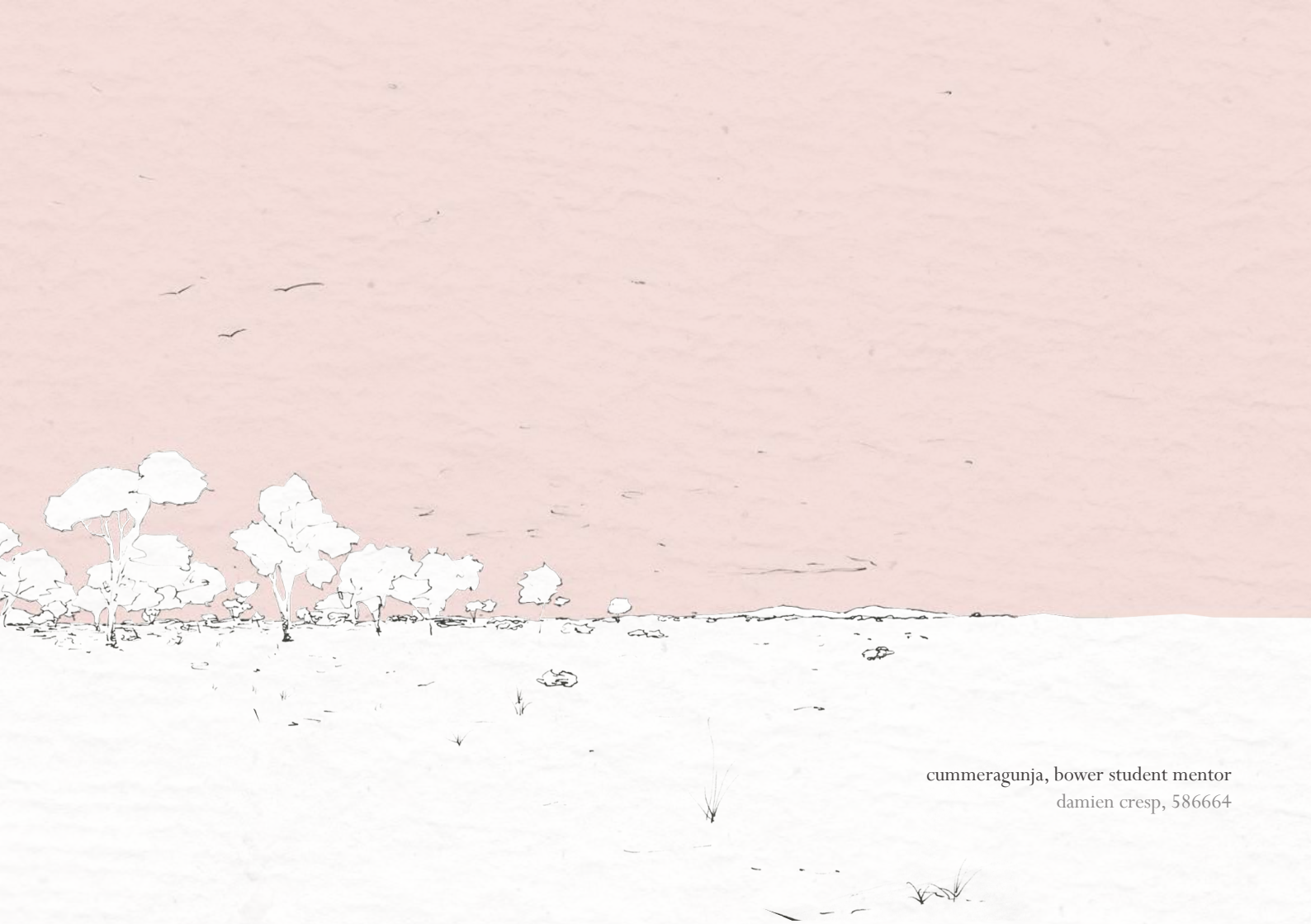


cummeragunja, bower student mentor

damien cresp, 586664

key

introduction

design development

design

conclusion

reflections throughout

my story

I'm Damien, a thesis level Masters of Architecture student at the University of Melbourne and working part time at a small residential firm based in South Melbourne.

