

InfraWorks 360 for Architects

Samuel Macalister

Senior Technical Sales Specialist – BIM
samuel.macalister@autodesk.com

At the end of this class, you will be able to:

Gather & utilize various Data

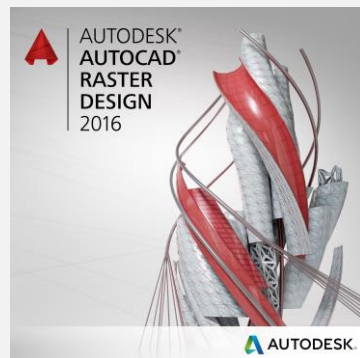
Develop your design proposals

Analyze & Present your designs



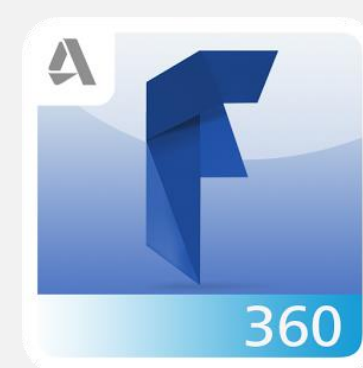
Software summary

Data Gathering

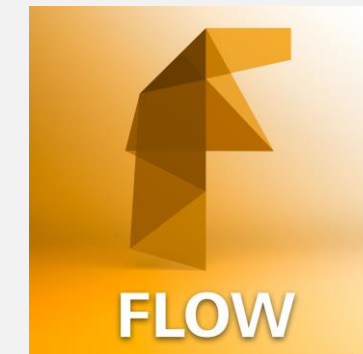


nearmap.com

Design



Analysis & Presentation

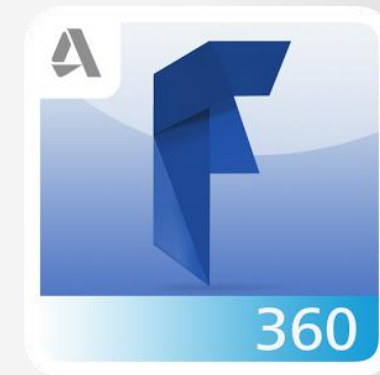
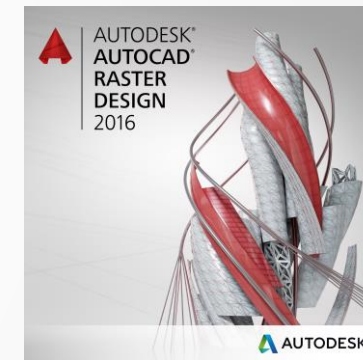


AUTODESK®
PIXLR®

01 Data Gathering

01 Data Gathering

- Coordinate systems **Civil 3d**
- Aerial imagery **nearmap**
- Shape files **Bbbike**
- Concept design **Formit/sketchup**
- Laser scan **Recap**



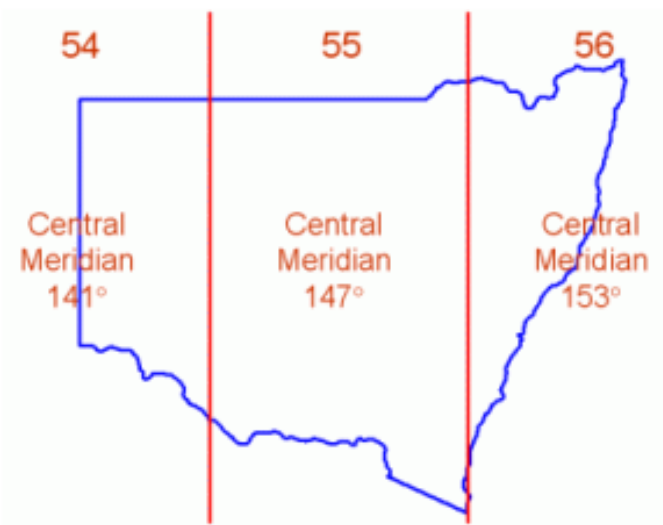
Coordinate systems | MGA 56

MGA - Map Grid of Australia

The official coordinate projection for use with the Geocentric Datum of Australia 1994 (GDA94).

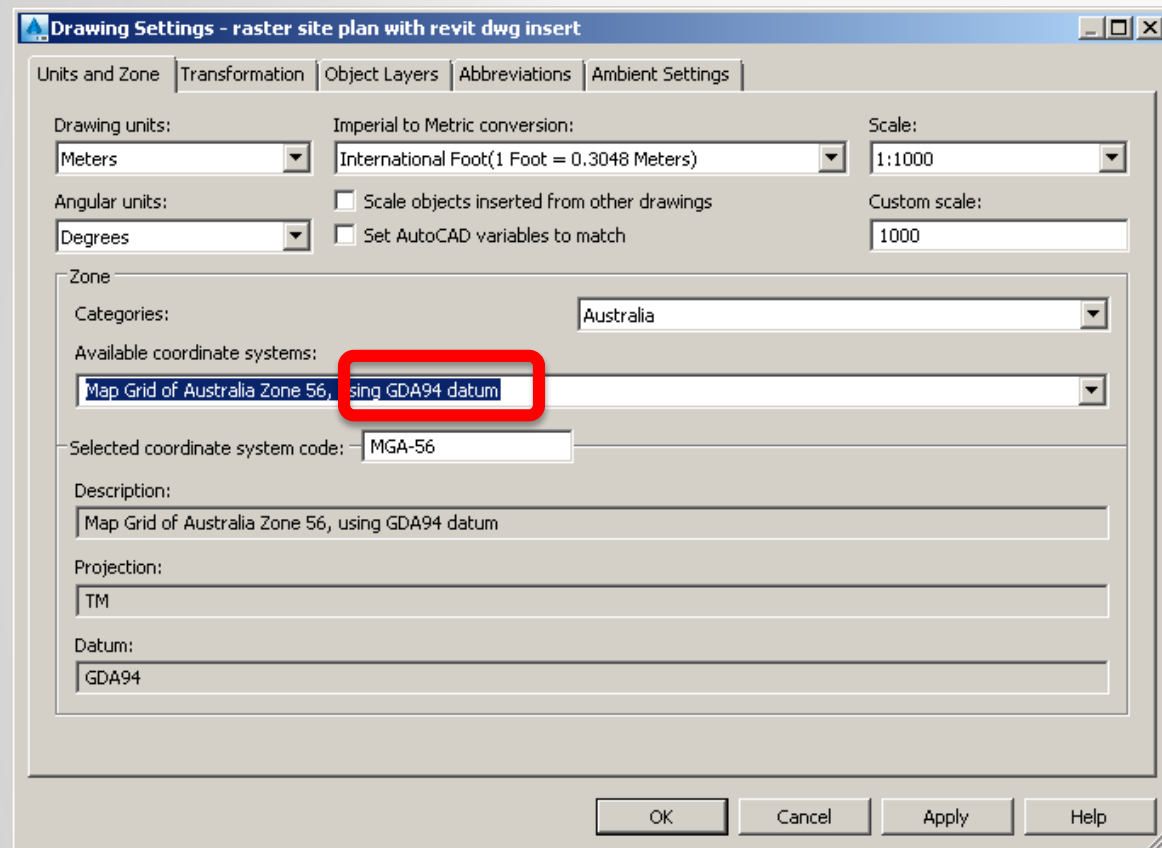
Projection:	Transverse Mercator
Zone Width:	6 degrees
Longitude of Origin:	Central Meridian of each zone
Latitude of Origin:	Equator (zero degrees)
False Easting:	500 000
False Northing:	10 000 000
Central Scale Factor:	0.9996
Units:	Metre
Ellipsoid:	GRS80
More Information:	Go to ICSM website.

MGA Zones for NSW

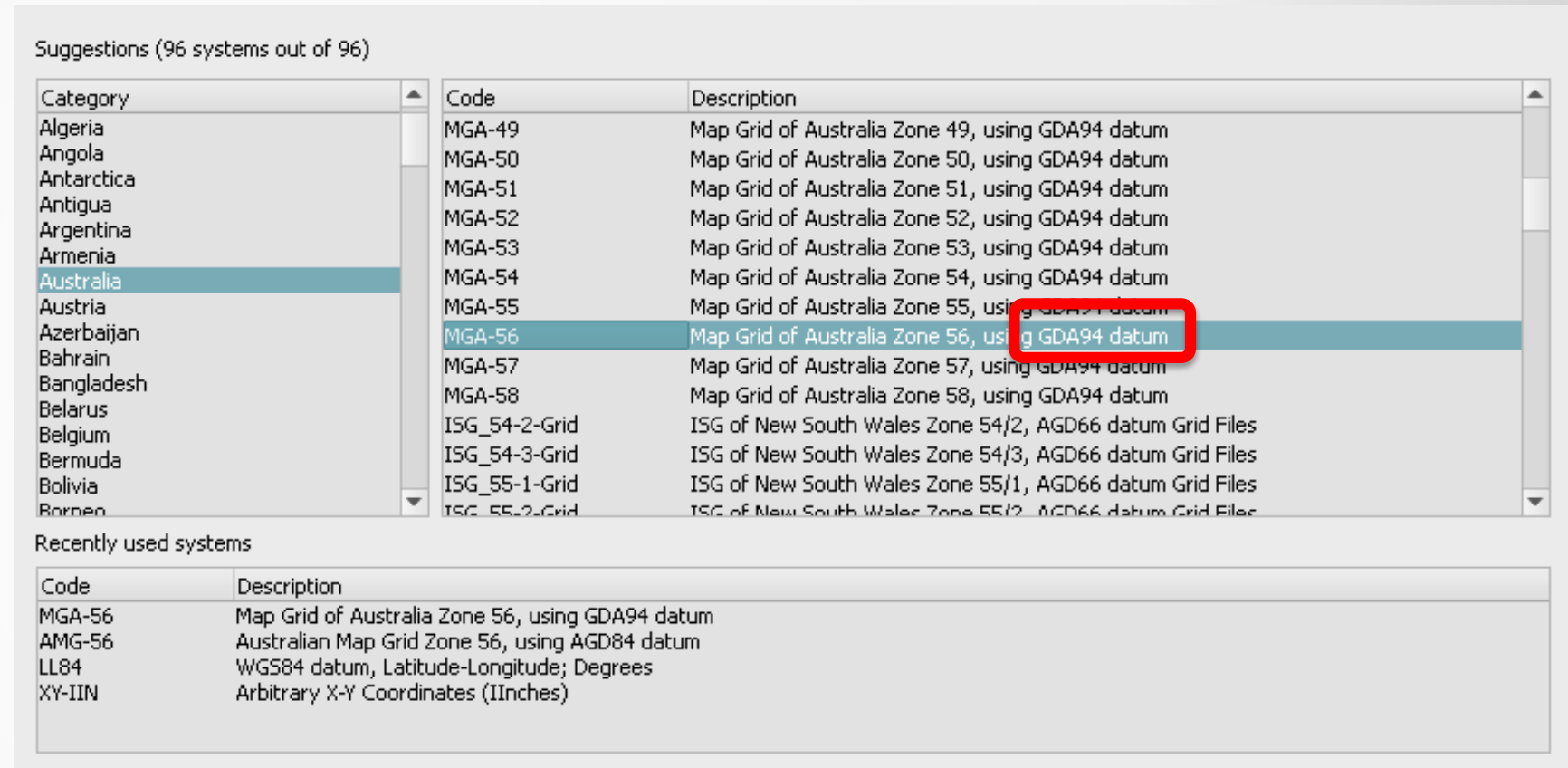


<http://www.lpi.nsw.gov.au/surveying/geodesy/projections>

Coordinate systems | MGA 56

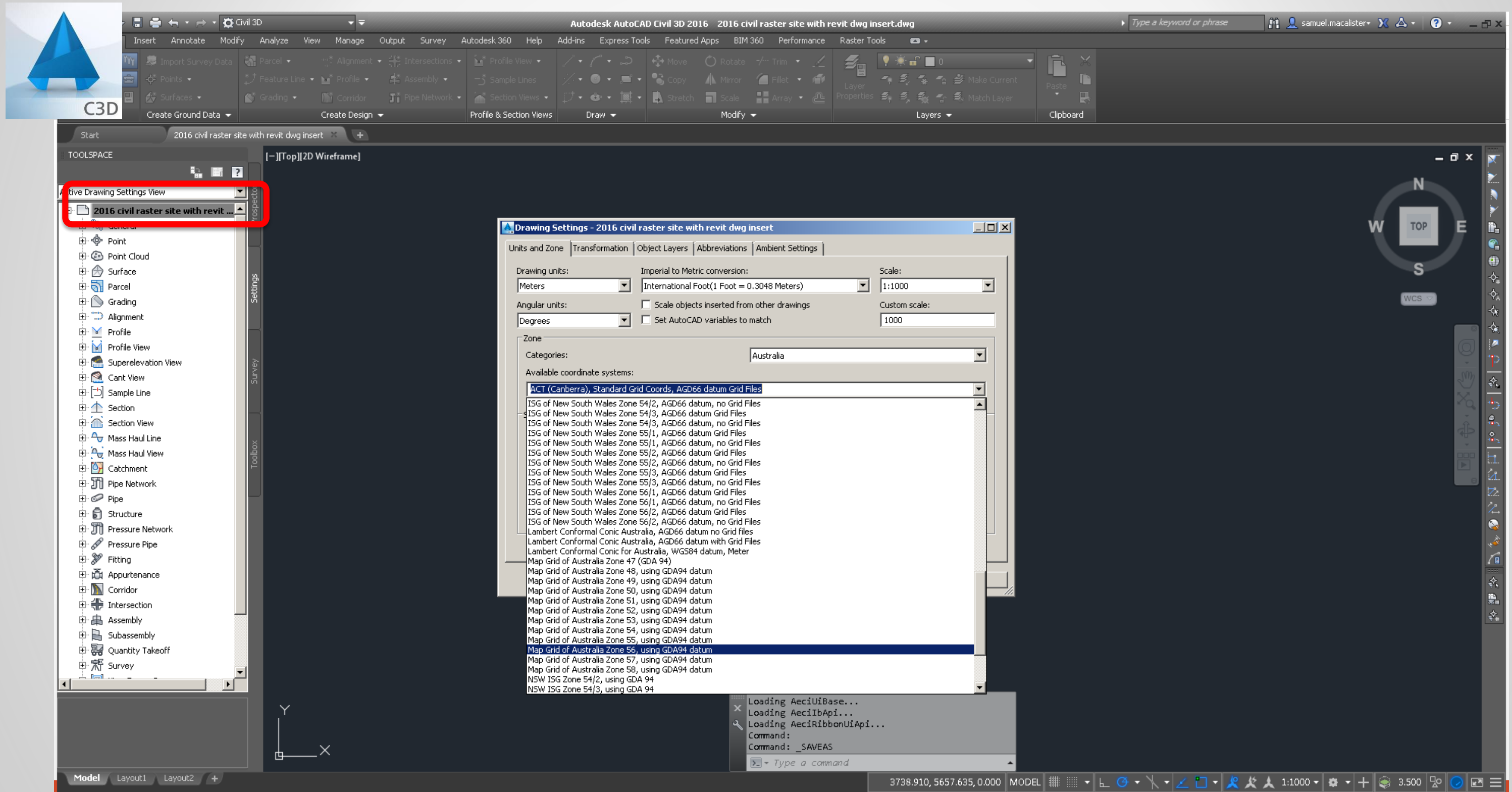


Autodesk Civil 3d



Autodesk InfraWorks 360

Civil 3d | right click settings to set MGA 56 (GDA 94)



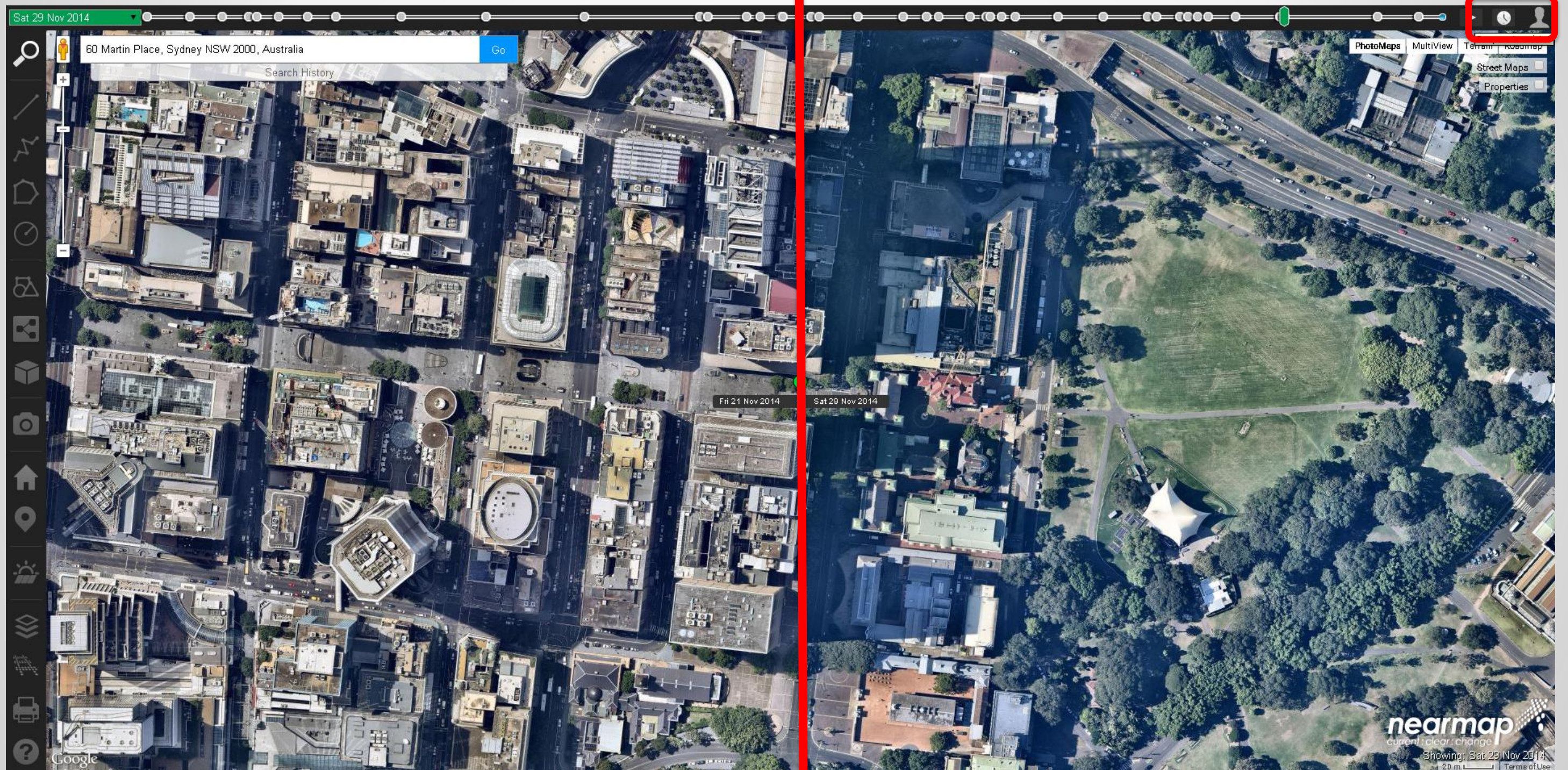
nearmap.com | Choosing the correct date



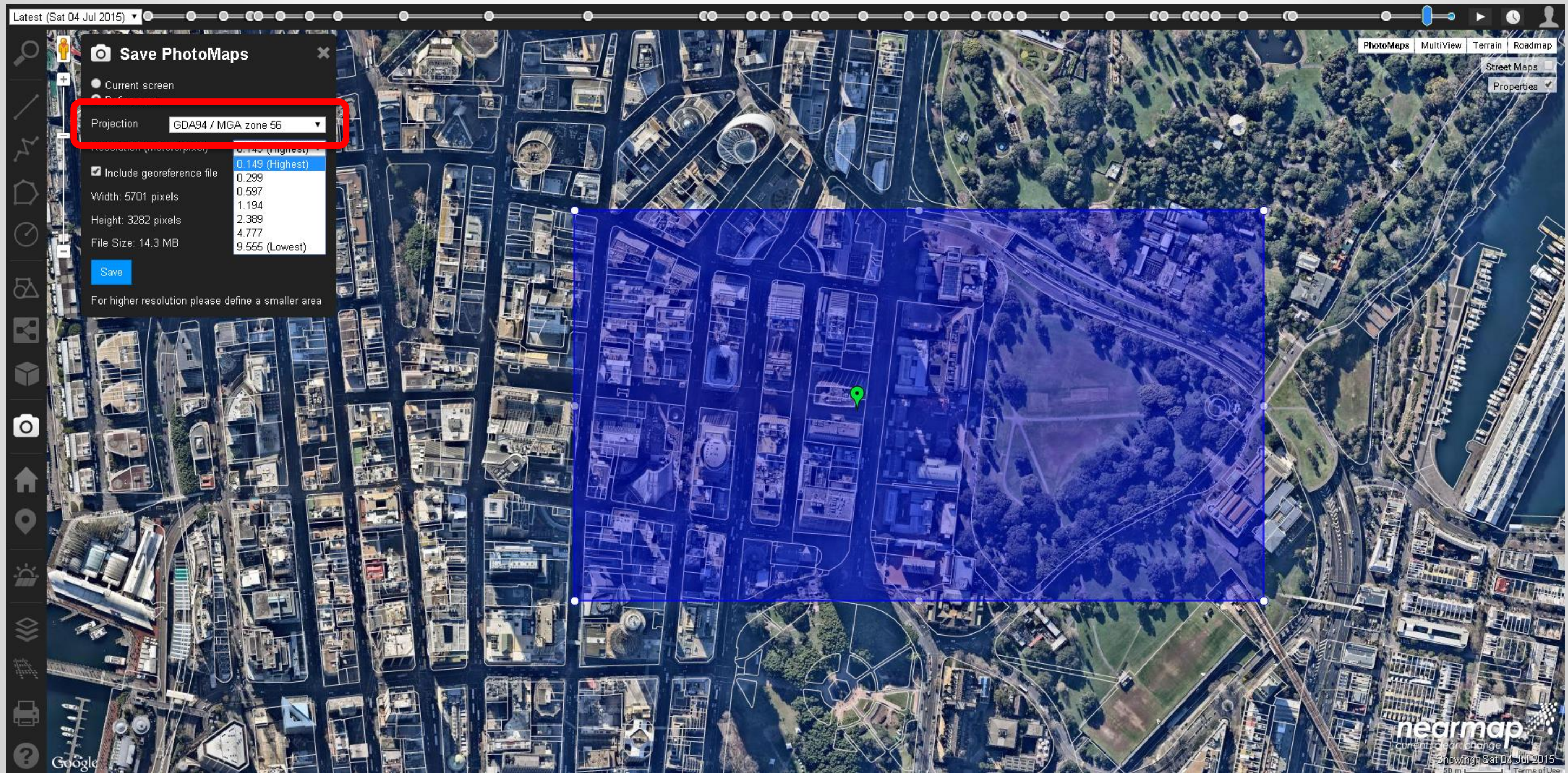
Compare the dates for best results

Aim for Summer midday short shadows

Avoid Winter morning/end of day long shadows

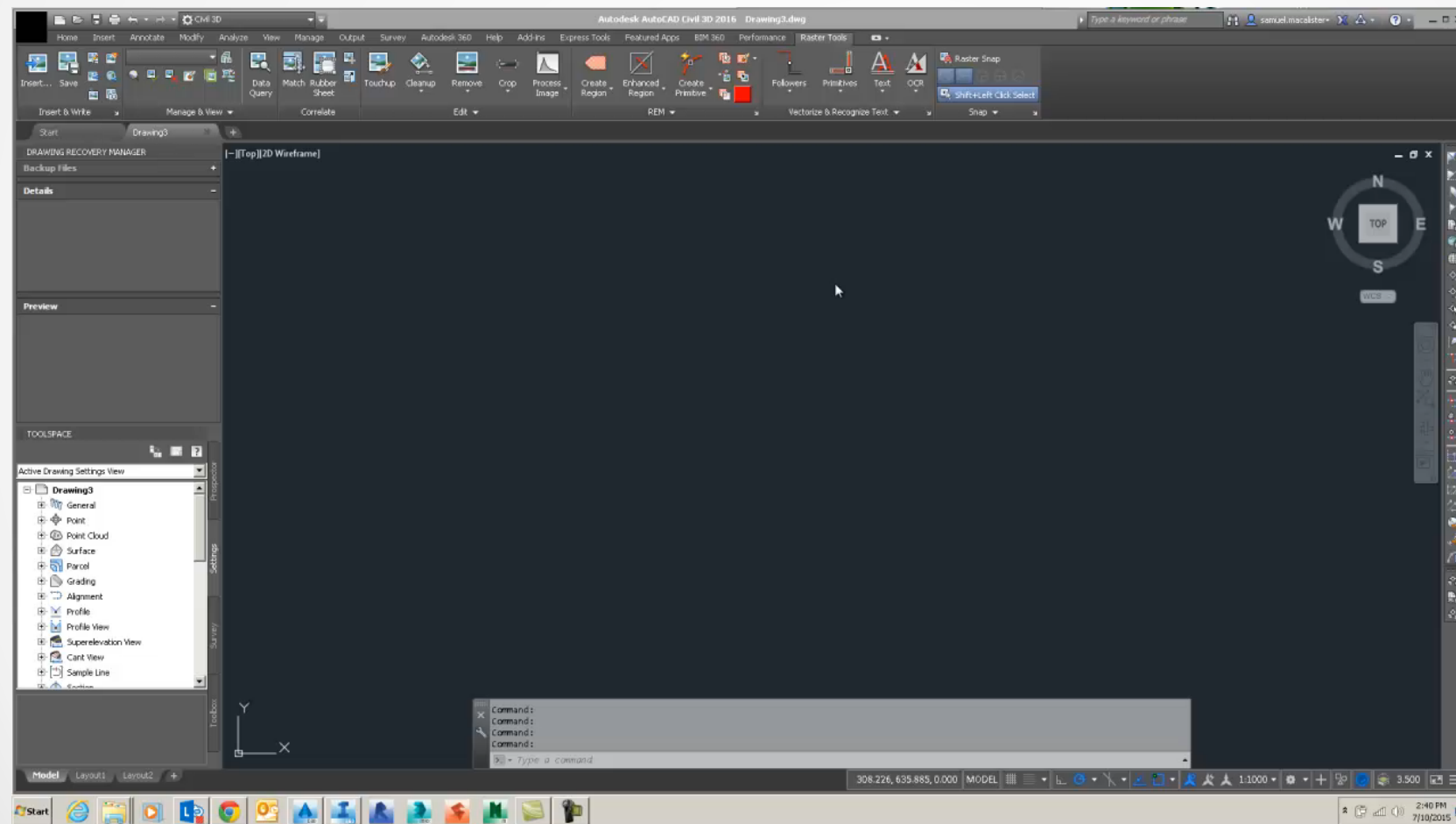


nearmap.com | Saving out data



*full workflow video on Autodesk ANZ - YouTube

■ VIDEO 1 – NEARMAP IMPORT TO CIVIL 3D



MAPEXPORT | shp & shx files



Modify Correlation Values

Correlation Values

Insertion point:

X: 334257.513 Y: 6250717.078 Z: 0.000

Rotation: 0.0000

Scale: 1.000

Density: 6.698 x 6.698 pixels per Meter

Units: Image units: Meters

Apply

Image file name: ...\\EPSG28356_Date20141121_Lat-
Correlation file name: ...\\EPSG28356_Date20141121_Lat-

Cancel < Back Next > Help

Check the x & y values

Export - E:\...\2016 nearmap base 01.shp

Selection Data Options

Object type: ☐ Point ☐ Line ☒ Polygon ☐ Text

Select objects to export:

☐ Select all ☒ Select manually

Filter selection:

Layers: * Object Classes: *

Select polygon topology to export:

Name: <None>

☐ Group complex polygons

Saved profiles: Load... Save... Current profile:

OK Cancel Help

No objects selected.

Use polygon & select manually

Export - E:\...\2016 nearmap base 01.shp

Selection Data Options

Coordinate conversion:

MGA-56

Map Grid of Australia Zone 56, using GDA94 datum

☐ Convert coordinates to:

Other:

☒ Treat closed polylines as polygons

Driver Options...

Saved profiles: Load... Save... Current profile:

OK Cancel Help

No objects selected.

Make sure polylines are closed

Shape files | <http://extract.bbbike.org/>



en de - about extracts -

Format ⓘ

Protocolbuffer (PBF)

Your email address ⓘ

Name of area to extract ⓘ or search

extract

Move the map to your desired location.

Then click [here](#) to create the bounding box. ⓘ

home | help | download | status | map compare | pro | donate

(©) 2015 BBBike.org by Wolfram Schneider
Map data (©) OpenStreetMap.org contributors

Help

BBBike extracts allows you to extract areas from Planet.osm in OSM, PBF, o5m, Garmin, Navit, Osmand, mapsforge CSV, libosmium OPL, or Esri shapefile format. The maximum area size is 24,000,000 square km, or 768MB file size. It takes between 2-7 minutes to extract an area. The e-mail field is required, you will be notified by e-mail if your extract is ready for download. Please use a meaningful name for the extract. For more information, please read the [extract help page](#).

How to use the BBBike extract service:

1. Move the map to your desired location.

2. Then click to create the bounding box.

3. Move or resize the bounding box, or add new points to the polygon.

4. Select a **Format**, enter **Your email address** and **Name of area to extract**.

5. Click the **extract** button. Wait for email notification and download the map. Done!

Osmand mapsforge navit Garmin OSM Garmin Cycle Garmin Leisure Garmin BBBike

more help

21km
1mi

(©) OpenStreetMap contributors, (©) OpenCycleMap

Permalink

AUTODESK UNIVERSITY 2015

AUTODESK

bbbike.org | Extracting Shape file (Esri)



en de - about extracts -

Left lower corner (South-West)
lng: 151.20677 lat: -33.87005

Right top corner (North-East)
lng: 151.21759 lat: -33.86446

Format

Shapefile (Esri) 1 km²

Your email address

samuel.macalister@autodesk.com ~0 MB

Name of area to extract or search 1 min

60 Martin place

extract

Select a different area

☐ add points to polygon

☒ resize or drag polygon

1. Select a **Format**, enter **Your email address** and **Name of area to extract**.
2. Click the **extract** button. Wait for email notification and download the map. Done!

Donate

home | help | download | status | map compare | pro | donate

(©) 2015 BBBike.org by Wolfram Schneider
Map data (©) OpenStreetMap.org contributors

bbbike.org | other file formats



OSM extracts for Sydney

Sydney.osm.csv.xz	1.4M
Sydney.osm.garmin-bbbike.zip	7.7M
Sydney.osm.garmin-cycle.zip	6.7M
Sydney.osm.garmin-leisure.zip	9M
Sydney.osm.garmin-osm.zip	7.7M
Sydney.osm.gz	12.9M
Sydney.osm.mapsforge-osm.zip	4M
Sydney.osm.navit.zip	6M
Sydney.osm.obf.zip	11.4M
Sydney.osm.opl.xz	9.2M
Sydney.osm.pbf	6.8M
Sydney.osm.shp.zip	9.3M
Sydney.poly	
CHECKSUM.txt	

[help](#) | [screenshots](#)

Start bicycle routing for **Sydney**

[Donate](#)

Map controls: Apple, Esri Topo, Esri, Landscape, Transport, Hike&Bike, Cycle, Mapnik, Map, Satellite, Speed Limit, Land Shading, Panorama, Weather, Slide Show, Fullscreen

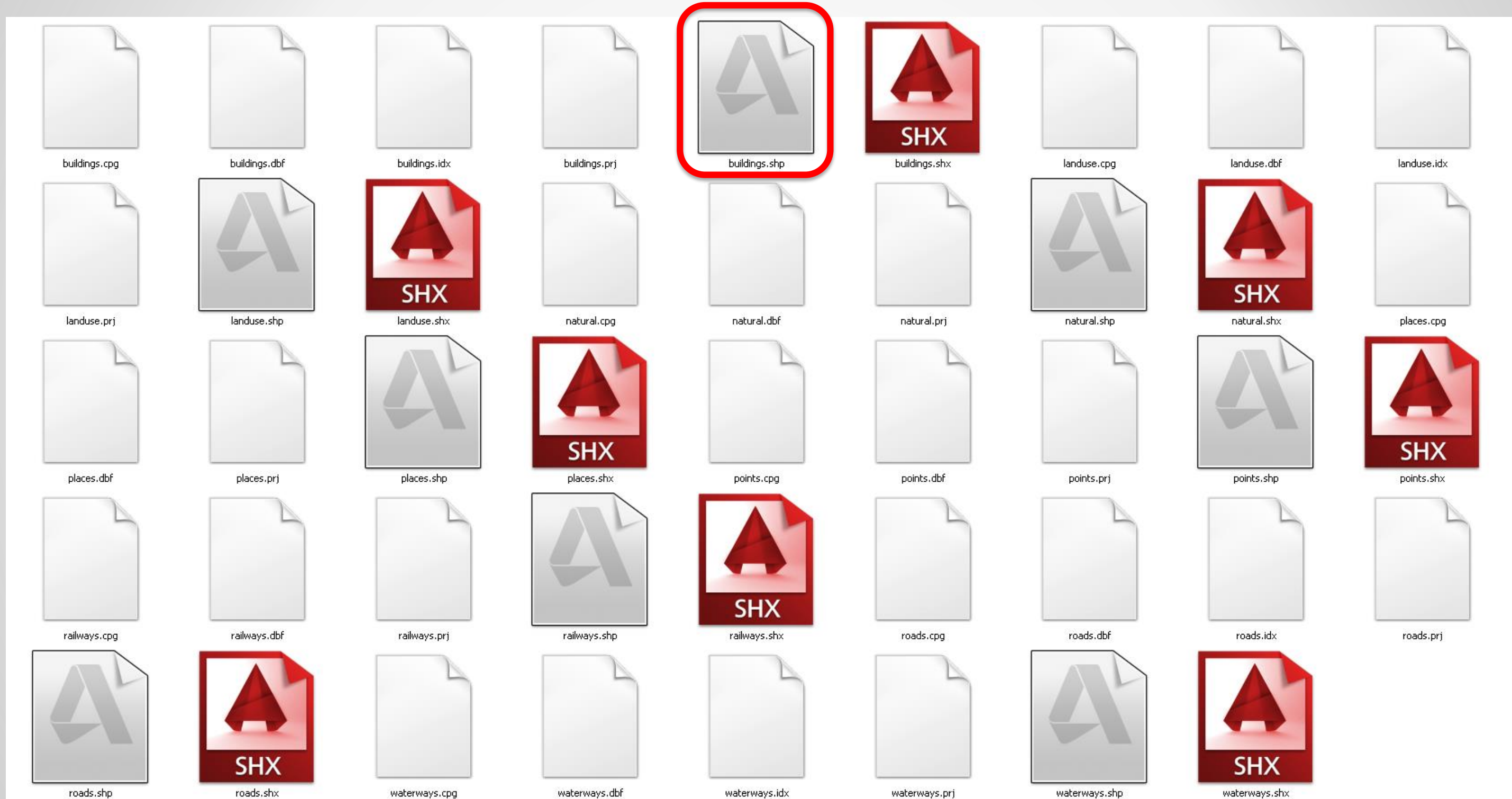
Map data: Bing Hybrid, Bing Sat, MapQuest Sat, MapQuest, Bing, HERE Traffic, Watercolor, Toner, Mapnik (b/w)

50 m

home | donate | Sydney | more cities

© 2008-2015 BBBike.org // Map data © OpenStreetMap.org contributors
map compare - osm extract service

