

09

CHAPTER NINE

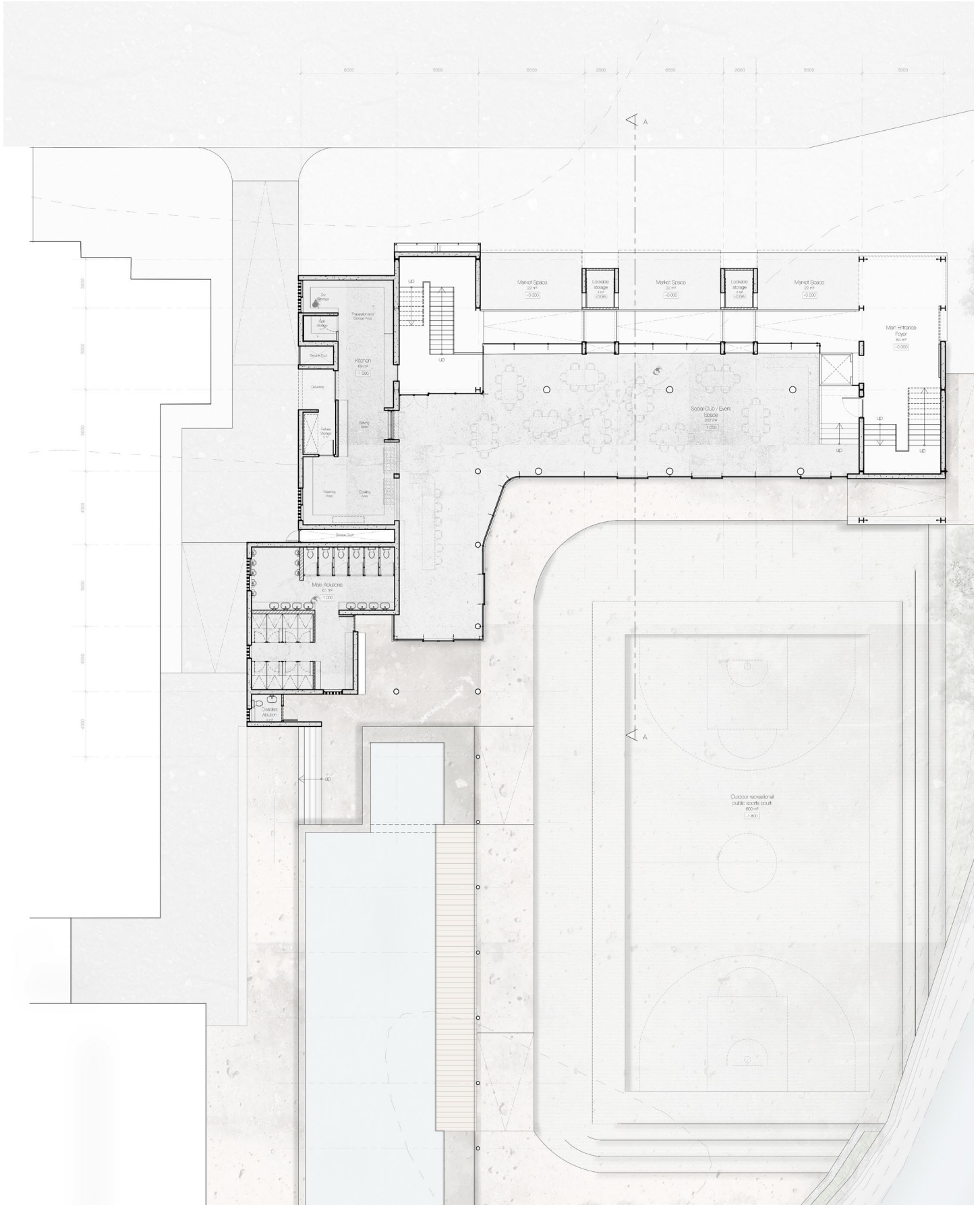
CONCLUSION

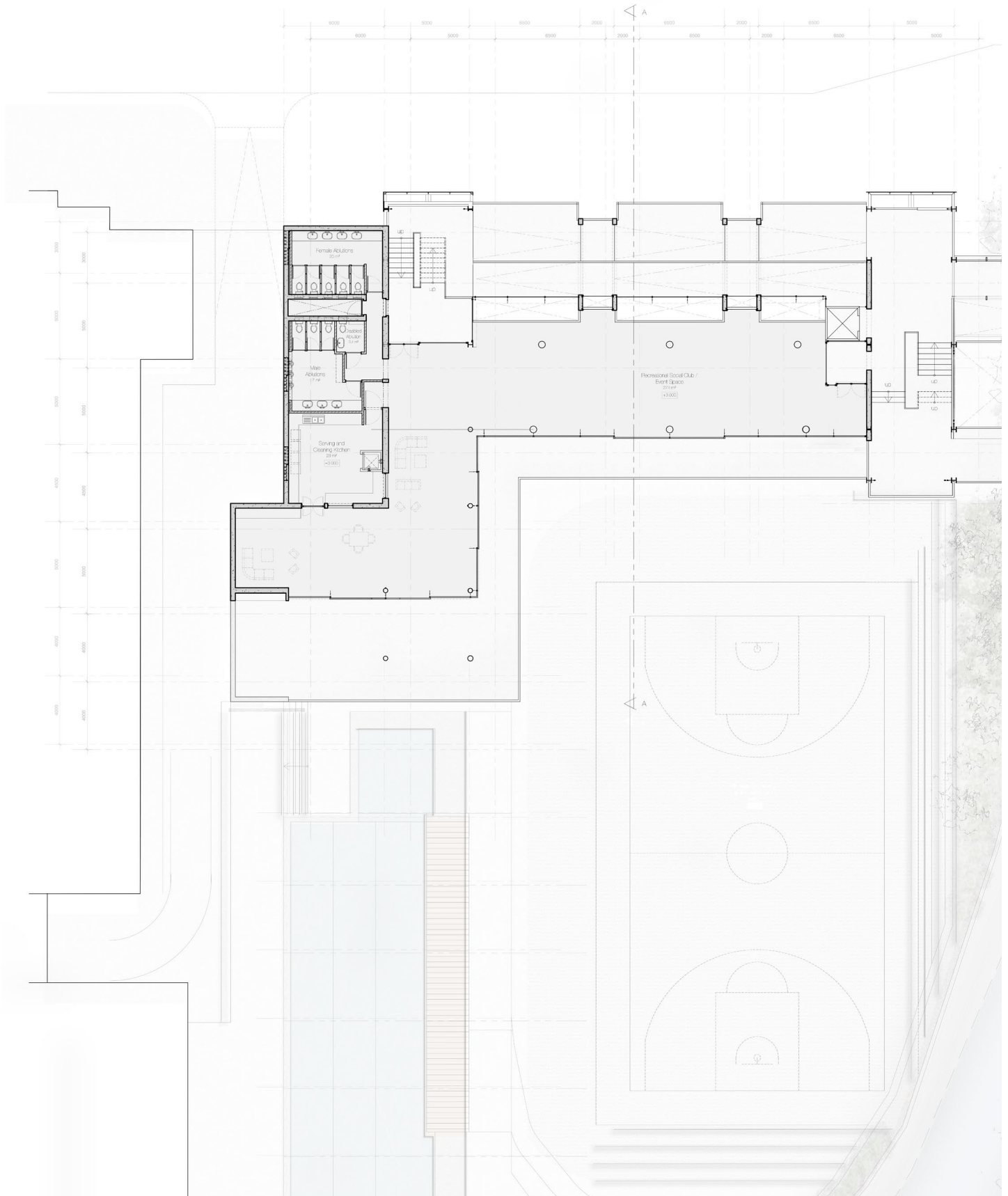
Exhibition Presentation and Photographs
Conclusion