I undertook Bower Studio in semester one 2020, where the class, which was set to go to Kalkaringi, ended up being held over Zoom for the term. Our task was to propose a renovation to the Warnkurr Social Club in order to change the perception of the relationship between socialisation and alcohol in the community. My design proposed an addition that served not only people heading to the area to drink but the broader community, in order to make spaces where children could play under their parents supervision, where passive surveillance could take place for both. Additionally, the redesign would re-orient the club towards the landscape, and particularly its relationship with the passing sun across the afternoon at drinks time.

After the completion of the studio, I was fortunate to be given the opportunity to be a mentor/student assistant for the Bower project at Cummergunja. My role was to assist in the design process, be a part of the discussions with engineers and draw up plans to be fabricated and built.

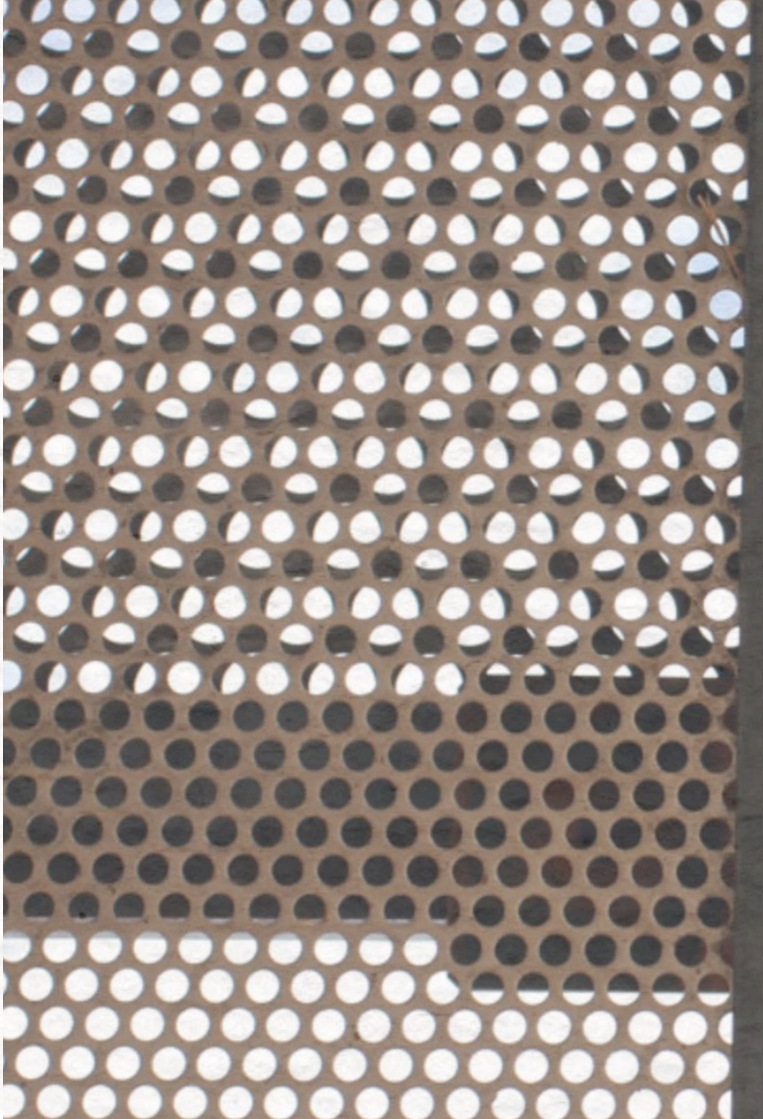
I came to this project with an understanding of the design process as something that was 'best' when it is quite rigid, linear and formal, where decisions are mostly made at the beginning and simply carried out, with clients largely being interacted with at the beginning and only somewhat towards the end. My role was to be central in the design process with community, to learn from the interactions and then understand the process of carrying out the built form from an alternative perspective.

I also came with the understanding that progressive Australian architecture is to be that which instills the ideals of both western and indigenous cultures combining to potentiate into something greater. The two things which the Cummeragunja project and the Kalkaringi project share are that they are both set in contexts of current and ongoing deep trauma from colonial settlement, and that the architecture should embody the ideals of both cultures.

A short exercise in exemplifying this philosophy of the bower studios was to create a t-shirt for people who would be involved in the project. This process and its associated theory is documented on the following pages.