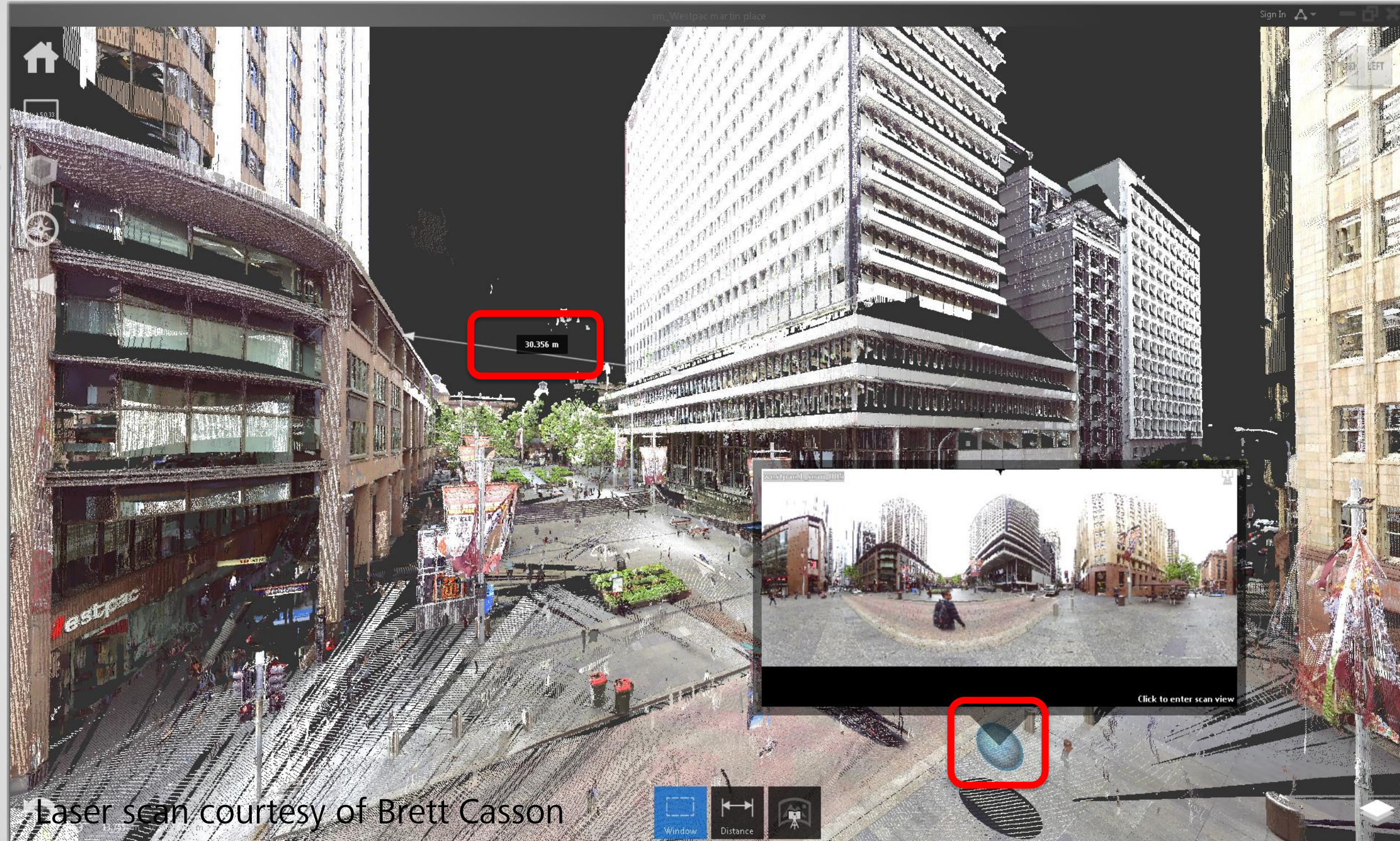
bbbike.org | use the shp files



Data gathering | Recap measurements & mirror balls

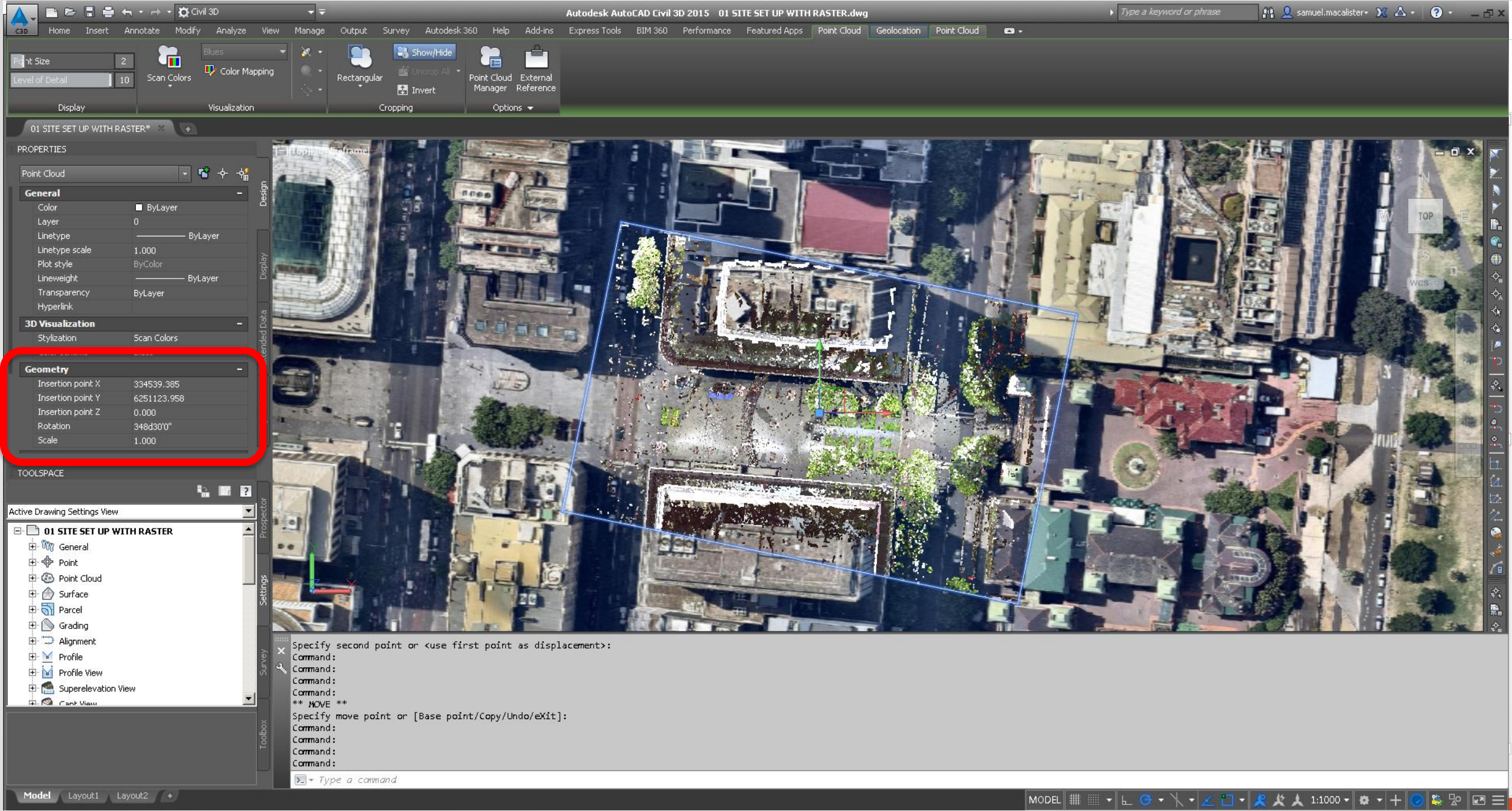


Position
Partners
Shaping New Dimensions

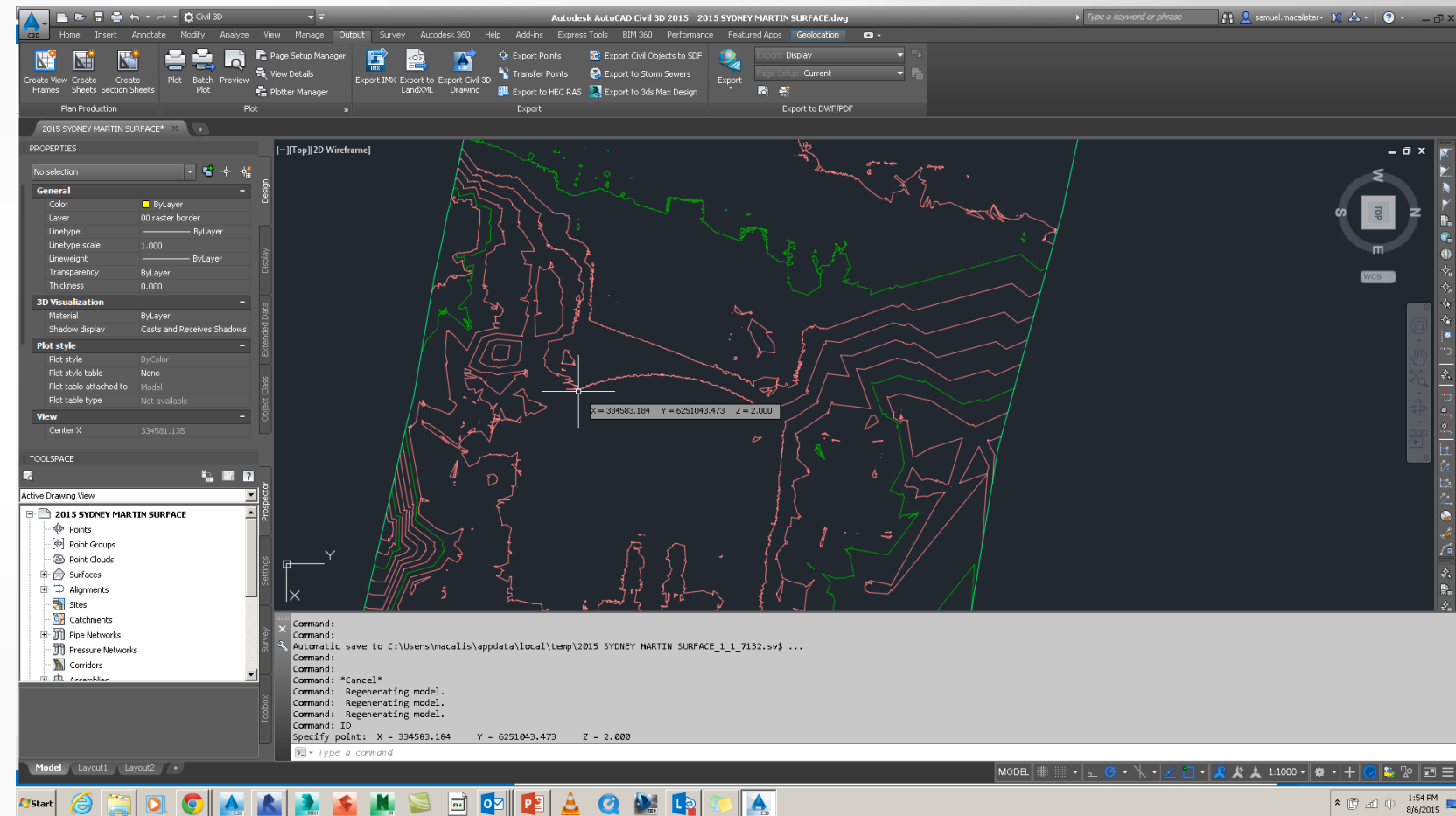
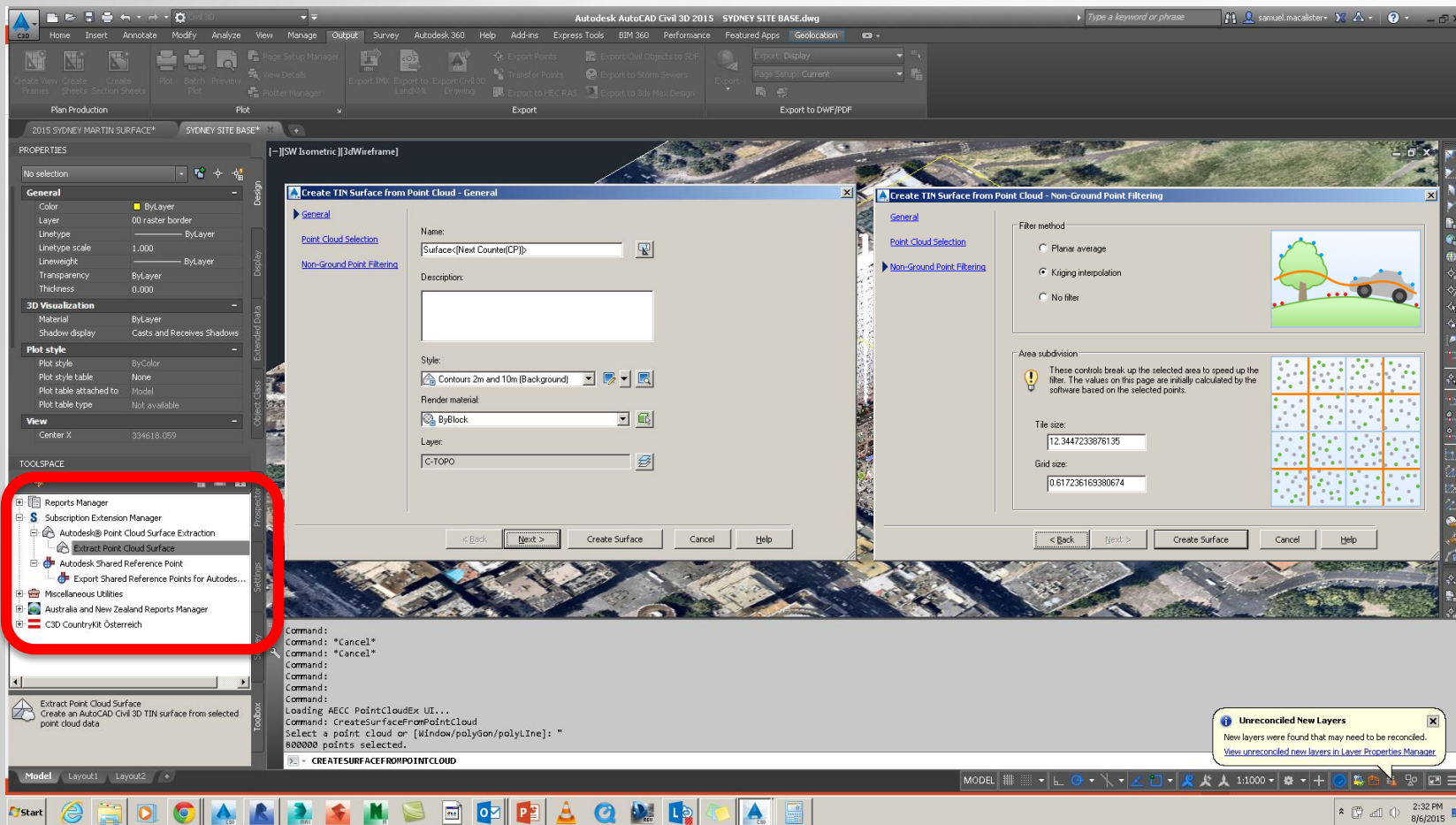


Laser scan courtesy of Brett Casson

Attach point cloud scan (manually placed & rotated)



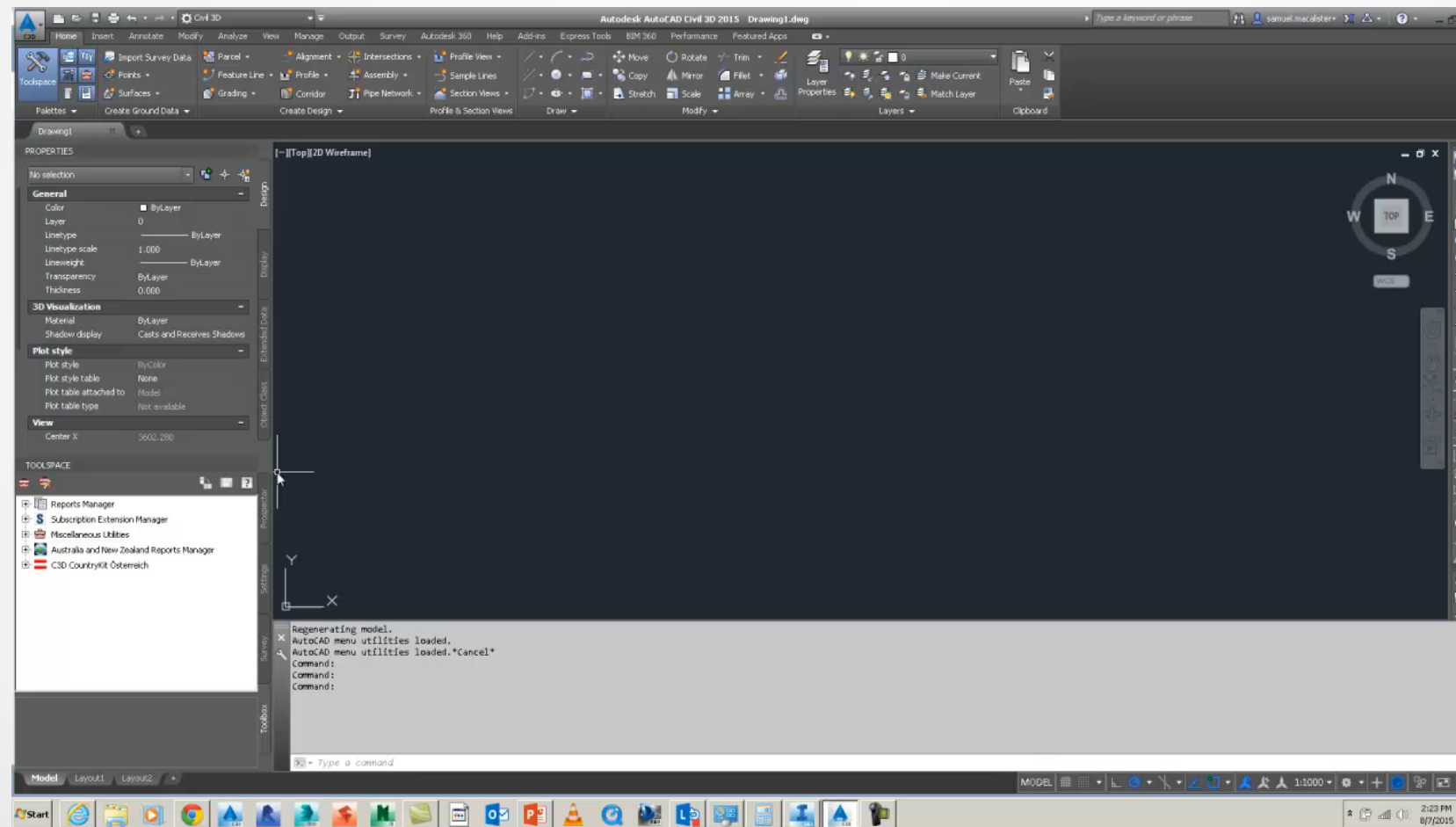
Creating a site surface from point cloud data



*full workflow video on [Autodesk ANZ - YouTube](#)



VIDEO 2 – CONVERT POINT CLOUD TO SURFACE



Civil 3D | Mapimport of road shp files from Bbbike



- Or just drag and drop!

Import - D:\AU data\..\roads.shp

Current drawing coordinate system:

 MGA-56
Map Grid of Australia Zone 56, using GDA94 datum

Driver options:

 Driver Options... Changing these options may affect the layout of the import properties table.

Spatial filter:

☒ None
☐ Current display
☐ Define window 

Import properties for each layer imported:

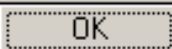
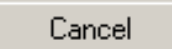
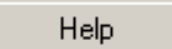
Input Layer	Drawing Layer	Object Class	Input Coordinat	Data	Points
☒ roads	roads	<None>	LL84	<None>	<ACAD_POINT>

Saved profiles:

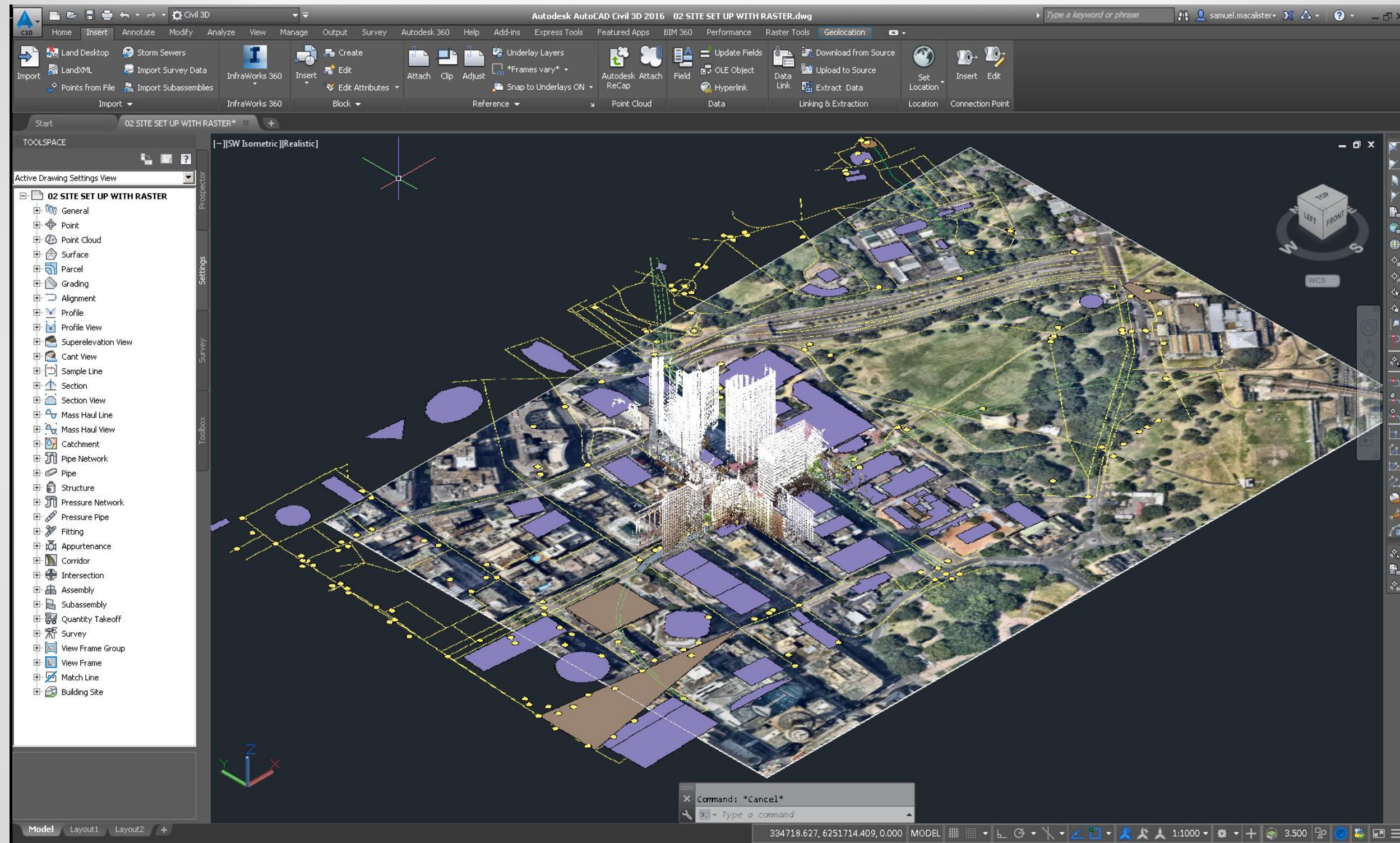
 Load...  Save...

Current profile:

☐ Import polygons as closed polylines
☒ Use class defaults for out of range values

 OK  Cancel  Help

Nearmap | Bbbike | ReCap – check in Civil 3d



Data gathering | Sketchup buildings



3D Warehouse

Upload Model

Search 3D Warehouse

Search

Sign In

Deutsche Bank Place Sydney

Download

Downloads1,553

Likes6

.skp File Size90.1 kB

Polygons394

Materials12

Uploaded10/31/08

Last Modified3/22/14

Share

Embed

g+

f

twitter

p

Peter O.

130 models

Tags

bank, building, Deutsche Bank place, skyscraper, sydney

3d preview with textures

3D Warehouse

Upload Model

Search 3D Warehouse

Search

Sign In

Deutsche Bank Place Sydney

Download

Downloads1,553

Likes6

.skp File Size90.1 kB

Polygons394

Materials12

Uploaded10/31/08

Last Modified3/22/14

Share

Embed

g+

f

twitter

p

Peter O.

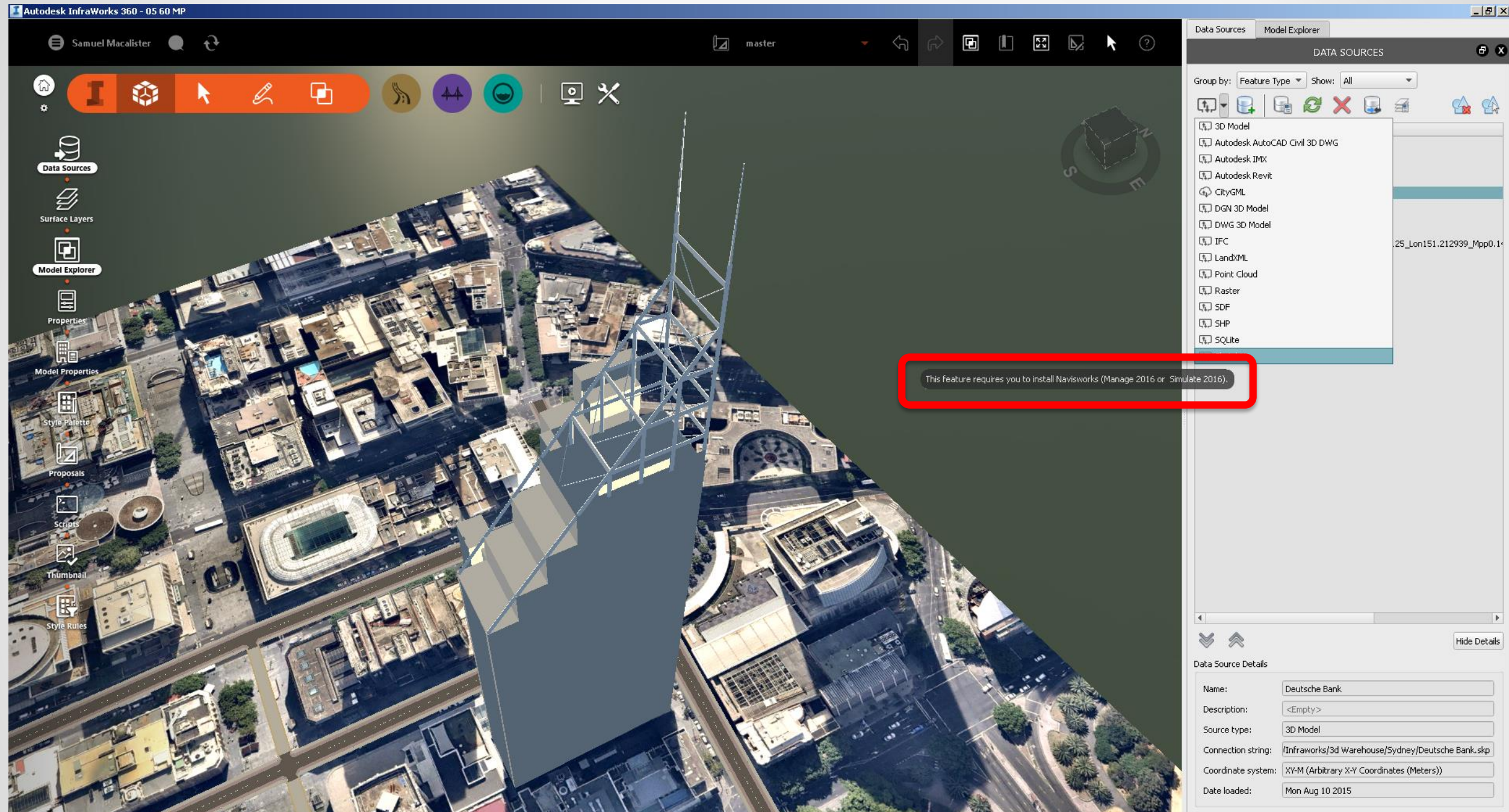
130 models

Tags

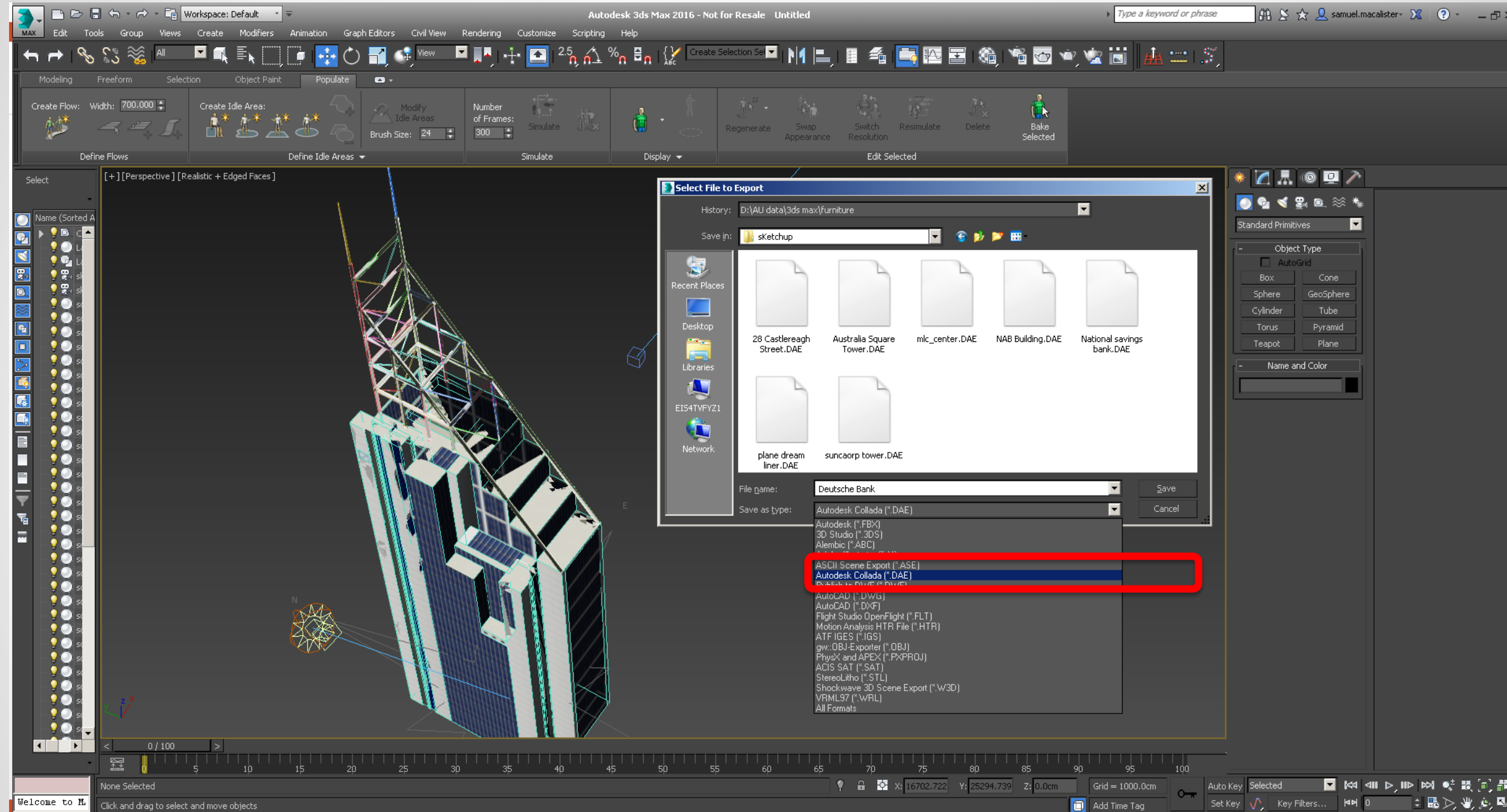
bank, building, Deutsche Bank place, skyscraper, sydney

Google earth location

Data gathering | Sketchup textures missing?



