COMPUTATIONAL JOURNAL | WEEK 1 - WORKFLOW DIAGRAM

SITE ANALYSIS → FINISHED DRAWINGS

SURVEY INFO

MASSING + SITE ANALYSIS

MODELING + DETAILS

RENDERING

POST + GRAPHICS

REDLINING

GRAVEYARD

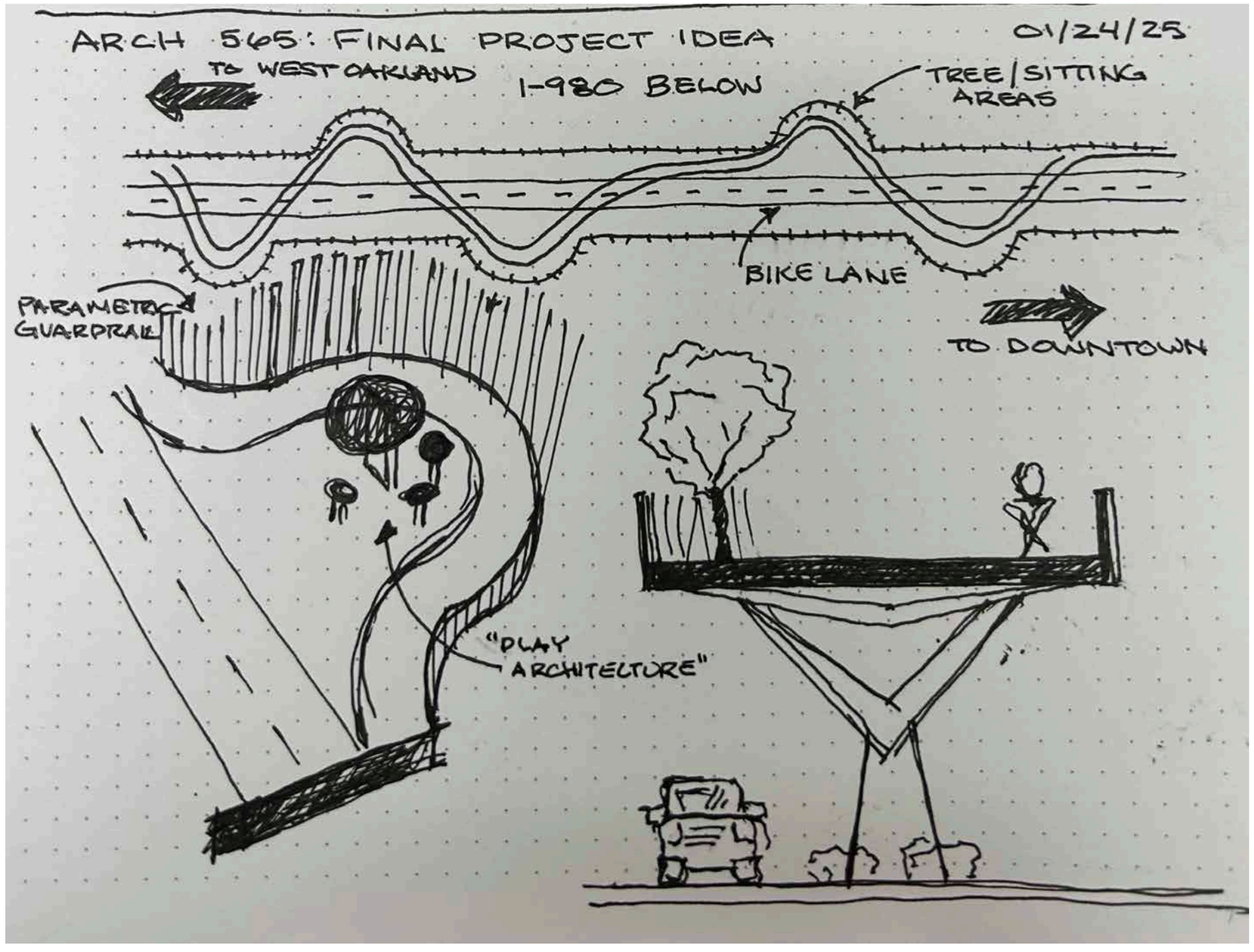
COMPUTATIONAL JOURNAL | WEEK 2

FINAL PROJECT IDEA:
LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE

SITE:

INSPO:

PRELIMINARY “SKETCH”:



COMPUTATIONAL JOURNAL | WEEK 4 - LiDAR SITE ANALYSIS

FINAL PROJECT IDEA:

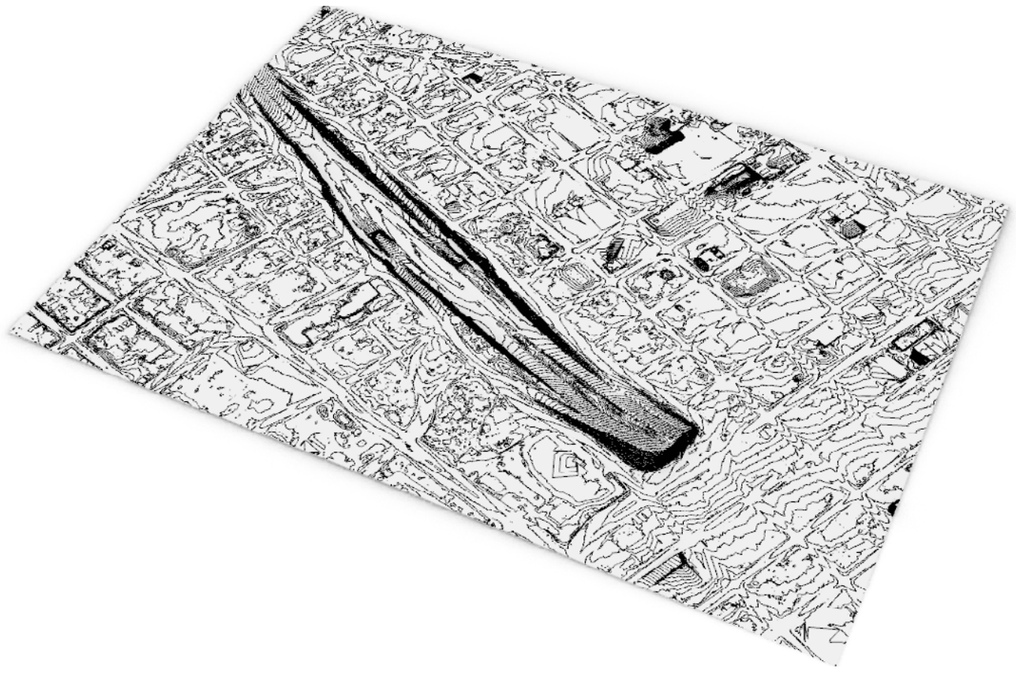
LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE

