AUTODESK. UNIVERSITY

CES322648

InfraWorks: There is a Trick for That

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Kimley-Horn

Learning Objectives

- Extract meta data from images to source data within Infraworks
- Source linked data from Dropbox or Google drive with in Infraworks
- Live link Google street views to points of interest
- Sharing your InfraWorks models with BIM 360 Docs VS Shared Views

Description

Intended for beginning and intermediate users of InfraWorks software and AutoCAD Civil 3D software, this class will show the civil industry professional's techniques for creating renderings and depicting custom models utilizing multiple Autodesk tools. Using tools provided in Infrastructure Design Suite civil engineering software (AutoCAD Civil 3D software, InfraWorks software, Revit software, and 3ds Max software).This session will feature InfraWorks object data that can be linked to any external open-sourced shared location.

Speaker

Juan Soto is a Civil Designer for Kimley-Horn in the Fort Worth, Texas office. Kimley-Horn ranks in the top third of Engineering News-Record (ENR) top 500 design firms. Kimley-Horn is also ranked as one of the "100 Best Companies to Work For" by Fortune magazine. Juan has more than 22 years of experience working with both Autodesk, Inc., and Bentley products. His experience includes a variety of project types, including utility, highway, roadway, land development, aviation, and industrial. His experience has included projects involving master planning, animation, and conceptual rendering to provide constructability. Juan has 10 years of experience as a CAD manager and expertise in Revit Autodesk, AutoCAD Civil 3D, Autodesk-3DS MAX, Autodesk-ReCap 360, Autodesk-InfraWorks360, Trimble-Google SketchUp, Adobe Premiere Pro, Lumion, and 3D Animation. Juan also has his Federal Aviation Administration part 107 certification.

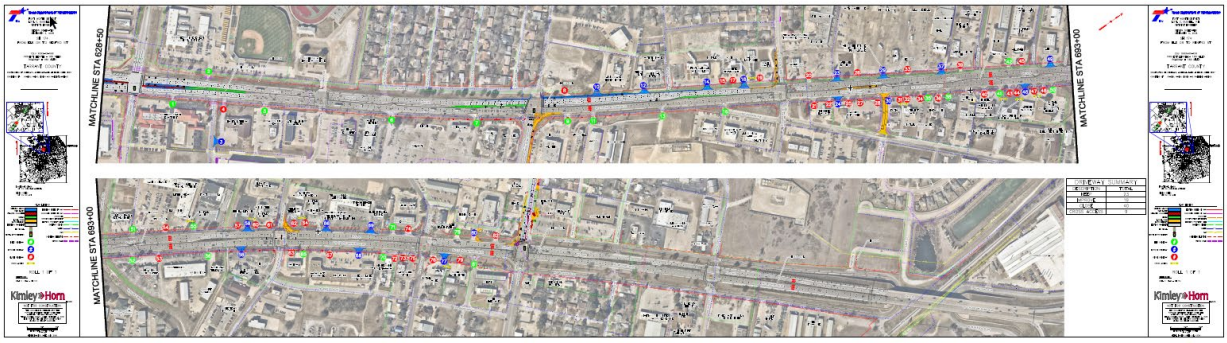
You can also find him contributing to the worlds of AutoCAD Civil 3D and InfraWorks360 software through his twitter account @civil3d_jedi, and Autodesk User Group International (AUGI) articles.

Project X- Not the Normal Project for InfraWorks

This InfraWorks project was generated because of the amount of data that had to be conveyed to an entire city council/stakeholder during meetings and presentations. We needed to show a major connector with several driveways and how it was going to affect businesses, as well as some of the existing drainage issues.

OLD SCHOOL WAY: The original idea was to do what we have always done on a typical roadway project:

1. Make a roll plot
2. Take photos at all driveway connections
3. Connect exhibit (roll plot 24”x84”) to all images and print/bind 90-100 images using counters/symbology



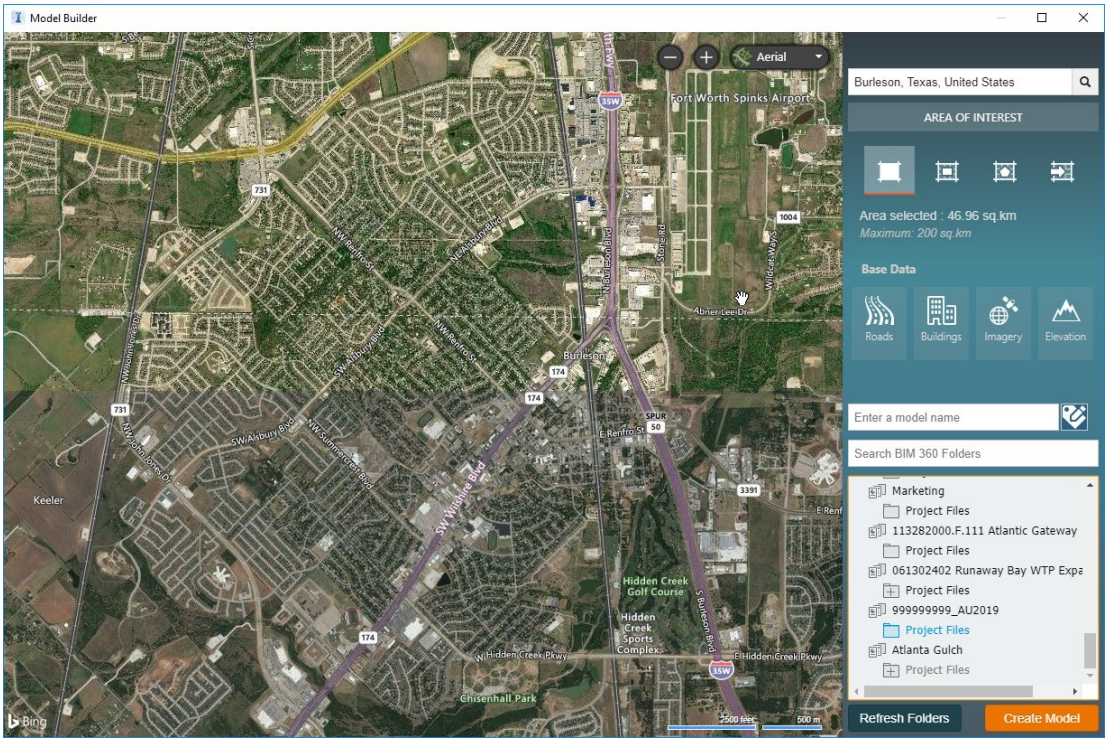
Infraworks-Creating Interactive Model

NEW SCHOOL WAY

1. Extract image metadata for geo image location
2. Use BIM 360 Docs for collaboration (one model one location)
3. Link POI to an opensource cloud location

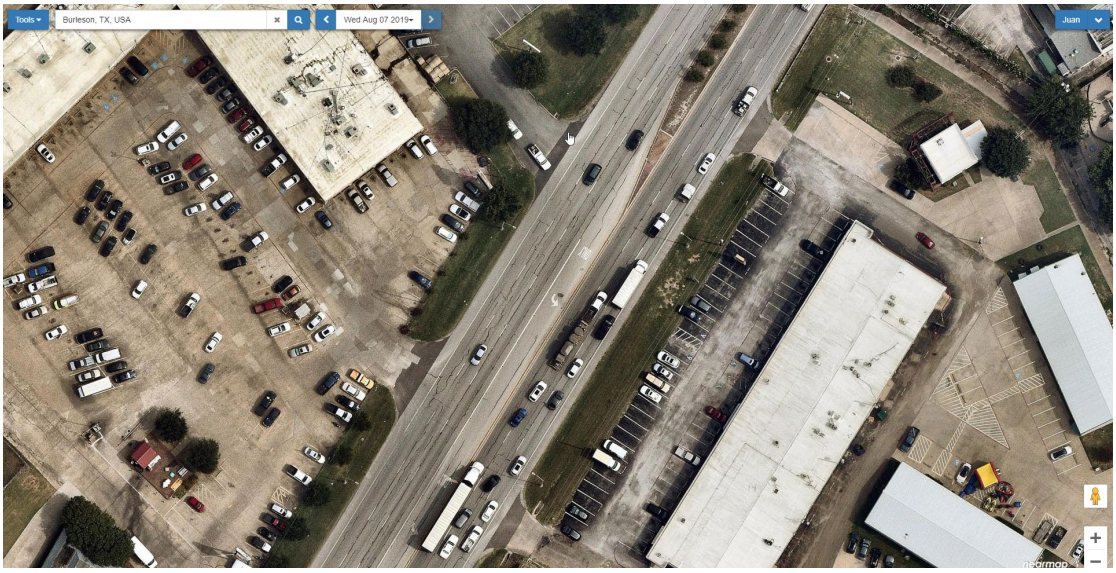
Setting Up the Model

1. First, you'll need a base model
    a. Use Model Builder to pull terrain and Bing imagery



Pulling High-Res Imagery

2. NearMap (use High Resolution - Note: not free)

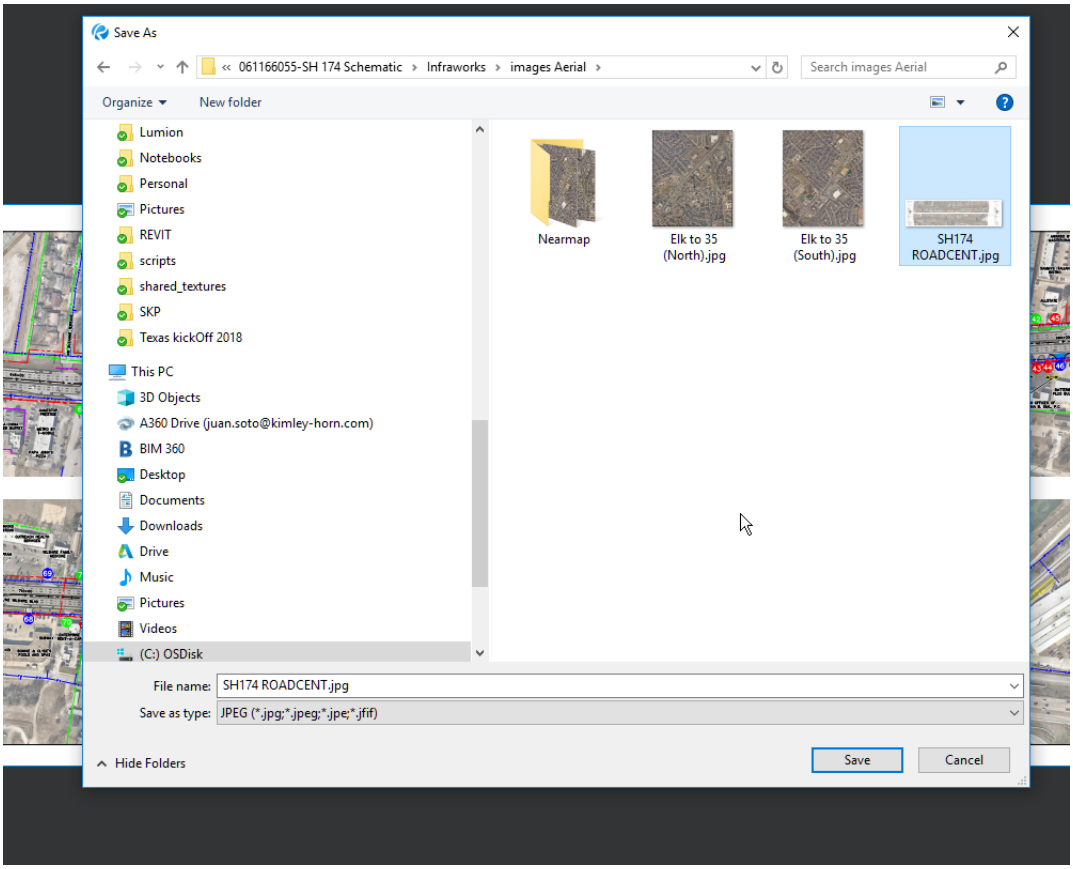


Utilizing Existing Exhibits, Converting to Raster

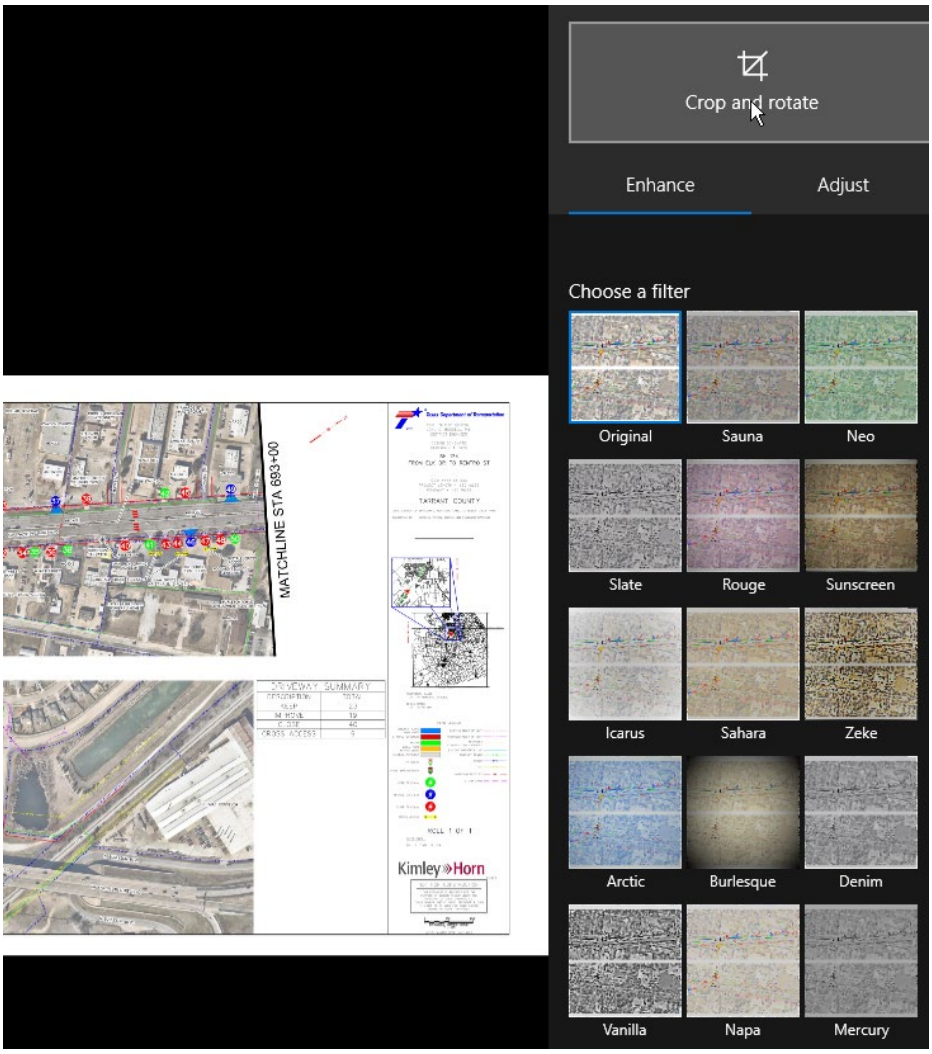
This project had some exhibits already created for the client that I wanted to utilize (SH174 ROADCENT.PDF)

3. Open the PDF with a program that allows you to export as an image (Example: JPG, TIFF, BMP, or any image that Civil 3D will import. I use Bluebeam.)

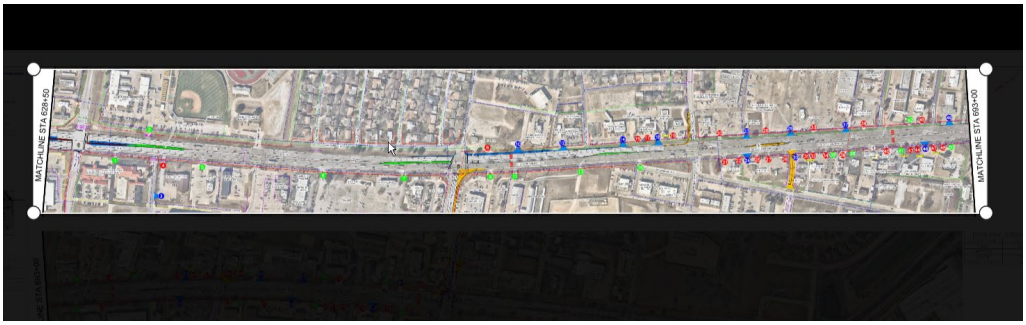
4. Export the file, select the correct image type, and save to the project location



5. Open the image with any photo editor that will allow you to crop an image



6. Crop each part of the image and save each one as a separate JPG file

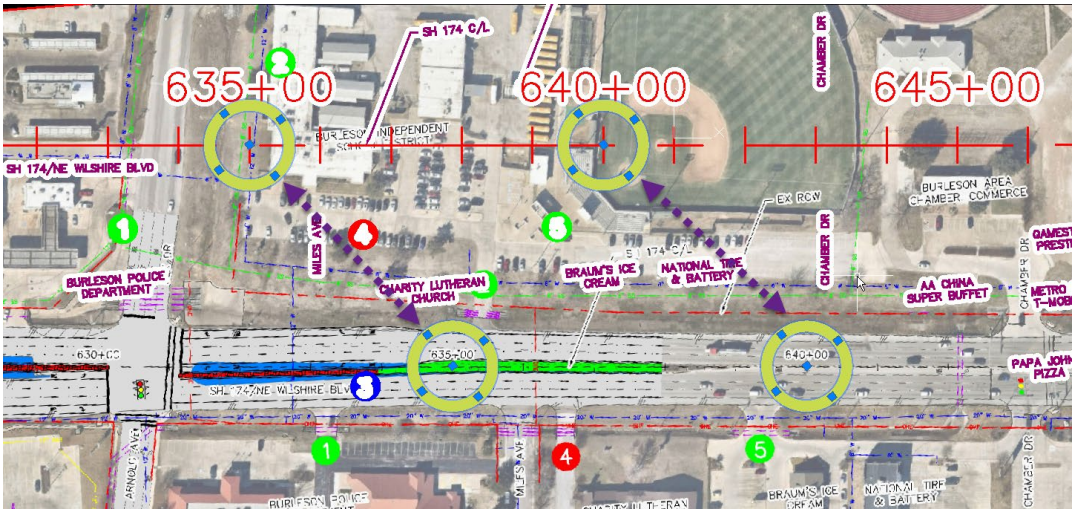


Back in Civil3D

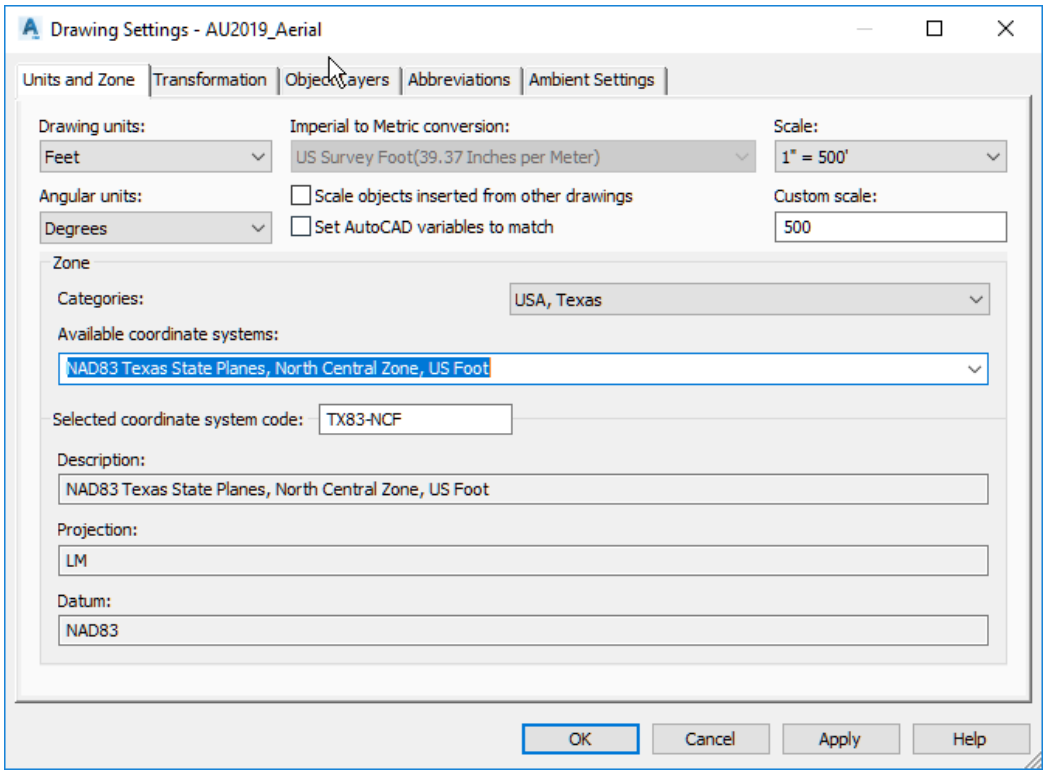
1. Open the original CAD exhibit (I used the station from the image and dwg. The end goal is to match up the images with the CAD exhibit.)

2. Insert the JPG image into CAD, and place near the location

3. Align imagery with data/geometry from the original CAD file



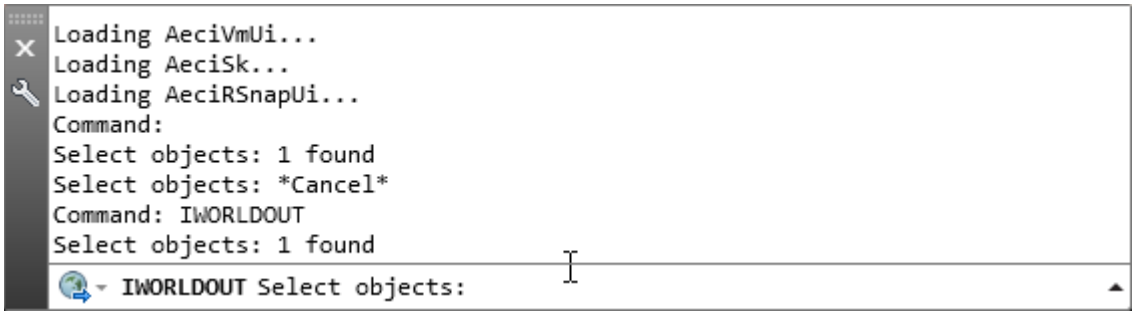
4. Now that the image has been located and scaled appropriately, make sure your coordinate system matches your site



5. Create a World file for the images using Civil3D Raster Tools menu

   a. Make sure the World file is stored in the same location as the JPG

6. At command line enter: iworldOut



7. Select the image

8. Repeat for the 2nd image of the exhibit

GENERATING LINKS FOR INFRAWORKS

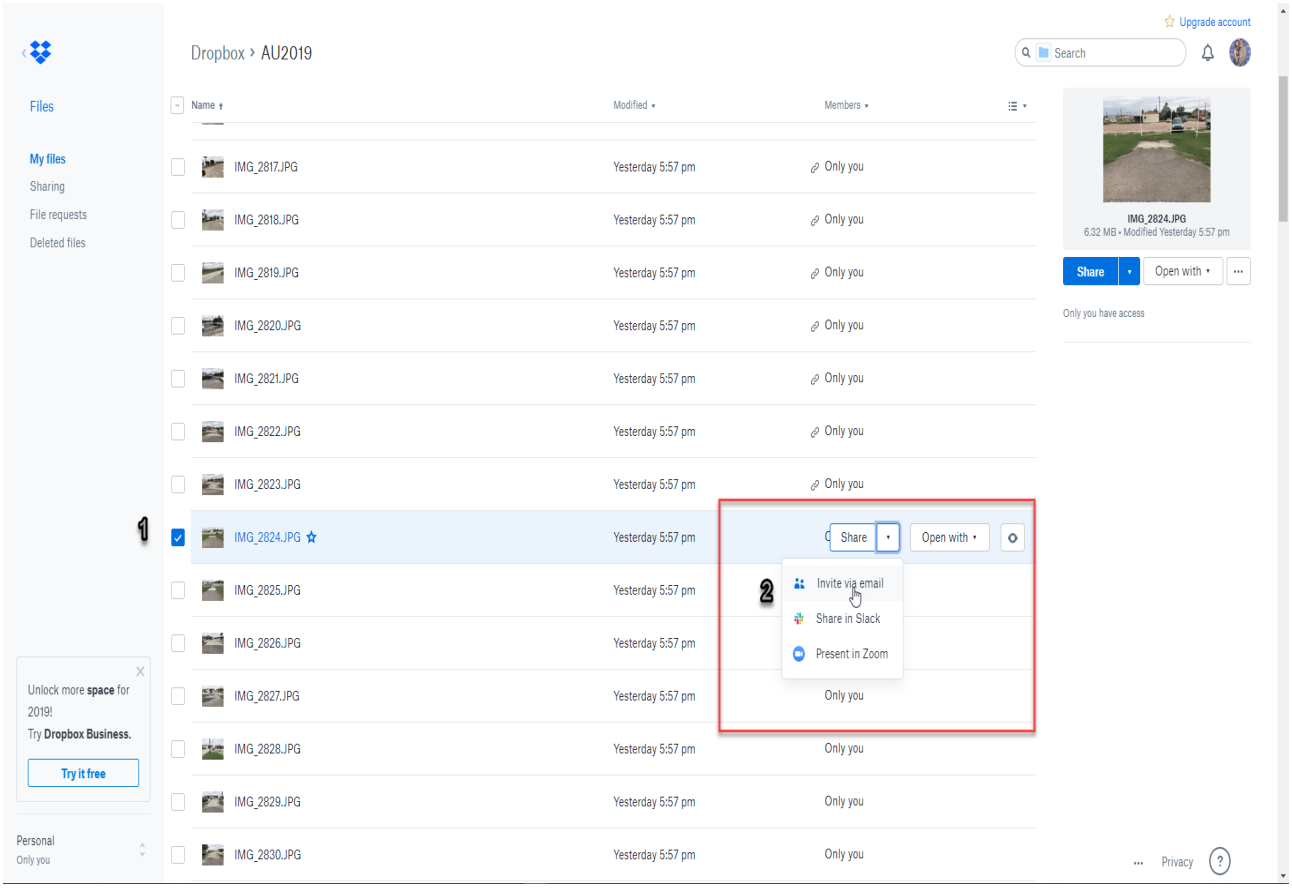
Note: The user can use anything that allows the generating of a direct link to the single image for imbedding in Infraworks

Good example of a link
https://drive.google.com/file/d/1jnAJCDhF2ZUUgix9Fugrs9Tqti8YIYP_/view?usp=sharing

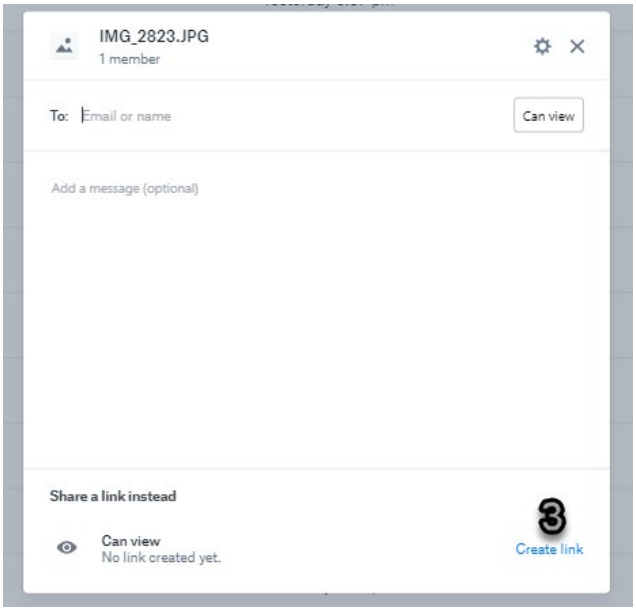
Bad example of a link
https://kimley-horn.securevdr.com/d-s4ac9c8b6a474bbc8

One option is to use Dropbox. Open Dropbox and create a new folder to copy and uploading all the driveway images.

