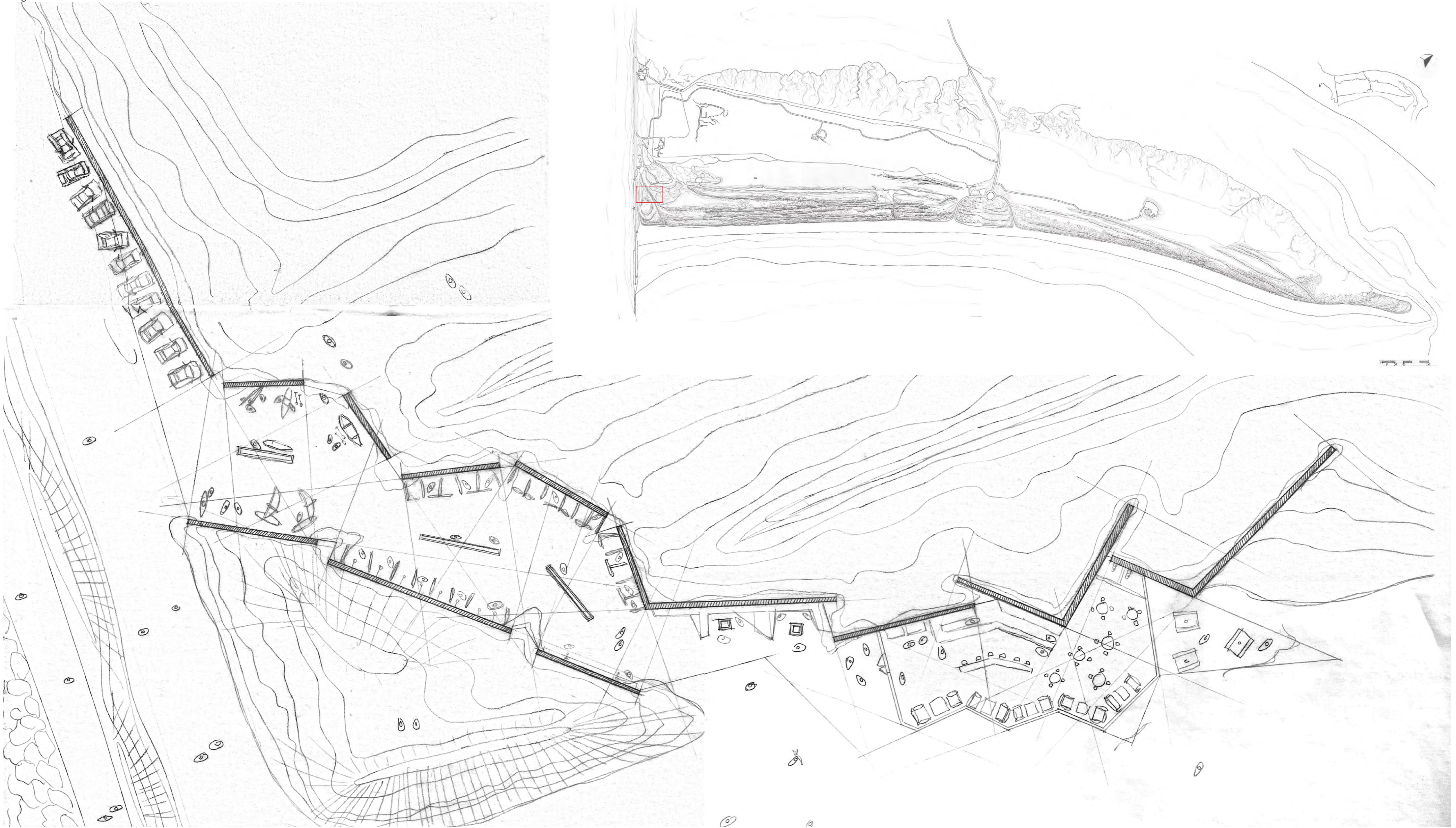


PG934

ENDURANCE OF ARCHITECTURE

Design architecture to address and endure time.



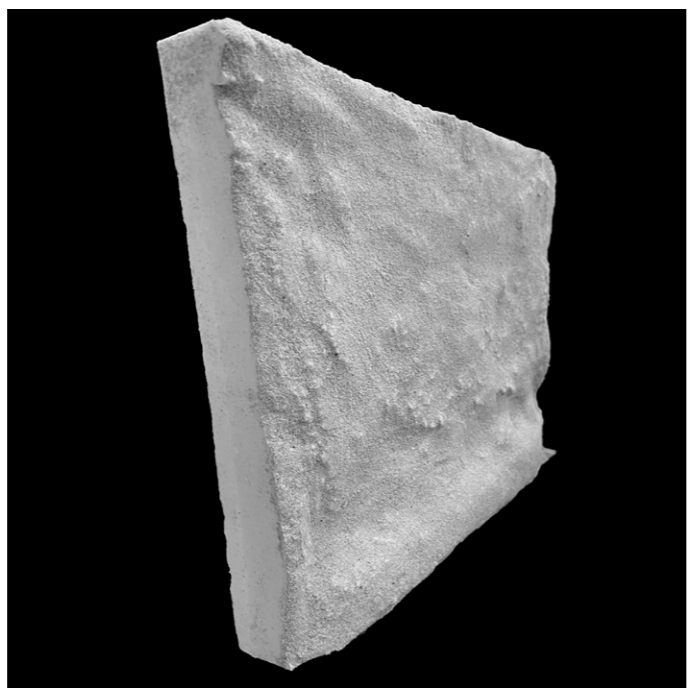
My site is the Bull Island in Dublin. The island was the accidental result of the construction of the Bull Wall that was erected in the 1800's to ensure ships could access Dublin Bay Harbour. Today the Bull Wall consists of rocks and a tarmacked path. This wall led to the appearance and formation of the Bull Island over the next century. This island is now host to houses, golf clubs and a cafe, and is home to large amount of water sporting activities that the residents of Dublin take part in on the Bull Island beach, the Dollymount Strand. These water sports activities include surfing, wind surfing and swimming. Kiting and picnics also happen on the beach alongside these water sport activities.