Data gathering | Run Sketchup through 3ds max

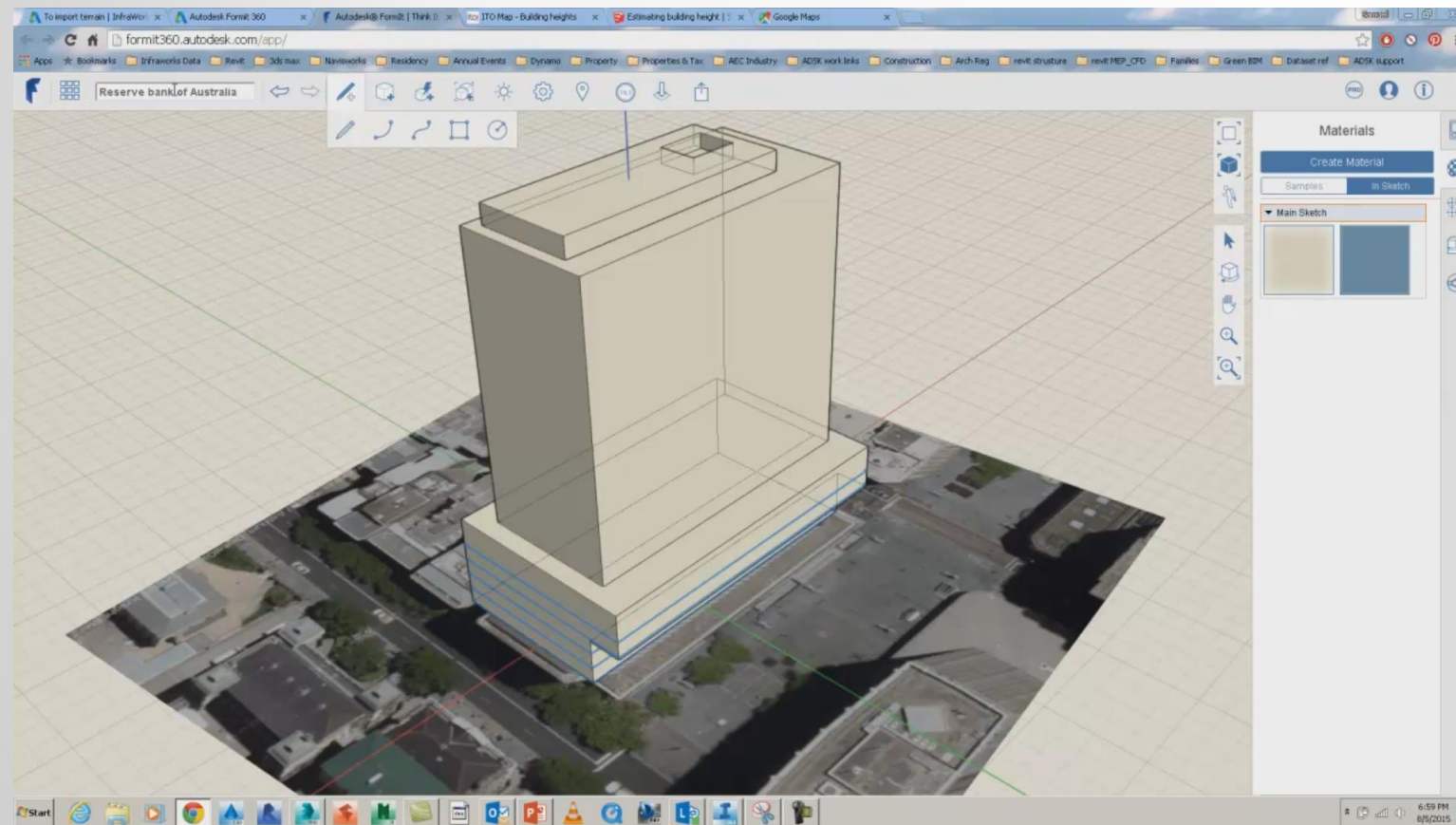


Note – can export DAE file direct from sketch up

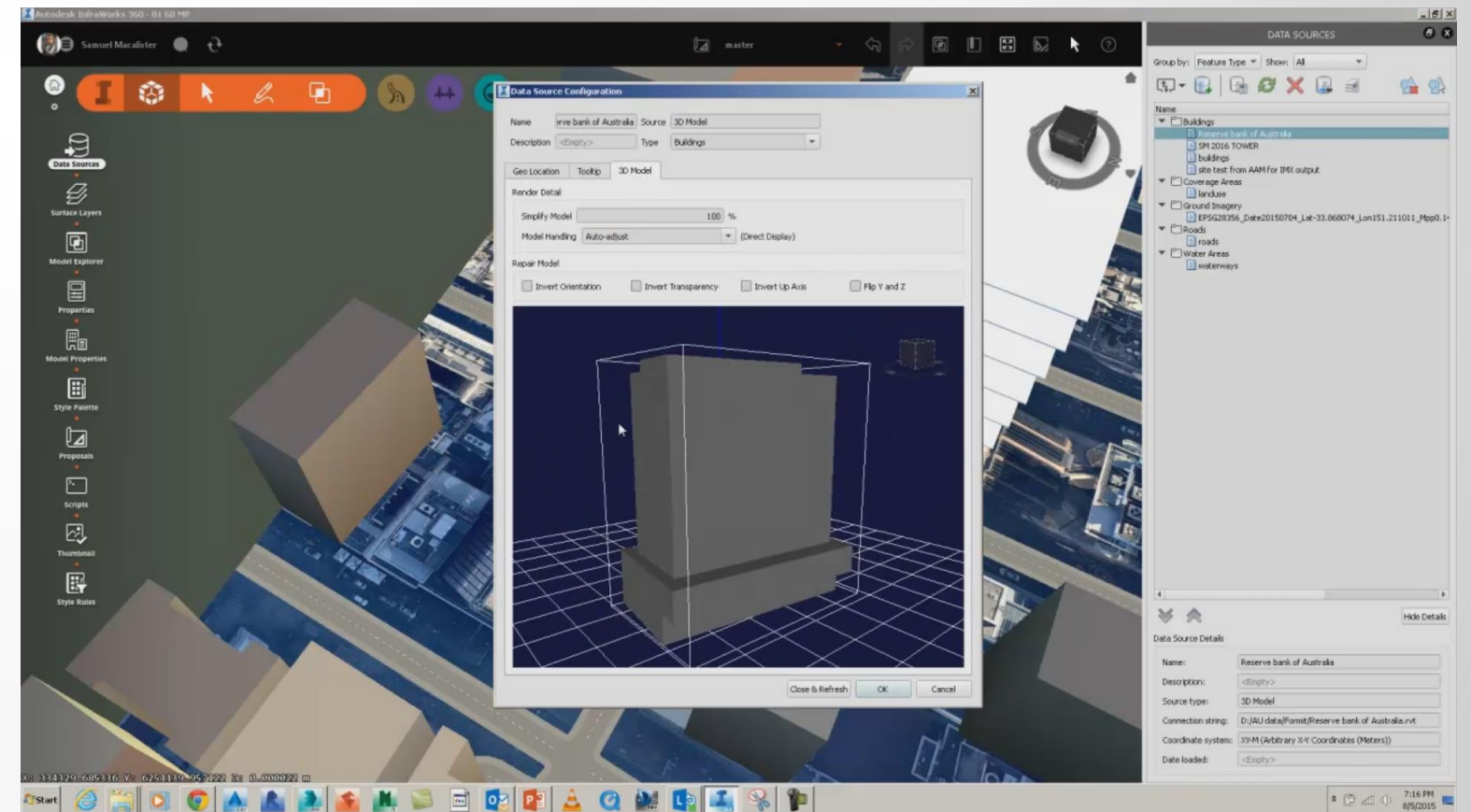
Data gathering | Formit



Model on web browser or mobile with google maps for base



Download as rvt file and bring direct into InfraWorks

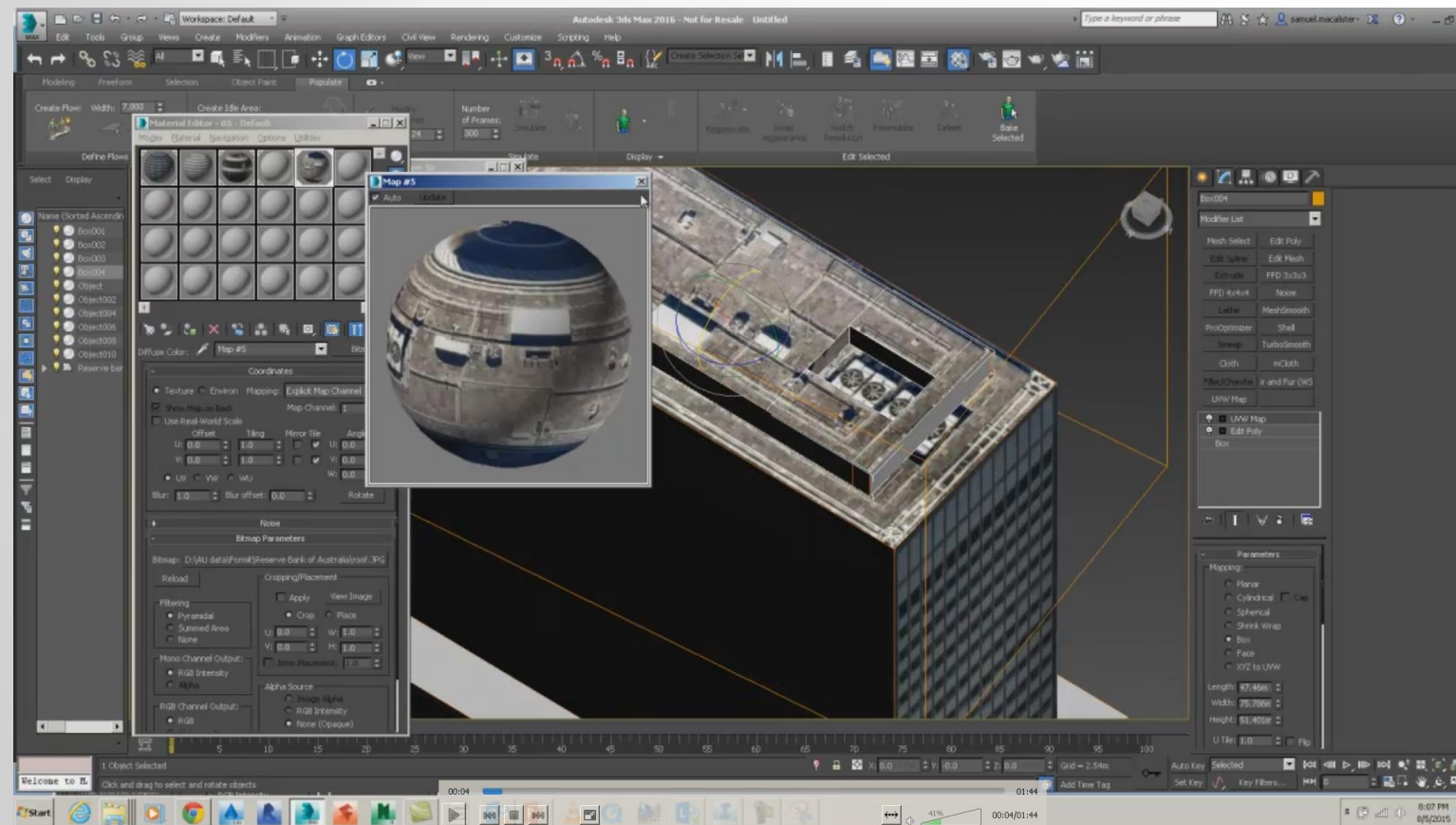


Data gathering | Formit

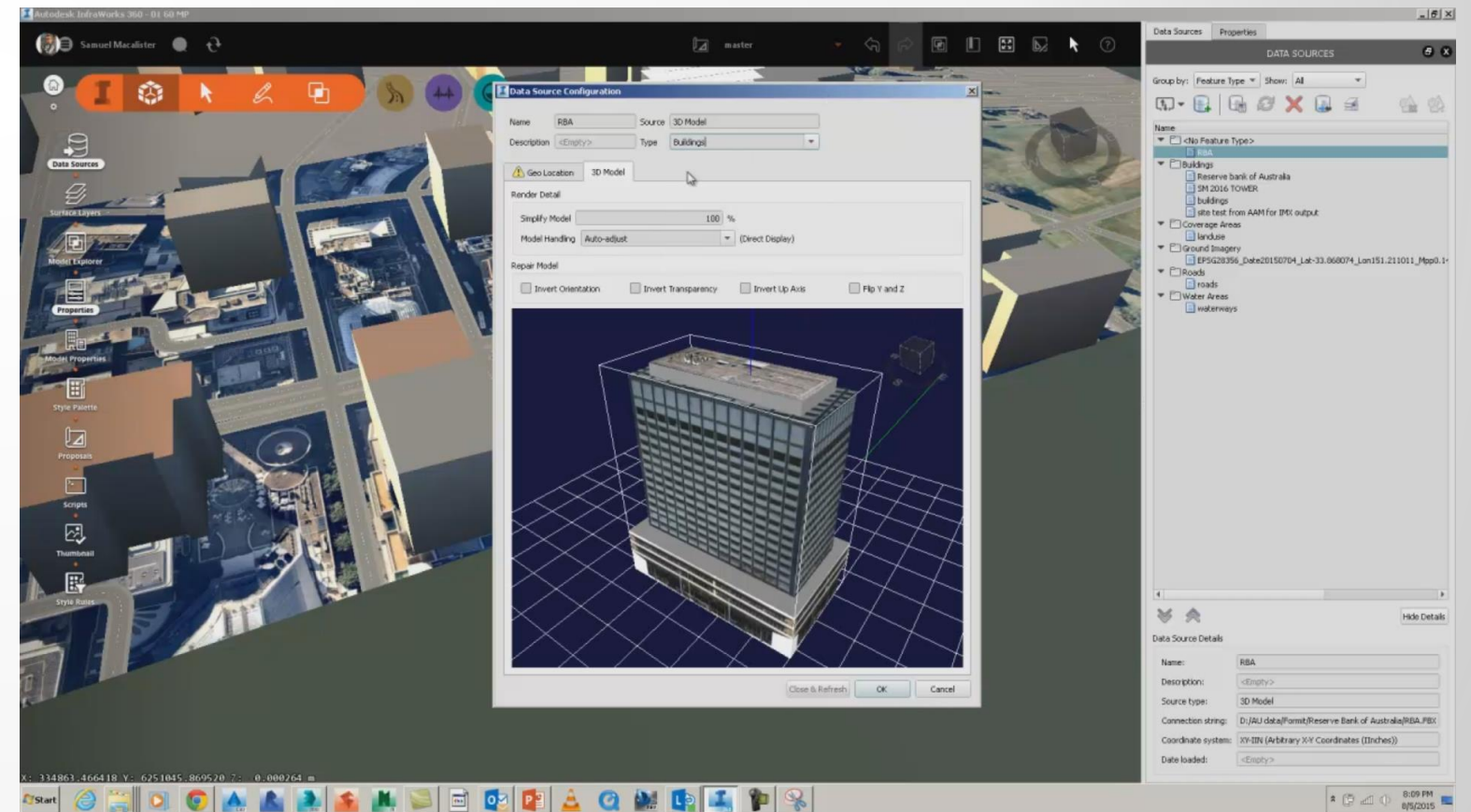


AUTODESK®
PIXLR®

Bring rvt file to 3ds max to texture
with site photos

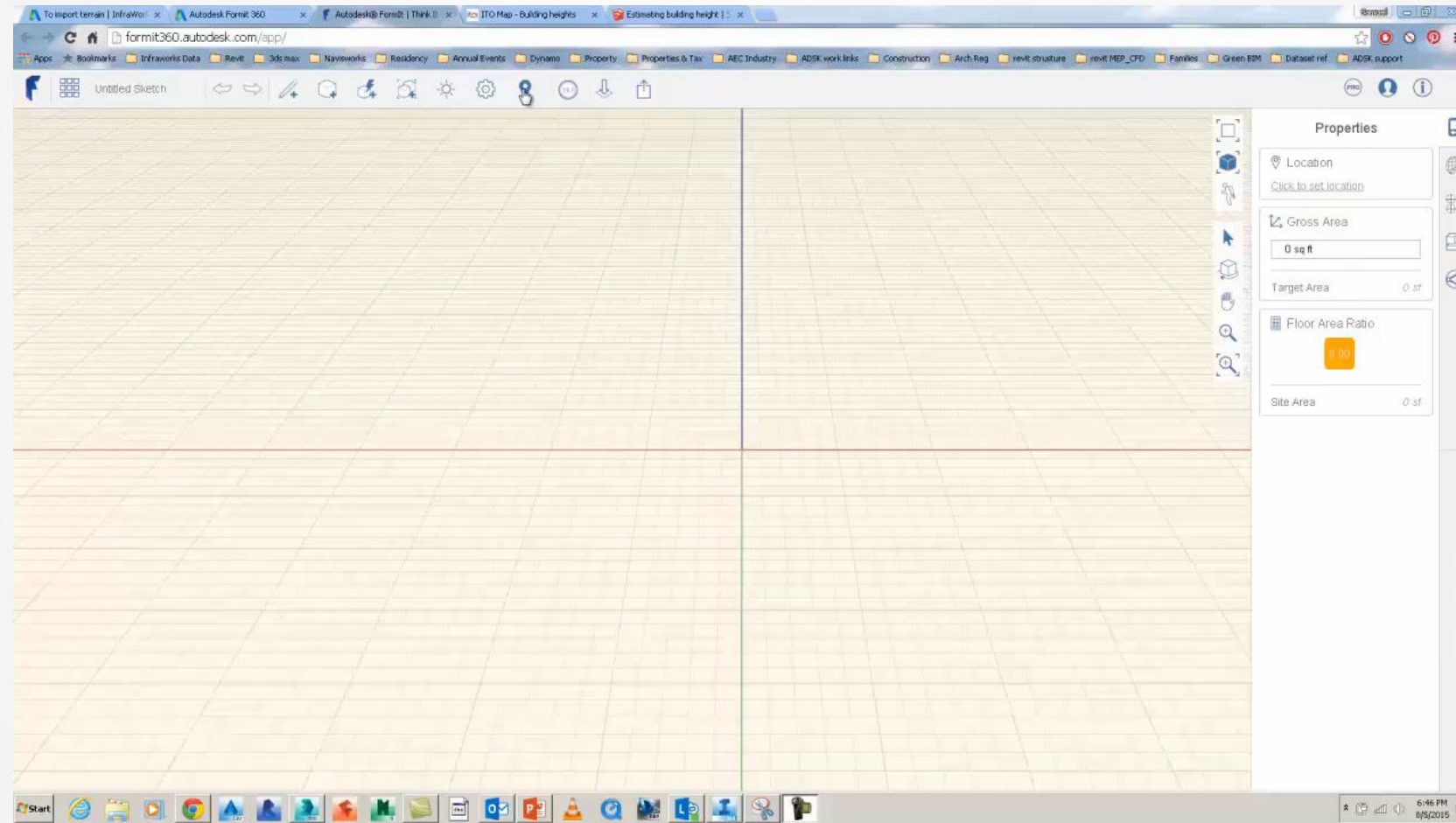


Export as a DAE file to bring textures
through to Infraworks

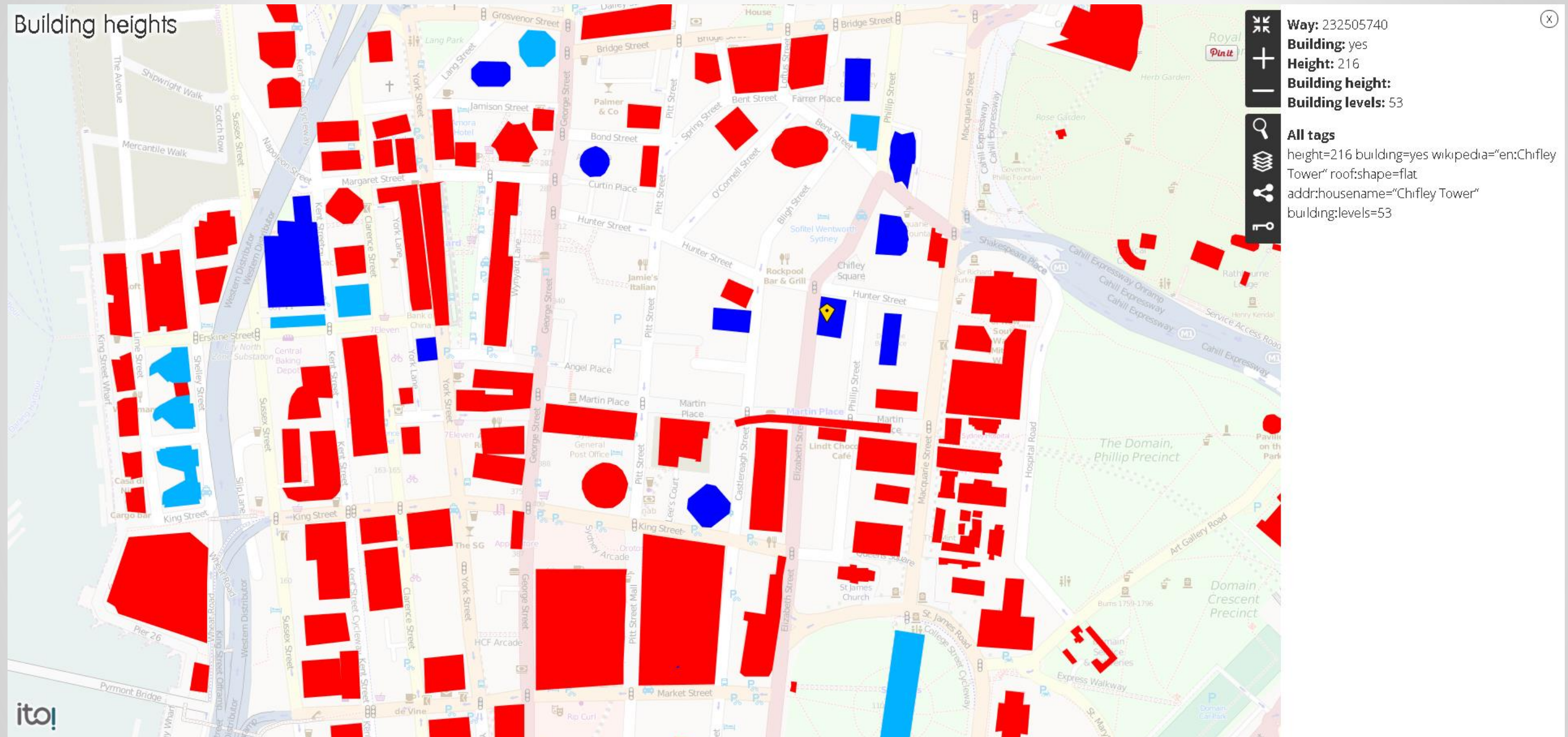


*full workflow video on Autodesk ANZ - YouTube

■ VIDEO 3 – FORMIT SITE MODELS

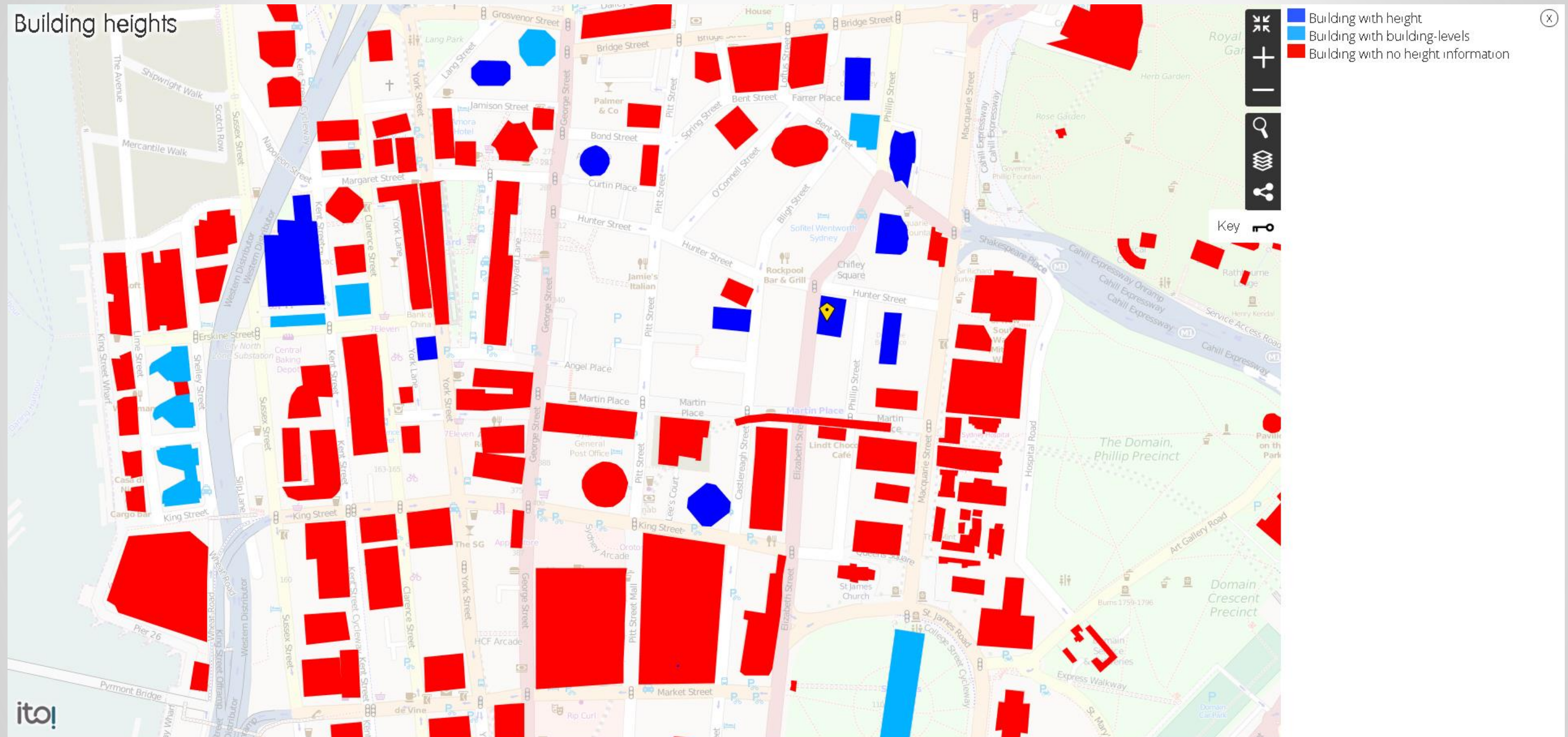


Building Heights | <http://www.itoworld.com/>



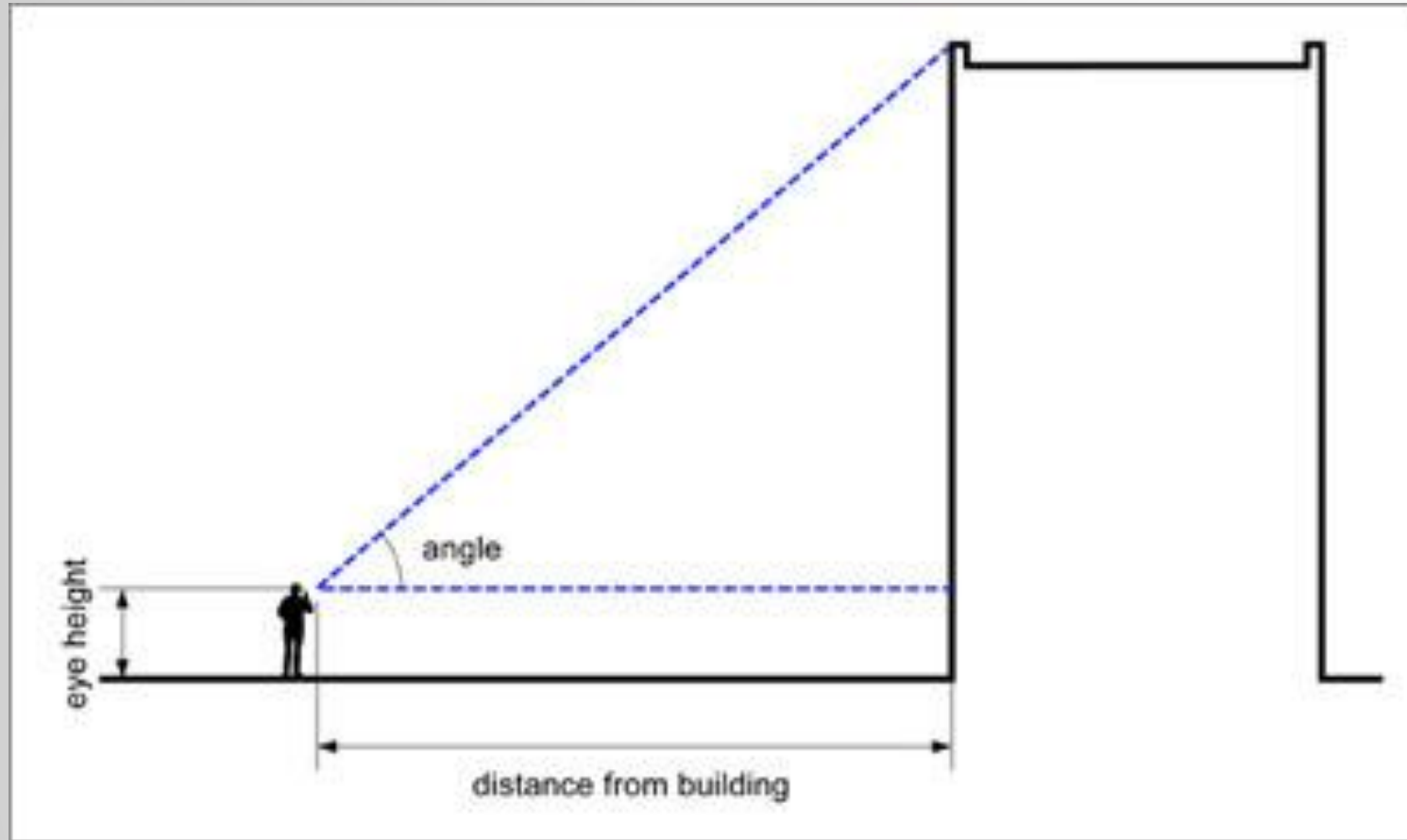
<http://www.itoworld.com/map/85>

Building Heights | red = no height information!



<http://www.itoworld.com/map/85>

Building height | use trigonometry (or guesstimate...)



Use this formula to calculate the height of the building:

$$\text{Height} = (\tan(\text{angle}) \times \text{distance}) + \text{eye height}$$

Example: Given a building distance of 25 meters, an angle of 37 degrees, and an eye height of 1.75 meters, the formula would be:

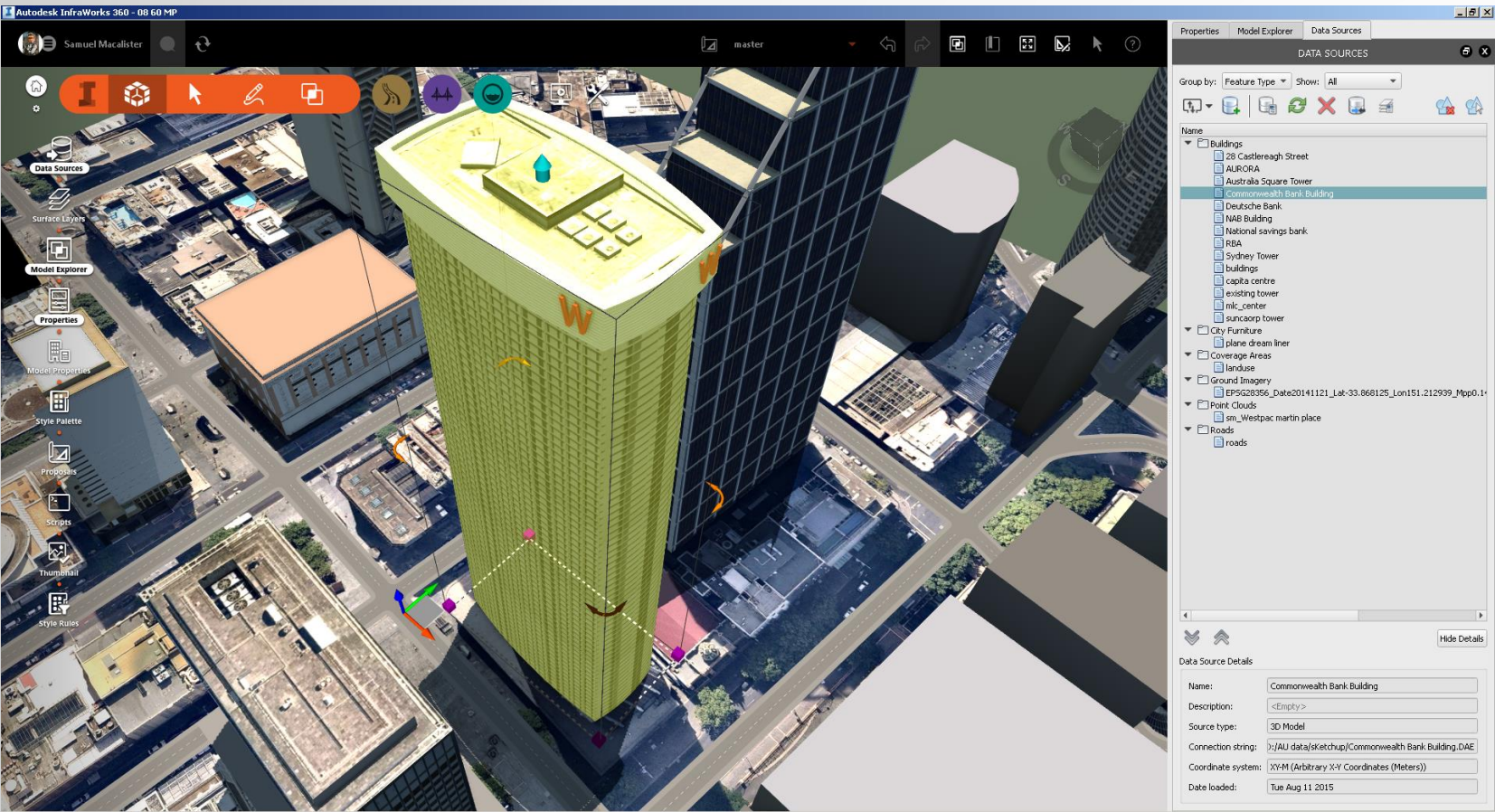
$$\begin{aligned}\text{Height} &= \tan(37) \times 25\text{m} + 1.75\text{m} \\ &= 0.75355 \times 25\text{m} + 1.75\text{m} \\ &= 20.6\text{m}\end{aligned}$$

With a few simple measurements, it's possible to estimate heights with some accuracy. Take a look at the figure below. All you need to know is:

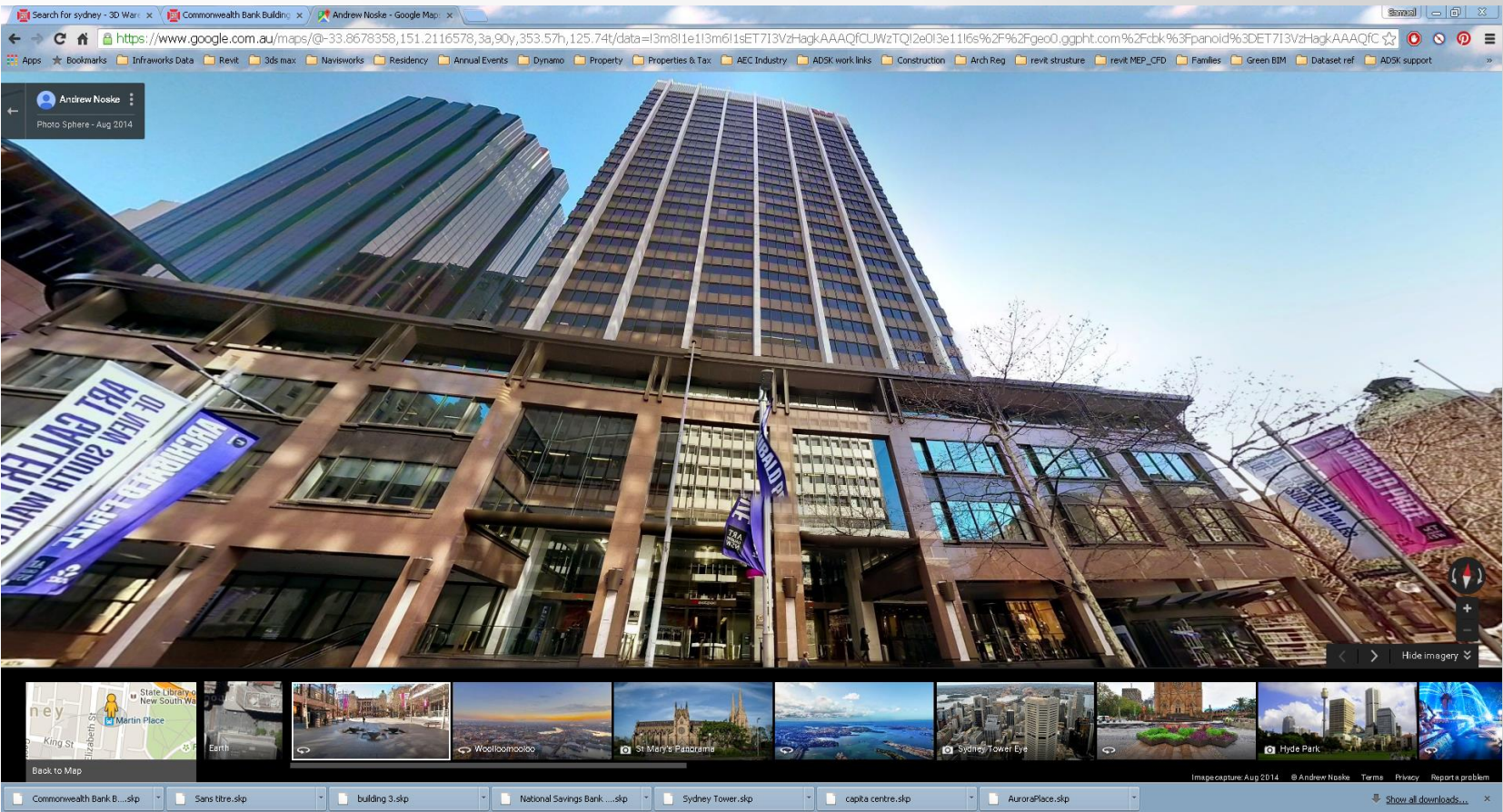
- your distance from the building
- your eye height
- the angle between the ground and the top of the building