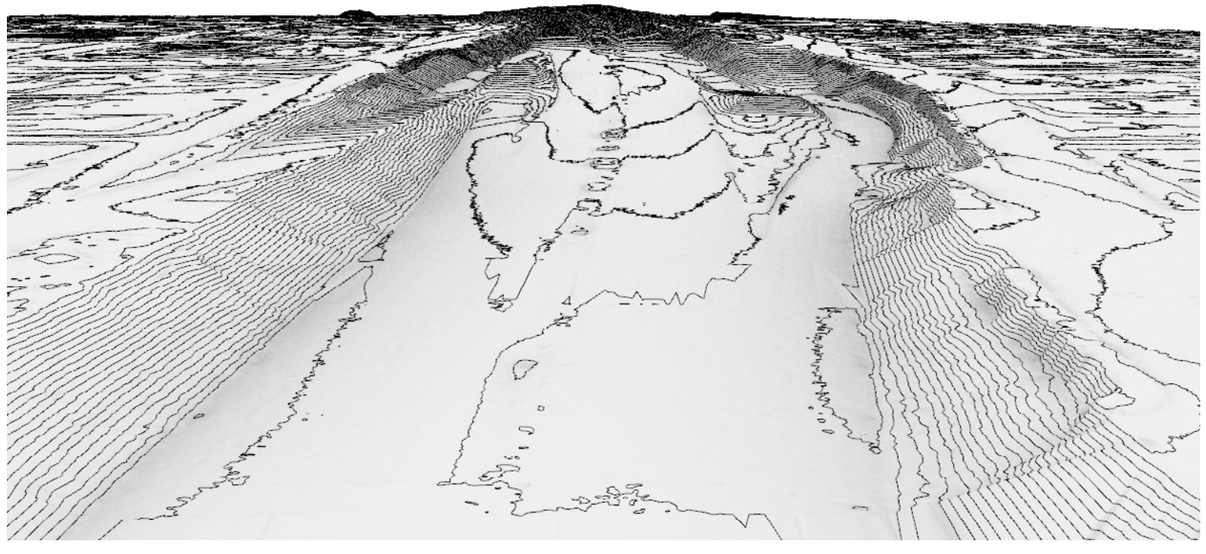
PROCESS:

I initially encountered file size issues when importing the .OBJ mesh into Rhino. Adjusting the area selection size in OpenTopography resolved the issue.

Given the site's urban context and my final project being a pedestrian bridge, integrating existing overpass infrastructure is crucial. I'm still exploring how to align/overlay the contoured mesh with roadway data from OpenStreetMap.

CONTOURS IN RHINO





COMPUTATIONAL JOURNAL | WEEK 5 - GRASSHOPPER

FINAL PROJECT IDEA:

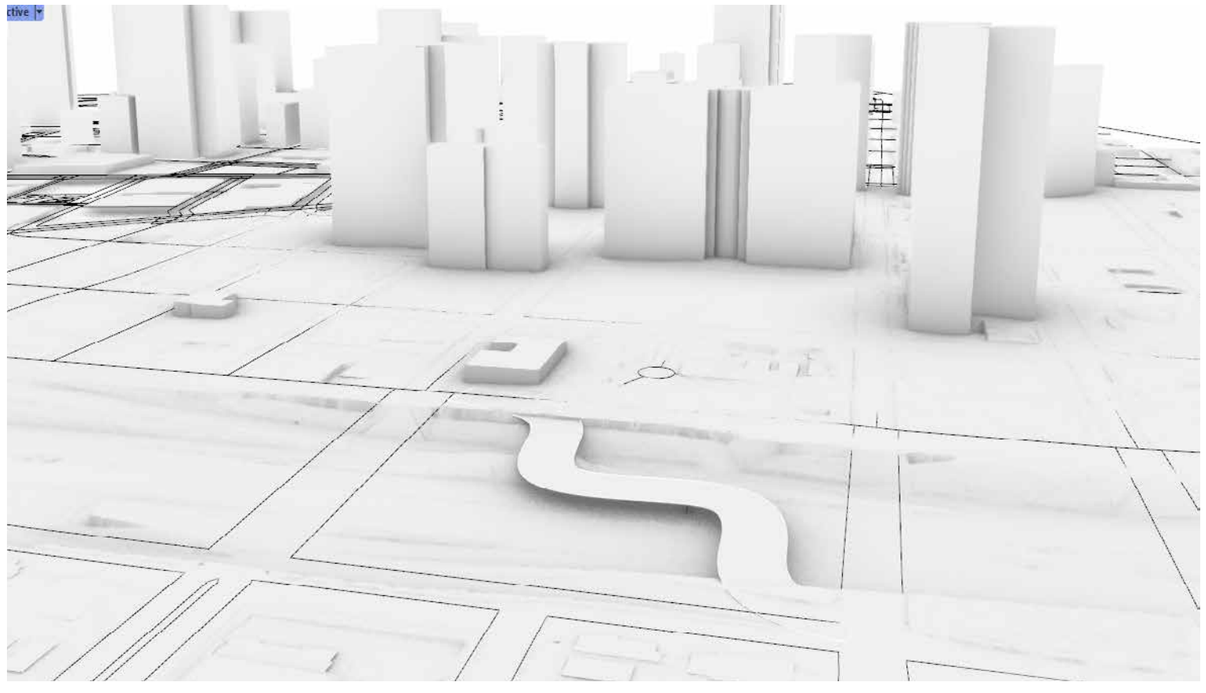
LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE

PROCESS:

This week, I explored Grasshopper to develop a script for a parametric slatted column, allowing for flexible control over spacing, rotation, and profile variations. I'm pleased with the script's capabilities and the design potential it offers. However, I may explore alternative column types for the pedestrian bridge support to better align with structural and aesthetic considerations. Moving forward, I'd like to refine the column's structural logic and find a way to seamlessly integrate it into the underside support of the bridge itself.

PRELIMINARY COLUMN DESIGN

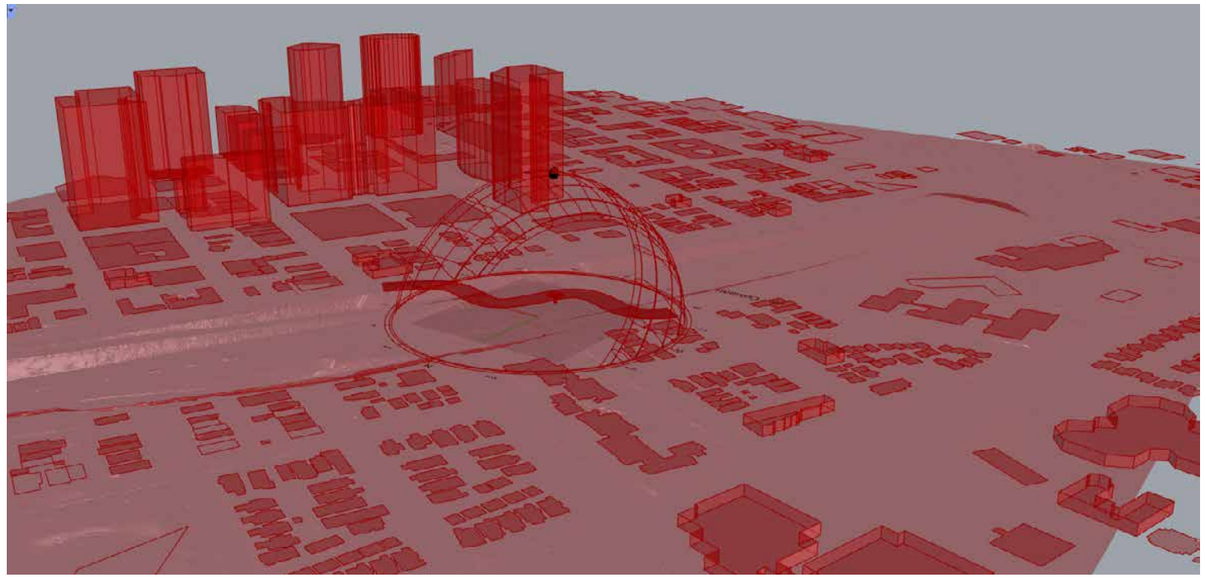
PRELIMINARY BRIDGE PLAN



COMPUTATIONAL JOURNAL | WEEK 6 - LADYBUG ANALYSIS

FINAL PROJECT IDEA:

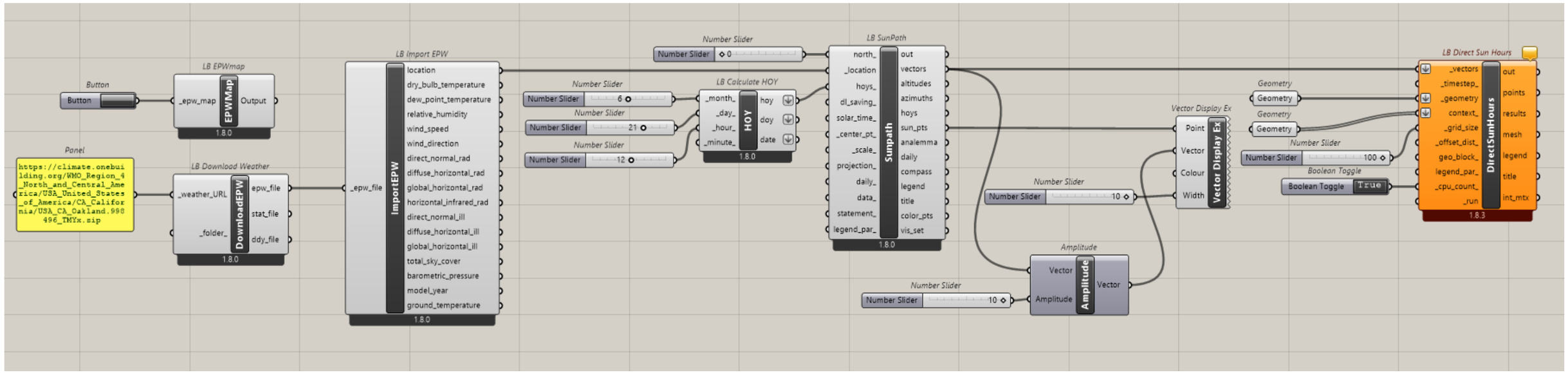
LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE



PROCESS:

This week, we focused on using the Ladybug plugin for Grasshopper to conduct a solar radiation site analysis for our final project. Following the instructional video, I successfully created a sun path diagram in the program. However, when attempting to map solar radiation onto the site's topography, I encountered an error stating, "Input Parameter - Run Failed to Collect Data." Initially, I assumed this issue stemmed from selecting too much context geometry, so I simplified the selection. Despite this adjustment, the error persisted. To further troubleshoot, I adjusted the grid size of the solar radiation analysis in an effort to reduce computational load, but the issue remained unresolved. I also changed the geometry container from a Geometry container to a Mesh to simplify the input, yet the error still occurred. After verifying that all number sliders and component connections in Grasshopper were correct, the issue continued.

GRASSHOPPER SCRIPT



COMPUTATIONAL JOURNAL | WEEK 7 - GRASSHOPPER

FINAL PROJECT IDEA:

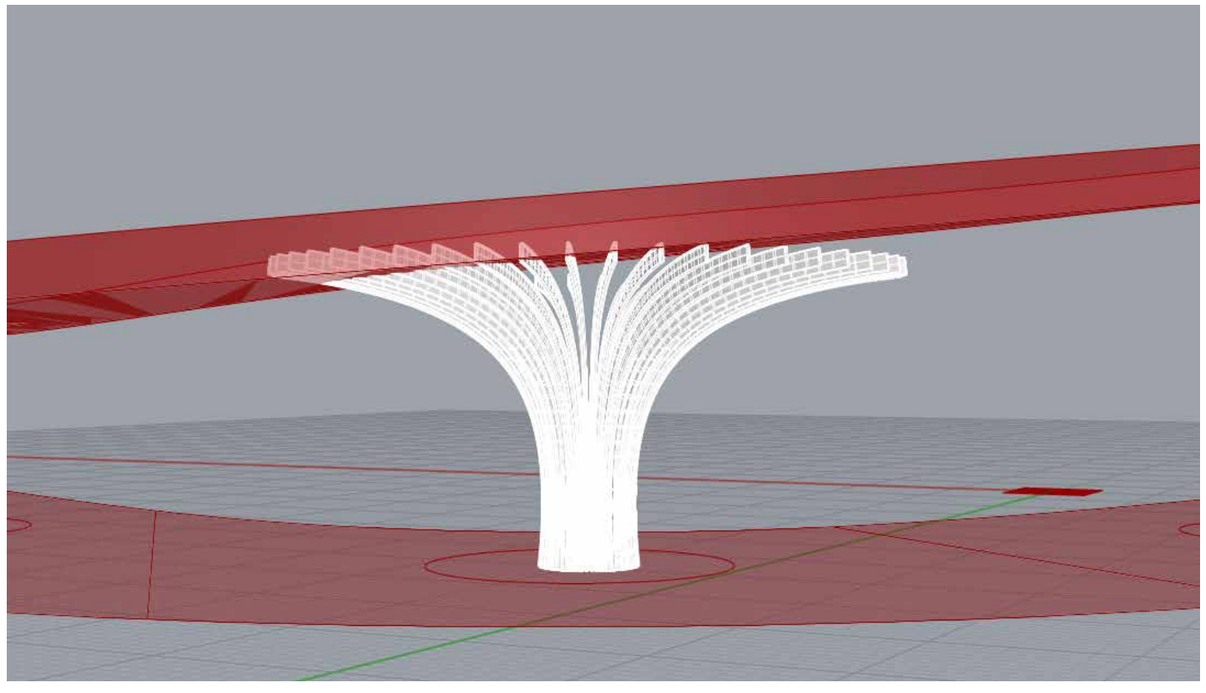
LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE

PROCESS:

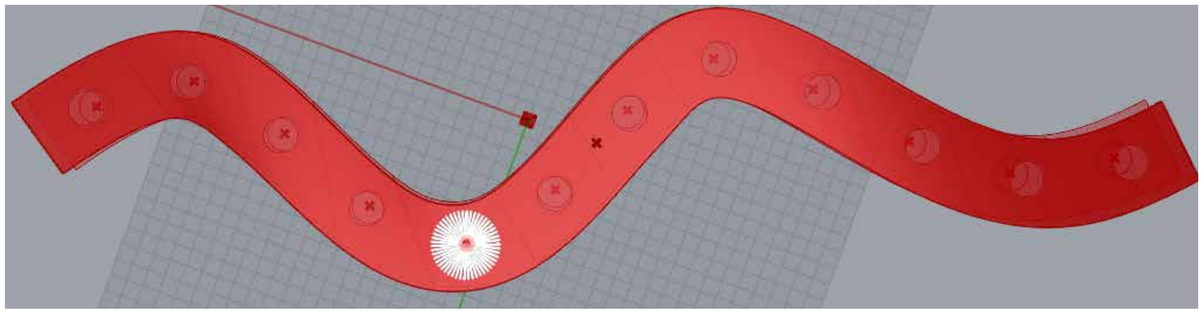
This week, I focused on modeling my pedestrian path, aiming for a curved form with a gentle slope. While I haven't made visible progress with my script yet, I have made some headway in resolving the connections between the column structure and the horizontal supporting members beneath the pedestrian bridge.