Masters of Architecture, Bower Studio: Warnkurr Social Club re-design in Kalkaringi, NT

t-shirt design



t-shirt concept
design exercise

27/08/20

- 2 colour ? double colour Two tone
- black t-shirt for sure ✓
- no linework hatching
- express
- trippy is good.
  ↳ fucks with eyes
- "bower studio"

As a minor side project, the t-shirt design was an exercise in capturing the bower philosophy at its core in a minimal, two tone graphic. The task was to capture the idea of the overlapping of two materials, which alone were simplistic, but when passed across each other would create something more - a greater than the sum of its parts narrative.

As well as this, the t-shirt needed to clearly identify a URL, and an aesthetic correlation which in particular the Australian Bower projects have come to be known for.

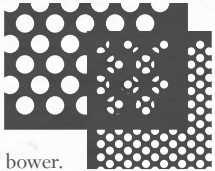
The shirt settled on an abstraction of a photo from one of the Kalkaringi walk-off pavilion's perforated mesh panels, and then the task turned to the intricate details of which overlays would cause the desired effects, and at what distances. One of the tests undertaken was standing back from the design, and seeing at what distance the formation would elicit the effect as a way of understanding what scale the shirts needed to be in real life.

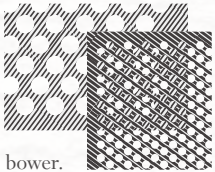
One of the ways inwhich bower consultation seem to take place with almost everyone from community members to engineers to other academics, is through rough, physical models and using any objects within reach to physically discuss a point, rather than simply relying on words, CAD drawings or photoshopped images.

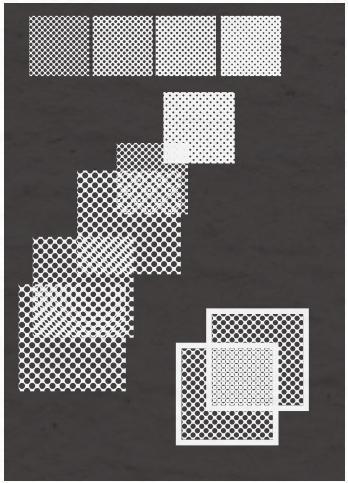
This t-shirt is an extension of that idea. More than a handful of times since the dispersion of these shirts, the diagram of the patterning and the philosophy behind it has been referred to when discussing things from facade patterning, roof structures, to the philosophy of the design studio and even as a potential instruction booklet on the reconciliation and future of colonial Australians and pre-colonial Australians.

It's a lot easier to show someone a diagram of your thinking if you're wearing it.


bower.


bower.


bower.



the Bower and Cummeragunja story

The Bower Program within the Masters of Architecture at the University of Melbourne run by David O'Brien and assisted by Jamie Neil and George Stavrias is a class that teaches students about the construction of architecturally designed structures and about working with indigenous communities.

The Bower studios, which work in partnership with various local groups, function as a way for students to solve real-world design and building problems, and offer a glimpse into the types of discussions that occur throughout construction work. The crux of the studio's worth is its ability to break the theoretical wall of architecture school, and to teach students what it means to and what consequences come from changing the built environment.

Additionally, the studio also gives students an insight into designing for first nations communities, and for the various climatic conditions where those communities are situated.

The opportunity to construct at Cummeragunja came about through a string of networking connections, and the mutual beneficience of a community that would gain a shade structure on their riverbank in exchange for a few classes of students gaining the experience of building a physical structure and community consultation with Yorta Yorta people.