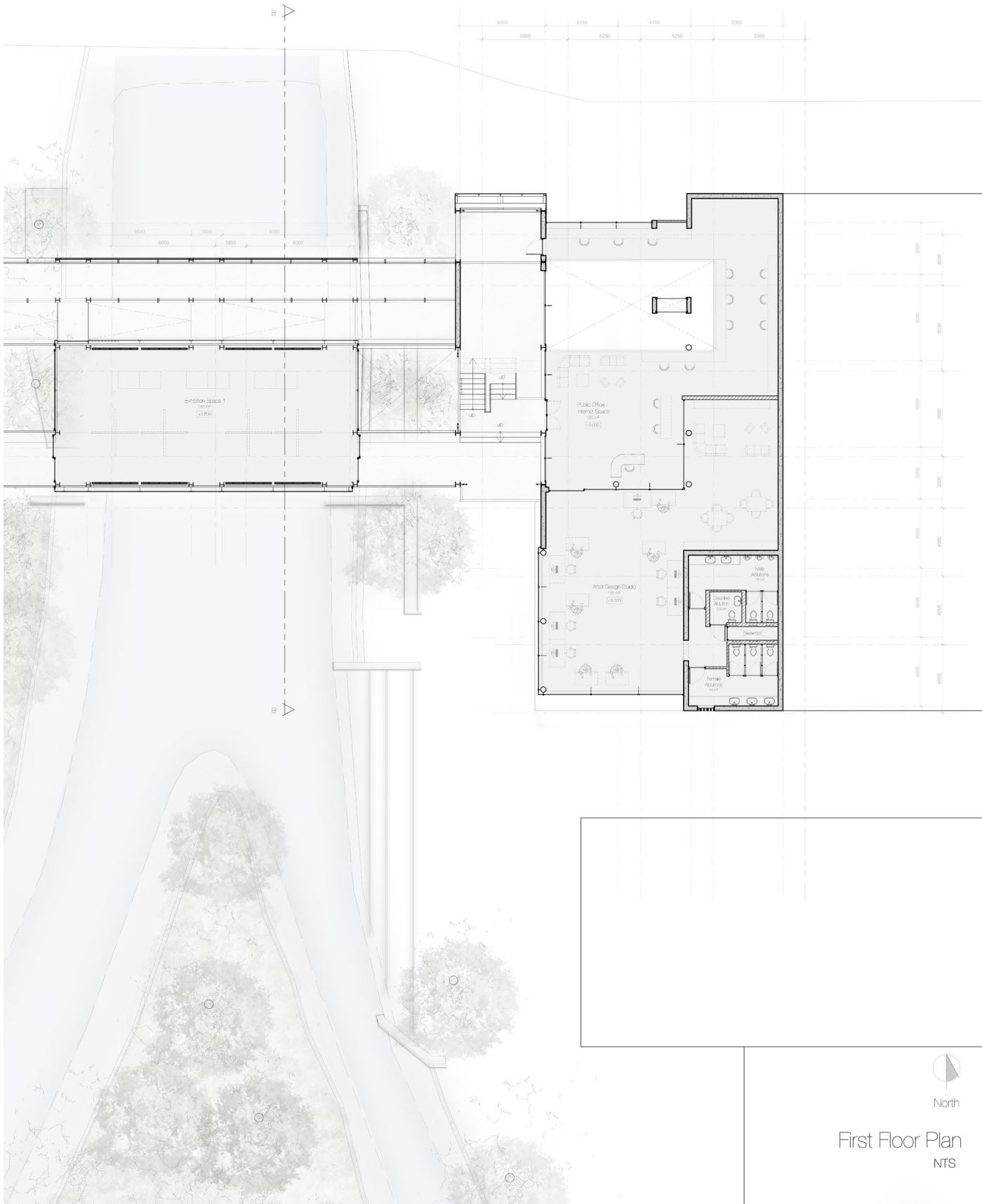
9.1

FINAL PROJECT PROPOSAL:

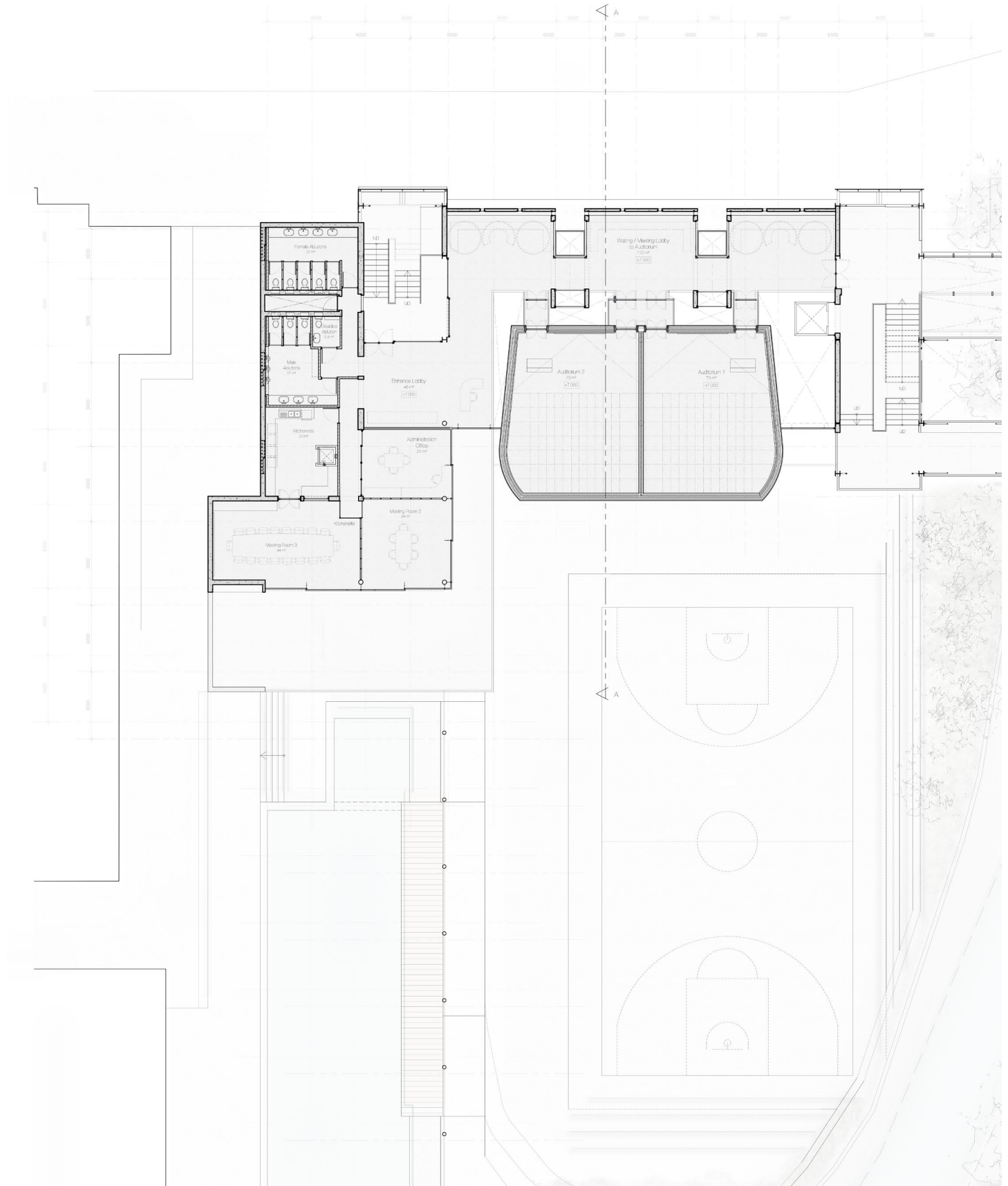
Exhibition drawings and photographs







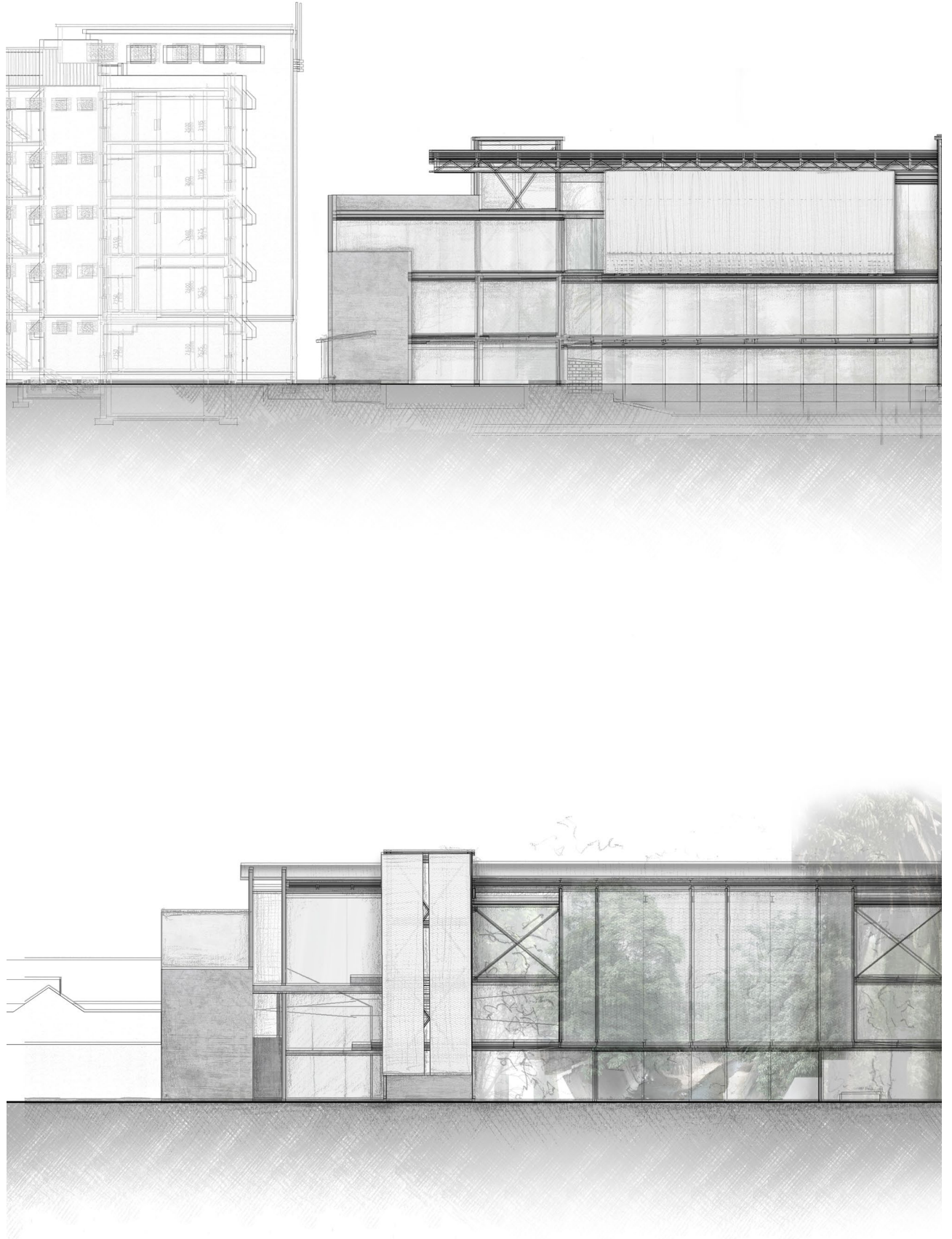
First Floor Plan
NTS

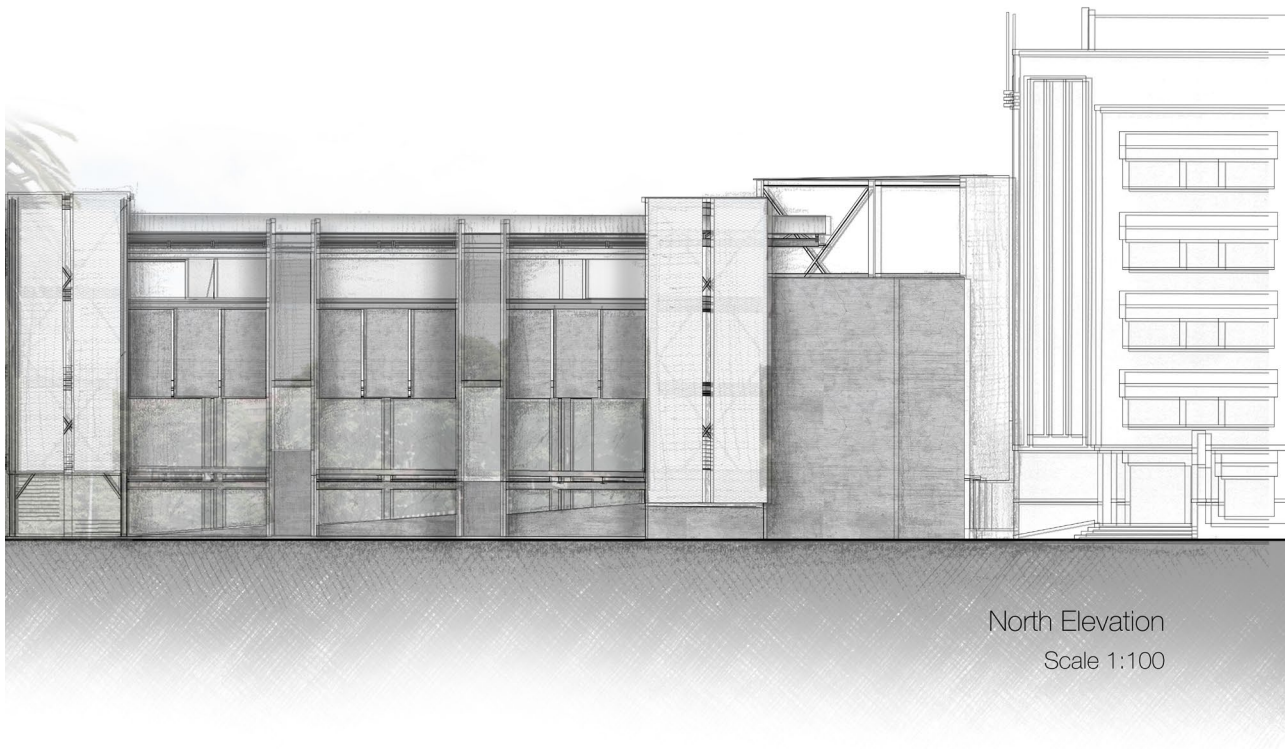
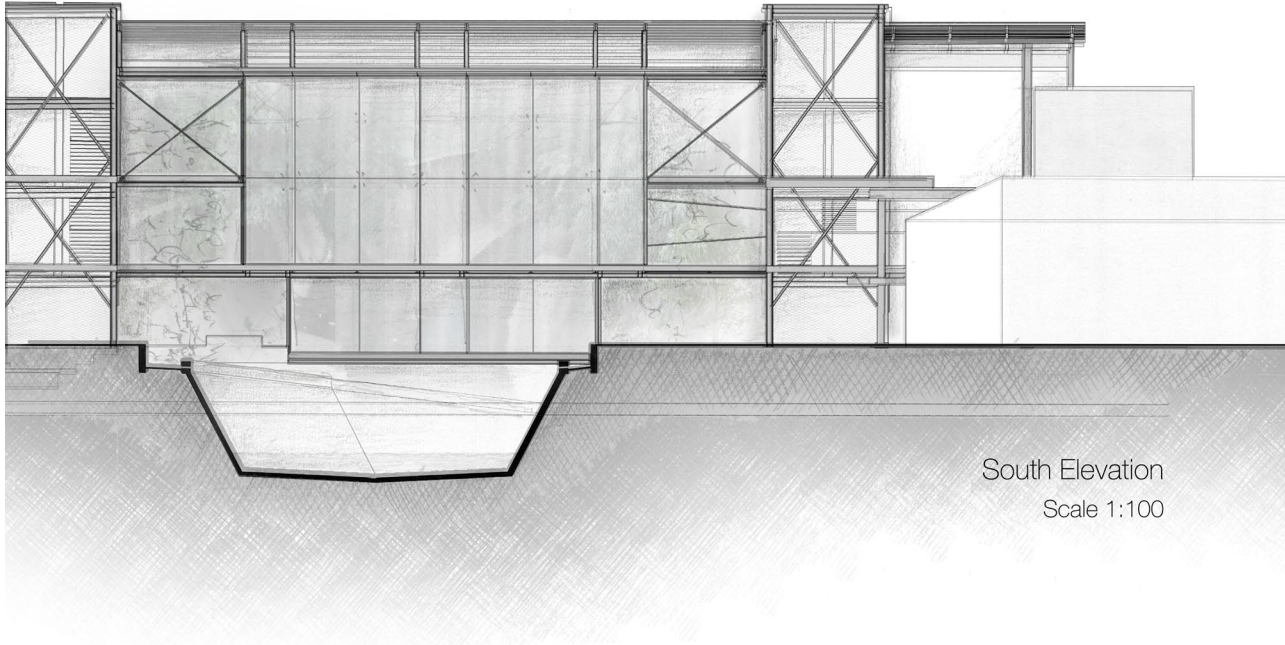