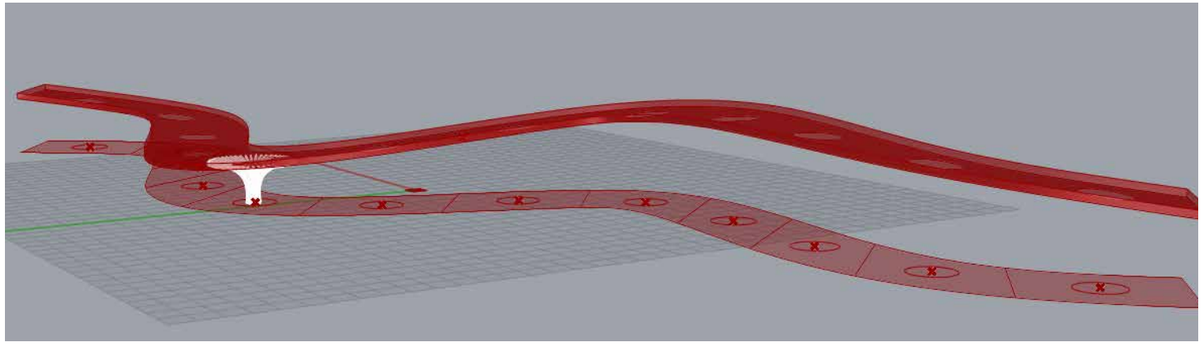
Although I am getting closer to a solution, there are still aspects that need further refinement. I plan to bring my questions to the work period on Thursday to troubleshoot and improve my approach.

PRELIMINARY PATH + COLUMN DESIGN



PRELIMINARY BRIDGE PLAN

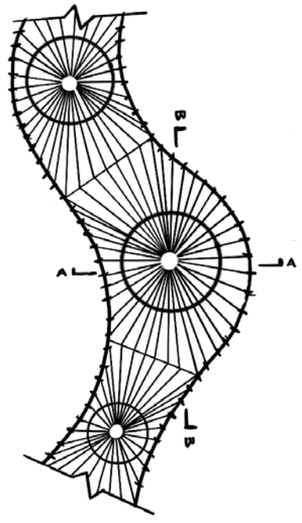


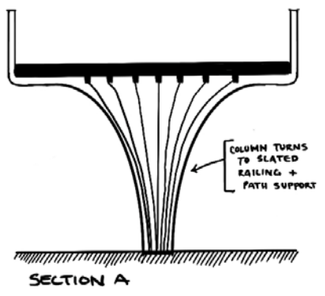


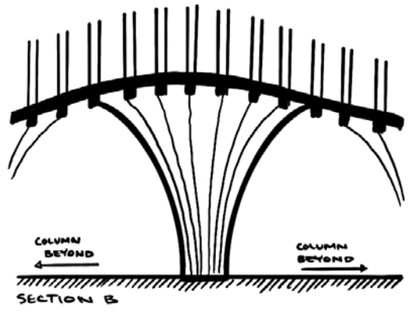
COMPUTATIONAL JOURNAL | WEEK 8 - RHINO INSIDE

FINAL PROJECT IDEA:

LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE







PROCESS:

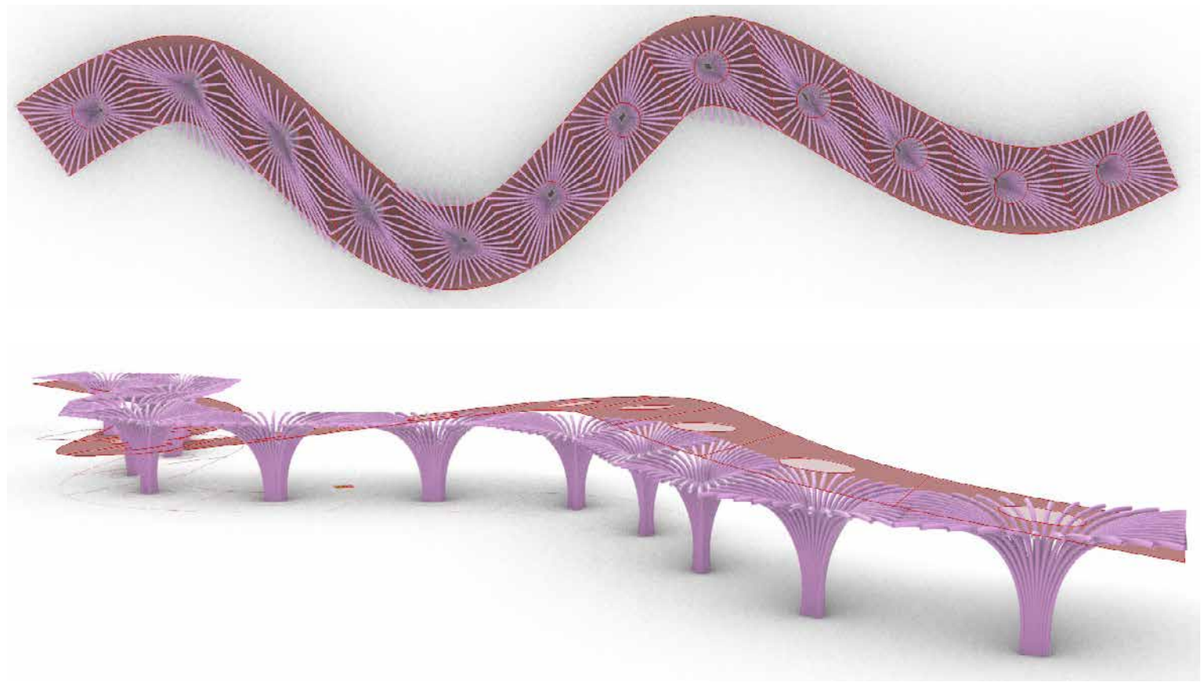
This week, I was able to make some progress with my column and structural design script. I have a clear vision for how the slatted tulip columns will transform into horizontal supporting members for the path and then take a 90-degree turn to form the slatted railing. I haven't fully refined the script yet... still having issues meeting the sloping plane of the path with the structural elements.

