

BIM and Site Development

Joseph Bertucci
BIM Manager - Stantec

2 min

Robert Terry
3D Visualization Designer - Stantec

- Instructional Demo



BIM and Site Development

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1 min

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What Is It...You Do Here???



About the speaker

Joseph Bertucci @BIMtucci

- BIM Manager and Revit Architecture Certified Professional
- Bachelor's Degree in Architecture at the Illinois Institute of Technology
- Digital Design / Fabrication Specialization
- Revit Architecture Certified Professional
- Designer / Leader / Educator
- Specialized BIM outreach/support and develop highly customized workflows
- Background in Themed Entertainment, Hospitality, and Commercial projects



About the speaker

Robert Terry @3dRobT

- 3D Visualization Designer and 3DS Max Certified Professional
- Bachelor's Degree in Fine Arts at the University of Massachusetts
- 3D Artist / Animator with more than 20 years experience
- 3DS Max Certified Professional
- Develop highly customized workflows
- High quality renderings, animations, and real-time interactive previsualizations
- Background in Themed Entertainment, Hospitality, Commercial, and Government projects

Safety Moment

In the event of an emergency...know where the exit signs are.

Upon leaving – we will see you at Table 6!

Be cautious when gambling – 3 phases (a.k.a. 1/3 rule)

- Temptation
 - Winning
 - Losing

In the event of an emergency...

You know where the exit signs are!!!



Learning Objectives

DISCOVER DIFFERENT WORKFLOWS

EXPLORE USE OF REVIT DOCUMENTATION WITH LANDSCAPE

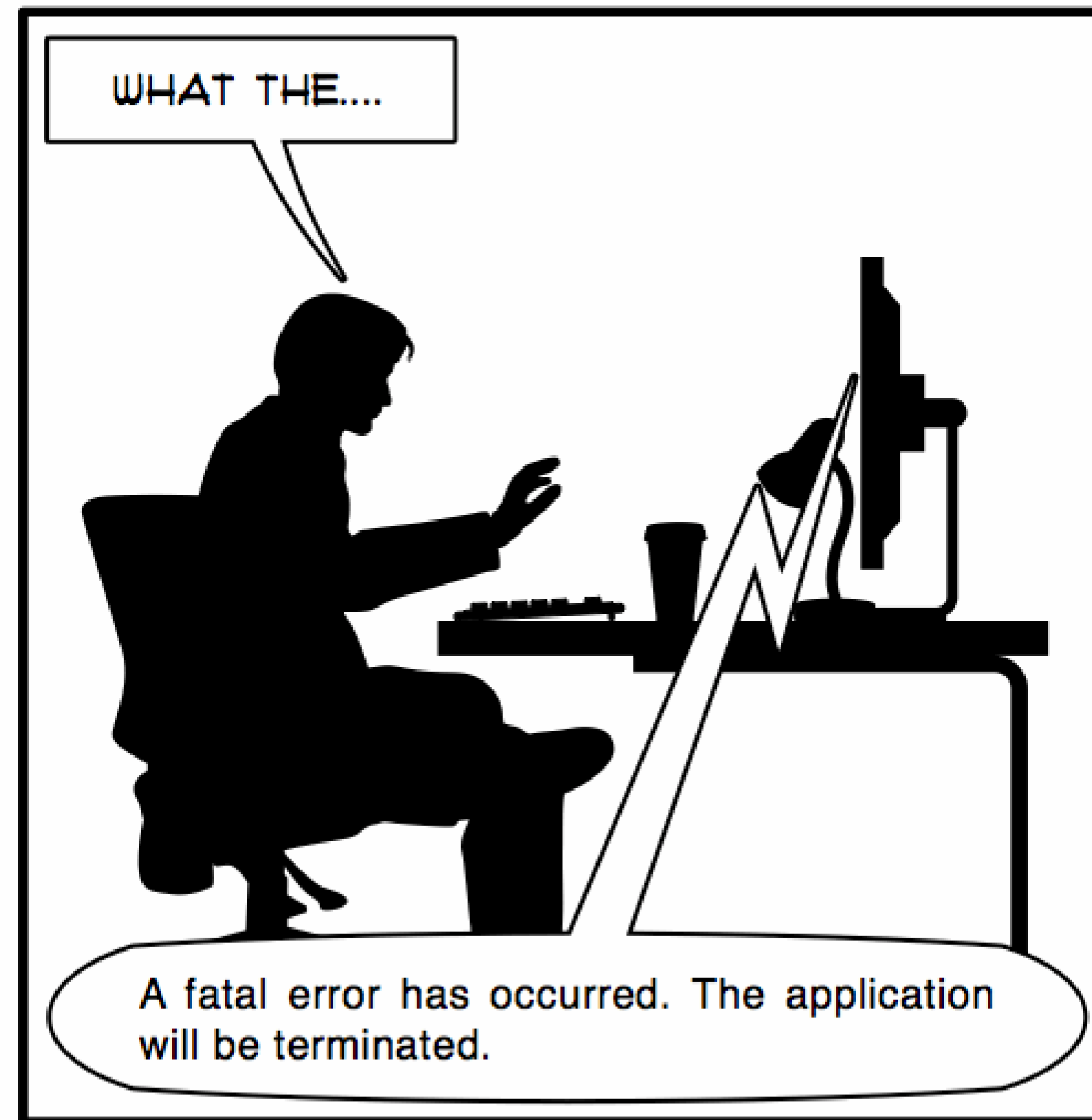
JUSTIFY EARLY COST TO MODELING SITE

STRENGTHS AND LIMITATIONS OF BIM SOFTWARE

“We want to commit, but...”

- 2D Enthusiasts

I Don't Know Where I Am Going



Disruptive Innovation

- Fear in Change
- Same Process Different Tool
- Deliverables are not changing - just how we are producing them
- Being Ahead Of The Curve
- BIM is an ideal we strive for and where we are going

So Why BIM?

INHERENT

- Automation of manual tasks
- Better communication of design intent

ATTAINABLE

- Improved coordination
- Improved quality and efficiency

INEVITABLE

- Industry direction
- Client requirements



ROAD TRIP

A man in a dark suit stands with his back to the camera, looking out over a vast, complex, and multi-layered highway interchange. The roads are dark grey with white lane markings, and they curve and loop in various directions, creating a sense of infinite possibilities and choices. The sky above is bright and filled with soft, white clouds. The overall atmosphere is one of contemplation and decision-making.

Which Path Should I Take?



The Right Tool for the Job

Multiple solutions for a desired result

All contribute to the development of Site

We will be focusing on Revit and 3DS Max

Plus / ~~Minus~~ (Delta)

AUTOCAD

Plus = Familiar and versatile, stepping stone to 3d programs like SketchUp

Delta = Not multi-discipline solution

REVIT

Plus = Interoperability, High impact 3d visuals, Multi-discipline solution, Documentation

Delta = Learning Curve, Different Approach

3DS MAX

Plus = Versatile product for modeling/renderings/animations

Delta = Intimidating interface



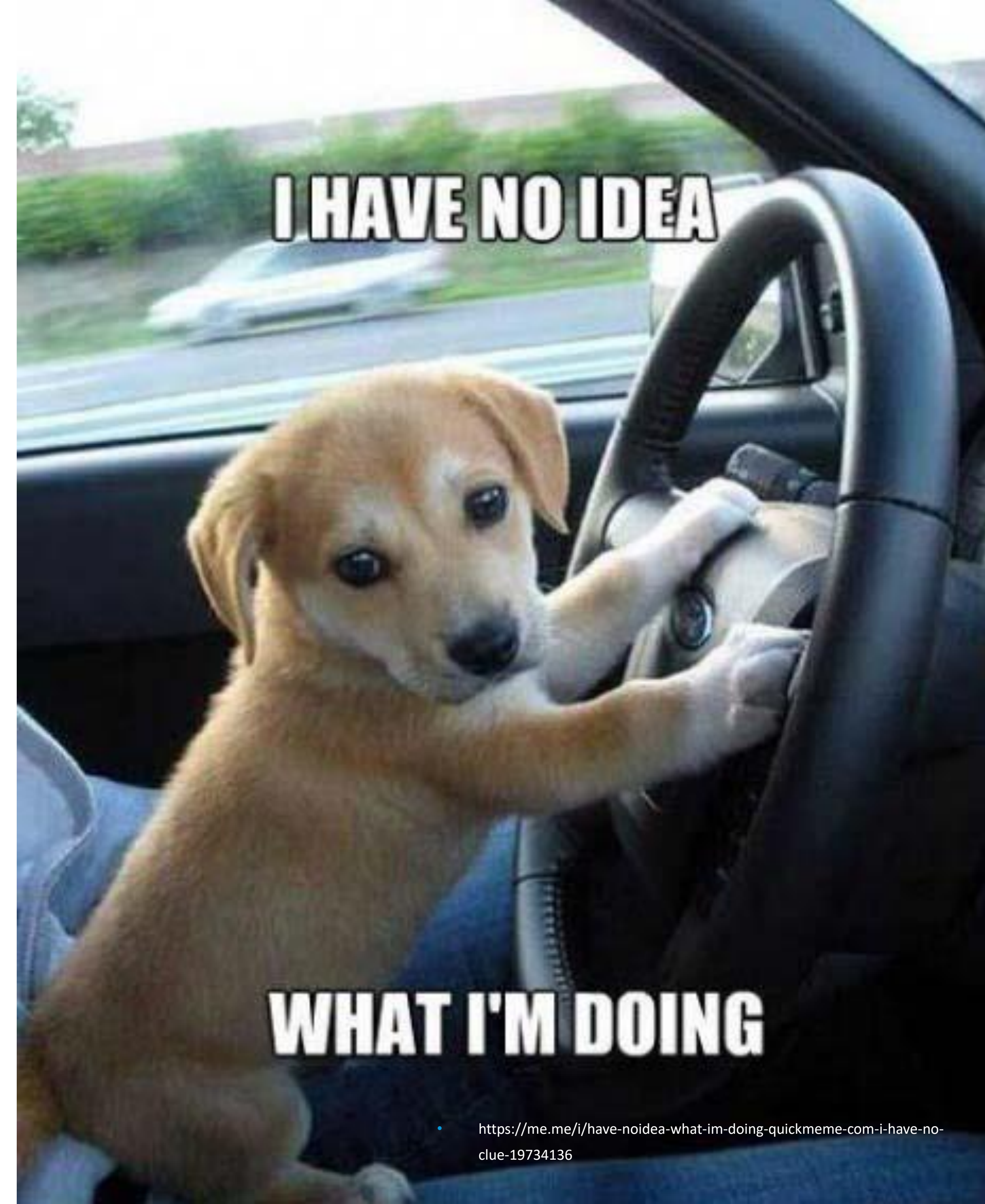
REVIT-alize Your Site

Migration Monday (a.k.a. Migraine Monday)

How do we migrate from CAD into Revit?

“We” as BIM Managers are the GPS.

- Remove 3D from the equation for the moment
- Yes...I know...not the best Revit sales pitch
- Take advantage of schedules, areas, revisions, and documentation tools
- Multi-discipline collaboration
- 4 Phases/Stages Process