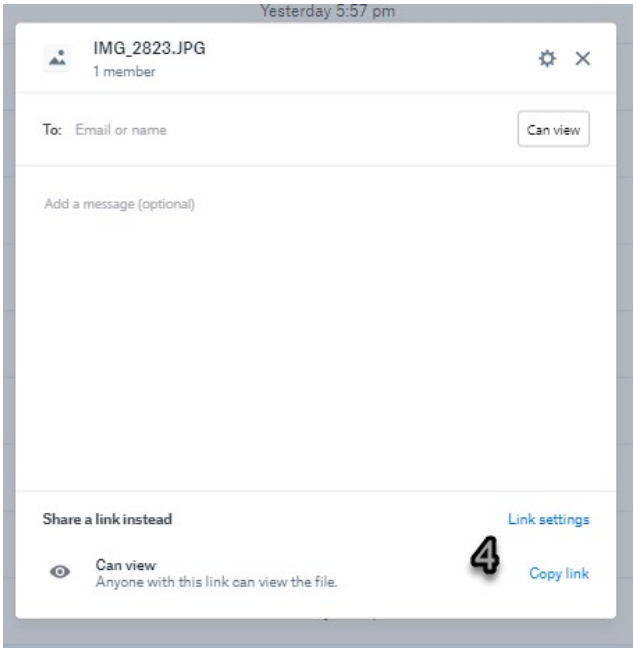
1. Select image
2. Select Share and select “Invite via email”



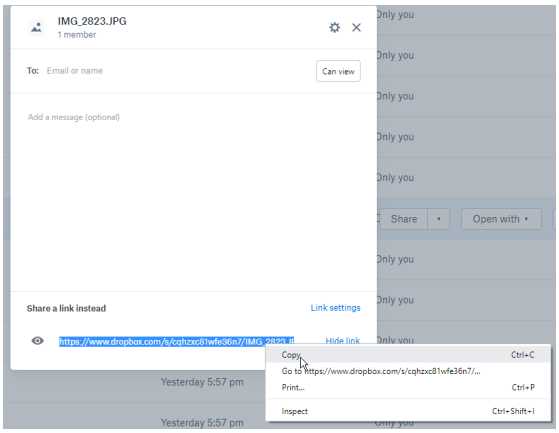
3. Create link



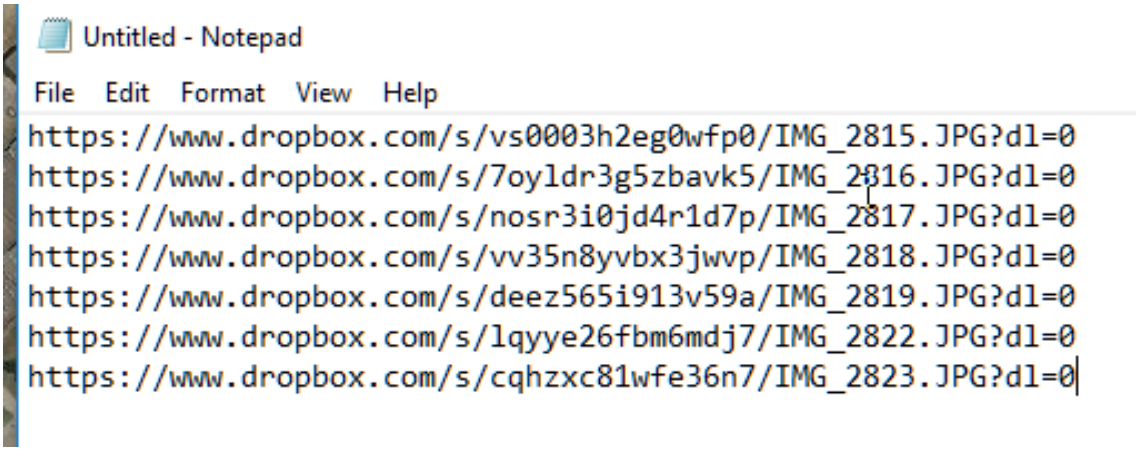
4. Copy link



5. Right click to “copy”



6. **REPASTE FOR ALL IMAGES** (I suggest using Notepad to keep track of all the links)



Capturing Driveway Photos

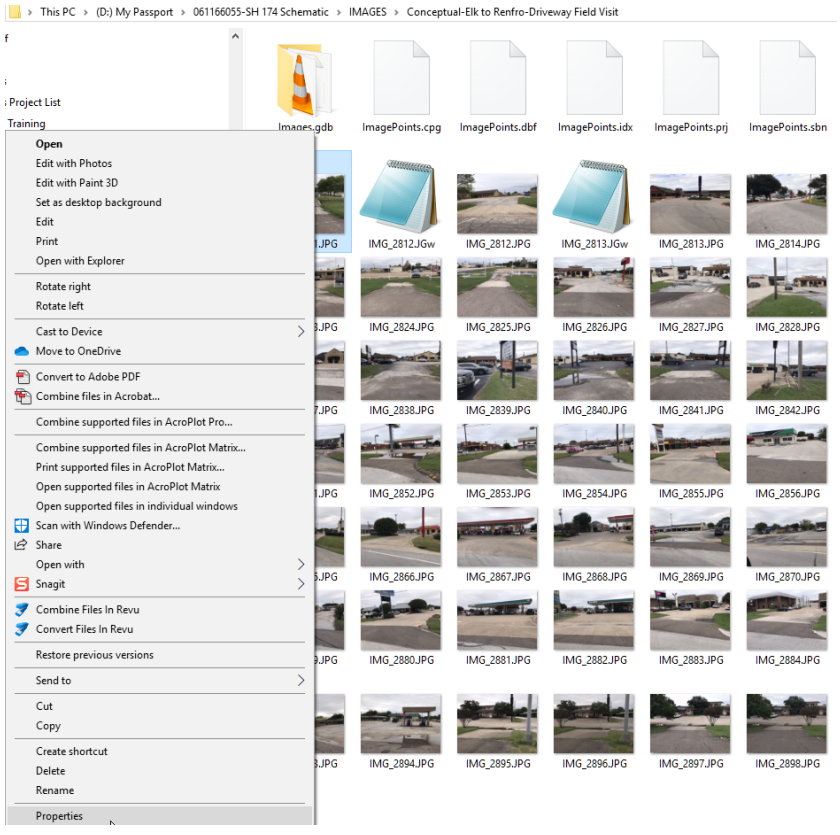
1. You will need a phone (everyone has a phone)

   a. If you need more accurate image locations, use a GPS device like this Garmin GLO2 Bluetooth GPS for iOS and Android

2. Turn on location services in your phone settings

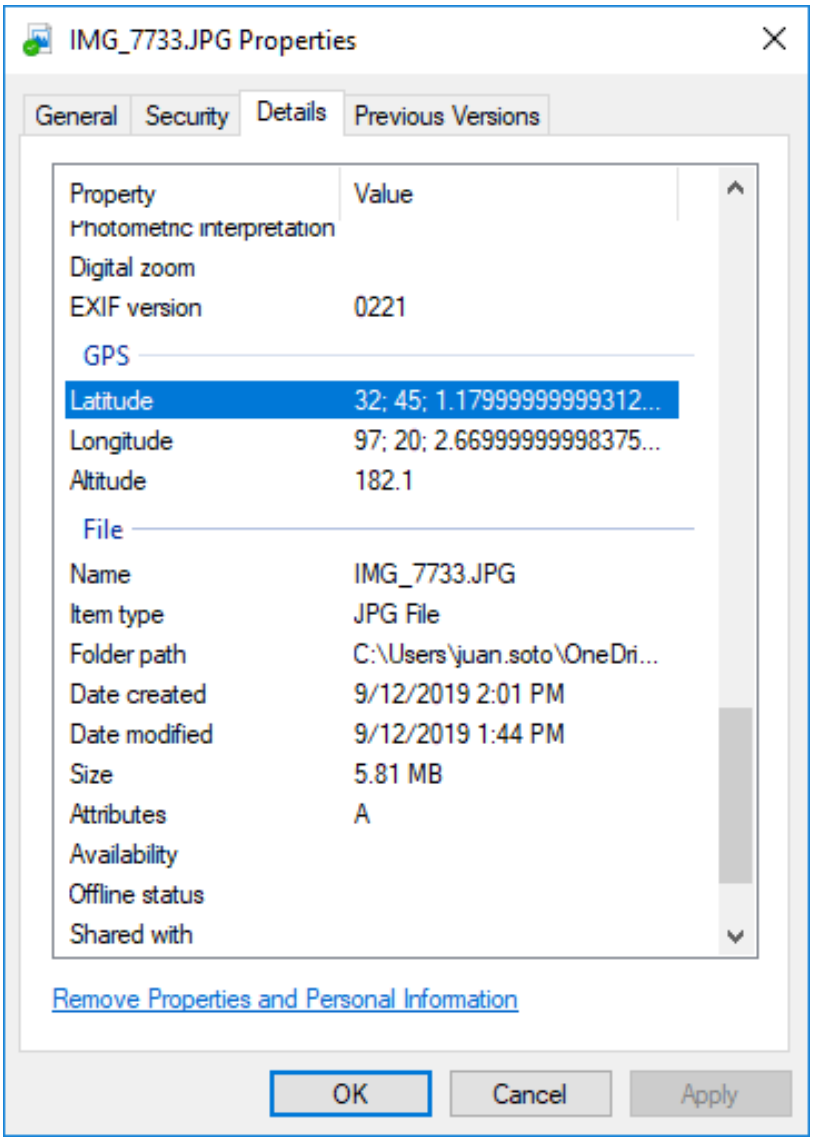
3. Store all photos in same place (I.e. create an album)

4. Make sure the data is in the images by selecting an image and going to Properties.

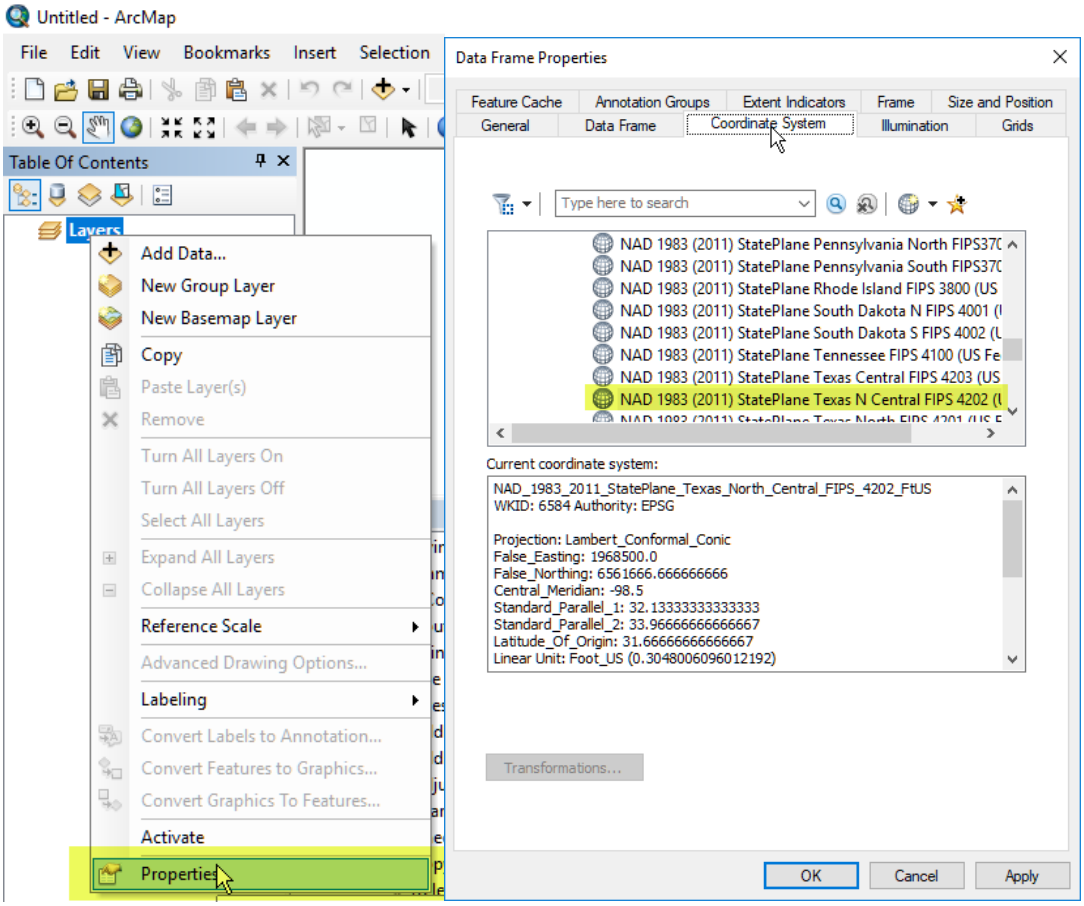


5. Extract XYZ from images

   a. Data is in Lat-Long
   b. Use any tool that allows you to extract the Lat-Long and converts to Northing and Easting. *(e.g. Esri tools [ArchMap])*

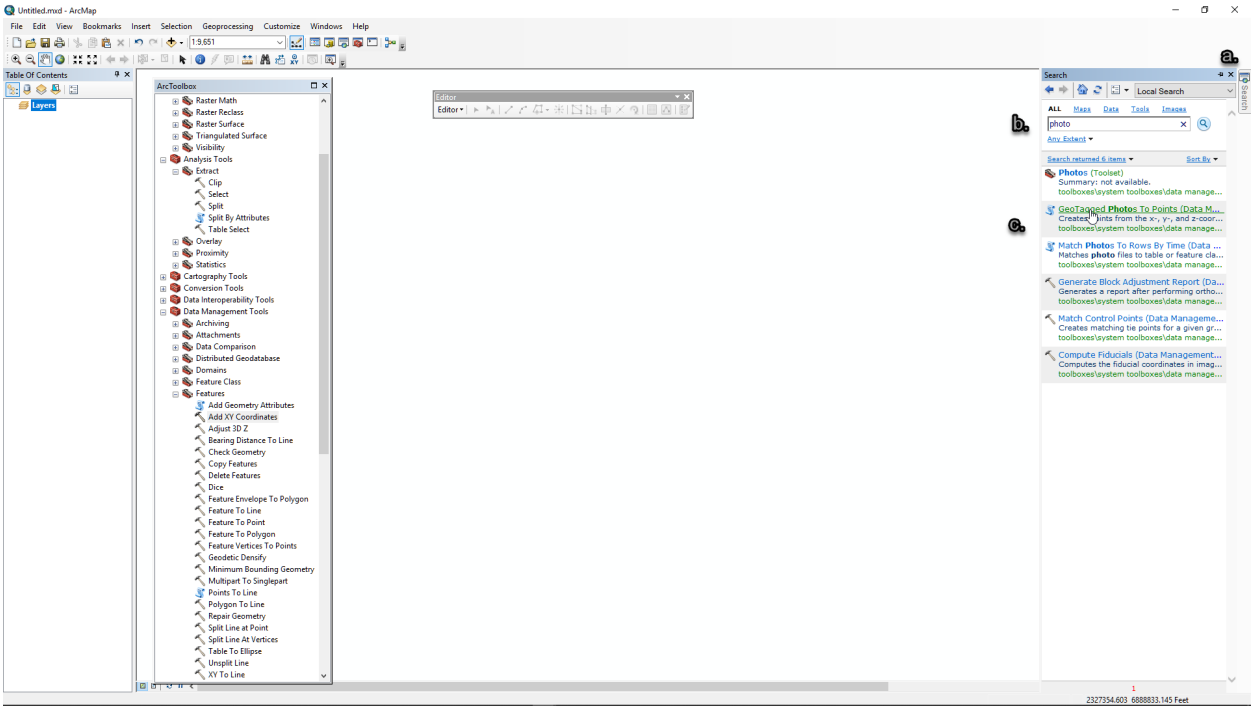


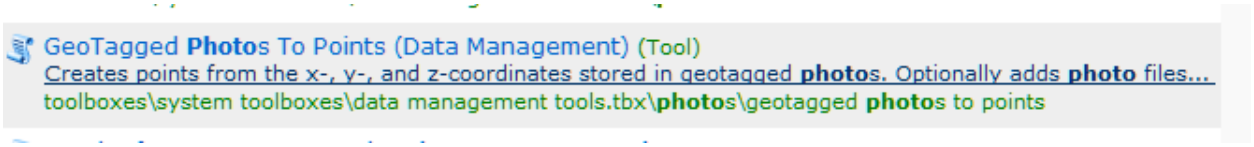
6. Set up the ArchMap coordinate system



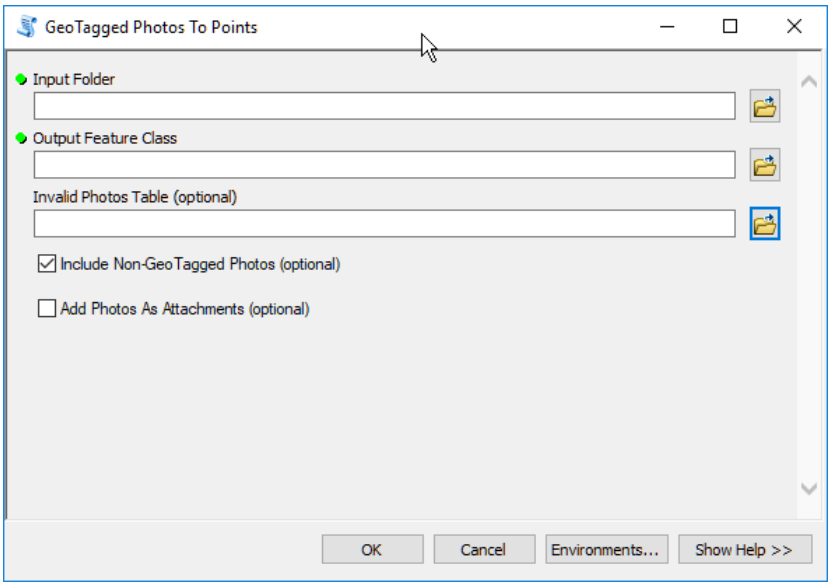
7. Translate images into data that we can use by using Arc Toolbox

   a. Select “Search”
   b. In the Search box type “Photo”
   c. Select “GeoTagged Photo to Points (data management)”

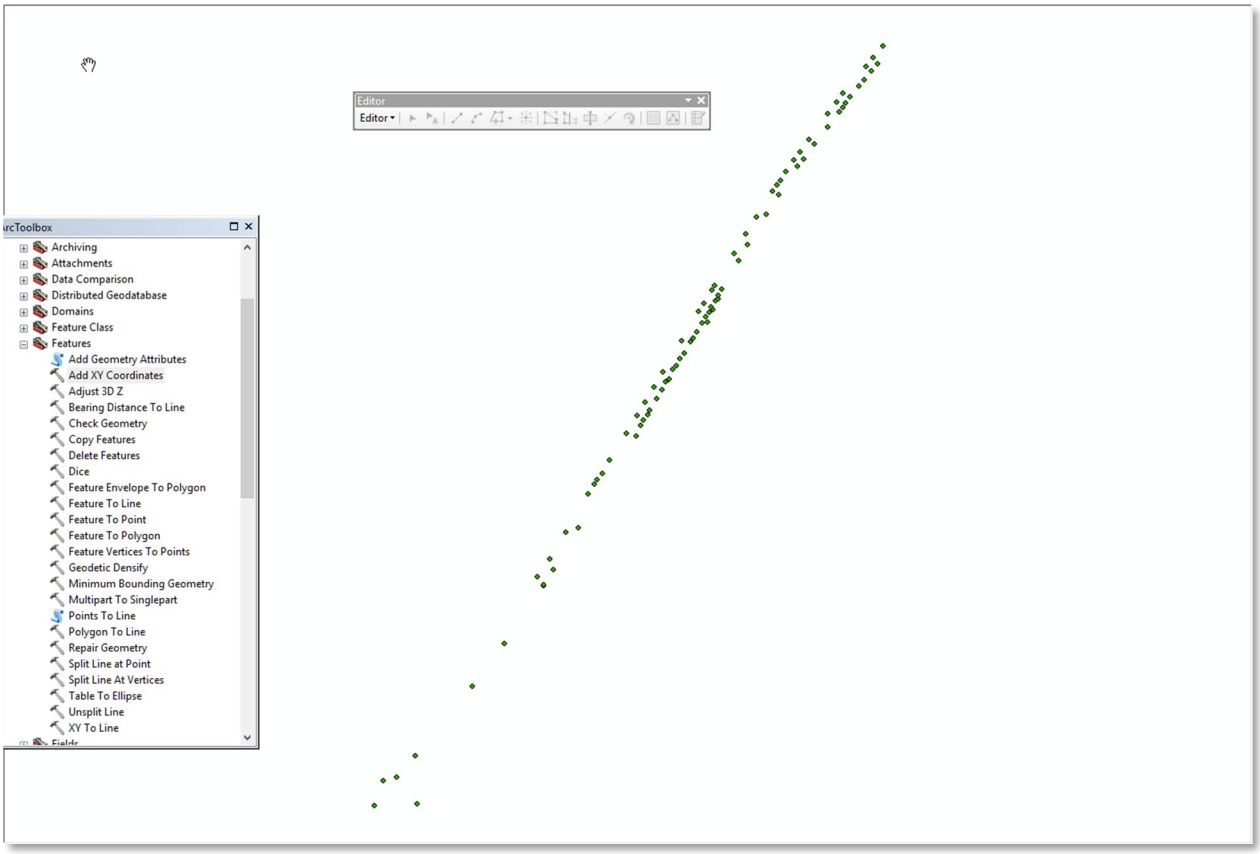




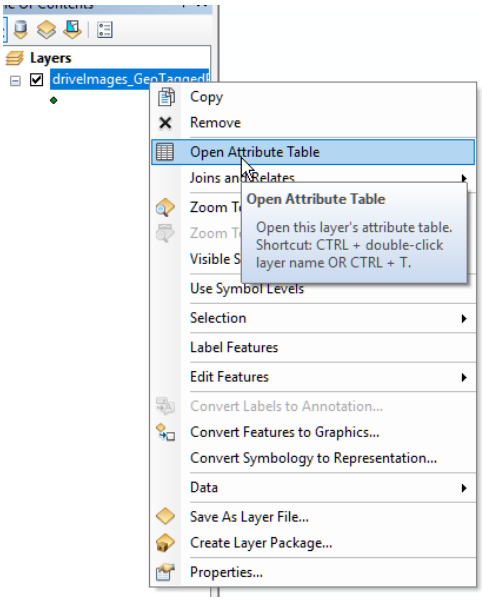
8. Add stored folder location for all your Driveway photos to Input folder and select OK