My brief was to design a space that adds to the existing qualities of the Bull Island. My response to the brief was to add changing and washing facilities for the existing water sports users of the Dollymount Strand beach and provide a permanent cafe space for the current temporary cafe to move in to. This would allow people who use the beach to change in private, wash themselves on site and provide the opportunity to rest and dine in a heated space. The new facility would take inspiration from the activities that take part on the Dollymount strand to inform its structure whilst also taking inspiration from the sand dunes to inform its shape.

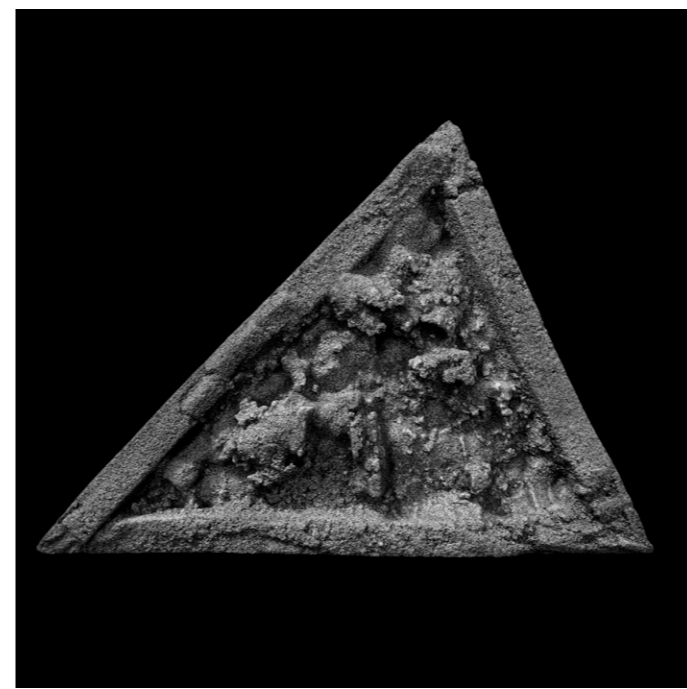
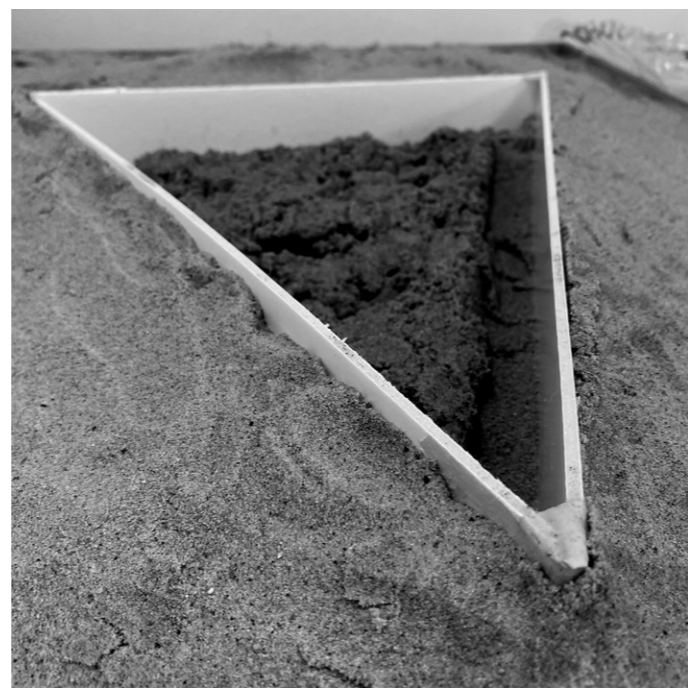
The space would be informed and designed through the construction process of the design. The main material to the design would be concrete. Through a detailed design process on how to use concrete that celebrates the characteristics of the site, sand cast concrete walls and foundations would be used to inform the plan and section. This detail design process resulted in large outdoor open plan changing and washing facility with an enclosed cafe. Large timber and glazed triangular roof pieces would span over these spaces. This roof pieces would use the rocks on the site to be held down to the sand dunes and integrating the structure into the site.



