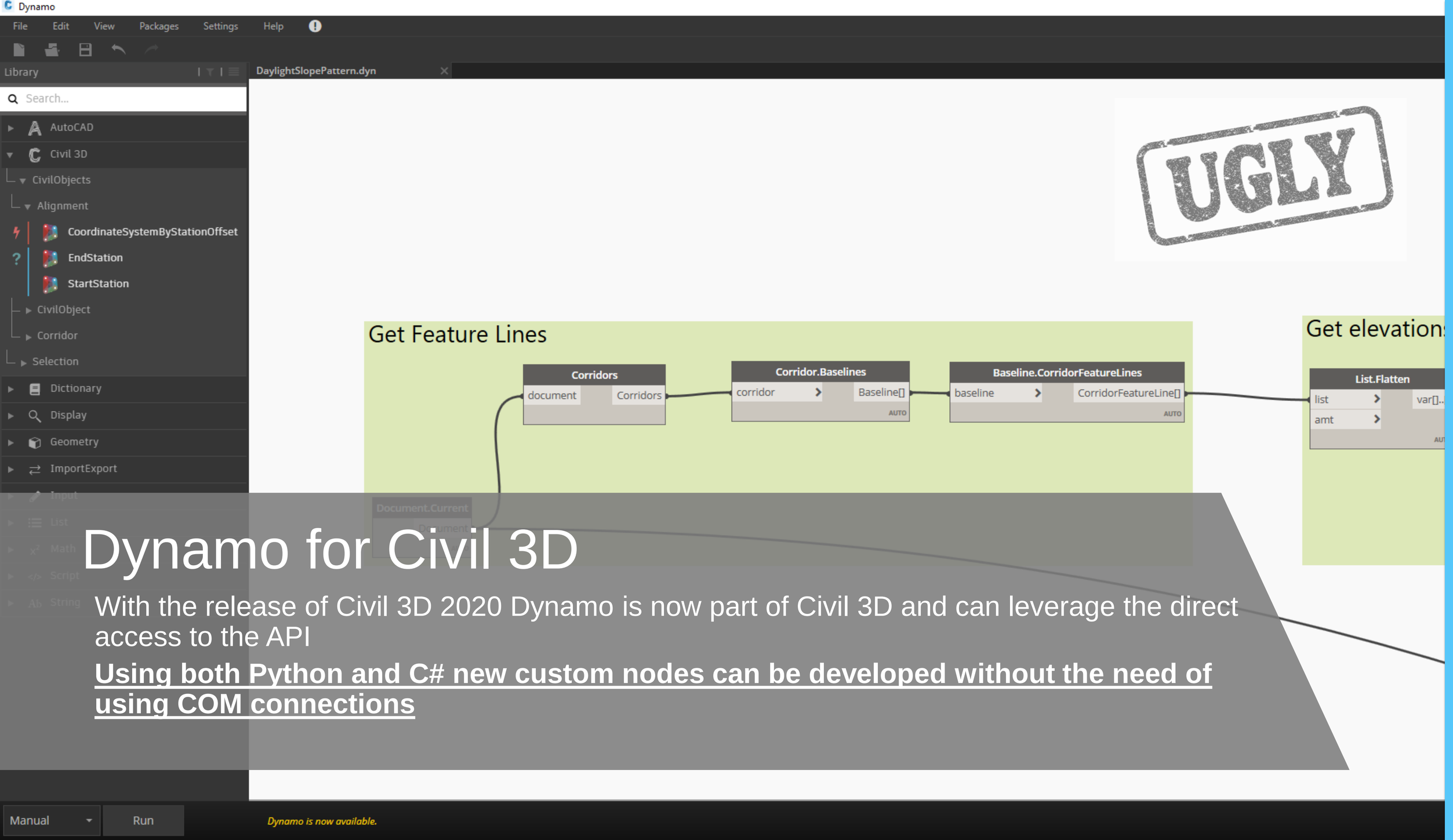


Dynamo for Civil 3D

Enterprise customers had access to a set of Dynamo Nodes to connect Revit and Civil 3D using COM APIs

The set of nodes is now available as open source project on GitHub
https://github.com/Autodesk/civilconnection