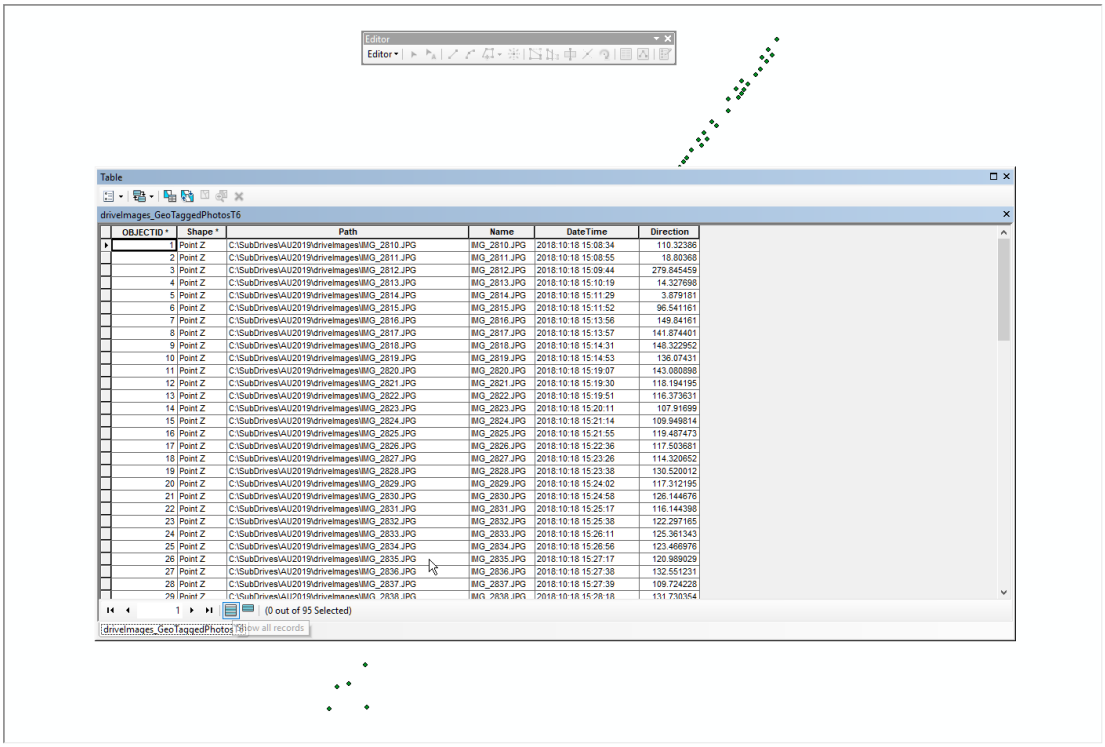


Depending on the amount of data, this might take a second



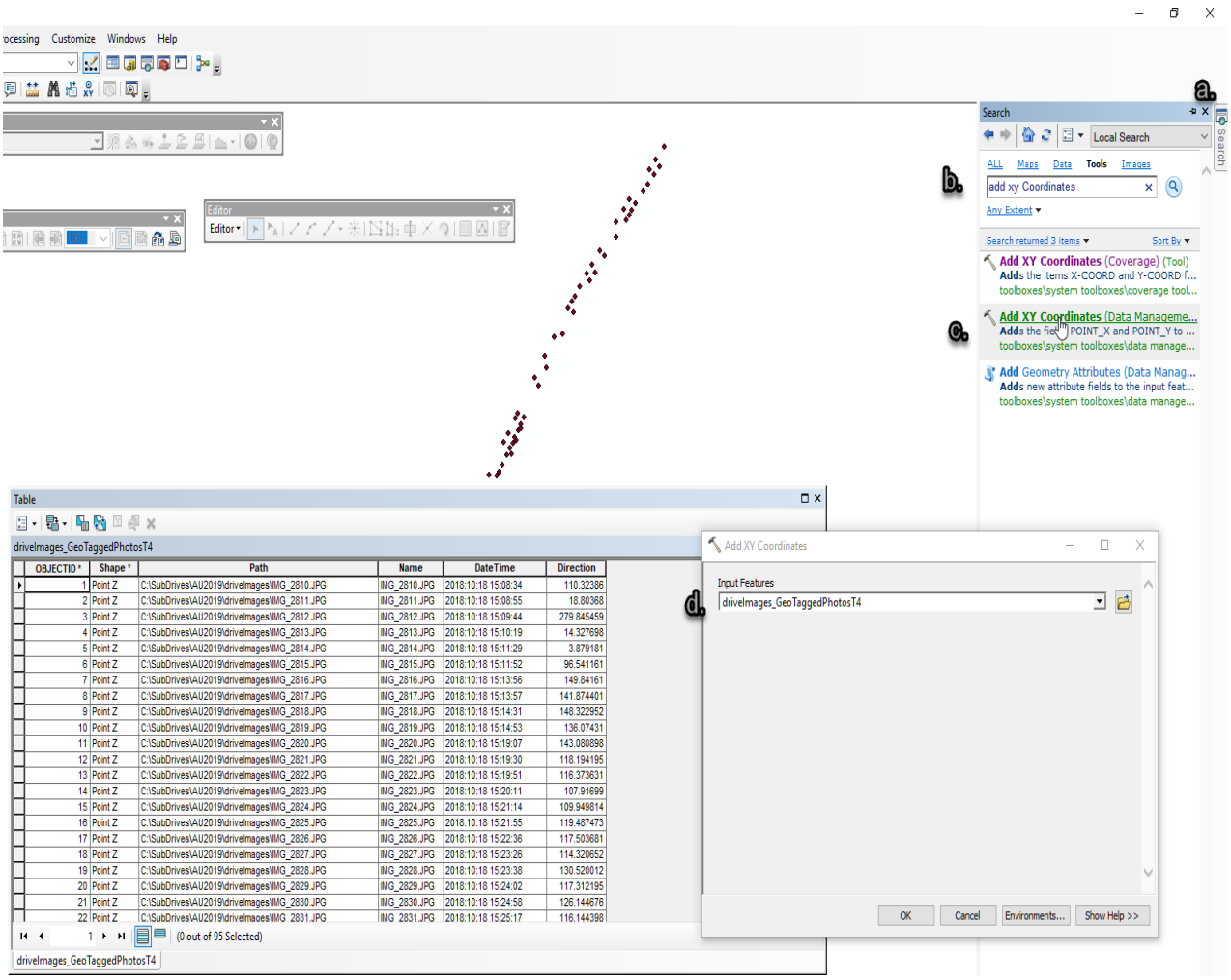
9. Open the “Attribute Table”





10. Edit the data table and add XY Coordinates

    a. Select “Search”
    b. Type “Add XY Coodinates”
    c. Select “Add XY Coordinates” (Data Management)
    d. Select “Data in Map”



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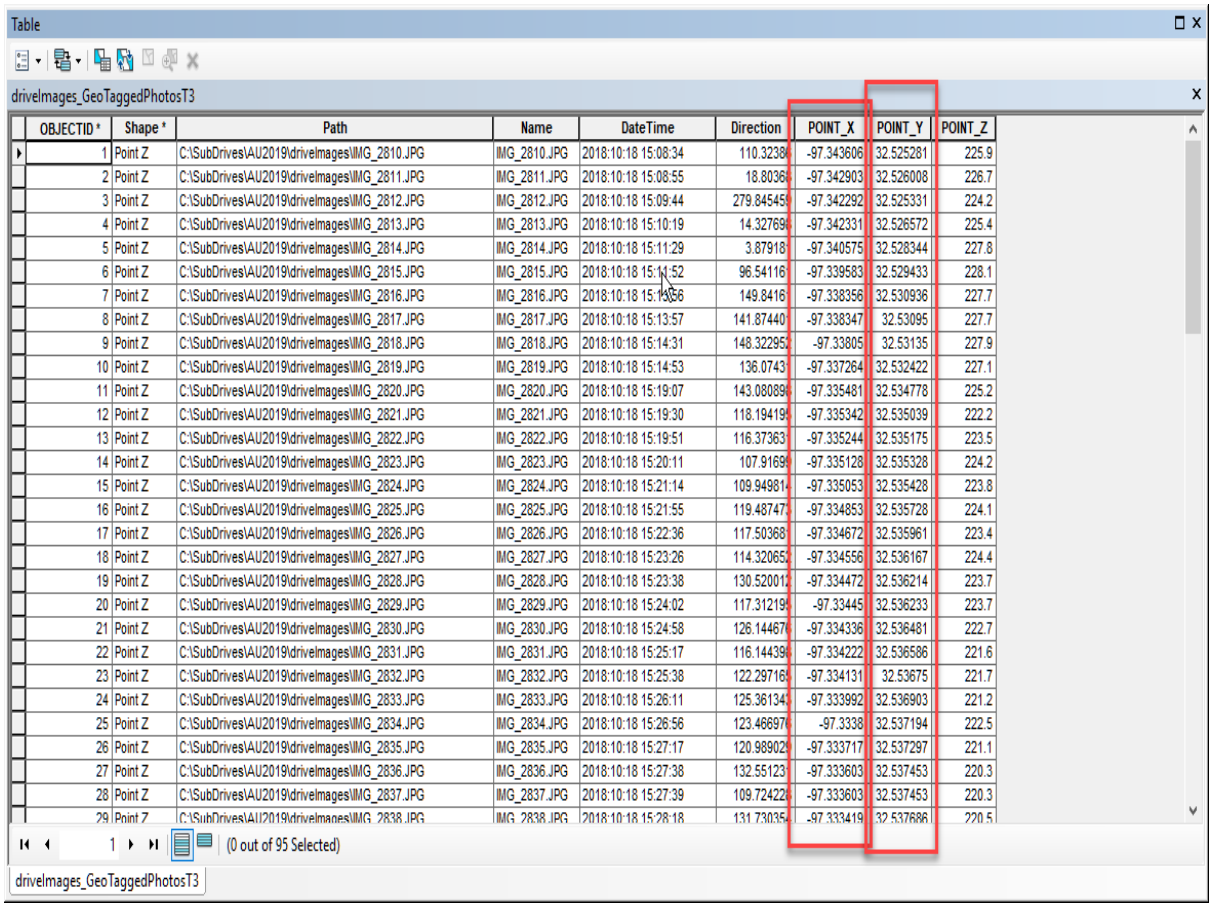
1	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2810.JPG	IMG_2810.JPG	2018:10:18 15:08:34	110.32386
2	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2811.JPG	IMG_2811.JPG	2018:10:18 15:08:55	18.80368
3	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2812.JPG	IMG_2812.JPG	2018:10:18 15:09:44	279.845459
4	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2813.JPG	IMG_2813.JPG	2018:10:18 15:10:19	14.327698
5	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2814.JPG	IMG_2814.JPG	2018:10:18 15:11:29	3.879181
6	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2815.JPG	IMG_2815.JPG	2018:10:18 15:11:52	96.541161
7	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2816.JPG	IMG_2816.JPG	2018:10:18 15:13:56	149.84161
8	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2817.JPG	IMG_2817.JPG	2018:10:18 15:13:57	141.874401
9	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2818.JPG	IMG_2818.JPG	2018:10:18 15:14:31	148.322952
10	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2819.JPG	IMG_2819.JPG	2018:10:18 15:14:53	136.07431
11	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2820.JPG	IMG_2820.JPG	2018:10:18 15:19:07	143.080898
12	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2821.JPG	IMG_2821.JPG	2018:10:18 15:19:30	118.194195
13	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2822.JPG	IMG_2822.JPG	2018:10:18 15:19:51	116.373631
14	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2823.JPG	IMG_2823.JPG	2018:10:18 15:20:11	107.91699
15	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2824.JPG	IMG_2824.JPG	2018:10:18 15:21:14	109.949814
16	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2825.JPG	IMG_2825.JPG	2018:10:18 15:21:55	119.487473
17	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2826.JPG	IMG_2826.JPG	2018:10:18 15:22:36	117.503681
18	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2827.JPG	IMG_2827.JPG	2018:10:18 15:23:26	114.320652
19	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2828.JPG	IMG_2828.JPG	2018:10:18 15:23:38	130.520012
20	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2829.JPG	IMG_2829.JPG	2018:10:18 15:24:02	117.312195
21	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2830.JPG	IMG_2830.JPG	2018:10:18 15:24:58	126.144676
22	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2831.JPG	IMG_2831.JPG	2018:10:18 15:25:17	116.144398

11. Convert XY (decimal) fields to Northing/Easting (Engineering units)



OBJECTID *	Shape *	Path	Name	DateTime	Direction	POINT_X	POINT_Y	POINT_Z
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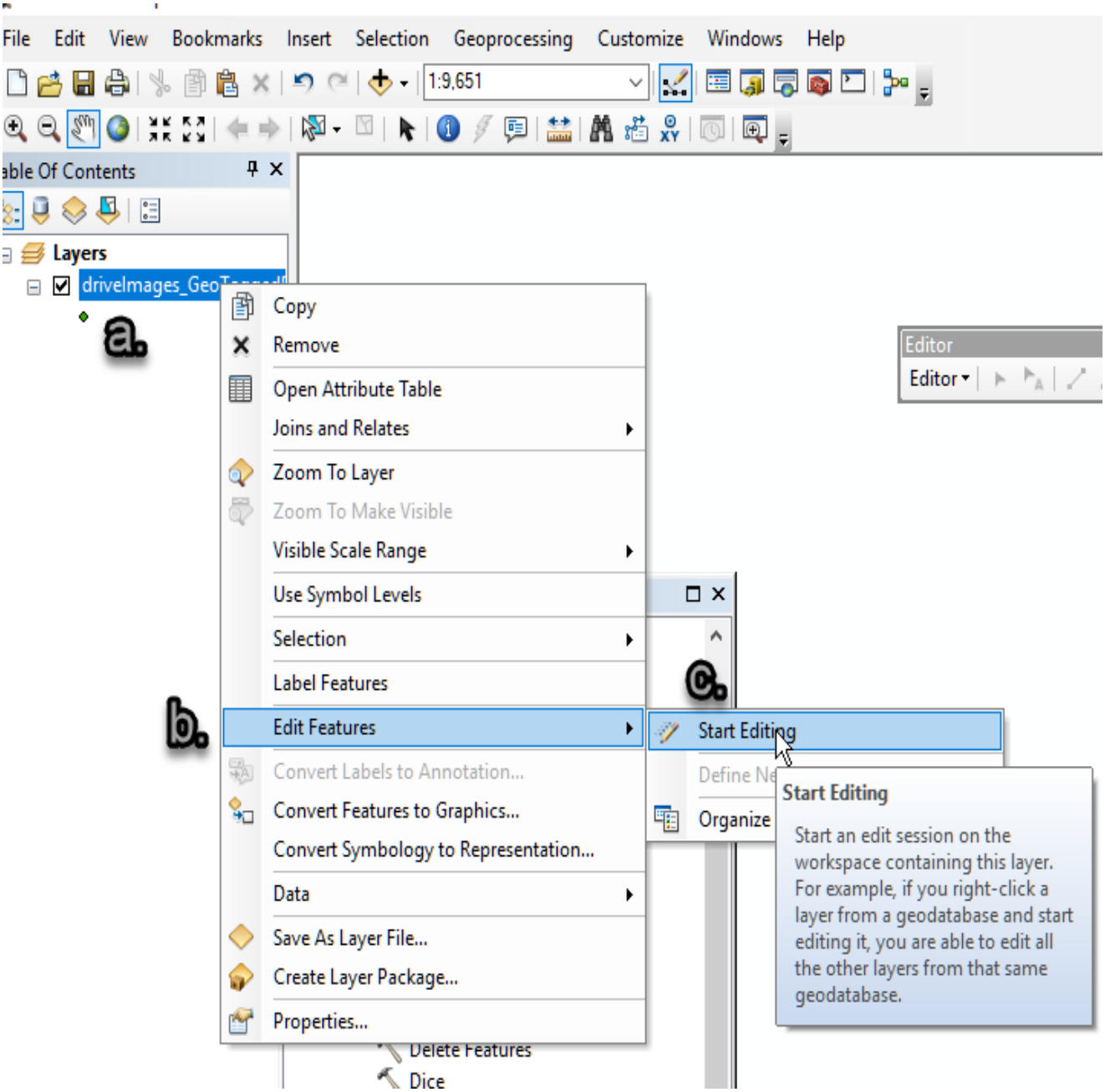
2	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2811.JPG	IMG_2811.JPG	2018:10:18 15:08:55	18.8036	-97.342903	32.526008	226.7
3	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2812.JPG	IMG_2812.JPG	2018:10:18 15:09:44	279.84545	-97.342292	32.525331	224.2
4	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2813.JPG	IMG_2813.JPG	2018:10:18 15:10:19	14.32769	-97.342331	32.526572	225.4
5	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2814.JPG	IMG_2814.JPG	2018:10:18 15:11:29	3.87918	-97.340575	32.528344	227.8
6	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2815.JPG	IMG_2815.JPG	2018:10:18 15:11:52	96.54116	-97.339583	32.529433	228.1
7	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2816.JPG	IMG_2816.JPG	2018:10:18 15:13:56	149.8416	-97.338356	32.530936	227.7
8	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2817.JPG	IMG_2817.JPG	2018:10:18 15:13:57	141.87440	-97.338347	32.53095	227.7
9	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2818.JPG	IMG_2818.JPG	2018:10:18 15:14:31	148.32295	-97.33805	32.53135	227.9
10	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2819.JPG	IMG_2819.JPG	2018:10:18 15:14:53	136.0743	-97.337264	32.532422	227.1
11	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2820.JPG	IMG_2820.JPG	2018:10:18 15:19:07	143.08089	-97.335481	32.534778	225.2
12	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2821.JPG	IMG_2821.JPG	2018:10:18 15:19:30	118.19419	-97.335342	32.535039	222.2
13	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2822.JPG	IMG_2822.JPG	2018:10:18 15:19:51	116.37363	-97.335244	32.535175	223.5
14	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2823.JPG	IMG_2823.JPG	2018:10:18 15:20:11	107.9169	-97.335128	32.535328	224.2
15	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2824.JPG	IMG_2824.JPG	2018:10:18 15:21:14	109.94981	-97.335053	32.535428	223.8
16	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2825.JPG	IMG_2825.JPG	2018:10:18 15:21:55	119.48747	-97.334853	32.535728	224.1
17	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2826.JPG	IMG_2826.JPG	2018:10:18 15:22:36	117.50368	-97.334672	32.535961	223.4
18	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2827.JPG	IMG_2827.JPG	2018:10:18 15:23:26	114.32065	-97.334556	32.536167	224.4
19	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2828.JPG	IMG_2828.JPG	2018:10:18 15:23:38	130.52001	-97.334472	32.536214	223.7
20	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2829.JPG	IMG_2829.JPG	2018:10:18 15:24:02	117.31219	-97.33445	32.536233	223.7
21	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2830.JPG	IMG_2830.JPG	2018:10:18 15:24:58	126.14467	-97.334336	32.536481	222.7
22	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2831.JPG	IMG_2831.JPG	2018:10:18 15:25:17	116.14439	-97.334222	32.536586	221.6
23	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2832.JPG	IMG_2832.JPG	2018:10:18 15:25:38	122.29716	-97.334131	32.53675	221.7
24	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2833.JPG	IMG_2833.JPG	2018:10:18 15:26:11	125.36134	-97.333992	32.536903	221.2
25	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2834.JPG	IMG_2834.JPG	2018:10:18 15:26:56	123.46697	-97.3338	32.537194	222.5
26	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2835.JPG	IMG_2835.JPG	2018:10:18 15:27:17	120.98902	-97.333717	32.537297	221.1
27	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2836.JPG	IMG_2836.JPG	2018:10:18 15:27:38	132.55123	-97.333603	32.537453	220.3
28	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2837.JPG	IMG_2837.JPG	2018:10:18 15:27:39	109.72422	-97.333603	32.537453	220.3
29	Point Z	C:\SubDrives\AU2019\driveImages\IMG_2838.JPG	IMG_2838.JPG	2018:10:18 15:28:18	131.73035	-97.333419	32.537686	220.5

12. Converting to Northing/Easting

a. Right click on “Data”

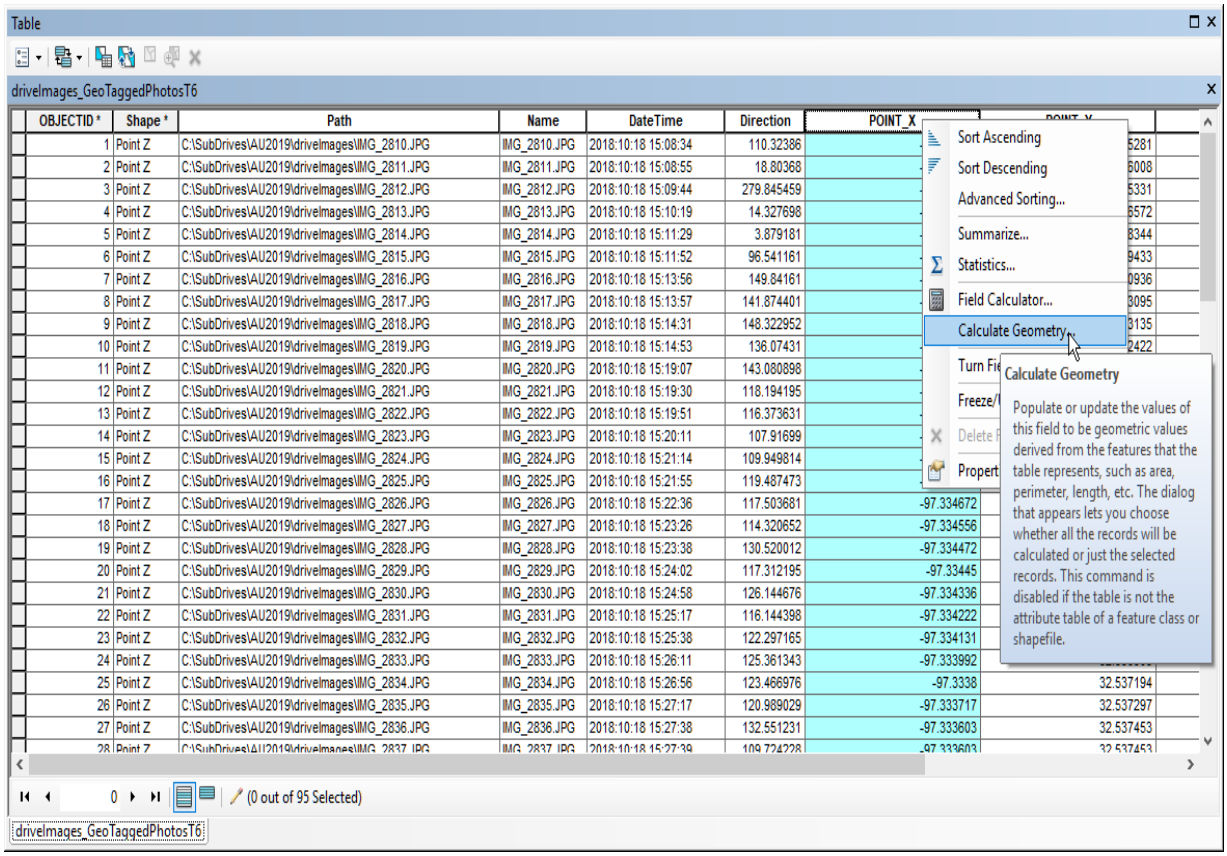
b. Select “Edit Features”

c. Then “Start Editing”



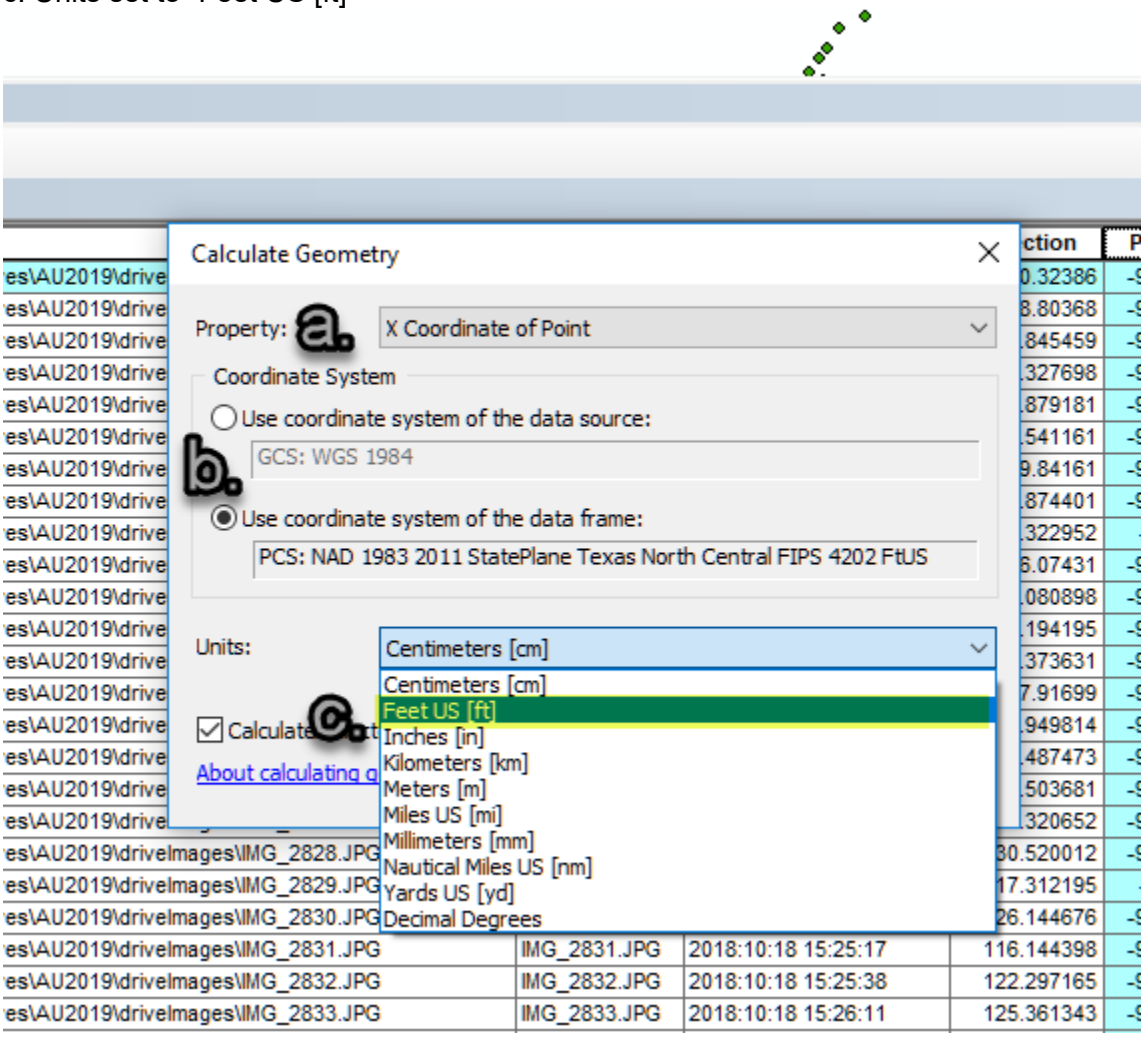
13. Select “Point-X” column

14. Right click “Select Calculate Geometry”



15. Convert to Feet

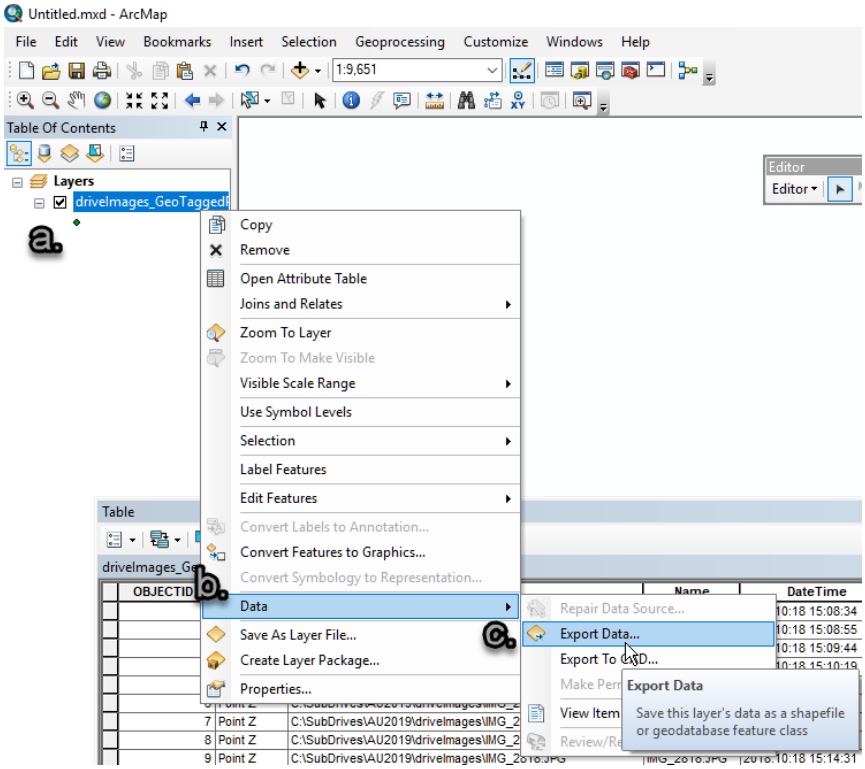
a. Property: select “X Coordinate of Point”
b. Select “Use Coordinate System of Data Frame”
c. Units set to “Feet US [ft]”