North

Second Floor Plan
NTS

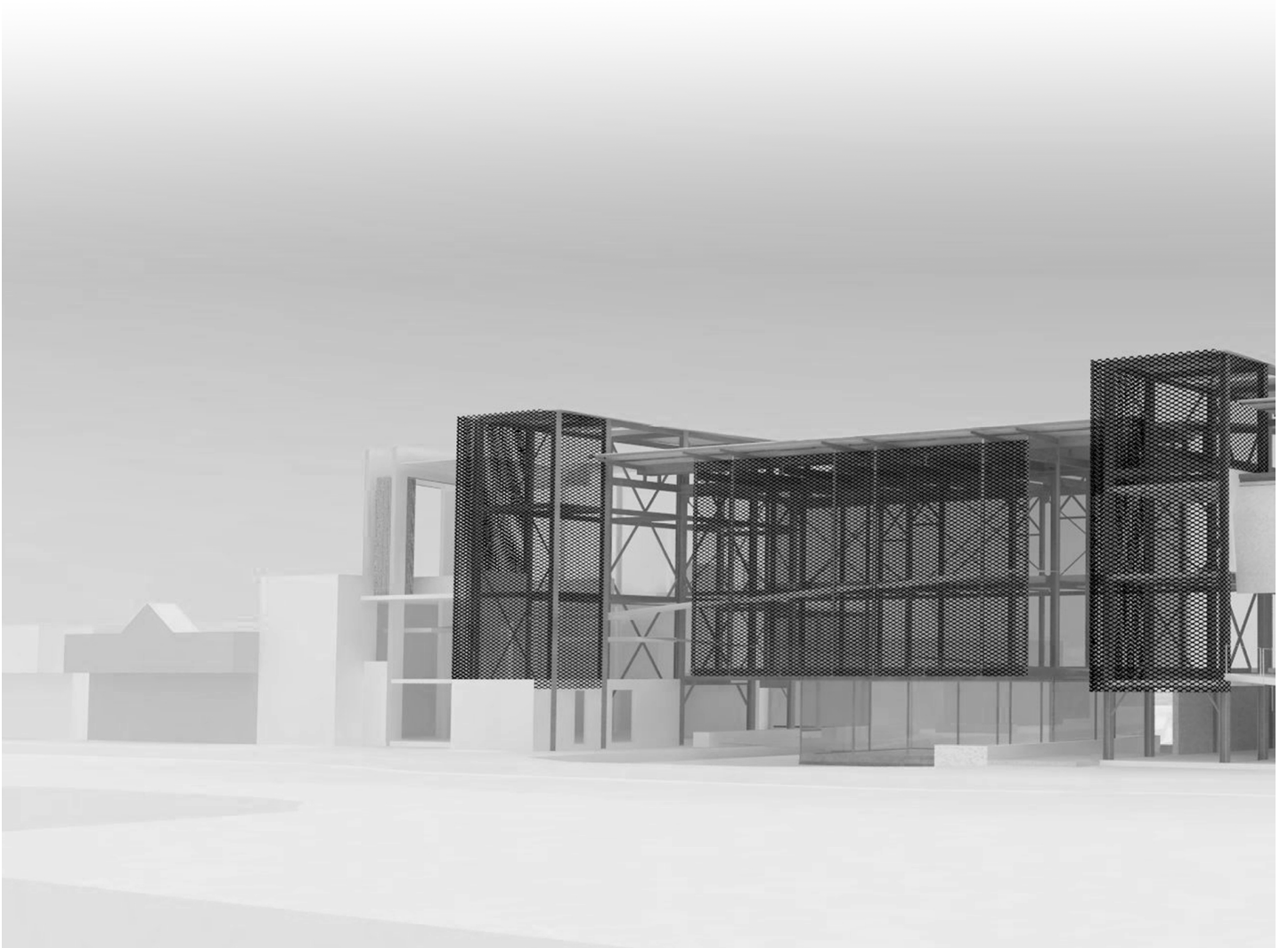


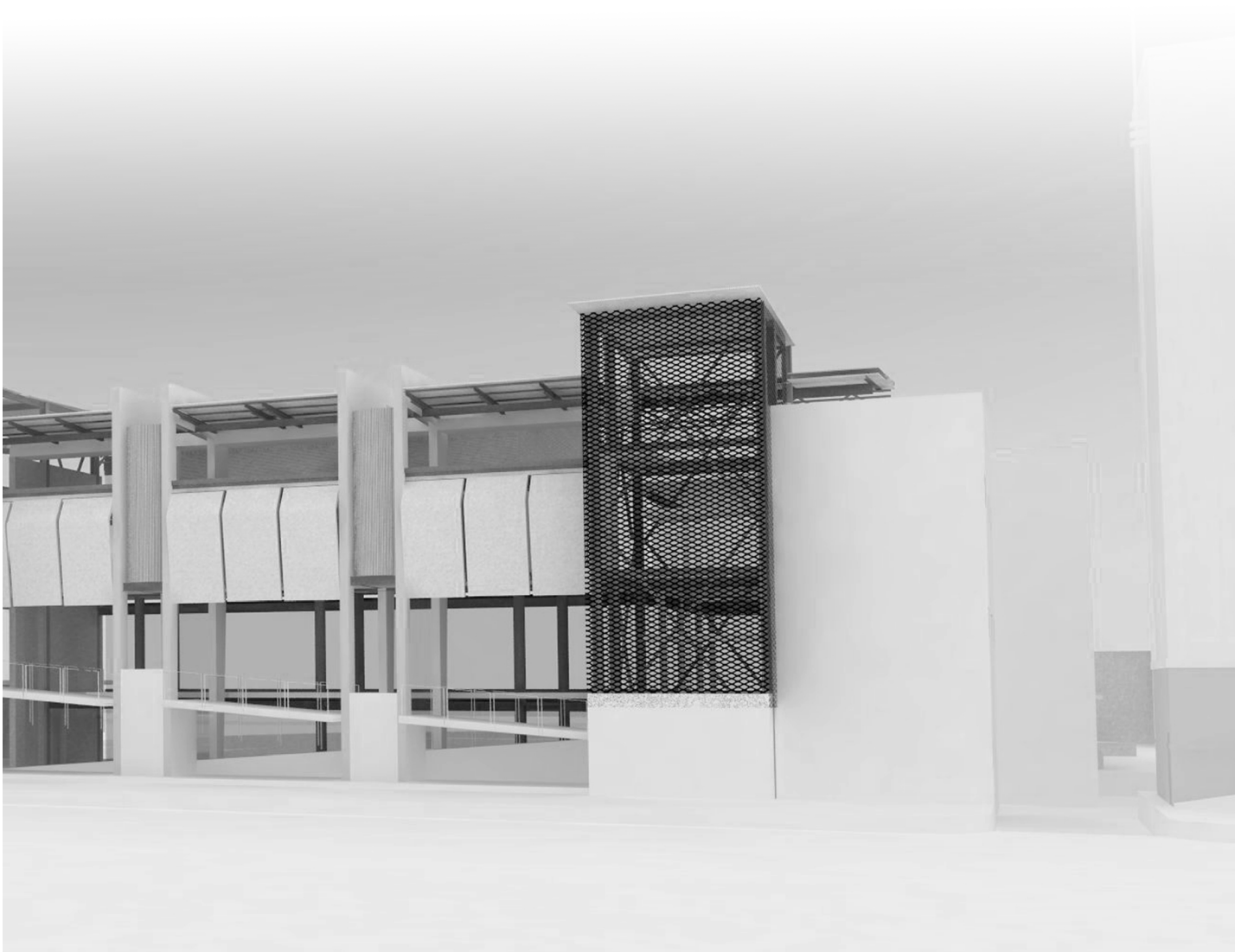






South facade perspective from the recreational landscape





North facade perspective from Stanza Bopape Street

Structural and Tectonic Intentions

Exploded axonometric illustrating the structural and tectonic intentions of the building

Sculpting the landscape through the constructed water channel:

The continuous sculpted landscape, water channel and boundary wall are constructed as a continuous stereotomic concrete platform, creating a continuous translation between the ground and lower boundary wall condition.

The Service and structural core:

The extended structural and service spine as filtration device, supporting the continuous lightweight roof structure, mediates between the stereotomic concrete landscape and the extended steel structure, and is expressed through the change in material application method and resolution of connections. The infrastructural nature and structural integrity of the continuous service spine is expressed through the robust nature and bracing of the structural components.

The internal and external edge conditions as serviced by the structural and service core:

The circulation and public street activities skin / façade is constructed as a tectonic steel frame to express the permeability and rigid organisation of the structure, responding to the public contextual and functional informants.

The internal activities are supported by circular steel members to express the lightness, transparency and permeability of the structure and translate its relationship to the constructed natural landscape through structures and spaces that are adaptable, organic and less restricted by contextual and functional conditions.



Continuous Roof Structure:

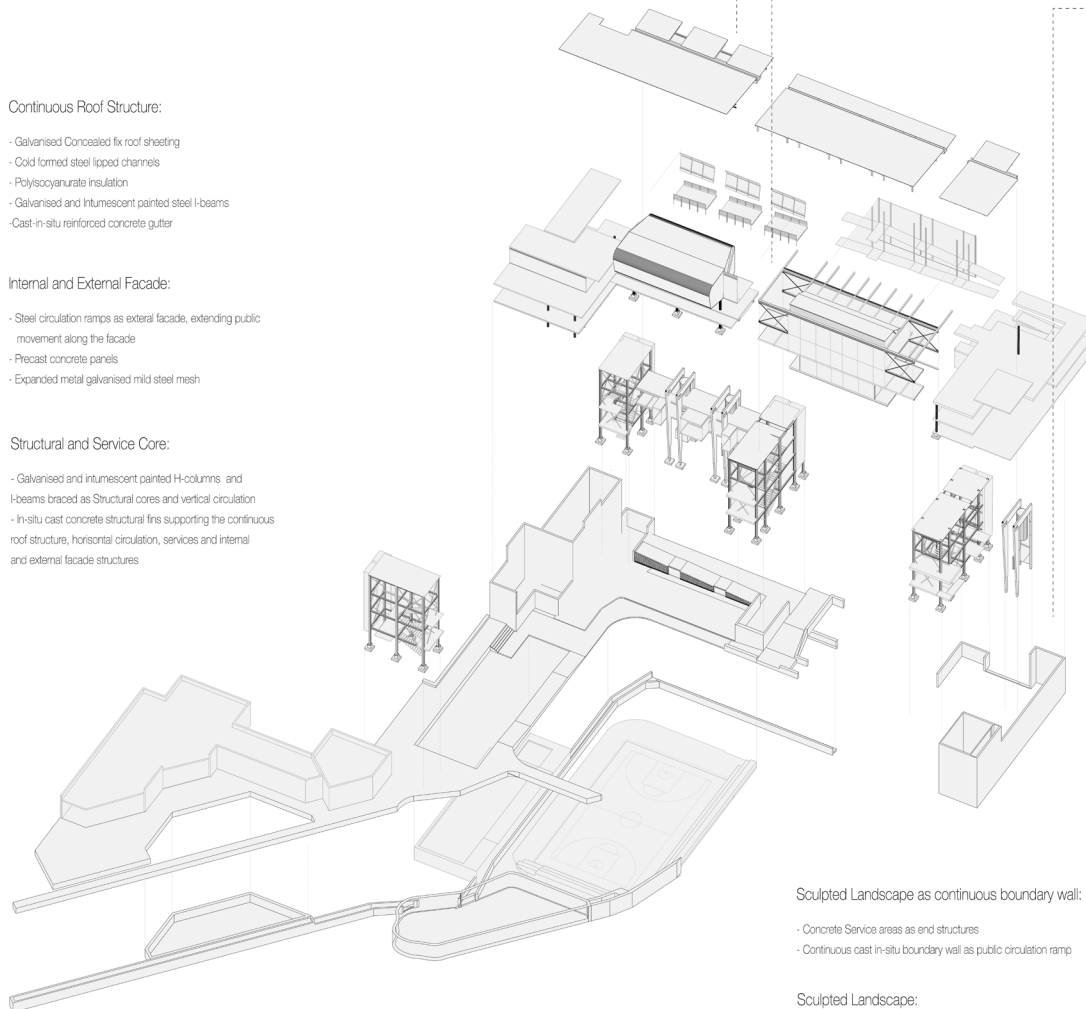
- Galvanised Concealed fix roof sheeting
- Cold formed steel lipped channels
- Polyisocyanurate insulation
- Galvanised and Intumescent painted steel I-beams
- Cast-in-situ reinforced concrete gutter

Internal and External Facade:

- Steel circulation ramps as external facade, extending public movement along the facade
- Precast concrete panels
- Expanded metal galvanised mild steel mesh

Structural and Service Core:

- Galvanised and intumescent painted H-columns and I-beams braced as Structural cores and vertical circulation
- In-situ cast concrete structural fins supporting the continuous roof structure, horizontal circulation, services and internal and external facade structures



Sculpted Landscape as continuous boundary wall:

- Concrete Service areas as end structures
- Continuous cast in-situ boundary wall as public circulation ramp

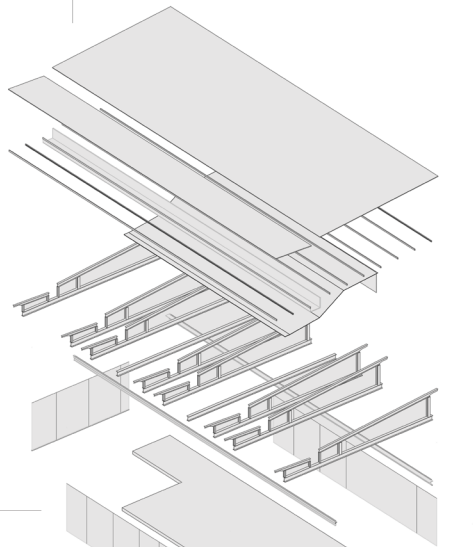
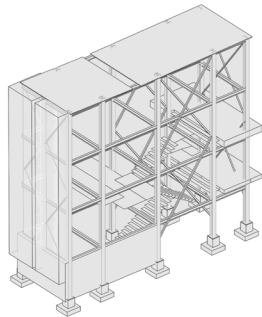
Sculpted Landscape:

- Artificially constructed water channel, wetland and reservoir system
- Concrete public outdoor sports square as detention flooding structure
- Public swimming pool

Development of the exhibition structure spanning the Apies River stormwater Channel

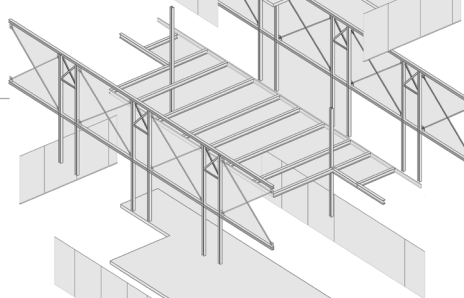
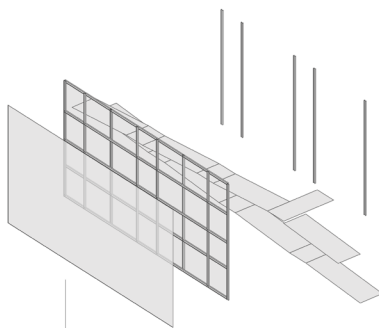
Continuous Roof Structure:

- Galvanised Concealed fix roof sheeting
- Cold formed steel lipped channels
- Seamless Aluminium gutter with neoprene sleeve
- Polyisocyanurate insulation ceiling
- Galvanised and Intumescent painted steel I-beams roof trusses
- Frameless structural double glazing envelope with stainless steel spider clamps, fixed to steel channel as end to floor slab.
- 260mm cast in-situ suspended floor slab between floor I-beams



Wall as beam structure

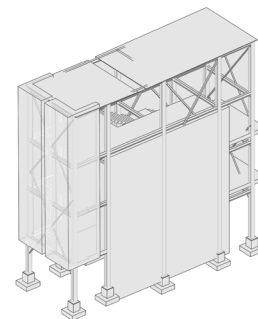
- Galvanised steel I-Sections, H-columns and angle bracing to create custom composite 5000mm deep beam, supporting the roof structure above and first and ground floor suspended structure below.

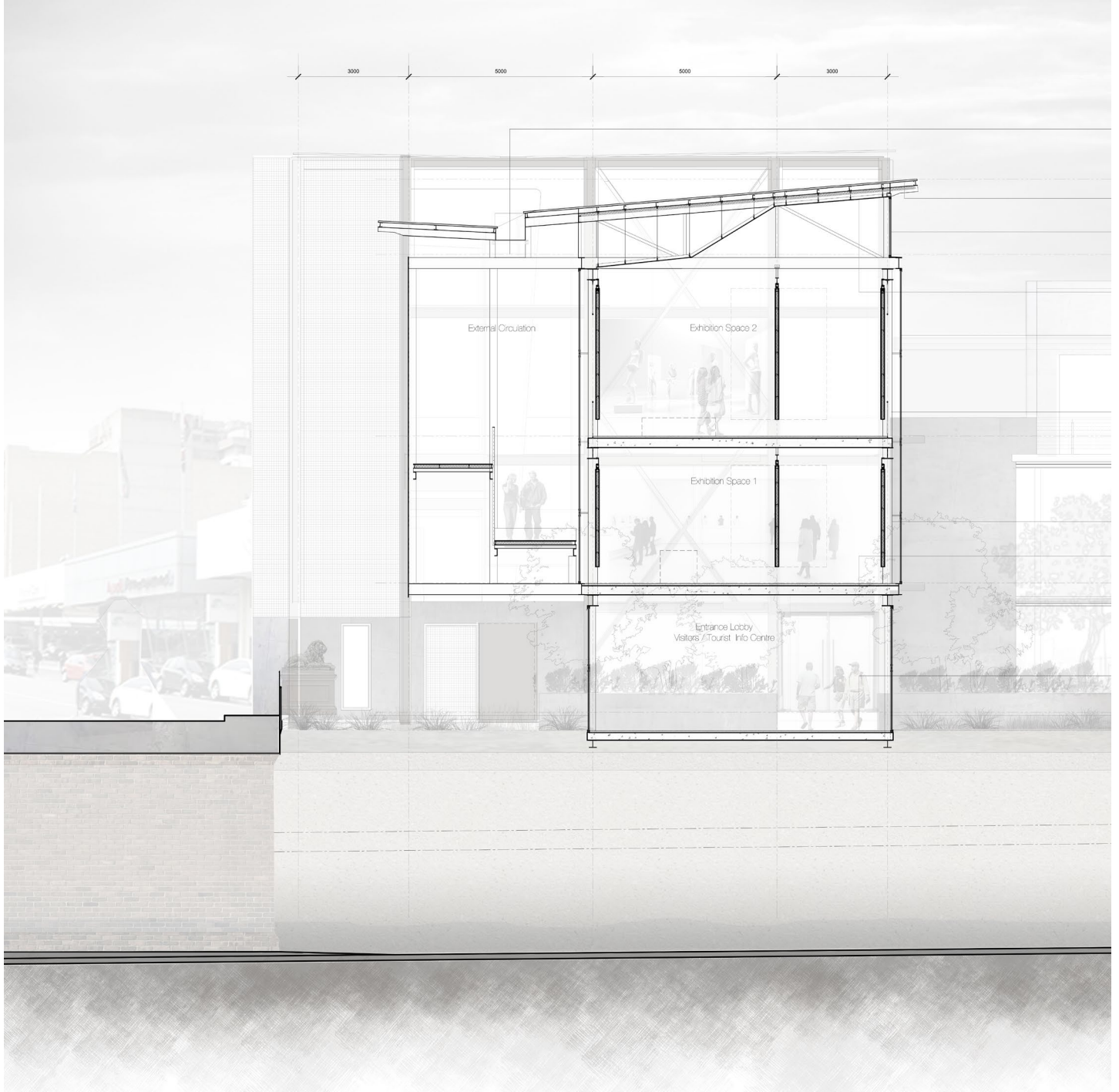


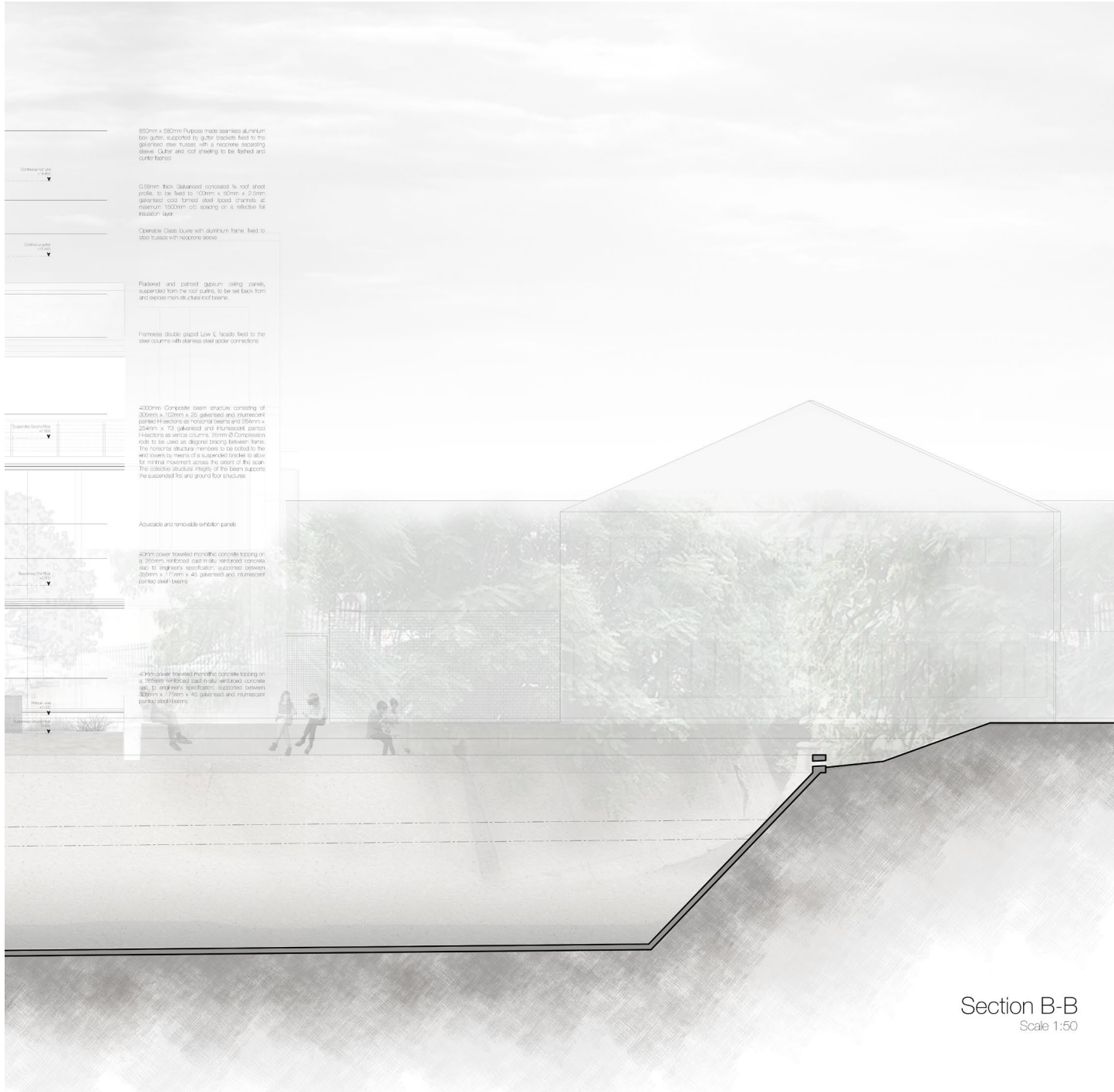
- Galvanised expanded metal mesh
- Galvanised cold-formed steel substructure fixed to galvanised H-columns and I-beams
- Steel circulation ramp fixed to H-columns and I-beams, projecting from the main structure

Suspended entrance lobby

- Concrete cast-in-situ floor slab between steel floor I-beams, suspended from the first floor structure with 114mm Ø circular steel columns.