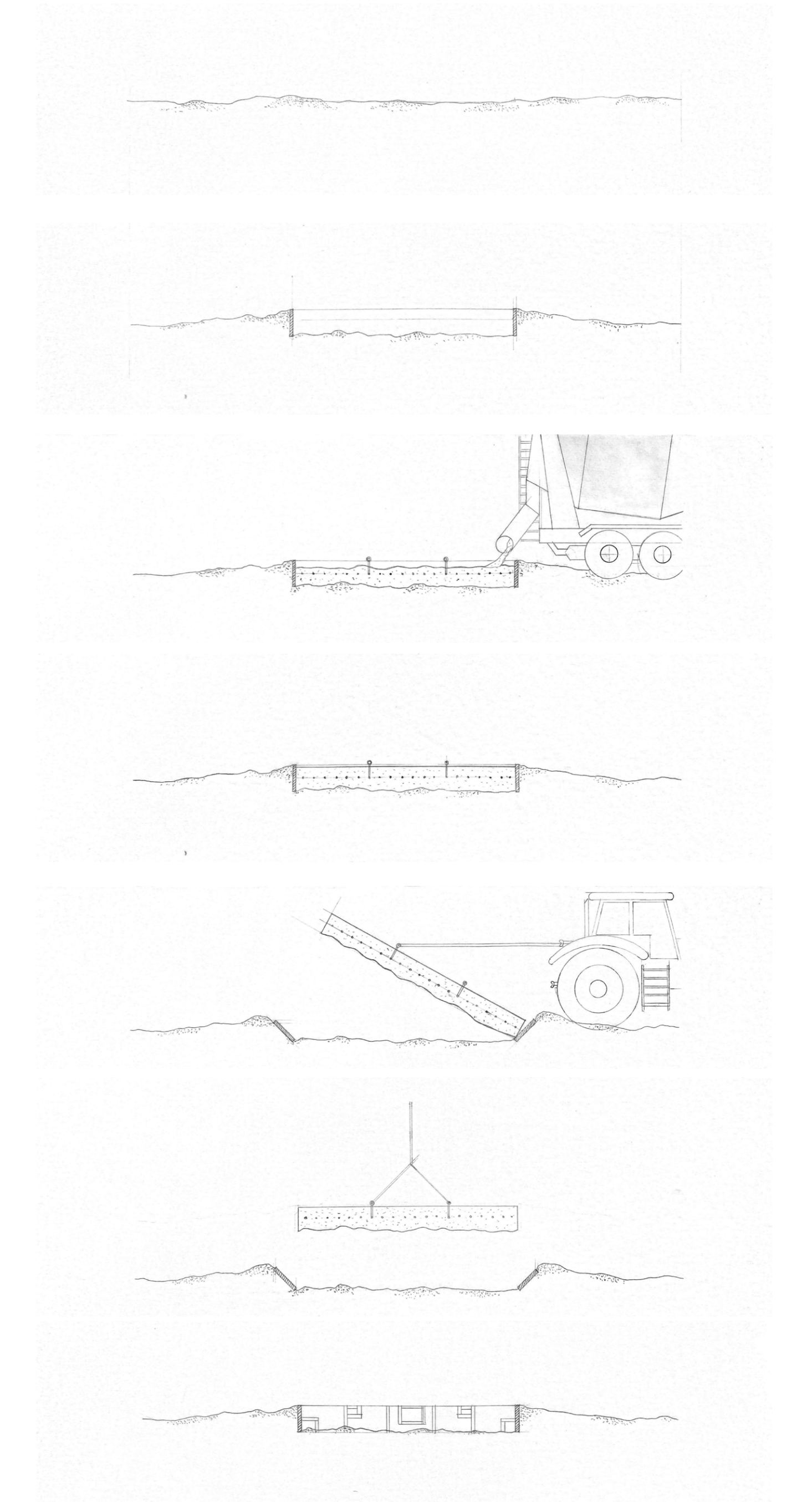
1:10 Concrete Wall Model



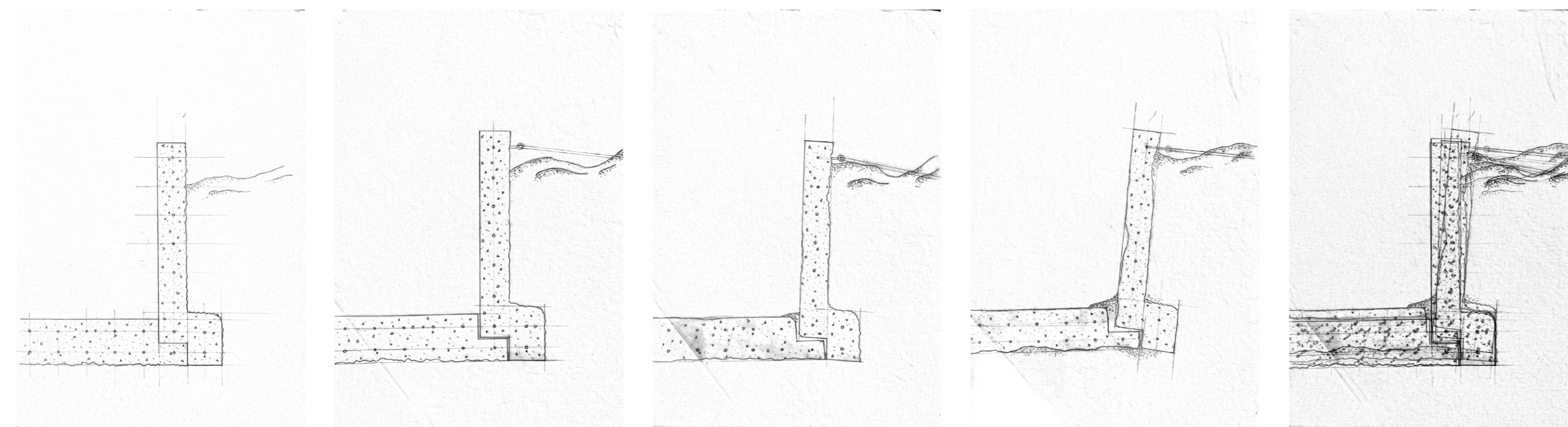
1:10 Foundation Pad Model



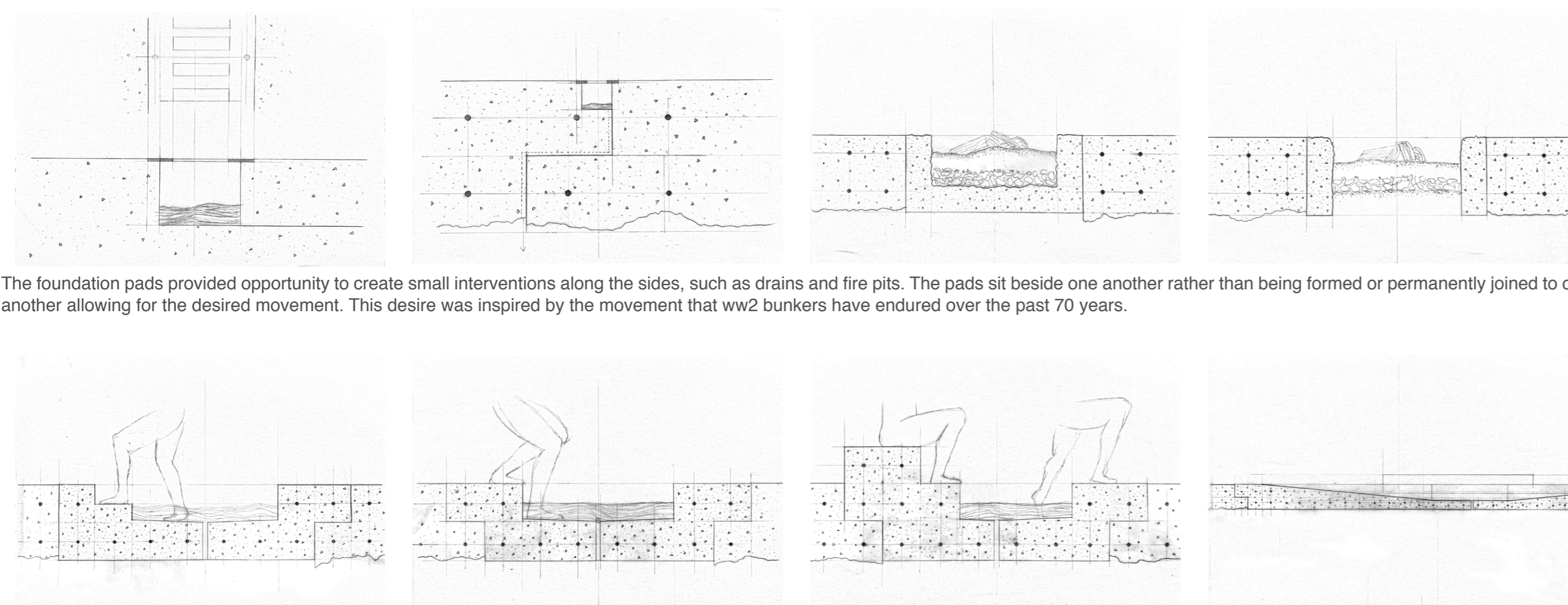
The walls and foundations would use the beach to cast the walls and foundations of the changing and washing facilities. To reduce its environmental impact this method was approached. This method included only using 4 manufactured sides. The concrete would be poured into a mould in the sand. This would create a unique sand cast surface, 4 manufactured surfaces and the last surface would be open to the elements to dry with the potential to be unique from the weather conditions of when it was poured. These walls and foundations would be removed and placed onto the site. The moulds would be reshaped and reused for each individual pieces. The pieces could only be cast at lengths of 4 metres which had an affect on how the plan would be arranged. The process is shown below.



The construction process was tested at a 1:10 scale models. This process resulted in a concrete wall with its exposed to the elements surface not being smooth with bumps and patterns inscribed in it from the wind and air. The four manufactured surfaces were smooth and shiny, the final surface cast onto the sand resulted in a unique topography that could not be repeated. These model informs the project.