Phases/Stages

1

CONTAINER

2D ELEMENTS

Details, Symbols, Legends,
Notes, Schedules, Cartoon Set

2

FLAT

HORIZONTAL 3D

Floors, Planting, Subregions

3

ELEVATE

VERTICAL 3D

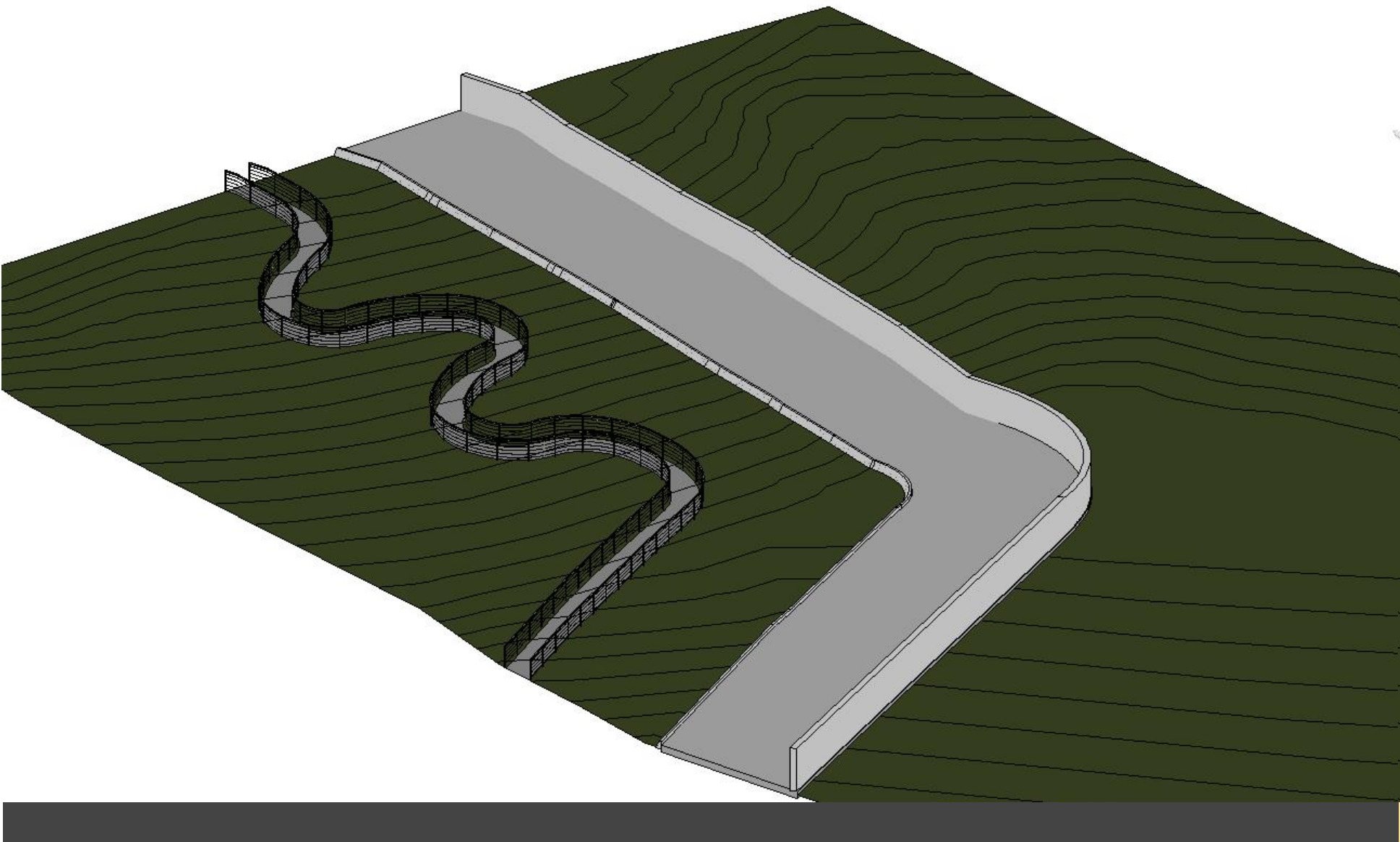
Levels, Walls, Stairs, Ramps,
Railings

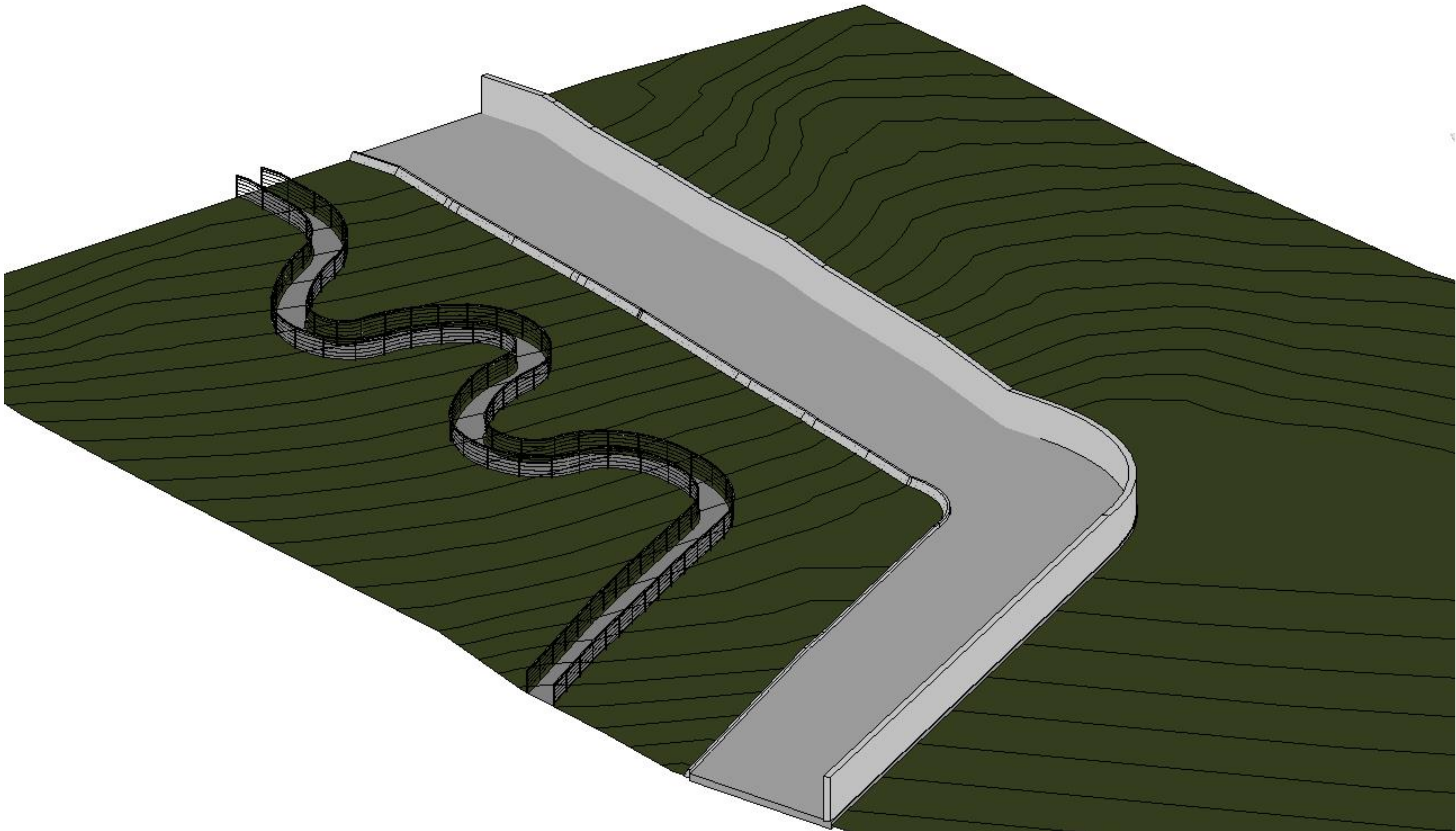
4

MANIPULATE

DYNAMO & AUTOMATION

Sloped Floors, Topo
Adjustments, Hosting Elements





Modeling Techniques

FLOORS & SUBREGIONS

Hardscape / Landscape to be placed as these.

Use of subregions will help map floor to topo

RAILINGS & CURBS

Railing can host to topo since 2018 Revit.

Curbs can be railings

TREE PLACEMENT

Place trees along curves with Dynamo

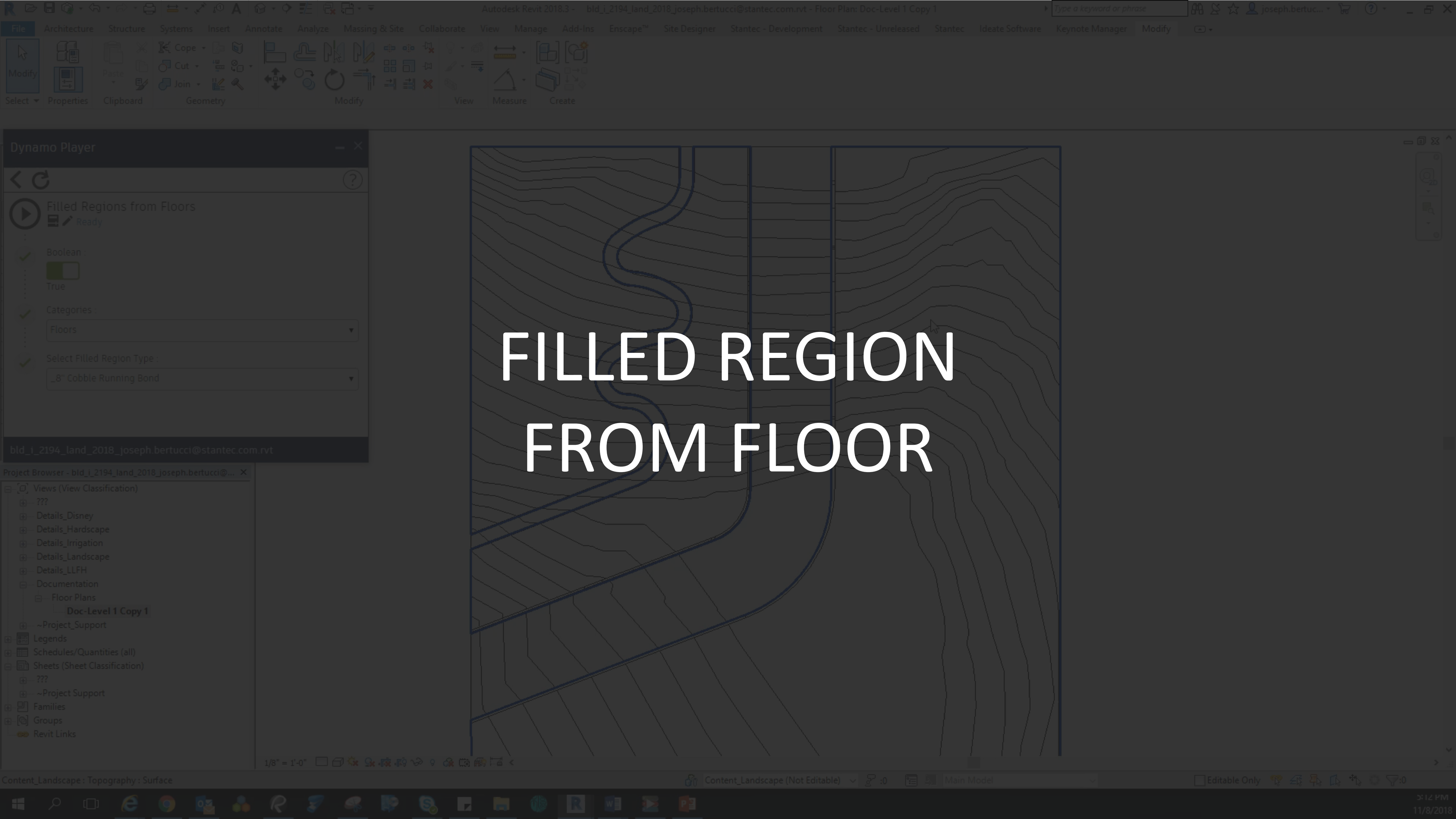
Use plant families with nested root balls.

PLANT CALCULATIONS

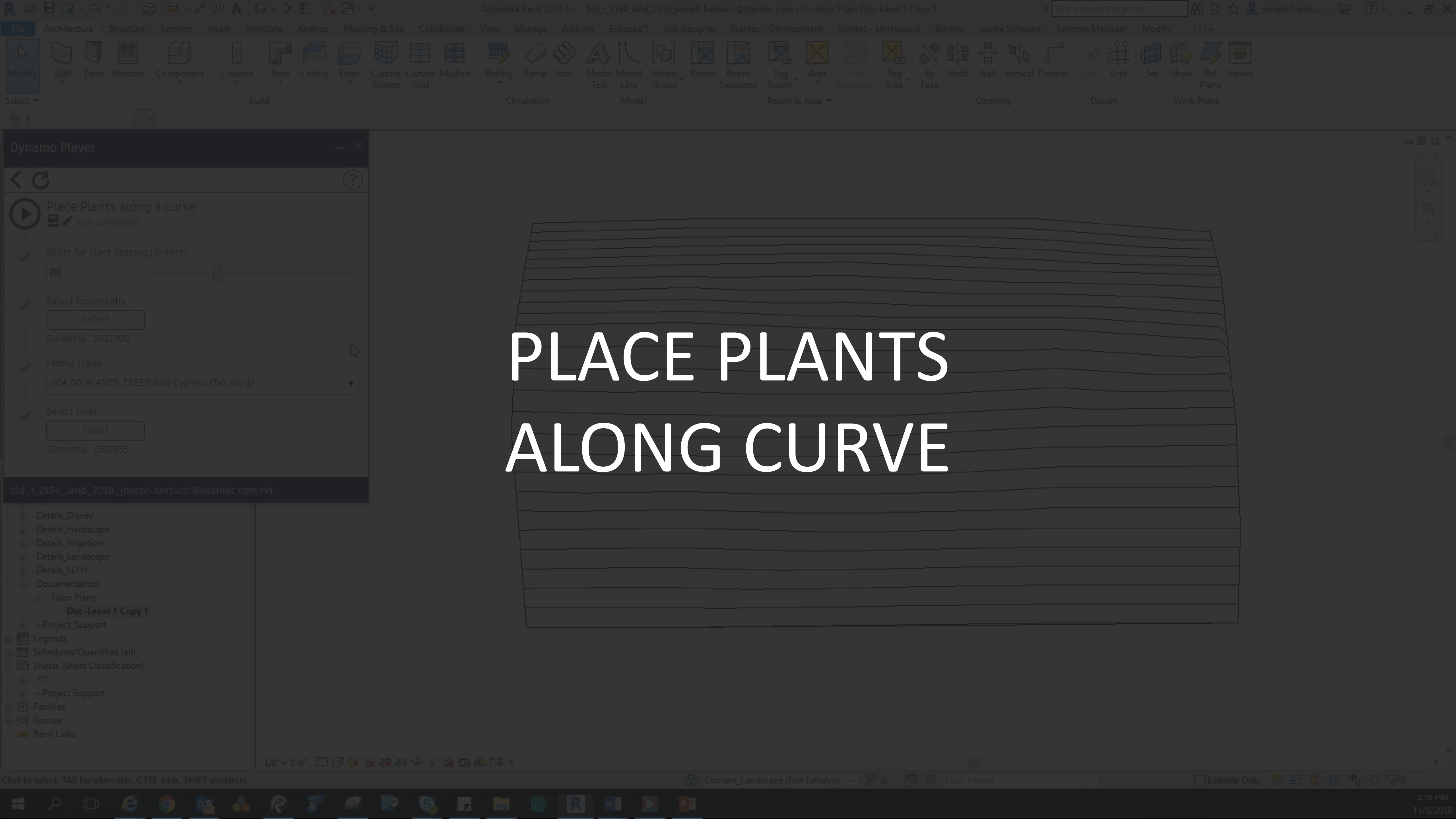
Annotation tags made to enhance documentation

Tags recognize Plants per sq/ft parameter in floors

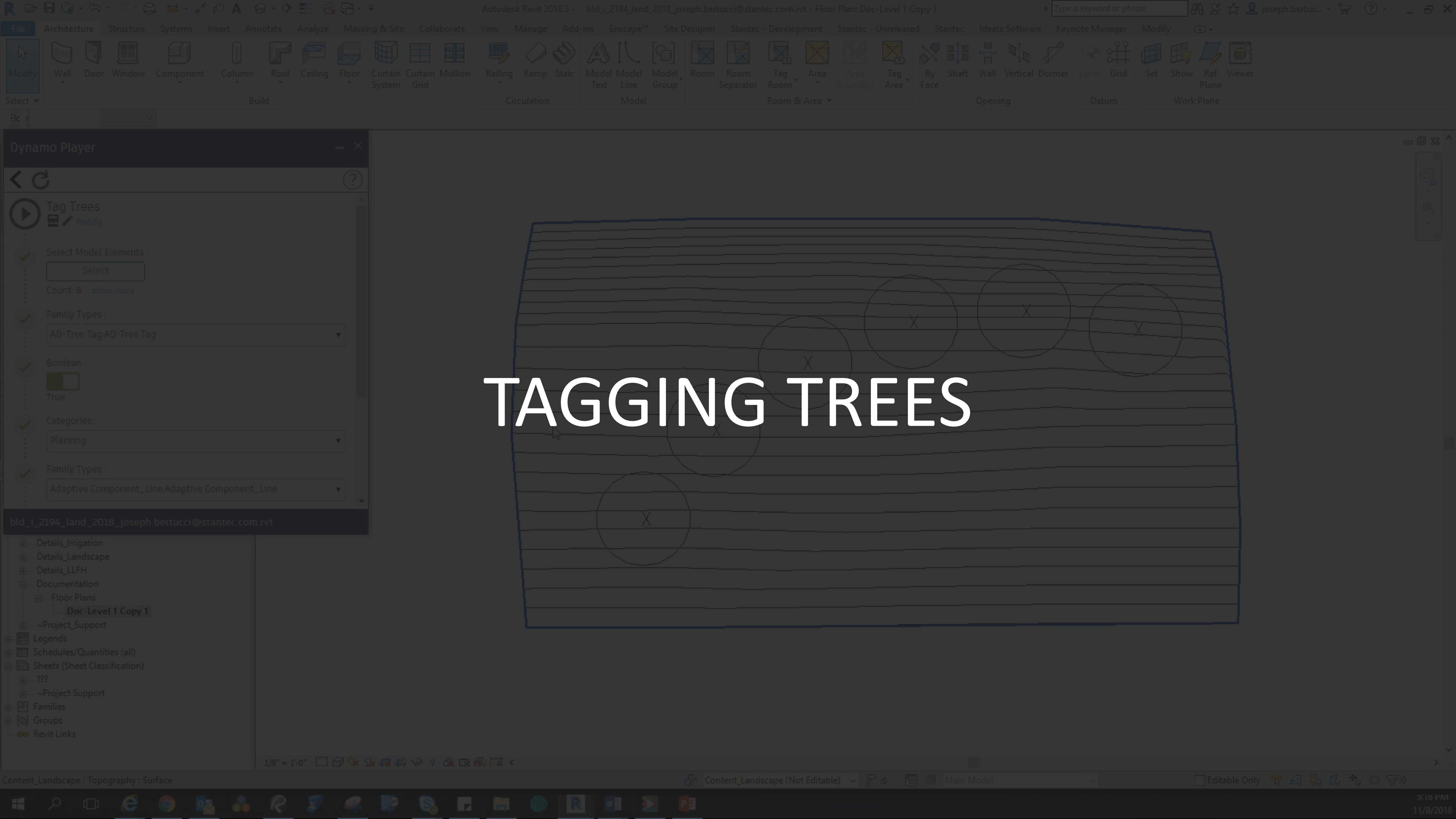


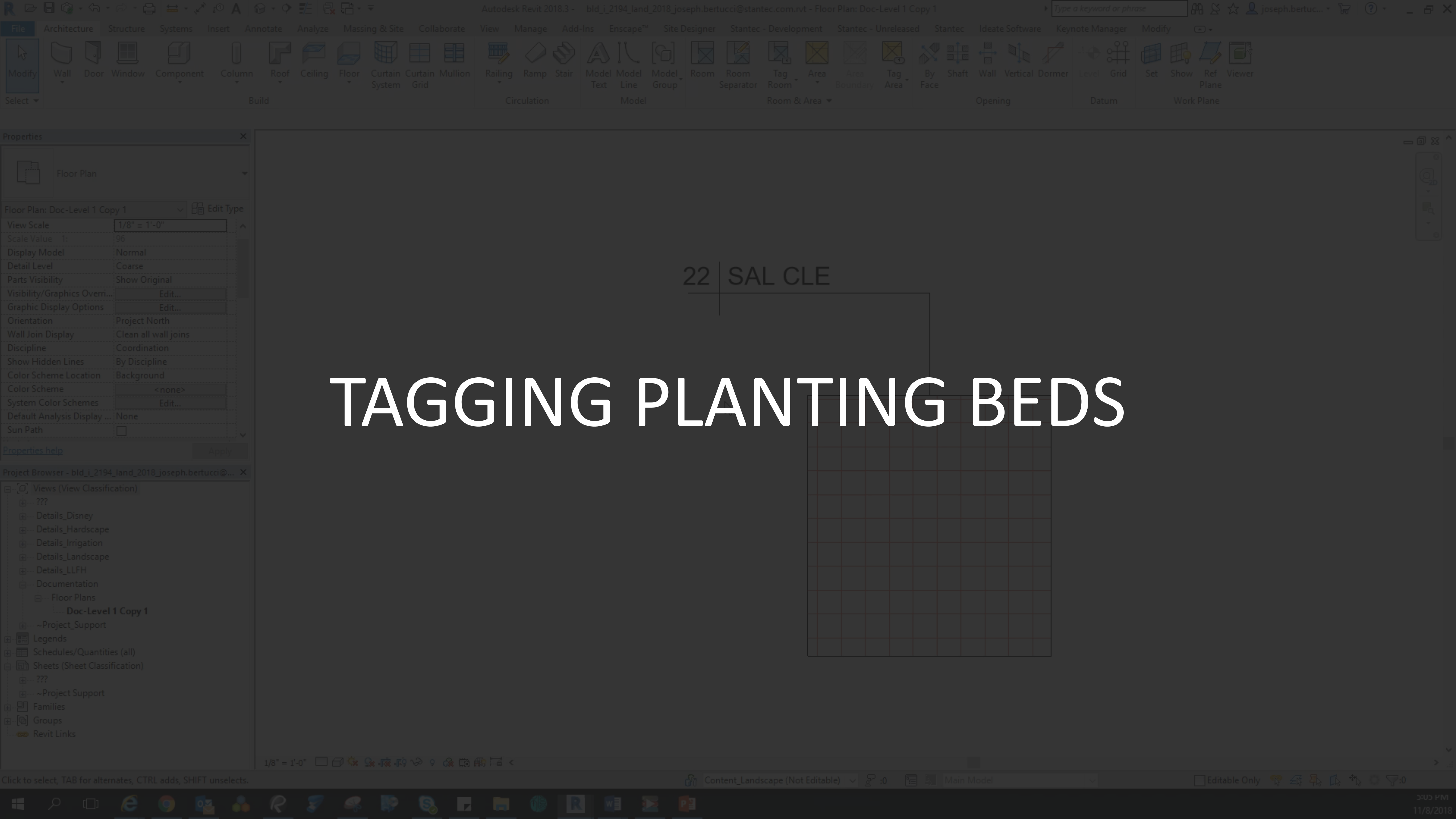


FILLED REGION
FROM FLOOR



PLACE PLANTS ALONG CURVE





A close-up photograph of a baby with light brown hair and blue eyes, looking directly at the camera with a determined, slightly pouting expression. The baby is wearing a green and white long-sleeved shirt and is holding a small amount of sand in their right hand. The background is a blurred beach scene with sand and the ocean under a blue sky.