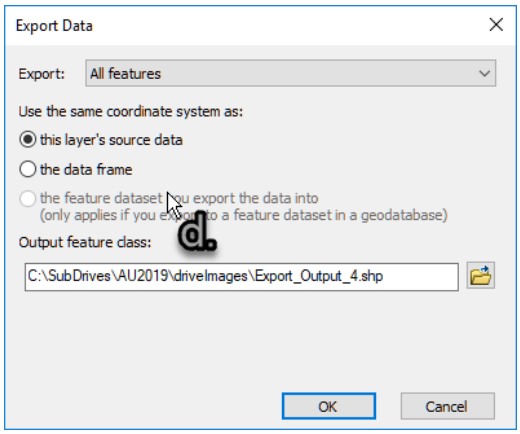
d. Repeat for the “Y” Value

16. Export to SHP for Civil3D/Infraworks

a. Select data from table of contents, Right click to open menu
b. Select “Data”
c. Select “Export Data”

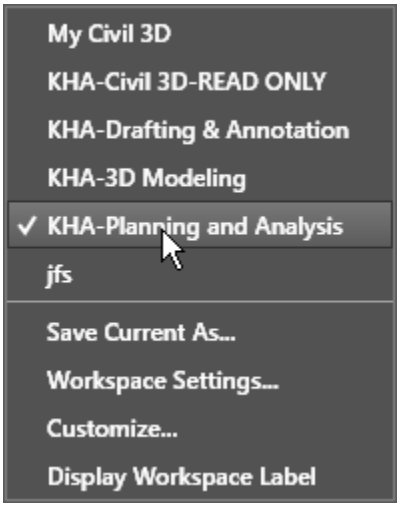


d. Save to project location

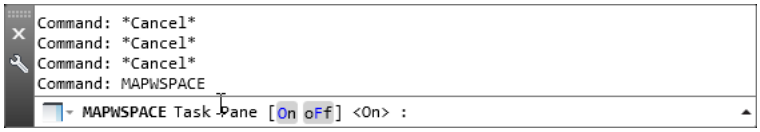


Civil3D MAP Checking/Modifying Data

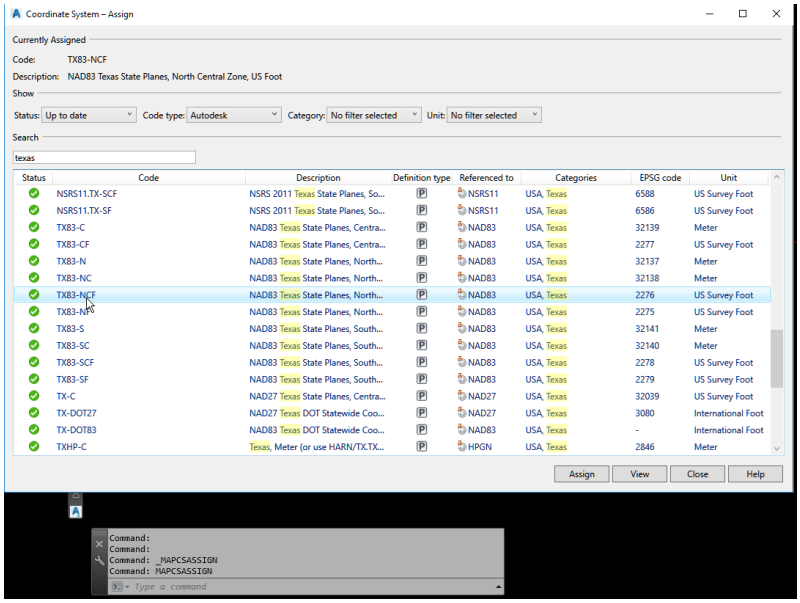
1. Open Civil3D and change your workspace to “Planning and Analysis”



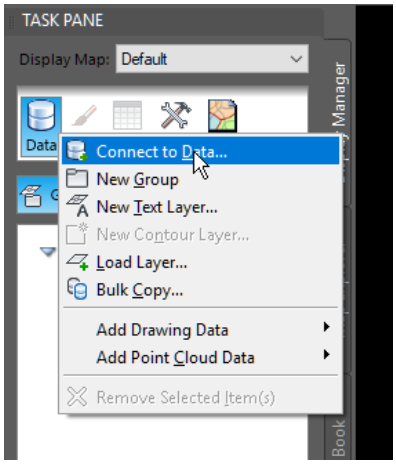
2. Open “DWG Test.dwg”
3. At command line type MapWspace set to On



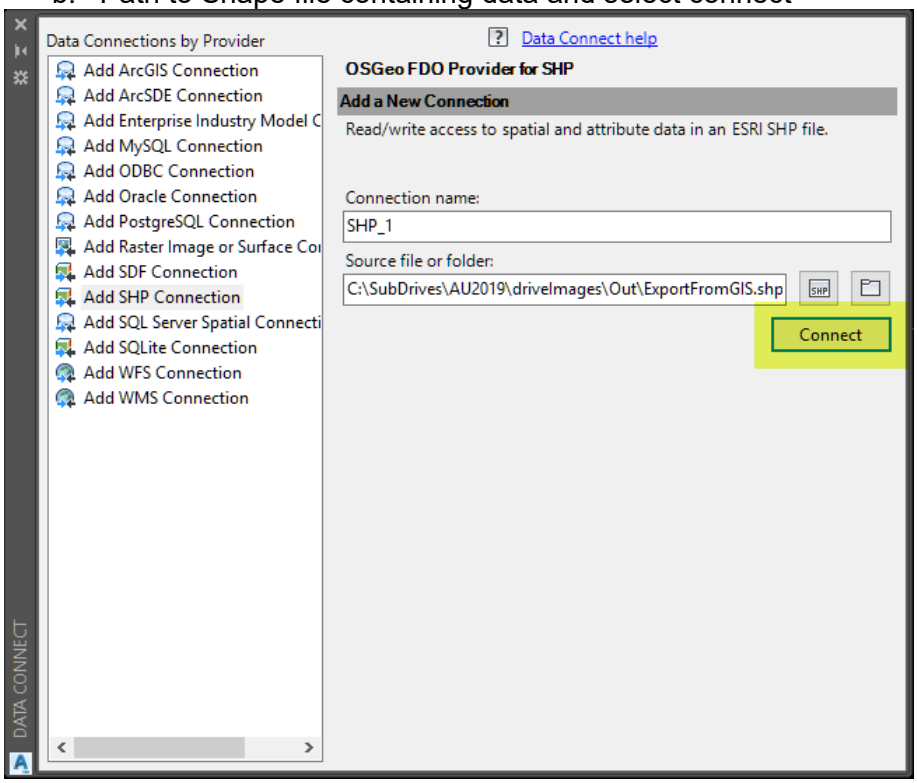
4. Set up Map coordinate system
5. At command line enter _MAPCSASSIGN



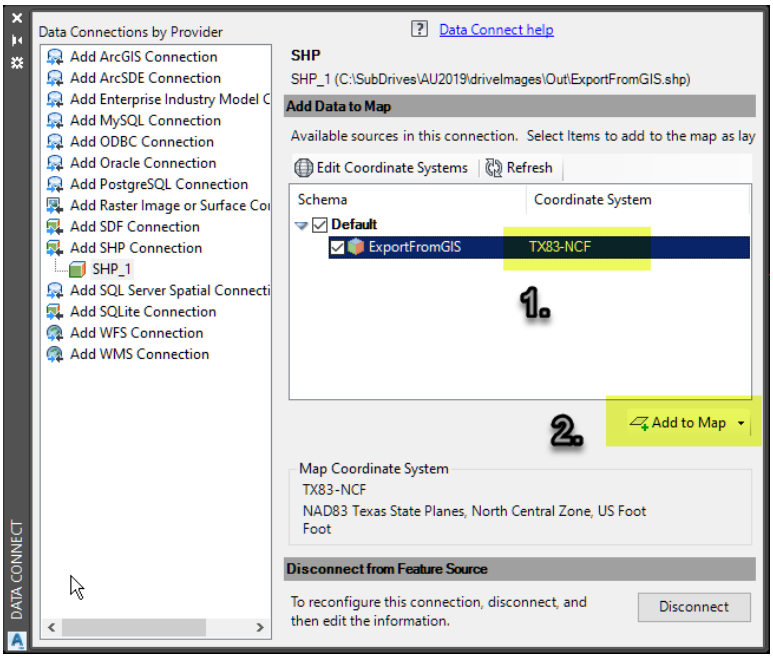
6. Make a connection to the shp file data
    a. In the TASK PANE, right click and select “Connect to Data”



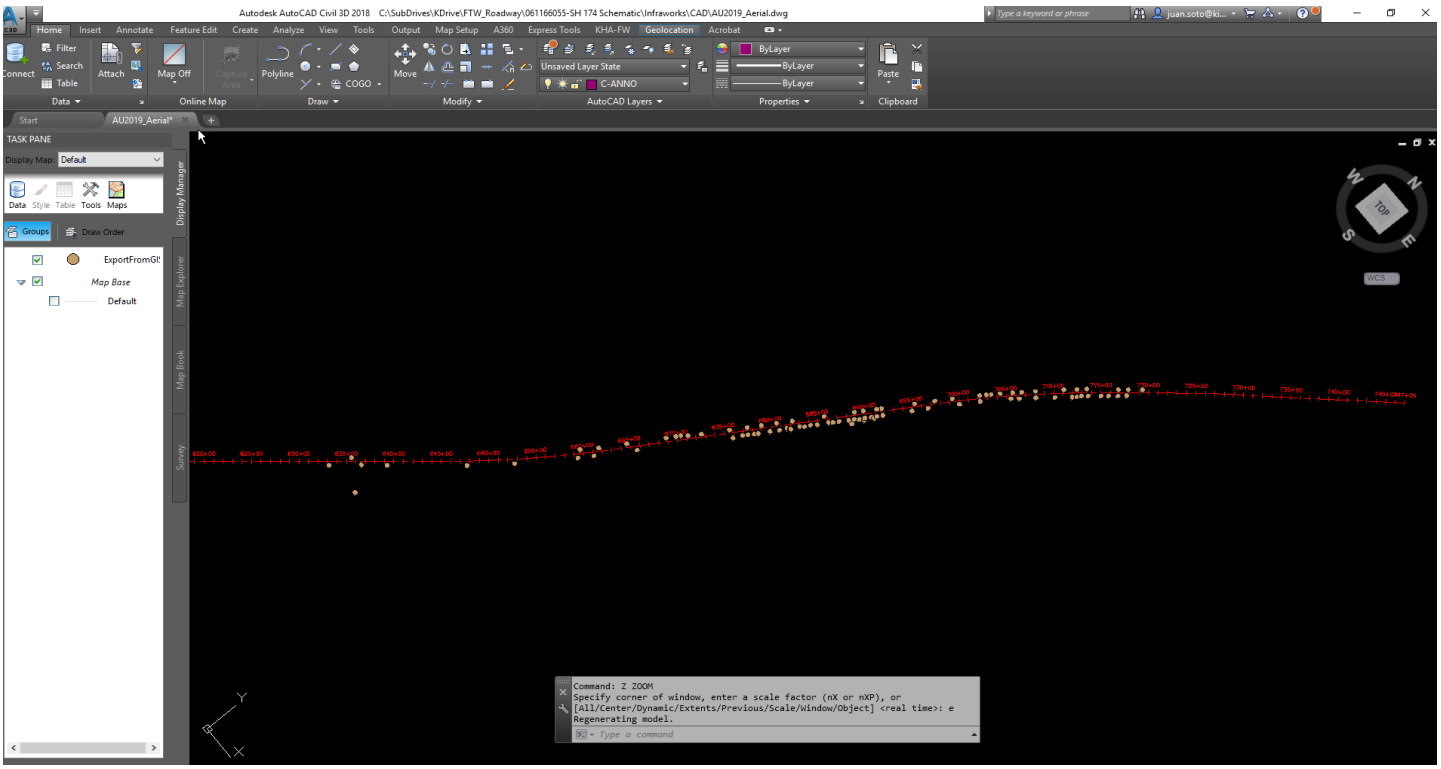
    b. Path to Shape file containing data and select connect



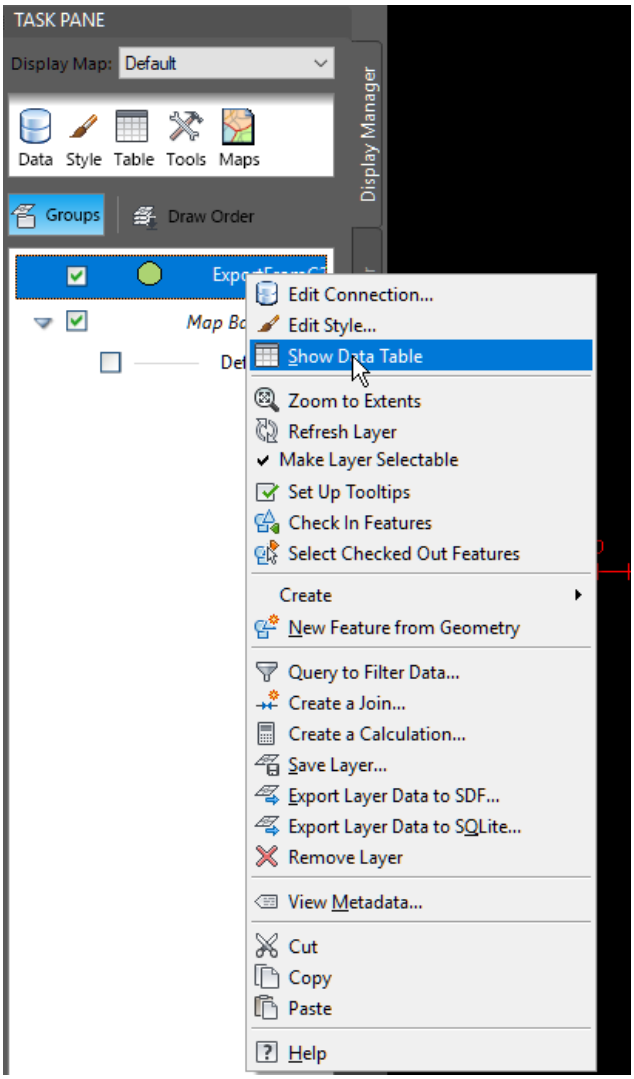
7. After you've connected the file, you'll:
    1. Set Coordinate system
    2. Select "Add to Map"



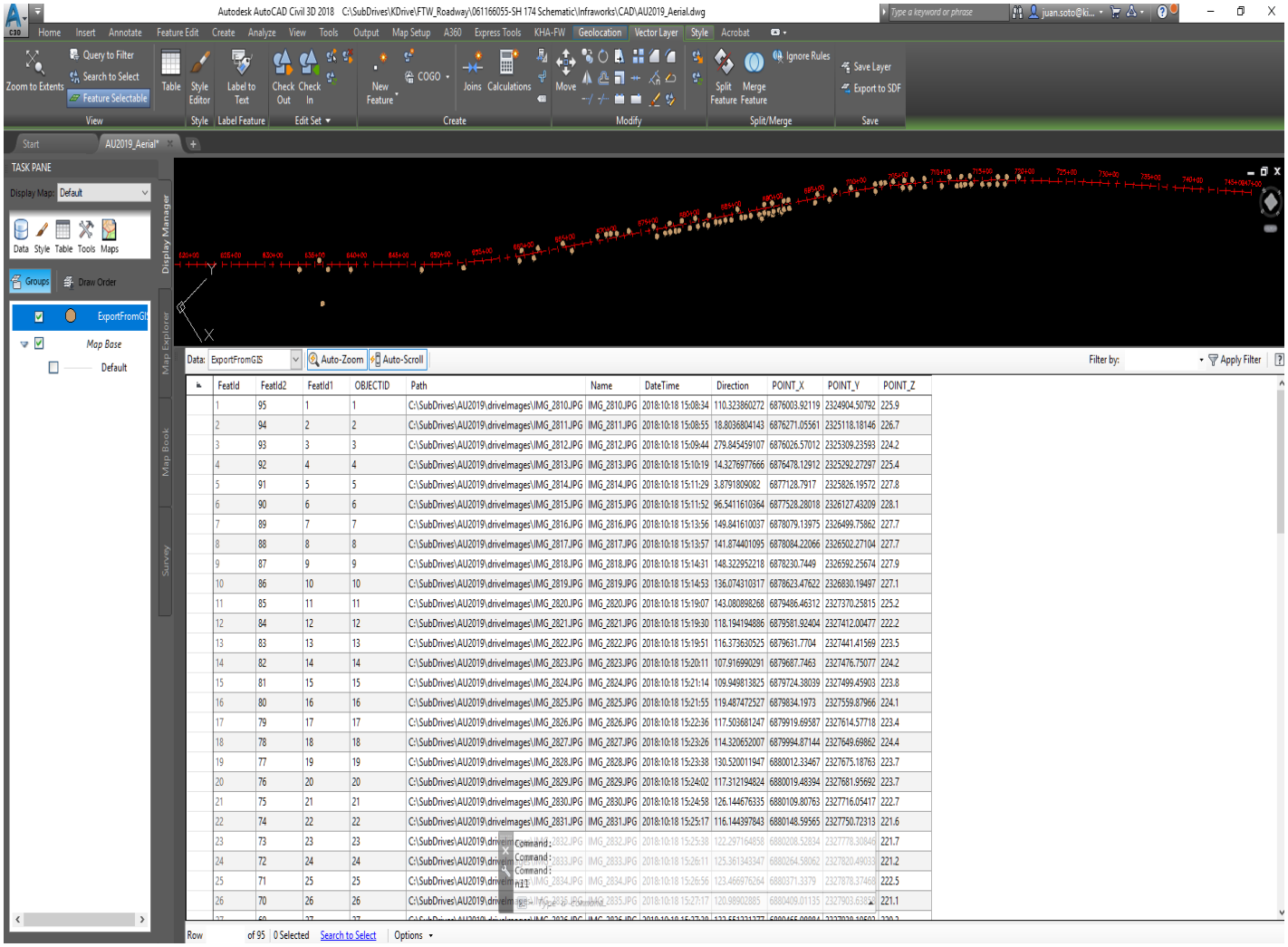
8. Zoom Extents



9. Select “Show Data Table” from right clicking the data from the Task Pane

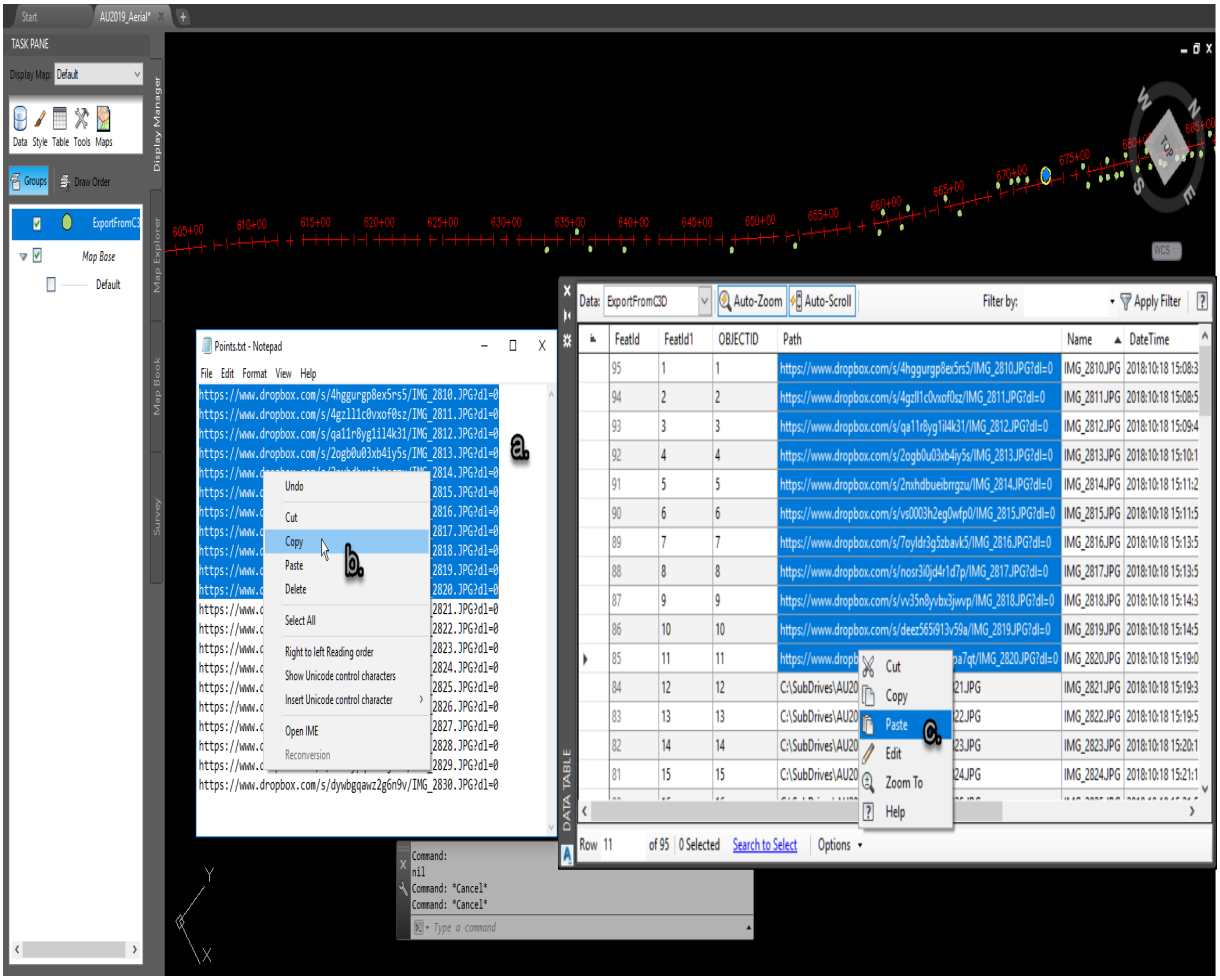


Your screen should look like this:



FeatId	FeatId2	FeatId1	OBJECTID	Path	Name	DateTime	Direction	POINT_X	POINT_Y	POINT_Z
1	95	1	1	C:\SubDrives\AU2019\driveImages\IMG_2810.JPG	IMG_2810.JPG	2018:10:18 15:08:34	110.323860272	6876003.92119	2324904.50792	225.9
2	94	2	2	C:\SubDrives\AU2019\driveImages\IMG_2811.JPG	IMG_2811.JPG	2018:10:18 15:08:55	18.8036804143	6876271.05561	2325118.18146	226.7
3	93	3	3	C:\SubDrives\AU2019\driveImages\IMG_2812.JPG	IMG_2812.JPG	2018:10:18 15:09:44	279.845459107	6876026.57012	2325309.23593	224.2
4	92	4	4	C:\SubDrives\AU2019\driveImages\IMG_2813.JPG	IMG_2813.JPG	2018:10:18 15:10:19	14.3276977666	6876478.12912	2325292.27297	225.4
5	91	5	5	C:\SubDrives\AU2019\driveImages\IMG_2814.JPG	IMG_2814.JPG	2018:10:18 15:11:29	3.8791809082	6877128.7917	2325826.19572	227.8
6	90	6	6	C:\SubDrives\AU2019\driveImages\IMG_2815.JPG	IMG_2815.JPG	2018:10:18 15:11:52	96.5411610364	6877528.28018	2326127.43209	228.1
7	89	7	7	C:\SubDrives\AU2019\driveImages\IMG_2816.JPG	IMG_2816.JPG	2018:10:18 15:13:56	149.841610037	6878079.13975	2326499.75862	227.7
8	88	8	8	C:\SubDrives\AU2019\driveImages\IMG_2817.JPG	IMG_2817.JPG	2018:10:18 15:13:57	141.874401095	6878084.22066	2326502.27104	227.7
9	87	9	9	C:\SubDrives\AU2019\driveImages\IMG_2818.JPG	IMG_2818.JPG	2018:10:18 15:14:31	148.322952218	6878230.7449	2326592.25674	227.9
10	86	10	10	C:\SubDrives\AU2019\driveImages\IMG_2819.JPG	IMG_2819.JPG	2018:10:18 15:14:53	136.074310317	6878623.47622	2326830.19497	227.1
11	85	11	11	C:\SubDrives\AU2019\driveImages\IMG_2820.JPG	IMG_2820.JPG	2018:10:18 15:19:07	143.080898268	6879486.46312	2327370.25815	225.2
12	84	12	12	C:\SubDrives\AU2019\driveImages\IMG_2821.JPG	IMG_2821.JPG	2018:10:18 15:19:30	118.194194886	6879581.92404	2327412.00477	222.2
13	83	13	13	C:\SubDrives\AU2019\driveImages\IMG_2822.JPG	IMG_2822.JPG	2018:10:18 15:19:51	116.373630525	6879631.7704	2327441.41569	223.5
14	82	14	14	C:\SubDrives\AU2019\driveImages\IMG_2823.JPG	IMG_2823.JPG	2018:10:18 15:20:11	107.916990291	6879687.7463	2327476.75077	224.2
15	81	15	15	C:\SubDrives\AU2019\driveImages\IMG_2824.JPG	IMG_2824.JPG	2018:10:18 15:21:14	109.949813825	6879724.38039	2327499.45903	223.8
16	80	16	16	C:\SubDrives\AU2019\driveImages\IMG_2825.JPG	IMG_2825.JPG	2018:10:18 15:21:55	119.487472527	6879834.1973	2327559.87966	224.1
17	79	17	17	C:\SubDrives\AU2019\driveImages\IMG_2826.JPG	IMG_2826.JPG	2018:10:18 15:22:36	117.503681247	6879919.69587	2327614.57718	223.4
18	78	18	18	C:\SubDrives\AU2019\driveImages\IMG_2827.JPG	IMG_2827.JPG	2018:10:18 15:23:26	114.320652007	6879994.87144	2327649.69862	224.4
19	77	19	19	C:\SubDrives\AU2019\driveImages\IMG_2828.JPG	IMG_2828.JPG	2018:10:18 15:23:38	130.520011947	6880012.33467	2327675.18763	223.7
20	76	20	20	C:\SubDrives\AU2019\driveImages\IMG_2829.JPG	IMG_2829.JPG	2018:10:18 15:24:02	117.312194824	6880019.48394	2327681.95692	223.7
21	75	21	21	C:\SubDrives\AU2019\driveImages\IMG_2830.JPG	IMG_2830.JPG	2018:10:18 15:24:58	126.144676335	6880109.80763	2327716.05417	222.7
22	74	22	22	C:\SubDrives\AU2019\driveImages\IMG_2831.JPG	IMG_2831.JPG	2018:10:18 15:25:17	116.144397843	6880148.59565	2327750.72313	221.6
23	73	23	23	C:\SubDrives\AU2019\driveImages\IMG_2832.JPG	IMG_2832.JPG	2018:10:18 15:25:38	122.297164858	6880208.52834	2327778.30846	221.7
24	72	24	24	C:\SubDrives\AU2019\driveImages\IMG_2833.JPG	IMG_2833.JPG	2018:10:18 15:26:11	125.361343347	6880264.58062	2327820.49033	221.2
25	71	25	25	C:\SubDrives\AU2019\driveImages\IMG_2834.JPG	IMG_2834.JPG	2018:10:18 15:26:56	123.466976264	6880371.3379	2327878.37468	222.5
26	70	26	26	C:\SubDrives\AU2019\driveImages\IMG_2835.JPG	IMG_2835.JPG	2018:10:18 15:27:17	120.98902885	6880409.01135	2327903.63852	221.1