The detail design process of the walls and foundations. Early studies decided the walls would not be permanently connected to the foundations to allow for movement. The foundations would be designed in a similar fashion. The foundations would be multiple 'Foundation Pads' that too would be separate from one another allowing for movement from the loose sand dune conditions of the site. The above drawing demonstrates the desired movement of the wall over 60 years.



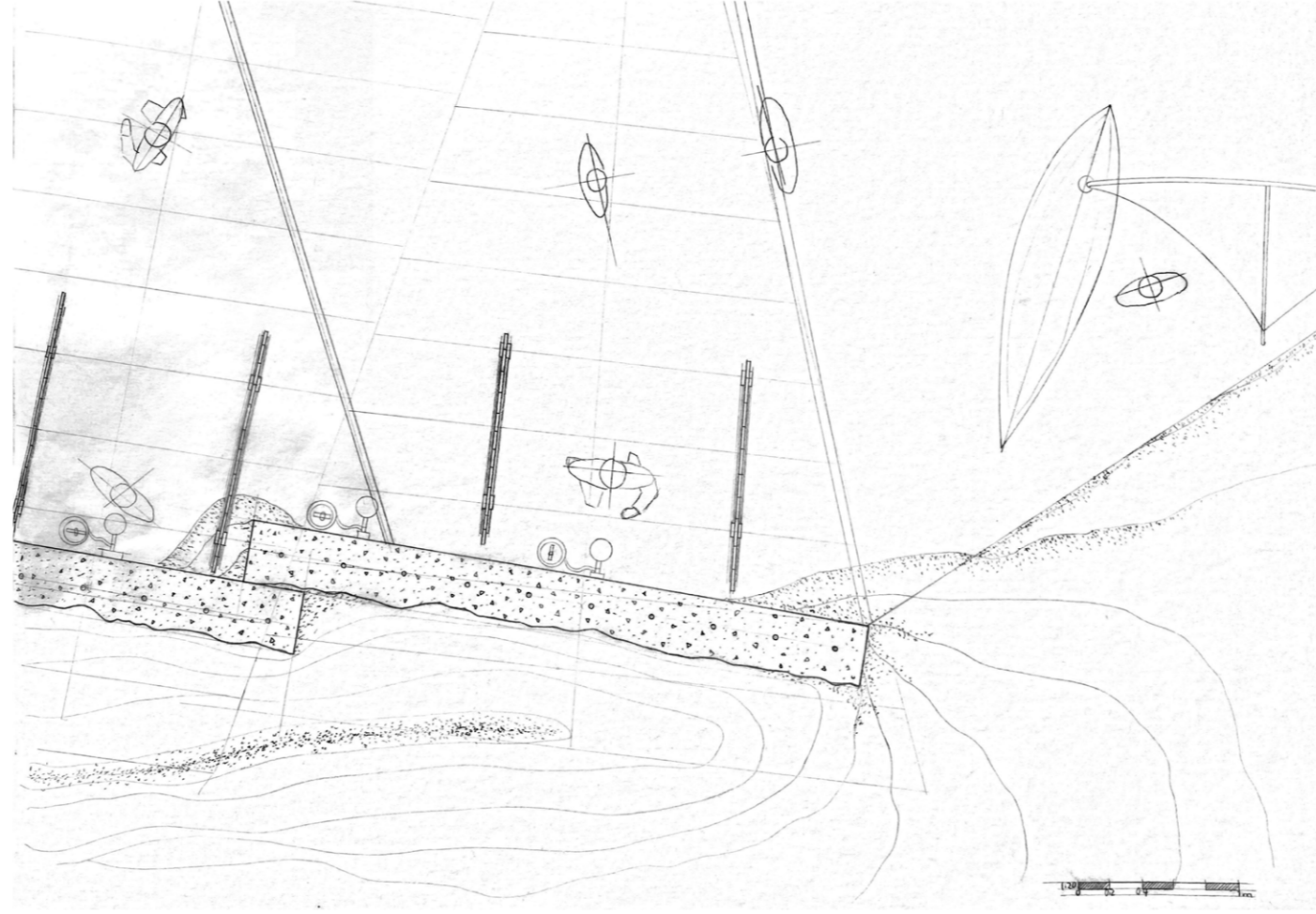
The foundation pads provided opportunity to create small interventions along the sides, such as drains and fire pits. The pads sit beside one another rather than being formed or permanently joined to one another allowing for the desired movement. This desire was inspired by the movement that ww2 bunkers have endured over the past 70 years.

The foundation pads provided further opportunity to allow for a pre-cast foot bath. This foot bath sits in the centre of the scheme with the surrounded by foundation pads with the drains connecting the foundation pads, draining excess water from the showers and the rain water into the foot bath.