AECOM

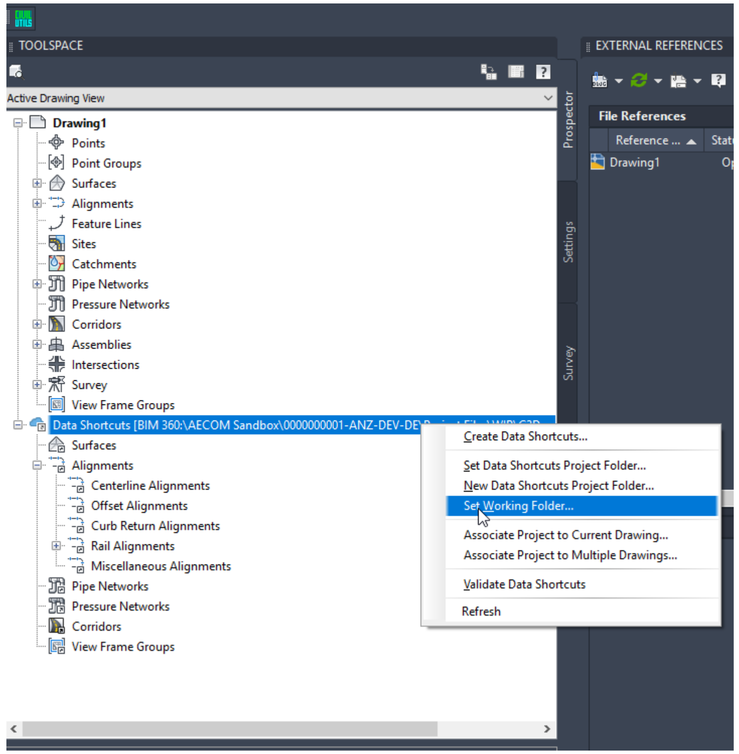


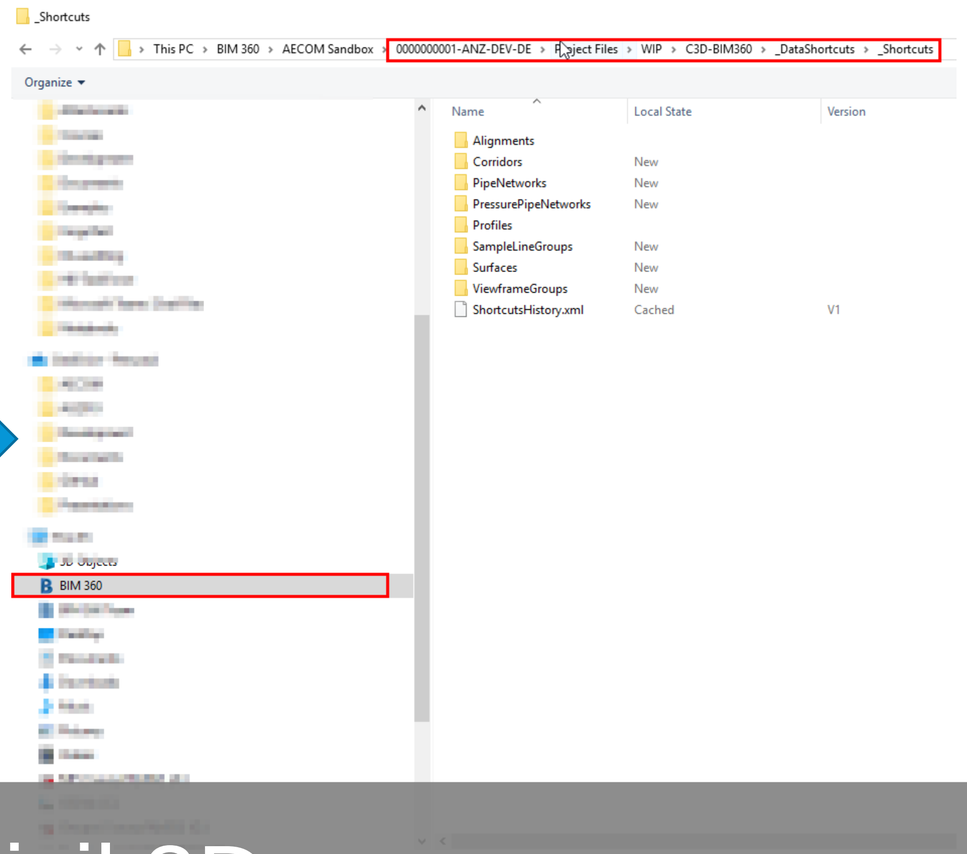
Dynamo for Civil 3D

With the release of Civil 3D 2020 Dynamo is now part of Civil 3D and can leverage the direct access to the API

Using both Python and C# new custom nodes can be developed without the need of using COM connections