1. Next, open the text file containing all the unique links
    a. Select links
    b. Copy all the links (for this example will use the first 10 lines)
    c. Paste links over the Path column

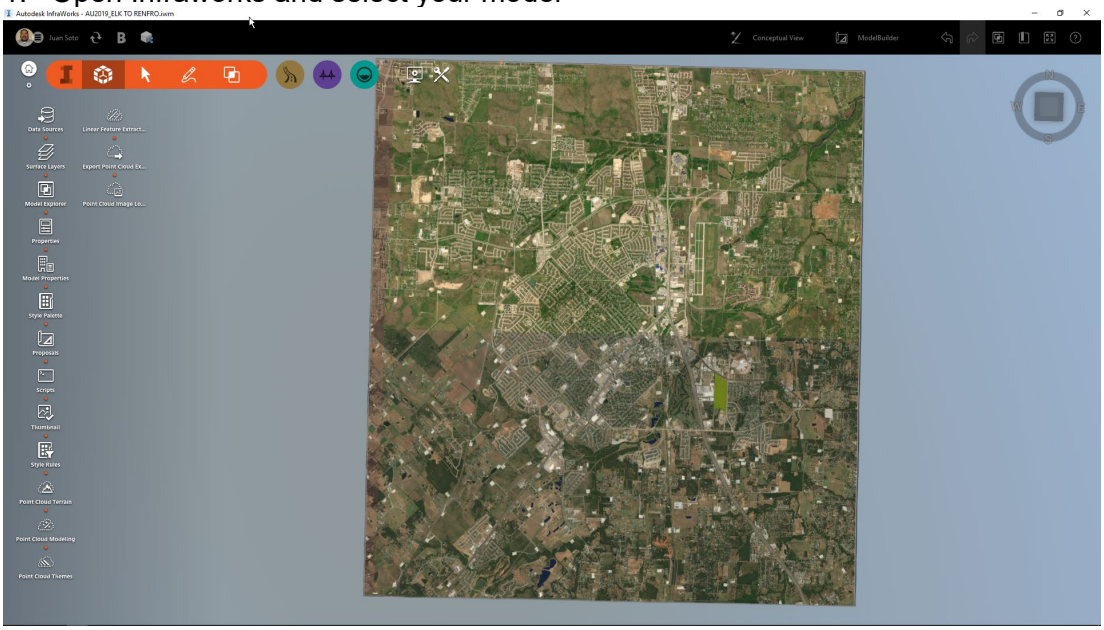


2. Save and close

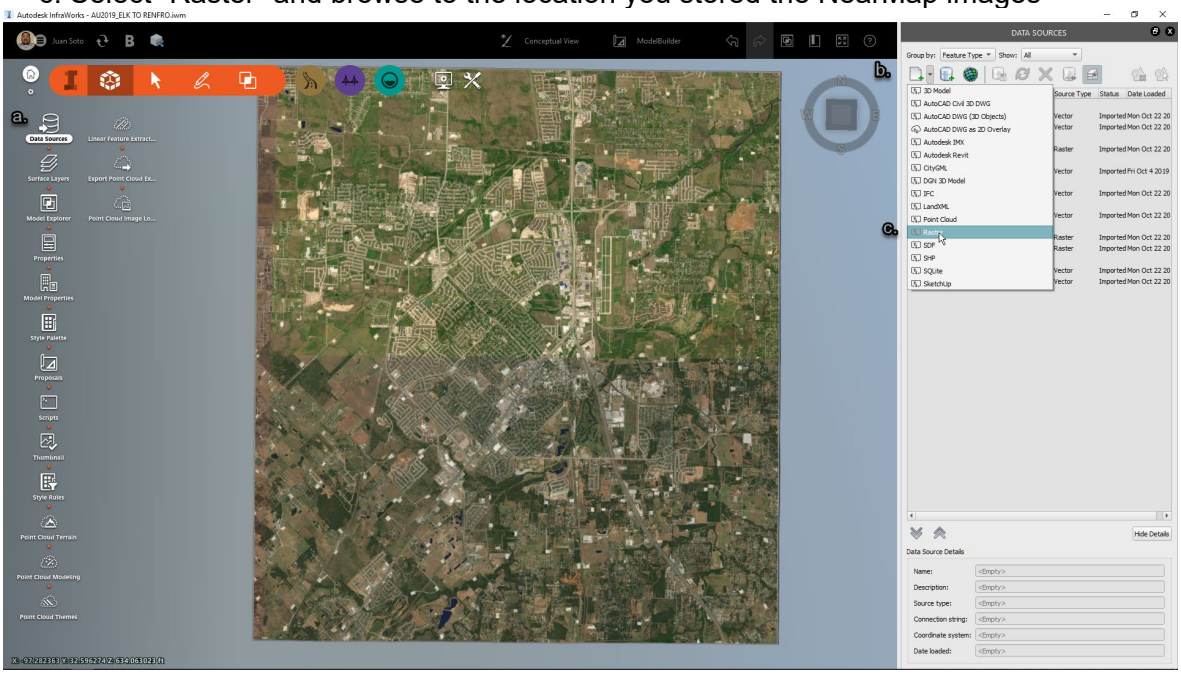
Next up, **Infraworks**.

IMPORTING INTO INFRAWORKS

1. Open Infraworks and select your model

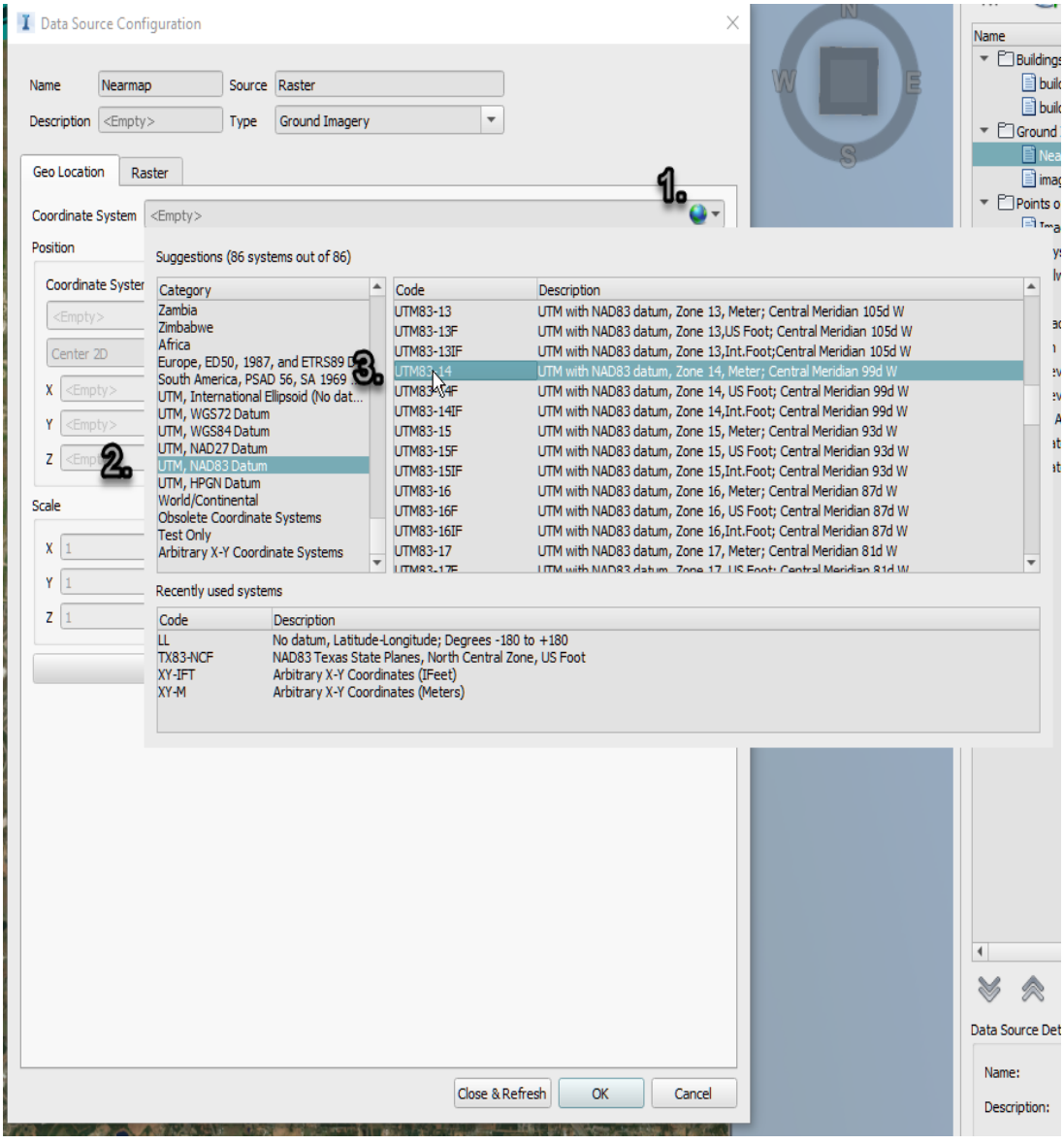


2. Bring in your NearMap images
   a. Select “Data Sources”
   b. Select “Pull Down”
   c. Select “Raster” and browse to the location you stored the NearMap images

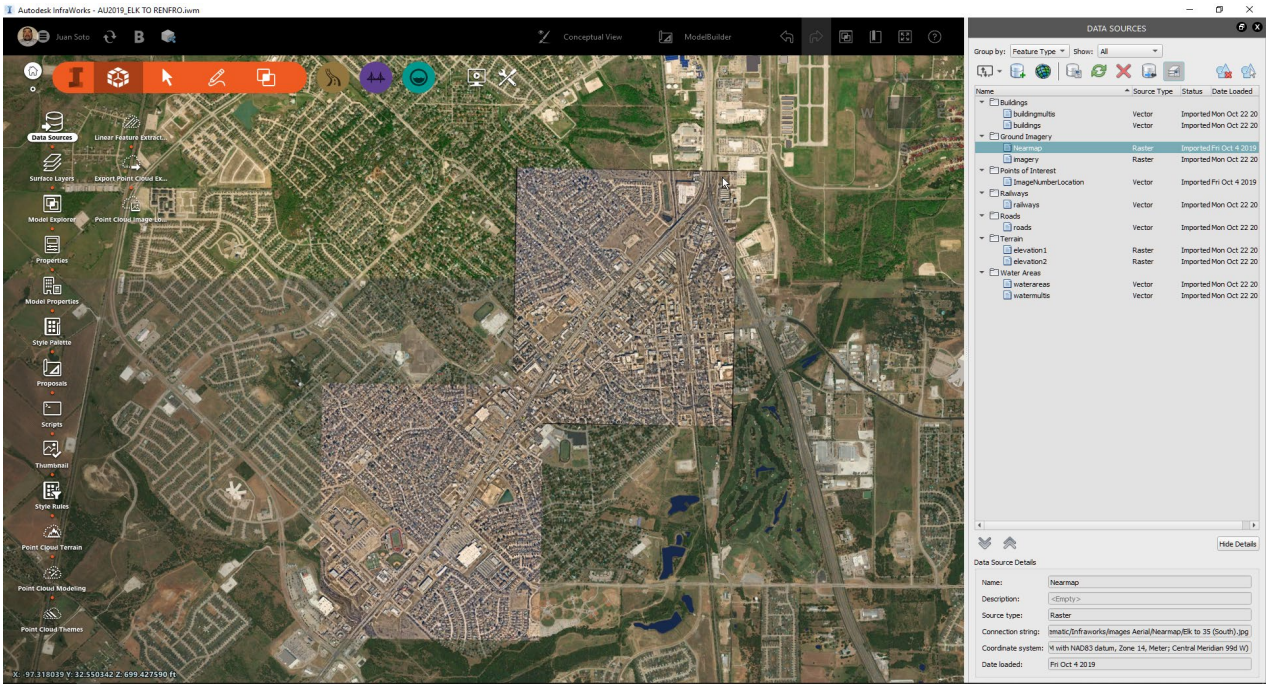


Nearmap requiers the images to be imported using the original datum for the images. Infraworks will translate them. For our images, we will use “UTM83-14 Meters”

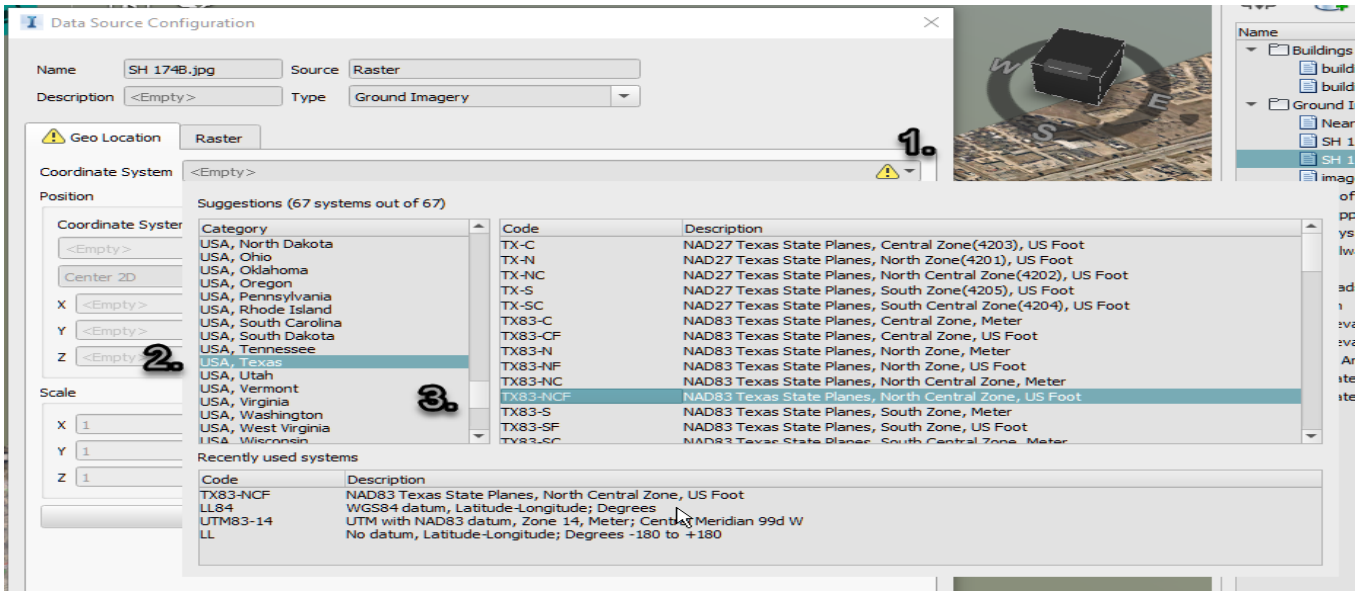
1. Select “Coodinate System” pull down
2. Select Category
3. Select Code-UTM 14-Meters



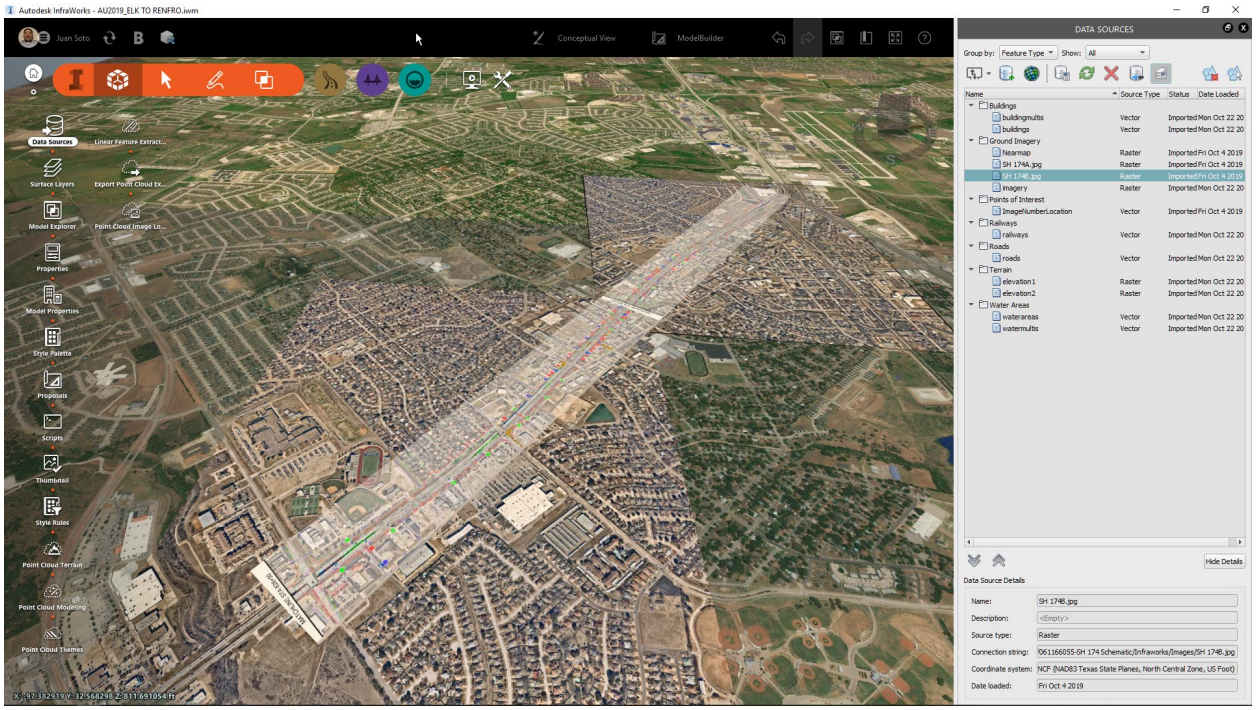
Your model should look similar to this:



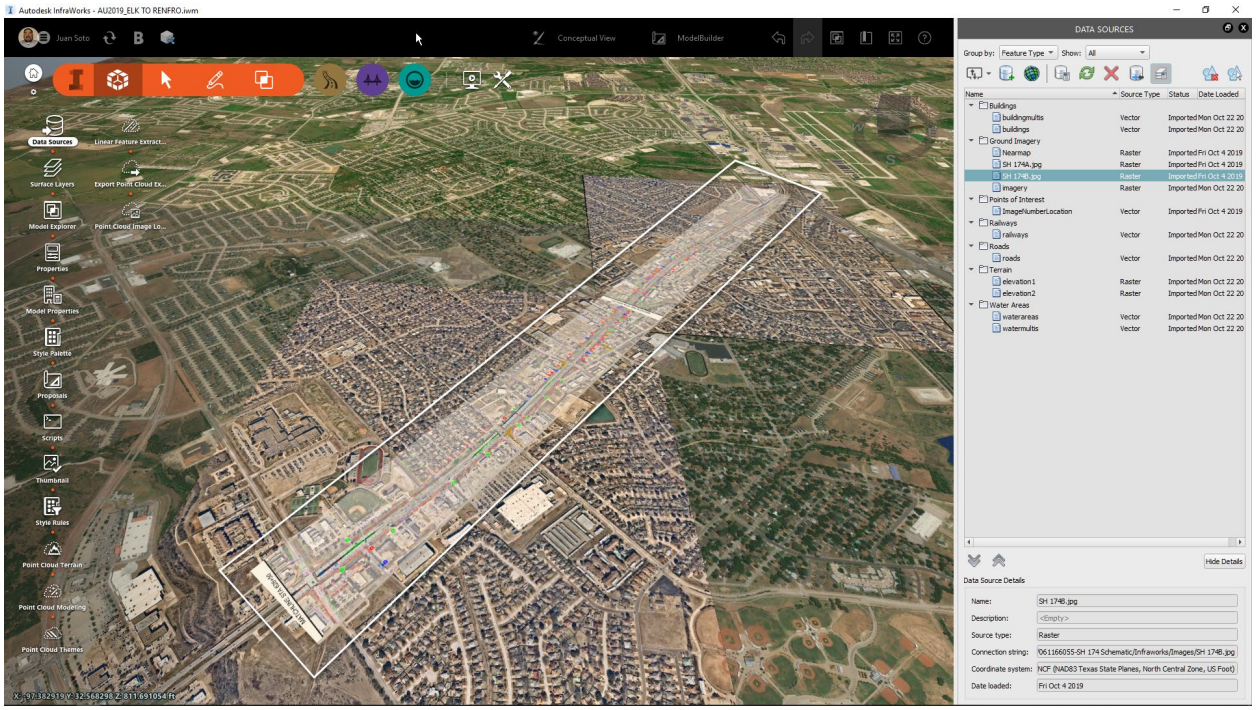
1. Next bring in the CAD exhibit images using the same process. Except this time set the coordinates system to TX83-NCF to match your CAD exhibit world file. Do this for both images.
    1. Select Coodinate system pull down
    2. Select USA, Texas
    3. TX83-NCF



Your model should look like this:

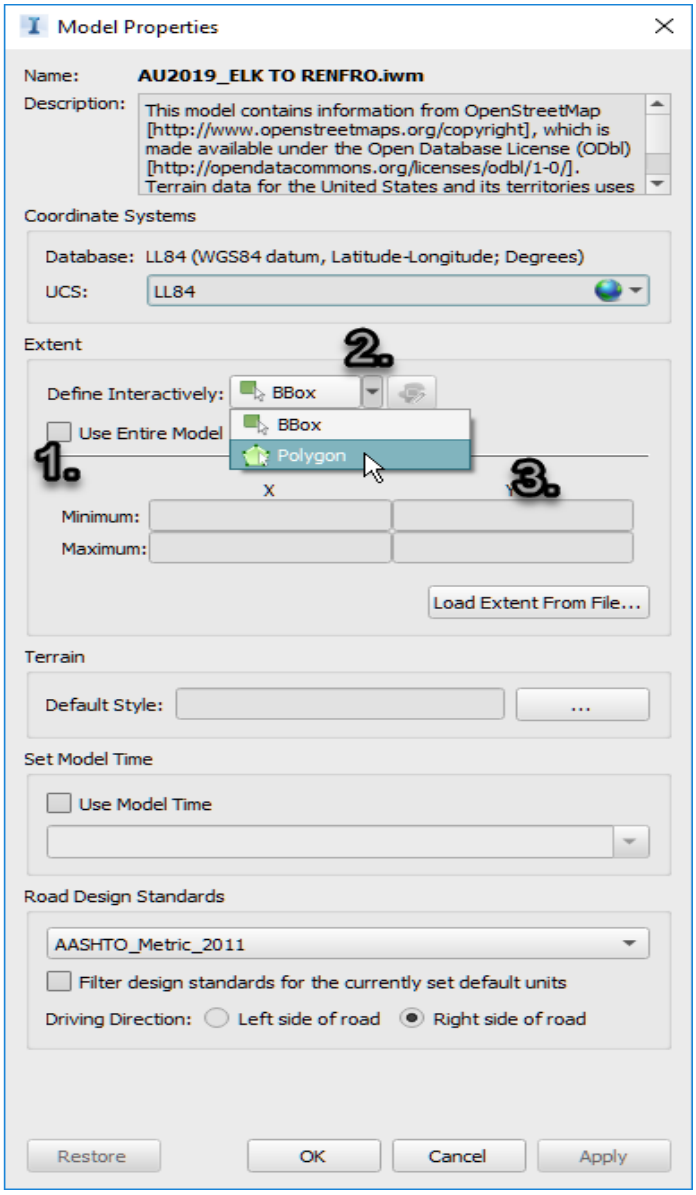


2. Next, trim off some of the excess area of the model to make it more confined to our focus area.

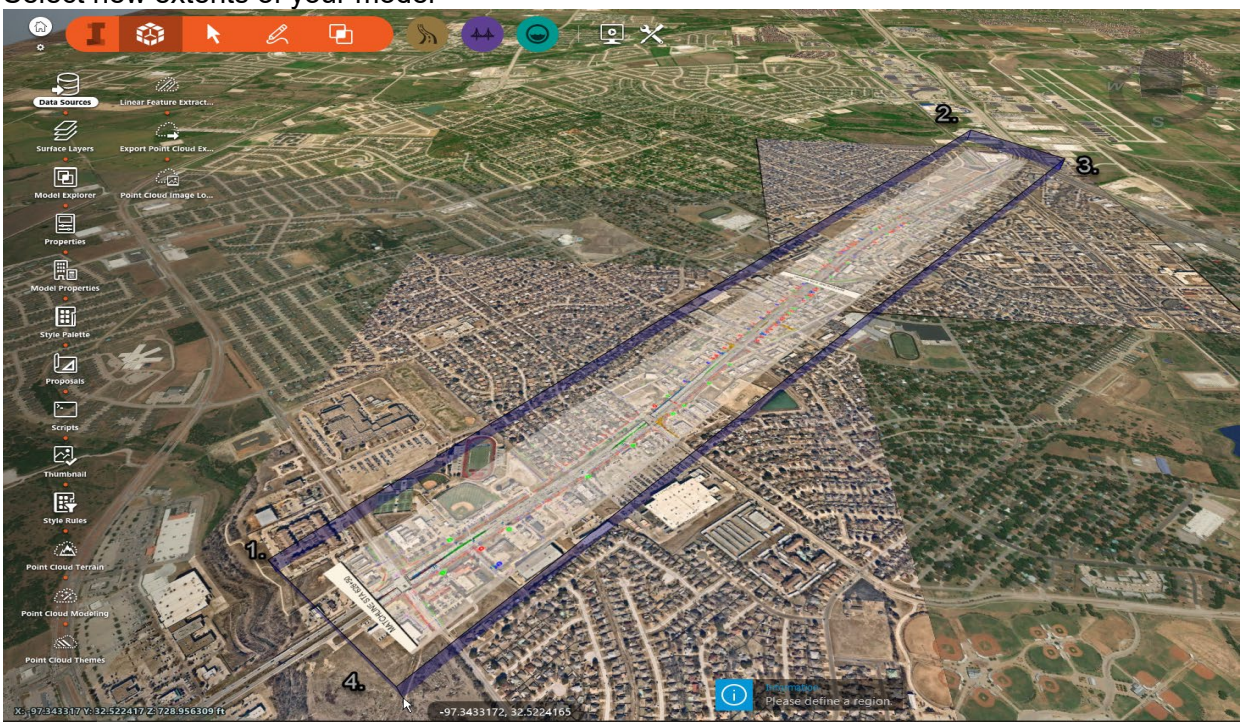


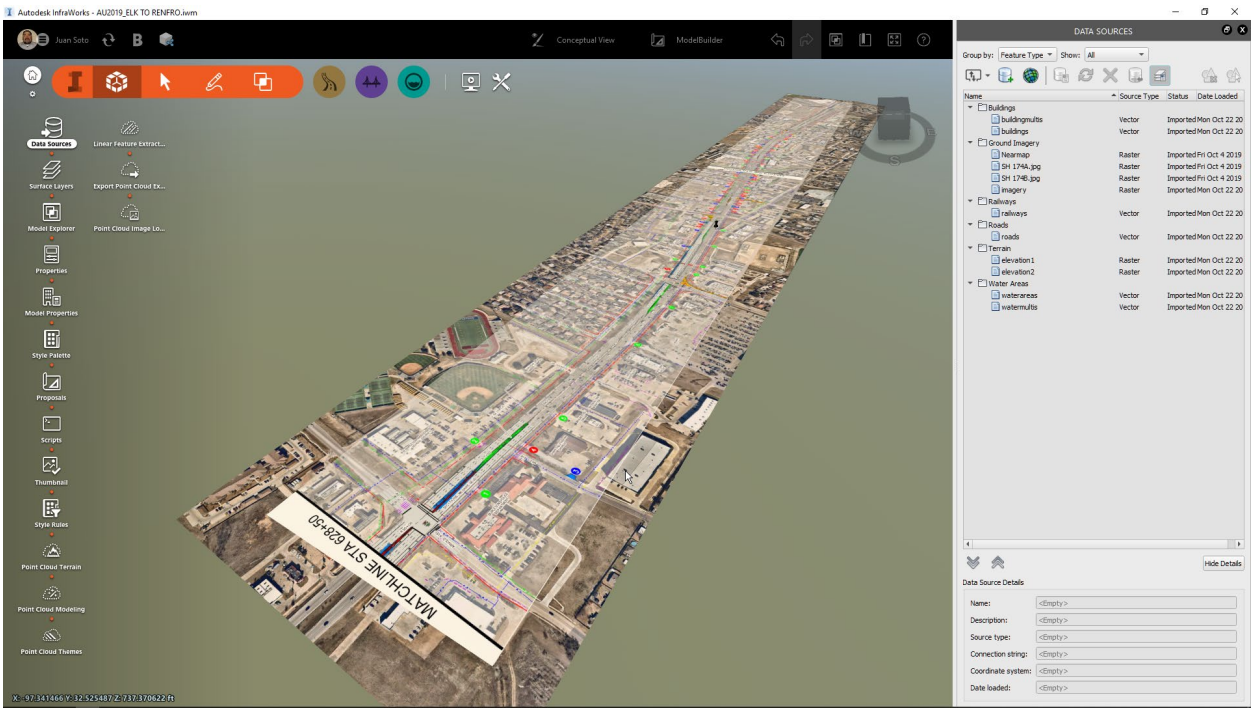
3. Select “Model Properties” from the side menu