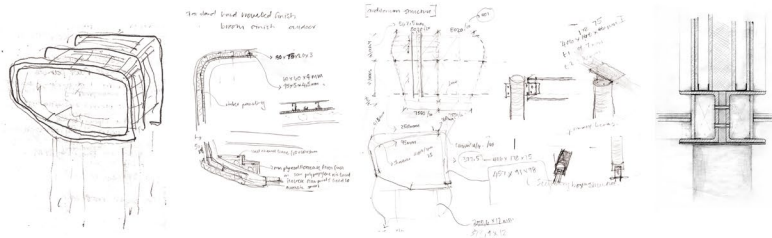




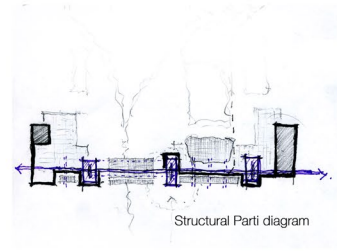


Section B-B
Scale 1:50

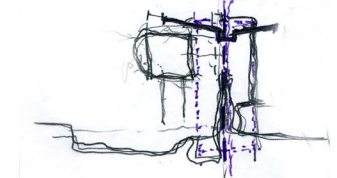
Development of the structural and service spine supporting internal and External Edge Conditions



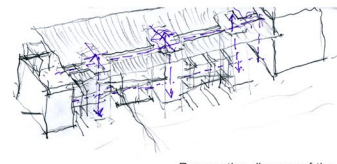
Development of the auditorium structure



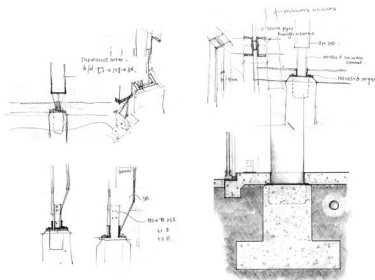
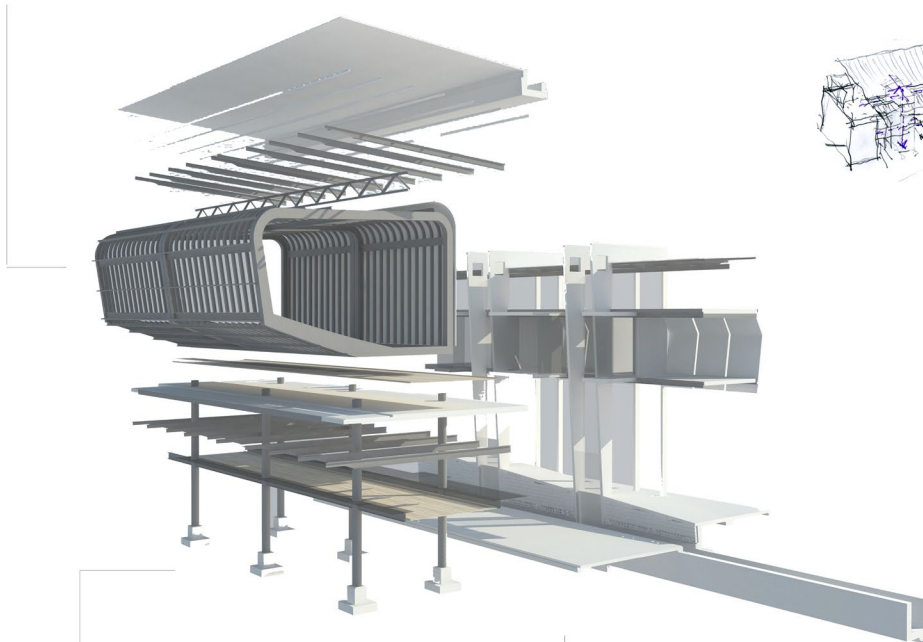
Structural Parti diagram



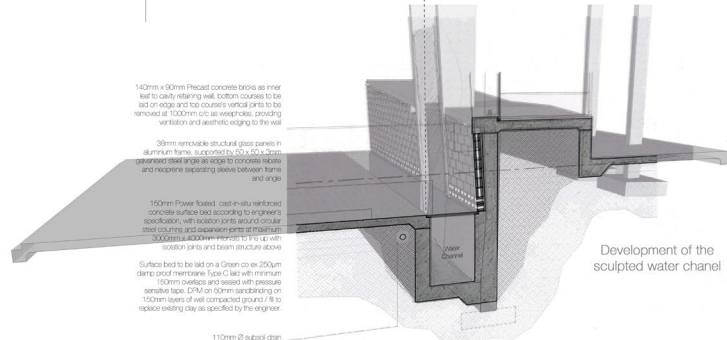
Sectional diagram of structural intention: Continuous Structural and Service Core supporting internal and external edge conditions



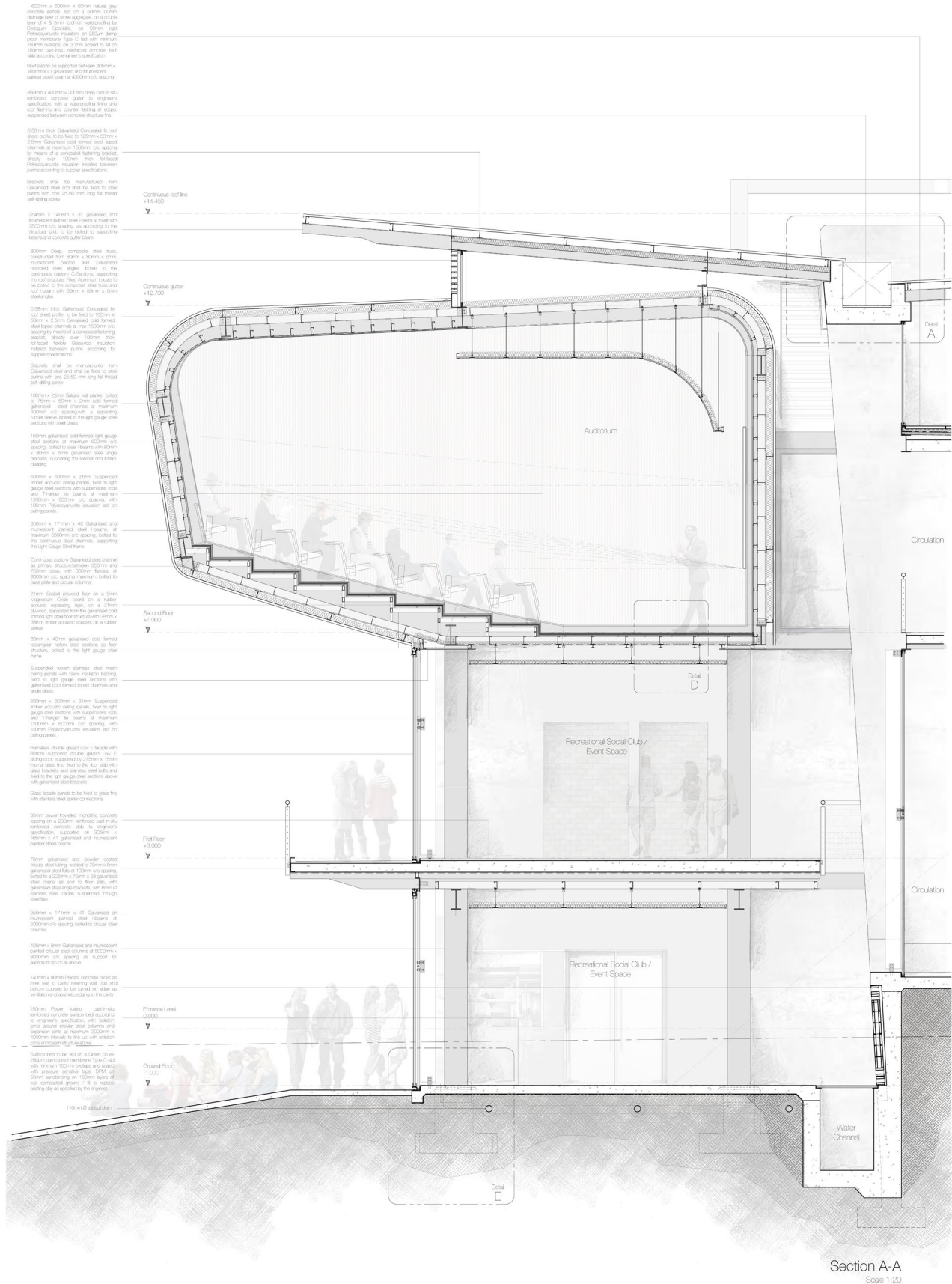
Perspective diagram of the structural intentions