AECOM





Collaboration for Civil 3D

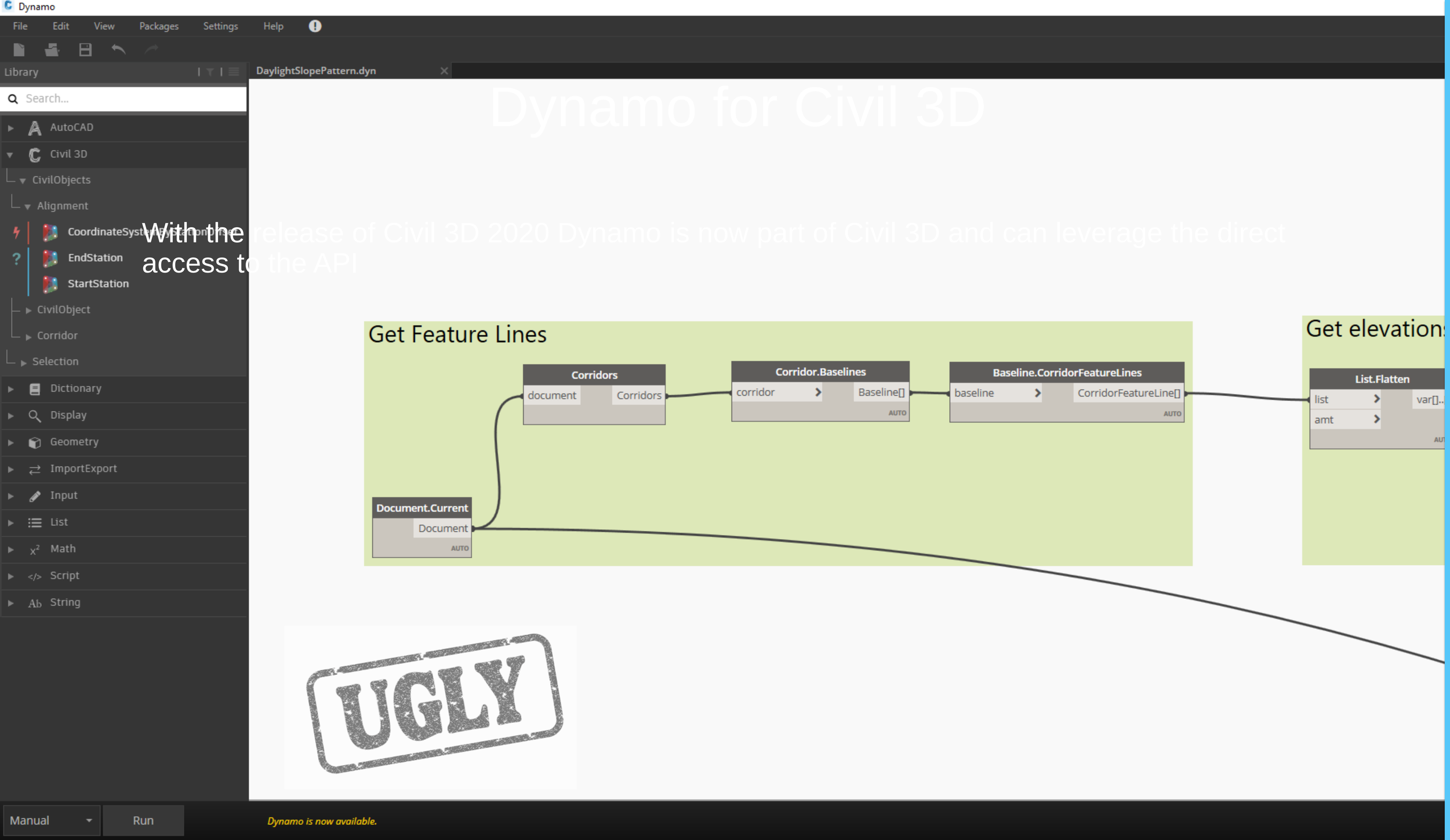
With the release of Civil 3D **2020.2** a new era for collaborating in the cloud in infrastructure project, has started

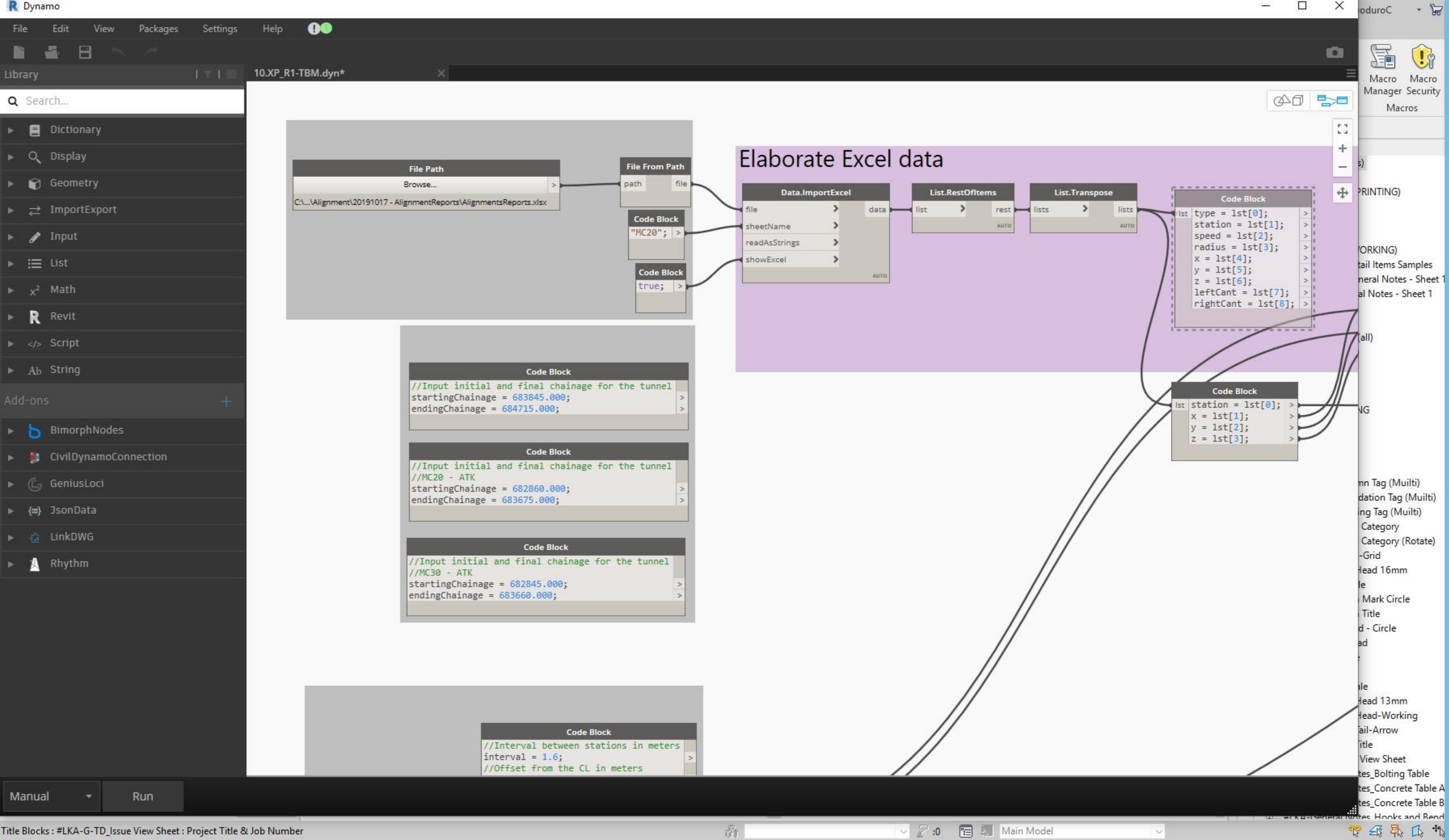
Data Shortcuts can now sit in a BIM360 project, allowing better data interaction and improving communication between different teams