1. Uncheck “Use Entire Model”
2. Click the “Define Interactively” drop down
3. Select “Polygon”

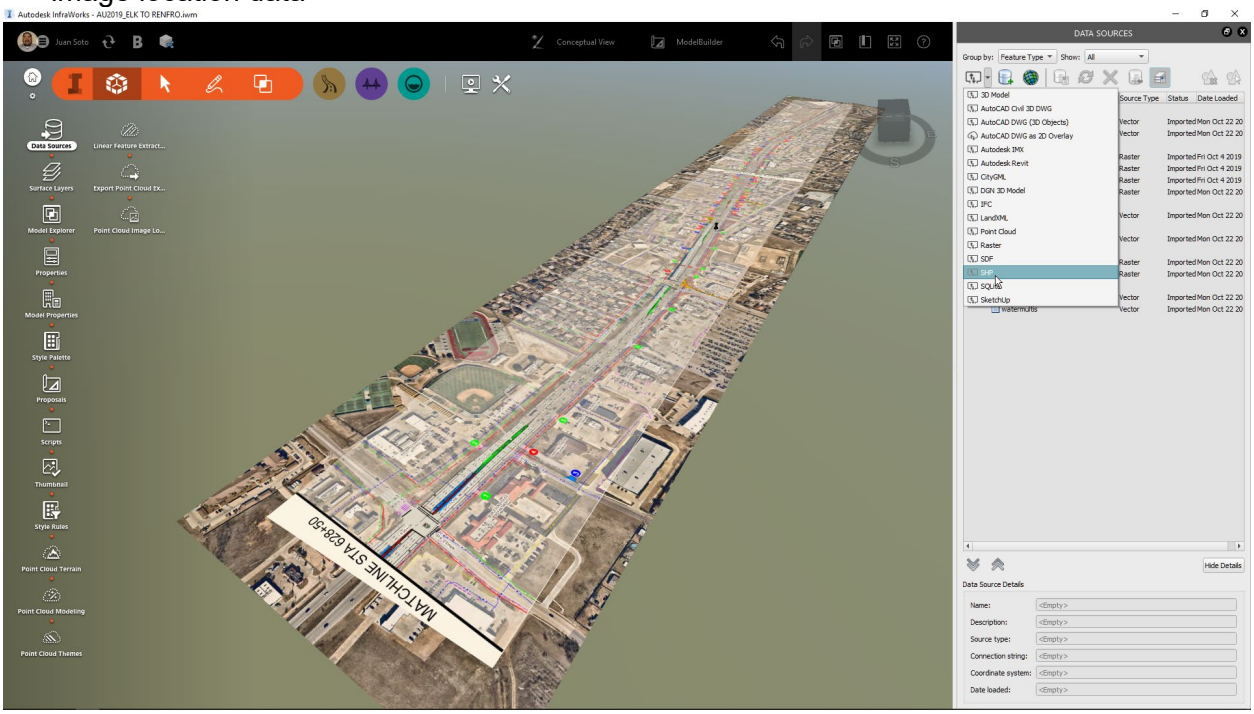


4. Select new extents of your model

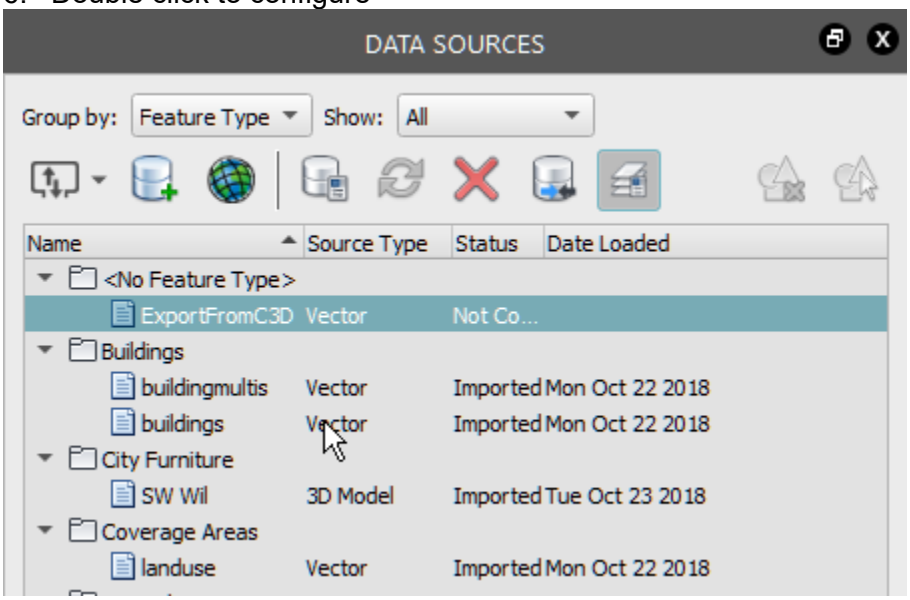




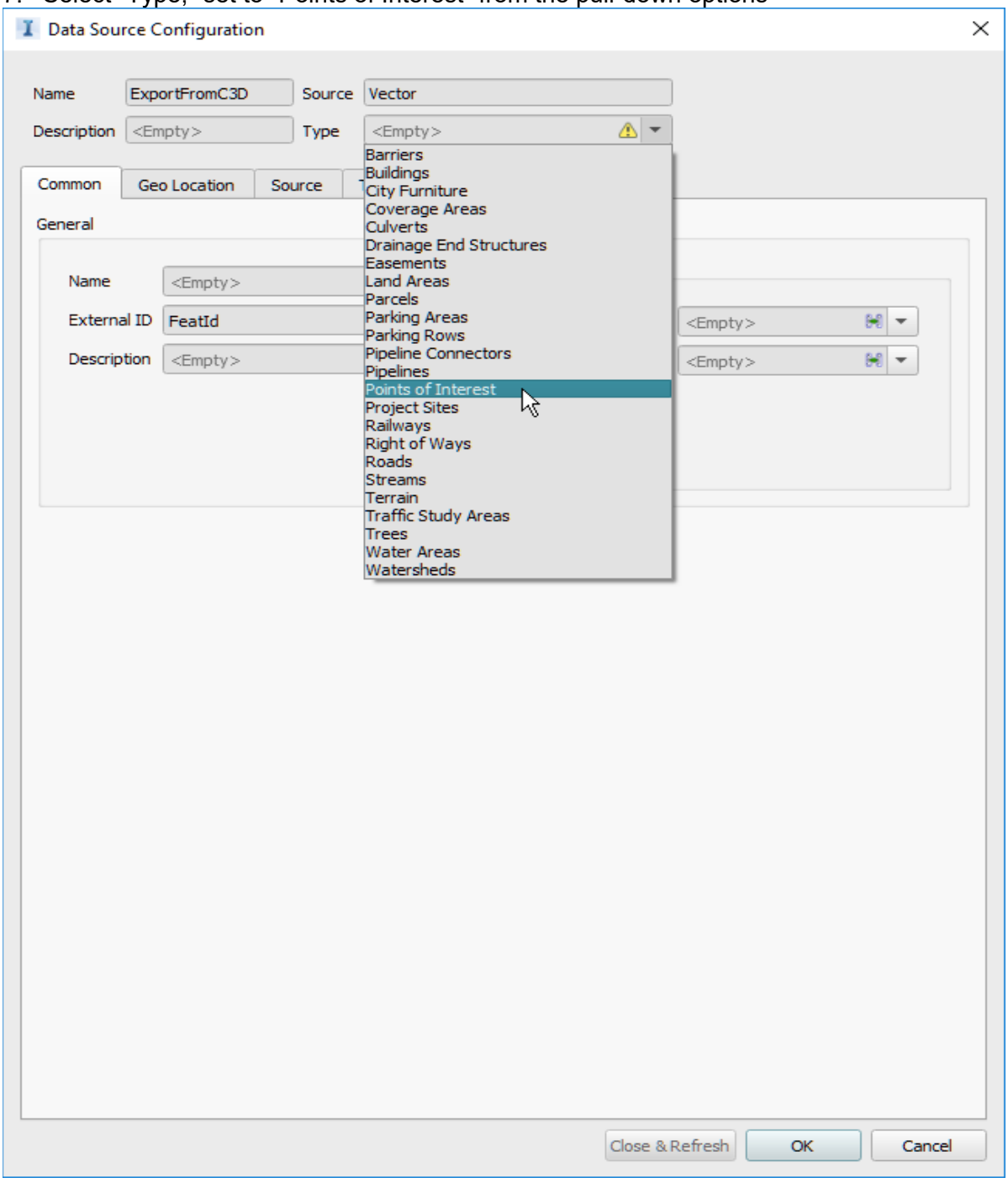
5. Select “SHP” from the Data Sources and map to shape the file containing the image location data



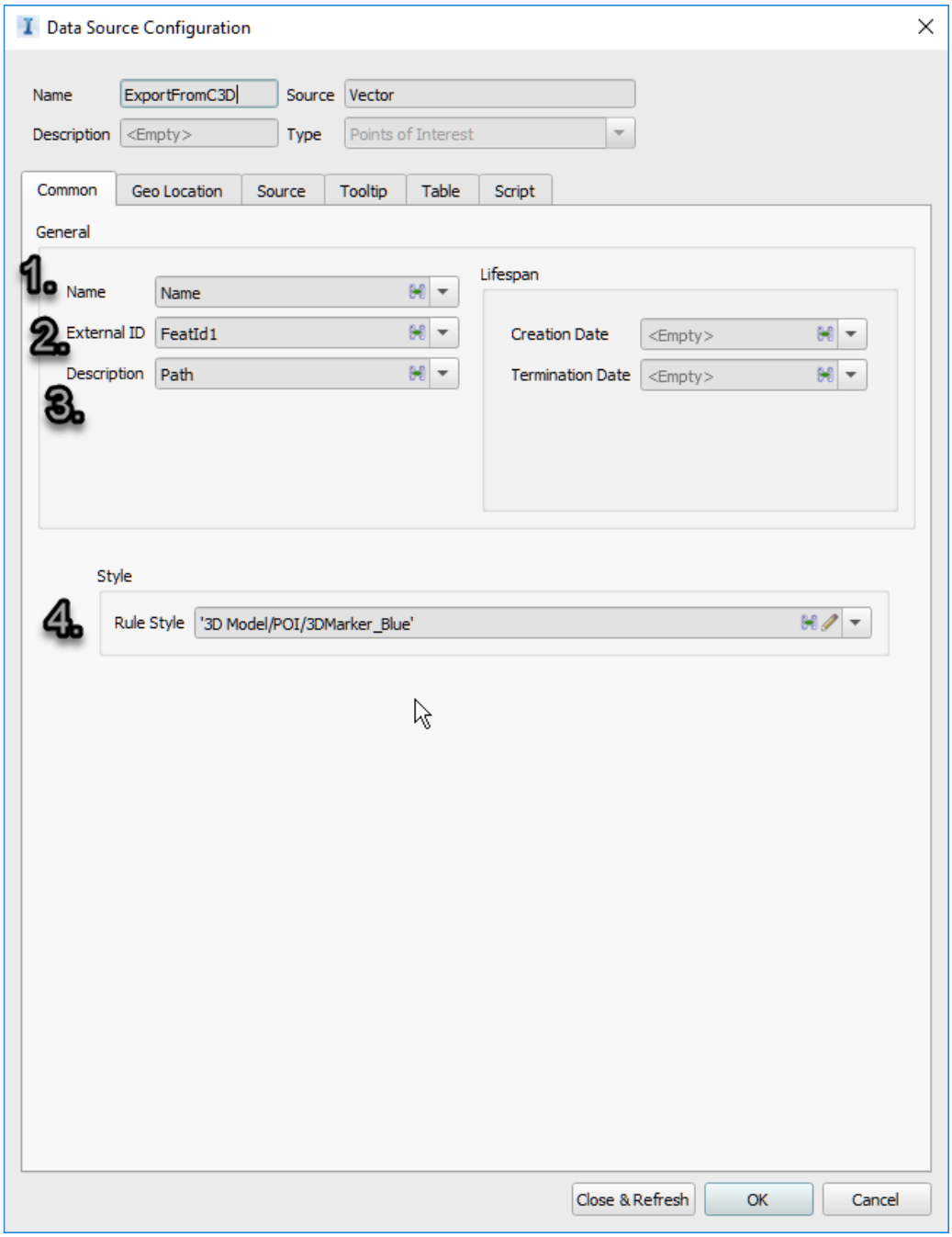
6. Double click to configure



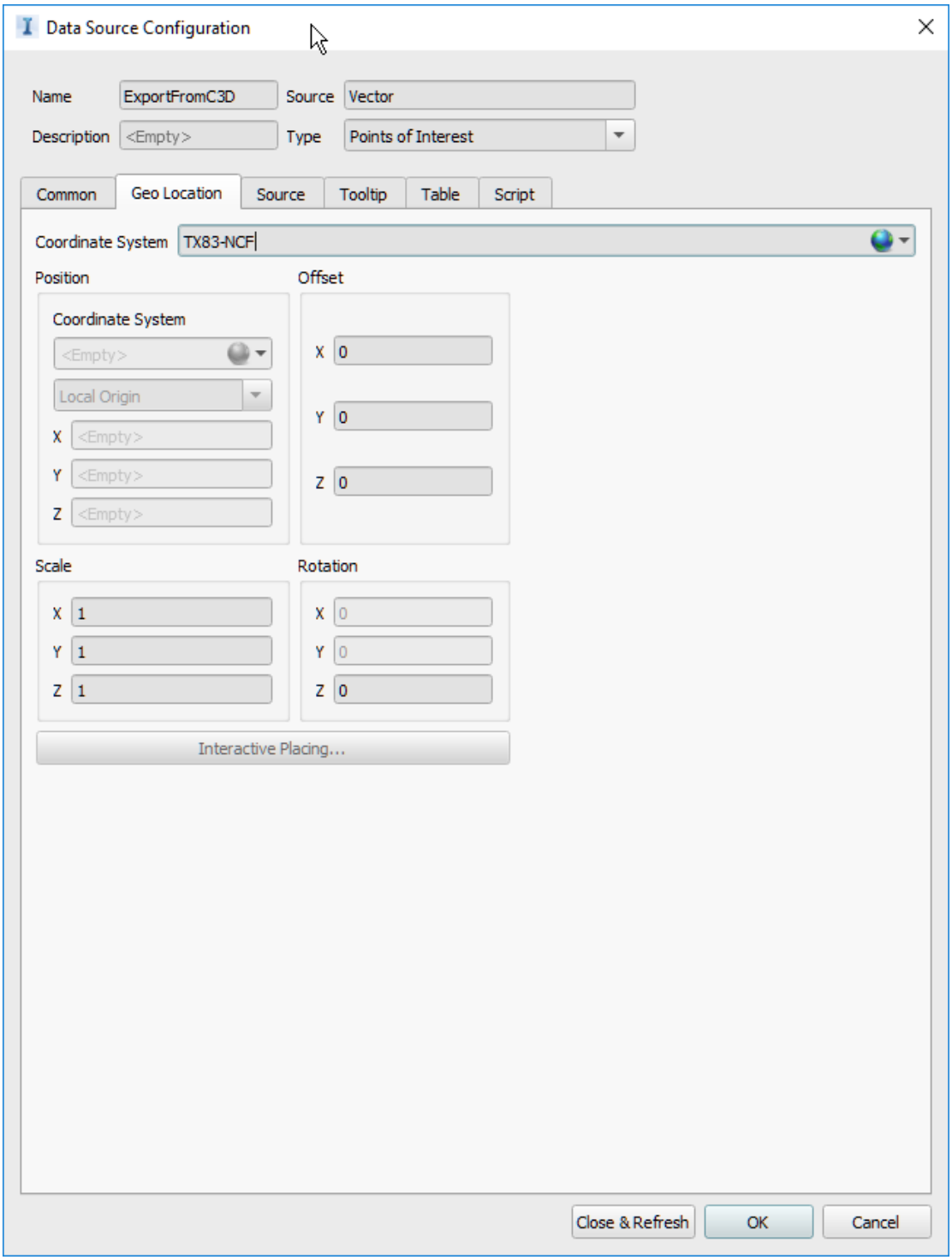
7. Select “Type,” set to “Points of Interest” from the pull-down options



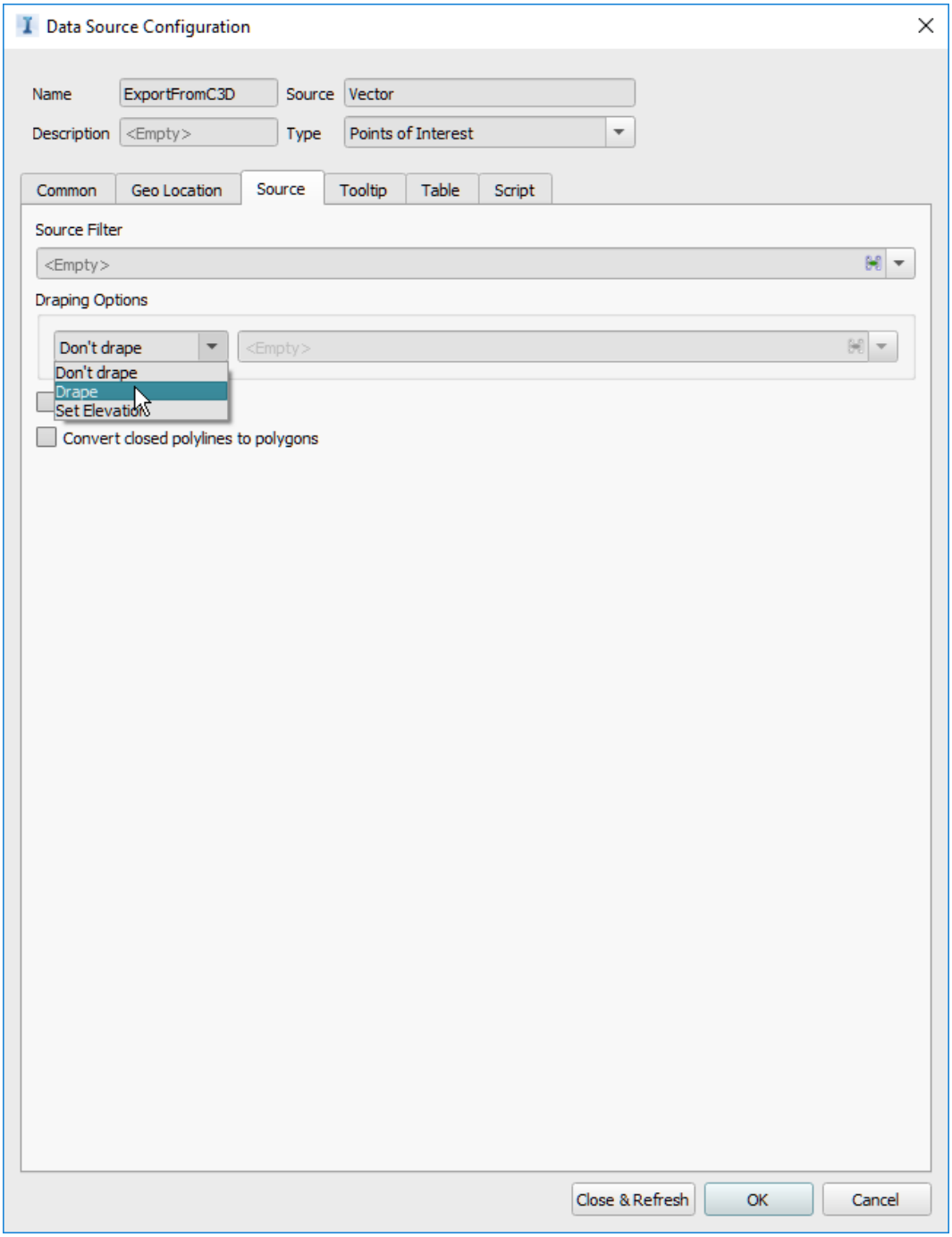
8. In the Common Tab, we'll map the following data parameters:
    1. Set Name to "Name"
    2. Set External ID to "FeatID1"
    3. Set Description to "Path"
    4. Set the type to POI style I used "3DMarker_Blue"



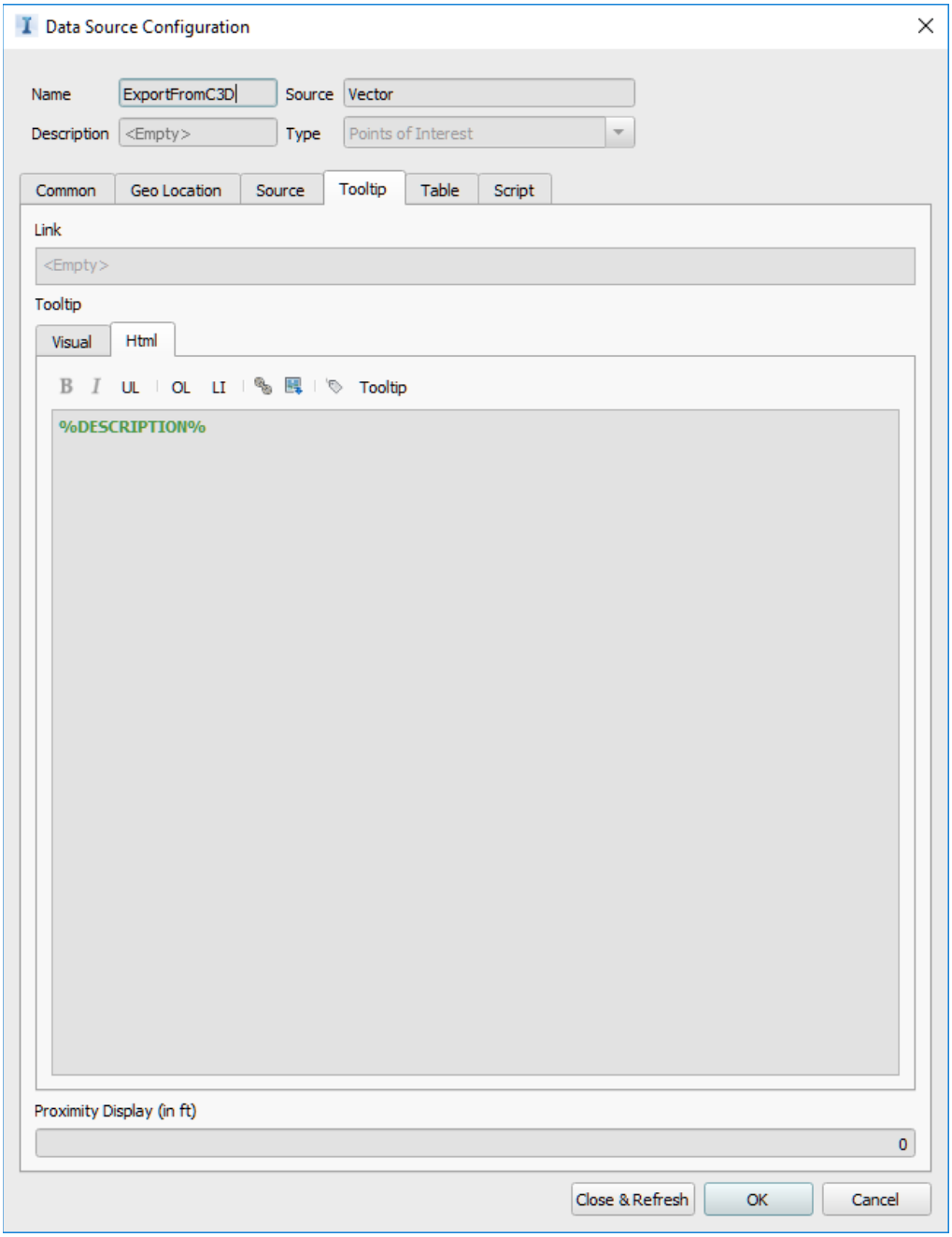
9. Select the Geo Location tab and in the Coordinate System window set to “TX83-NCF”