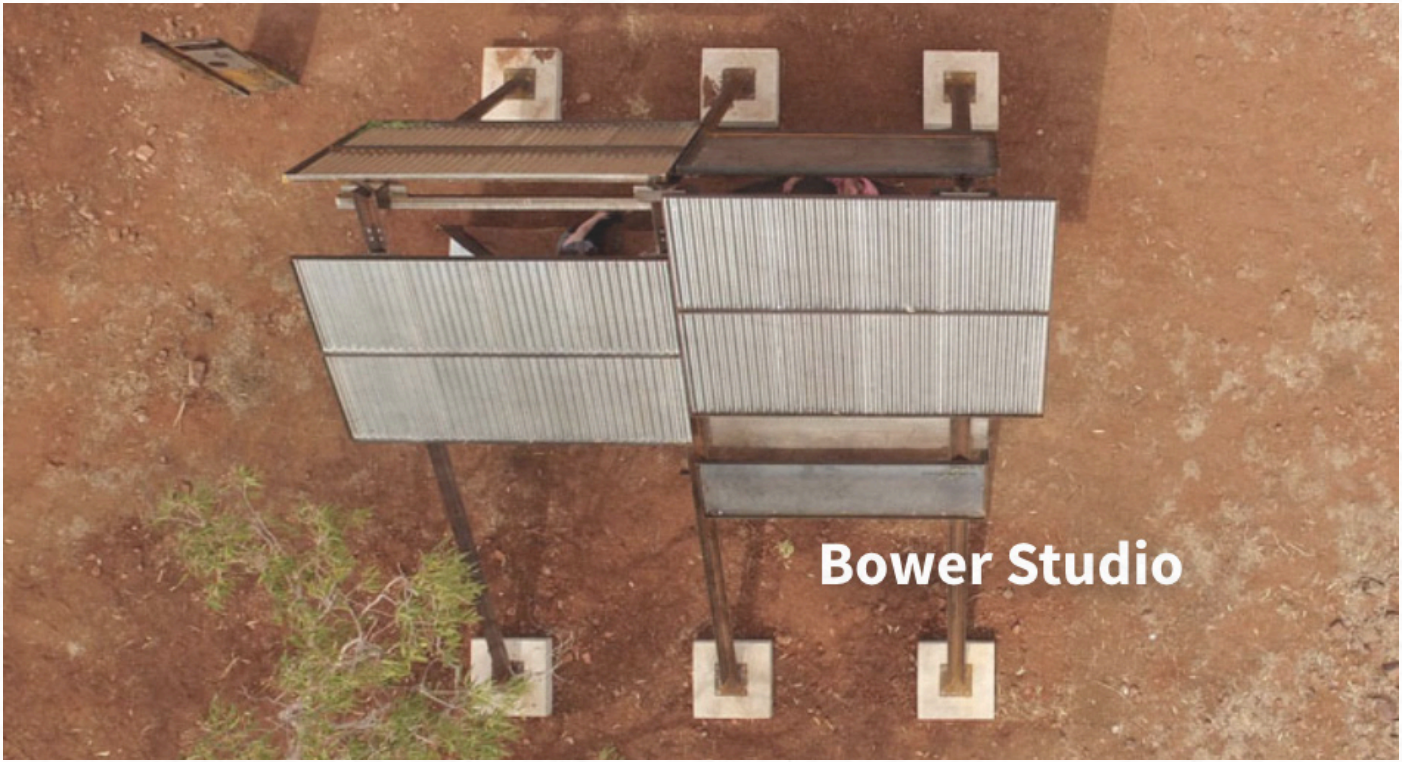
My role in the design/construction process was to learn from and assist in taking the conceptual design proposal based on conversations David, Jamie, and George had already had with May a Traditional Owner, to a structure which could feasibly be built on site by future Masters of Architecture Construction A and Bower students.

The role involved a range of activities from discussing design ideas, strategising presentations of the resulting concepts to engineers taking on their feedback and parameters, generating models and drawing sets for further discussions to be held over, to designing branding for the program.

Previous mentor positions would typically have lasted one semester, but due to Covid-19 delaying the University of Melbourne's return to delivering face-to-face classes, the period of my involvement has been drawn out longer than anticipated. This also meant that almost all consultation with engineers and others occurred online, with fabrication trips such as the one to Malmsbury and site visits happening progressively, culminating, with the Masters of Architecture 2020 Construction A students trip in early 2021.

Over the course of this journey, which spanned from August 2020 until March 2021, I have learned the paramount importance of collaborative discussions as a design tool when building real-world structures. Discussions with other designers, with builders, with engineers, with fabricators, the students, and most fortunately, Yorta Yorta elders, traditional owners and community members.

Contained in this journal is a record of the discussions and the reflections which I have learned along the way.


Bower Studio

Cummeragunja, New South Wales

Map Source: https://aiatsis.gov.au/explore/map-indigenous-australia

Cummeragunja is situated on the New South Wales bank of the Murray River, directly north of Melbourne and about a three hour drive.