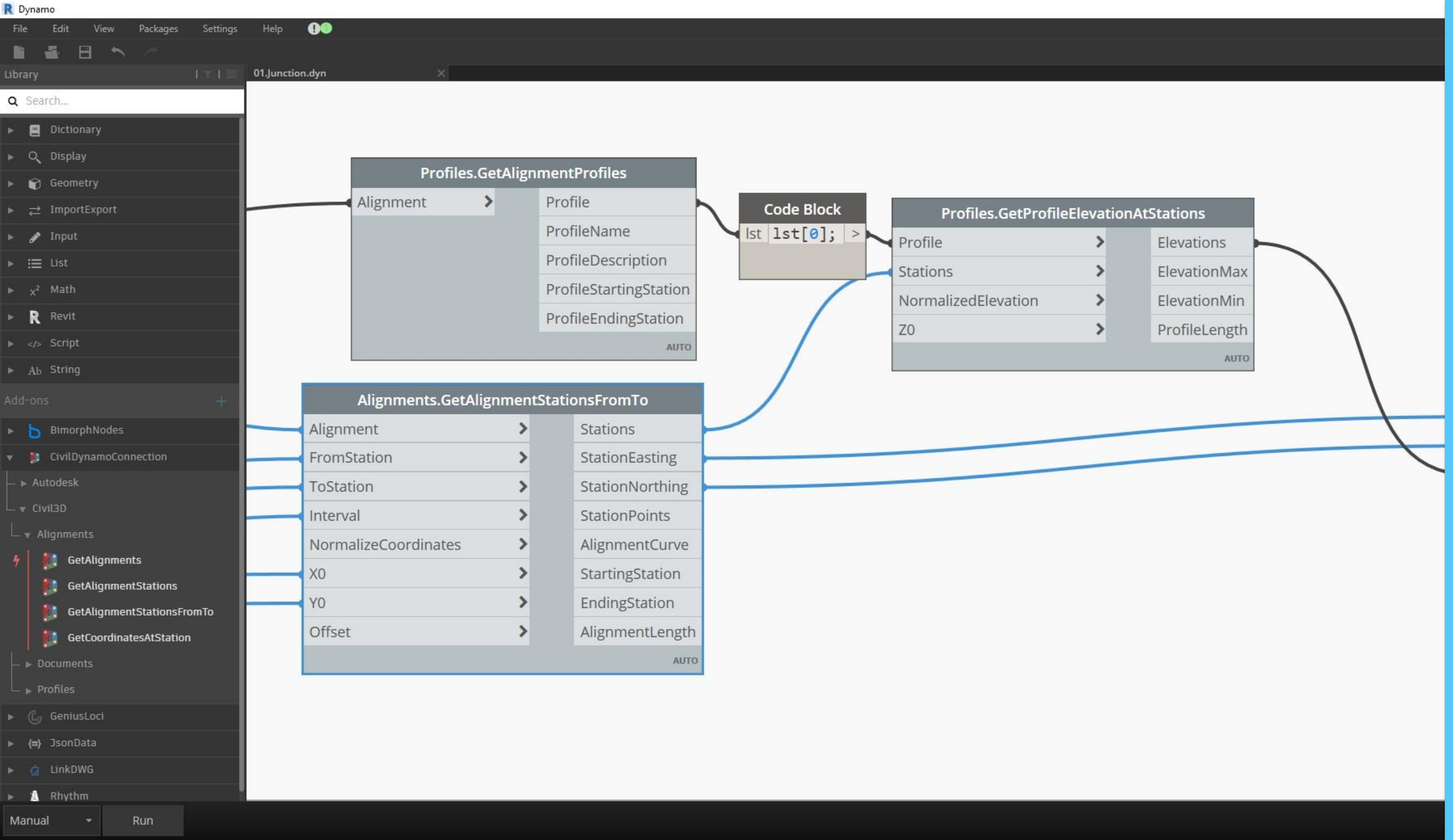
AECOM

Dynamo for Civil 3D

With the release of Civil 3D 2020 Dynamo is now part of Civil 3D and can leverage the direct access to the API