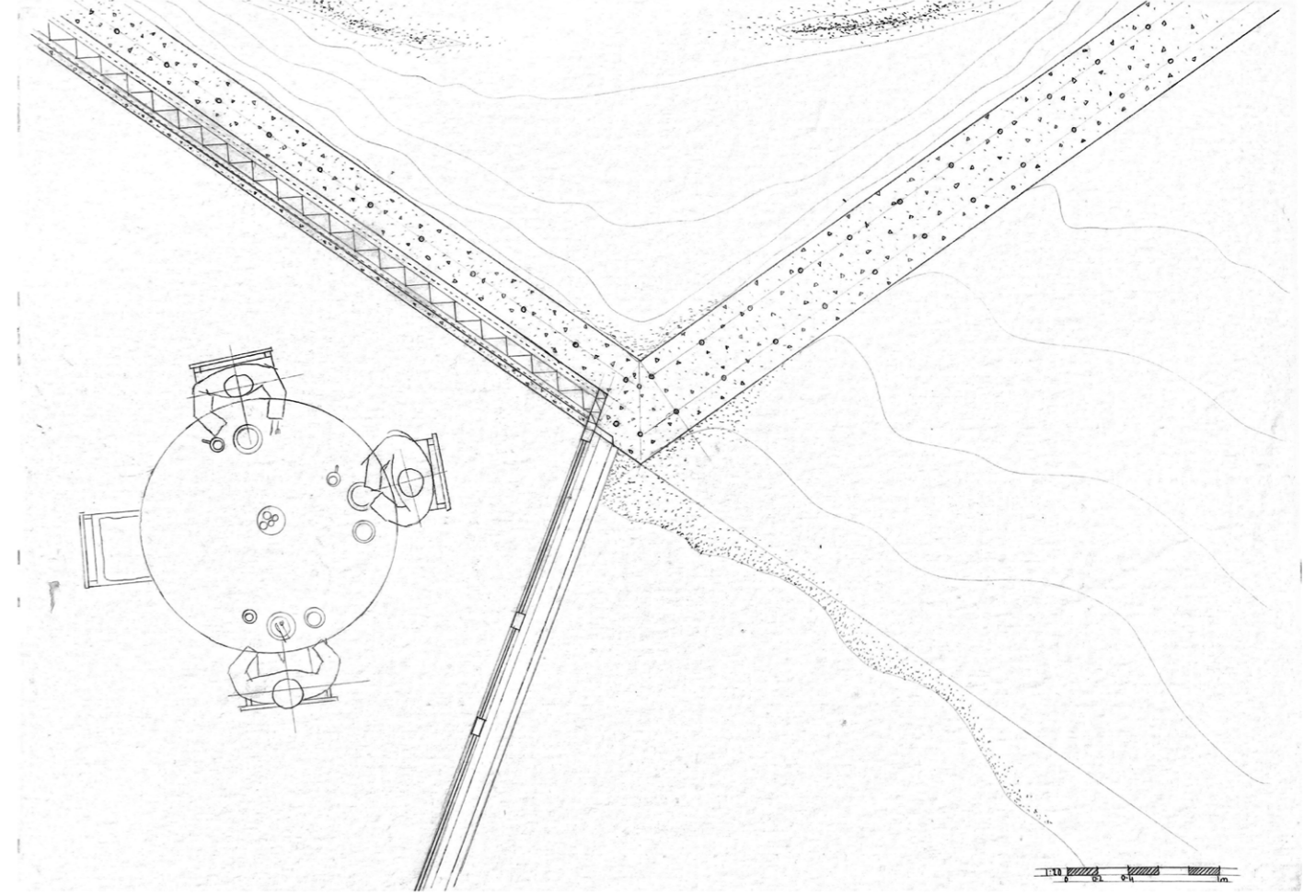
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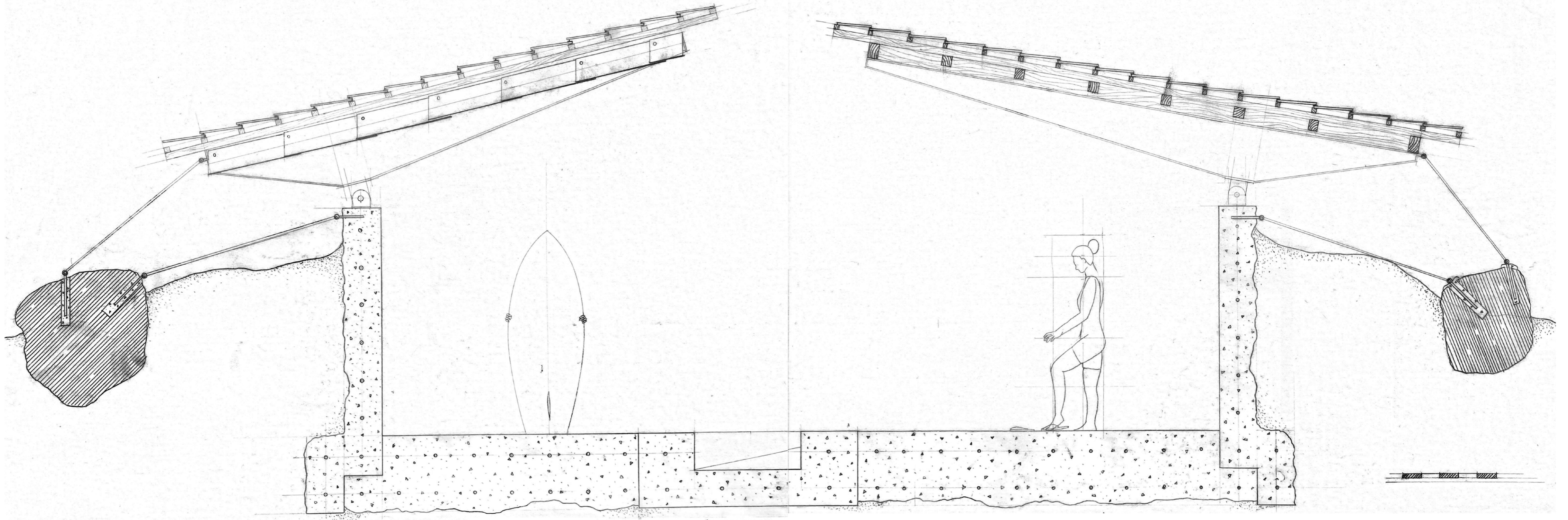
The detail plan of the changing facility expresses the stacked wall effect. The sand dunes the walls retain spill through the gaps and spread onto the foundation pads. The hanging structures from the roof provide private space for the users to change in.