HANDS ON THE WHEEL

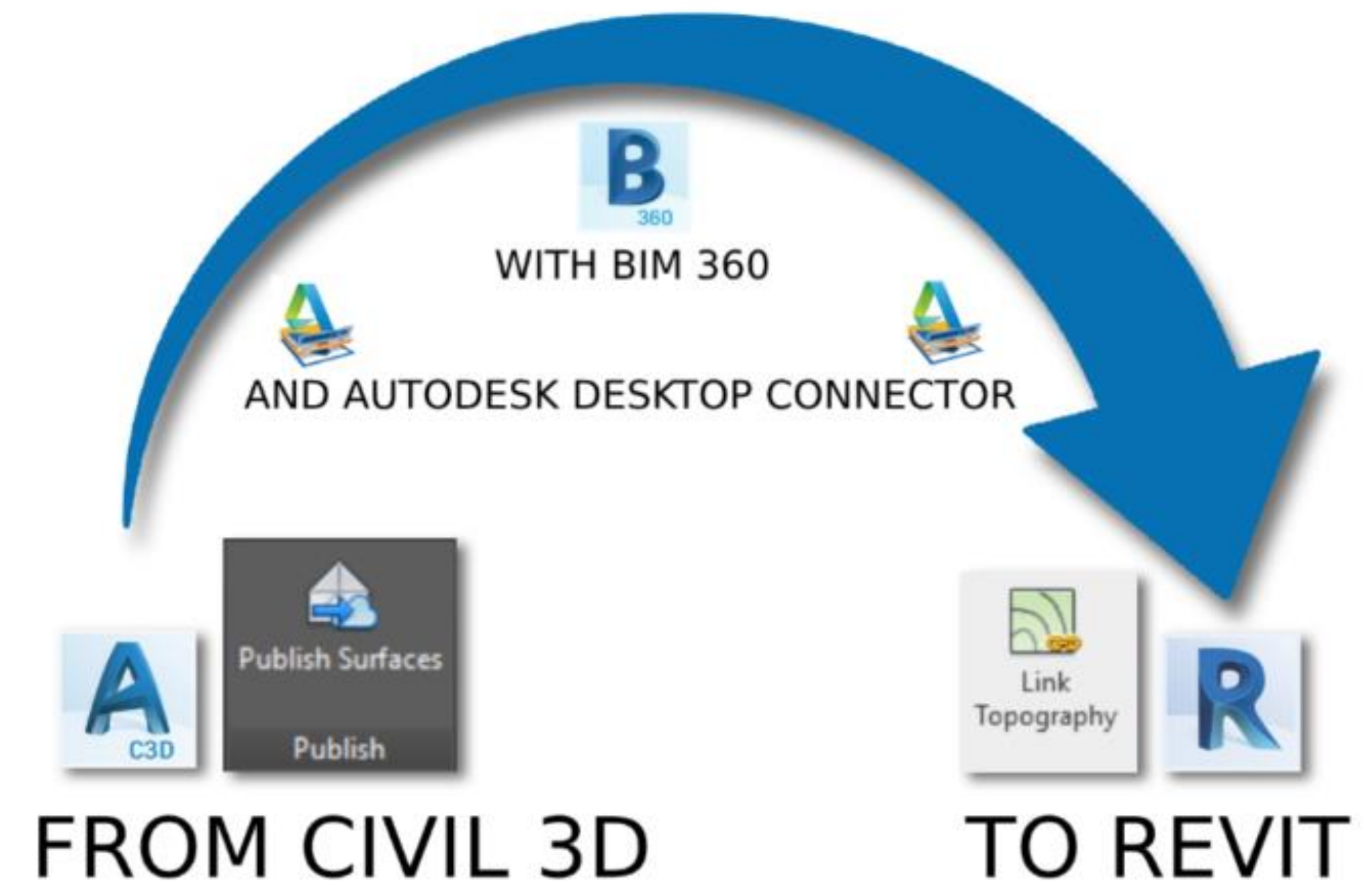
I GOT THIS!!!

• <https://www.flickr.com/photos/sammyjammy/1285612321/in/album-72157620597747933..>

Civil with Revit

- Revit 2019 – Link to Topography
- BIM360 use for team collaboration
- From Civil 3D 2019 – publish surfaces to BIM360 Document Management using Desktop Connector.
- Retain shared coordinates between software.
- Updates subregions upon re-load

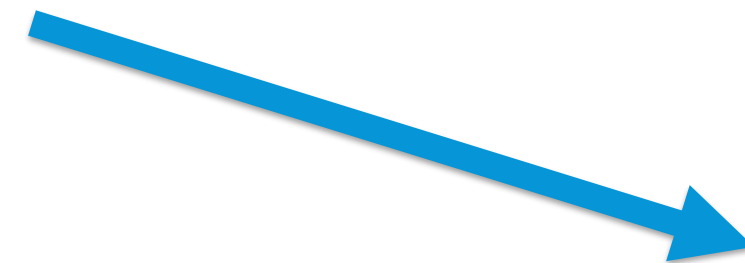
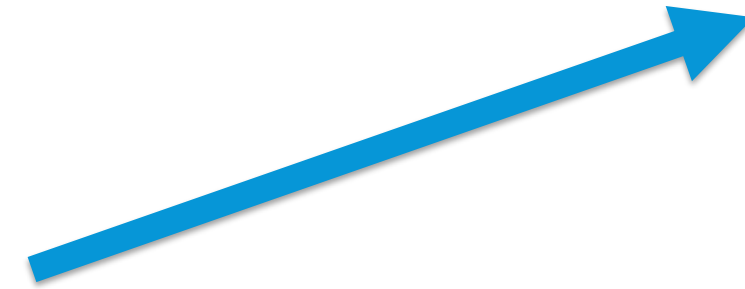
TRANSFER YOUR TOPOGRAPHY



DESIGN ENHANCE PRESENT

R

3

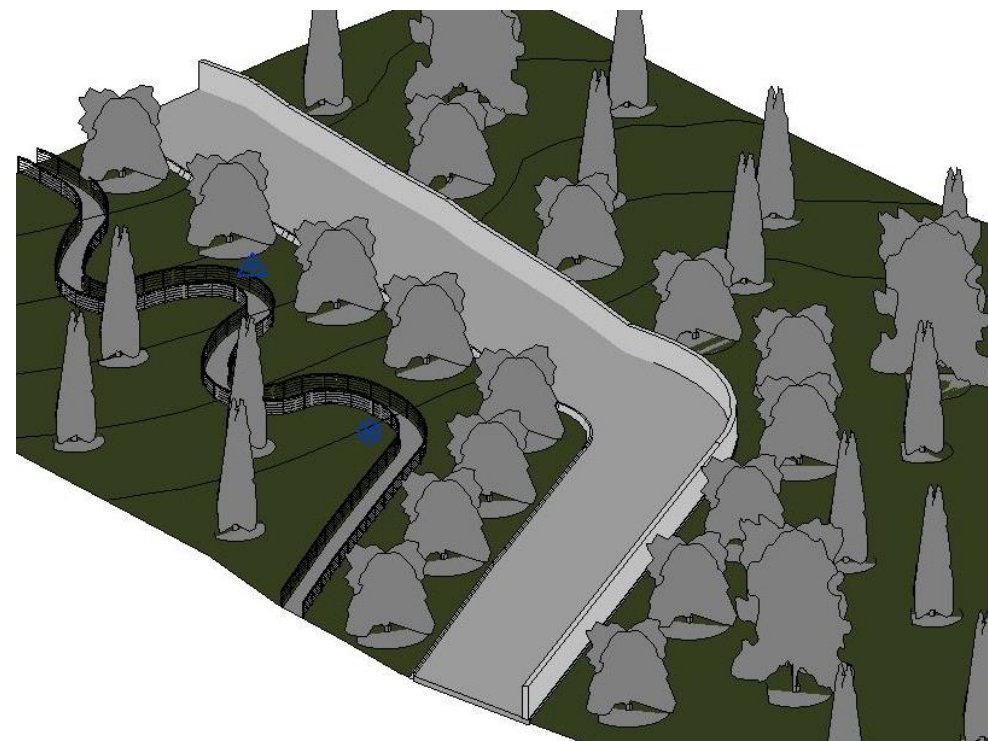


UNREAL
ENGINE

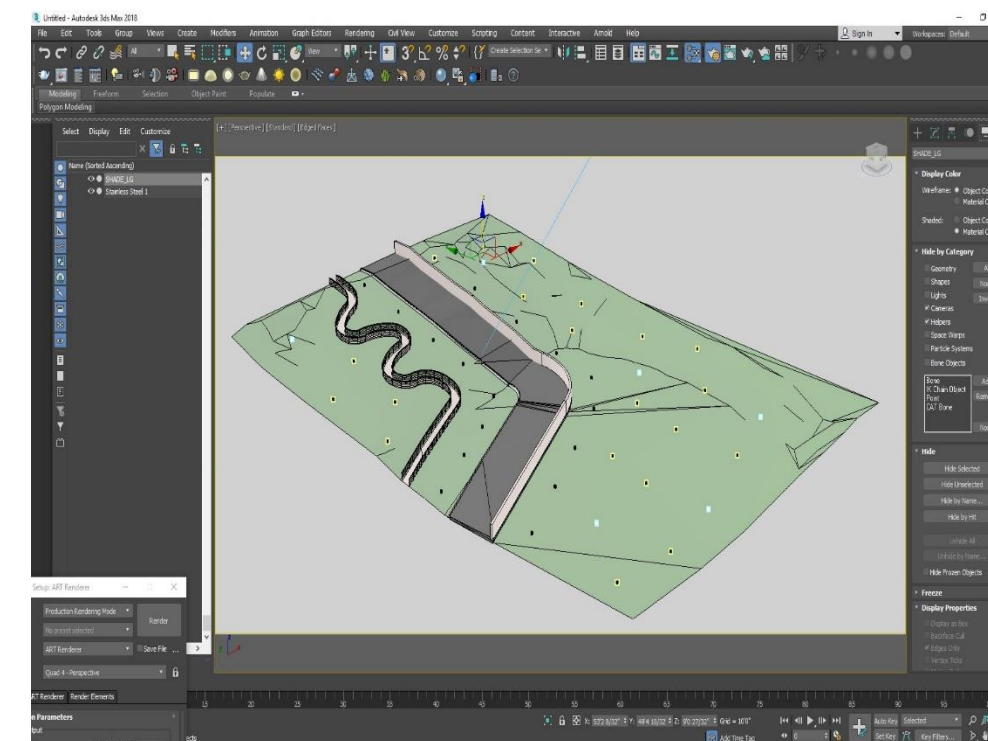
Workflow Example



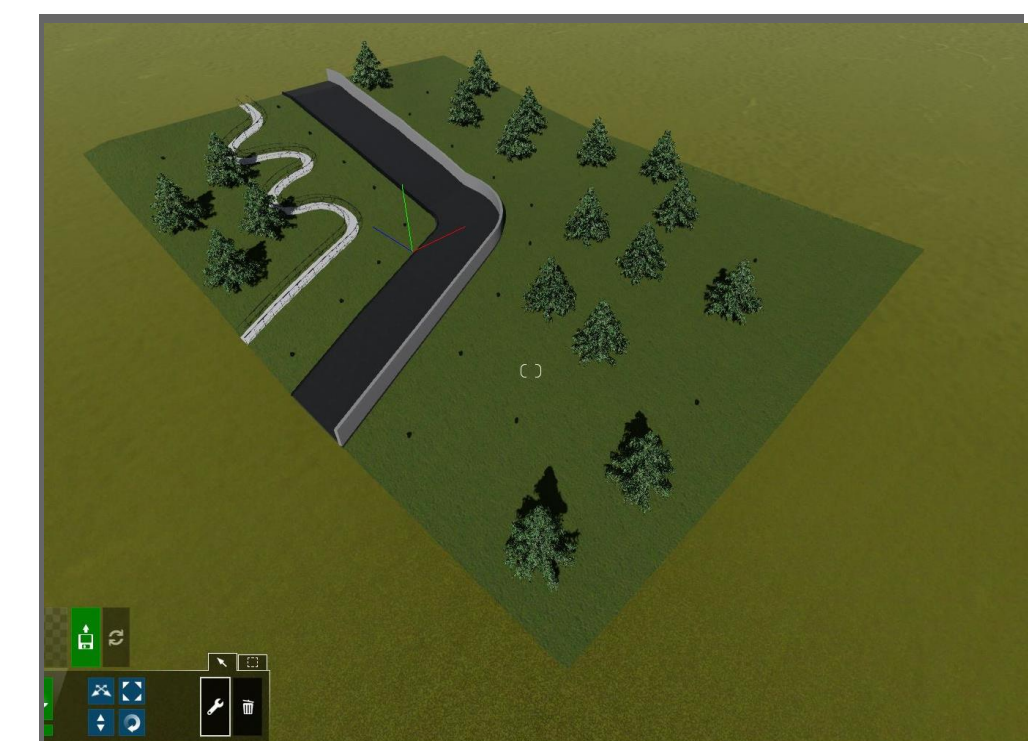
Plant families – Nested root ball family (categorized as site) with a material associated to the plant type



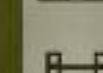
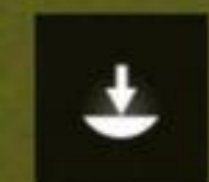
Place trees in Revit – Export each tree type as separate FBX



Link FBX (do Not Combine Entities) – Trees are “dummy” objects but root ball is recognized as geometry. Export as FBX for Lumion.