<http://help.sketchup.com/en/article/167464>

Existing site building needs a base

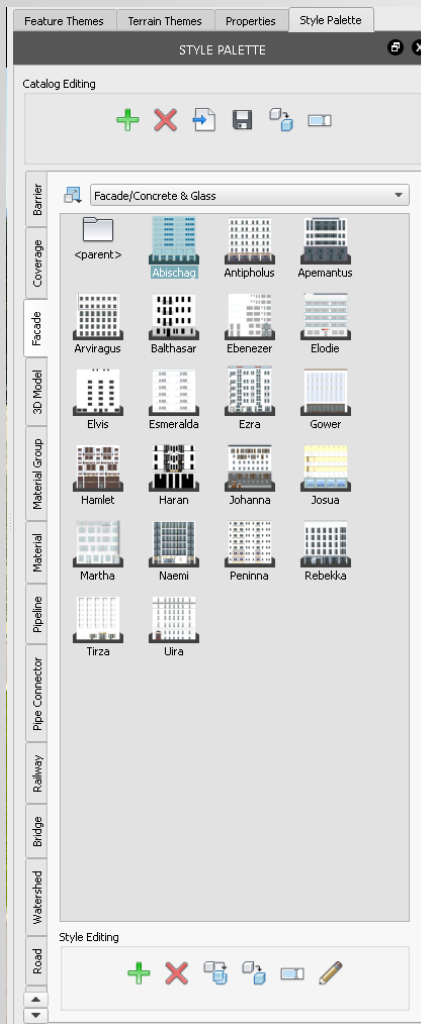


3d warehouse model placed in InfraWorks

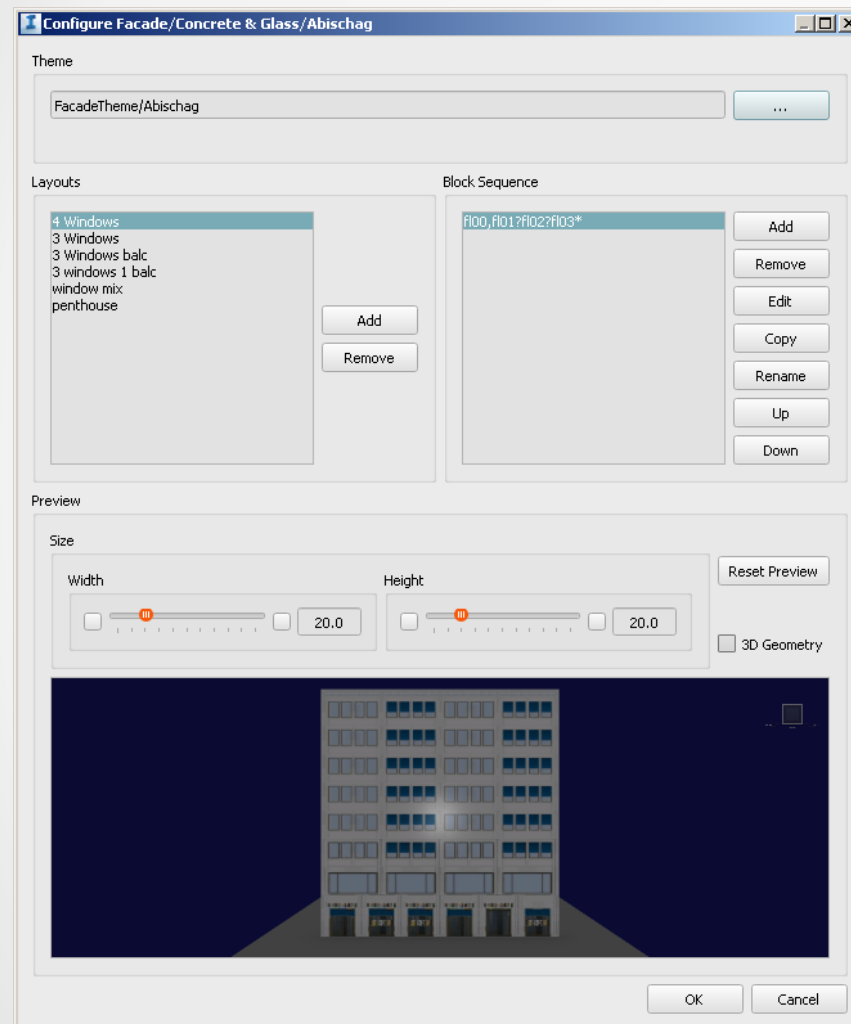


Google earth panorama reference view

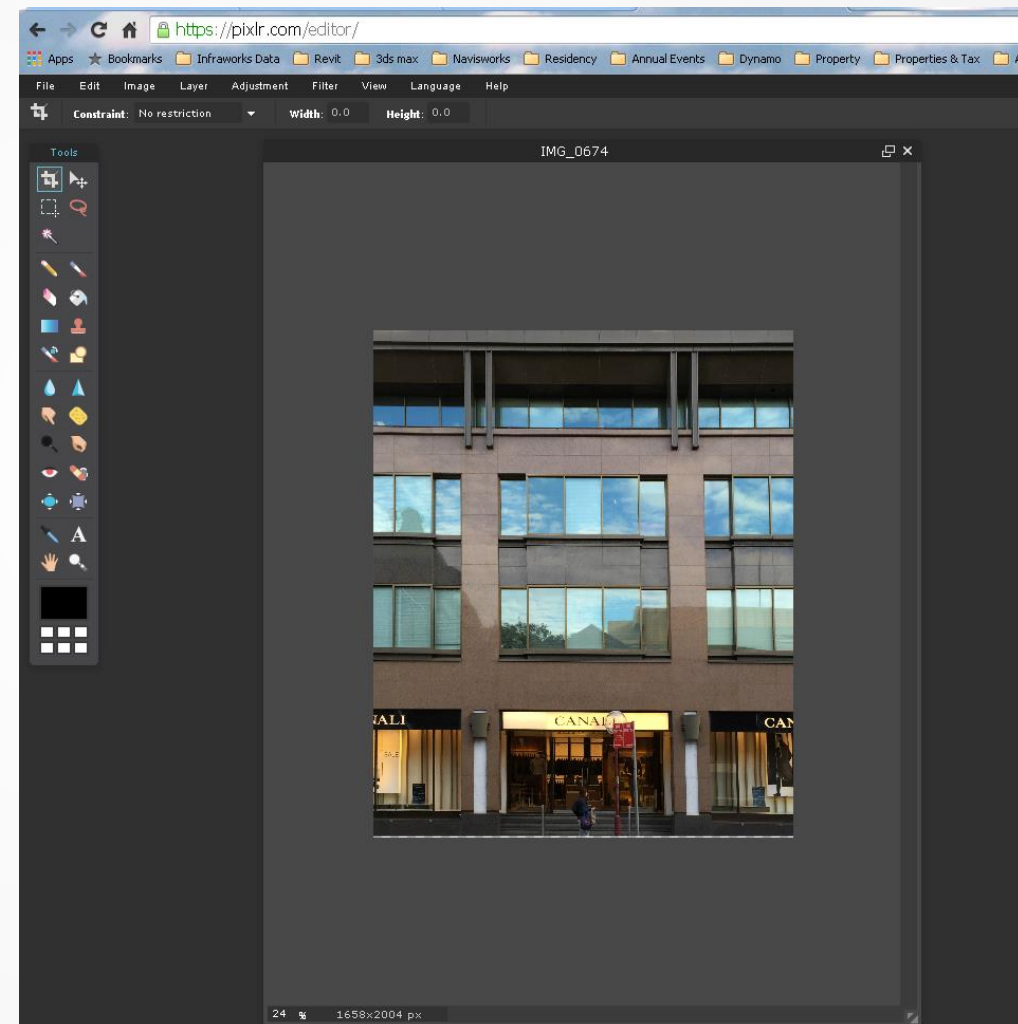
Create a custom façade for in product building



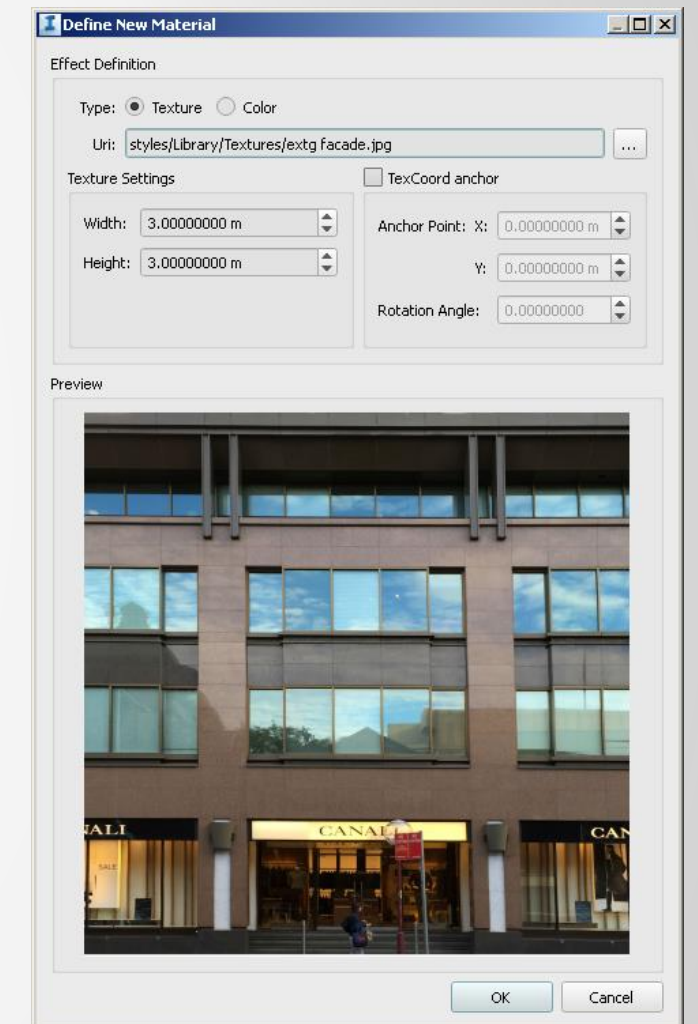
Façade style palette



Configure the façade layouts & blocks

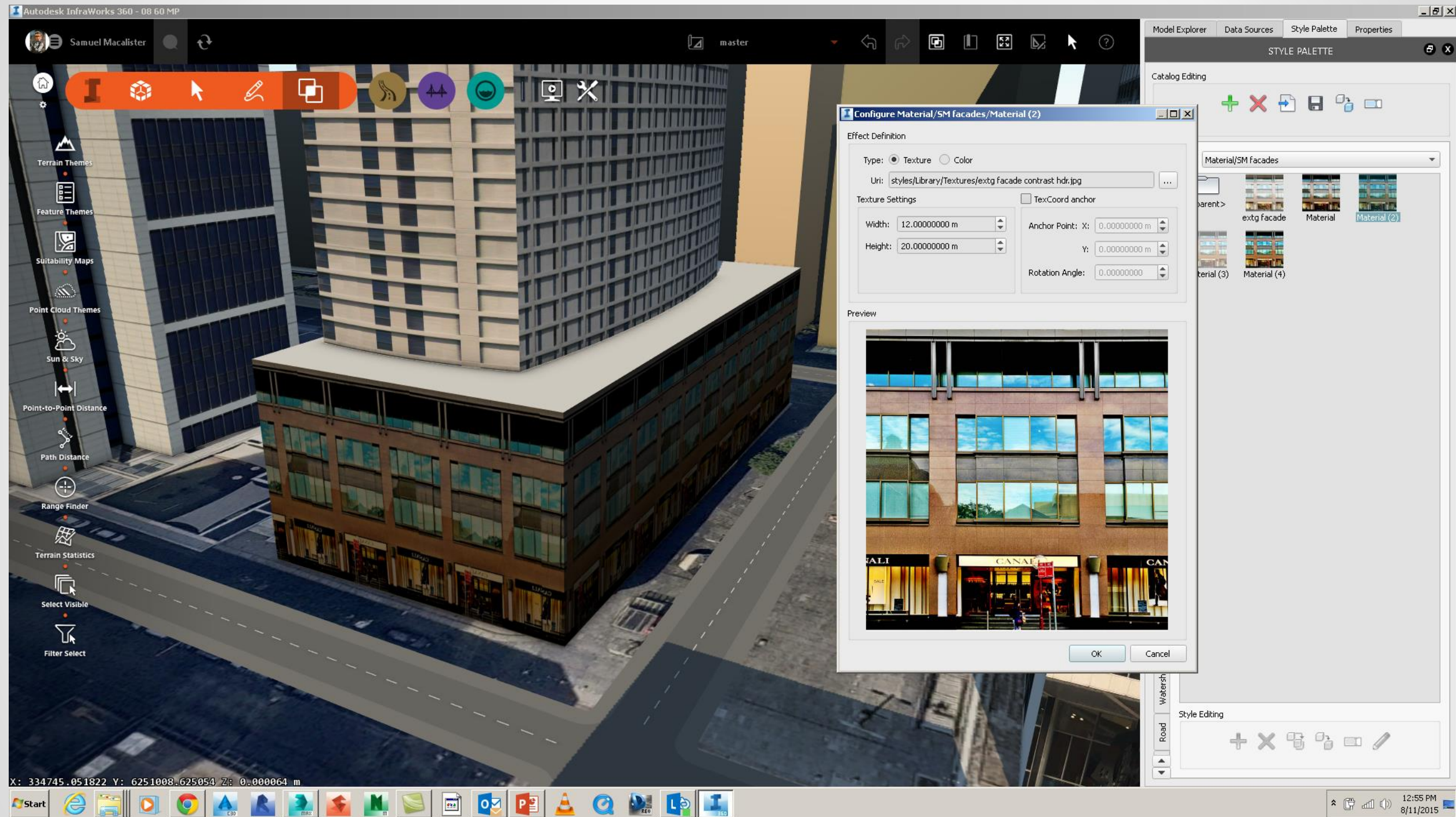


Edit your custom textures in Autodesk Pixlr editor (free web app)



Define the new texture in materials palette

Create a custom façade – duplicate an existing one



Starting the InfraWorks 360 model from scratch

The 'New Model' dialog box is shown with the 'Settings' tab selected. The 'Name' field contains '02 60mp'. The 'Description' field is empty. The 'Store in this Location' section shows the 'Location' as 'D:/AU data/INFW/01 60 MP/02 60MP'. The 'Model Extents', 'Advanced Settings', and 'Design Standards' tabs are visible at the bottom.

Name

The 'New Model' dialog box is shown with the 'Model Extents' tab selected. The 'Define Model Extent' checkbox is unchecked. The 'Extent' section has 'Minimum' and 'Maximum' fields for both 'X' and 'Y' coordinates, all of which are empty. A 'Load Extent From File...' button is located to the right of the 'Maximum' fields. The 'Advanced Settings' and 'Design Standards' tabs are visible at the bottom.

Model extents
use nearmap

The 'New Model' dialog box is shown with the 'Advanced Settings' tab selected. The 'Database Schema' section has a 'Schema Template File' field. The 'Coordinate Systems' section shows 'UCS' and 'Database' both set to 'MGA-56'. Descriptive text for each is provided. The 'Design Standards' tab is visible at the bottom.

MGA-56

The 'New Model' dialog box is shown with the 'Design Standards' tab selected. The 'Road Standards' section has a dropdown menu set to 'AASHTO_Metric_2011'. The 'Driving Direction' section has 'Left side of road' selected with a radio button. A checkbox 'Filter standards for the current unit type (Metric)' is checked. The 'OK' and 'Cancel' buttons are at the bottom right.

Left side of road...

Data Sources | Revit & Navisworks required



Autodesk InfraWorks 360 - 02 60mp

Samuel Macalister

master

Application Options

General
Navigation
Model Generation
Unit Configuration
View
3D Graphics
Data Import
Point Cloud

InfraWorks supports both cloud(default) and local data import for some file formats. To use local data import, you need to have other Autodesk products installed in your machine. Please check below that apply.

☒ **Navisworks based Local Import** (Navisworks Manage 2016, or Simulate 2016 64-bit required)

Supported File Formats
Autodesk Revit, DGN 3D Model, DWG 3D Model, IFC, SketchUp

☒ **Civil 3D based Local Import** (Civil 3D 2016 required)

AutoCAD Civil 3D 2016 is installed on this machine. If you clear this option, importing Civil 3D data will be accomplished via the cloud.

Supported File Formats
Autodesk AutoCAD Civil 3D DWG

Restore Defaults

OK Cancel

3D Model

Autodesk AutoCAD Civil 3D DWG

Autodesk IMX

Autodesk Revit

CityGML

DGN 3D Model

DWG 3D Model

IFC

LandXML

Point Cloud

Raster

SDF

SHP

SQLite

SketchUp

DATA SOURCES

Group by: Feature Type Show: All

Name	Source Type	Status	Date Loaded
------	-------------	--------	-------------

Data Source Details

Name: <Empty>

Description: <Empty>

Source type: <Empty>

Connection string: <Empty>

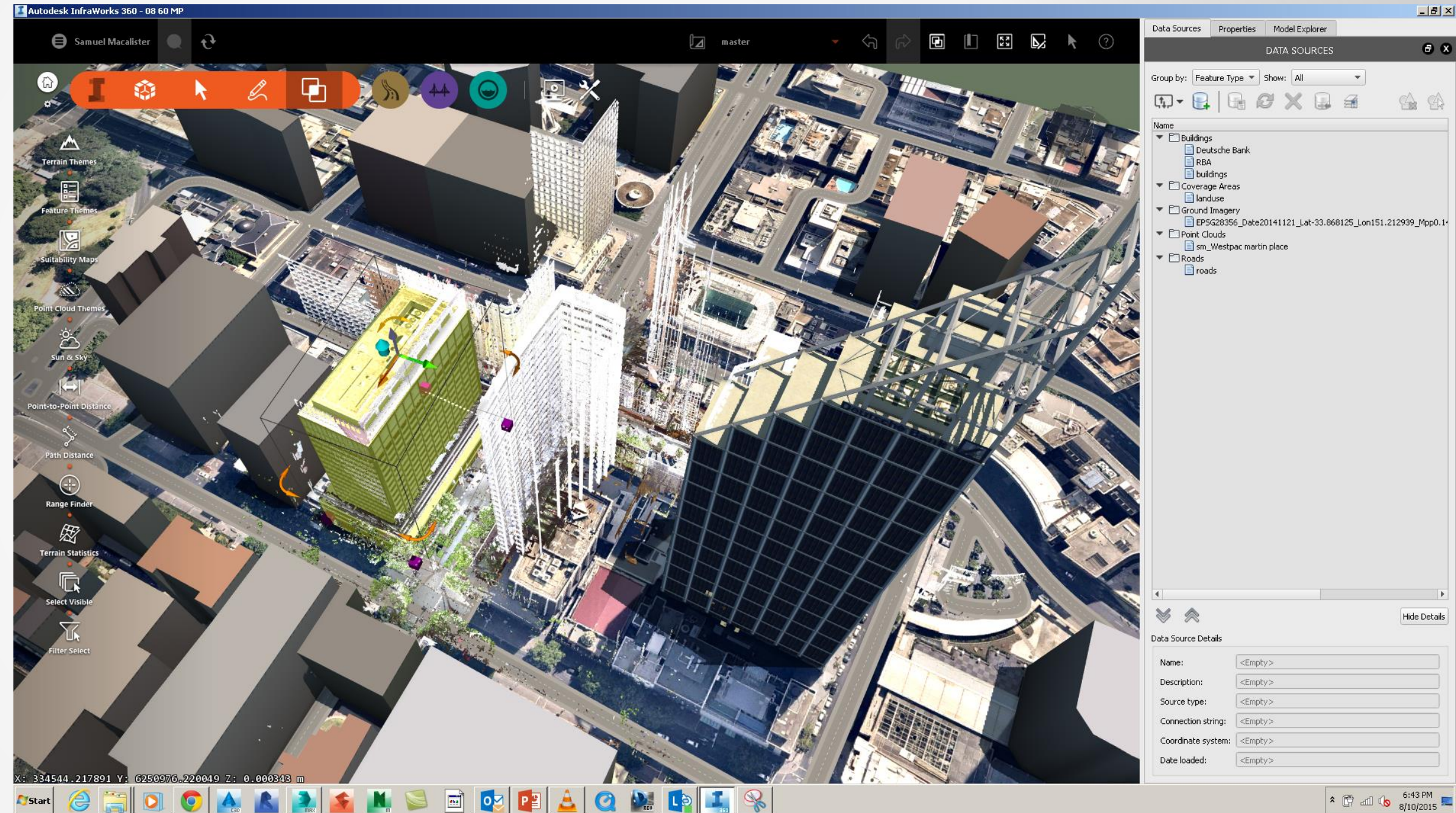
Coordinate system: <Empty>

Date loaded: <Empty>

Now bring in the data!



- nearmap
- Bbbike
- Point cloud
- Formit
- Sketchup



note!

- Nearmap (MGA-56)
- Bbbike (use LL84)
- Point cloud – (XY-M with MGA-56 position and x,y,z & rotation)
- Formit & Sketchup (interactive place)

Data Source Configuration

Name: Westpac martin place Source: Point Cloud
Description: <Empty> Type: Point Clouds

Geo Location

Coordinate System: XY-M

Position

Coordinate System: MGA-56
Local Origin
X: 334539.385
Y: 6251123.958
Z: 10

Offset

X: 0
Y: 0
Z: 0

Scale

X: 1
Y: 1
Z: 1

Rotation

X: 0
Y: 0
Z: 348

Interactive Placing...

Close & Refresh OK Cancel

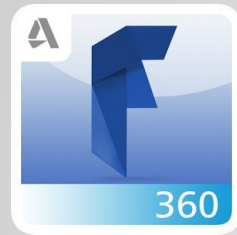
02 Design

02 Design

- Design options **Formit**
- Tower design **Revit**
- Furniture **3ds max**
- People **3ds max Populate**
- Soft scape **Autodesk Seek**

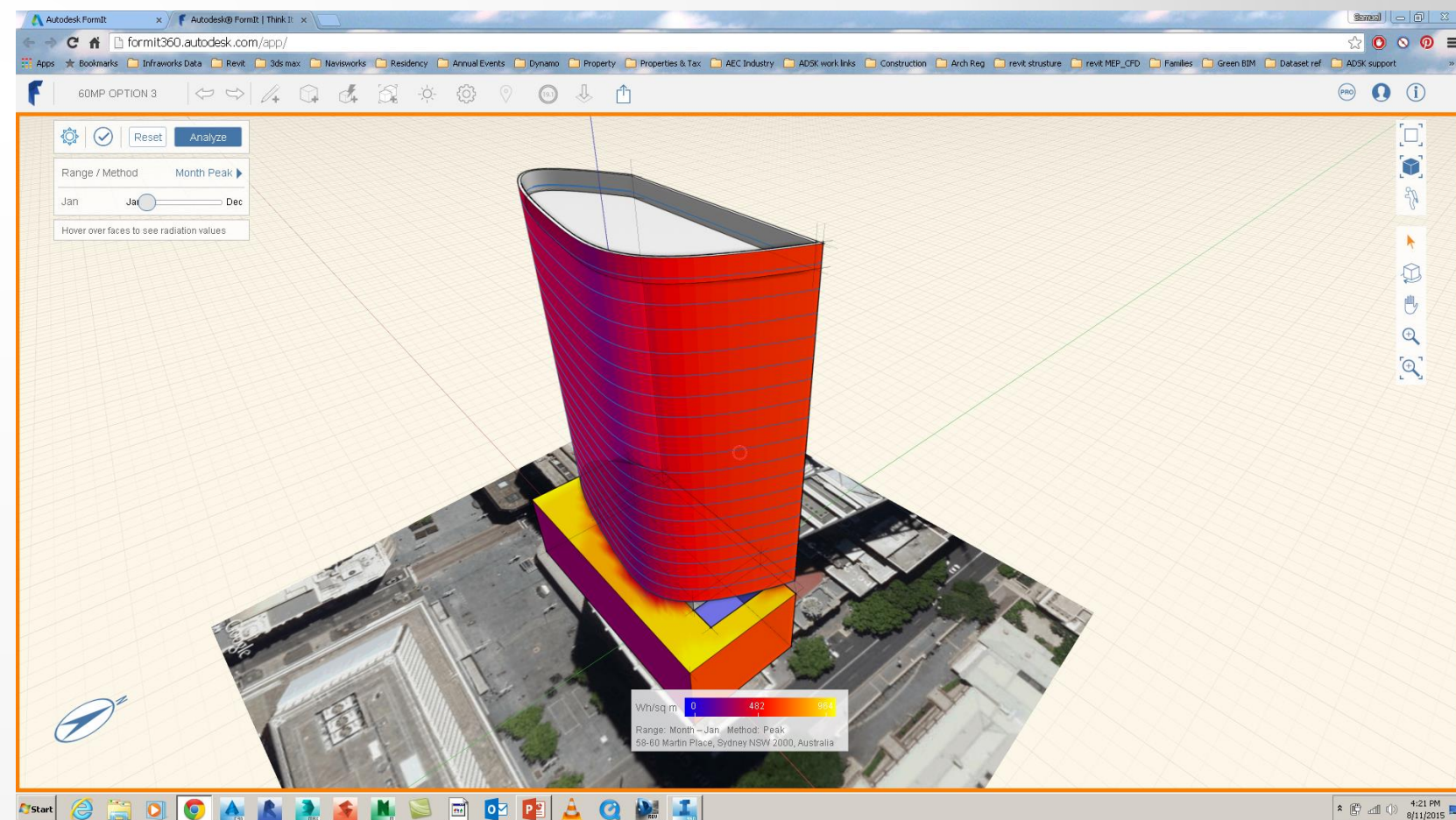
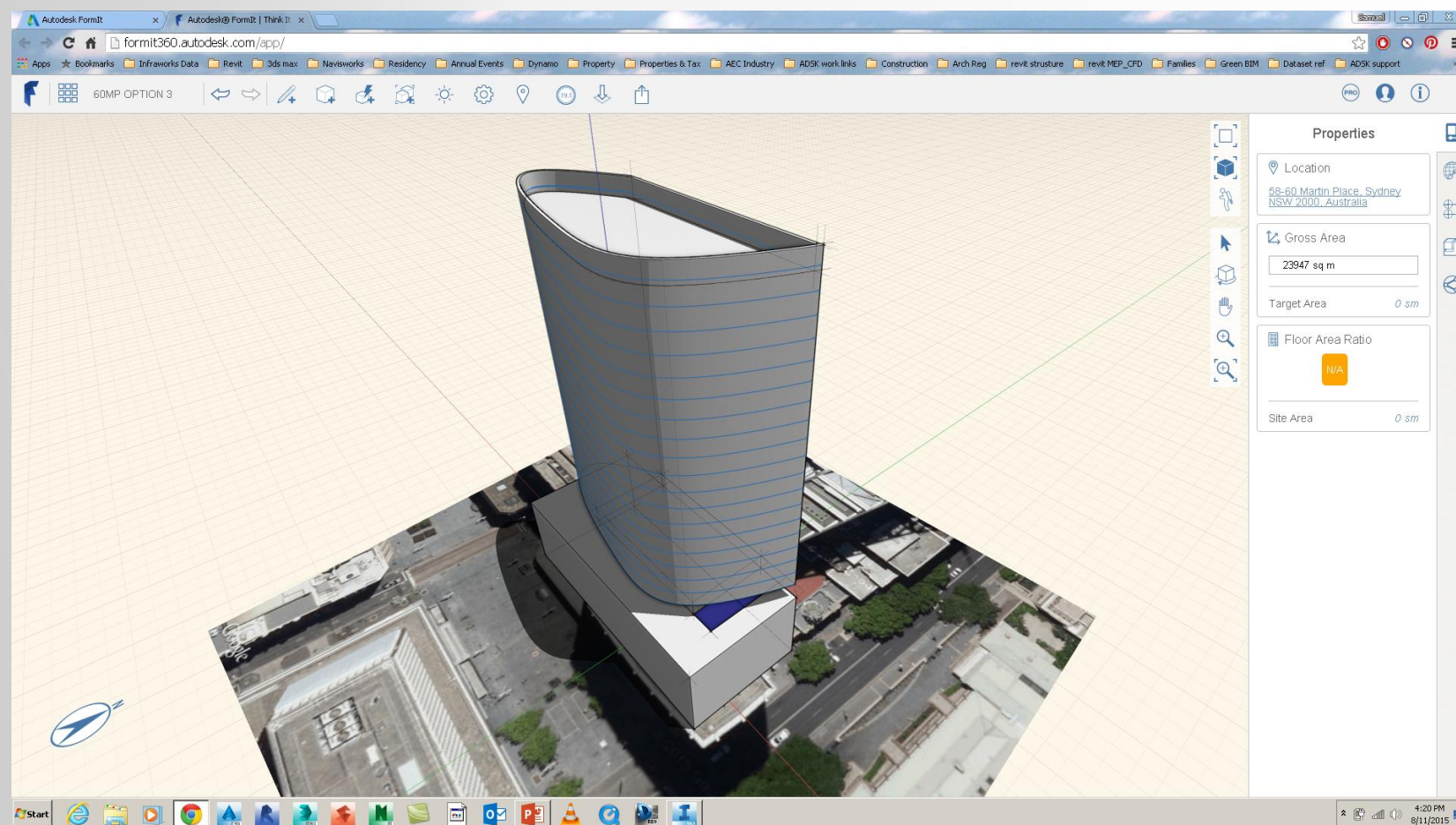


Formit | Tower options

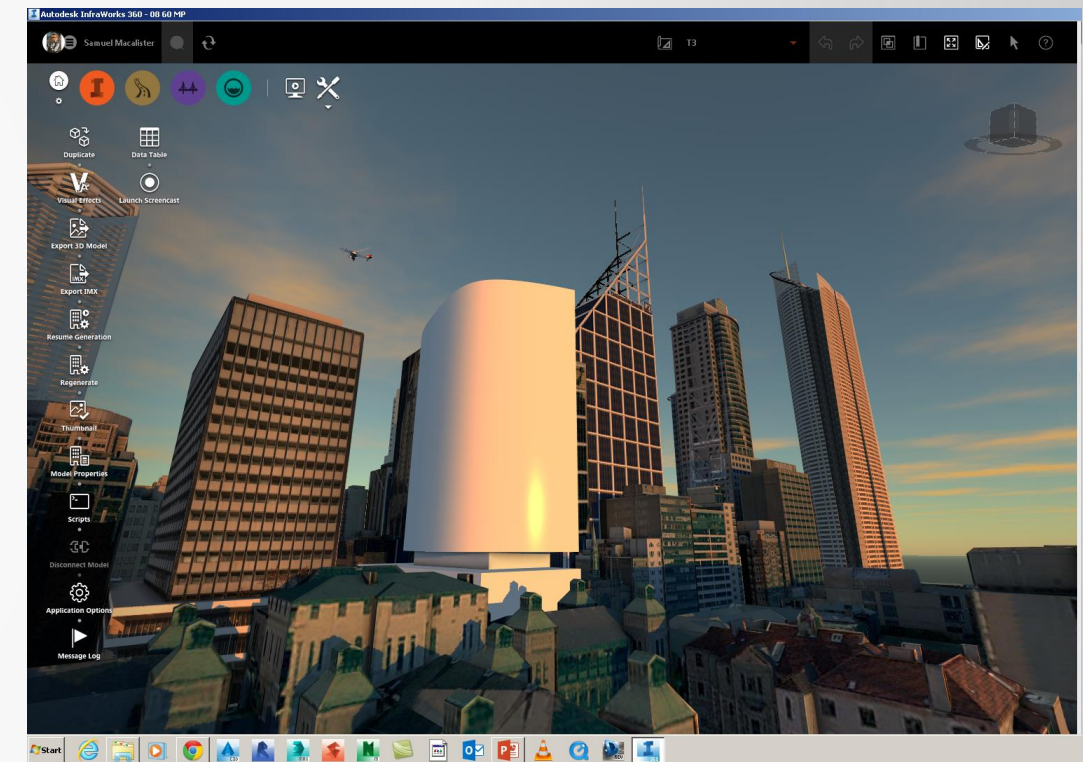
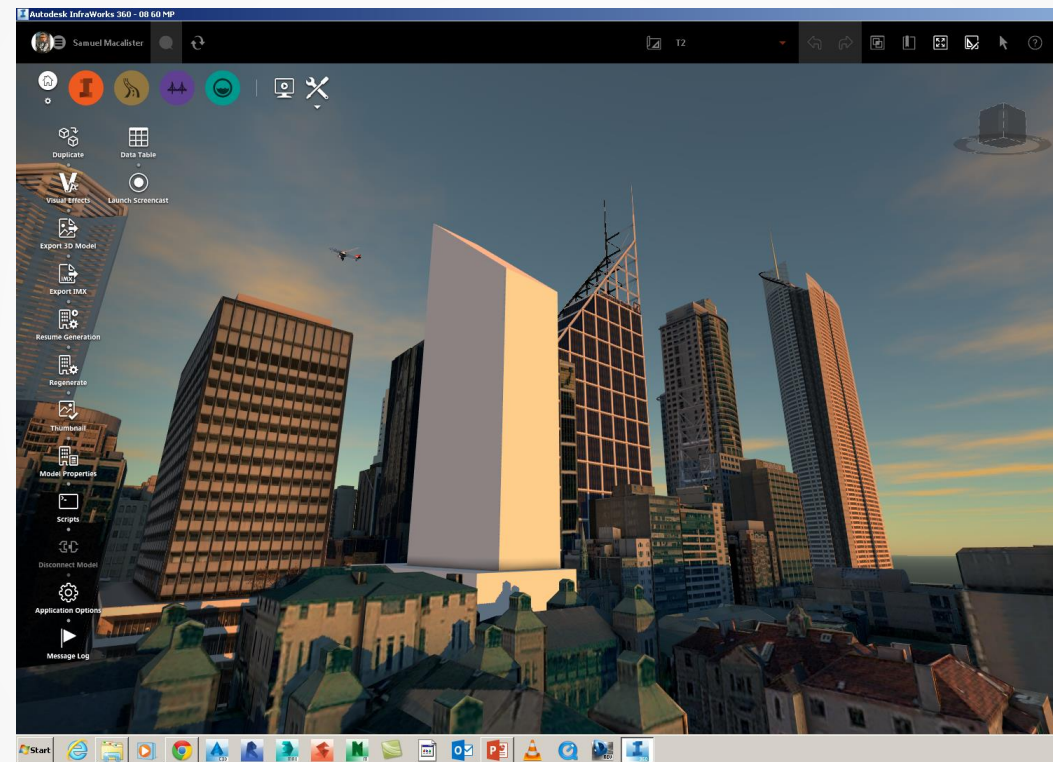
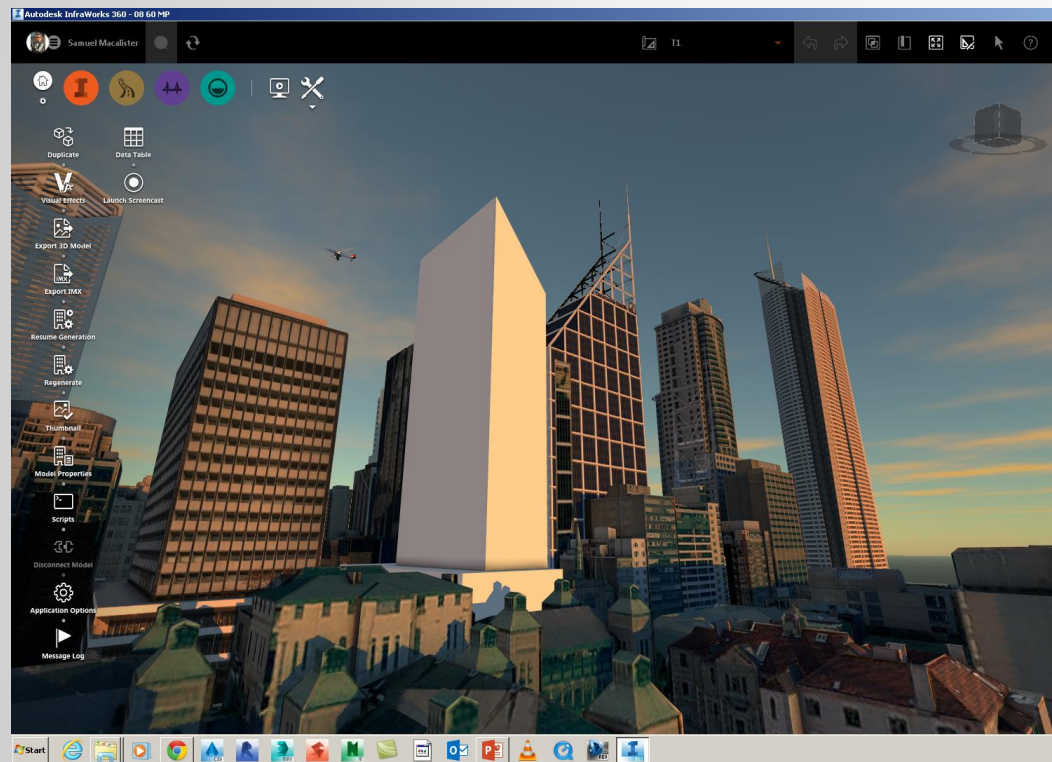
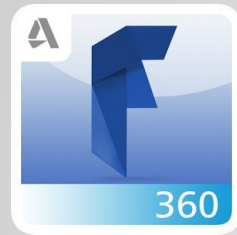


- Fast sketch design
- Web & mobile
- Use google earth

- Formit pro solar analysis
- Import/export Revit data
- Export obj

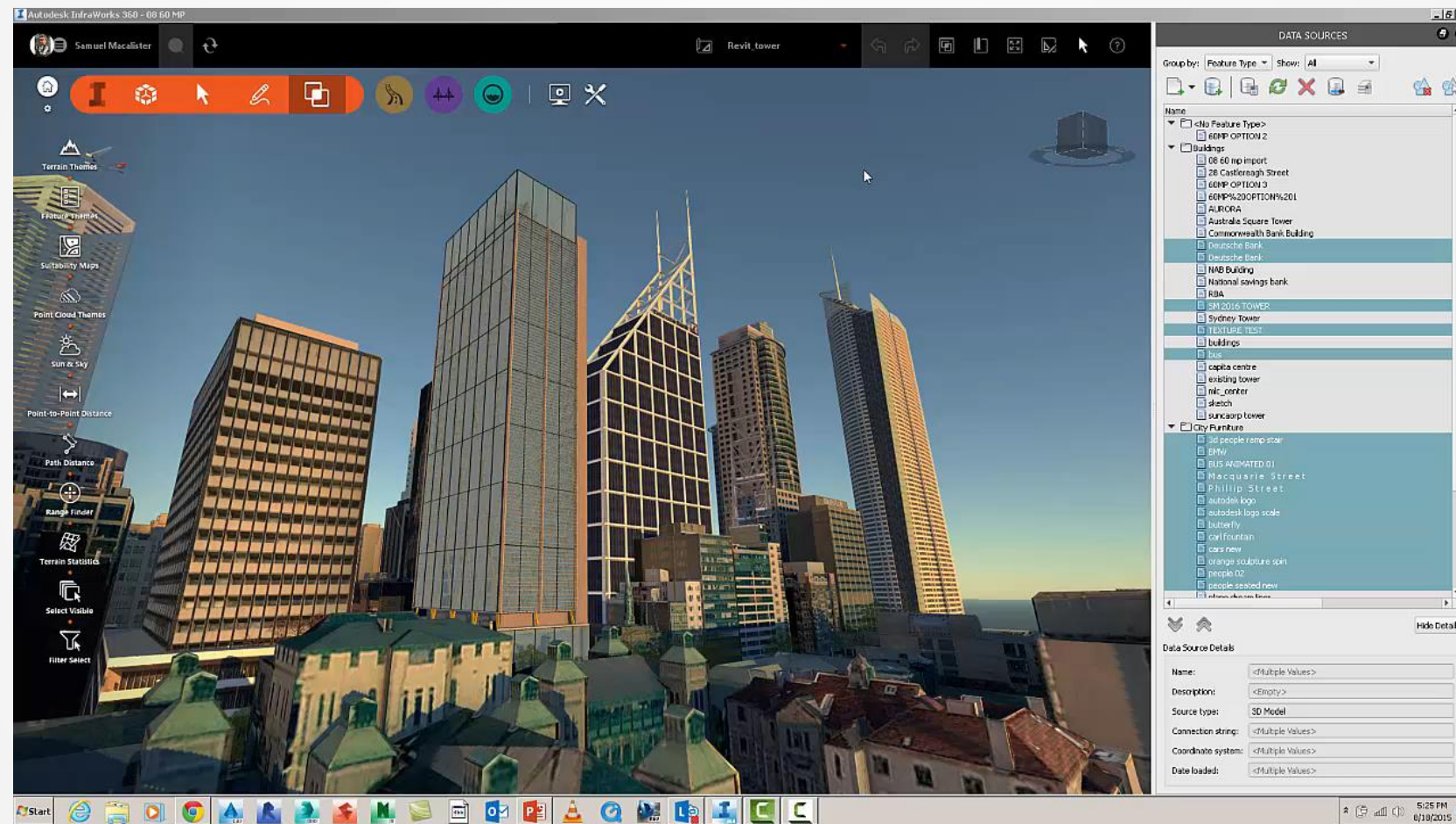


Formit | tower options



*full workflow video on Autodesk ANZ - YouTube

■ VIDEO 4 – FORMIT DESIGN OPTIONS



Tower design | import Revit direct with MGA-56



Autodesk InfraWorks 360 - 08 60 MP

Samuel Macalister

Revit_tower

Data Source Configuration

Name: SM 2016 TOWER Source: 3D Model
Description: <Empty> Type: Buildings

Geo Location Tooltip 3D Model

Coordinate System: MGA-56

Position

Coordinate System: LL84
Local Origin

X: 172.63623 Y: -43.532055 Z: 0

Offset

X: 0 Y: 0 Z: 0

Scale

X: 1 Y: 1 Z: 1

Rotation

X: 0 Y: 0 Z: 0

Interactive Placing...