The detail plan of the washing facilities express the same structure as the changing facilities and similar hanging structures. The showers collect rain water and bucketed water which fills a water supply for each shower head that uses a hand pump to provide a pressured shower experience.

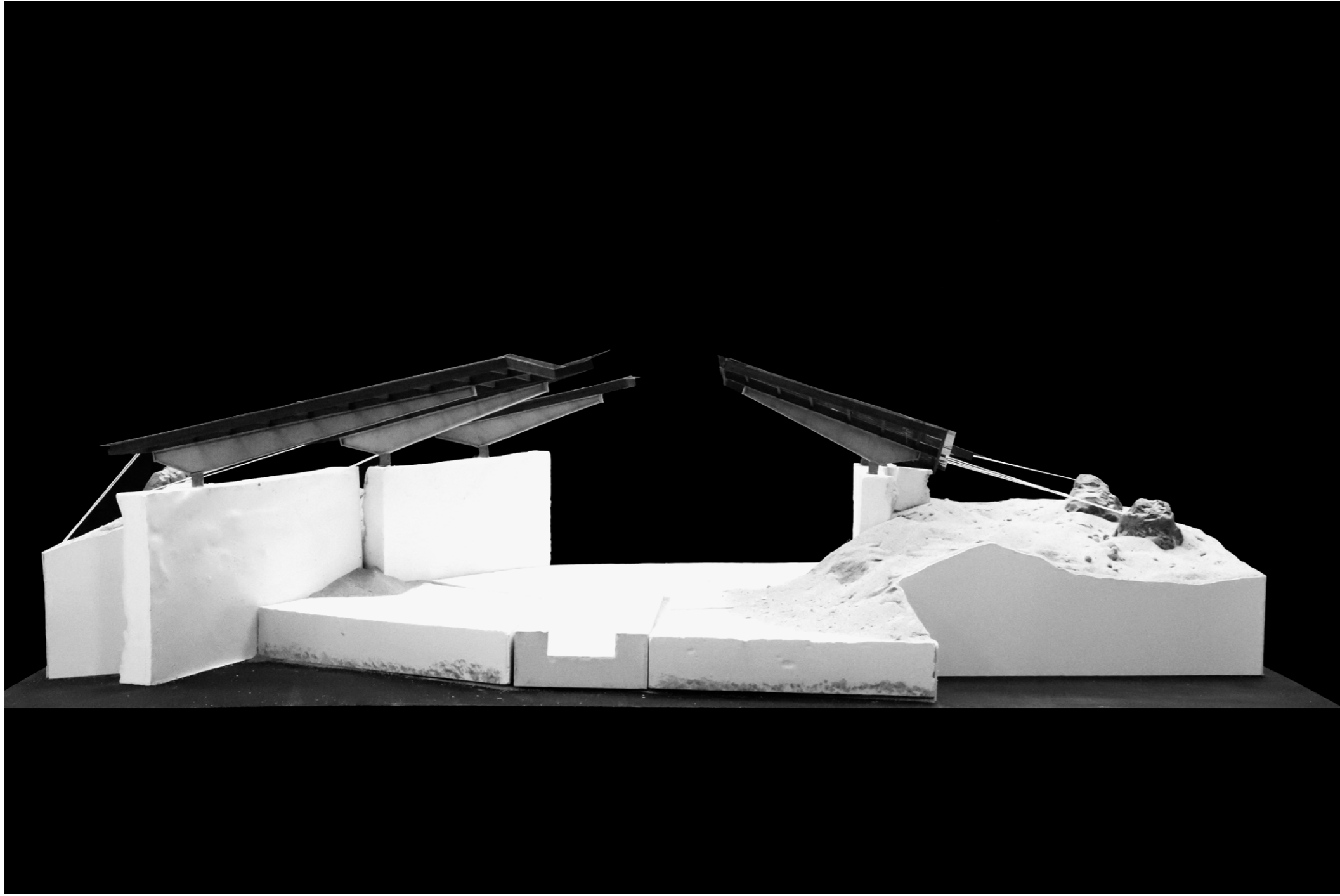


The detail plan of the Cafe uses precast concrete structures to provide water tight joints compared to the outdoor facilities construction. The interior of the walls are aligned with services, insulation and waterproofing. This creates the desired interior heated space.