Place item on nodes in Lumion



Nature Library



1 2 3 4 5

Search

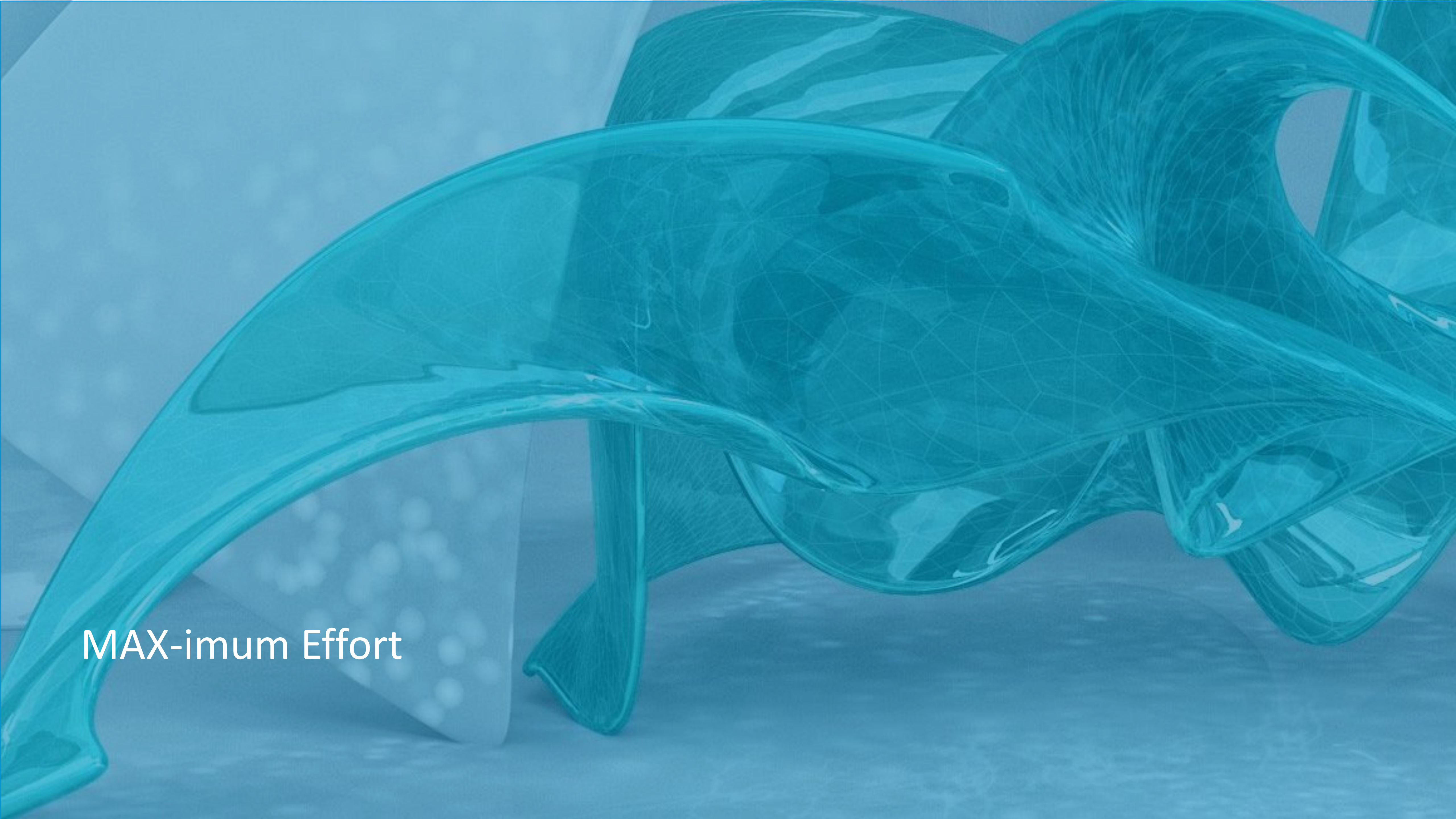




CTRL

O

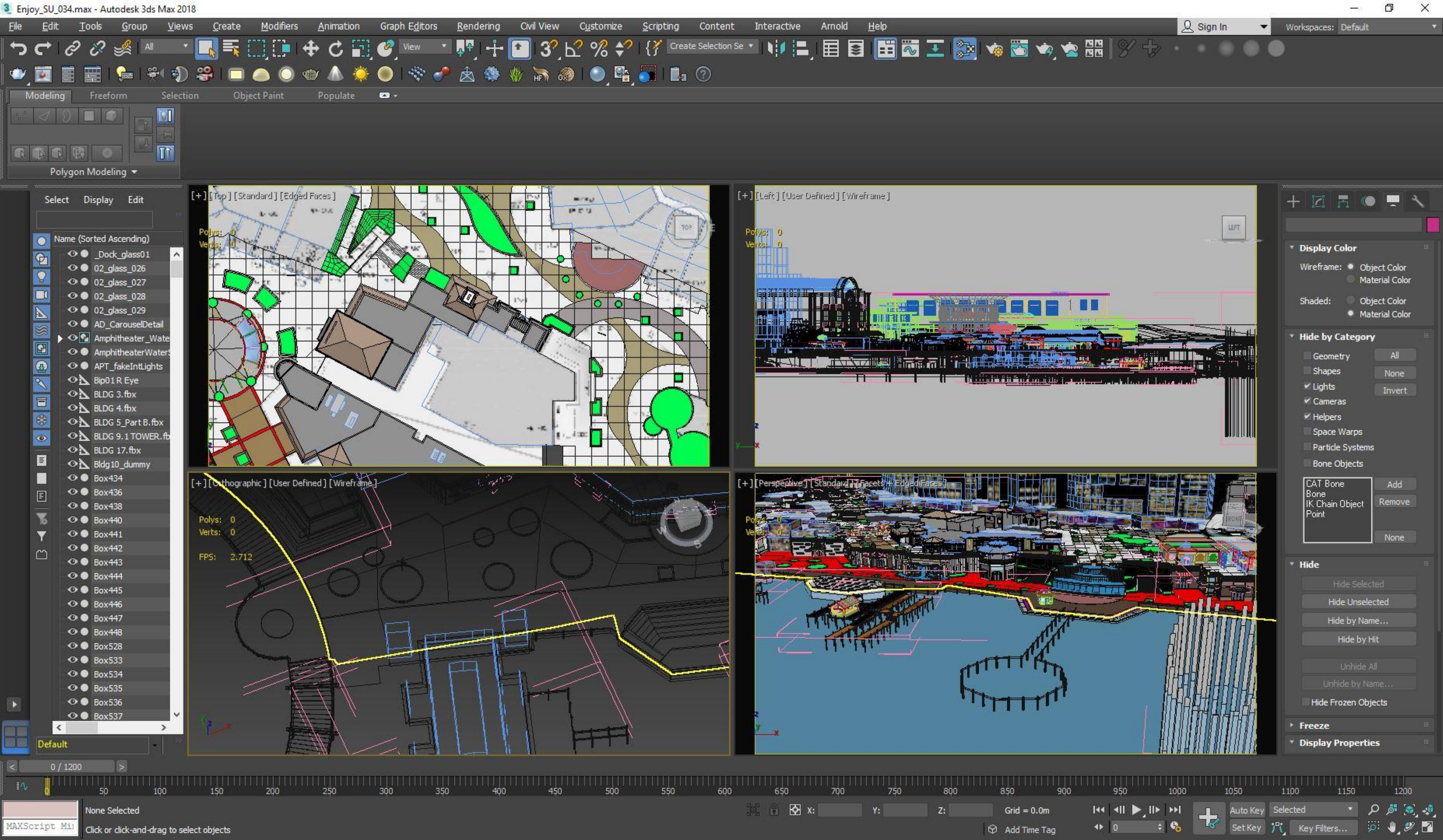




MAX-imum Effort

A close-up photograph of a BMW car's front wheel, featuring a multi-spoke alloy rim and a blue brake caliper. In the foreground, a yellow speed bump with a black textured surface is visible on the asphalt road. The text "Don't confuse speed bumps with stop signs" is overlaid in white, centered on the image.

Don't confuse speed bumps
with stop signs



Form Follows Function

3ds Max – Another tool in the toolbox

- parametric design options
- material mapping control
- animation

SCULPTURAL / TENSILE / FABRIC

- Spline based parametric modeling techniques

NURBS

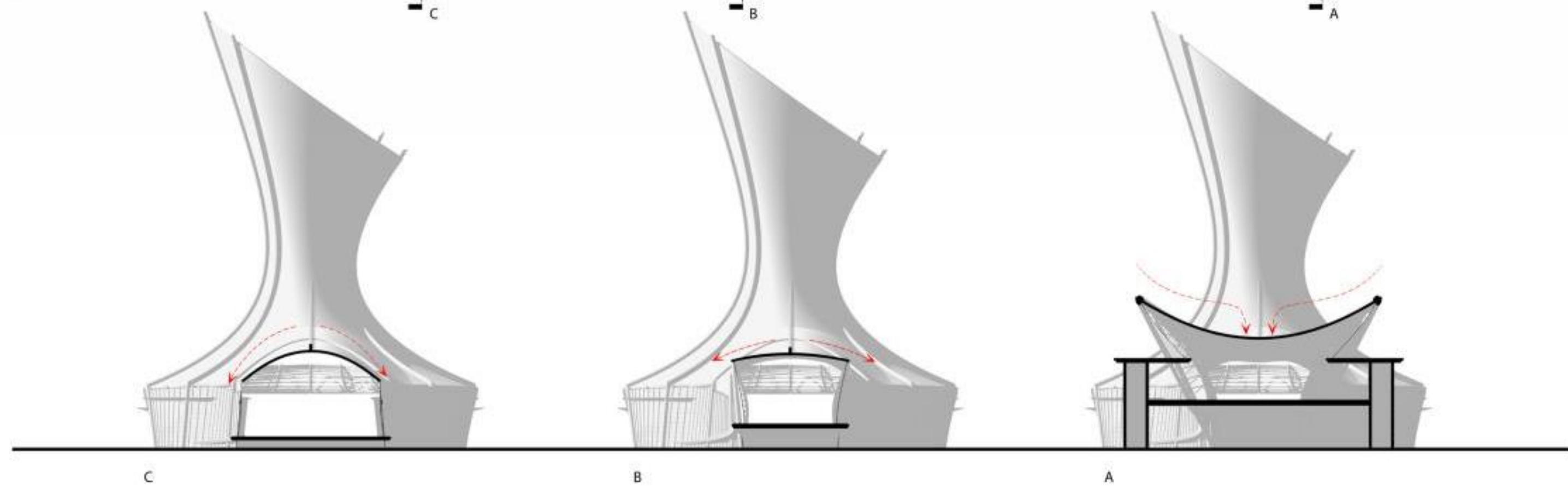
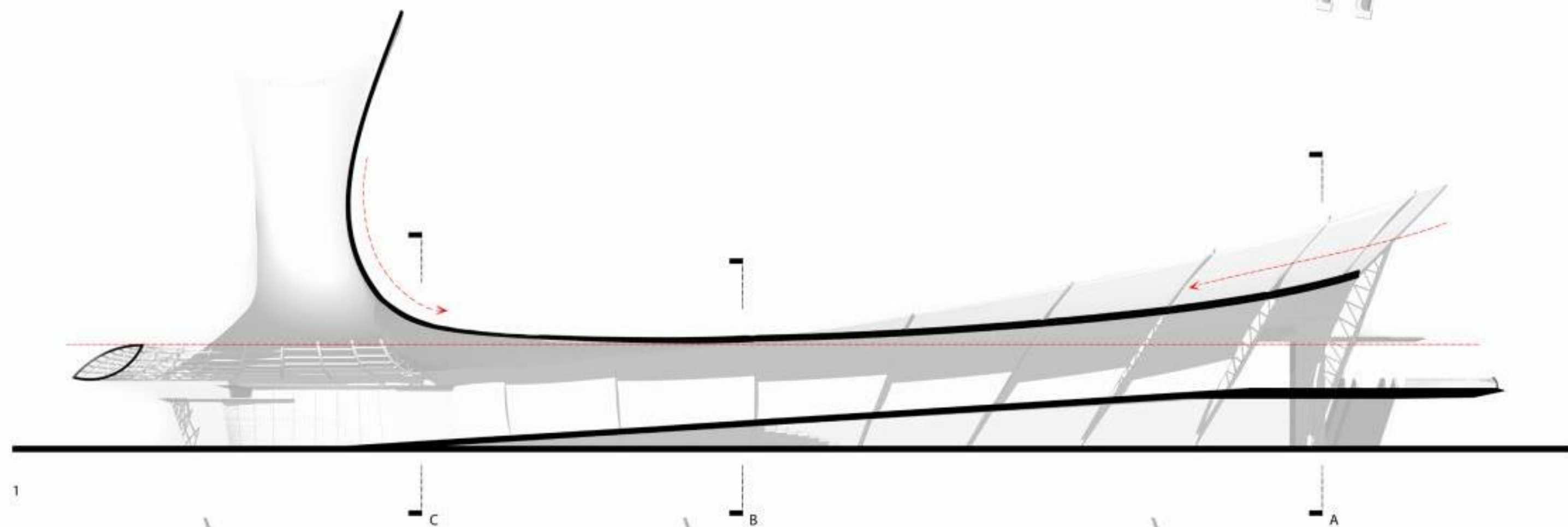
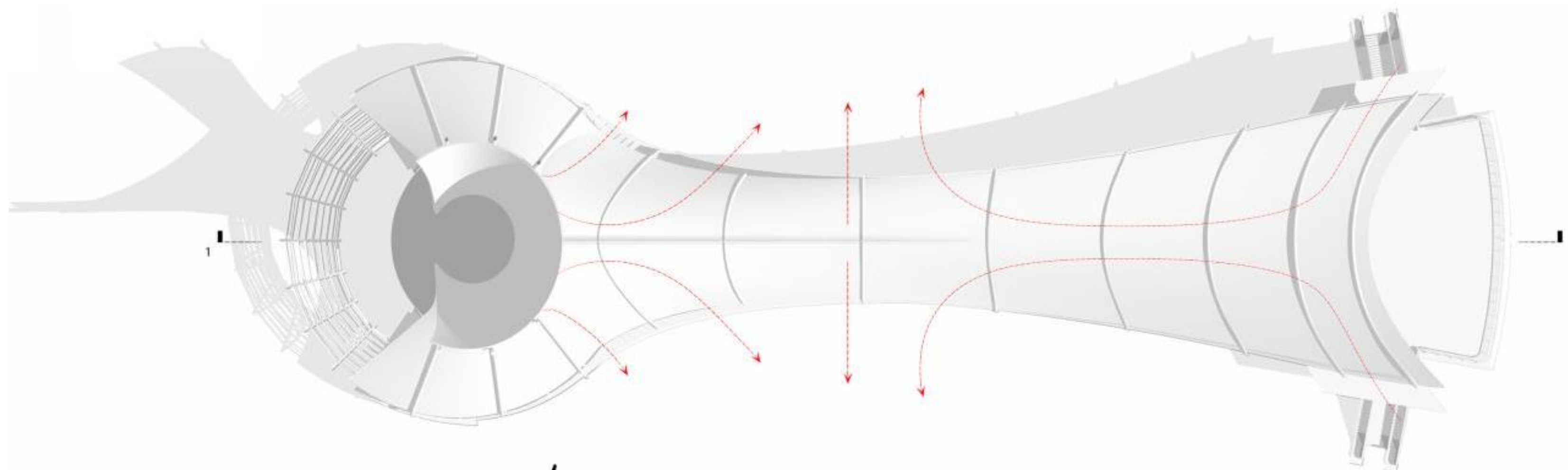
MOUNTAINS / ROCKWORK