I think this structural system is an interesting approach for the curved and sloping pedestrian path because it allows for a fluid, integrated approach to support while maintaining a sense of openness and playfulness in the design. The transition from vertical to horizontal elements ensures that the structure responds dynamically to the movement of the path, reinforcing stability without feeling rigid or overbearing. The slatted nature of the columns and railing enhances visibility and lightness, creating an engaging experience for pedestrians while preserving structural integrity.

I also attempted to push my Rhino model into Revit, but I wasn't able to get it to work on either my laptop or desktop. Every time I try to "Start" Rhino within the Revit plugin, my application crashes. I'll need to troubleshoot this issue further

PRELIMINARY PATH + COLUMN DESIGN

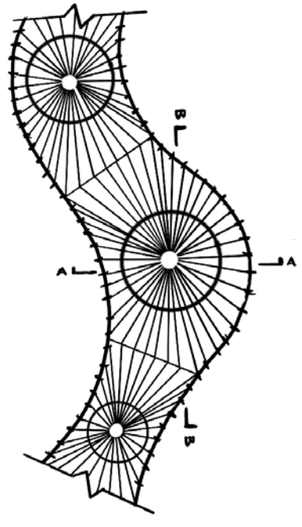
PRELIMINARY BRIDGE PLAN

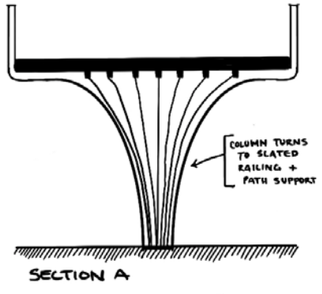


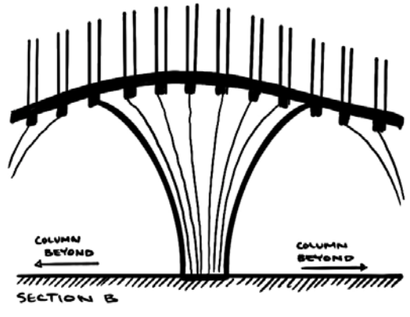
COMPUTATIONAL JOURNAL | WEEK 9 - SKIN/MUSCLE

FINAL PROJECT IDEA:

LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE





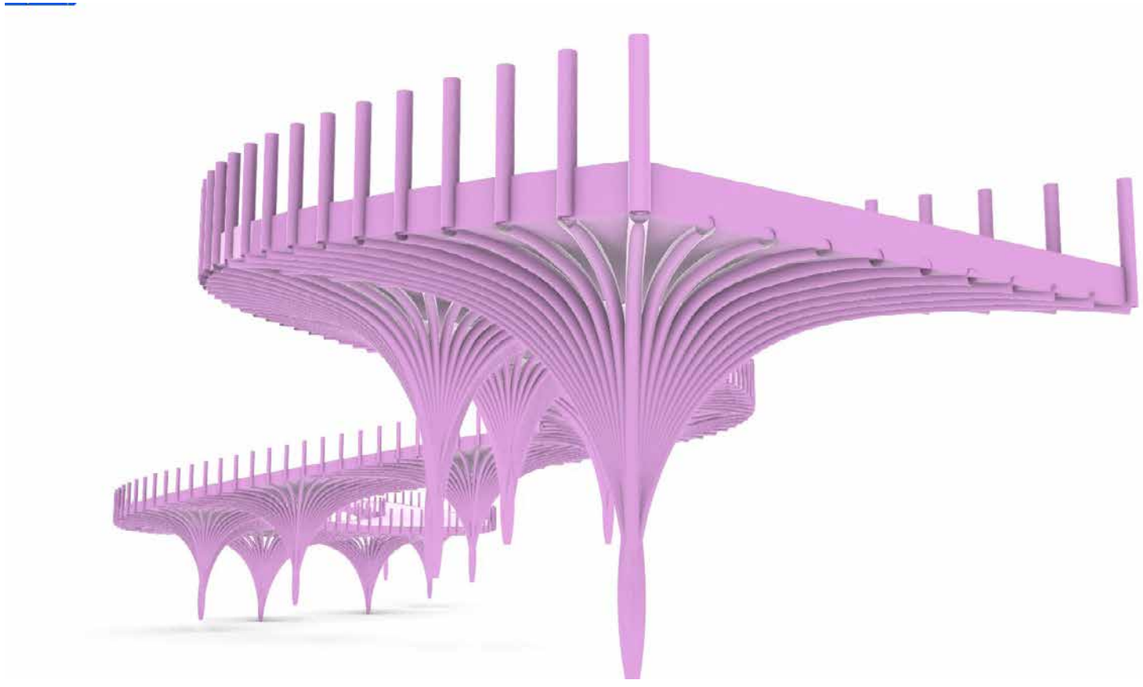


PROCESS:

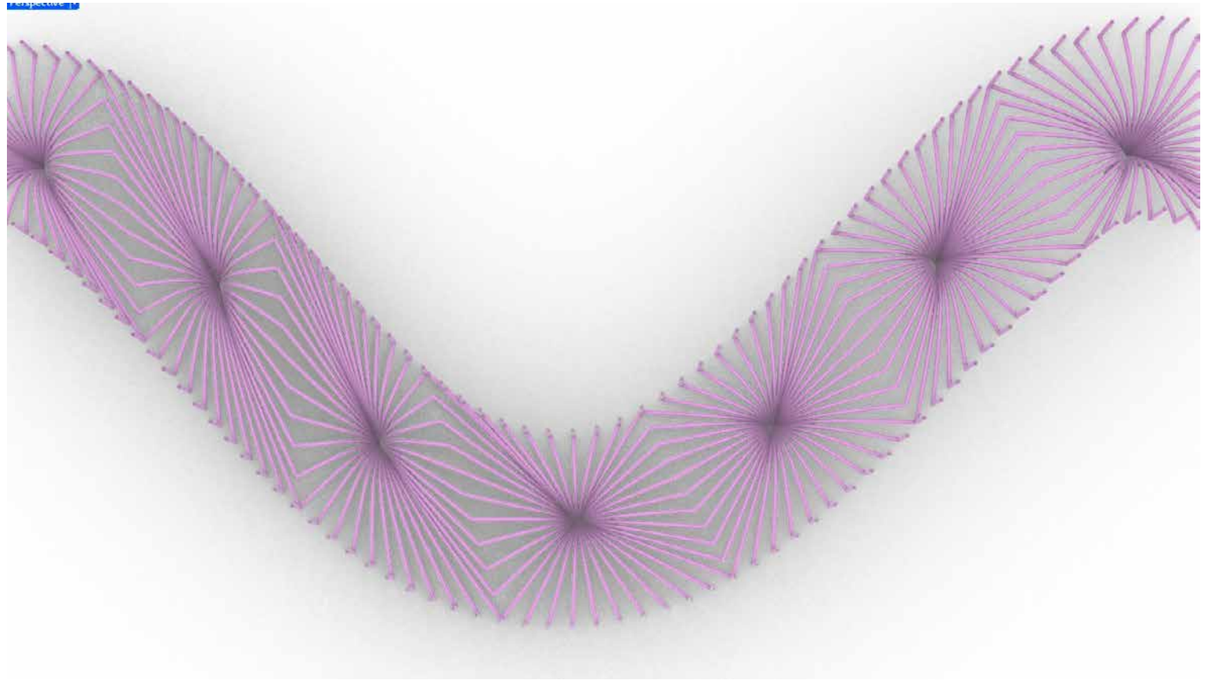
This week, I focused on honing the structural and railing system for the pedestrian path. While the structure is functioning largely as the skin, I believe this is the right choice because it allows for a fluid, integrated approach to support while maintaining a sense of openness and playfulness in the design. The transition from vertical to horizontal elements ensures that the structure responds dynamically to the movement of the path, reinforcing stability without feeling rigid or overbearing. The slatted nature of the columns and railing enhances visibility and lightness, creating an engaging experience for pedestrians while preserving structural integrity.

I've been considering adding a perforated skin on the interior face of the columns (similar to this column by Snohetta), but I'm still unsure whether it's necessary or if it might detract from the clarity and visibility of the exposed tulip structural system. I haven't yet explored a fabrication layout, as my focus has been on refining the structural logic and overall system design.

PRELIMINARY PATH + COLUMN DESIGN



PRELIMINARY BRIDGE PLAN



COMPUTATIONAL JOURNAL | WEEK 10 - RENDERING

FINAL PROJECT IDEA:

LOCATION: I-980 OAKLAND, CA
TYPOLOGY: PEDESTRIAN BRIDGE / PLAY INFRASTRUCTURE

PRELIMINARY (UGLY) RENDERING

PROCESS:

This week, I primarily focused on refining my path structure within the project. I encountered some issues with my Grasshopper script, specifically with how the tulip column members were interacting with ground plane. When importing the model into Twinmotion, I noticed that the column bases were mirroring the slope instead of responding to flat ground plane. I was able to mostly resolve this issue, but still need to spend more time adjusting the grafting logic so the members regain their intended curved appearance.

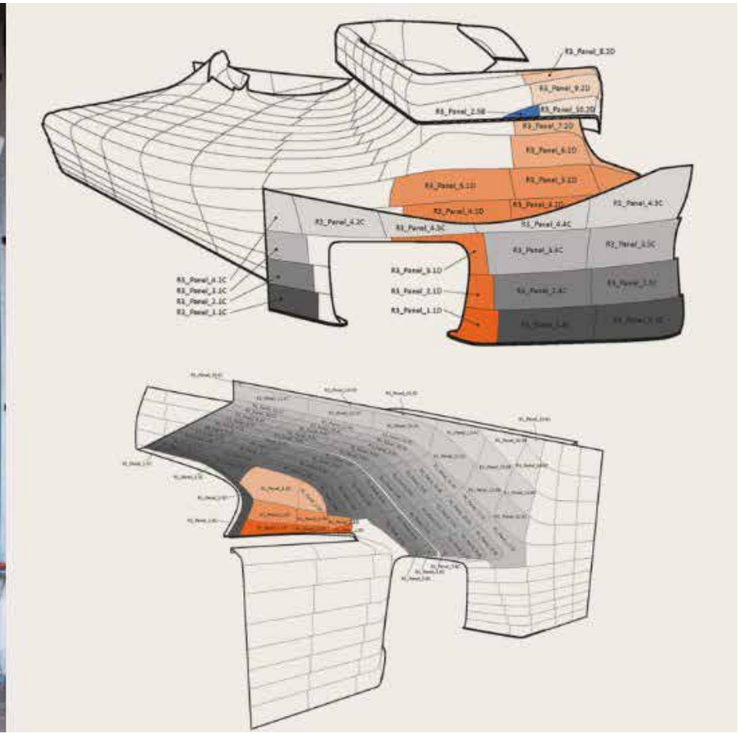
Working in Rhino with the context layers turned off also led to the realization that several elements of my design are significantly out of scale. This will need to be corrected moving forward.