Close & Refresh OK Cancel

DATA SOURCES

Group by: Feature Type Show: All

Name

- <No Feature Type>
- 60MP OPTION 2
- Buildings
 - 08 60 mp import
 - 28 Castlereagh Street
 - 60MP OPTION 3
 - 60MP%20OPTION%201
 - AURORA
 - Australia Square Tower
 - Commonwealth Bank Building
 - Deutsche Bank
 - NAB Building
 - National savings bank
 - RBA
 - SM 2016 TOWER
 - Sydney Tower
 - buildings
 - capita centre
 - existing tower
 - mlc_center
 - sketch
 - suncaorp tower
- City Furniture
 - plane dream liner
- Coverage Areas
 - landuse
- Ground Imagery
 - EP5G28356_Data20141121_Lat-33.868125_Lon151.212939_Mpp0.1
- Point Clouds
 - sm_Westpac martin place
- Roads
 - roads

Hide Details

Data Source Details

Name: SM 2016 TOWER
Description: <Empty>
Source type: 3D Model
Connection string: D:\AU data\Revit\SM 2016 TOWER.rvt
Coordinate system: 56 (Map Grid of Australia Zone 56, using GDA94 datum)
Date loaded: Tue Aug 11 2015

4:51 PM 8/11/2015

Setting up project base point (enter in meters)



The screenshot shows the Autodesk Revit 2016 interface with the 'Modify | Project Base Point' ribbon active. The 'Properties' panel on the left displays the 'Project Base Point (1)' with the following identity data:

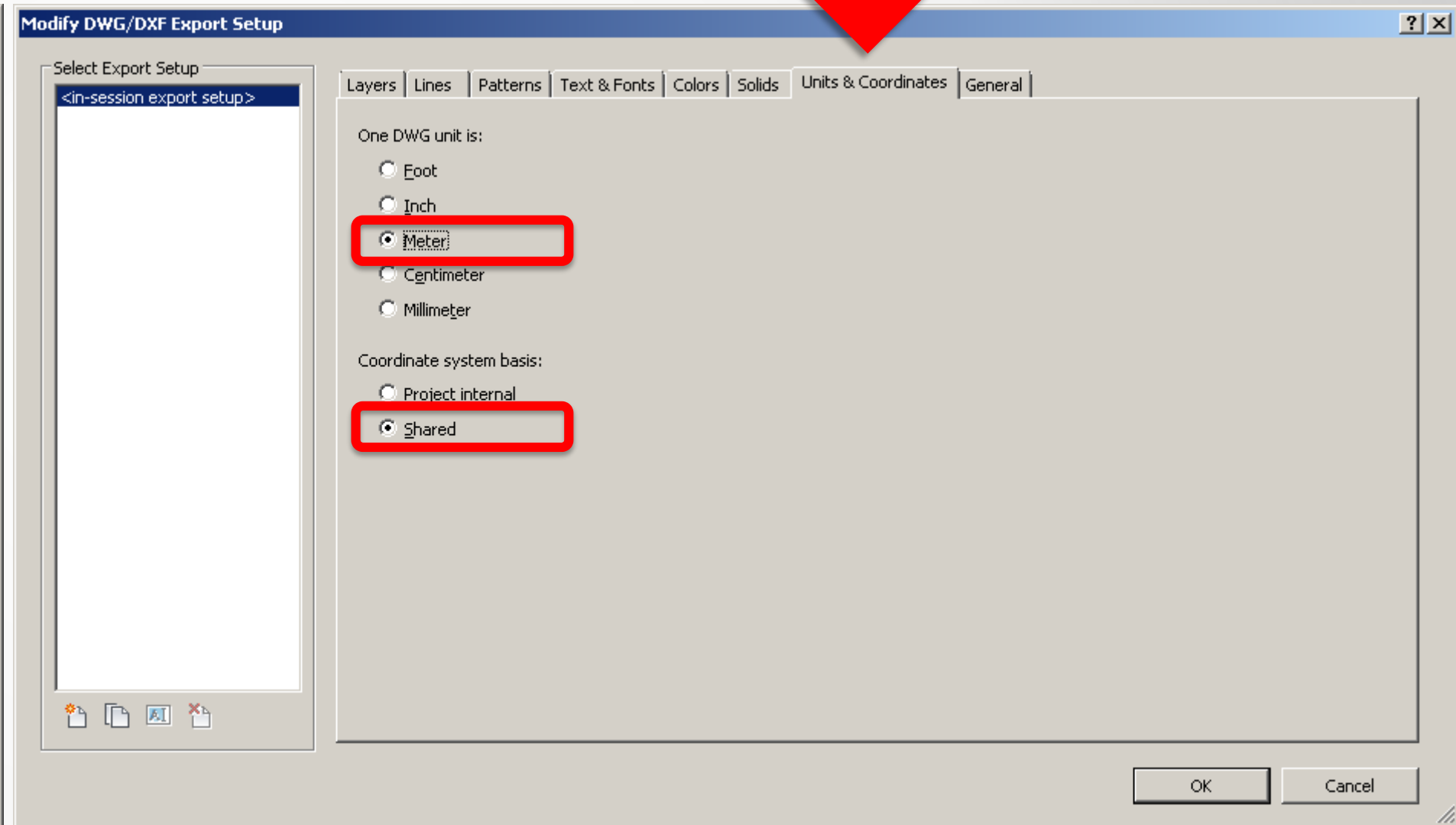
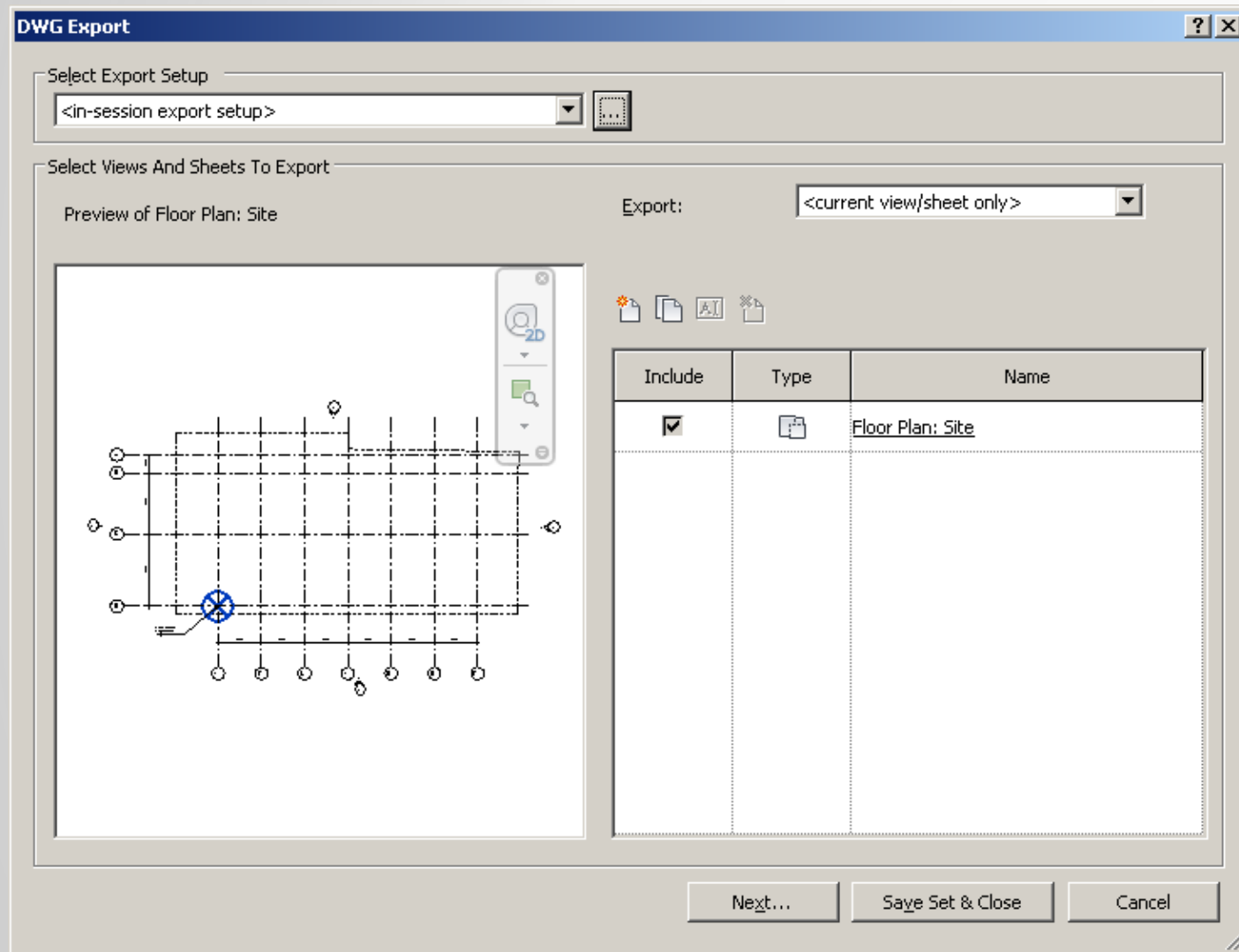
Identity Data	Value
N/S	6251072293.6
E/W	334562826.5
Elev	0.0
Angle to True North	5.000°

The 'Location Weather and Site' dialog box is open, showing the 'Site' tab. It lists 'Internal' and 'SM_60MP (current)' as sites defined in the project. The 'Angle from Project North to True North' is set to '5° 00' 00"'. The 'West' direction is selected. The dialog box has 'OK', 'Cancel', and 'Help' buttons.

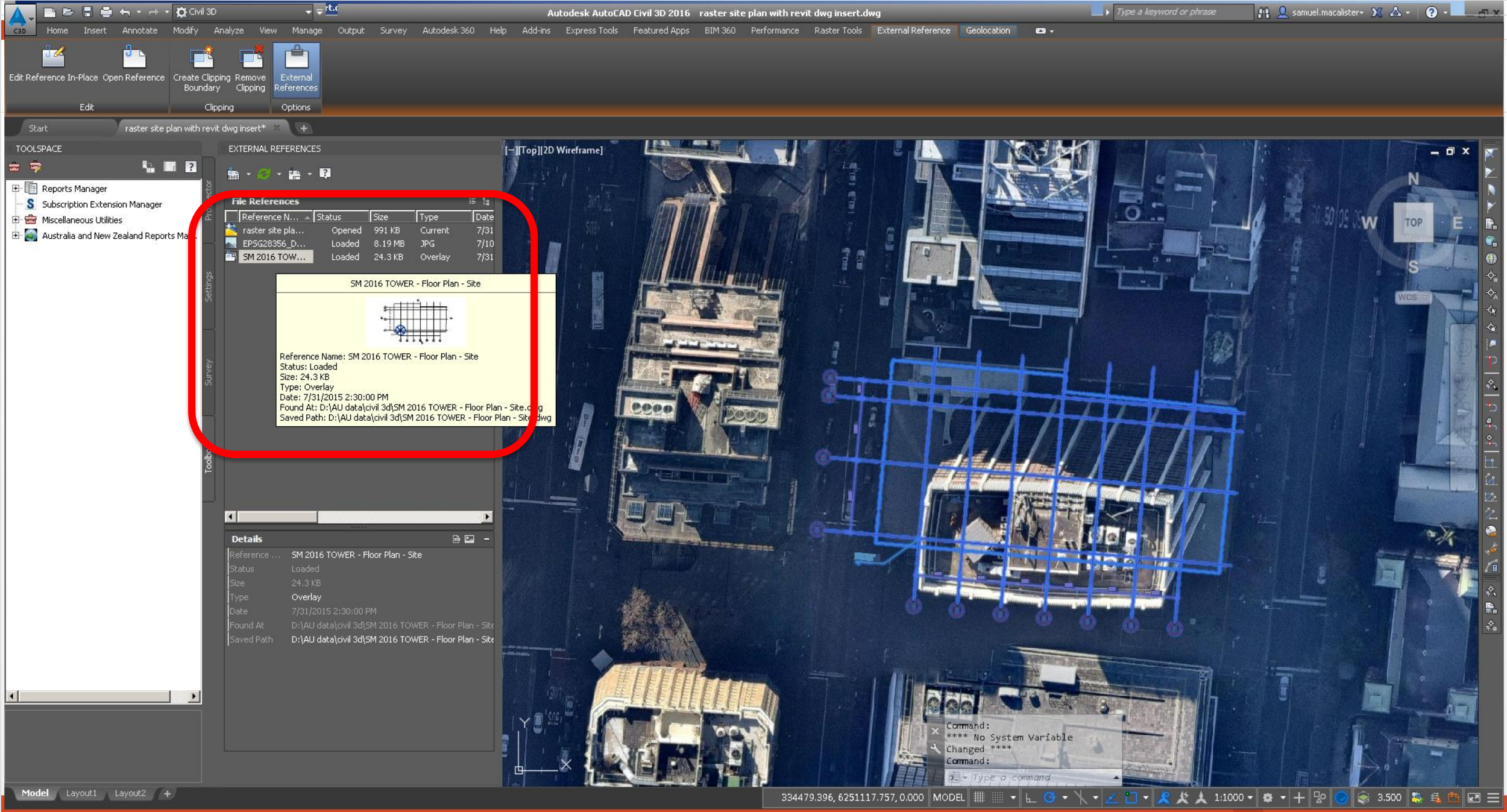
Below the dialog box, the text 'Duplicate & rename a new site location' is displayed.

Get your N/S (y) E/W (x) Elevation (z) and rotation (angle from true North) from the Civil 3d MGA 56 set up

Export dwg set up | Meters & shared coordinate



X-Ref into Civil 3d to check against nearmap setup



Data source | Revit data import - simplify



Data Source Configuration

Name: SM 2016 TOWER Source: 3D Model
Description: <Empty> Type: Buildings

Geo Location: Tooltip 3D Model

Coordinate System: MGA-56

Position: Offset

Coordinate System: LL84
Local Origin

X: 172.63623 Y: -43.532055 Z: 0

Scale: X: 1 Y: 1 Z: 1
Rotation: X: 0 Y: 0 Z: 0

Interactive Placing...

Close & Refresh OK Cancel

Data Source Configuration

Name: SM 2016 TOWER Source: 3D Model
Description: <Empty> Type: Buildings

Geo Location: Tooltip 3D Model

Render Detail

Simplify Model: 100 %
Model Handling: Auto-adjust (Use dynamic LOD)

Repair Model

☐ Invert Orientation ☐ Invert Transparency ☐ Invert Up Axis ☐ Flip Y and Z

A 3D wireframe model of a building structure, showing a grid of columns and beams. The model is rendered in a dark blue environment with a compass rose indicating North, South, East, and West.

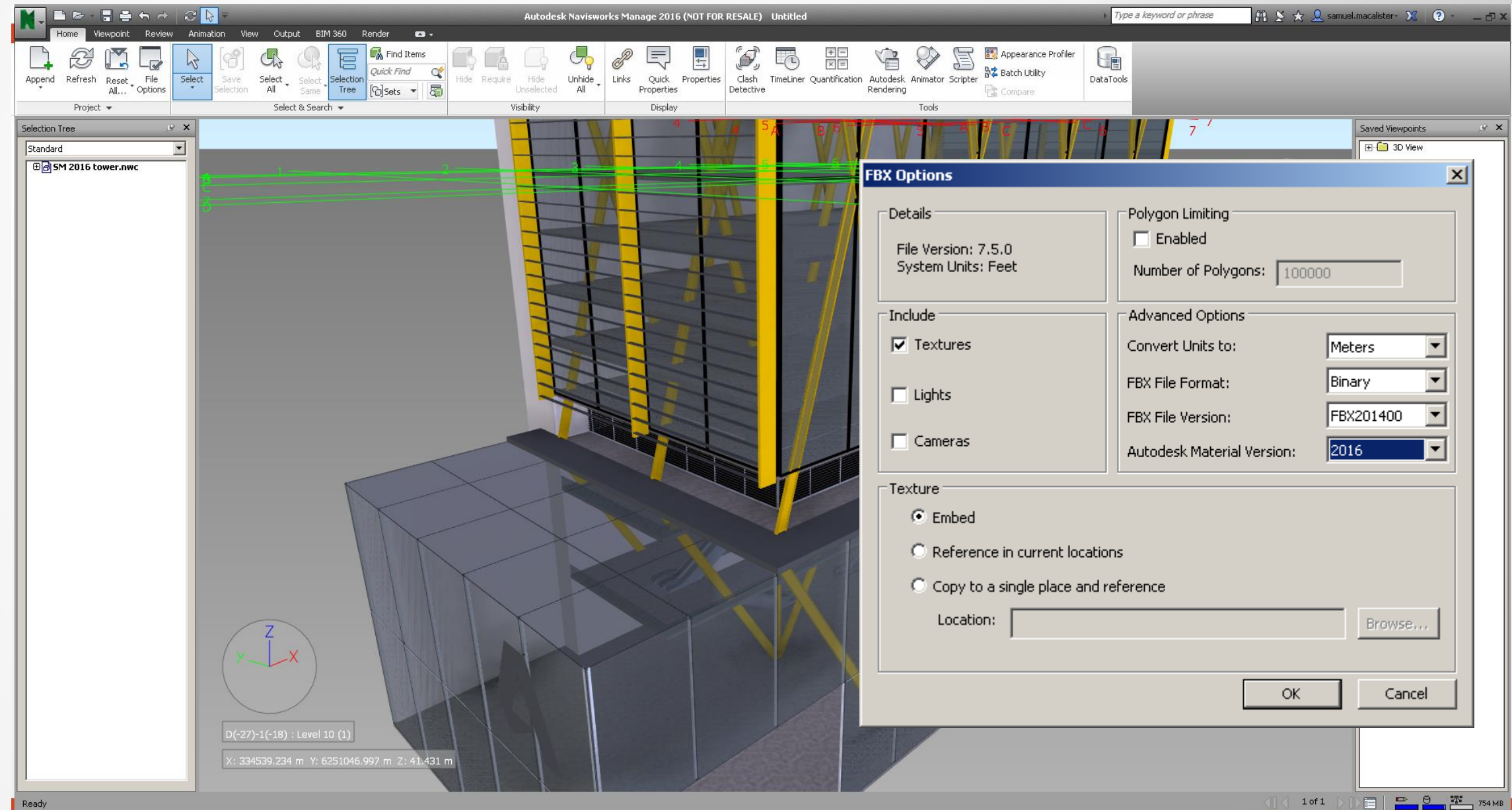
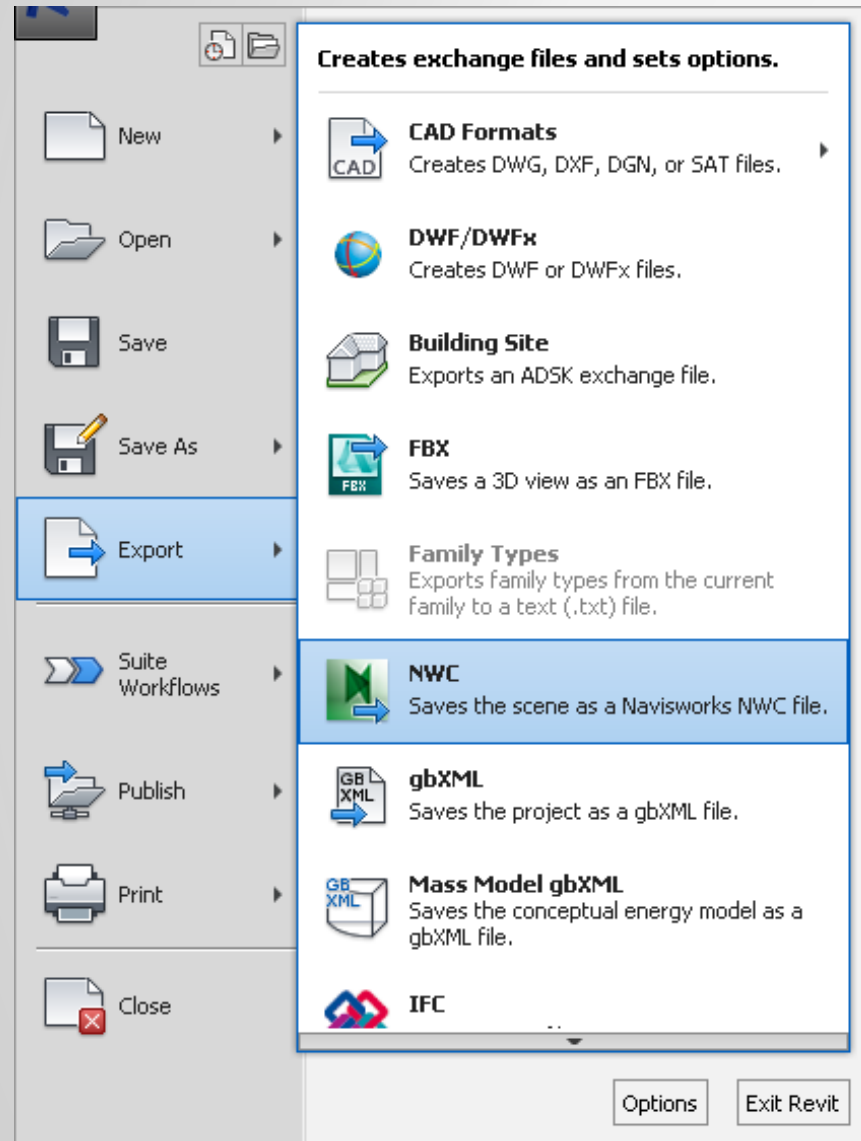
Close & Refresh OK Cancel

Data source | Revit curtain wall issues



Note – to get better textures link it to 3ds max and use standard textures

Data source | Export NWC from Revit Export FBX from Navisworks

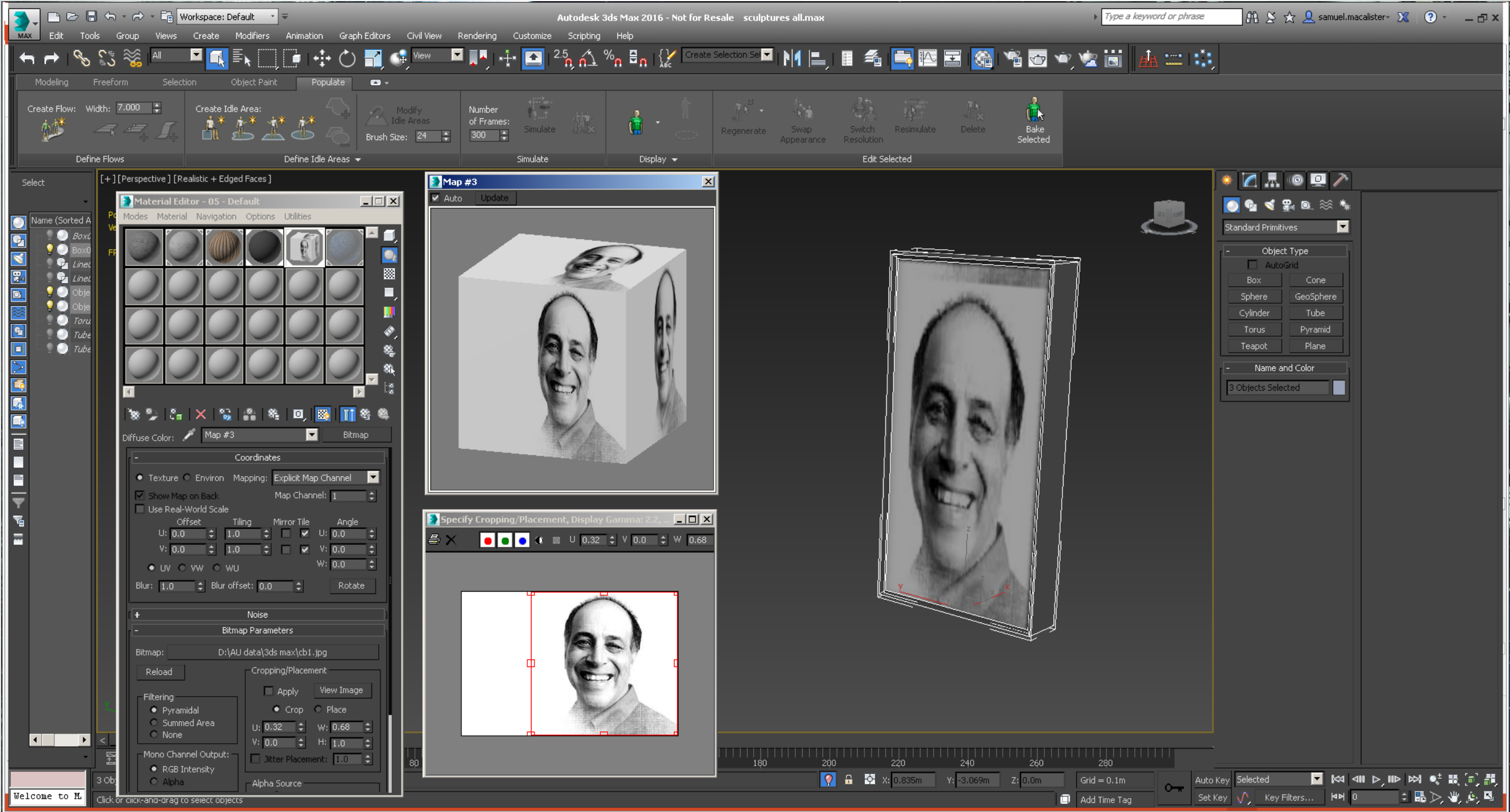


Furniture & sculpture | inspiration



Millennium park Chicago

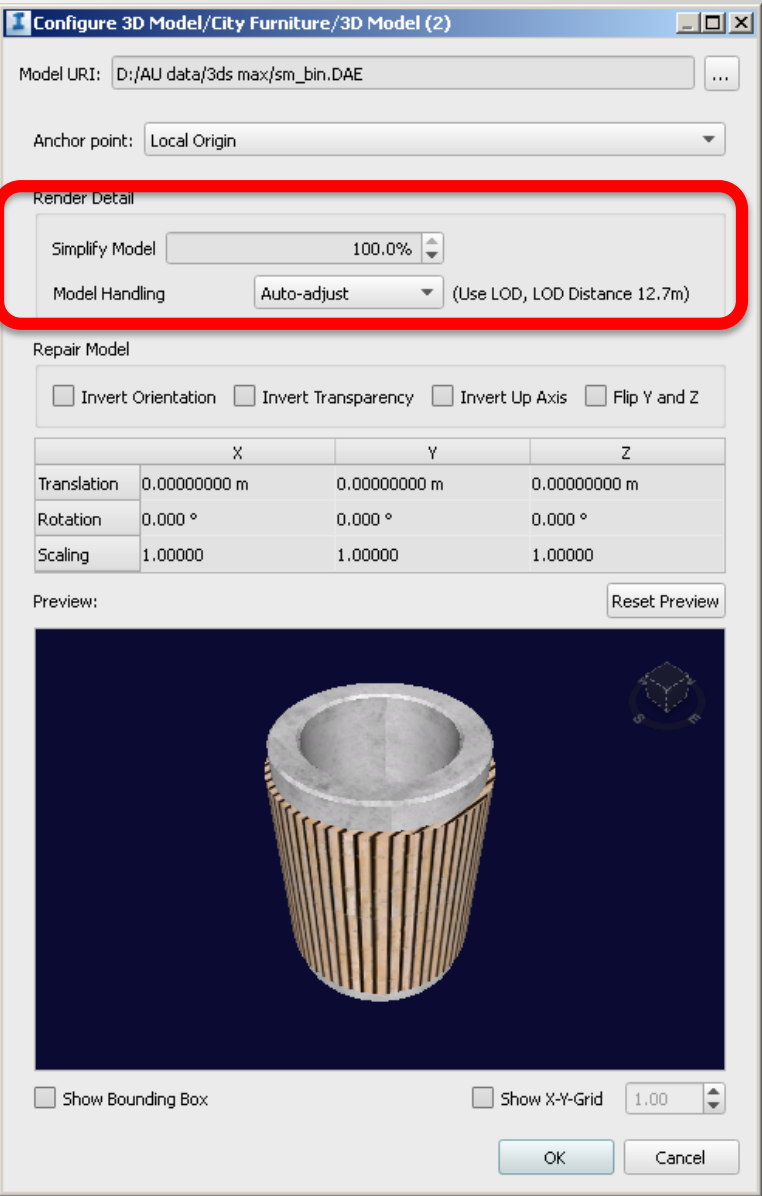
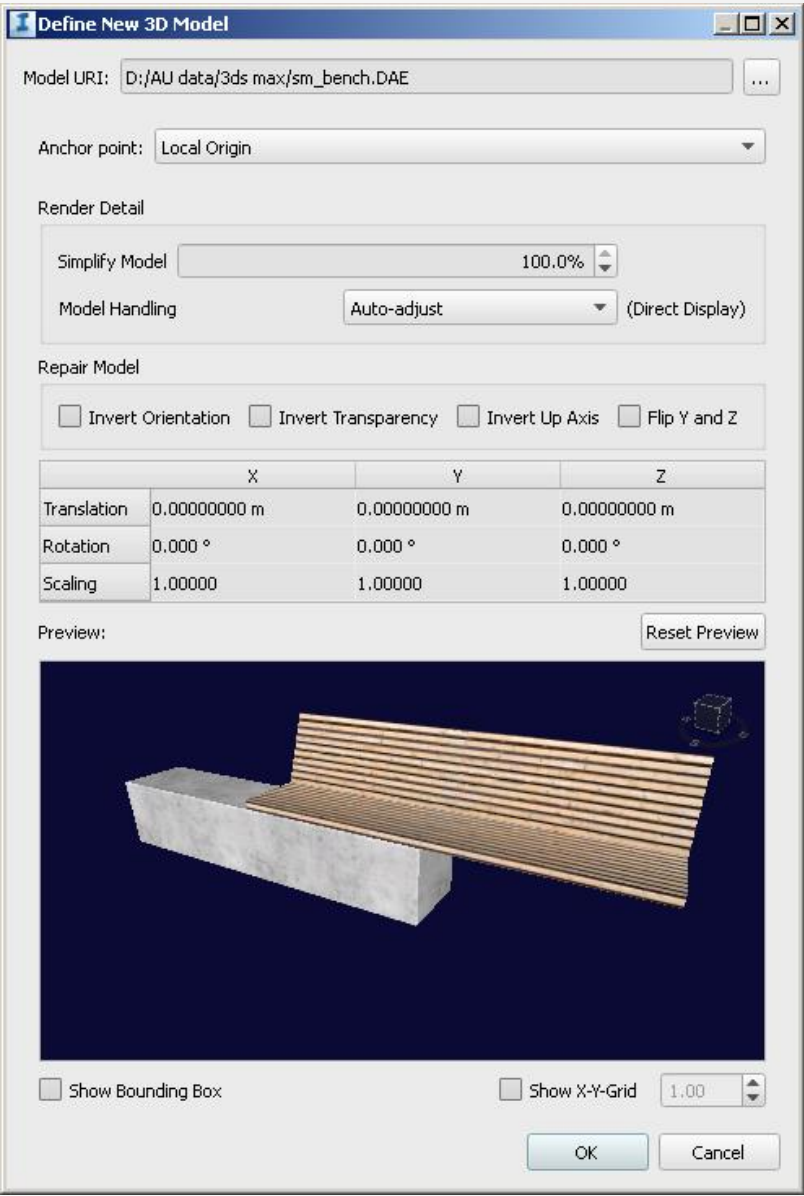
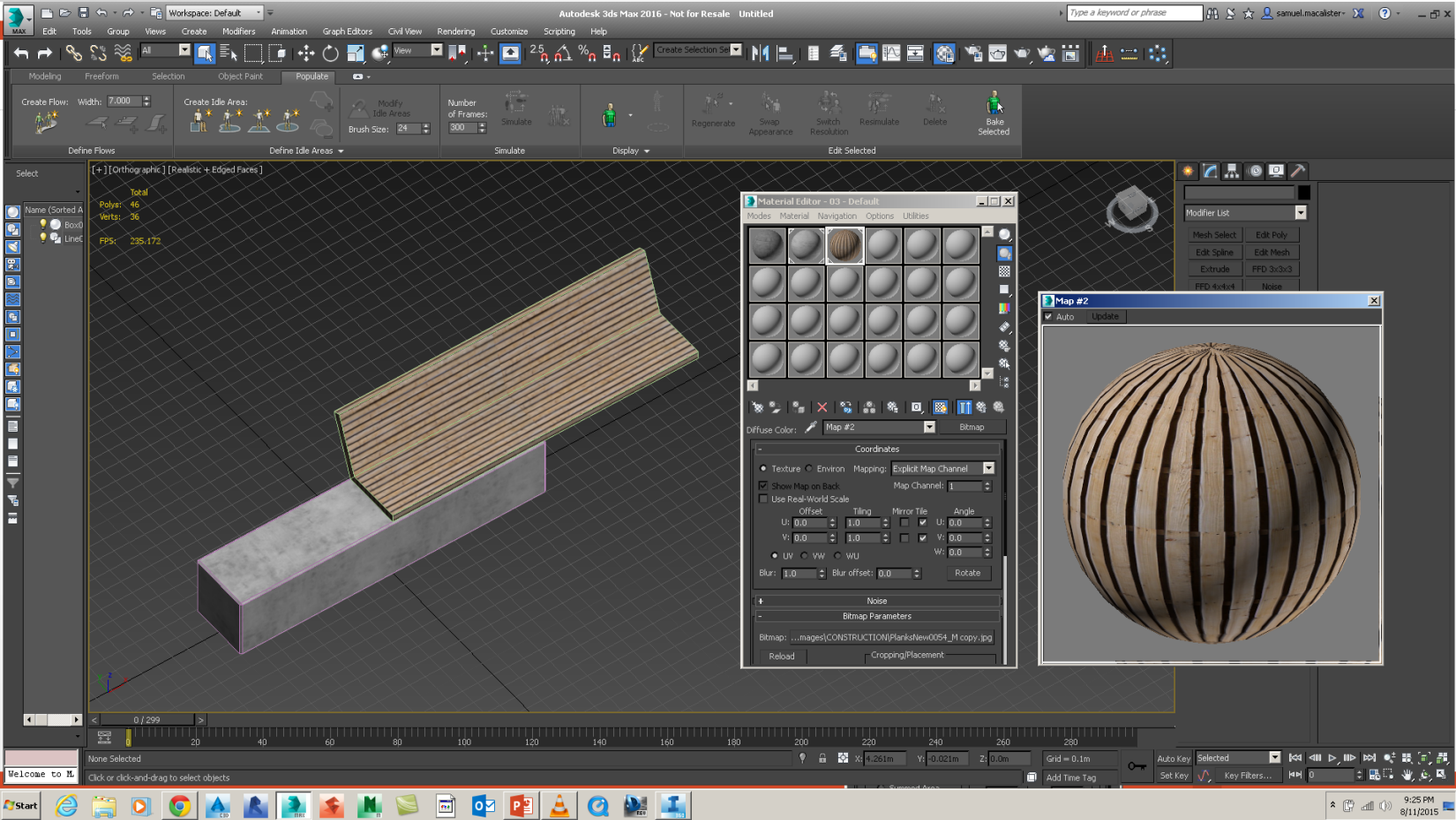
3ds Max | Fast 3d design and texturing