The township is located on Yorta Yorta land, which traditional owner Uncle Col (Colin Walker) has said stretches either side of the Murray from about Cohuna to Albury/Wodonga, and from the billabong in Jerilderie in New South Wales to just north of Euroa in Victoria. Pre-colonisation, this largely flat landscape was characterised by seasonally flooding wetlands which would support populations of turtles, fish, emu, kangaroo, and more. Kangaroo grass was prolific, the seeds of which were ground and made into bread which were eaten daily by indigenous people (Yorta Yorta National Aboriginal Corporation, 2019).

During colonisation, the fertility of the lands around the river were considered suitable for grazing and western agriculture, and land was taken by settlers to use for farming. Indigenous people living in these areas were displaced and pressured or otherwise convinced to live on religious mission camps along the banks of the Murray.

"Cummeragunja - The Mission Station" Image Source: https://ceh.environmentalhistory-au-nz.org/news/alexandra-roginski-wins-jill-roe-prize/

Image Source: https://www.abc.net.au/news/2020-11-10/cummeragunja-school-1/12866898?nw=0

Maloga

The purpose of these missions were largely to 'organise' indigenous populations into Western ways of agricultural land management, and were also used as tools to convert indigenous people to western religions, most prominently Christianity.

One such example was the Maloga Mission Station, established in 1870 by Daniel Matthews, (Deadly Story, 2021. Gulumbali and Elphick, 2003). This station ran for 15 years under Daniel's leadership, which included education for indigenous children and adults from Mauritian born teacher Thomas Shadrach James, many of whom would go on to be prominent members in activism around rights for Indigenous Australians.

Matthews, however, became progressively 'paternalistic' (Brown and Curtis, 2020) and attempted to assert himself as the mission's leader, but the now western-educated indigenous population sought their own land to farm and wrote to authorities, the Aborigines Protection Association (APA), to request this from them. In 1887 the council of the APA sent George Bellinger to take over management of the mission and relegated Matthew's to religious teaching only (Gulumbali and Elphick, 2003), and eventually Maloga was closed in 1888, with the majority of residents establishing a new mission and township in its place 5 miles upstream, called 'Cummeragunja', with Bellinger at its head (Koori History, 2016 March).

Cummeragunja

Cummeragunja, (occasionally referred to endearingly as Cummera) a name which means 'our home', was a mission built on Yorta Yorta land literally from the deconstructed Maloga settlement. It saw residents receive their own parcels of farmland from which they would receive profits that would return into community hands. The community entered into an era of relative prosperity, with the missions children still being taught by James (Brown and Curtis, 2020).

The mission, however, had a string of short-term, state-administered white colonial managers who would repeat the authoritarian attitudes (religious or otherwise) over indigenous people. Aunty Faye and Aunty Ella from Cummeragunja speak of the living conditions after the Aborigines Protection Board claimed authority over the missions - rations containing flour, tea, sugar and sometimes meat was the only food provided, indigenous language was prohibited from being spoken, and people couldn't form in small groups to talk - let alone have Corroborees (Aunty Ella, 2007. Aunty Faye, 2017).

Matters were only made worse after the introduction of the Aborigines Protection Act in 1909, which ironically further restricted indigenous people and legalised children of the community to be stolen by authorities. Additionally, Cummeragunja residents would be required to ask permission to leave and come back onto the station, having even their movements at the will of whoever was in charge.

Indigenous people at Cummera endured severely poor living conditions and increasingly limited freedoms, which came to a head when a particularly abusive and cruelly violent station head Arthur McQuiggan took authority over the mission in 1937 (Dobson, 2019. Verass, 2017. Atkinson, 2005).

In 1938, Jack Patten, who lived his earlier years at Cummeragunja, was called back by his family members - particularly his brother George - to assist in taking action against the mistreatment of the Yorta Yorta people. Jack used his political charge and charisma to convince the people of the

Jack Patten (standing, right) present at the first Day of Mourning, 26th of January, 1938, one year before he would return to Cummeragunja to bring about the walk-off.
Image source: koorihistory.com/jack-patten/

mission that there was a world beyond the lives they were being subject to (Aunty Ella, 2017). He left for a brief period of time to bring attention to New South Wales authorities, and failing any major immediate action by the government he went back to Cummera. Upon his return and with his encouragement many fled Cummeragunja across the Murray and walked the 83km or so to Mooroopna Flats neighbouring Shepparton. (KooriHistory, February 2016). It's possible that it's because of this walk-off that many Yorta Yorta people are now dispersed around the towns of northern Victoria.