Detail development of the column footings

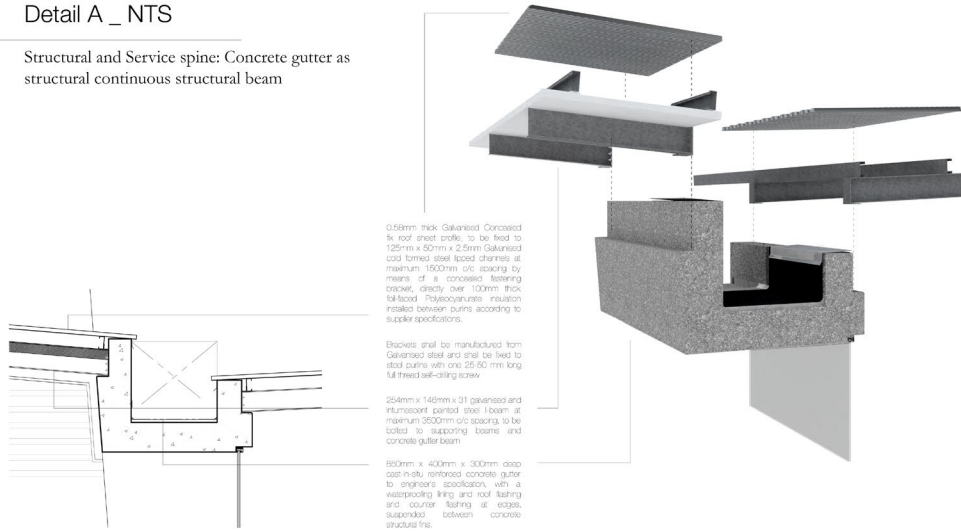


Development of the sculpted water channel



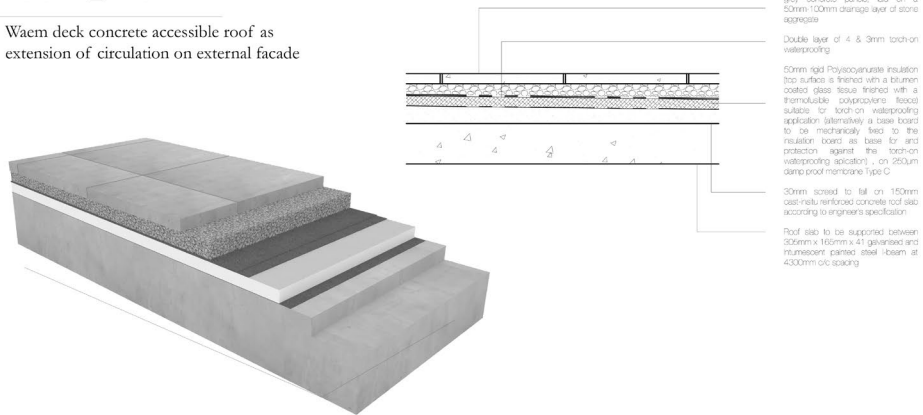
Detail A _ NTS

Structural and Service spine: Concrete gutter as structural continuous structural beam



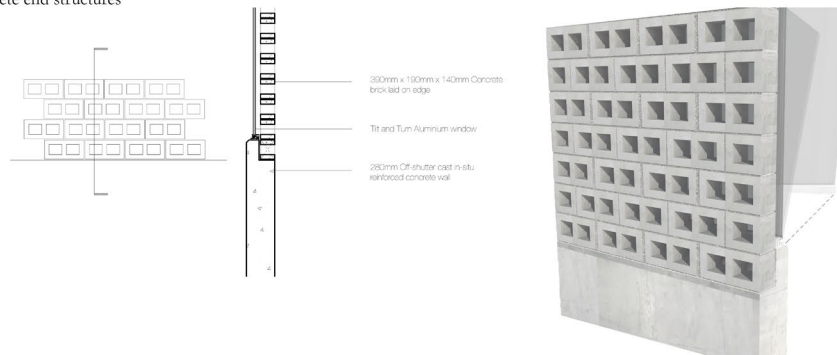
Detail B _ NTS

Waem deck concrete accessible roof as extension of circulation on external facade



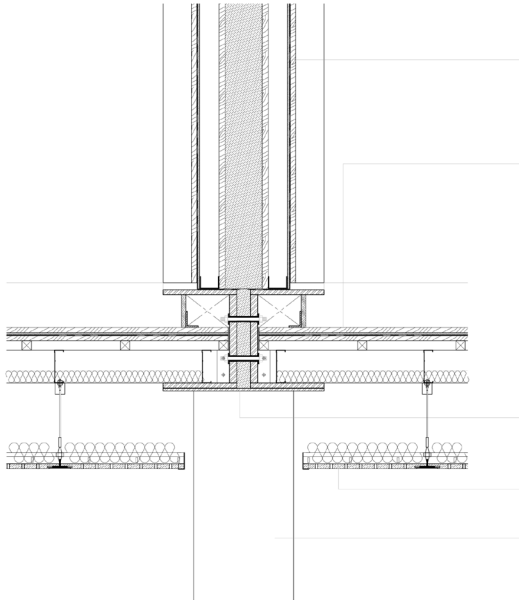
Detail C _ NTS

Service window detail within the concrete end structures



Detail D _ NTS

Column, beam, floor and ceiling connection of auditorium structure expressing acoustic considerations through structure and detail



100mm x 22mm Saligna wall planks, fixed to a 9mm Magnesium Oxide board with rubber acoustic separating layer, bolted to 75mm x 50mm galvanised cold formed channel framework as wall studs, with an internal fibre cement board for added fire resistance, with a 150mm thick Polysocyanurate insulation

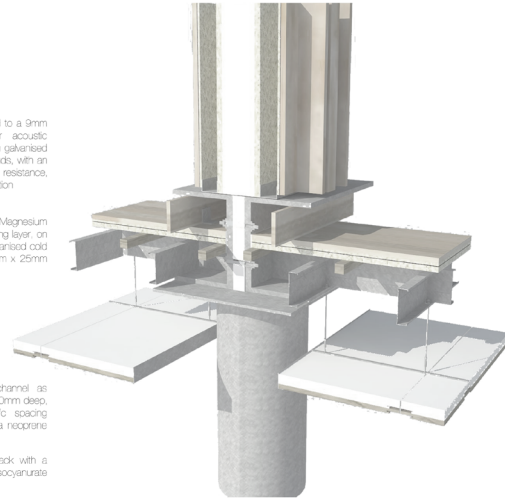
21mm Sealed plywood floor on a 9mm Magnesium Oxide board on a rubber acoustic separating layer, on a 21mm plywood, separated from the galvanised cold formed light steel floor structure with 25mm x 25mm timber acoustic spacers on a rubber sleeve

Continuous custom Galvanised steel channel as primary structure between 350mm and 750mm deep, with 500mm flanges, at 800mm c/c spacing maximum, bolted to the base plate with a neoprene separating sleeve for acoustic purposes

Steel channels to be bolted back to back with a neoprene gasket and 50mm thick Polysocyanurate insulation for acoustic purposes

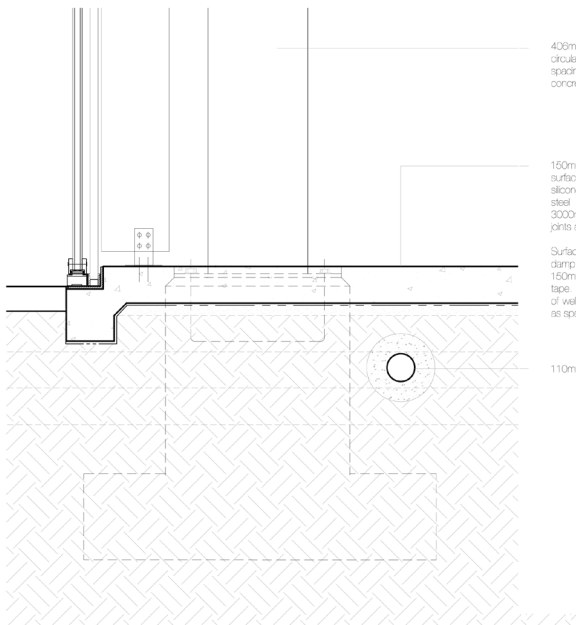
600mm x 600mm x 21mm Suspended timber acoustic ceiling panels, fixed to light gauge steel sections with suspensions rods and T-hanger tie beams at maximum 1200mm x 600mm c/c spacing, with 100mm Polysocyanurate insulation on ceiling panels

406mm x 8mm Galvanised and intumescent painted circular steel columns at 5000mm x 8000mm c/c spacing



Detail E _ NTS

Structural and Service spine: Concrete gutter as structural continuous structural beam