3ds Max | Import as furniture to InfraWorks 360



3ds max | Add the DAE file to the INFW style palette

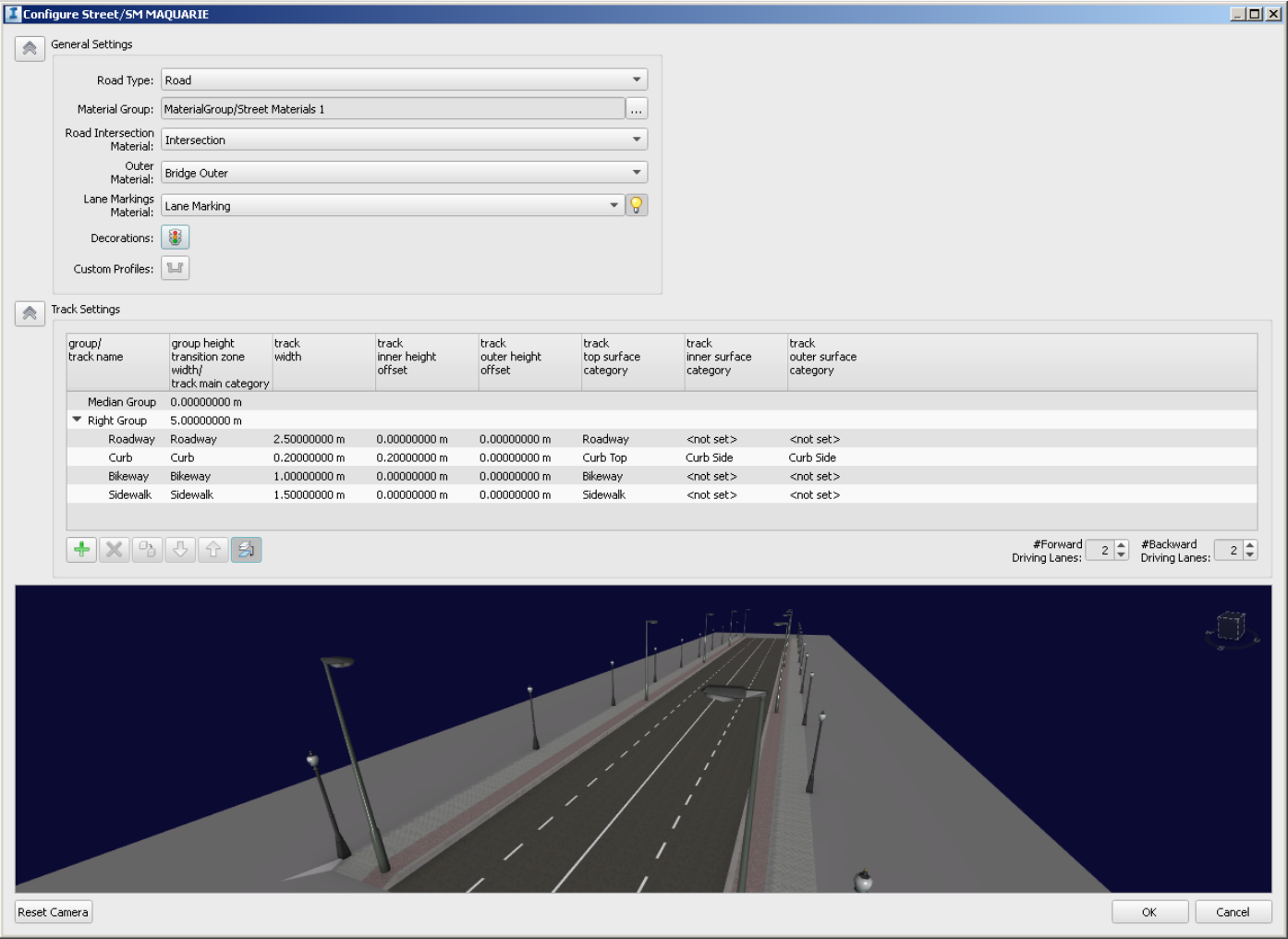


Note – can also simplify heavy models at import stage

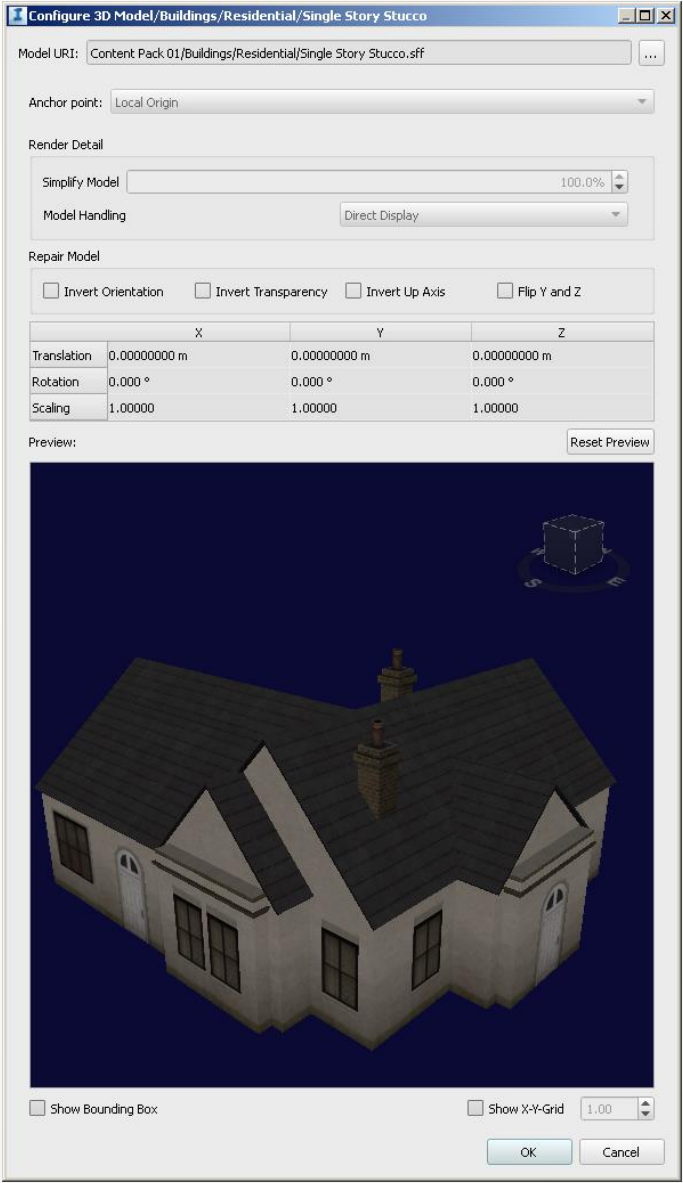
InfraWorks 360 | in product design tools + add & edit



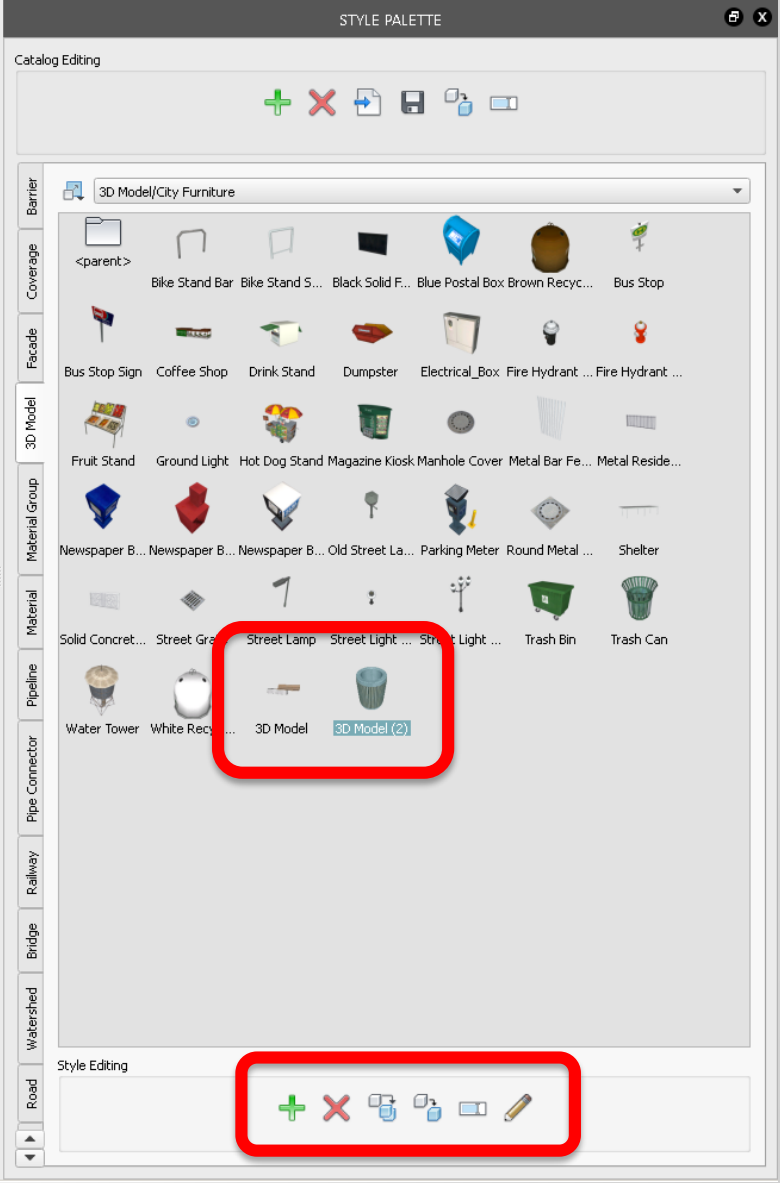
Streets



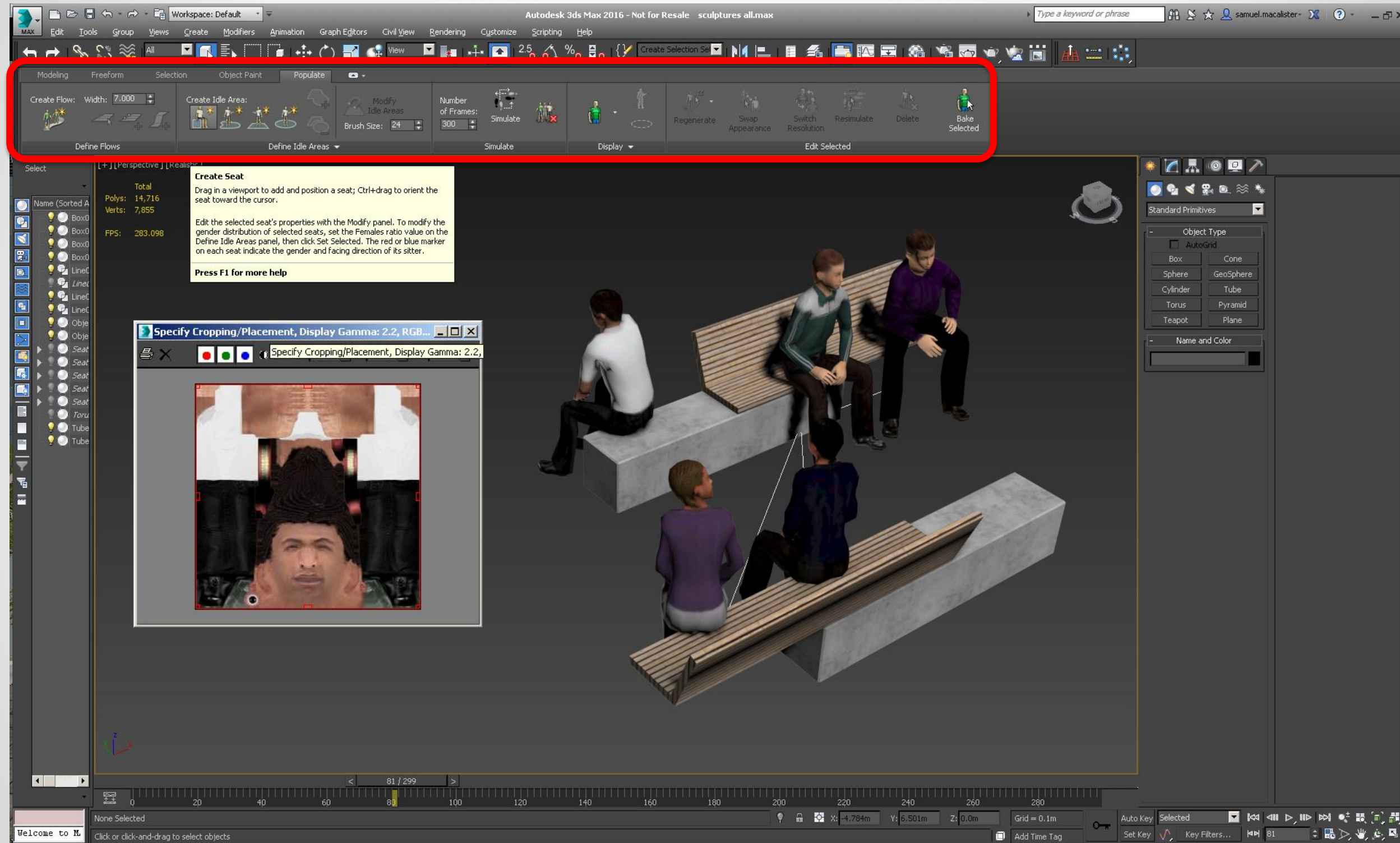
Buildings



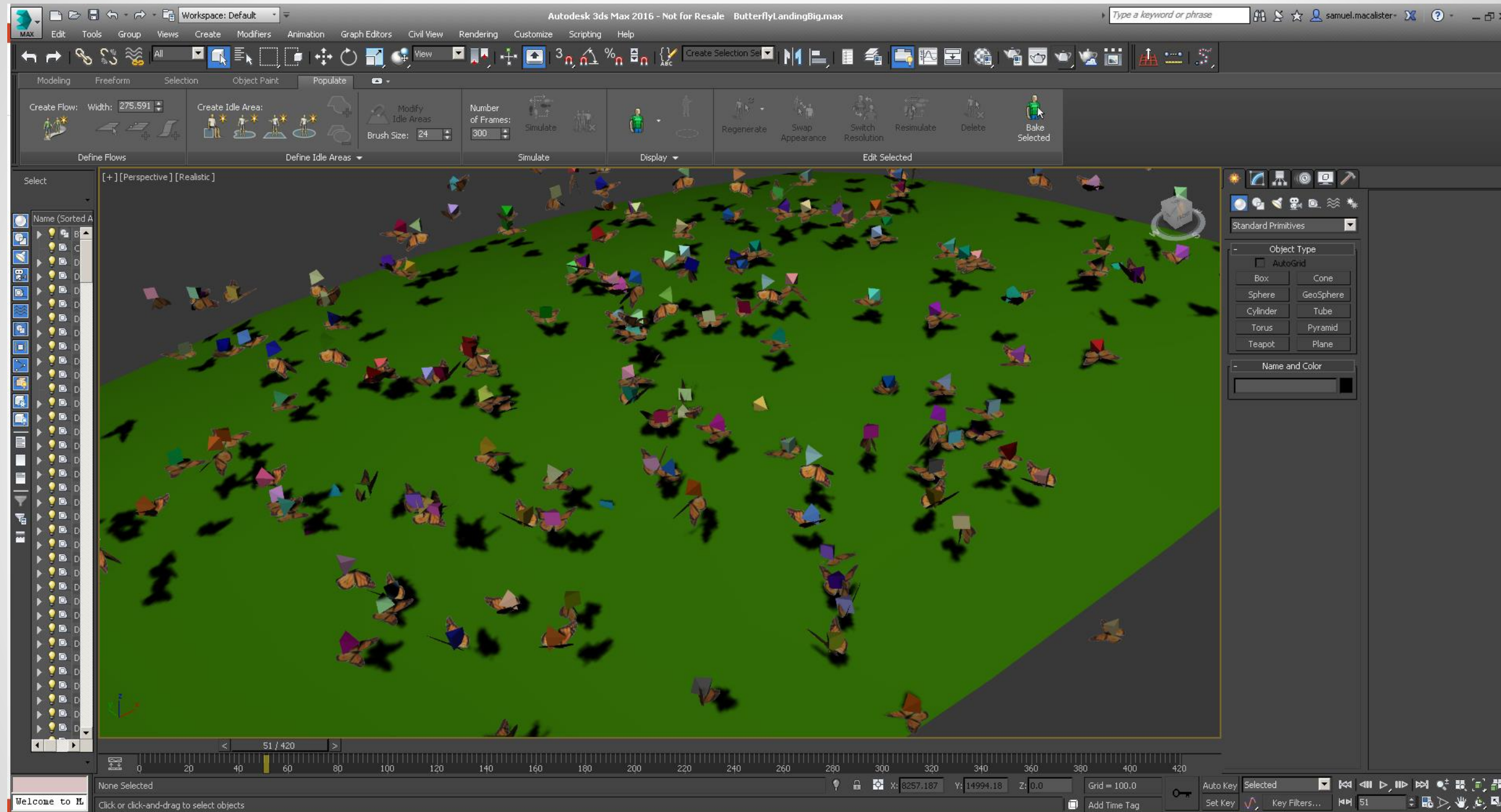
Furniture



Populate people | use standard materials



Add butterfly's from Autodesk knowledge network

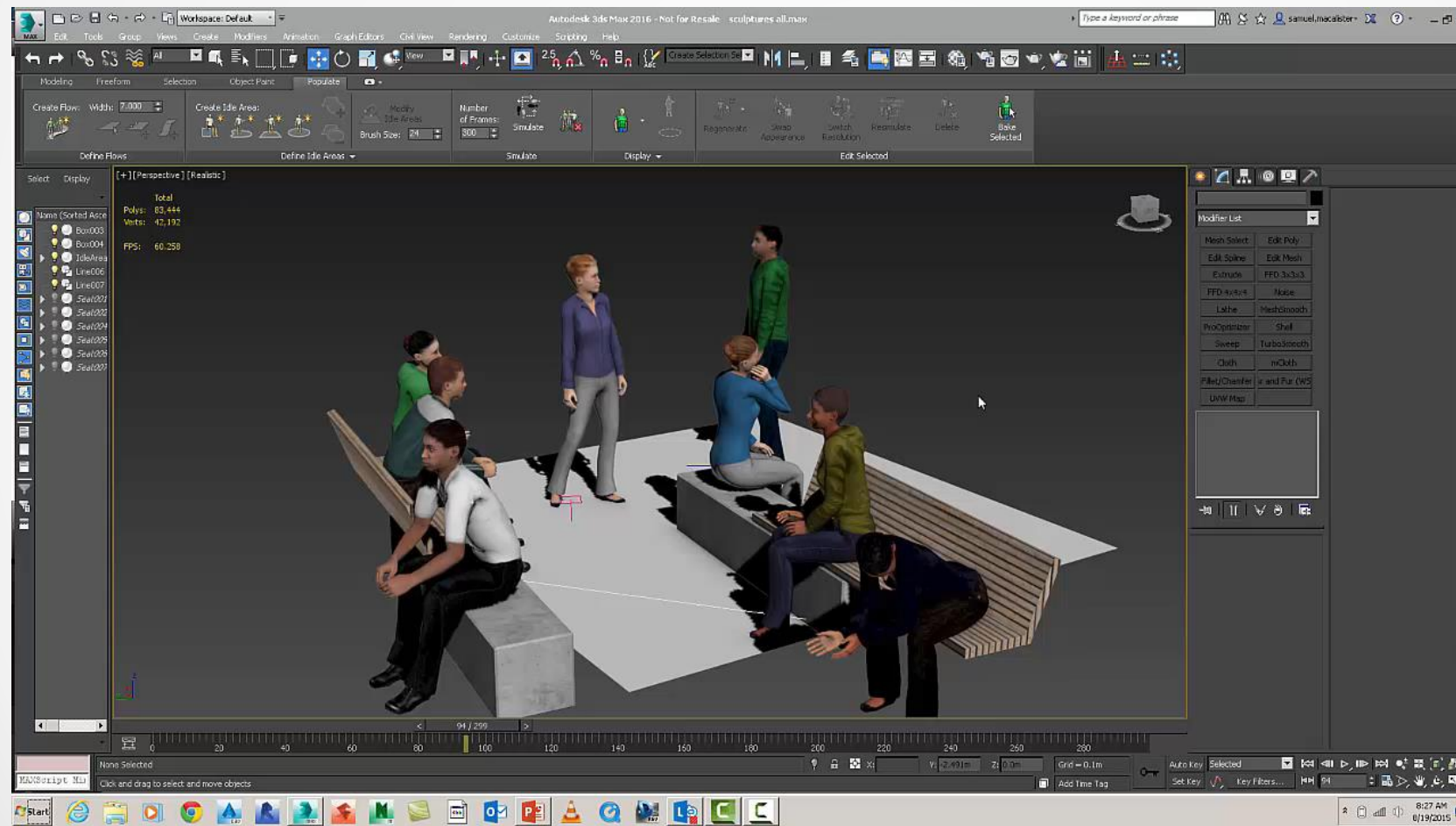


\Scenes\Crowd\MotionClips

<http://knowledge.autodesk.com/support/3ds-max/downloads/caas/downloads/content/3ds-max-2016-sample-files.html>

*full workflow video on [Autodesk ANZ - YouTube](#)

■ VIDEO 5 – 3DS MAX FURNITURE & SCULPTURE



Soft scape design | trees & grass



The screenshot displays the Autodesk InfraWorks 360 interface. The main window shows a 3D model of a landscape with roads, trees, and water. The left sidebar contains various tool icons. The top toolbar includes icons for selection, editing, and rendering. The 'Rule Editor' window is open, showing a rule named 'random trees' with a probability of 1.00. The 'Style Rules' panel on the right shows a list of rules, with 'random trees' selected. The 'Properties' panel on the right shows the properties for the selected rule, including 'Manual Style' and 'Rule Style'. The 'Run Rules' button is highlighted in the bottom right corner.

Enabled	Name	Expression	Style(s)	Description
☒	random trees			

Preview	Name	ID	Probability
	T19-V02 Green	3D Model/Vegetation/T19-V02 Green	1.00
	T19-V02 Light Green	3D Model/Vegetation/T19-V02 Light Green	1.00
	T19-V03 Green	3D Model/Vegetation/T19-V03 Green	1.00
	T35-V01 Light Green	3D Model/Vegetation/T35-V01 Light Green	1.00

Property	Value
ID	<various values>
Data Source	-1
Name	newtrees
Description	
External ID	bc9d1960-d4de-44f0-9744-7ad87a96dce5
Tag	
User Data	
Tooltip	
Manual Style	3D Model/Vegetation/T02-V02 Light Green
Rule Style	<various values>
Object Spacing	

Note – go to the existing tree group properties and delete the manual style name 1st!

Tree Randomize | Style rules



Autodesk InfraWorks 360 - Sydney Martin Place V10

Samuel Macalister

master

Tools: Roads, Surface Opacity, Barriers, Wireframe, Buildings, Style Rules, City Furniture, Coverages, Pipelines, Pipeline Connectors, Points of Interest, Railways, Rivers, Water Areas, Row of Trees, Stand of Trees, Style Palette

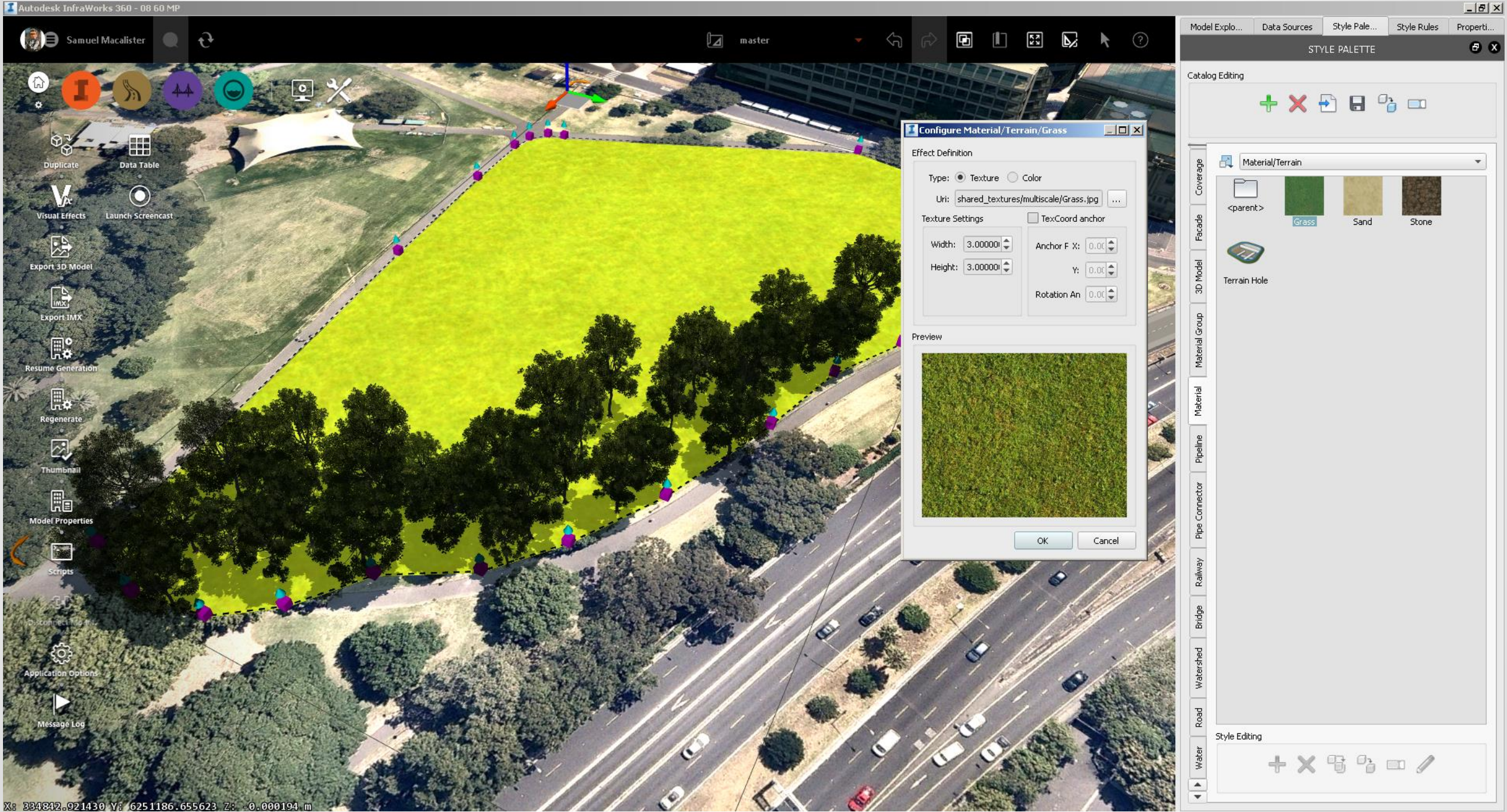
4_trees

Name	Expression	Style(s)
4_trees		3D Model/Vegetation/T19-V02 Light Green; 1 3D Model/Vegetation/T19-V02 Green; 1 3D Model/Vegetation/T38-V02 Light Green; 1 3D Model/Vegetation/T02-V02 Light Green; 1

Select All Deselect All

Export All Import All Commit Run Rules

Seamless grass | new textures in Material/terrain



Soft scape design | Autodesk Seek trees from xfrog



QUICKLINKS

FOR MANUFACTURERS

ABOUT

CONTACT

GET FREE PRODUCT UPDATES

SIGN IN

xfrog

ALL FILE TYPES

AMERICAS

Home / Search

CATEGORY

Deciduous Trees (31)

CONTENT SOURCE

Manufacturer (31)

MANUFACTURERS

xfrog.com (31)

FILE TYPE

MAX (31)

MB (31)

PDF (31)

More >>

PRODUCT ATTRIBUTES

Climate

Species

Appearance/Material Values

Shape

Application/Operational Values

Type

BIM Models by xfrog: Product | Manufacturer

Email search results

Suggest A Manufacturer

<< < Now showing 1-20 of 31 entries > >>

View Options

Sort by Relevance

AL04 Acer Saccharinum Silver Maple
Manufacturer xfrog.com

1 PDF 1 MAX 3 XFR 1 MB

AL17 Quercus Rubra Red Oak
Manufacturer xfrog.com

1 PDF 1 MAX 3 XFR 1 MB

AL09 Gleditsia Triacanthos F Inermis Honey Locust
Manufacturer xfrog.com

1 PDF 1 MAX 3 XFR 1 MB

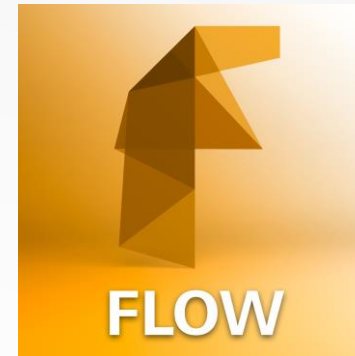
AUTODESK

© 2015 Autodesk, Inc. All rights reserved. Privacy | Terms and Conditions

03 Analysis & Presentation

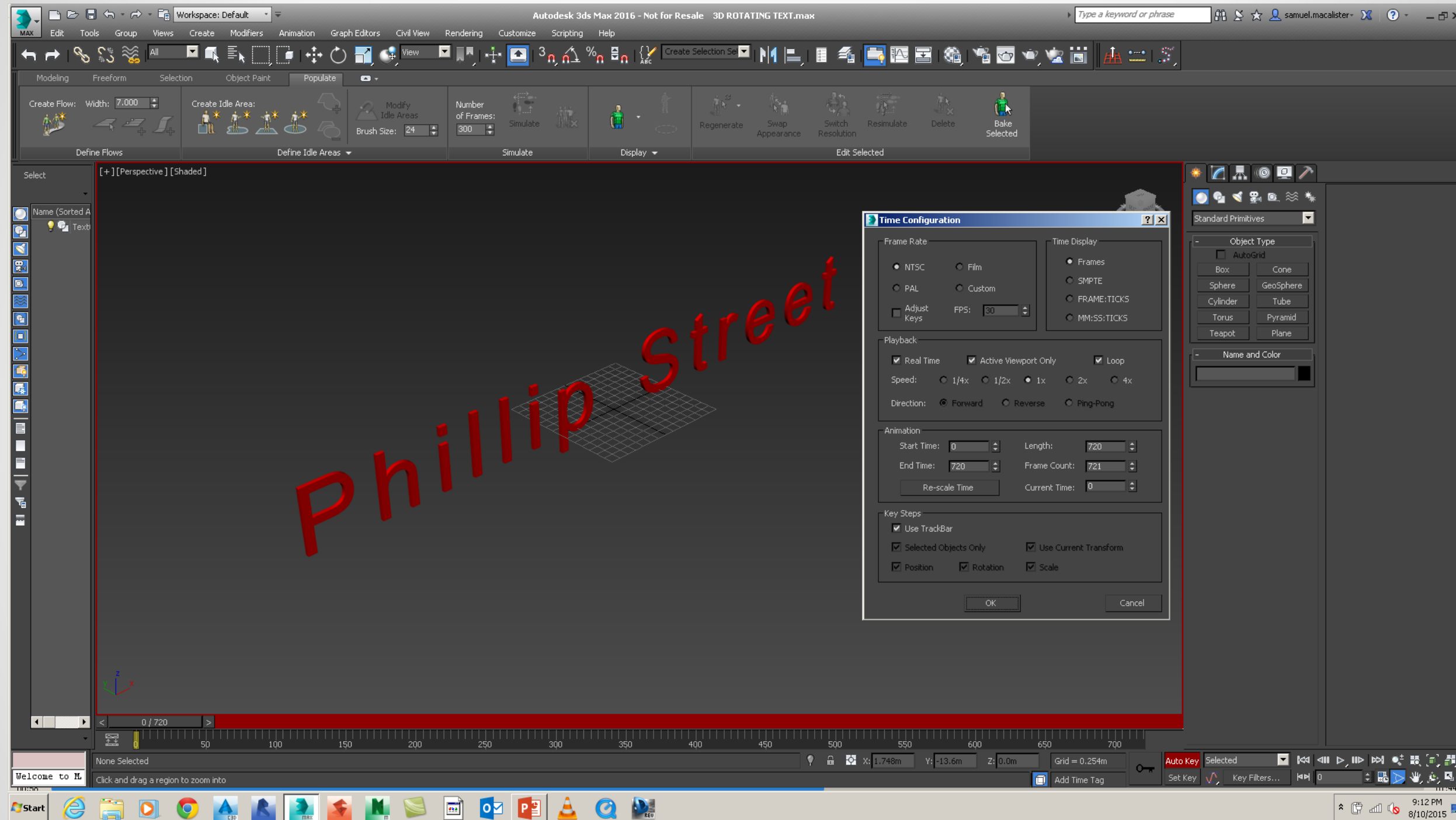
Analysis & Presentation

- Animated text **3ds max**
- Cars **3ds max Civil view**
- Shadows **Autodesk Pixlr**
- Airflow **Flow Design**
- Animation **InfraWorks 360**