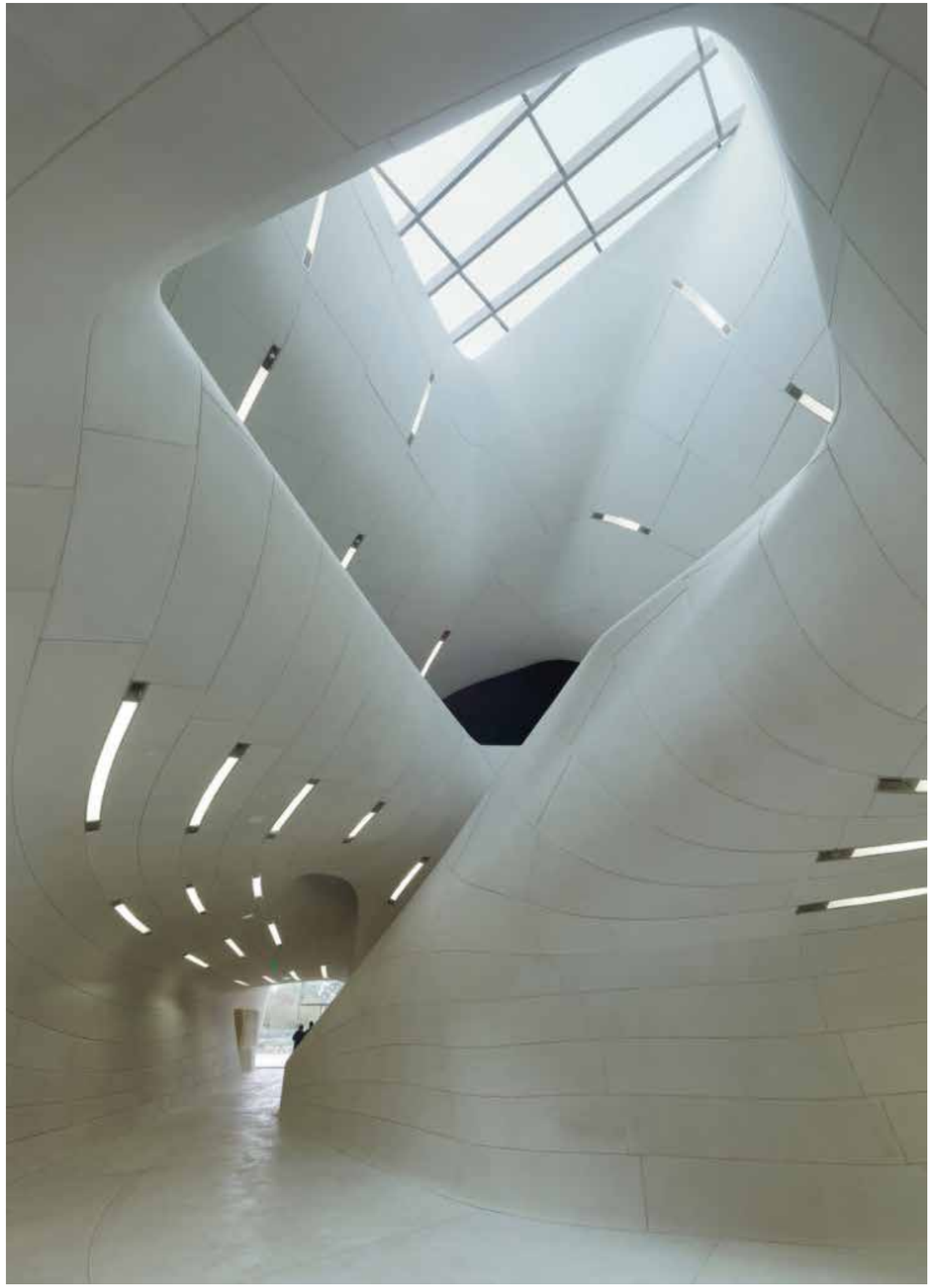
Finally, I spent some time familiarizing myself with Twinmotion. My first rendering was relatively quick. I didn't spend too much time composing the image. My main goal at this stage was just to start getting comfortable with the software and its interface. I also ran into an issue with importing my topography from rhino. I think I will need to reexport a smaller point cloud.

Moving forward in the class, I am hoping to focus on dialing in my structure/design so the final product reflects my initial vision.

COMPUTATIONAL JOURNAL | WEEK 11 - COOL STUFF

LOUISIANA STATE MUSEUM
TRAHAN ARCHITECTS





I had the opportunity to visit Trahan Architects this past January while I was in New Orleans, and it left a lasting impression on me. Hearing about the Louisiana State Museum and Sports Hall of Fame directly from their team made the project feel even more impactful. Not only is it a conceptually rich and beautiful design, drawing from the natural forms of the region's rivers, it also embodies the kind of architecture that pushes boundaries. The sculpted stone interiors are unlike anything I've seen, and the way the firm rooted the building in local material language while creating something entirely new was incredibly inspiring.

What really struck me, though, was learning about the behind-the-scenes determination that brought the project to life. During schematic design, the contractor and masons bidding on the project were insistent that the design could only be achieved using a thin stone veneer rather than full-depth stone slabs, citing cost and constructability concerns. When the contractor approached the client, claiming the project was not feasible as designed, Trehan and his team didn't back down. Instead, they used their in-house fabrication drawing capabilities to find a dry-cut stone mason willing to explore an alternative approach. By maintaining the full slab thickness and cutting the complex curves with precision, they preserved the spatial richness of the design while saving over $3 million by avoiding the more expensive wet-cut process. That kind of creative, hands-on problem solving is exactly the kind of practice I aspire to be part of.