10. Select the Source tab and set Draping Options to “Drape.”
11. OK, close, and Refresh

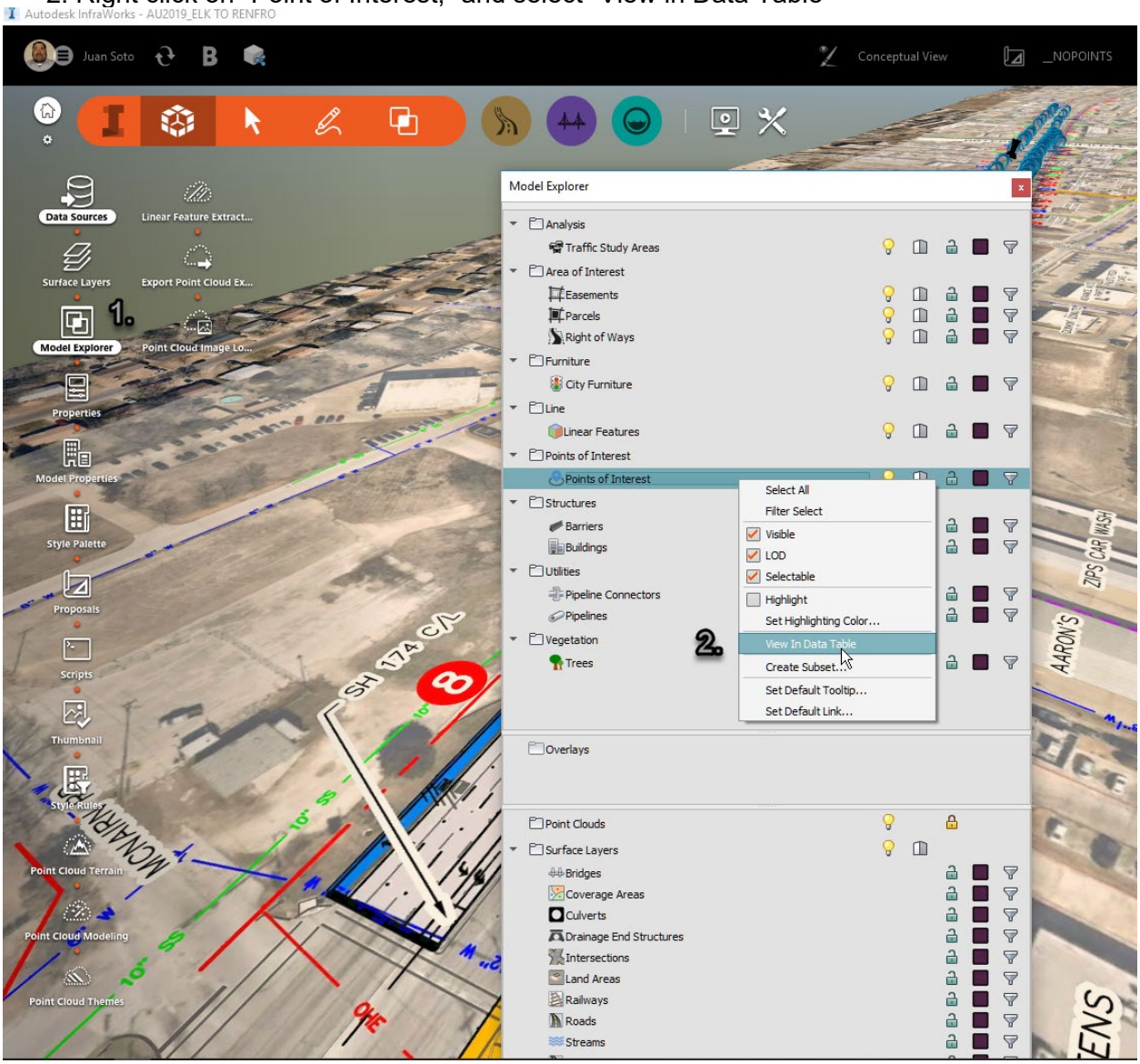


12. Next, select the Tooltip Tab, select the HTML tab in the window, and type **%DESCRIPTION%**
    a. Ok, Close and Refresh



Your model should look like this:

13. Now we'll check our data by
    1. Opening "Model Explorer"
    2. Right click on "Point of Interest," and select "View in Data Table"

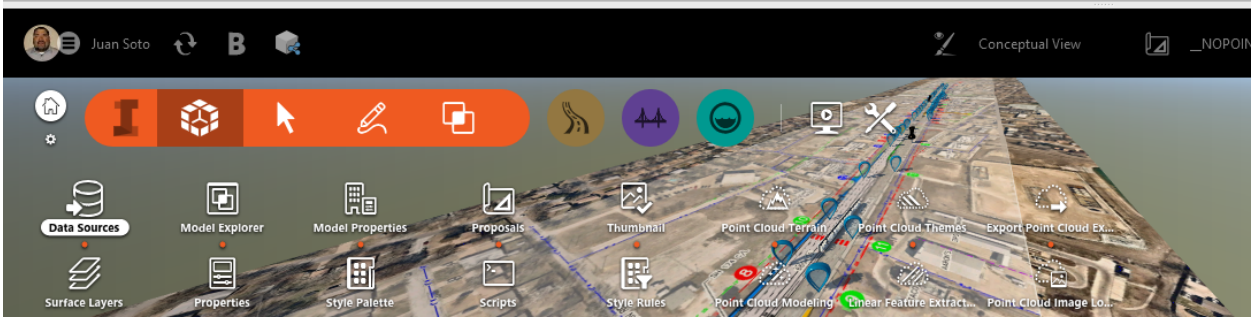


As you can see, the Description column is sourced with the data from the Path column

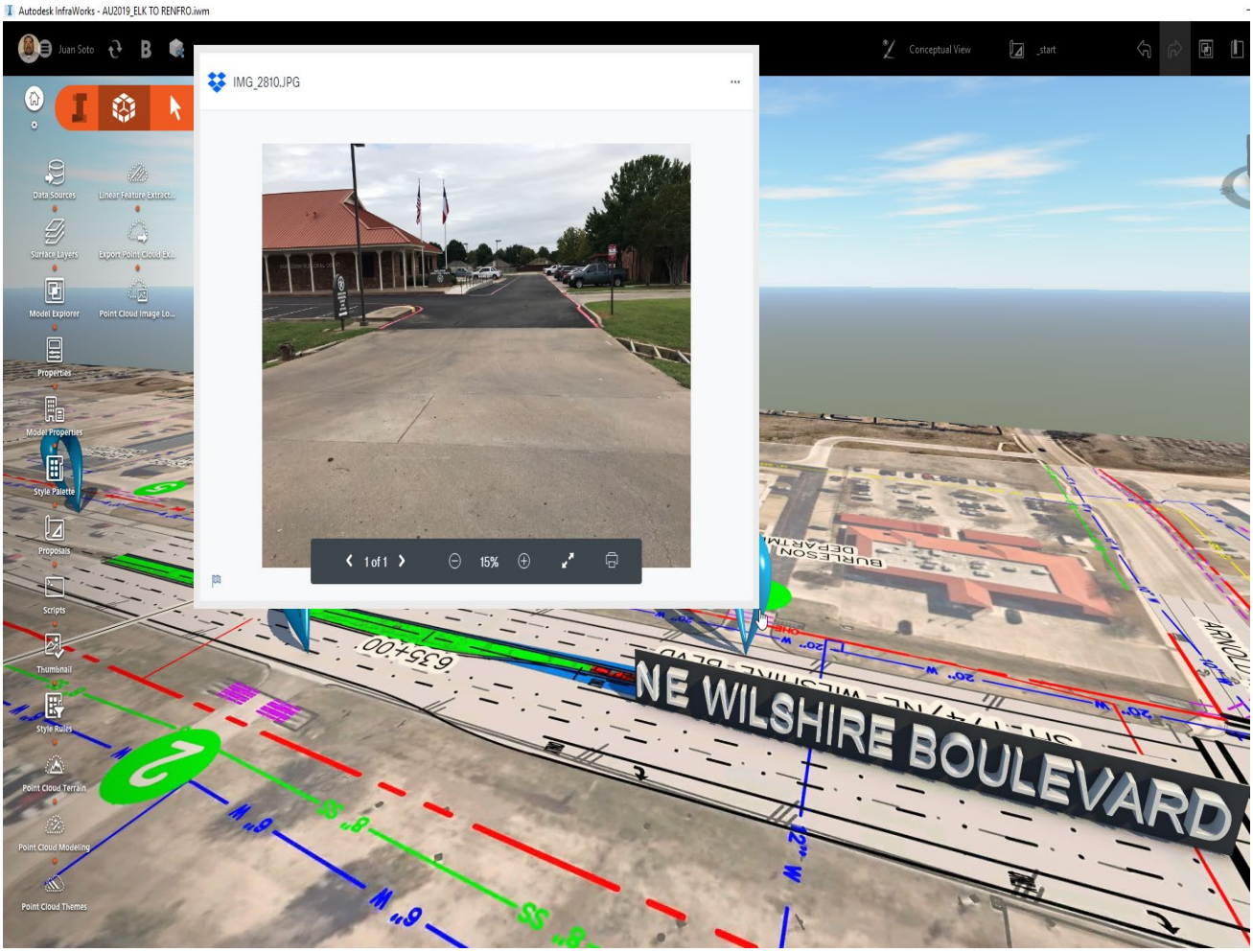
Autodesk InfraWorks - AU2019_ELK TO RENFRO

DATA TABLE: POINTS OF INTEREST (95)

ID	Unique Identifier	Name	Description	Data Source	External ID
1	4b93c57e-764f-5f...	IMG_2810.JPG	https://www.dropbox.com/s/4hggurgp8ex5rs5/IMG_2810.JPG?dl=0	7eeffbbf-53d3-42...	1
2	894f66c6-ca7a-58d3-a897-...	IMG_2811.JPG	https://www.dropbox.com/s/4gzll1c0vxof0sz/IMG_2811.JPG?dl=0	7eeffbbf-53d3-42...	2
3	823731bc-4179-5...	IMG_2812.JPG	https://www.dropbox.com/s/qa11r8yg1il4k31/IMG_2812.JPG?dl=0	7eeffbbf-53d3-42...	3
4	b220d6e2-c99d-58d8-aeb7-...	IMG_2813.JPG	https://www.dropbox.com/s/2ogb0u03xb4iy5s/IMG_2813.JPG?dl=0	7eeffbbf-53d3-42...	4
5	335596b1-6067-5...	IMG_2814.JPG	https://www.dropbox.com/s/2nxhdbueibrrgzu/IMG_2814.JPG?dl=0	7eeffbbf-53d3-42...	5
6	99ad3bbc-a625-5af4-ab94-...	IMG_2815.JPG	https://www.dropbox.com/s/vs0003h2eg0wfp0/IMG_2815.JPG?dl=0	7eeffbbf-53d3-42...	6
7	f81e738f-018e-5...	IMG_2816.JPG	https://www.dropbox.com/s/7oyldr3g5zbavk5/IMG_2816.JPG?dl=0	7eeffbbf-53d3-42...	7
8	09e8db7c-ca73-5f14-8f23-e...	IMG_2817.JPG	https://www.dropbox.com/s/nosr3i0jd4r1d7p/IMG_2817.JPG?dl=0	7eeffbbf-53d3-42...	8
9	98af955b-ca09-5dc9-816c-5...	IMG_2818.JPG	https://www.dropbox.com/s/vv35n8yvbx3jwvp/IMG_2818.JPG?dl=0	7eeffbbf-53d3-42...	9
10	a2747917-ca1c-5948-afbb-2...	IMG_2819.JPG	https://www.dropbox.com/s/deez565i913v59a/IMG_2819.JPG?dl=0	7eeffbbf-53d3-42...	10
11	5c68ecdc-c9ec-5c32-81de-d...	IMG_2820.JPG	https://www.dropbox.com/s/3qjvms60m7pa7qt/IMG_2820.JPG?dl=0	7eeffbbf-53d3-42...	11
12	edaaa569-df5d-54d0-b29e-c...	IMG_2821.JPG	https://www.dropbox.com/s/wfjlvopp0p843v9/IMG_2821.JPG?dl=0	7eeffbbf-53d3-42...	12
13	9d5b1531-407b-5...	IMG_2822.JPG	https://www.dropbox.com/s/lqyye26fbm6mdj7/IMG_2822.JPG?dl=0	7eeffbbf-53d3-42...	13
14	46508cec-a95b-513b-8d0a-...	IMG_2823.JPG	https://www.dropbox.com/s/cqhzxc81wfe36n7/IMG_2823.JPG?dl=0	7eeffbbf-53d3-42...	14
15	a927298e-4170-5...	IMG_2824.JPG	https://www.dropbox.com/s/1znq3h6ag2b27mx/IMG_2824.JPG?dl=0	7eeffbbf-53d3-42...	15
16	087ac2de-8b88-5...	IMG_2825.JPG	https://www.dropbox.com/s/ksbf7b8jekdv37y/IMG_2825.JPG?dl=0	7eeffbbf-53d3-42...	16
17	65b5234e-990e-5...	IMG_2826.JPG	https://www.dropbox.com/s/3d5kwkek7jokyh/IMG_2826.JPG?dl=0	7eeffbbf-53d3-42...	17
18	b56659c5-851c-5...	IMG_2827.JPG	https://www.dropbox.com/s/5rkimmw6rnbrx7f/IMG_2827.JPG?dl=0	7eeffbbf-53d3-42...	18
19	e7e08e7e-2fb5-5...	IMG_2828.JPG	https://www.dropbox.com/s/2afr9itfuw2bc9f/IMG_2828.JPG?dl=0	7eeffbbf-53d3-42...	19
20	981ffc64-3280-55...	IMG_2829.JPG	https://www.dropbox.com/s/x84dypqv32xjw39/IMG_2829.JPG?dl=0	7eeffbbf-53d3-42...	20
21	1448b8e0-05b0-5...	IMG_2830.JPG	https://www.dropbox.com/s/dywbgqawz2g6n9v/IMG_2830.JPG?dl=0	7eeffbbf-53d3-42...	21



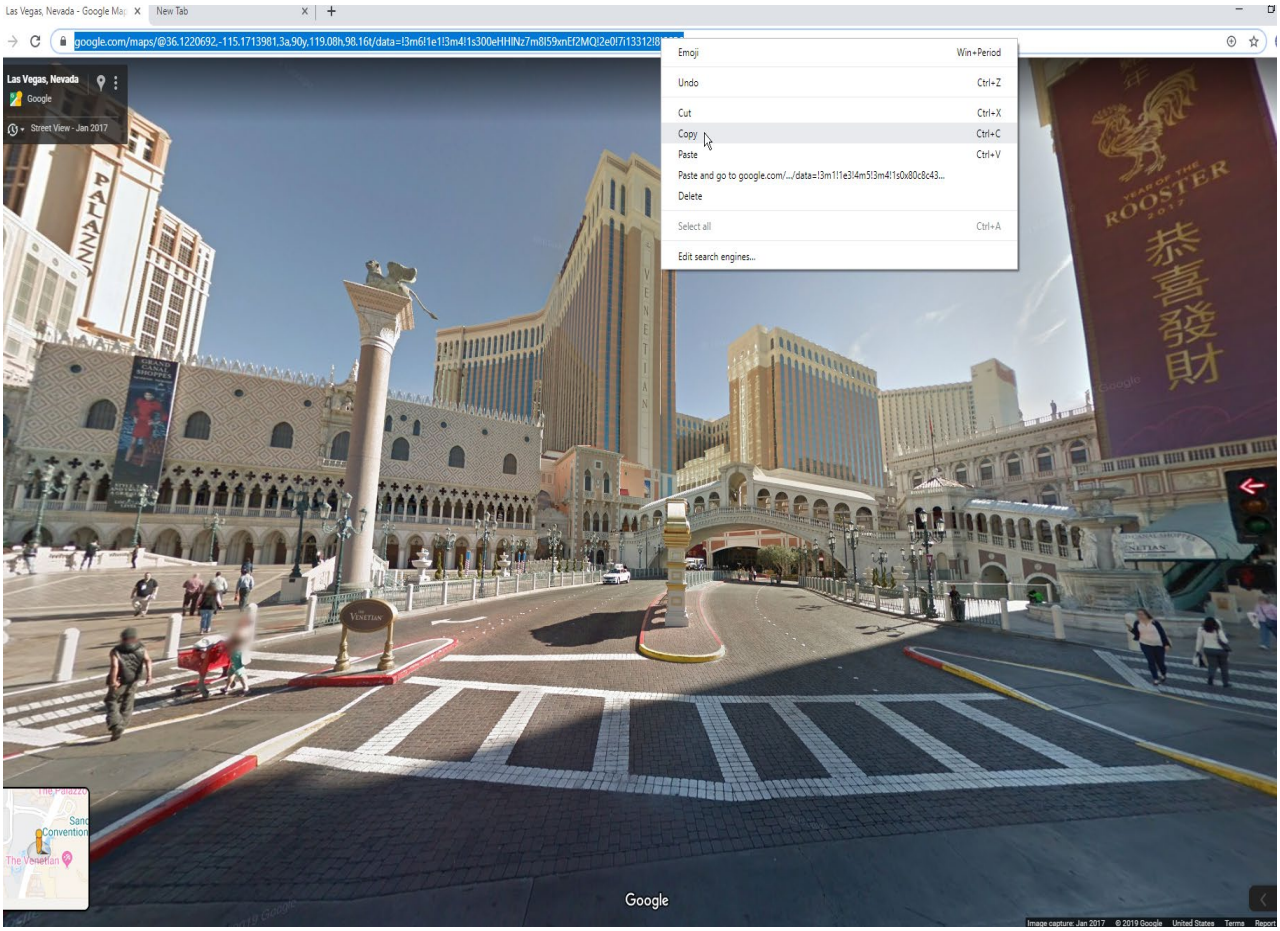
14. Exit out of the properties dialog box, and hover over your object. Hovering should activate the tooltip which activates the imbedded link



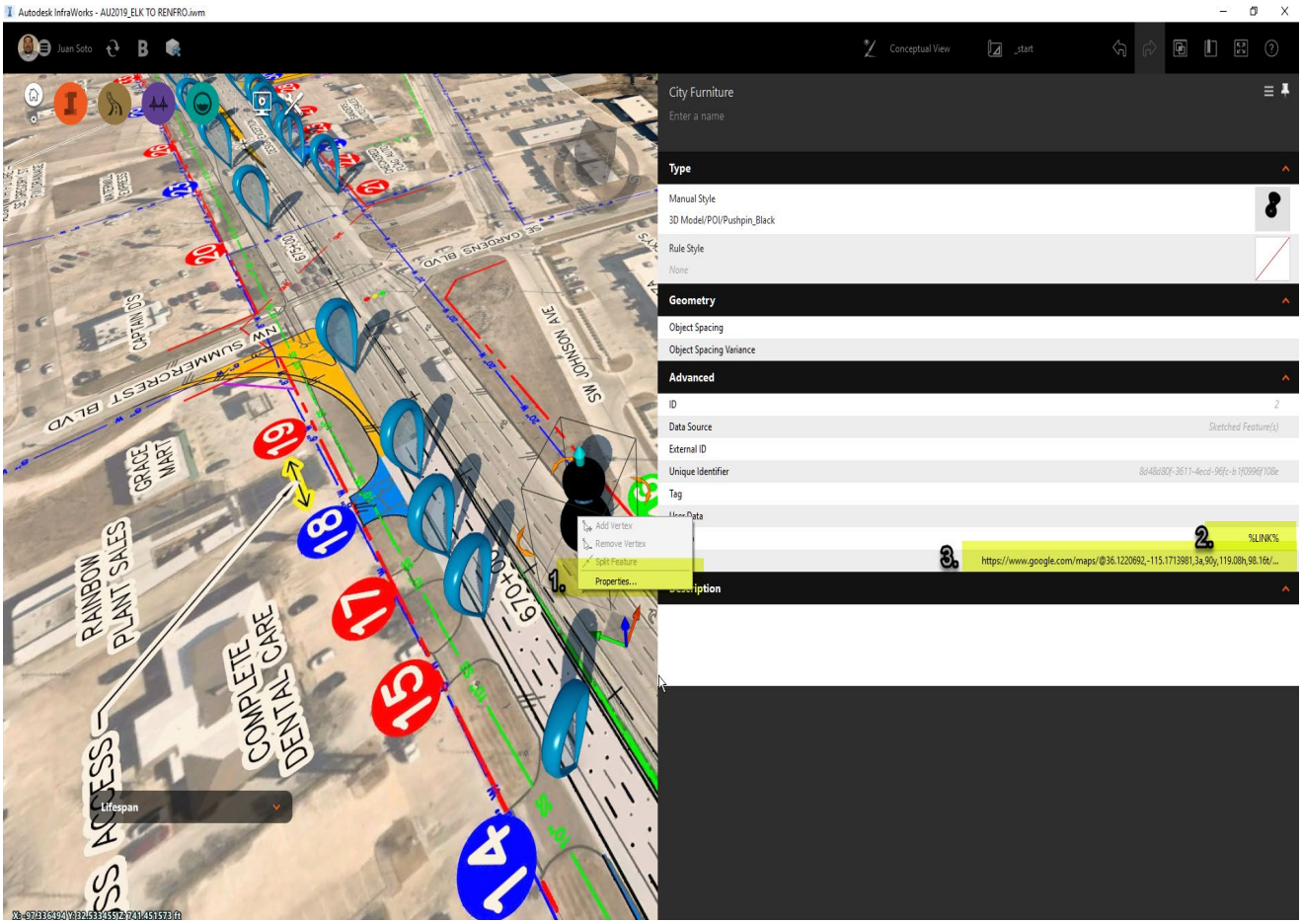
Linking Google Street View

Linking street view requires an exact street view position. The first thing you'll need to do is to generate a link to embed.

A. Using our existing Infraworks model, open Google Maps and find your project location and enter street view and copy the direct link

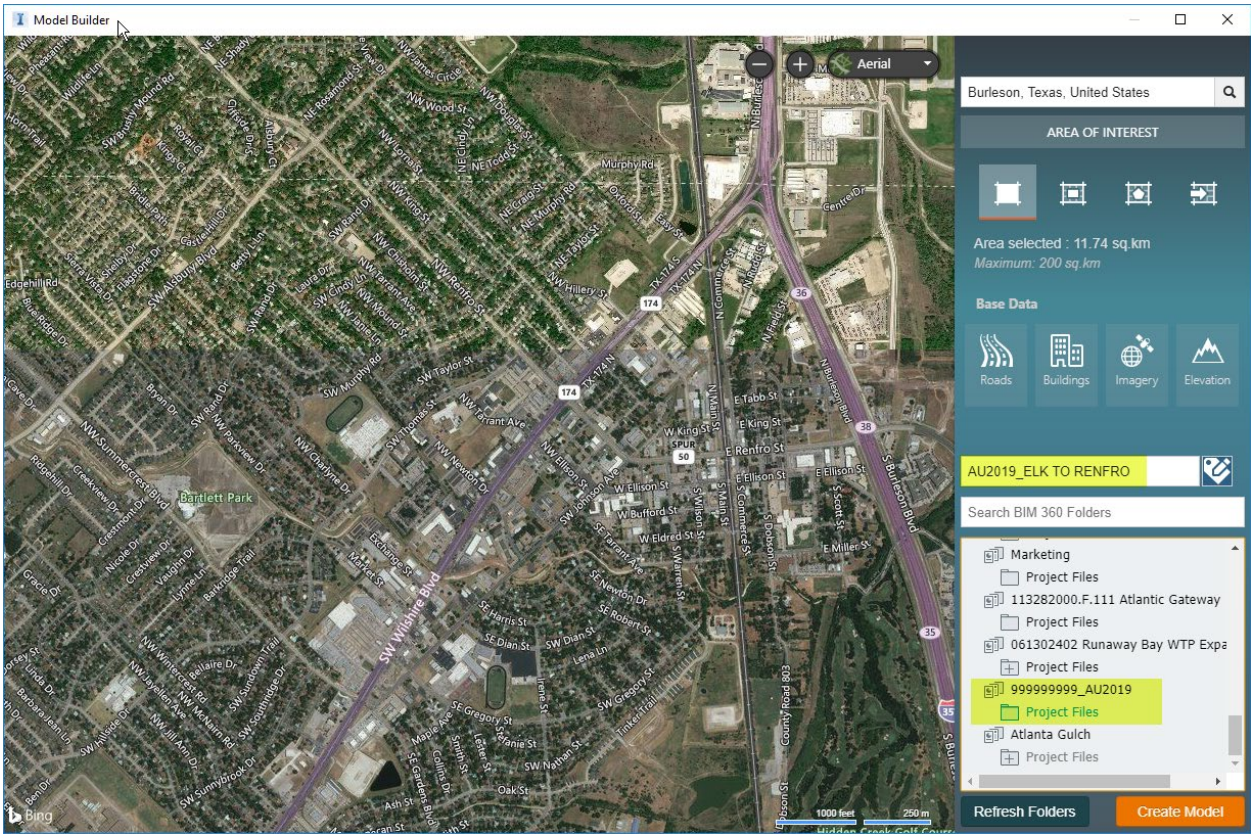


1. Select the object you want link and open the properties box
2. Add %LINK% to tooltip line
3. Paste the link from Google maps into the “Link” line

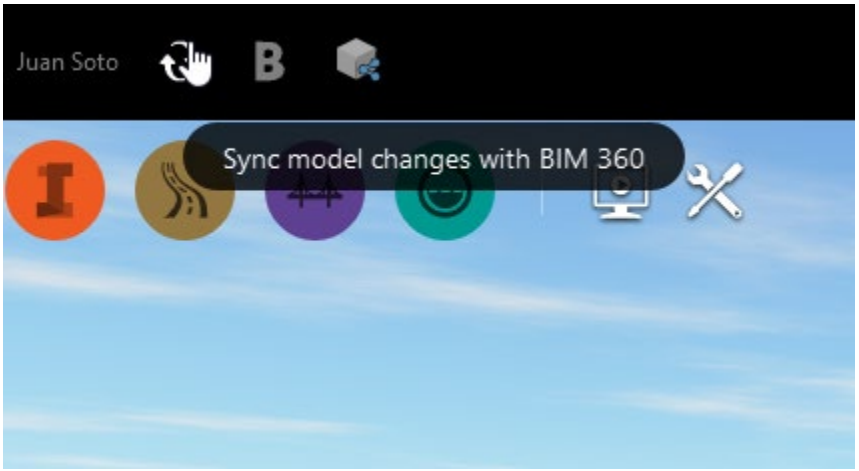


Exit out of the properties dialog box and hover over your object. Hovering should activate the tooltip which activates the imbedded link