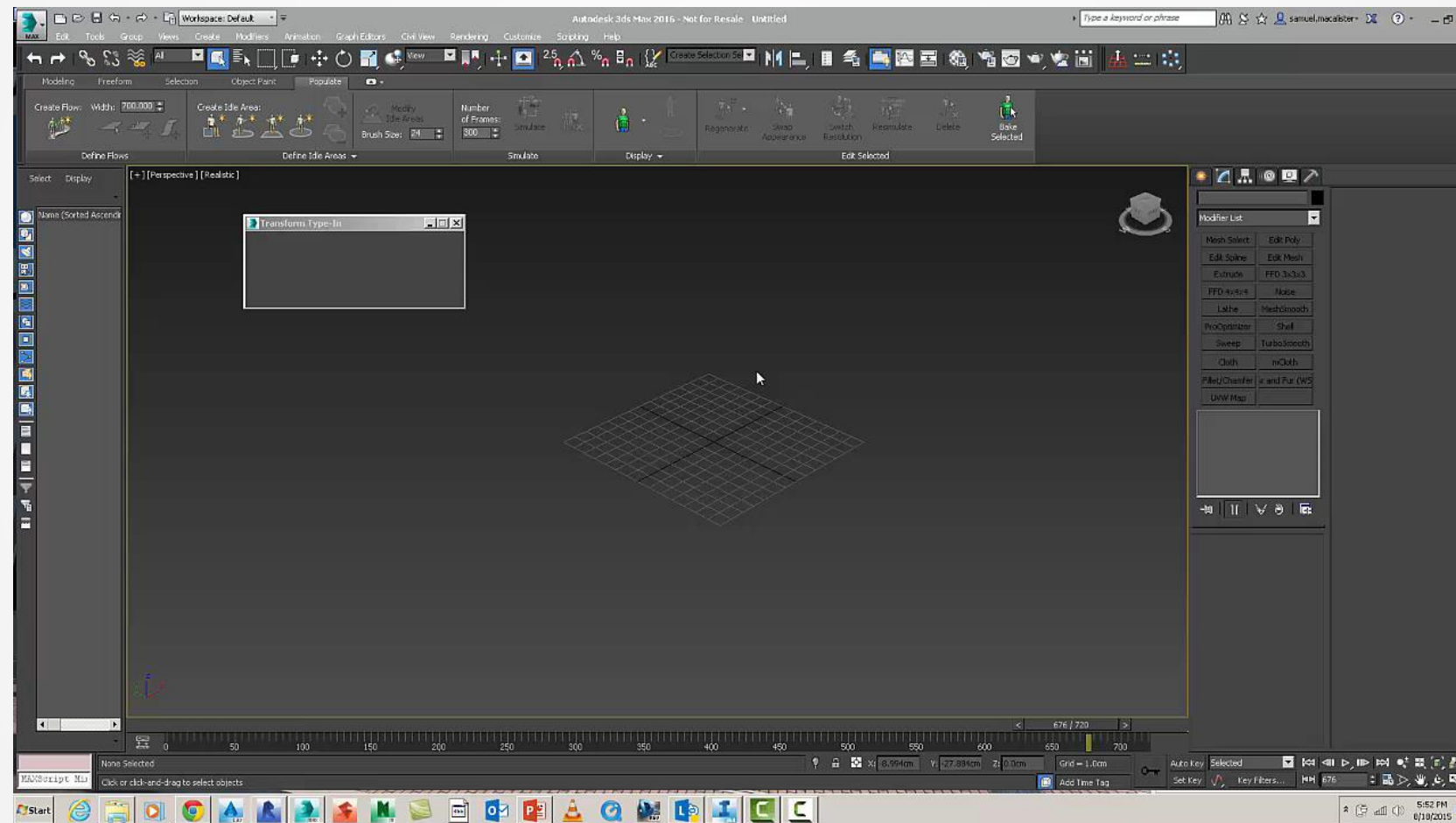
AUTODESK®
PIXLR®

3ds Max | Animated text

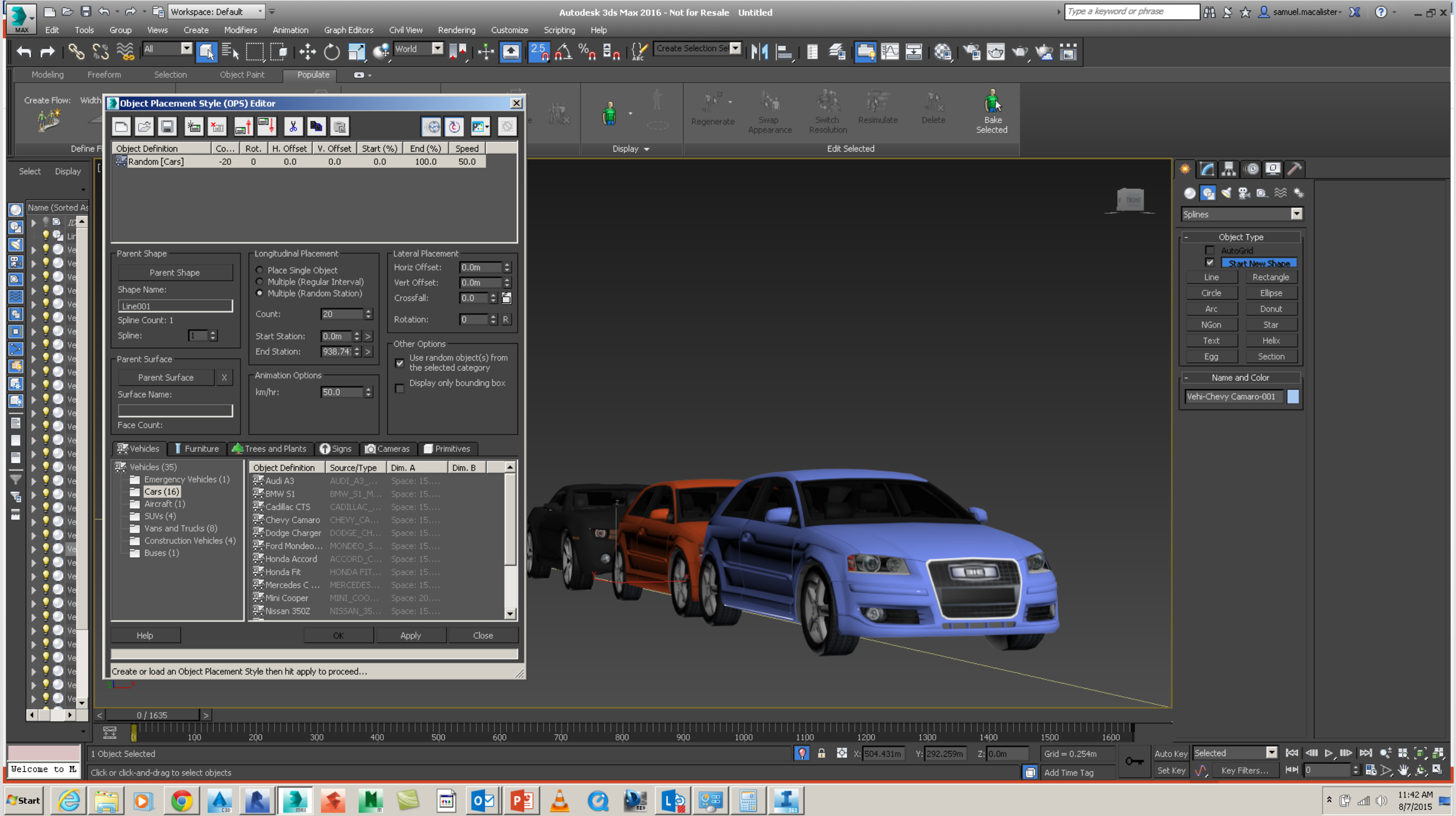


*full workflow video on [Autodesk ANZ - YouTube](#)

■ VIDEO 7 – 3D ANIMATED TEXT



Civil view | use shape files for vehicles to follow



Civil view | Script to convert Arch & Design materials



Autodesk 3ds Max 2016 - Not for Resale cars random.max

Scripting menu options:

- Install Max Creation Graph (.mcg) Package...
- New Max Creation Graph
- Open Max Creation Graph...
- Max Creation Graph Editor
- New Script
- Open Script...
- Run Script...
- MAXScript Listener...
- MAXScript Editor...
- Macro Recorder
- Visual MAXScript Editor...
- Debugger Dialog...
- MAXScript Reference...

Material Editor - CivilViewVehicles - Peugeot_207

Multi/Sub-Object Basic Parameters

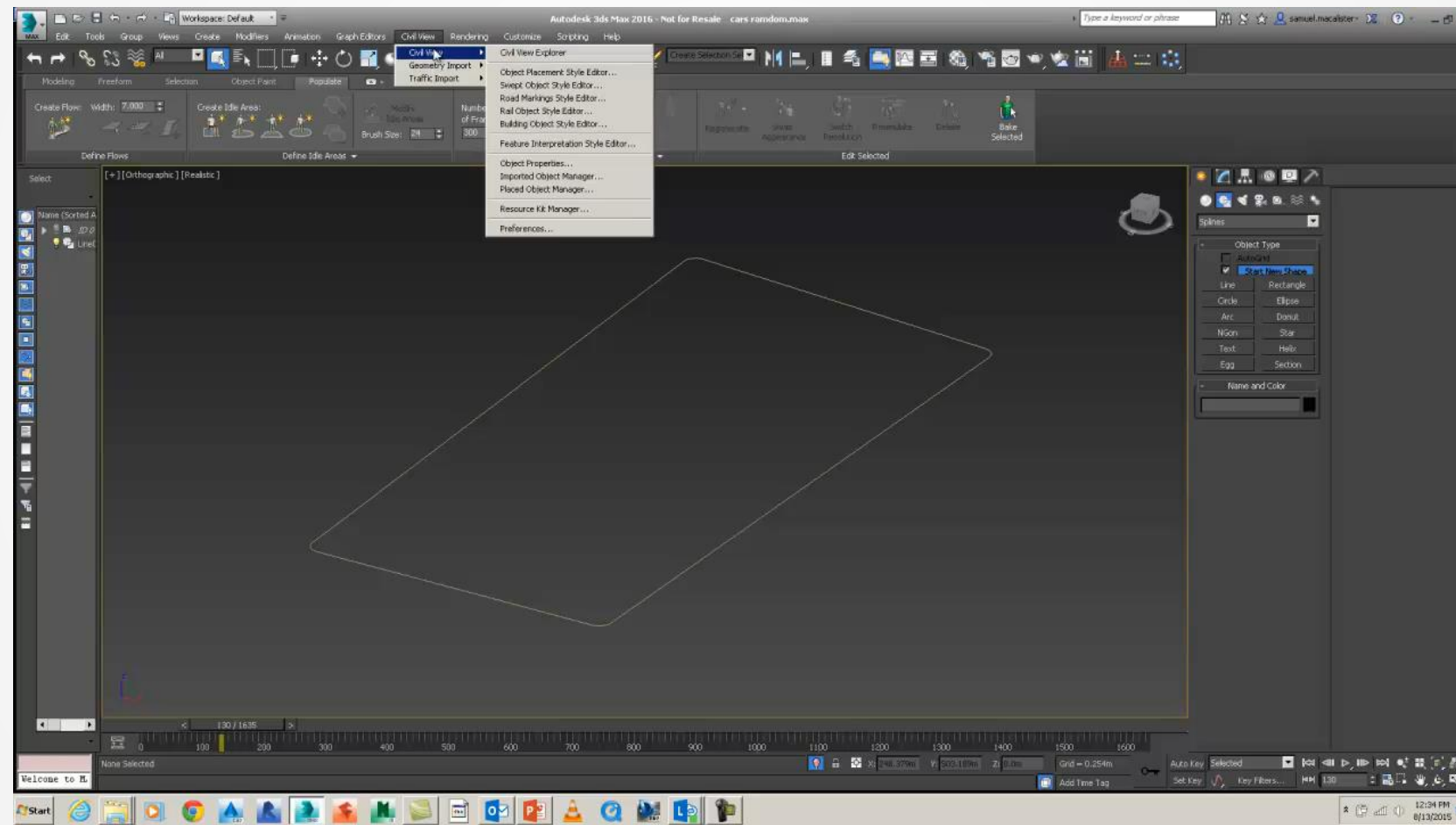
ID	Name	Sub-Material	On/Off
1	Body (Green)	Body (Green) (Standard)	☒
2	Body (Blue)	Body (Blue) (Standard)	☒
3	Body (Light Blue)	Body (Light Blue) (Standard)	☒
4	Body (Silver)	Body (Silver) (Standard)	☒
5	Body (White)	Body (White) (Standard)	☒
6	Body (Black)	Body (Black) (Standard)	☒
7	Body (Red)	Body (Red) (Standard)	☒
8	Body (Cherry Red)	Body (Cherry Red) (Standard)	☒
9	Body (Yellow)	Body (Yellow) (Standard)	☒
10	Red Plastic	Trim Red (Standard)	☒

MAXScript Editor - D:\AU data\3ds max\Material Convert.ms - MAXScript

```
1 fn convertArchToStandard mat =
2 (
3   -- Make new Standard mat, with original's diffuse map
4   newMat = Standard diffuseMap:mat.mapM0
5   newMat.name = mat.name
6   newMat.diffuse = mat.diff_color
7   showTextureMap newMat on
8   newMat.specularLevel = 30
9   newMat.glossiness = 20
10  return newMat
11 )
12
13 -- Loop through all objects, checking material on each
14 for obj in geometry do
15 (
16   mat = obj.material
17
18   if (mat != undefined) then
19   (
20     if (classof mat == Multimaterial) then
21     (
22       -- This is a multi-sub material, so loop through all submaterials
23       for i in mat.materialIdList do
24       (
25         submat = mat[i]
26         if (classof submat == Arch__Design__mi) then
27         (
28           mat[i] = convertArchToStandard submat
29         )
30       )
31     )
32
33     else if (classof mat == Arch__Design__mi) then
34     (
35       -- Regular, non-multi material
36       obj.material = convertArchToStandard mat
37     )
38   )
39 )
```


*full workflow video on [Autodesk ANZ - YouTube](#)

■ VIDEO 8 –CIVIL VIEW



InfraWorks 360 |Align with roads & turn on animation



Shadow overlays | Feature & terrain themes



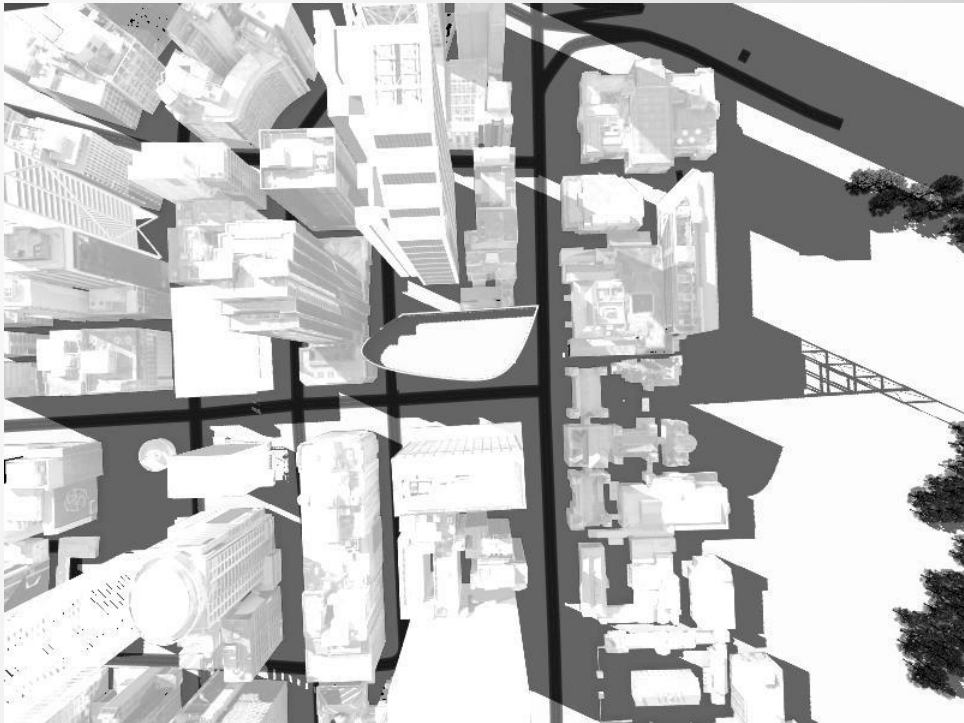
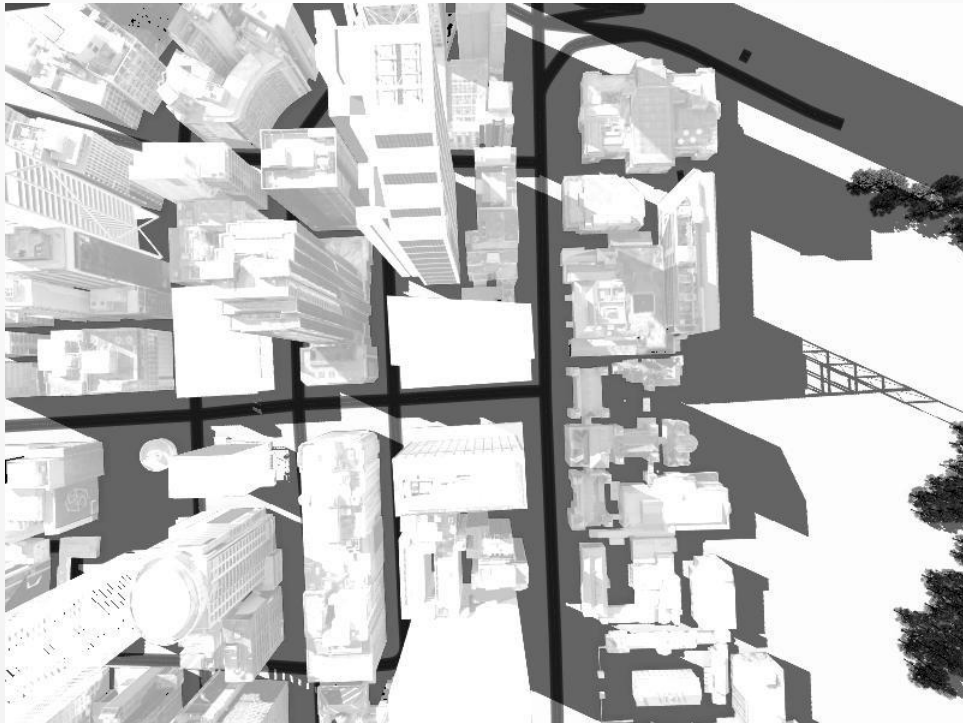
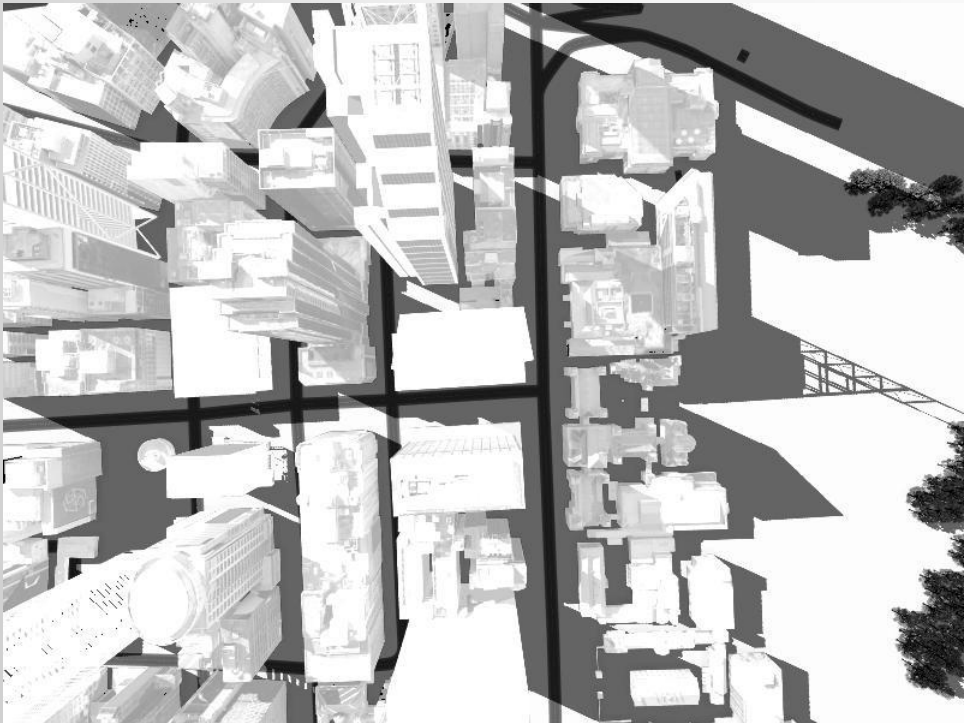
Option 1
12pm – 3pm April



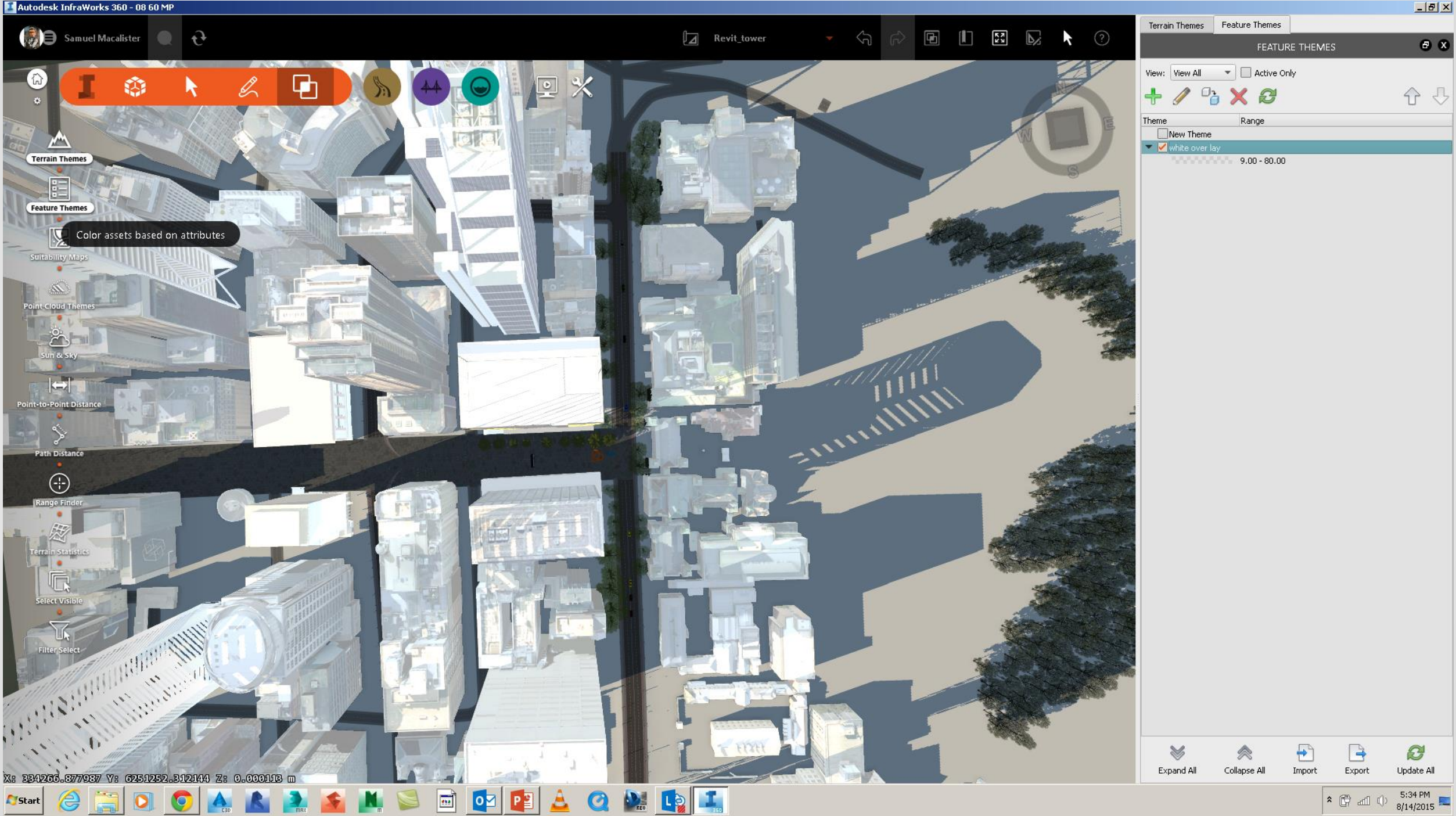
Option 2
12pm 3pm April



Option 3
12pm 3pm April



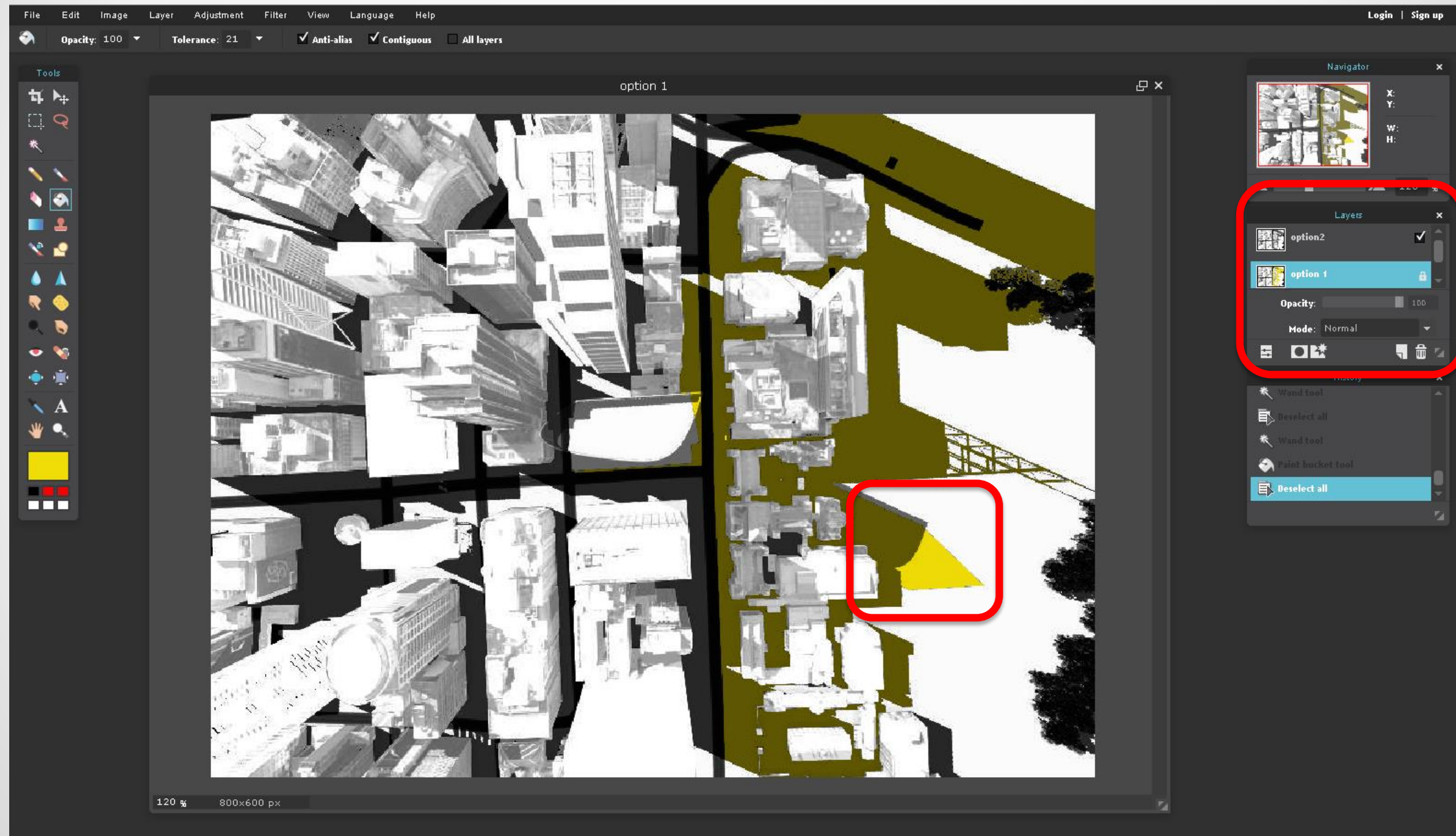
Shadow overlays | Feature & terrain themes



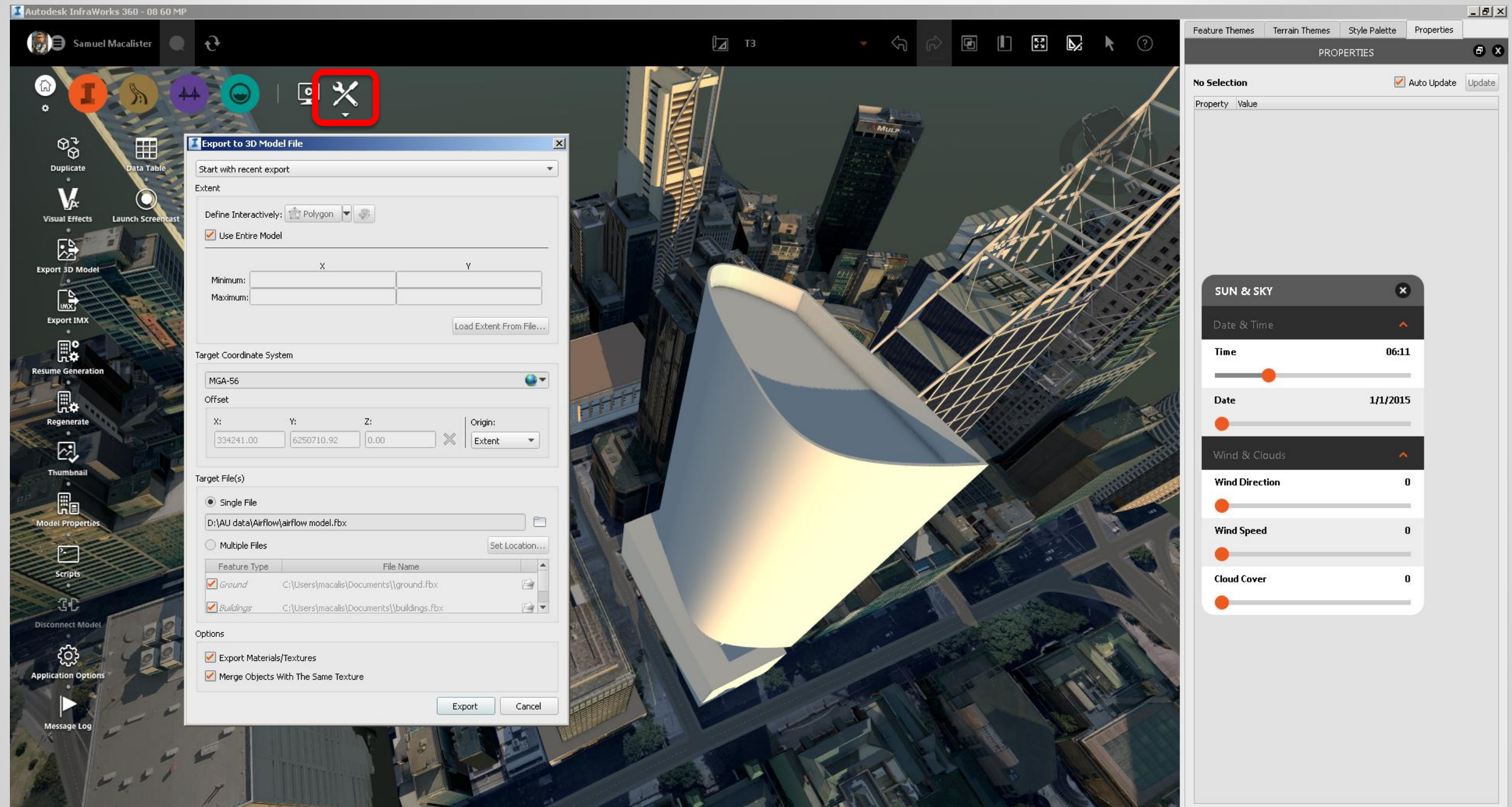
Overlay in Autodesk Pixlr editor to review shadows



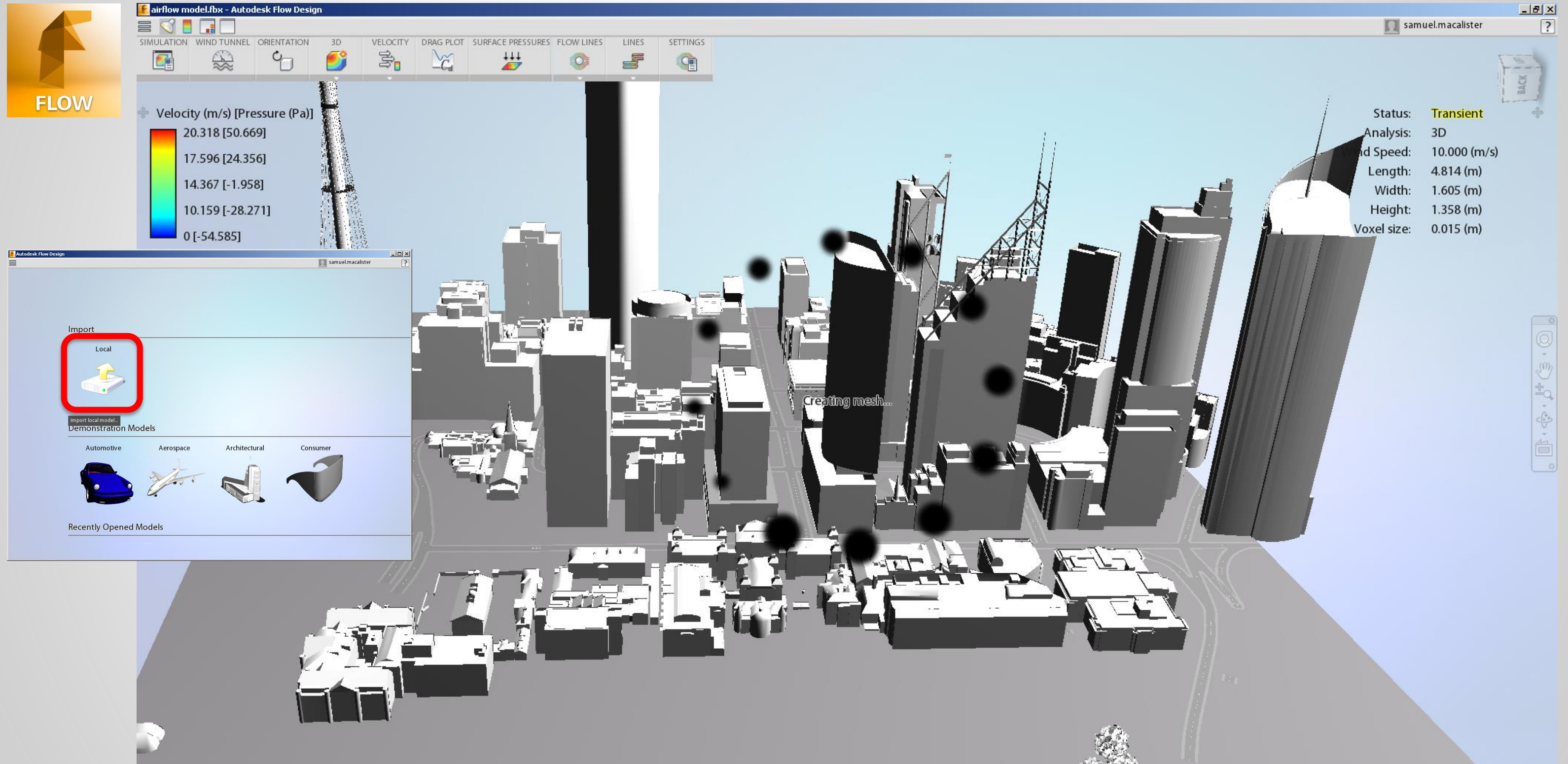
AUTODESK®
PIXLR®



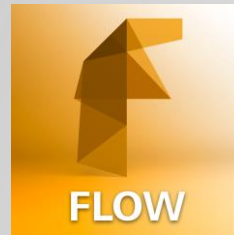
Airflow | export the fbx for Autodesk Flow Design



Autodesk Flow Design | import fbx model (no trees!)