- Amorphous, organic modeling
- Procedural modeling

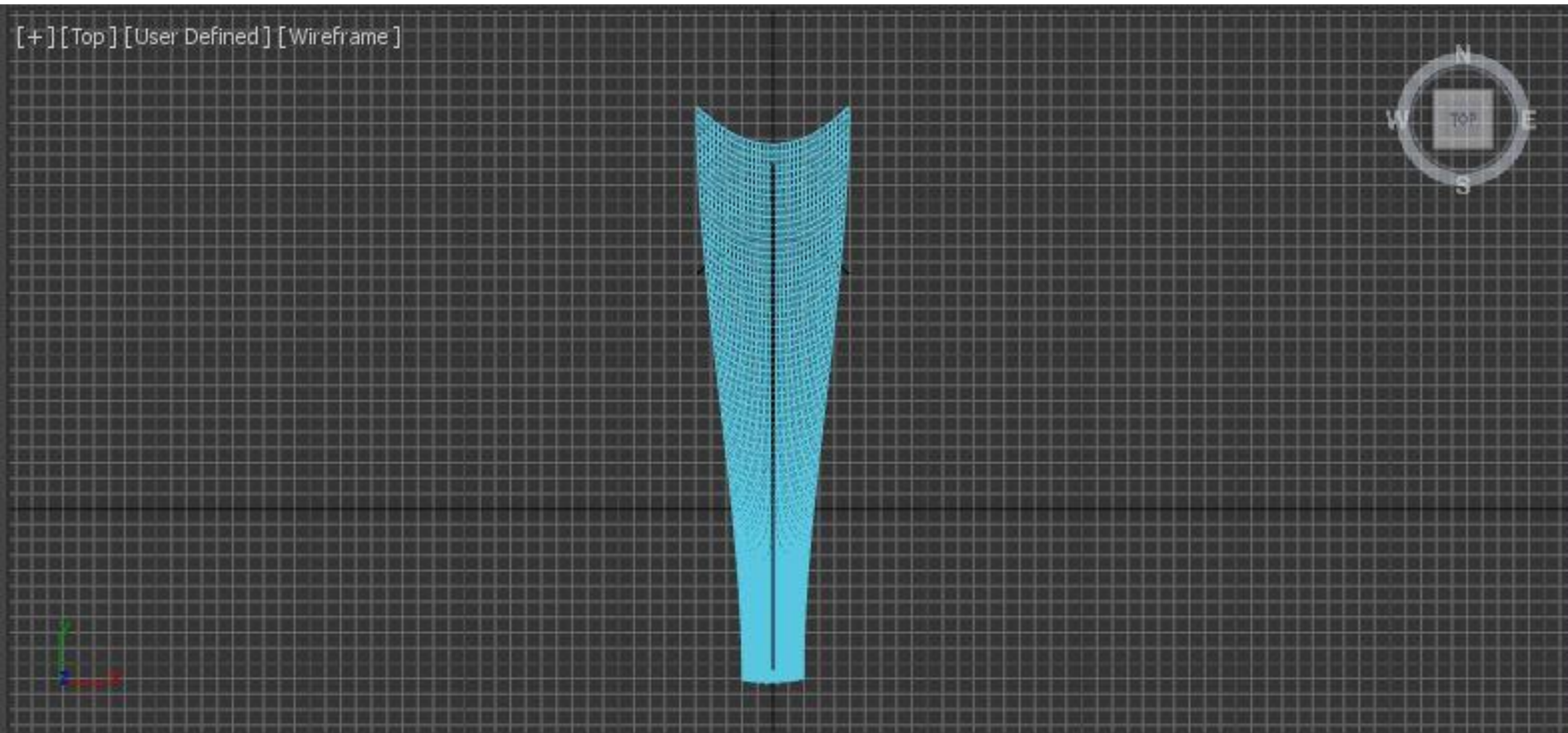




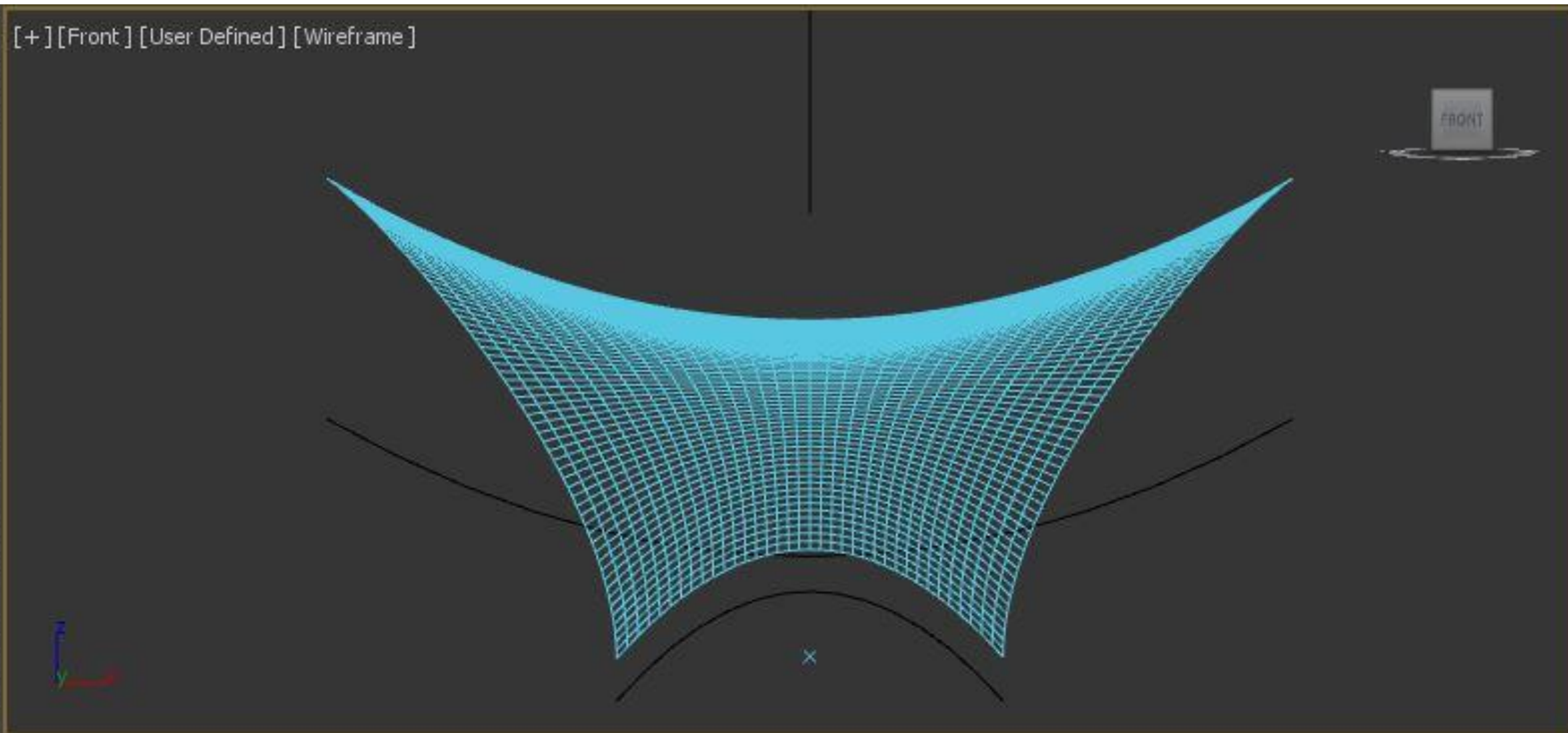




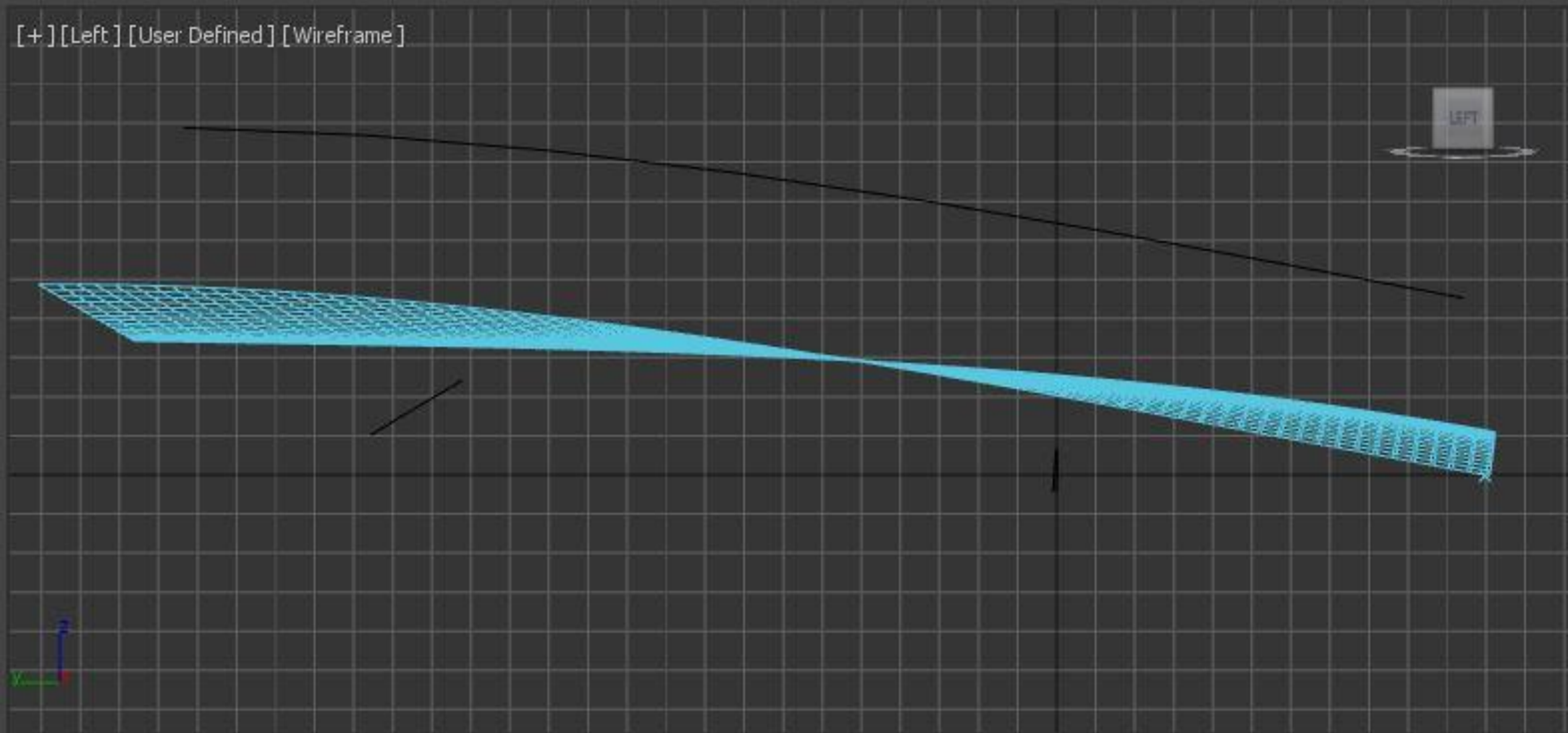
[+][Top][User Defined][Wireframe]



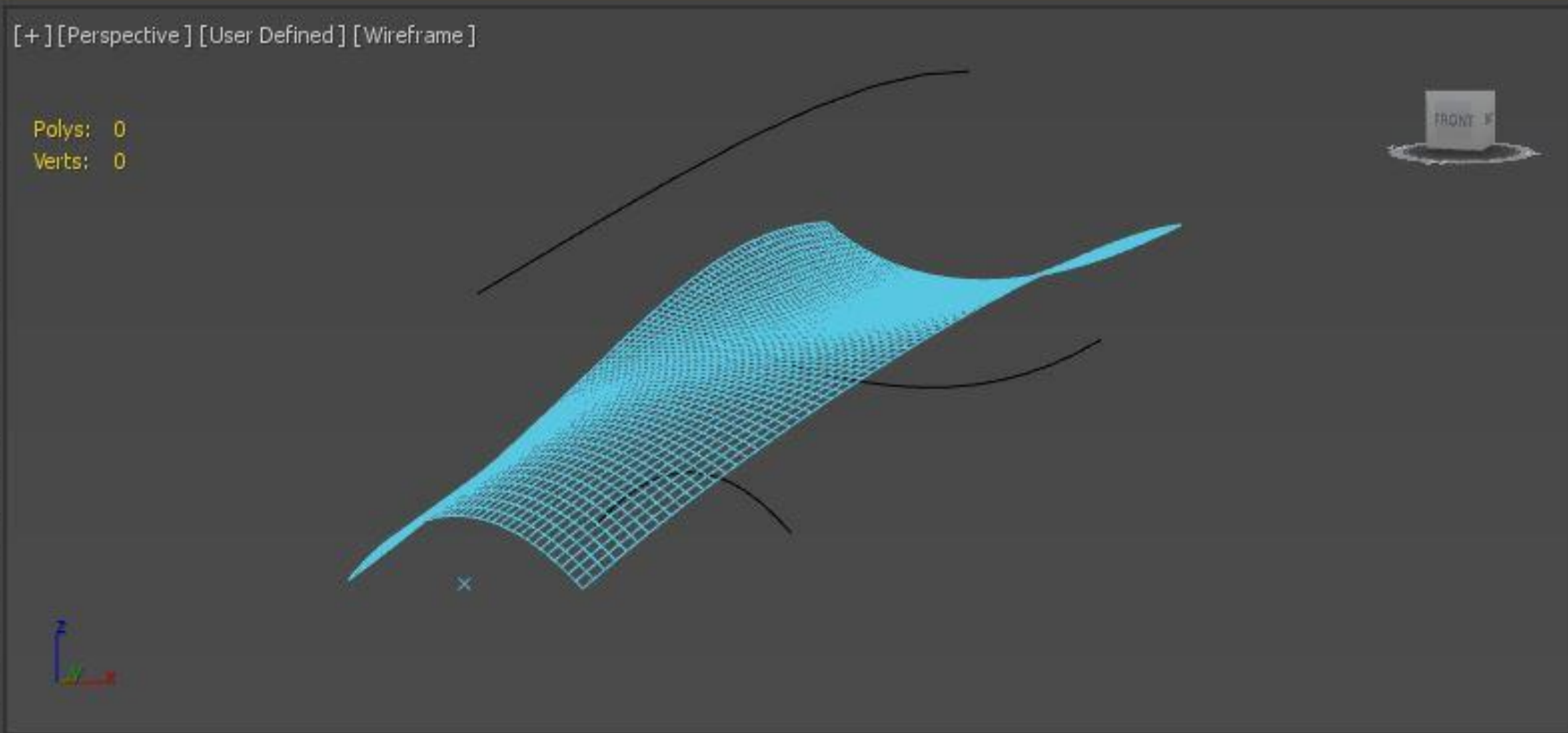
[+][Front][User Defined][Wireframe]



[+][Left][User Defined][Wireframe]

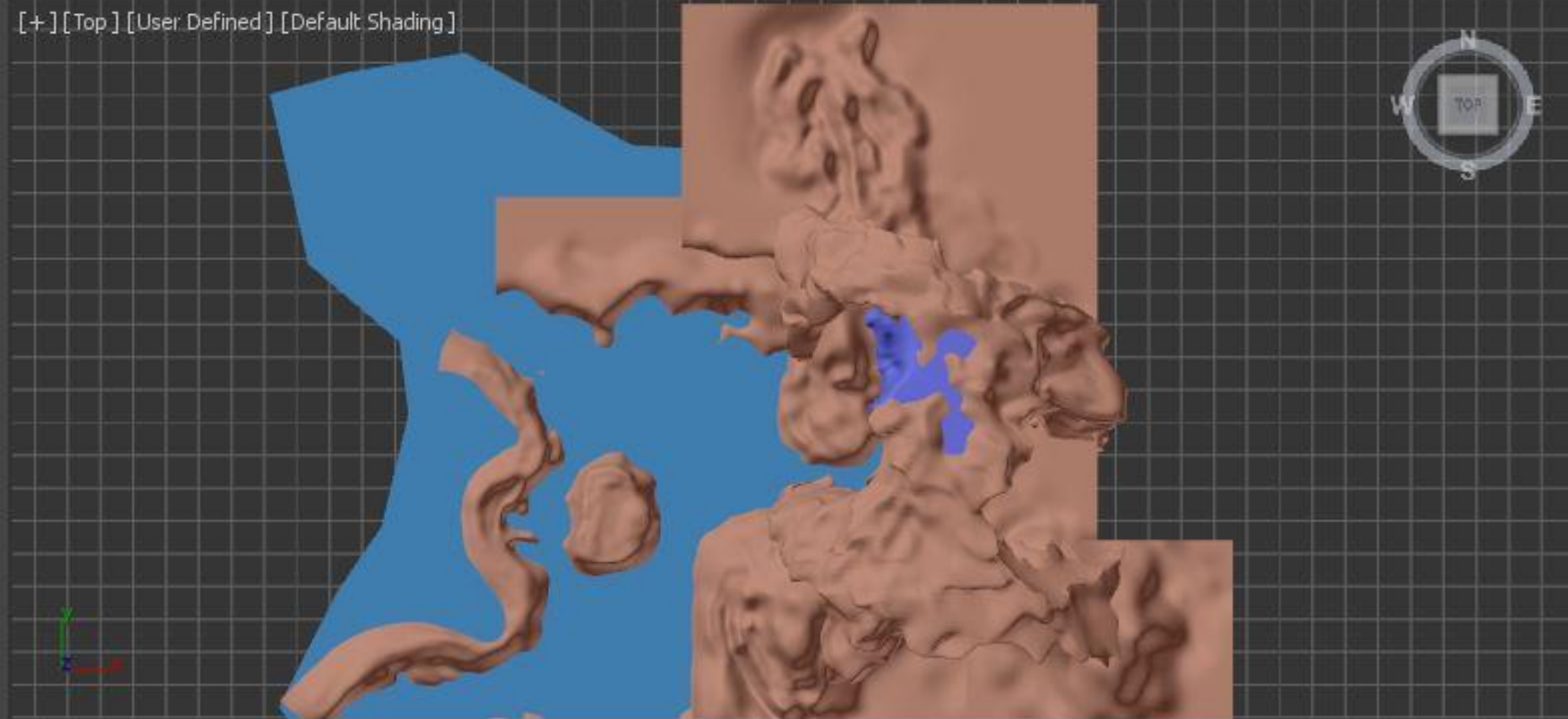


[+][Perspective][User Defined][Wireframe]