The sections expresses the unique profile of the concrete walls and foundations. The section displays the conditions in which the surfaces of the concrete elements, the rough sand cast surfaces retain the sand from the interior space. The section expresses how the concrete elements sit on top of one another allowing for movement of its lifetime.

The sections expresses the roof structure that spans over the changing facility. The large timber roof structures sits on top of a large steel beam. This beam connects to the concrete wall conditions through a steel movement joint that allows for the roof to move and angle over time. The roof is held down by large existing rocks used to outline the car park. Integrating them into the scheme continues to use the site to benefit the scheme.



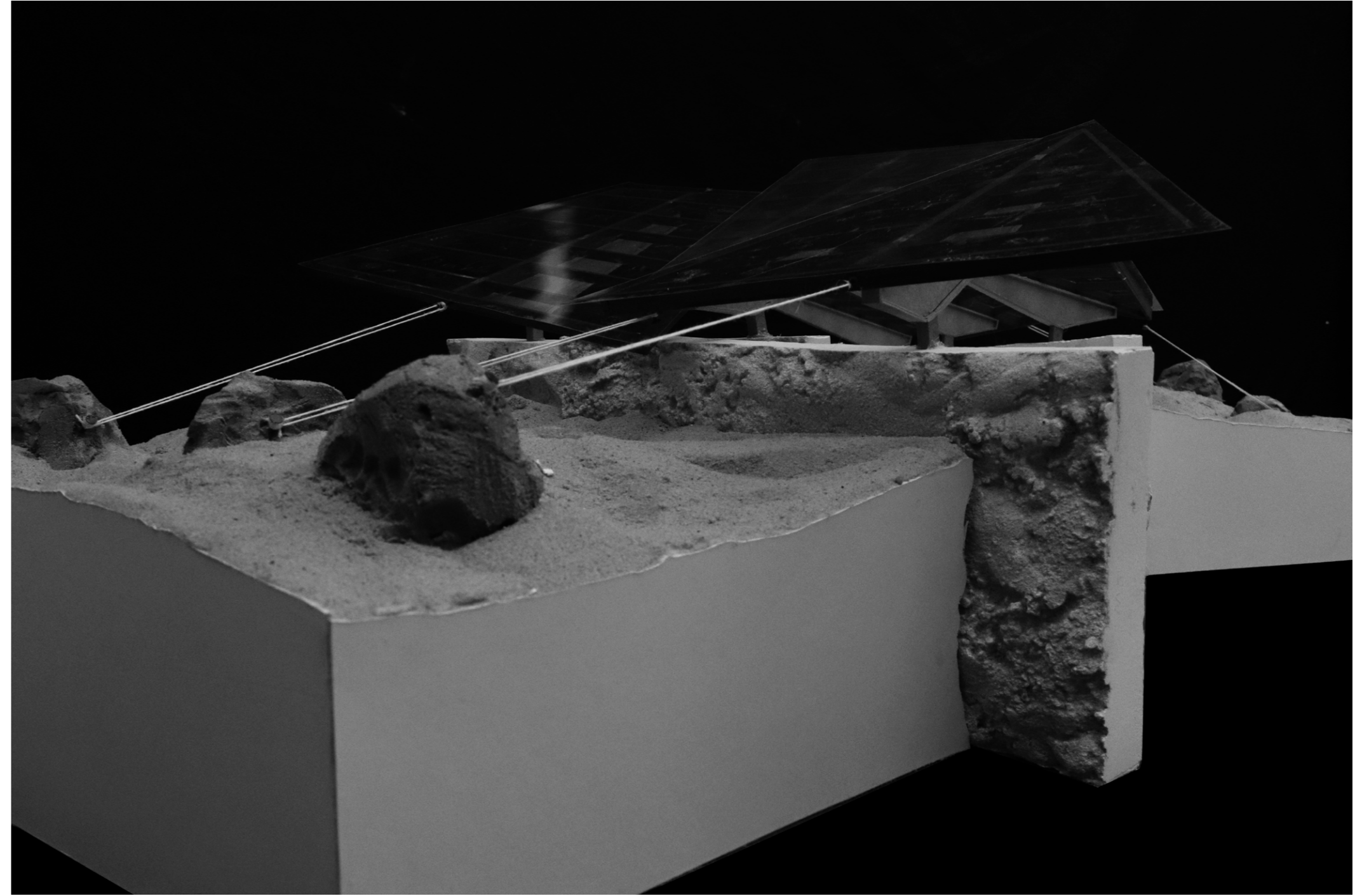
A large 1:20 model explored all the conditions tested and design for construction.



The large 'Kite' inspired timber roof structures that sit onto of the concrete walls span over the interior. The roof structures are made up of three layers, the large primary steel beam, timber structure and the glazed finish.



The stacked affect of the wall allows for sand to spill through the gaps. This stack affect reveals the unique surface of the sand cast wall and allows for small amounts of sand through to prevent the walls being pushed over.



The unique sand cast surface is exposed above the sand dunes. This reveals a interesting relationship the loose sand has with the solid concrete. This also shows the cable tied roof panels attached to the large rocks found on the site.