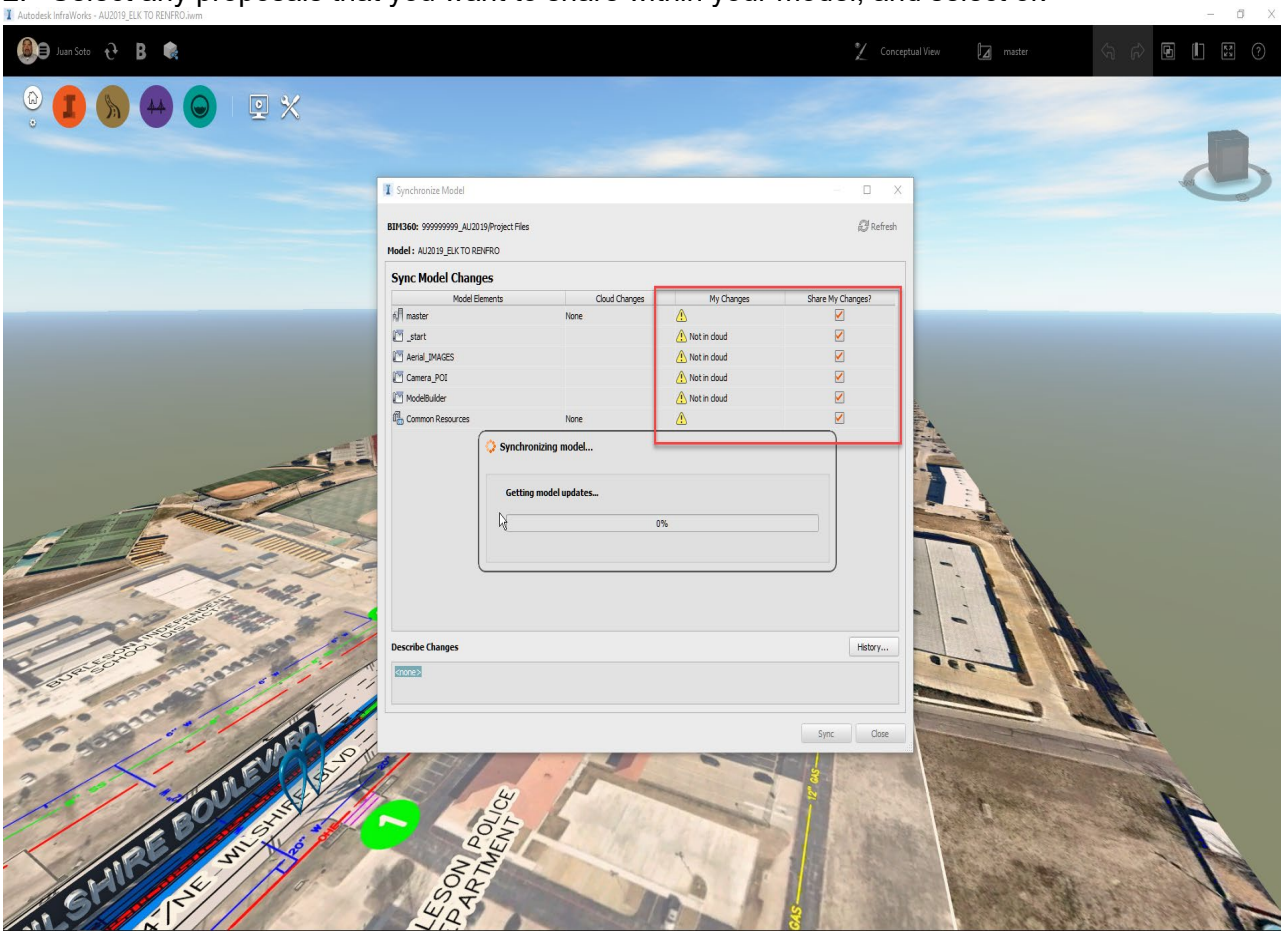
Sharing your model with Imbedded Linking using BIM 360



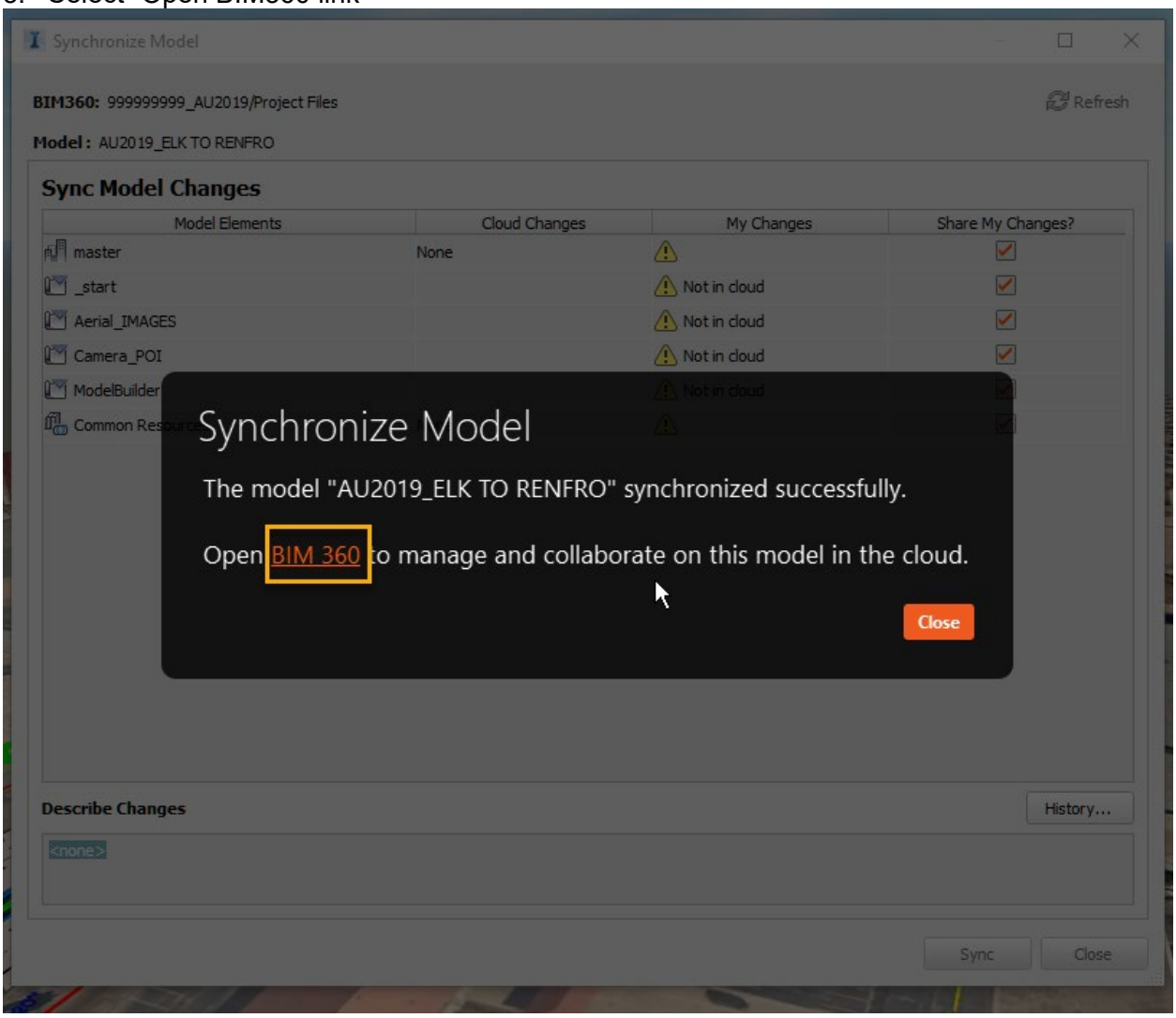
1. After making all modifications to the model, Sync model changes with BIM360



2. Select any proposals that you want to share within your model, and select ok

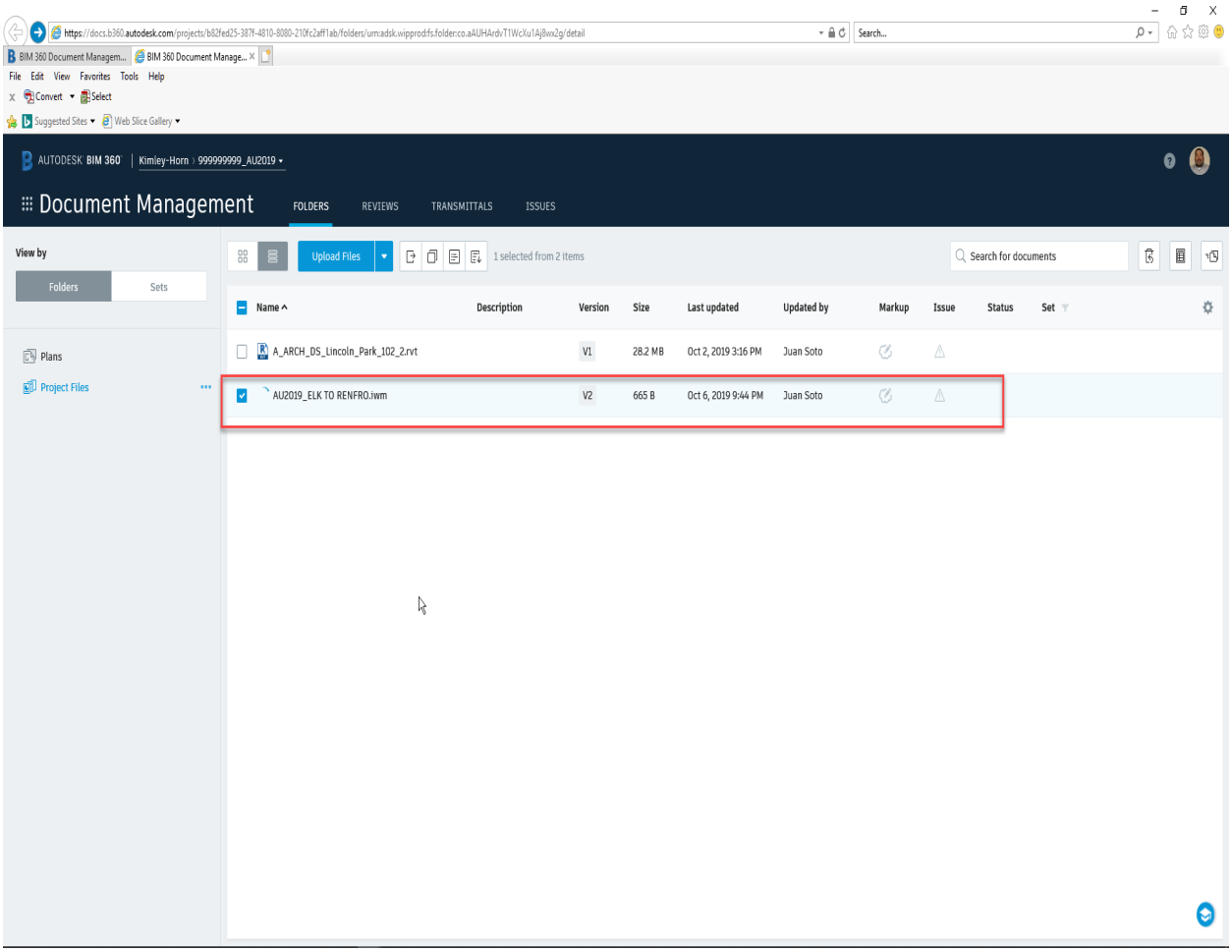


3. Select “Open BIM360 link”

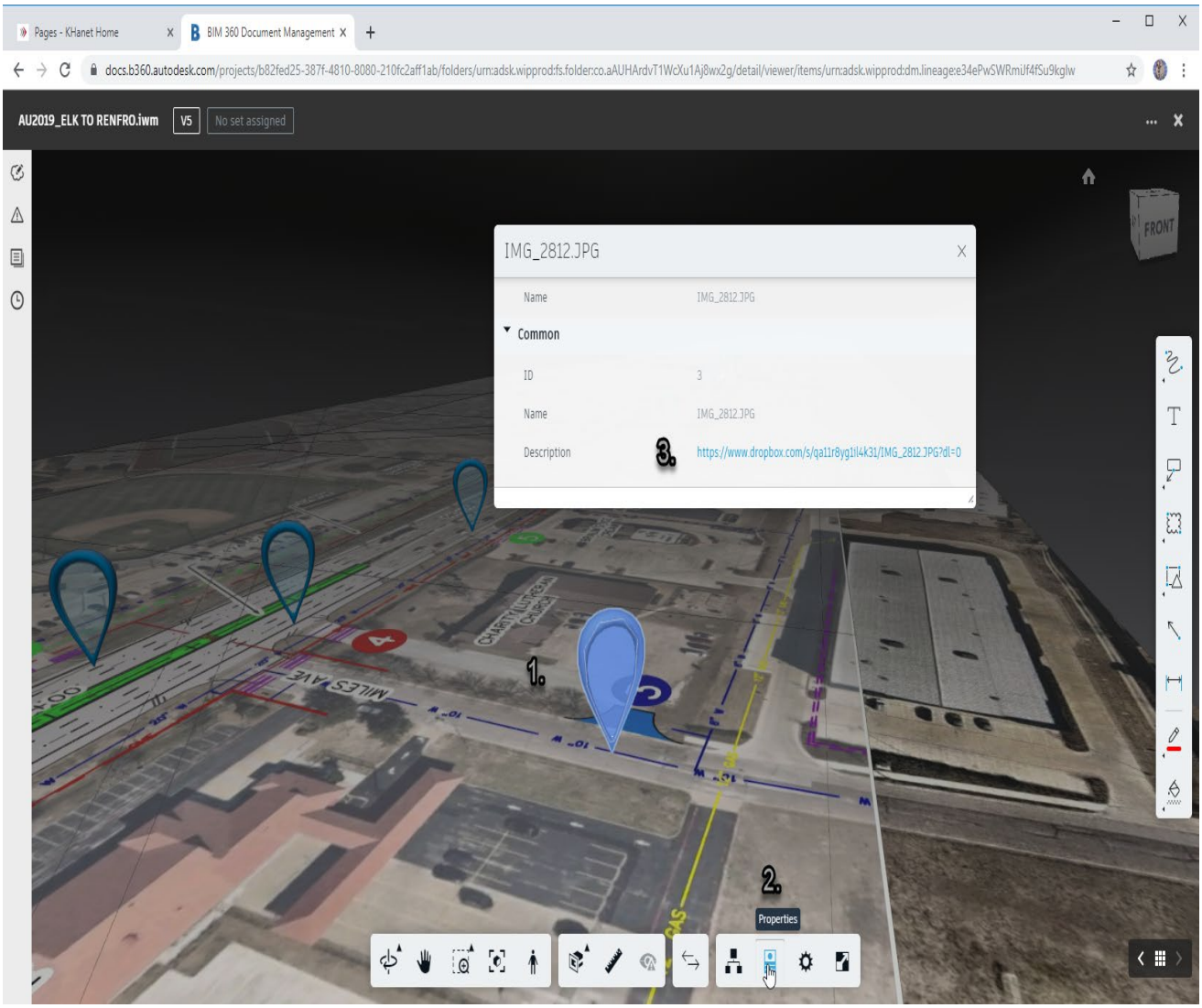


Sometimes, depending on your model, this process might take some time to synchronize with the cloud service.

4. Next, open your synced model

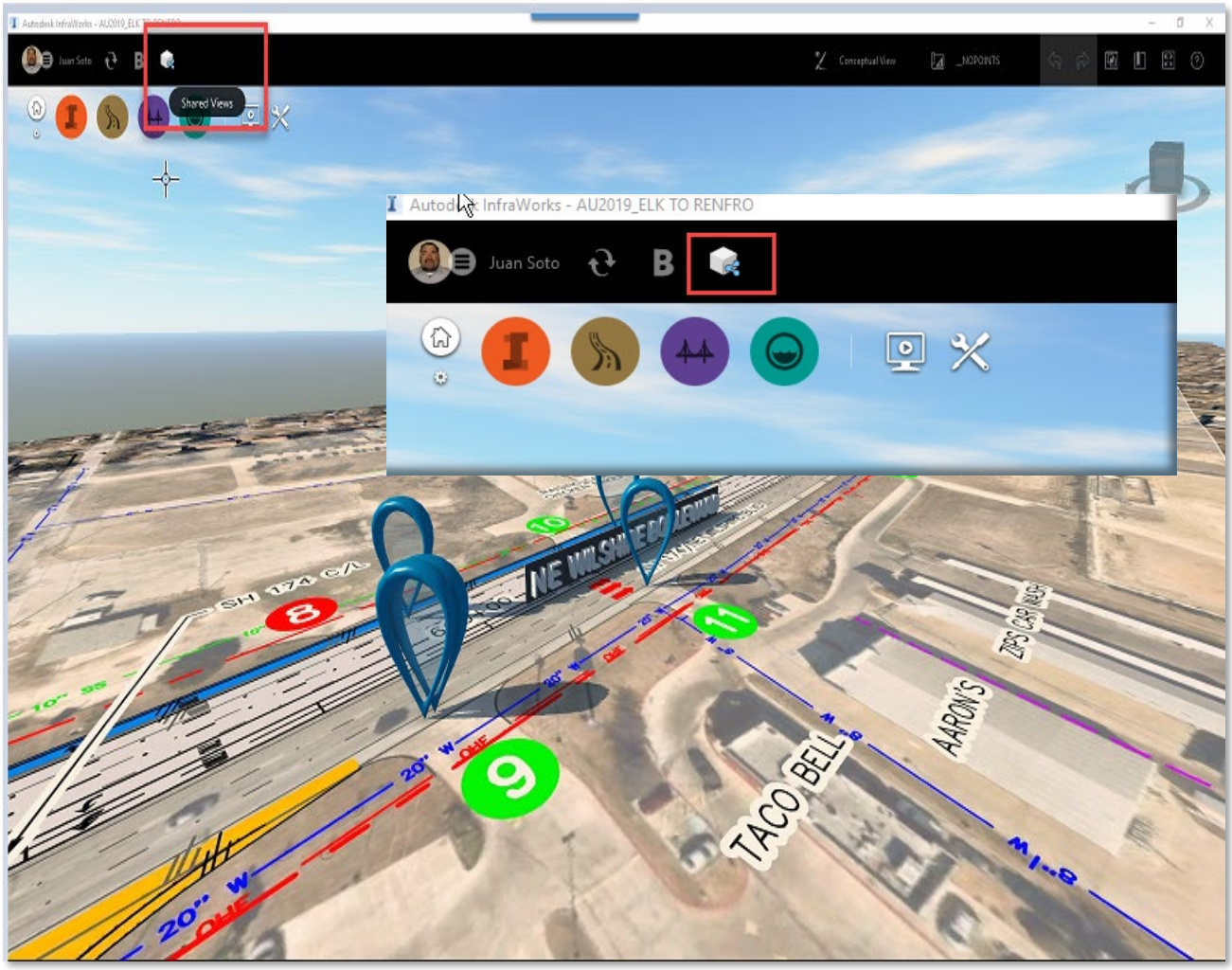


5. Then do the following:
    1. Select one of your POI
    2. Open “Properties” box
    3. Check the hyperlink

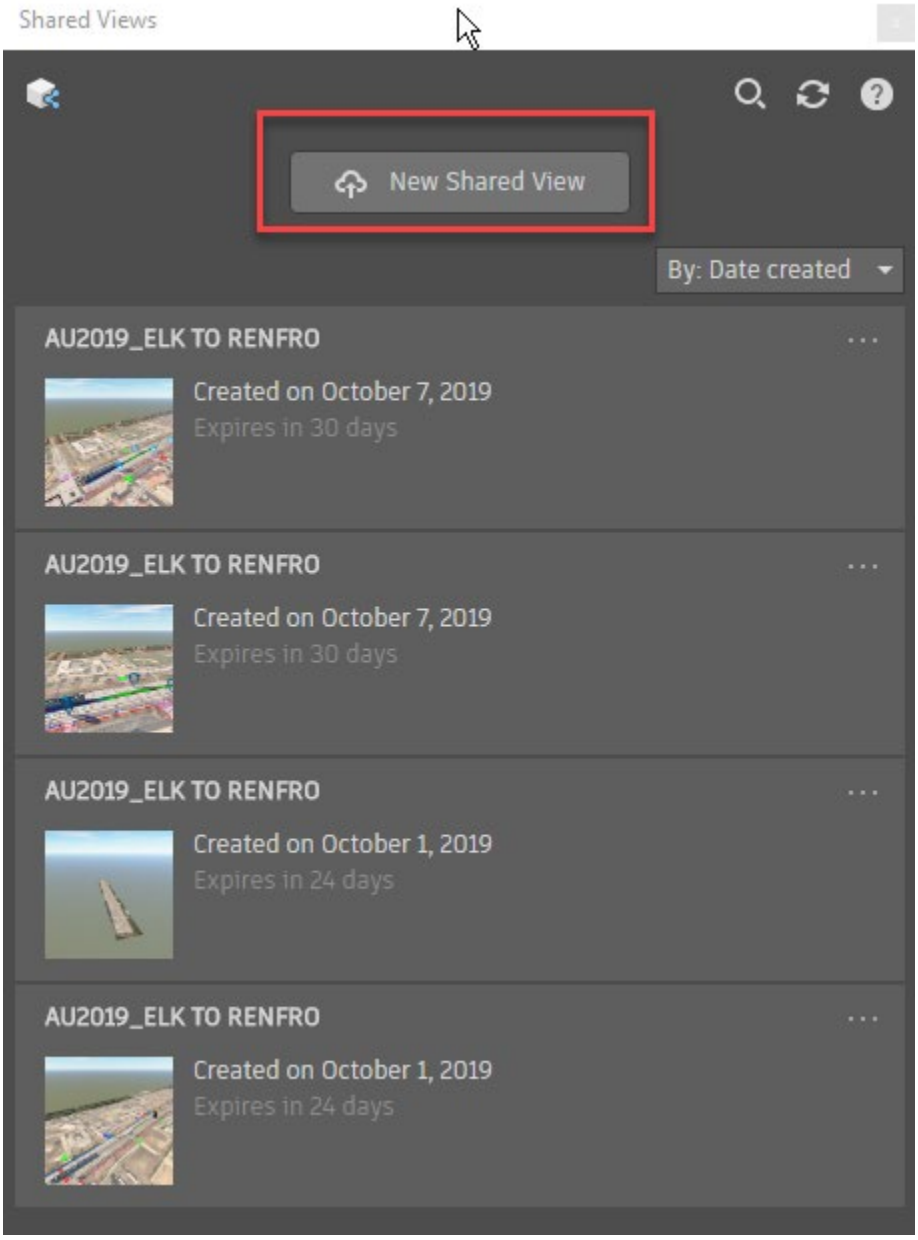


Using Shared Views

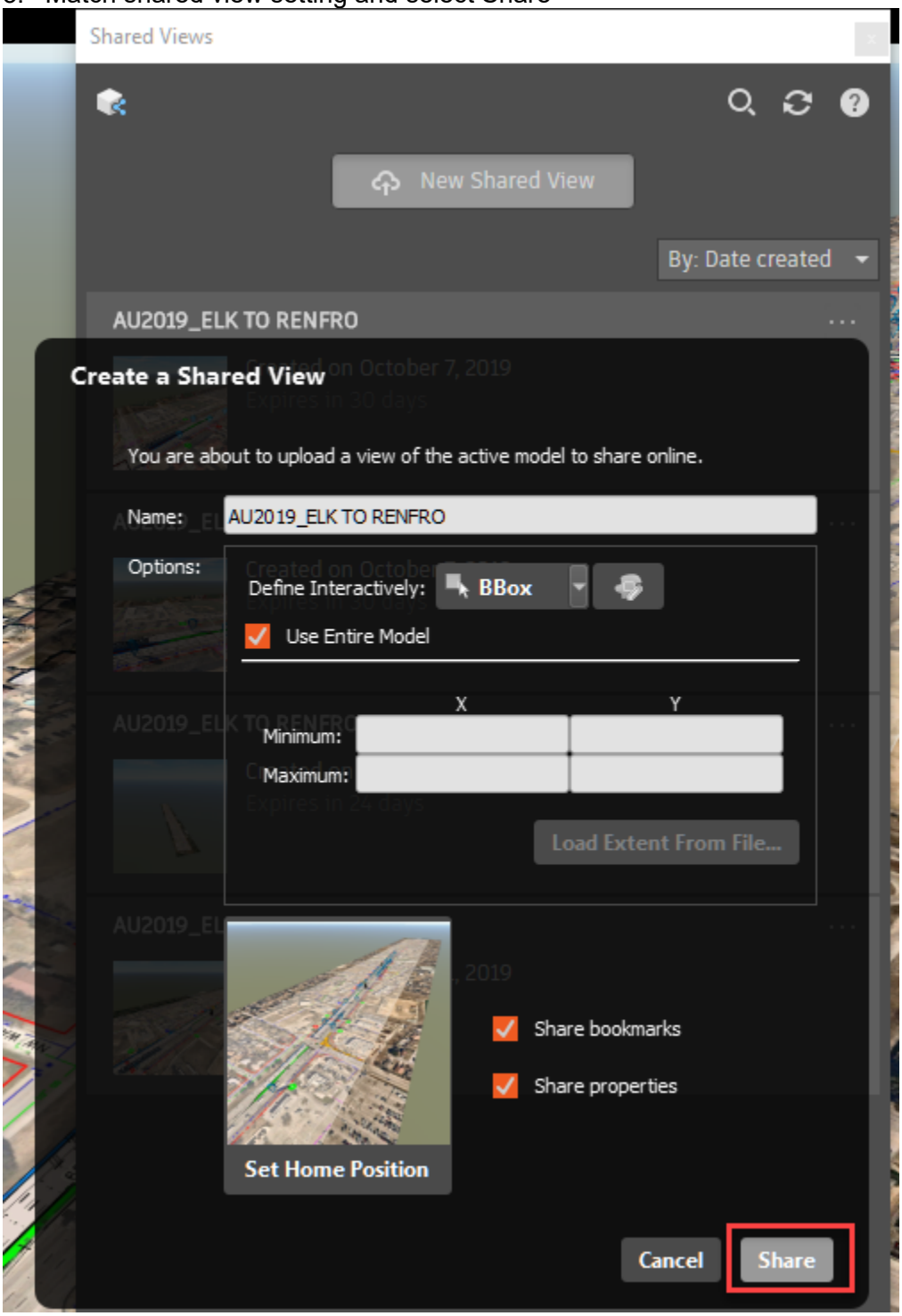
1. Select the “Shared View” icon to generate view



2. Next select “New Shared View”



3. Match shared view setting and select Share



4. Select “View in Browser”