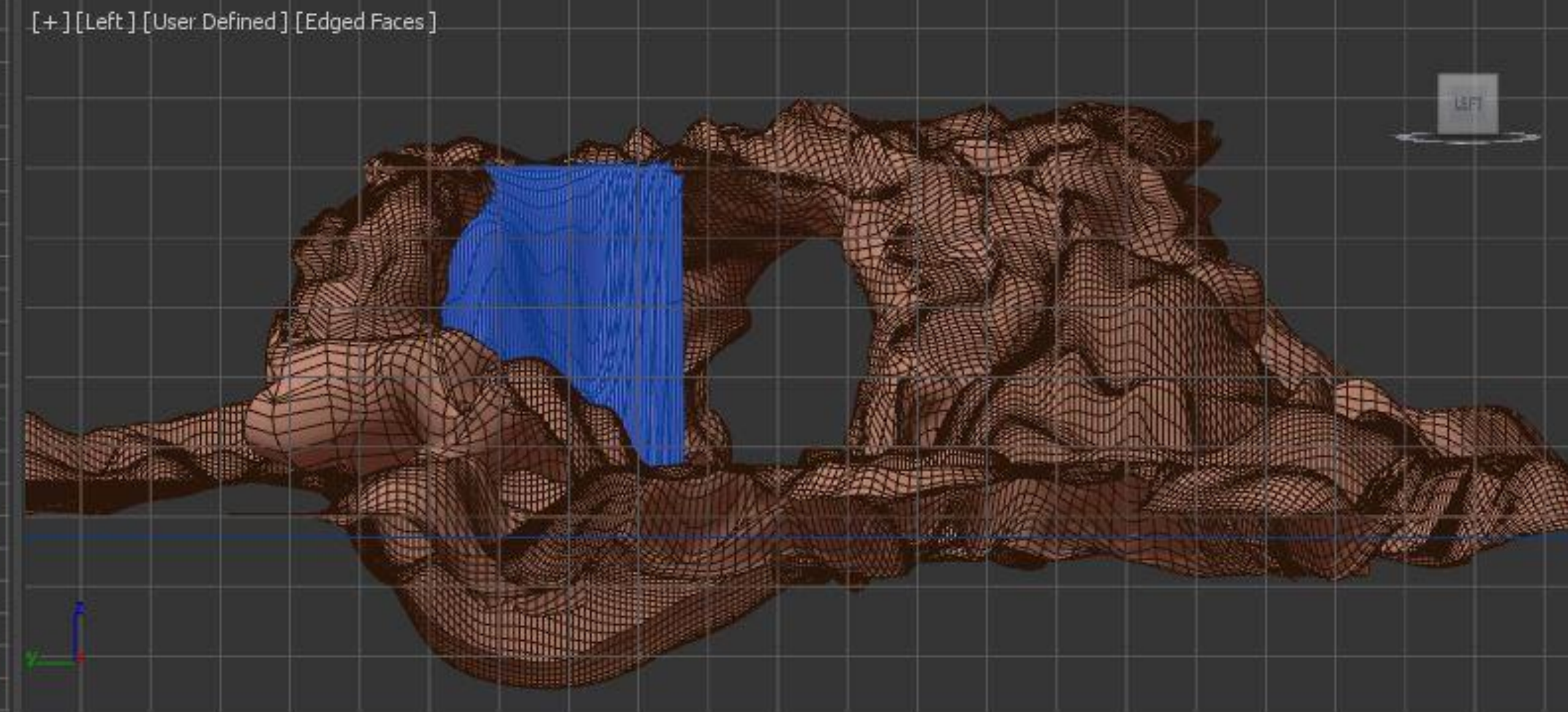


Polys: 0
Verts: 0

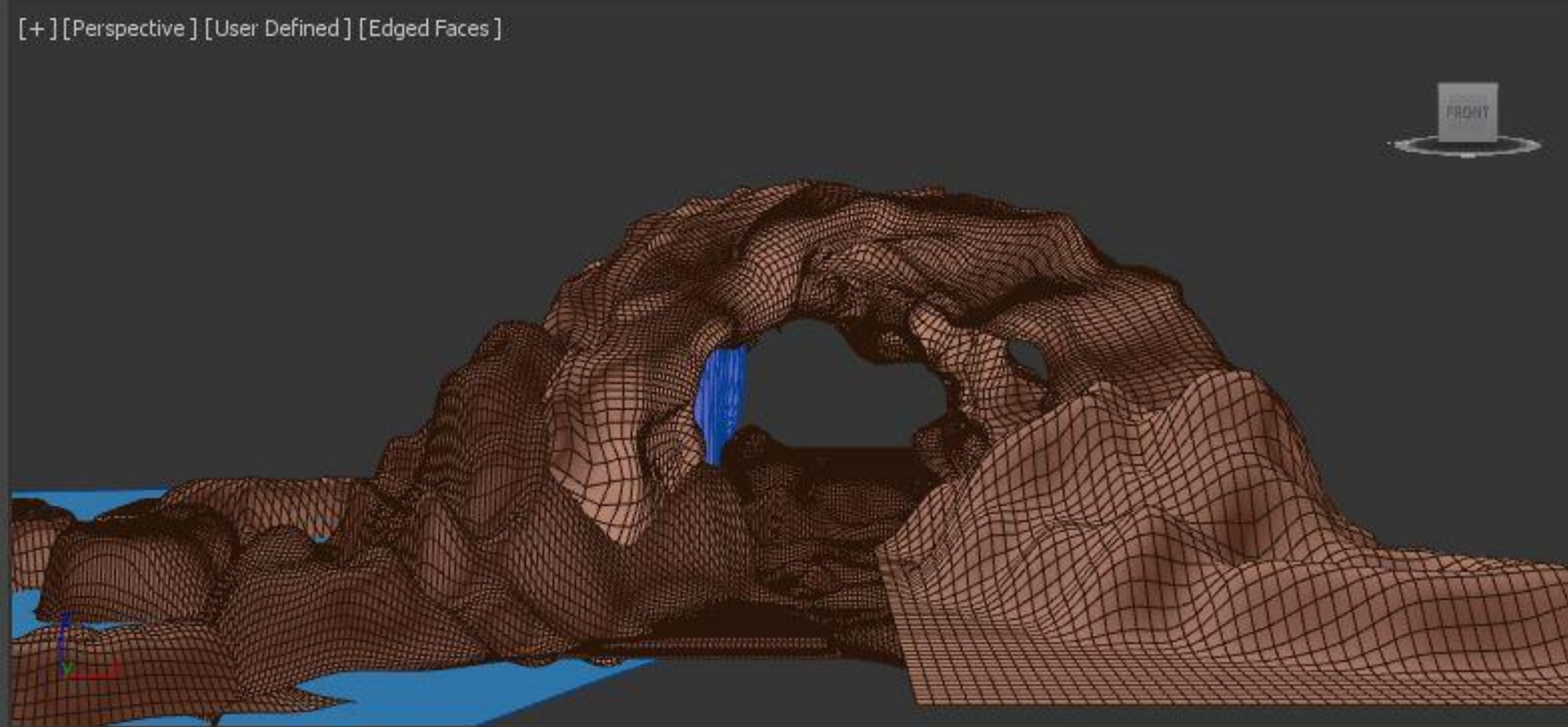
[+][Top][User Defined][Default Shading]



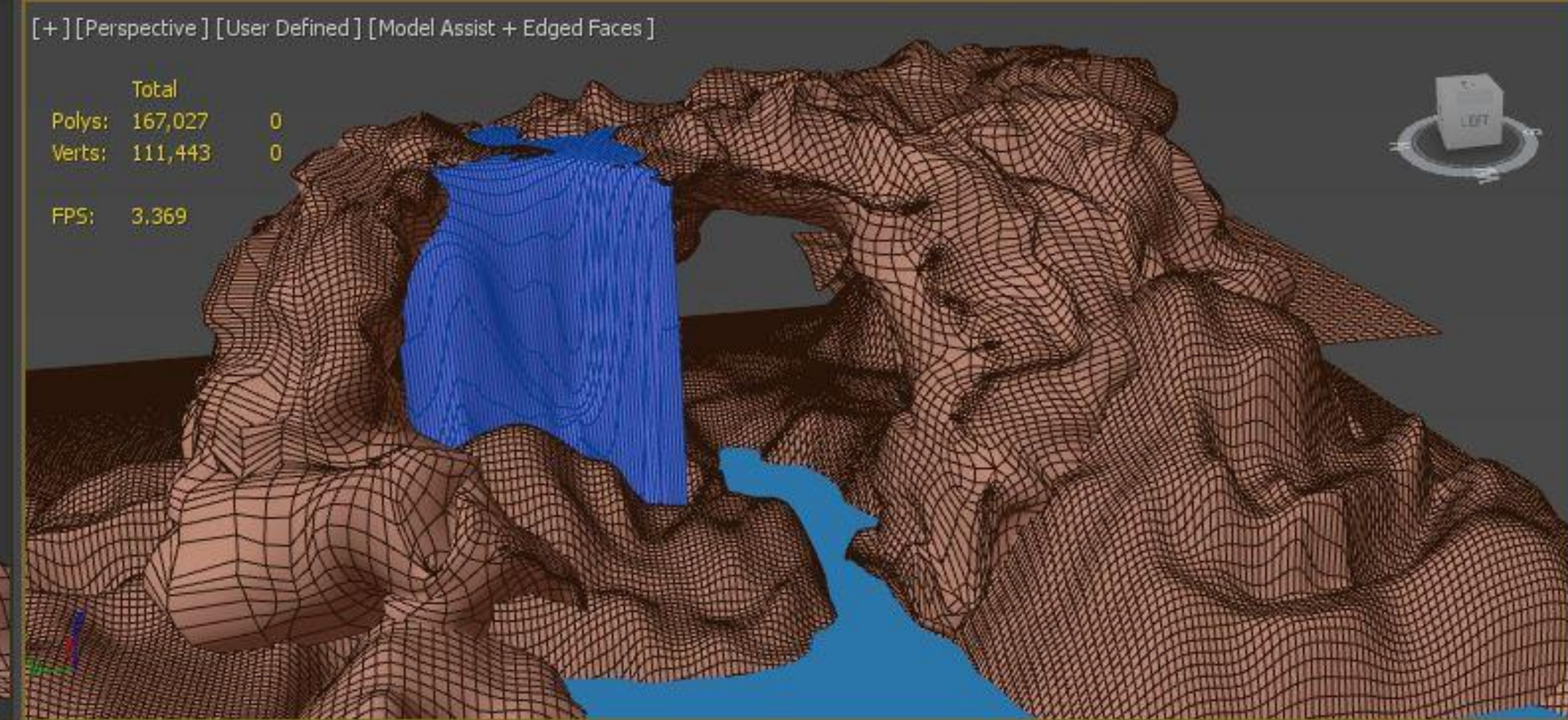
[+][Left][User Defined][Edged Faces]



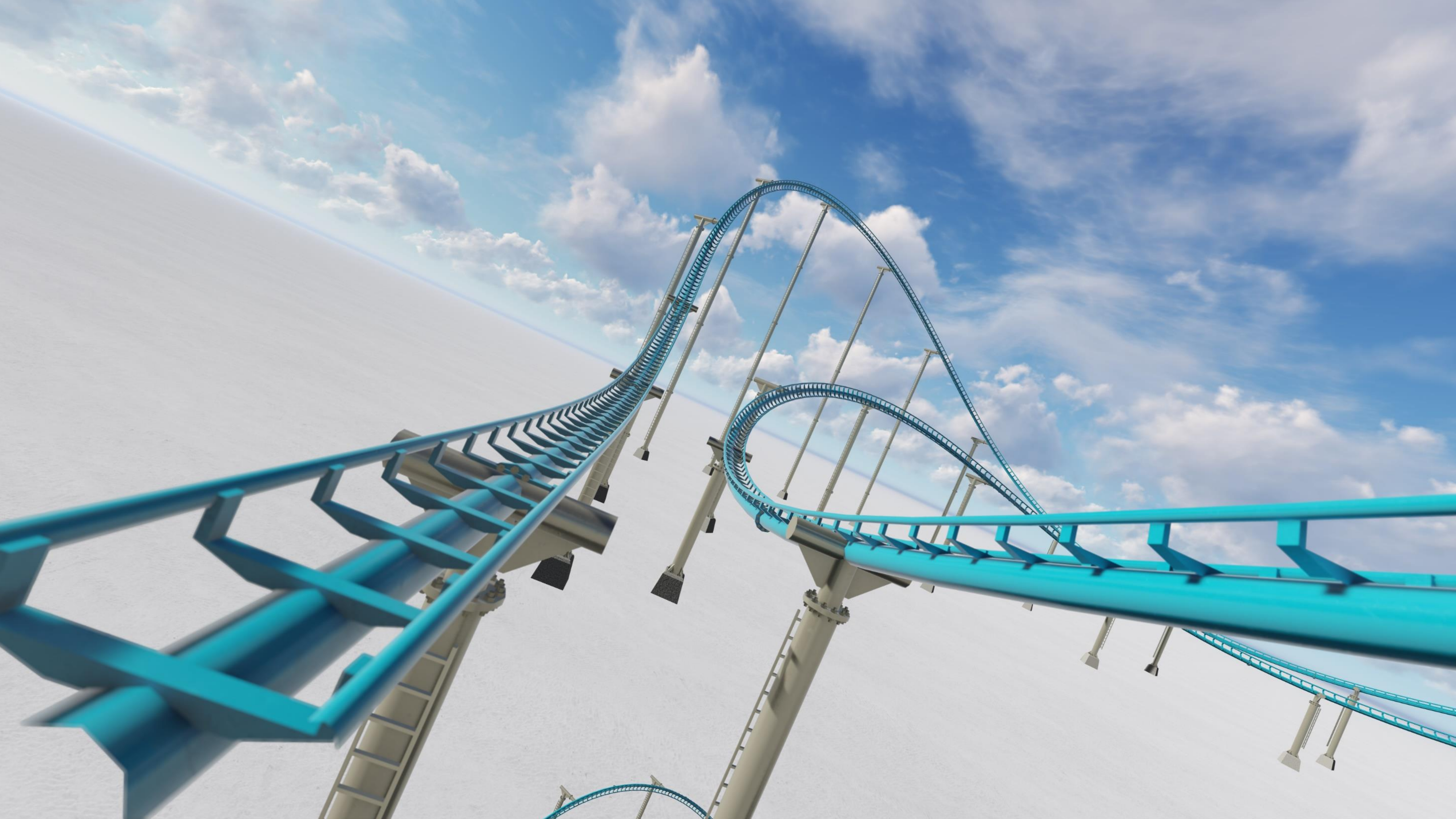
[+][Perspective][User Defined][Edged Faces]