Dynamo
File Edit View Packages Settings Help
Library
Search...
Dictionary
Display
Geometry
ImportExport
Input
List
Math
Revit
Script
String
Add-ons
BimorphNodes
CivilDynamoConnection
GeniusLoci
JsonData
LinkDWG
Rhythm
10.XP_R1-TBM.dyn*
Elaborate Excel data
File Path
Browse...
C:\...\Alignment\20191017 - AlignmentReports\AlignmentsReports.xlsx
File From Path
path
file
Code Block
"MC20";
Code Block
true;
Data.ImportExcel
file
sheetName
readAsStrings
showExcel
data
AUTO
List.RestOfItems
list
rest
AUTO
List.Transpose
lists
lists
AUTO
Code Block
lst
type = lst[0];
station = lst[1];
speed = lst[2];
radius = lst[3];
x = lst[4];
y = lst[5];
z = lst[6];
leftCant = lst[7];
rightCant = lst[8];
Code Block
//Input initial and final chainage for the tunnel
startingChainage = 683845.000;
endingChainage = 684715.000;
Code Block
//Input initial and final chainage for the tunnel
//MC20 - ATK
startingChainage = 682860.000;
endingChainage = 683675.000;
Code Block
//Input initial and final chainage for the tunnel
//MC30 - ATK
startingChainage = 682845.000;
endingChainage = 683660.000;
Code Block
lst
station = lst[0];
x = lst[1];
y = lst[2];
z = lst[3];
Code Block
//Interval between stations in meters
interval = 1.6;
//Offset from the CL in meters
Manual
Run
Macro Manager
Macro Security
Macros
Title Blocks : #LKA-G-TD_Issue View Sheet : Project Title & Job Number
Main Model
AECOM