It is noted that some residents of the mission stayed at Cummeragunja, and those who left were not allowed to return under the still relentless authoritarian management.

•

Though the history of Cummeragunja is riddled with oppression and some appalling treatment of first nations peoples, the mission was, at varying points in time, the home of quite a few of the most prominent members of the indigenous civil rights movement in Australia (Ward, 2016). A selection of these people and brief overviews of their stories are explored later in this journal.

"This event would be remembered as the Cummeragunja Walk-Off. For his actions Jack Patten was arrested and charged with inciting Aborigines. As he was bundled into a police car, Patten is said to have defiantly shouted:

'Go to it boys, now is your chance to leave.'

George Patten then followed through in leading the residents out of Cummeragunja station."

- Koori History, Feb 2016

The story of the Cummeragunja Mission, the missions and stations that preceded it - and that it's said that many of the station leaders treated indigenous people in similar ways - paint a picture of how the occupation of indigenous land and people was endemic to the culture of British colonial rule across Australia.

It is a fragment of a broader tapestry of the decisive neglect of human rights by colonial powers and is not a standalone story in larger narratives of deep trauma inflicted upon indigenous people along Australia's history.

The question then turns to how to rectify the still-ongoing narratives of neglect that are the result of histories of mistreatment, and how to facilitate a cooperative approach to reconciliation between all Australians.

Notable people from Cummeragunja

William Cooper
1861 - 1941

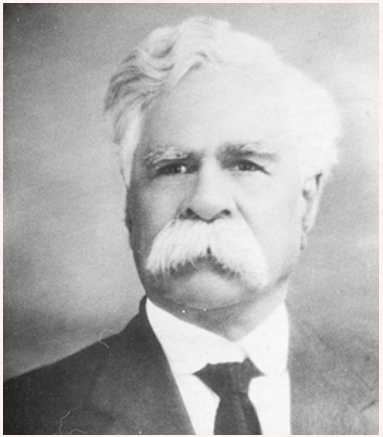


Image sourced from http://www.kooriweb.org/foley/heroes/biogs/william_cooper.html

Resided at Maloga:
1884 - 1888

Resided at Cummeragunja:
1888 - 1933

Cooper was a political activist of both worker's rights and Indigenous and non-indigenous civil rights, as well as being an indigenous leader at Cummeragunja. Cooper was actively involved in complaints against the New South Wales and Victorian authorities for the lack of any aid for indigenous people during the depression. He would then campaign for indigenous representation in federal parliament, and sought to send a petition including 1,814 indigenous signatures to King George VI - a motion which was denied by the Australian government at the time. Additionally, William Cooper was in the party which commemorated the first 'Day of Mourning' alongside others on these pages, and would also lead an anti-Nazi march from Footscray to the German consulate following the Kristallnacht in Europe.

His grandson, Cummeragunja elder Alfred 'Boydie' Turner, would go on to symbolically replicate both the letter to the British monarch and the march to the consulate in Cooper's memory ('William Cooper', Aboriginal Victoria, 2019). (Berwick, 1981. National Museum of Australia, 2021).

Pastor Doug Nicholls
1906–1988

Image sourced from https://en.wikipedia.org/wiki/Douglas_Nicholls#/media/File:Douglas_nicholls.jpg

Resided at Cummeragunja:
1906 - 1920

Sir Doug Nicholls was an incredibly influential man; a footballer, boxer, sprinter, activist, pastor, and eventual Governor. Raised on Cummeragunja during the time of the Aboriginal Protection Board, Doug's sister was taken as part of the stolen generation when he was nine years old.

Moved off the mission himself in order to enter the workforce, Doug would end up in Melbourne and become an excellent football player for Northcote and Fitzroy, such that there is now an AFL round named after him, as is an oval in Thornbury next to where he and his wife Gladys helped establish and operate the Aborigines Advancement League.