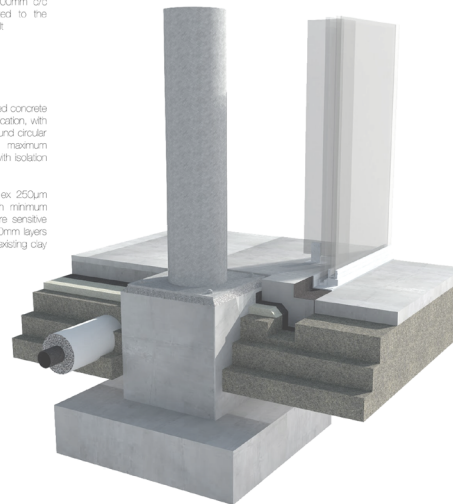


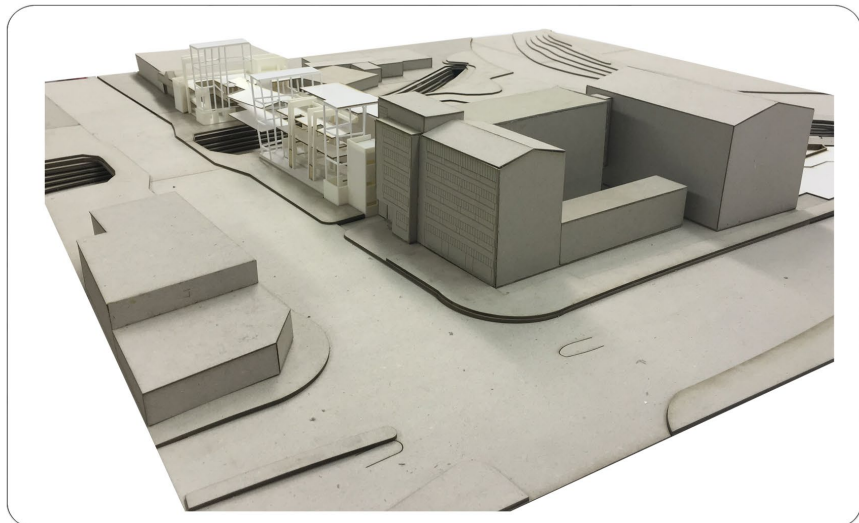
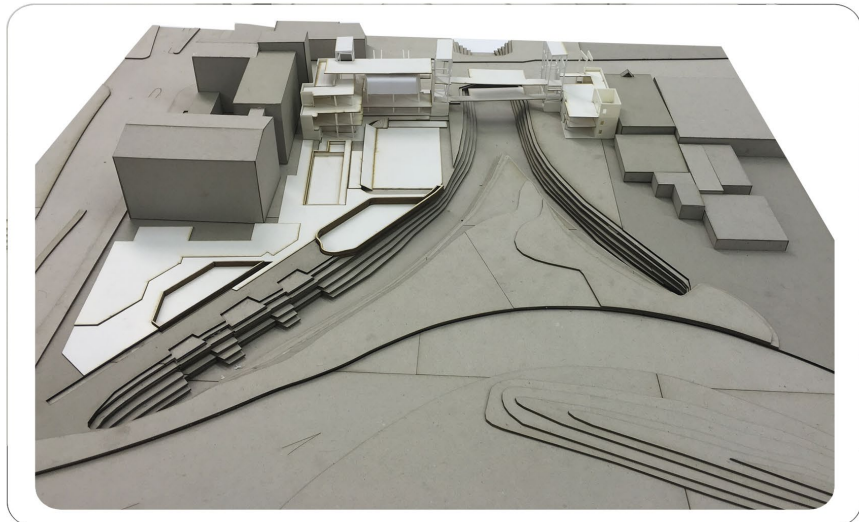
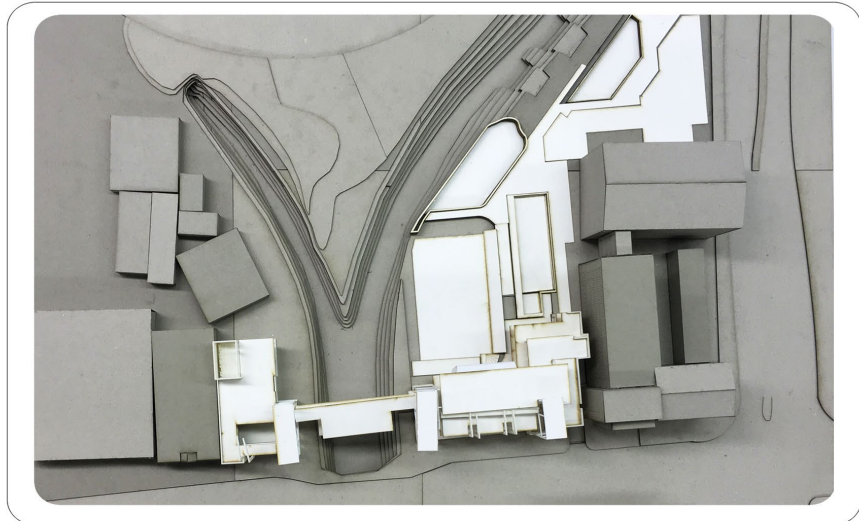
406mm x 8mm Galvanised and intumescent painted circular steel columns at 5000mm x 8000mm c/c spacing, welded to a base plate, bolted to the concrete footing with a hot-rolled steel U-bol

150mm Paver floated cast-in-situ reinforced concrete surface bed according to engineer's specification, with silicone sealed v-joint as isolation joints around circular steel columns and expansion joints at maximum 3000mm x 4000mm intervals to line up with isolation joints and beam structure above

Surface bed to be laid on a Green co ex 250um damp proof membrane Type C laid with minimum 150mm overlaps and sealed with pressure sensitive tape, DPM on 50mm sandblinding on 150mm layers of well compacted ground / fill to replace existing clay as specified by the engineer.

110mm Ø subsoil drain





9.2

Conclusion

It is a law of nature we overlook, that intellectual versatility is the compensation for change, danger, and trouble. An animal perfectly in harmony with its environment is a perfect mechanism. Nature never appeals to intelligence until habit and instinct are useless. There is no intelligence where there is no change and no need of change. Only those animals partake of intelligence that have a huge variety of needs and dangers.

(Wells 2002:47)

The dissertation set out to address the spatially fragmented public realm of the present condition of our cities, resulting from the great divide between nature and culture of the modern paradigm, and from the development of industrialisation and urbanisation that control natural resources in isolated networks of infrastructural systems. Regardless of the multiplication of artificial environments, our cultural influences cannot be removed from our interpretation of nature that establishes us as living beings. Both the cultural constructs and natural entities of cities are manifestations of the relations between natural and cultural developments over time, and collectively influence a city's distinctive existence (Whiston Spirn 2002:4). Infrastructure has the potential to facilitate an integrated continuum of this nature-culture exchange between natural systems and the resources operating in and shaping our artificially constructed built environments.

Through a concentrated investigation of the spatial consequences of the bureaucratic approach to development and infrastructural implementation in the City of Pretoria, the Apies River Corridor and the identified site, a reinterpretation of our development processes is proposed – a reinterpretation that is concerned with the acknowledgment of non-human natural systems and processes as agents in interventions, and that emphasises the constraints of our cultural practices through the construction of an artificial environment that stimulates a symbiotic relationship between our ecological and socio-cultural existences. Such a reinterpretation requires a fundamental change in perspective concerning the demands that necessitate flexible and resilient infrastructure design to meet the more variable conditions of our future cities.

The programmatic response of a decentralised urban stormwater filtration system and cultural memory park with social, economic and recreational facilities, aims to conserve and sustainably reclaim and reuse water, towards establishing an ecosystemic relationship between ecological processes and socio-economic activities, with the architectural intervention as facilitating agent. The proposed recreational and socio-economic appropriations represent possible scenarios for the animated infrastructure, and therefore an alternative reimagination of a hybrid typology is proposed as an extension of the existing infrastructure of the urban realm, Stanza Bopape Street, and the regenerated Apies River Island, that:

- contains and activates the potential of the recreational landscape;
- offers new public spaces through a relationship between Stanza Bopape Street and the river;
- increases the area's ecological contribution through reinscribing an identity for it;
- amplifies its historic and cultural significance through relationship between the proposed interventions and historical remnants surrounding the site;
- capitalises on the spatial, material and socio-economic possibilities of infrastructure; and
- provides an enigmatic experience beyond its infrastructural use.

By reimagining existing infrastructure as part of the production of form and space, through innovative design interventions, alternative occupation, and public appropriation of disenfranchised urban spaces, the spatial, material, and socio-economic potential of infrastructure is exploited towards enhancing the precinct's ecological contribution to and historic significance for the city, and reinstating an enigmatic and recreational experience as well as ecological awareness beyond its infrastructural use.

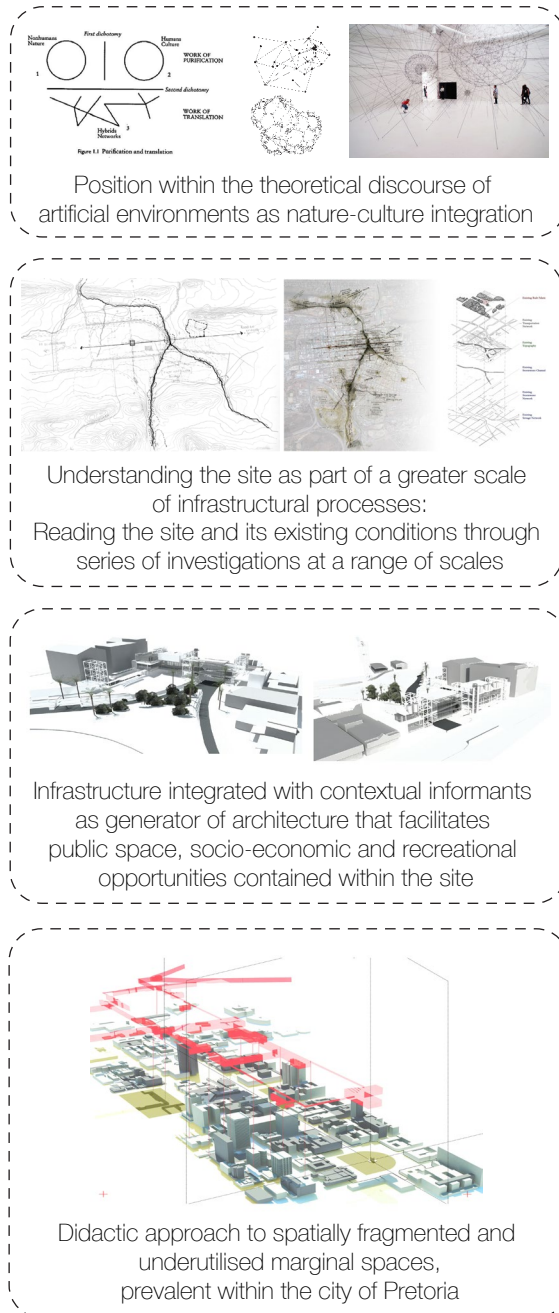


Figure 9.1: Diagramme of approach to project and its contribution to the discourse of Architecture

By reimagining existing infrastructure as part of the production of form and space, through innovative design interventions, alternative occupation, and public appropriation of disenfranchised urban spaces, the spatial, material, and socio-economic potential of infrastructure is exploited towards enhancing the precinct's ecological contribution to and historic significance for the city, and reinstating an enigmatic and recreational experience as well as ecological awareness beyond its infrastructural use.

The "final" proposal and investigation of the project is therefore rooted in a broader spatial vision – from the scale of the site to the scale of the city – that aims to become a didactic metabolism for activating the specific condition and similar consequential conditions prevalent in the City of Tshwane.

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