Dynamo
File
Edit
View
Packages
Settings
Help
Library
Search...
Dictionary
Display
Geometry
ImportExport
Input
List
Math
Revit
Script
String
Add-ons
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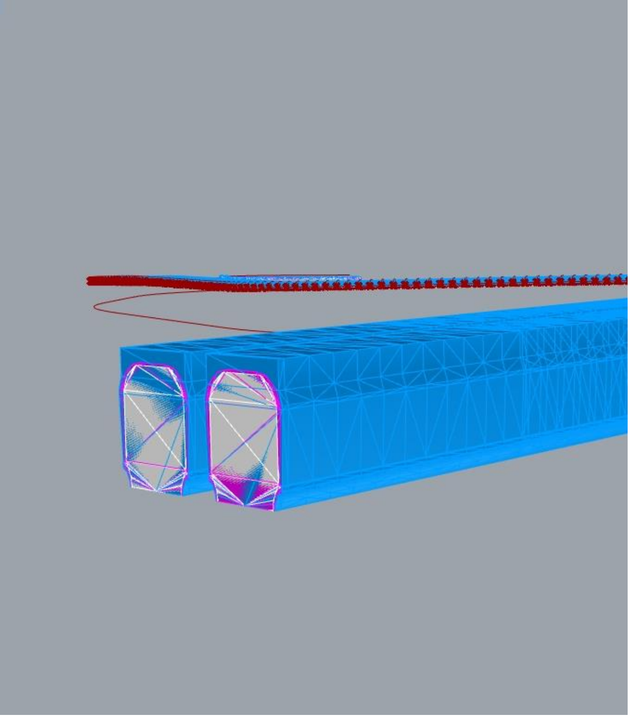
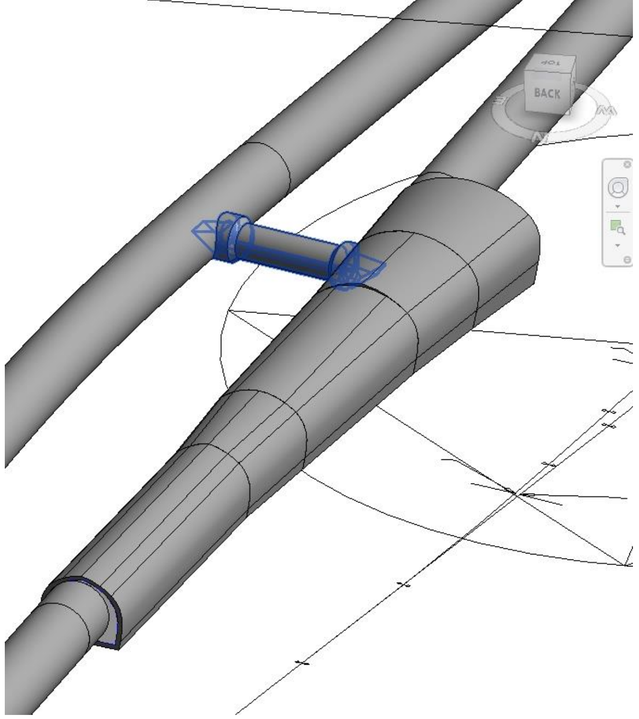
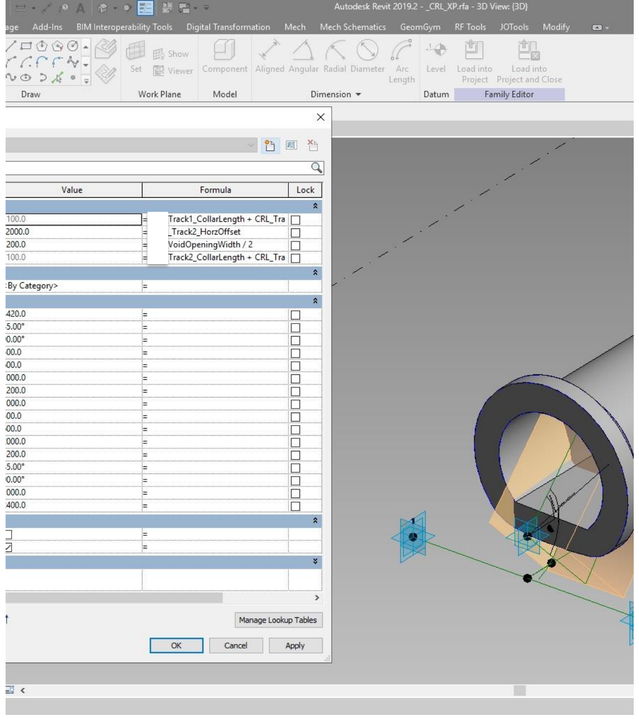
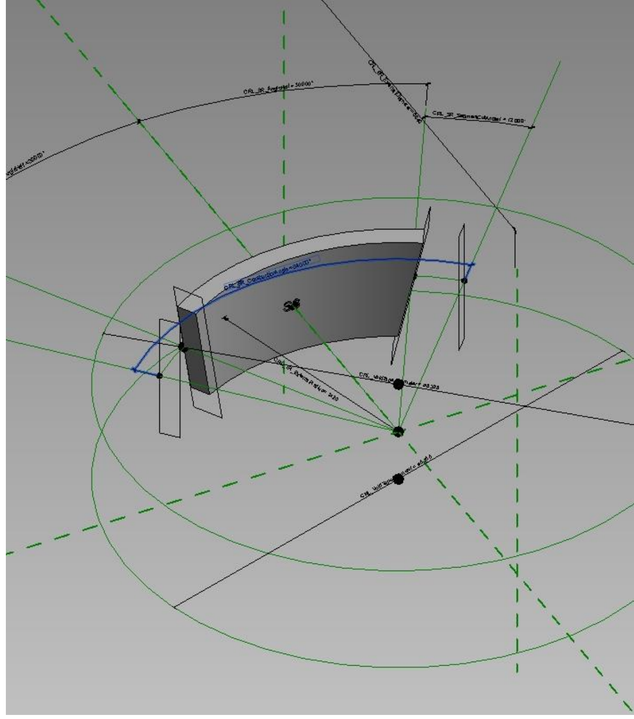
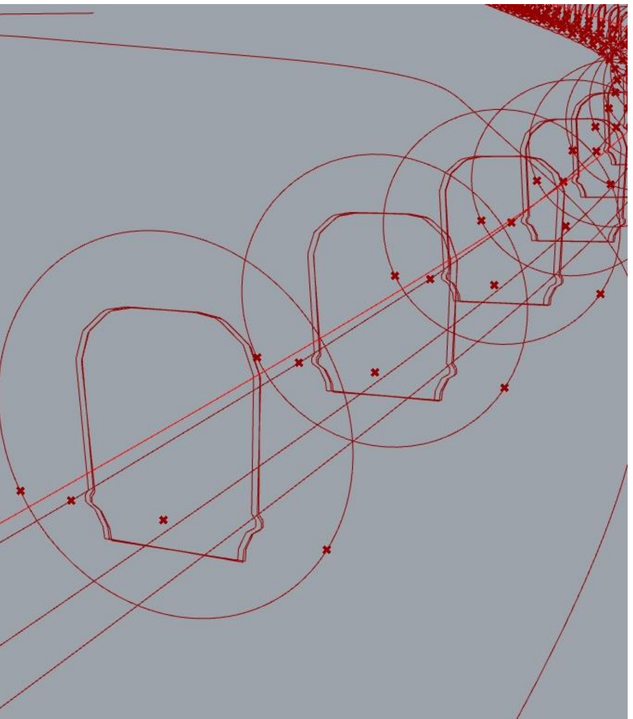
CivilDynamoConnection
Autodesk
Civil3D
Alignments
GetAlignments
GetAlignmentStations
GetAlignmentStationsFromTo
GetCoordinatesAtStation
Documents
Profiles
GeniusLoci
JsonData
LinkDWG
Rhythm
01.Junction.dyn
Profiles.GetAlignmentProfiles
Alignment
Profile
ProfileName
ProfileDescription
ProfileStartingStation
ProfileEndingStation
AUTO
Code Block
lst
lst[0];
>
Profiles.GetProfileElevationAtStations
Profile
Stations
NormalizedElevation
Z0
Elevations
ElevationMax
ElevationMin
ProfileLength
AUTO
Alignments.GetAlignmentStationsFromTo
Alignment
FromStation
ToStation
Interval
NormalizeCoordinates
X0
Y0
Offset
Stations
StationEasting
StationNorthing
StationPoints
AlignmentCurve
StartingStation
EndingStation
AlignmentLength
AUTO
Manual
Run
AECOM