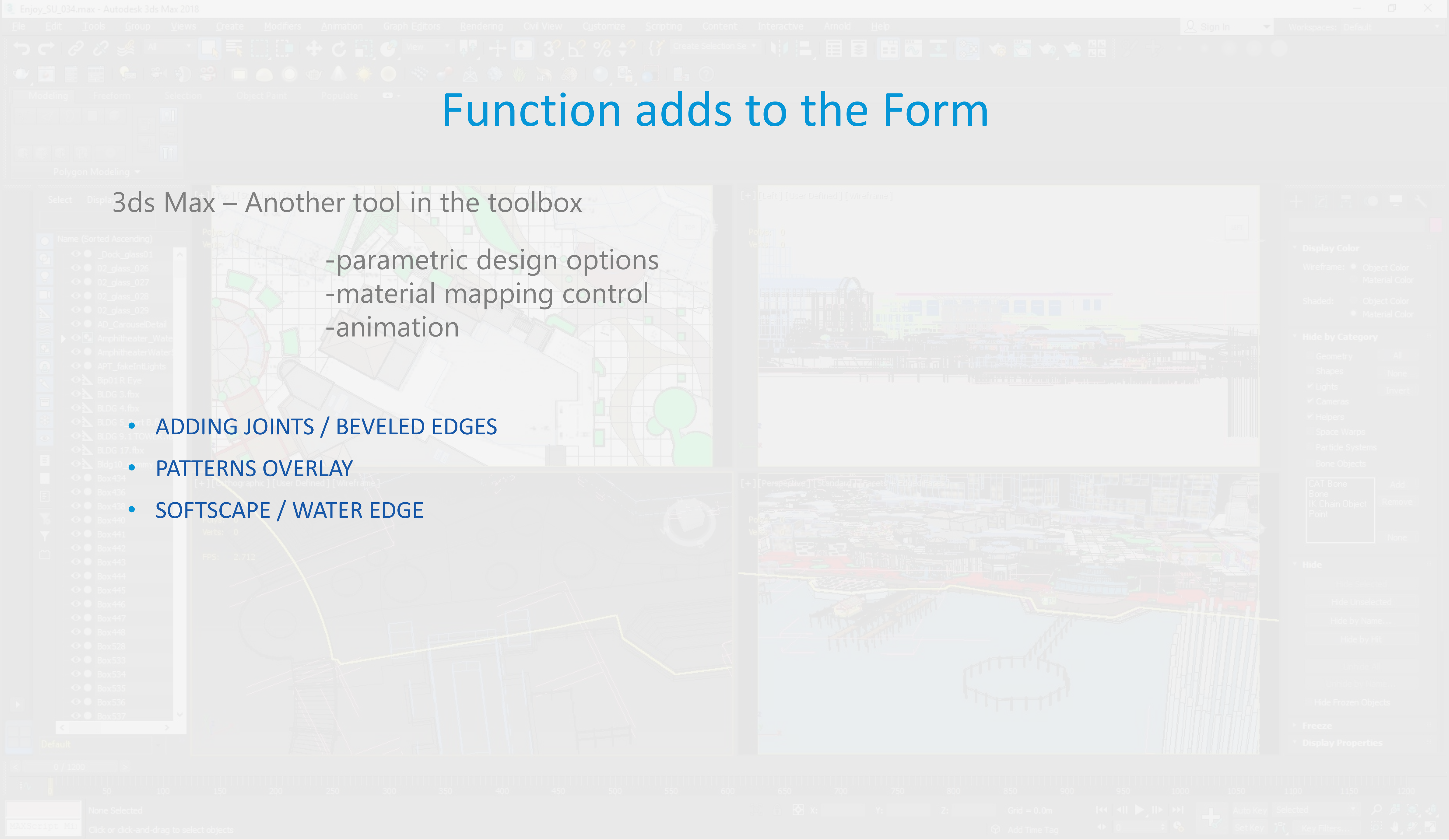
[+][Perspective][User Defined][Model Assist + Edged Faces]



	Total	
Polys:	167,027	0
Verts:	111,443	0
FPS:	3,369	







Function adds to the Form

3ds Max – Another tool in the toolbox

- parametric design options
- material mapping control
- animation

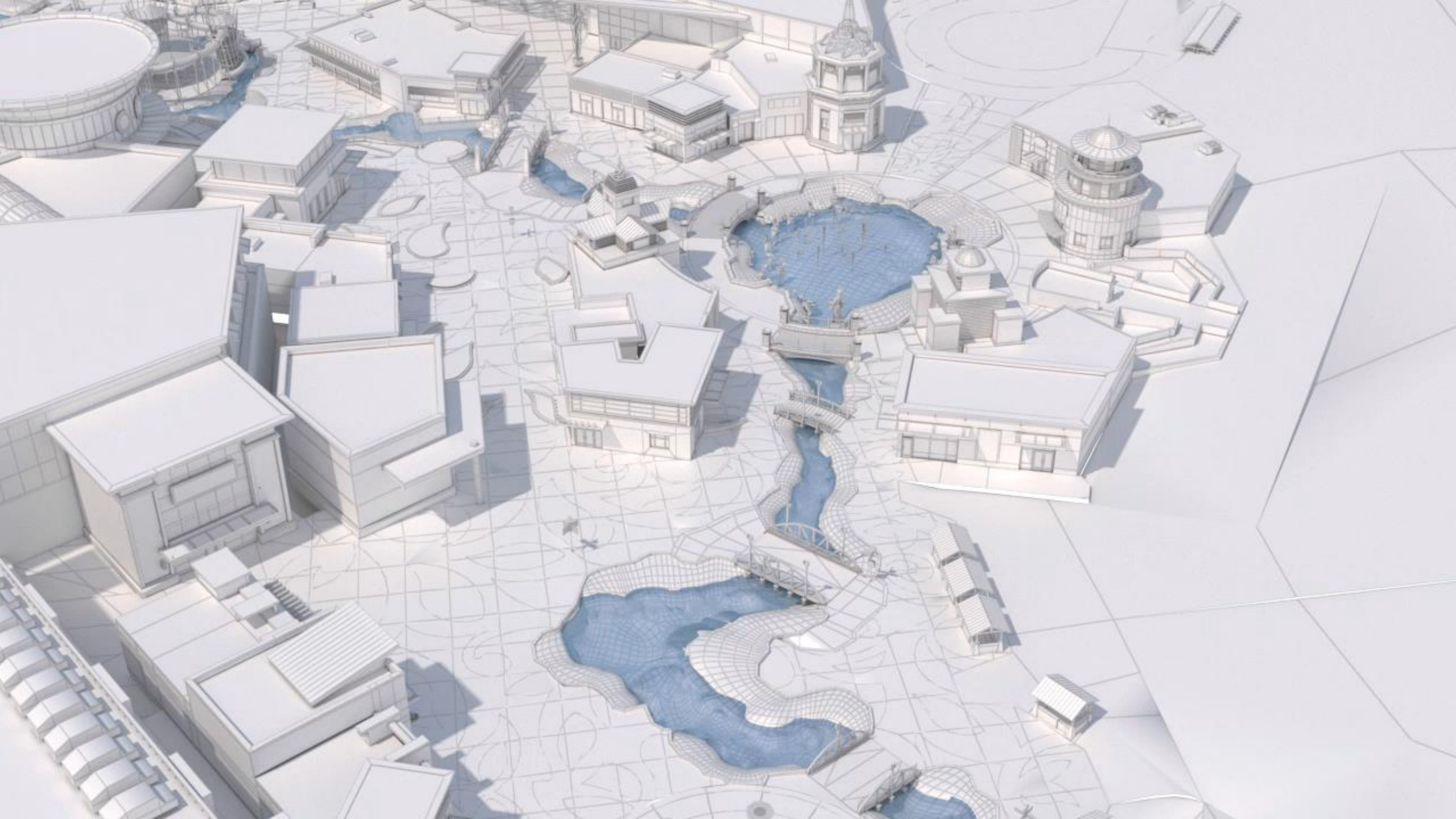
- ADDING JOINTS / BEVELED EDGES

- PATTERNS OVERLAY

- SOFTSCAPE / WATER EDGE



Added Architecture



LOOK AT ME MOM!



▲ ACC / RES
◀ **CRUISE** ON / OFF
▼ COAST / SET

I'M ON CRUISE CONTROL

Revit Integration

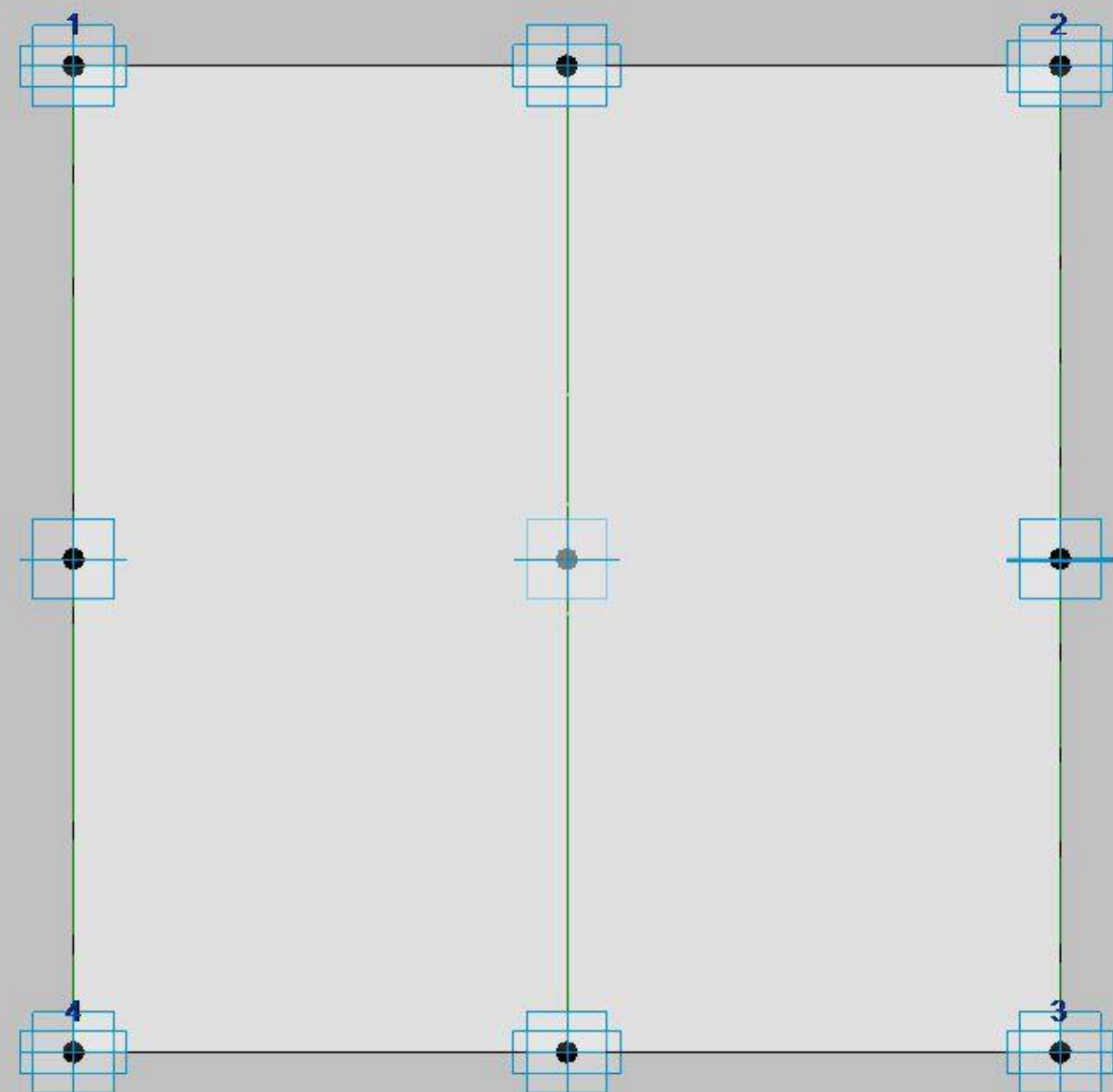
As we push the limits of the tools we use, we discover adaptive and creative solutions to problems.

Typically relying on 3ds Max for tensile type structures, we learned how to create this type of model using Revit....

Adaptive Families

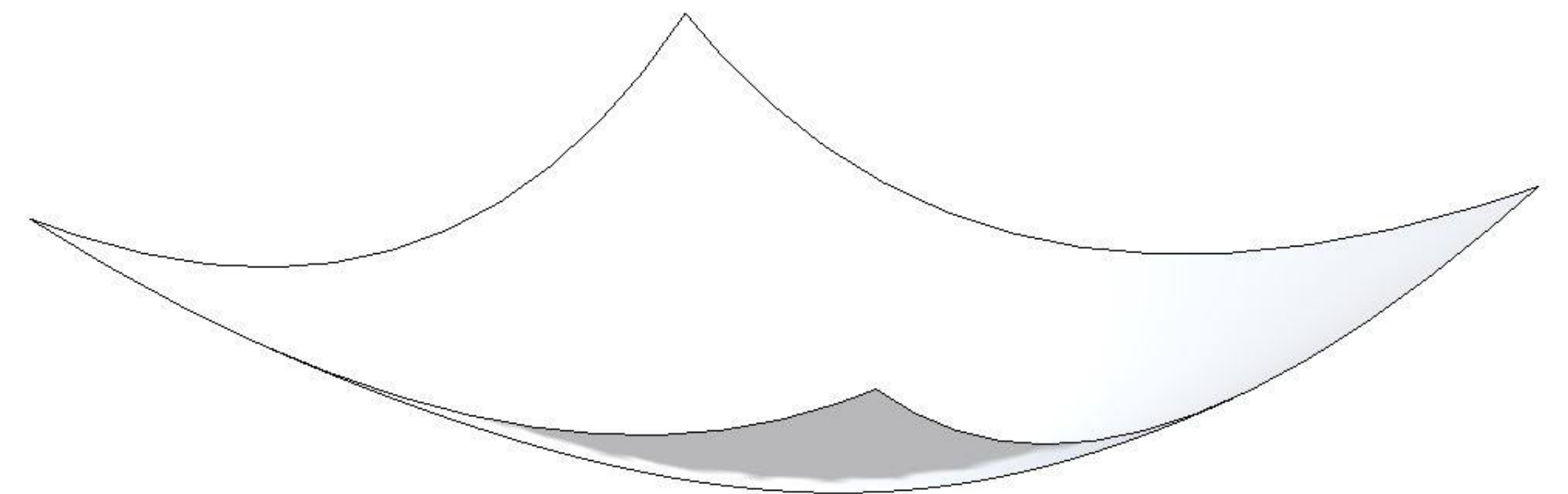
MULTIPLE POINTS OF INSERTION

4 Points placed in clockwise direction in plan for vertices



CONTROL "SAG" IN ELEMENT

With additional point on edges and in the center, we can control the amount of "sag"