The church on Gore Street in Fitzroy where Nicholls held services is now heritage listed, and not too far away just outside the CBD in Parliament Gardens is a statue of Doug and Gladys - the first of any indigenous people in Melbourne. He was appointed the governor of South Australia, and when hosting the Queen in 1977 was knighted.

(Broome, 2012. Smith and Latimore, 2020)

Jack Patten
1905-1957

Image source: https://www.nma.gov.au/__data/assets/image/0005/703832/Jack-Patten.jpg

Resided at Cummeragunja:
1905 - 1916

Jack Patten, who was born at Moama and lived his early childhood years at Cummeragunja. He spent his early years committing himself to school and joining local organisations such as the Red Cross in his spare time. Jack was a professional boxer and also worked for the Sydney local council, but the most notable characteristic of Jack was his continued political engagement and protest of indigenous people's treatment in Australia in the early 20th century, as he toured through indigenous communities all over Eastern Australia.

At Cummeragunja, Jack is remembered for being the main protagonist of the Walk Off in 1939, and his unrelenting push for equal rights for Indigenous Australians in a political and social context is still incredibly relevant to this day. This is most profound in his participation in the first Day of Mourning (January 26th, 1938), which foreshadowed the Invasion Day protests in the 21st century.

(KooriHistory, Febraury 2016. Horner, 1988)

Marge Tucker
1904-1996

Image sourced from https://immskar.com/2021/02/18/margaret-tucker/

Resided at Cummeragunja:
c.1904 - c.1917

Margaret (Marge) Tucker was born at Warangesda Mission, spent some of her early childhood years at Cummeragunja Mission, and then was stolen from her mother at Moonahcullah Mission when she was just 13. She was taken into a domestic service training facility in central New South Wales, and would then be sent further up north afterwards. At 21 she was released from service and sge then moved to the Fitzroy area, where she would meet her contemporaries and cousins - William Cooper, Bill Onus, and Doug Nicholls - and begin her political activism.

Margaret helped to form the Australian Aborigines League, and was part of the Day of Mourning in 1938. Margaret would also raise money and rations for those who had fled Cummeragunja after the Walk Off and were camping in Barmah forest nearby.

Aunty Marge, as she was referred to, continued to push for indigenous rights after the second world war when the topic was fading from society's radar, and would continue on to support the establishment of the Victorian Aboriginal Health Service, and the Victorian Aboriginal Child Care Agency.

(Farquharson, 1996. Aboriginal Victoria, 2019)

Bill Onus
1906-1968

Image source: https://www.nma.gov.au/__data/assets/image/0011/703793/Bill-Onus.jpg

Resided at Cummeragunja:
1906 - c.1916

William 'Bill' Onus was an activist and entrepreneur. Immensely involved in indigenous rights organisations throughout his life, Bill would join his brother Eric and fellow Cummera peers Doug Nicholls and Marge Tucker in forming the Australian Aborigines League, which would eventually be subsumed by the Australian Advancement League, of which he would become the first aboriginal president.

Bill did work rigging and as a delivery truck driver, and as a result was involved with the trade unionist movement. It is noted that he had a particular skill in communicating the plight of indigenous Australians of his time to non-indigenous Australians. He was heavily involved in whichever community he became involved in, and as such is recorded as having suggested the name 'Moomba' for the annual festival in the City of Melbourne.

(Aboriginal Victoria, 2019. National Museum of Australia, 2021)

Jimmy Little
1937 - 2012

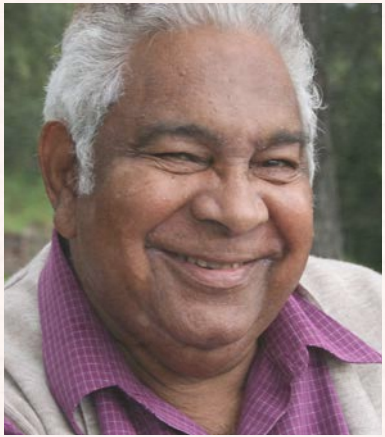


Image source: https://www.flickr.com/photos/ashreports/406633178/in/photostream/

Resided at Cummeragunja:
1937 - childhood years

Dr James Oswald Little AO was a famous indigenous country music singer. He garnered fame in the 60s, and subsequently was one of the first australian artists to appear on Television. His number 1 track was called 'Royal Telephone', a song about being connected to God and Jesus. Having such a presence on television, it is difficult to quantify the inspirational effect that Jimmy might have had on indigenous people, or the changing of perceptions of non-indigenous people.