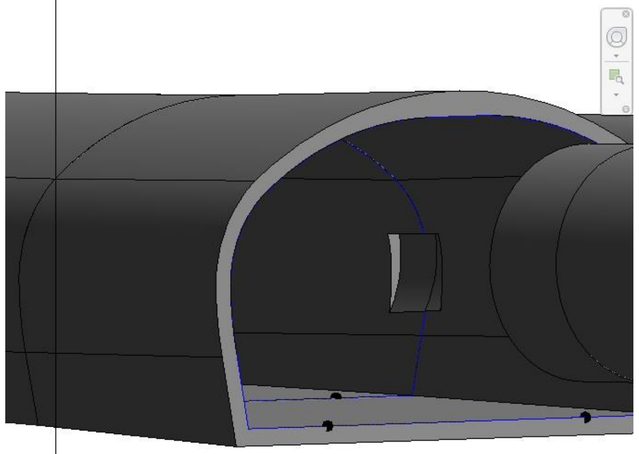












Data drive modelling

Based on custom node development

https://bitbucket.org/cesarecaoduro/civildynamoconnection/src/master/CivilDynamoConnection/Alignments.cs

Apps | External Repositories | AECOM | University | Interesting Videos | Blogs | Cambio Valuta | OA... | Scan to BIM | BIM Standard | COWI | BIM Management | Music | Middlesex | ManageBac | Dashb... | BILT2017 | My Bb Sites – Black...

civildynamoconnection

- Source
- Commits
- Branches
- Pull requests
- Pipelines
- Deployments
- Downloads

Cesare Caoduro / civildynamoconnection

Alignments.cs

Pull requests | Check out

Here's where you'll find this repository's source files. To give your users an idea of what they'll find here, add a description to your repository.

Source | master | 73402b6 | Full commit

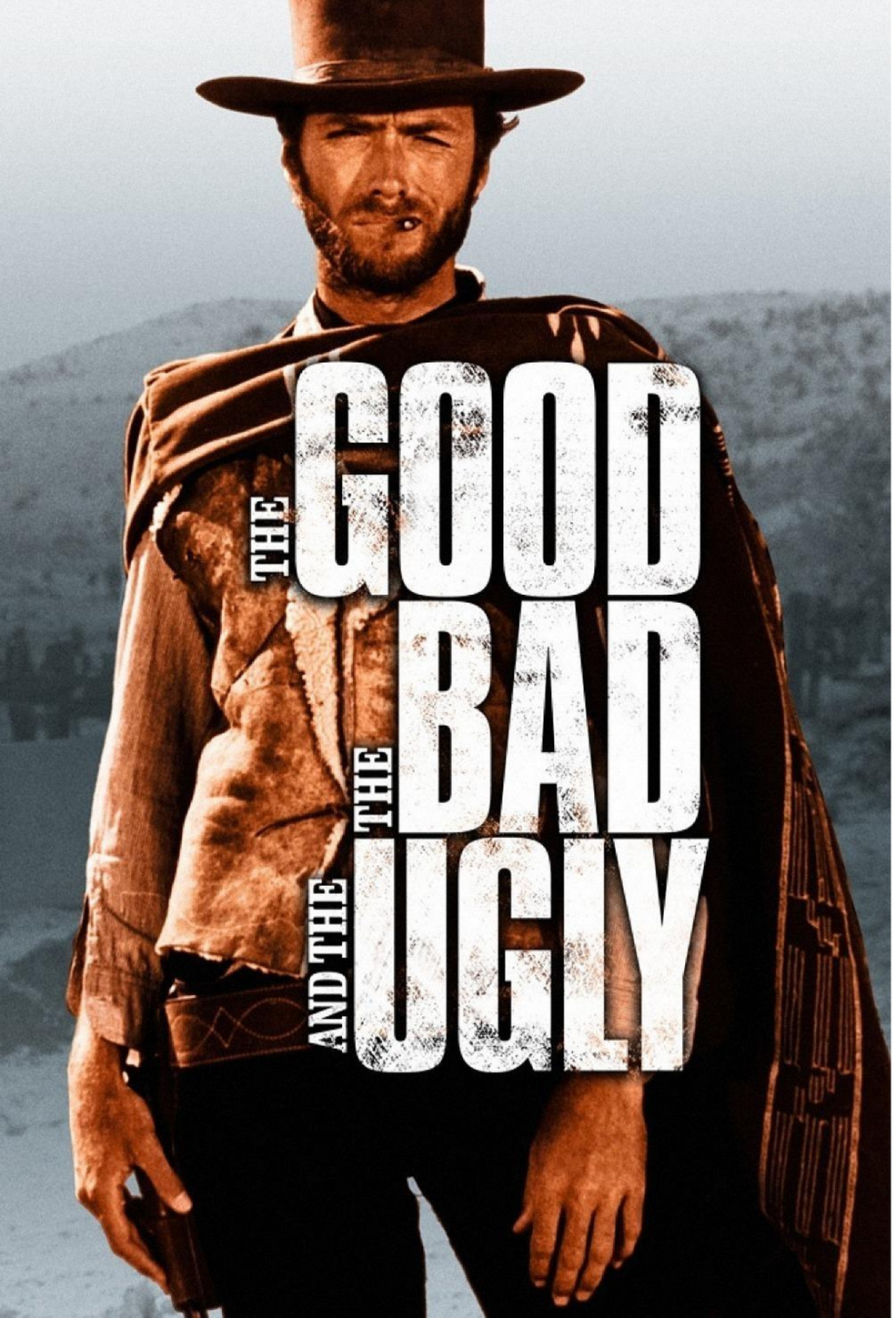
civildynamoconnection / CivilDynamoConnection / **Alignments.cs** | Edit

```
109         }
110
111         [MultiReturn(new[] { "Stations", "StationEasting", "StationNorthing", "StationPoints", "AlignmentCurve", "StartingStation", "EndingStation", "AlignmentLength" })]
112         public static Dictionary<string, object> GetAlignmentStationsFromTo(Object Alignment, double FromStation, double ToStation, double StationType = 0, double MajorInterval = 20, double Mi
113         {
114             AeccAlignment alignment = Alignment as AeccAlignment;
115             AeccStationType stType = 0;
116             switch (StationType)
```