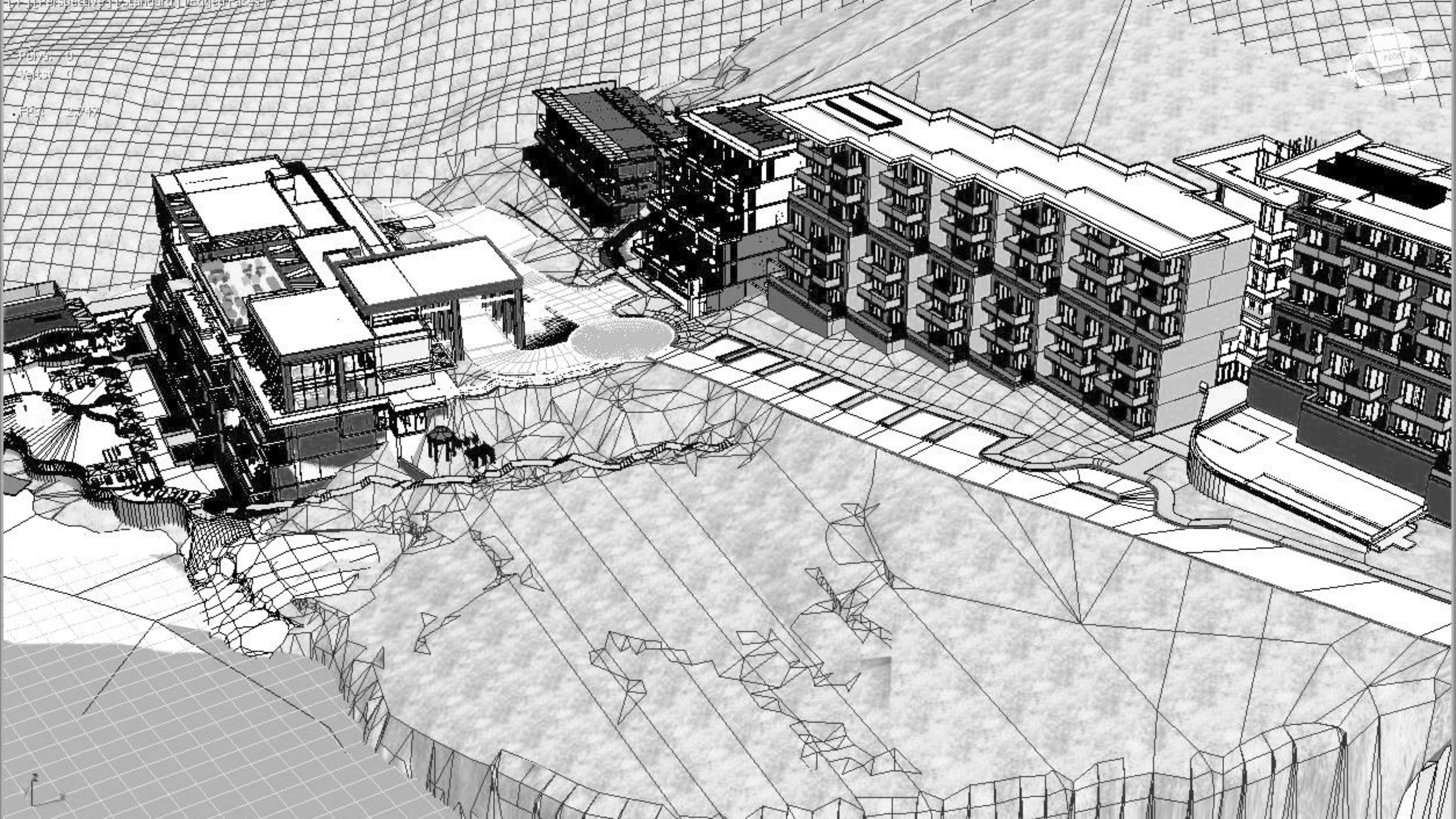




Greetings From

LANDSCAPE

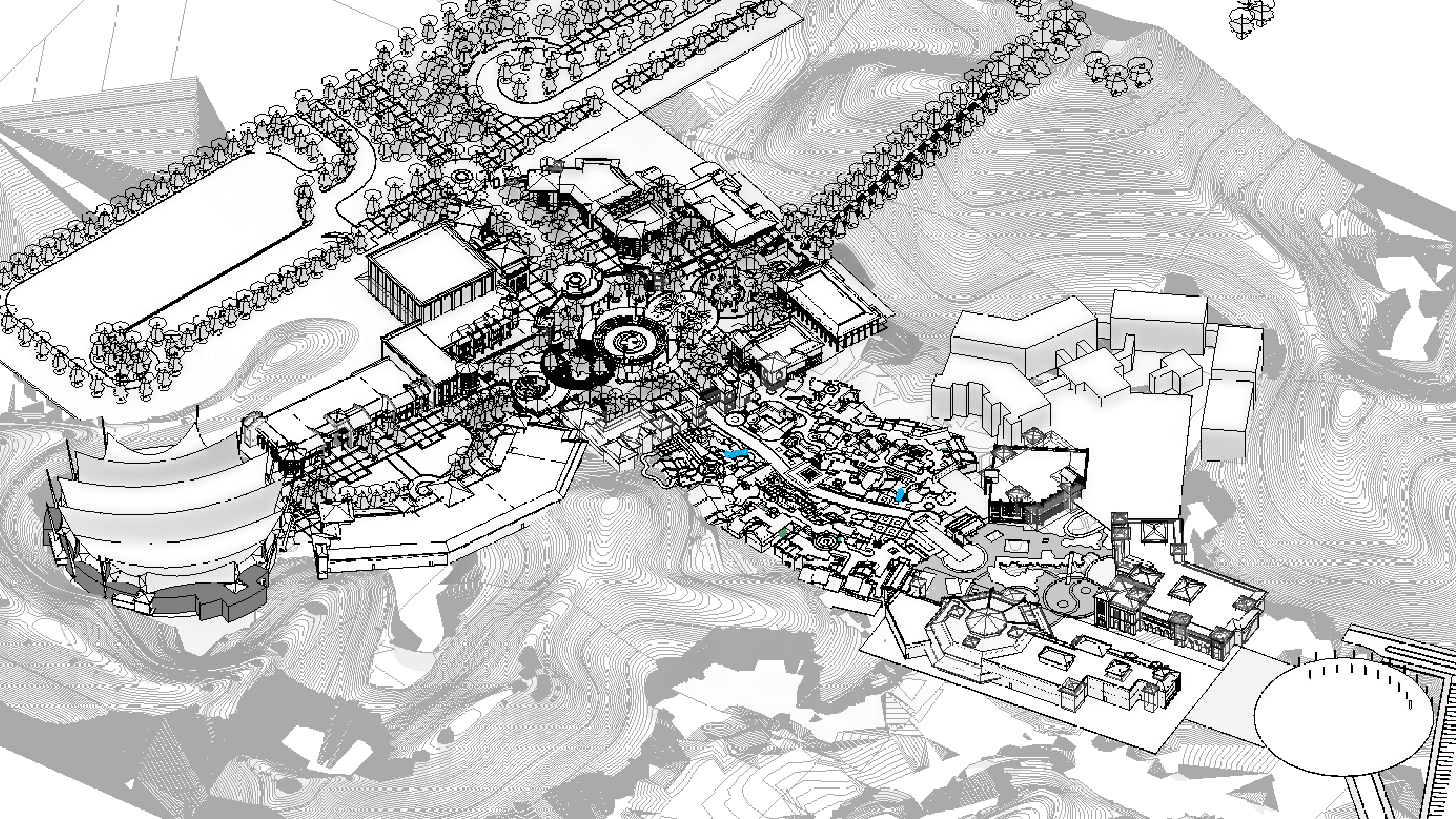
B.I.M.



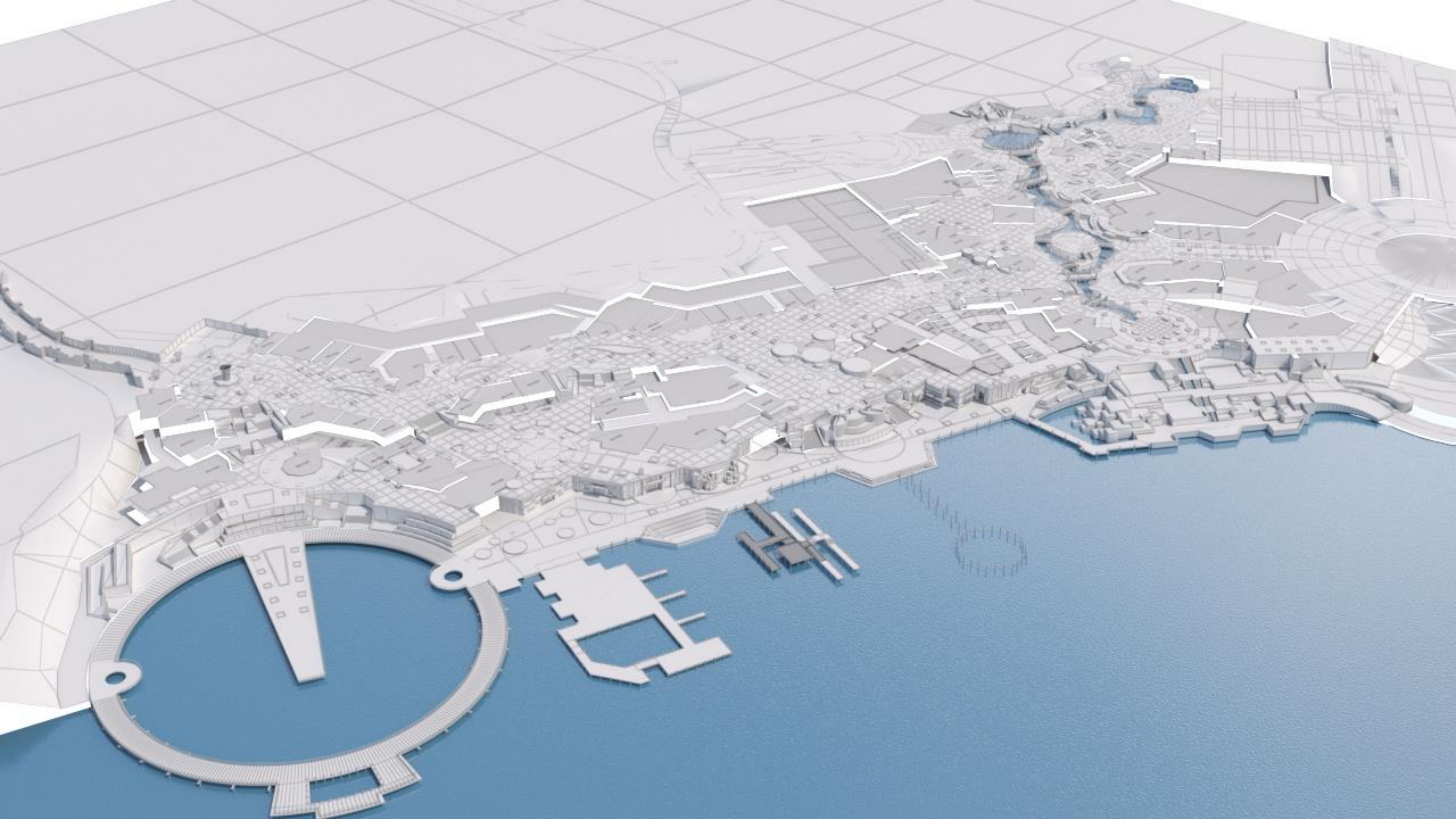






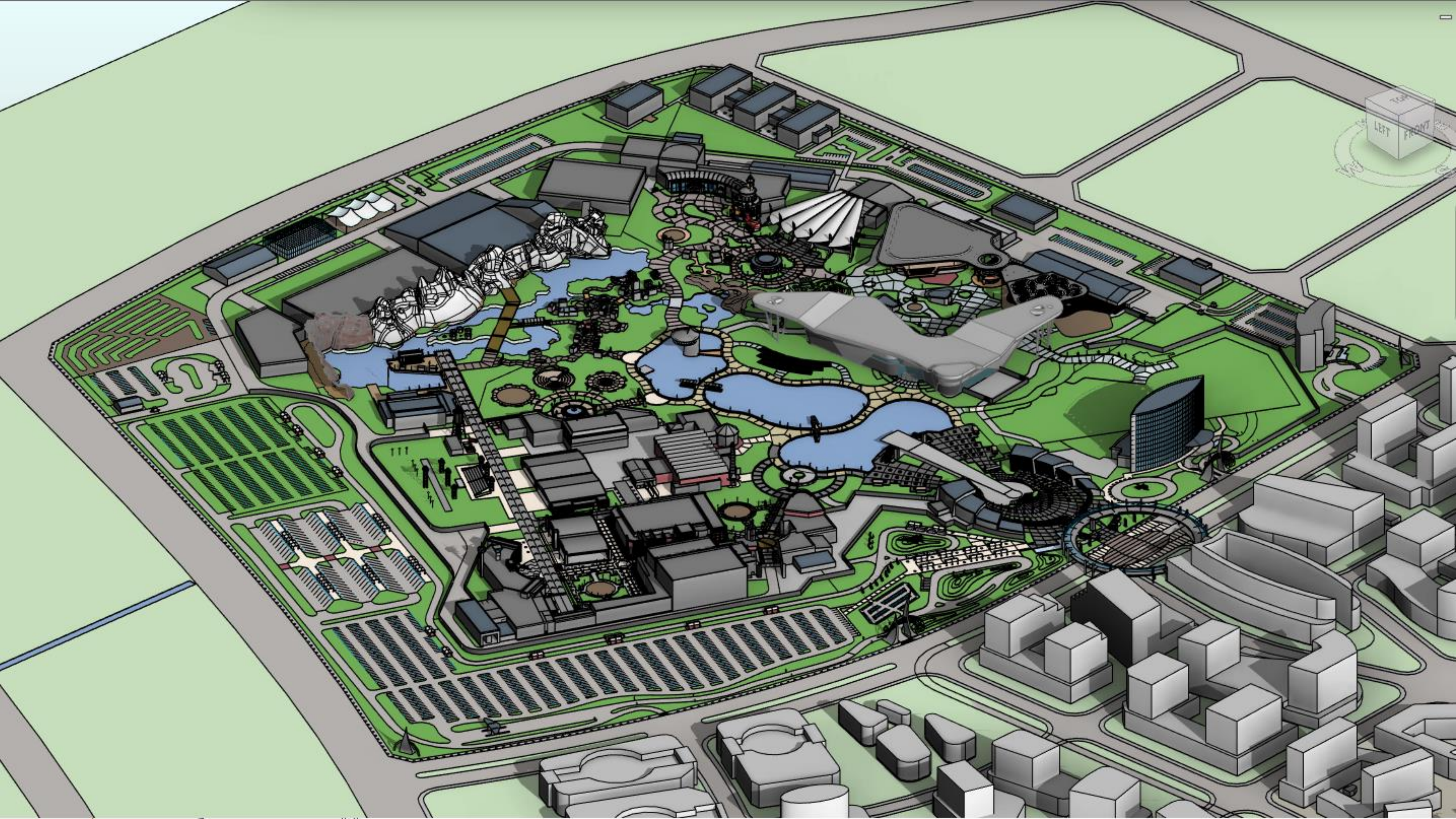














BIM

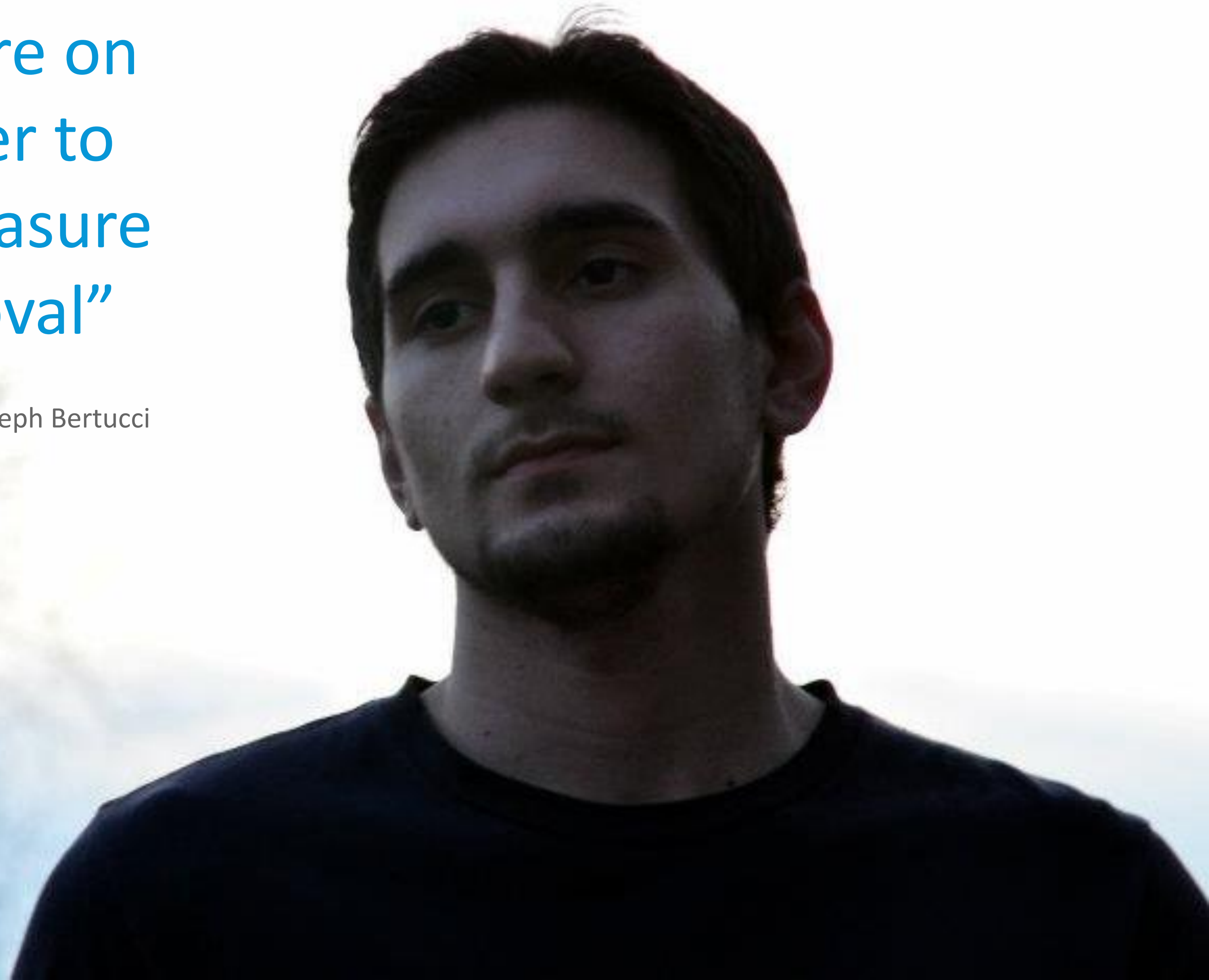


Final Thoughts...



“Join us as we venture on
this journey together to
seek the ultimate treasure
of the client’s approval”

- Joseph Bertucci



Contact Information

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PLEASE BE SURE TO FILL OUT THE SPEAKER SURVEYS



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