Flow line settings | Adjust seed box



airflow model_max clean.fbx - Autodesk Flow Design

simuel.macalister

SIMULATION WIND TUNNEL ORIENTATION 3D VELOCITY DRAG PLOT SURFACE PRESSURES FLOW LINES LINES **SETTINGS**

Velocity (m/s) [Pressure (Pa)]

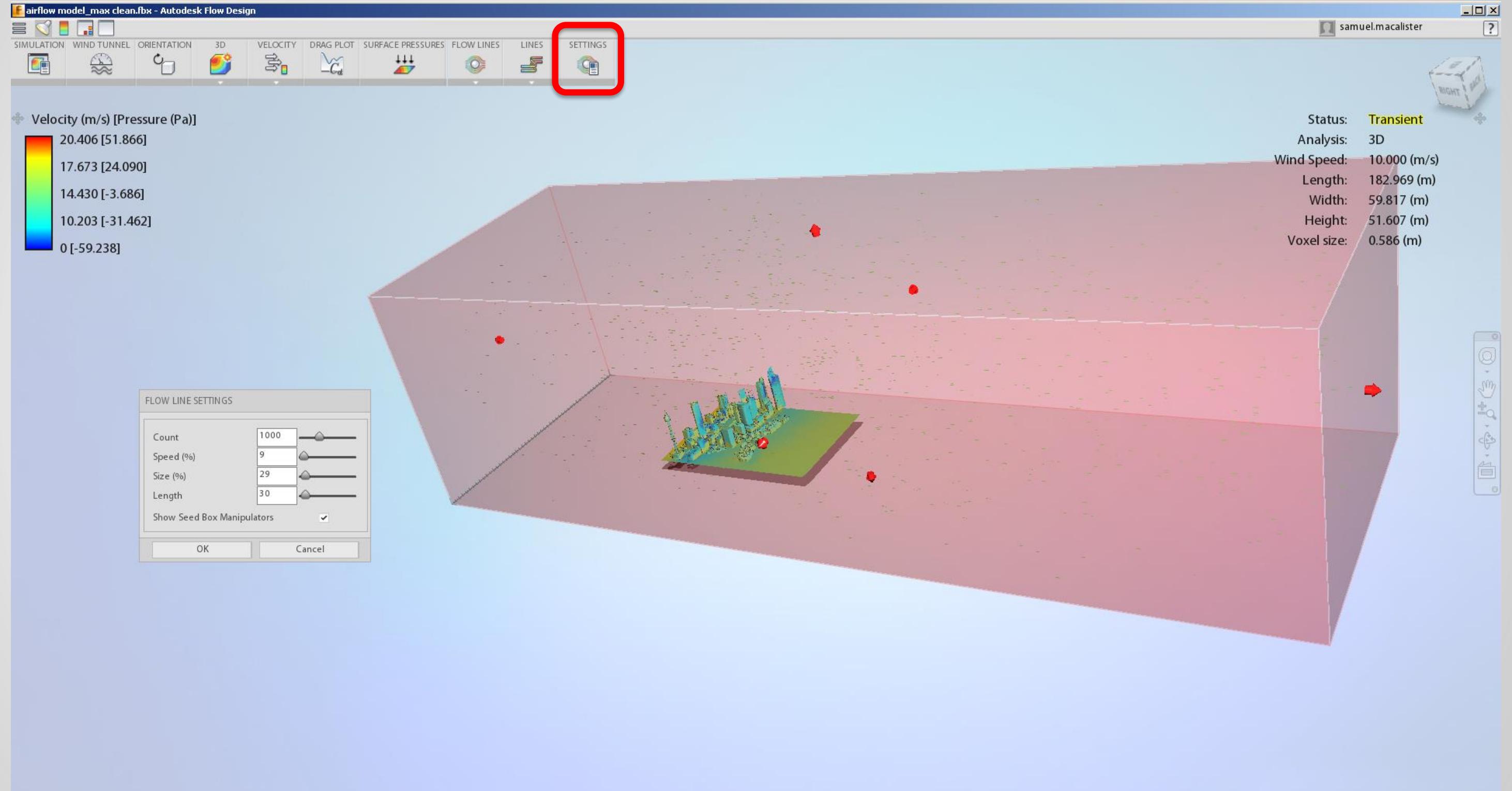
20.406 [51.866]
17.673 [24.090]
14.430 [-3.686]
10.203 [-31.462]
0 [-59.238]

Status: **Transient**
Analysis: 3D
Wind Speed: 10.000 (m/s)
Length: 182.969 (m)
Width: 59.817 (m)
Height: 51.607 (m)
Voxel size: 0.586 (m)

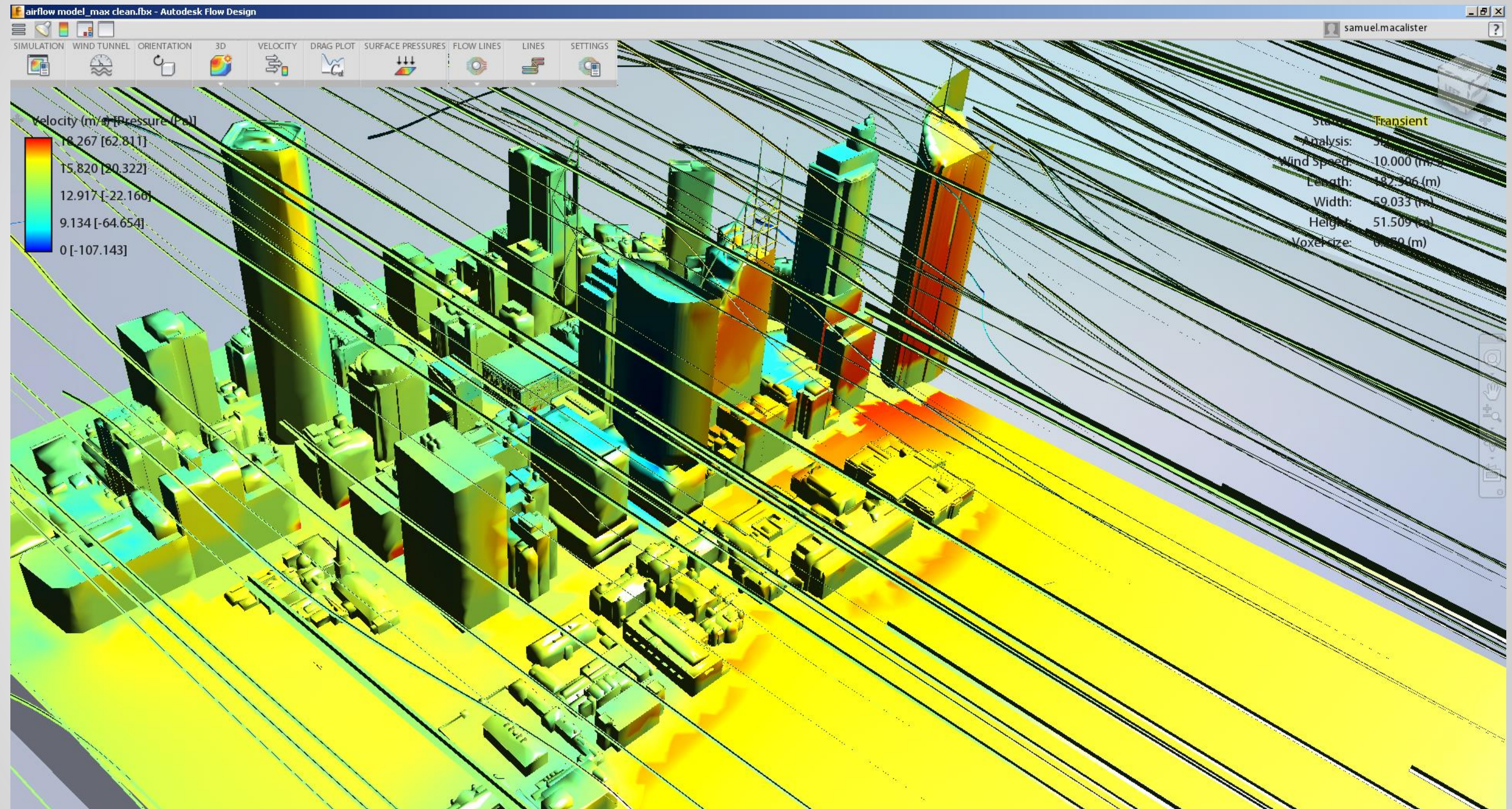
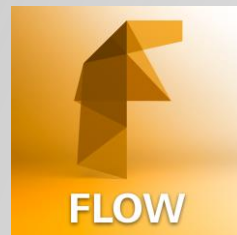
FLOW LINE SETTINGS

Count: 1000
Speed (%): 9
Size (%): 29
Length: 30
Show Seed Box Manipulators: ☒

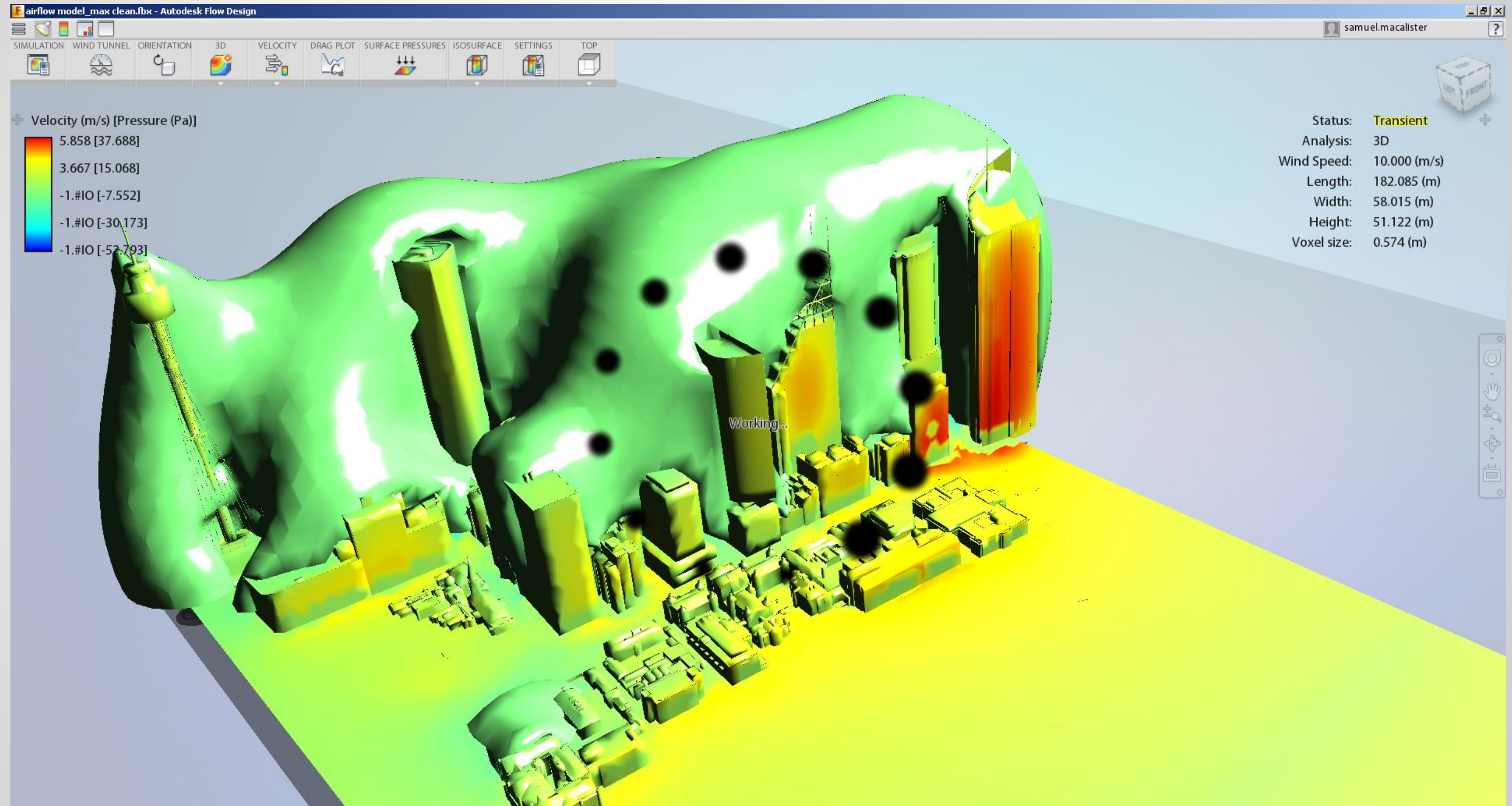
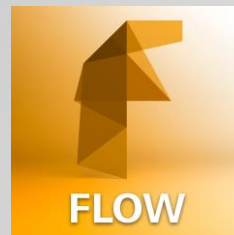
OK Cancel



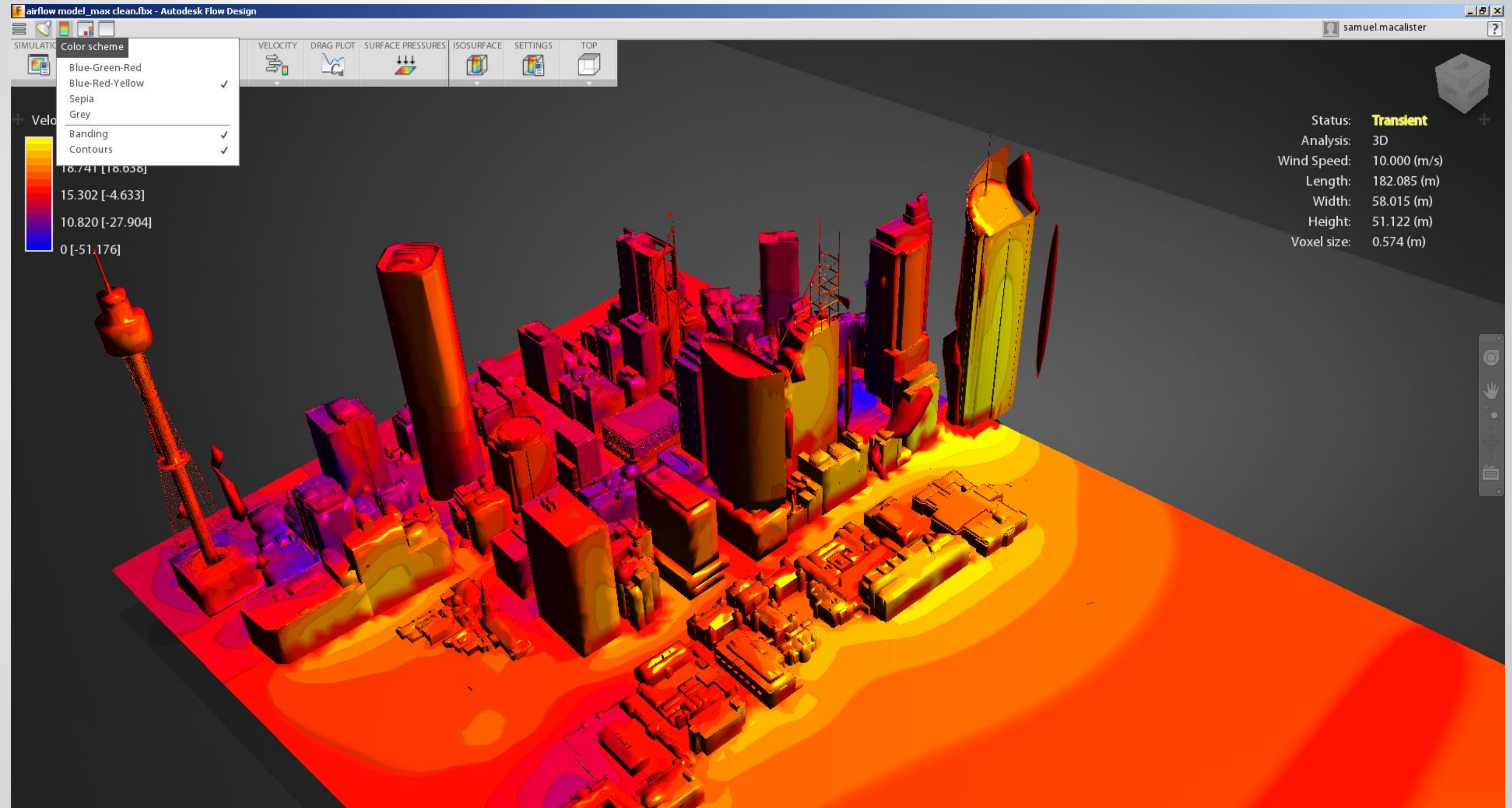
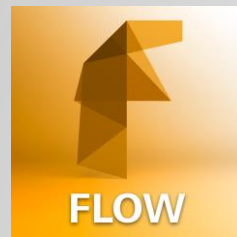
Run velocity analysis for winds (flow line display)



Iso surfaces & surface pressures

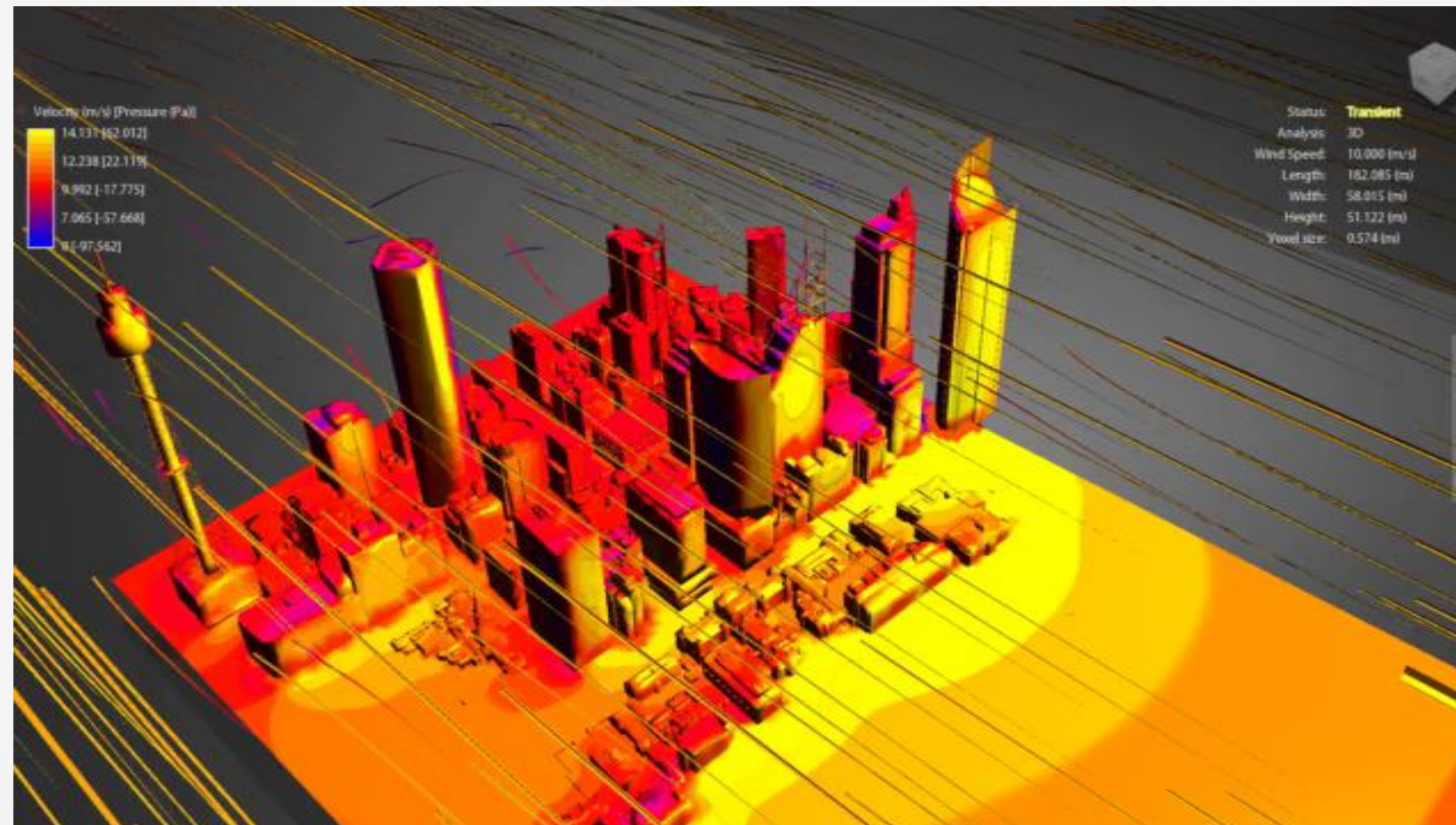


Colour schemes and displays



*full workflow video on [Autodesk ANZ - YouTube](#)

■ VIDEO 9 – AIRFLOW



Story board | Sun path study winter/summer



Autodesk InfraWorks 360 - 08 60 MP

Samuel Macalister

Revit_tower

Storyboard Creator

Surface Layers

Scenario Browser

Storyboard Player

Watermarks

Points of Interest

Render Model

Sun & Sky

Visual Effects

Create Snapshot

Surface Opacity

APRIL 7 AM - 7 PM

X: 335001.521992 Y: 6251305.300958 Z: 0.000093 m

Properties

No Selection

Auto Update

Update

Property Value

Storyboard

Storyboard Name: sunpath Duration: 0:00:30.0

Captions & Titles

Item #3

SUN PATH STUDY

Item #4

JANUARY 7am - 7pm

Item #6

APRIL 7am - 7pm

Paths & Animations

Item #2

Date/Time

Item #5

Date/Time

Date/Time: Item #5 Start at: 0:00:18.0 Duration: 0:00:12.0

Transition: Cut

Interpolate

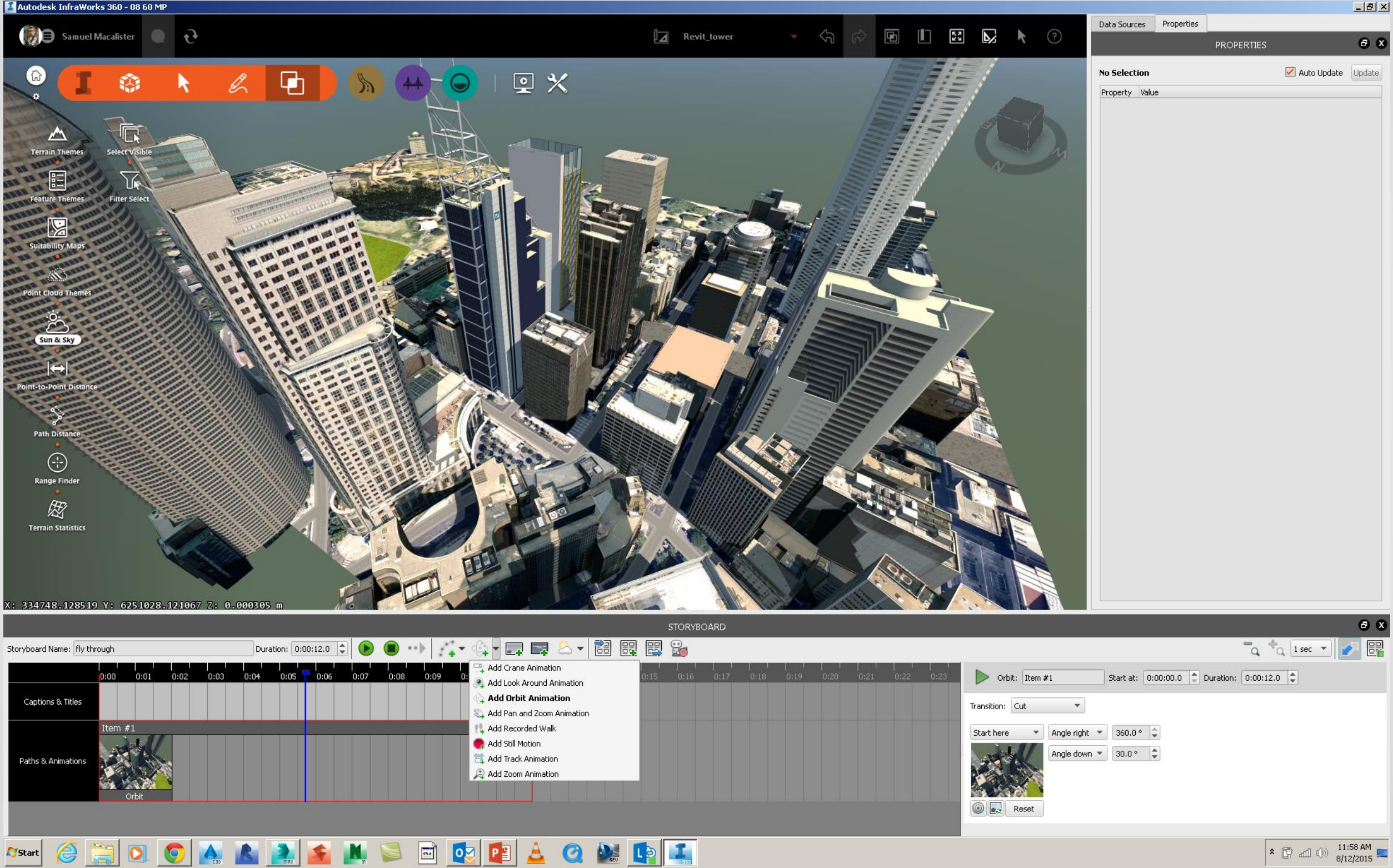
Time of day

Day of year

Start time

End time

Story board | simple animation presets



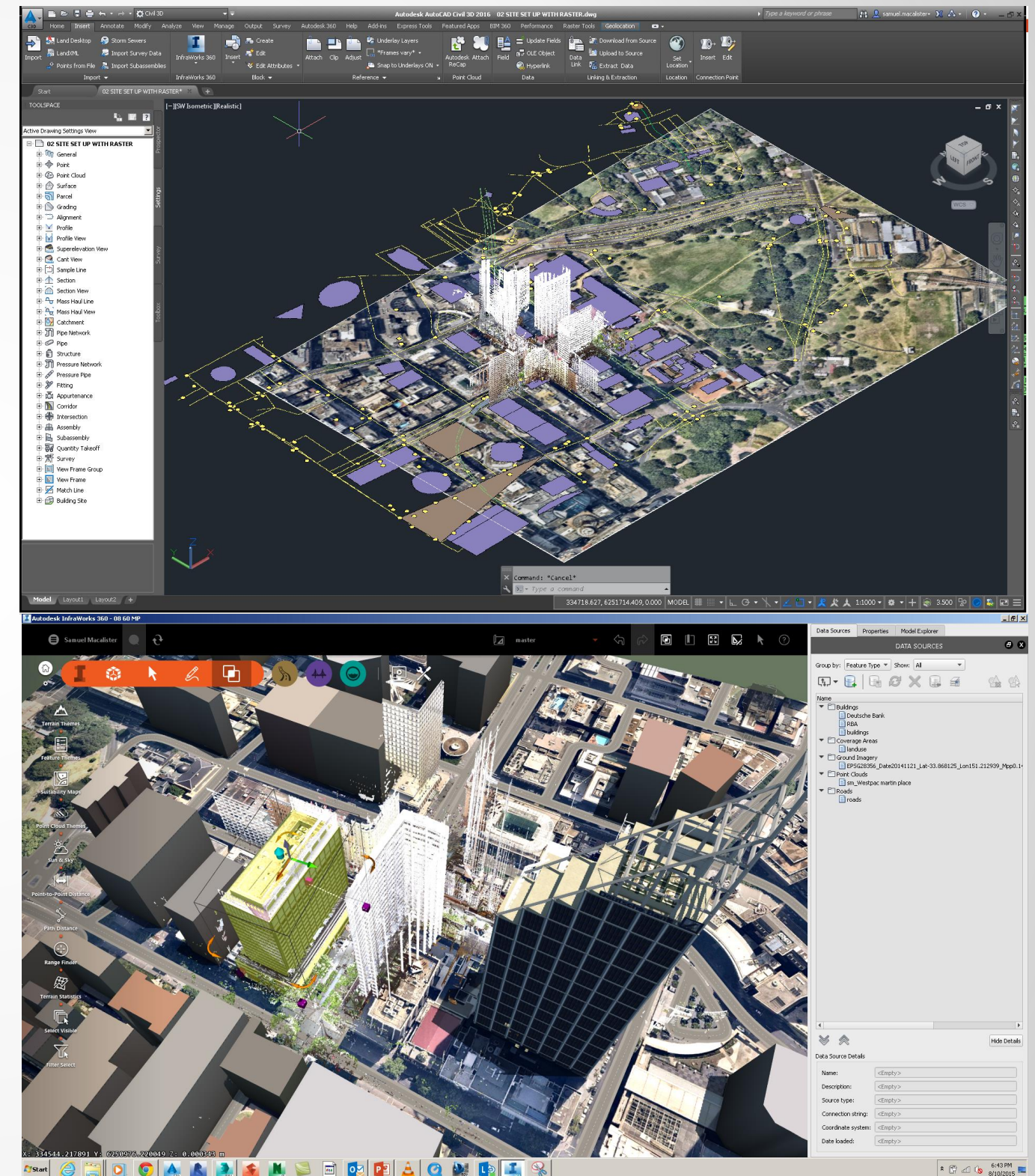
*full workflow video on [Autodesk ANZ - YouTube](#)

- VIDEO 10 – STOREY BOARD



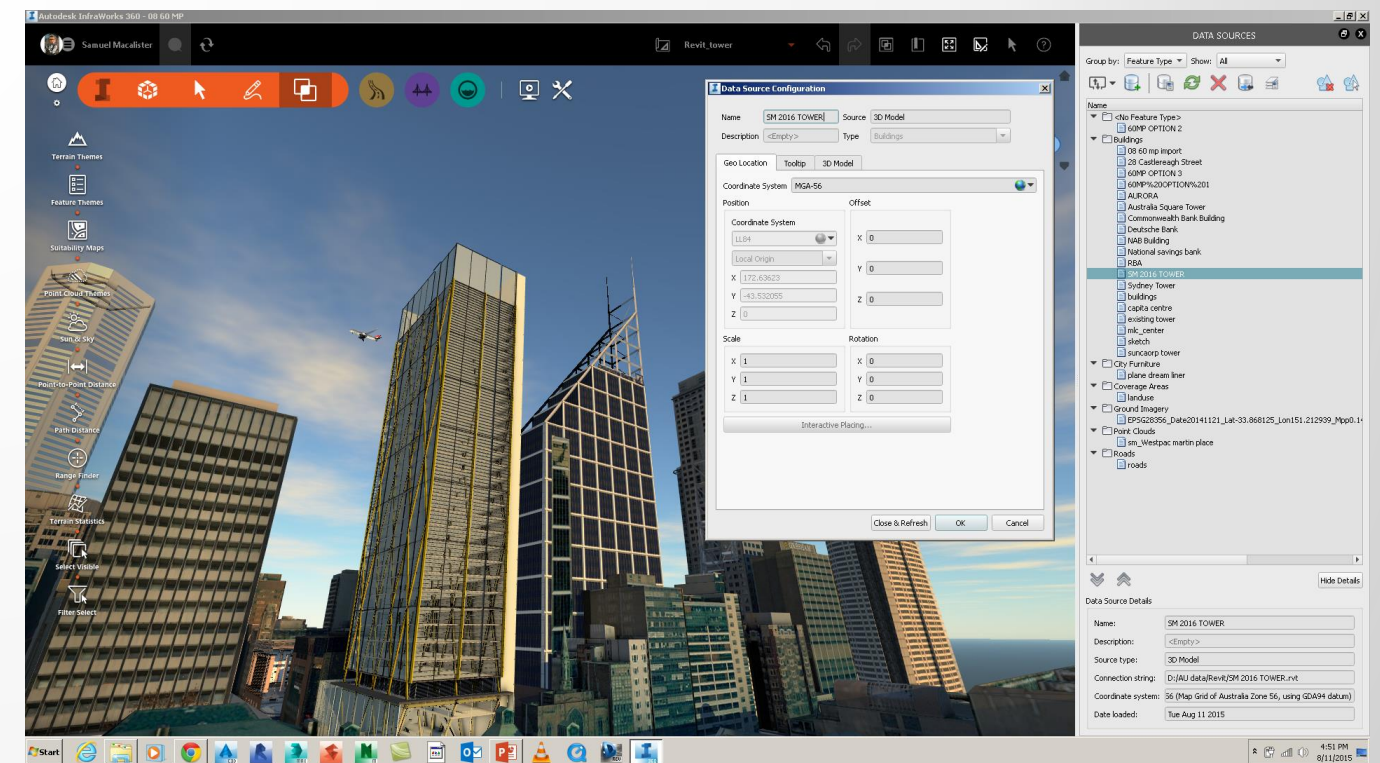
01 Data sources

- Coordinate systems **Civil 3d**
- Aerial imagery **nearmap**
- Shape files **Bbbike**
- Concept design **Formit/sketchup**
- Laser scan **Recap**



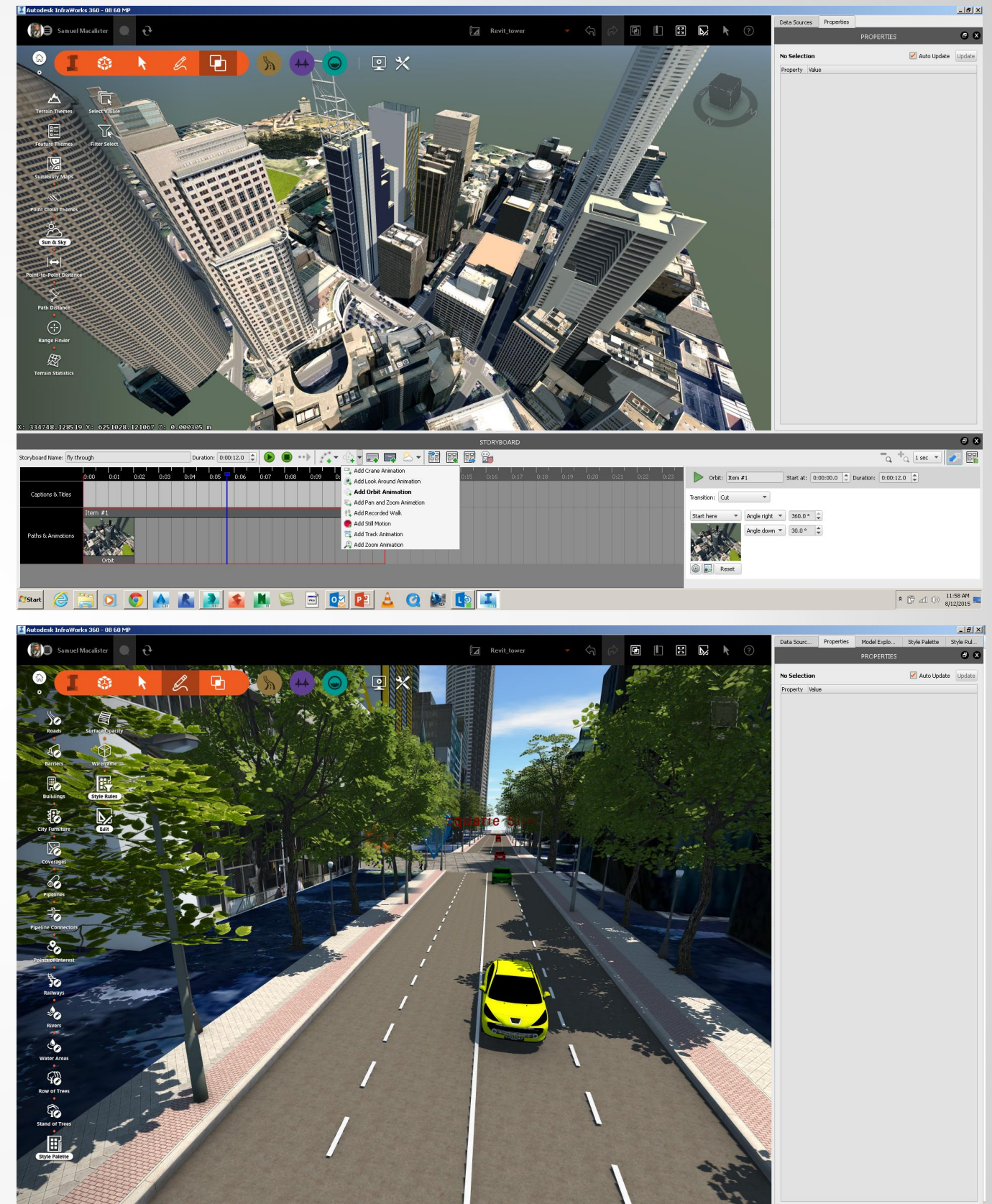
02 Design

- Design options **Formit**
- Tower design **Revit**
- Furniture **3ds max**
- People **3ds max Populate**
- Soft scape **Autodesk Seek**



03 Analysis & Presenting

- Animated text **3ds max**
- Cars **3ds max Civil view**
- Shadows **Autodesk Pixlr**
- Airflow **Flow Design**
- Animation **InfraWorks 360**



Knowledge Network