https://bitbucket.org/cesarecaoduro/civildynamoconnection/src/master/

```
128             }
129
130             AeccAlignmentStations stations = alignment.GetStations(stType, MajorInterval, MinorInterval);
131             List<double> stationEasting = new List<double>();
132             List<double> stationNorthing = new List<double>();
133             List<Point> stationPoints = new List<Point>();
134             double startingStation = alignment.StartingStation;
135             double endingStation = alignment.EndingStation;
136             double alignmentLength = alignment.Length;
137             List<double> stationList = new List<double>();
138             Curve alignmentCurve = null;
139
140             foreach (AeccAlignmentStation s in stations)
141             {
142                 if (s.Station >= FromStation && s.Station <= ToStation)
143                 {
144                     stationList.Add(s.Station);
145                     stationEasting.Add(s.Easting);
```

Lesson lernt



Who is Who?

- **All the products are Good, Bad and Ugly at the same time!**
- It is our job to make get the best out of them based on client expectation and market demand
- Data is the key!
  (If you didn't watch the C&C Keynote, make sure you look at the session recording)
- Don't try to build new workflows to work around existing workflow, disrupt and think out of the box
- The class material will be available on GitHub

https://github.com/cesarecaoduro/AU2019/wiki/InfraWorks-and-Civil-3D-for-Rail-Projects

- Better starts now!

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ALytics

AECOM Imagine it.® Delivered.

MODEL INTELLIGENCE

Exhibit Hours (Tuesday Nov 19 - Thursday Nov 21)	Booth Speakers (13 speaking spots)
Tuesday Nov. 19	
11:30 – 1:00 pm networking lunch	12 - 1 Russ Dalton - evolution of sports design/build
1:00 - 2:00 pm - expo open	Mark Hughes - Facility & Project Management in Aviation
2:00 - 3:30 pm - expo open	2:00 - 3:00 pm Ryan Bylea - BIM to GIS workflows
5:30 - 6:30 pm - Community Reception	Sam Dougherty - Scan to BIM with LEICA / PointFuse - Space & Facility Management (RTC 360) Evan Renoldy
6:30 - 7:30 pm - Community Reception	7:00 - 8:00 pm Steve Paul - Immersive for Safety
7:30 - 8:00 pm - Community Reception	no speakers in this final half-hour
Wednesday, Nov. 20	
10:00 a.m. – 11:30 a.m. – Expo open	No speakers in this morning spot - AEC Keynote
11:30 a.m. – 1:00 p.m. – Networking Lunch	12 - 1 Dale Sinclair - Evolution of the design process and digital libraries
1:00 - 2:00 pm - expo open	ADSK's Scott McEachron - Scan to BIM collaboration for AECOM's Blaisdell Concert Hall project
2:00 - 3:30 pm - expo open	2-3 Aman Singhvi - Designing a Sustainable Future
5:30 - 6:30 pm - Community Reception	Cesare Corduro - AECOM's ALytics Model Intelligence solution
6:30 - 7:30 pm - Community Reception	James Leverton - Changing design review workflows in the UK water industry
7:30 - 8:00 pm - Community Reception	no speakers in this final half-hour
Thursday, Nov. 21	
10:00 a.m. – 11:30 a.m. – Expo open	11 - 12 Dennis McNeal - BIM 360 Model Coordination
11:30 a.m. – 1:00 p.m. – Networking Lunch	12 -1 Michael Warren - Scan to BIM workflows in Americas transportation projects
1:00 - 2:30 pm - expo open	1:30 - 2:30 Matt Anderle - Fusion 360 design to 3D print workflows - live demo
2:30 p.m. – 3:00 p.m. – Expo Open	no speakers in this final half-hour

A digital solution enabling design managers to extract more value from BIM (Building Information Modelling)

Automate tracking issues and clashes over time

Monitor component quantities as they change throughout design

Check data compliance against global standards or custom requirements

Improve effectiveness of BIM models throughout the entire asset lifecycle

FEEDBACK

AECOM

AUTODESK®

Make anything™