A proud Yorta Yorta man, throughout his life Jimmy used his fame to speak about his upbringing, where he had come from, and to give visibility to Australian indigenous culture. He was also a patron of numerous organisations centred around indigenous health, and Founded the Jimmy Little Foundation in 2006.

(Jimmy Little Foundation, 2021)

Cummeragunja today

Today, Cummeragunja still rests on the banks of the Murray where the old mission was, and school still is. There are roughly 30 houses in town, at the centre of which amongst the peppercorn trees is the Viney Medical Centre and a mud brick community building. The town relies on services from elsewhere; as an example there isn't a place to buy food or petrol, and for necessities there are a few general stores in Barmah across the river. Access to the town is predominantly only by car, but there is/was a trialling of a bus service that would come to the town in the morning and afternoon every second Thursday.

Ceremonial occasions still take place at the site of the Cummeragunja mission on the banks of the Murray, such as the commemoration of the Cummeragunja Walk Off in 2019, pictured right.

Of the several family groups within the Yorta Yorta people, the Bower program has been in contact with the Walkers, in particular May, who is the daughter of Uncle Col, an elder and traditional owner.

A notable event in the history of the Yorta Yorta people is their defeat in a fight for Native Title against the Victorian Government (Members of the Yorta Yorta Aboriginal Community v Victoria [2002] HCA 58 (12 December 2002)), a lengthy 9 year battle beginning in 1993, and is regarded as an important example of the limited capacities than indigenous cultures have in providing evidence of their cultural connection to land and tradition within the colonialist Native Title Act 1993 (Commonwealth) (National Native Title Tribunal, 2017 and July 2021. Strelein, 2002. Weiner, 2002.).

The event is a small parcel within a larger argument that the Native Title Act can be quite vague in its scope and terminology, of which communities can, and evidently have, fallen prey to the banal value put on specific, non-indigenous terms to achieve decisions affecting entire communities, and more broadly hindering colonial Australia's advance toward reconciliation.

How does the struggle for Native Title impact this project?

By understanding the political underpinnings of community, and emphasising the broad systematic struggle of surviving indigenous culture in Australia.

The architectural response can therefore be one of attempting to view the merging of two cultural architectural practices within one structure, a potentiation of indigenous cultural knowledge combined with classically "western" construction methods and techniques.

Perhaps, additionally, the detailing, decor, or shade structures could combine to tell the quite important stories of those who lived on Cummera, the battles they have fought, and how they have affected the formalised rights of all aboriginal and Torres Strait islander people - which they have.

Source: https://twitter.com/DMc_Gin/status/1092220047462785025/photo/3

design development

the brief

A place to gather near the river,
under the shade and within the landscape.

Key points:

- Must provide shade and take advantage of the breeze
- the ability to hold small community gatherings with seating and a fire
- a design that engages with the river location and red gum landscape
- a place for yarning, teaching and learning on country

Secondary points:

- to utilise the nearby red gum logs that had been cleared from the area
- a structure that is durable
- buildable by students (both from the university and from ASHE) with very limited scope for any heavy machinery during construction

the clients

The Cummeragunja community,
represented by May

The pavilion is to be built between the buildings of the town and the river, re-addressing and forming a meeting point on the waterfront which is central to the life of Cummeragunja and the Yorta Yorta people. In discussions with May and other members of community, it was imagined that the pavilion would be a permeable space that was flexible enough to host a wide range of programme, whether it be a big gathering to comemmorate the walk-off, a class of children in school, or a quiet conversation amongst just a few people.

All elements of the structure would need to be sturdy, and resilient to the dry heat in the area.

The benefit of this structure for the community is that it provides a space not directly tied to another utility within the town. Unlike the tables outside of the medical centre or the verandah of the education centre, the strength of this project comes with its lack of affiliation with any other facility other than the river and the trees.

the teams

bower studio

David O'Brien
Jamie Neil
George Stavrias
Zoe Diacolabrianos
Damien Cresp
Jack Hinkson

& students

ARUP

John Noel
Brigitte Danks

ASHE

Rob Briggs

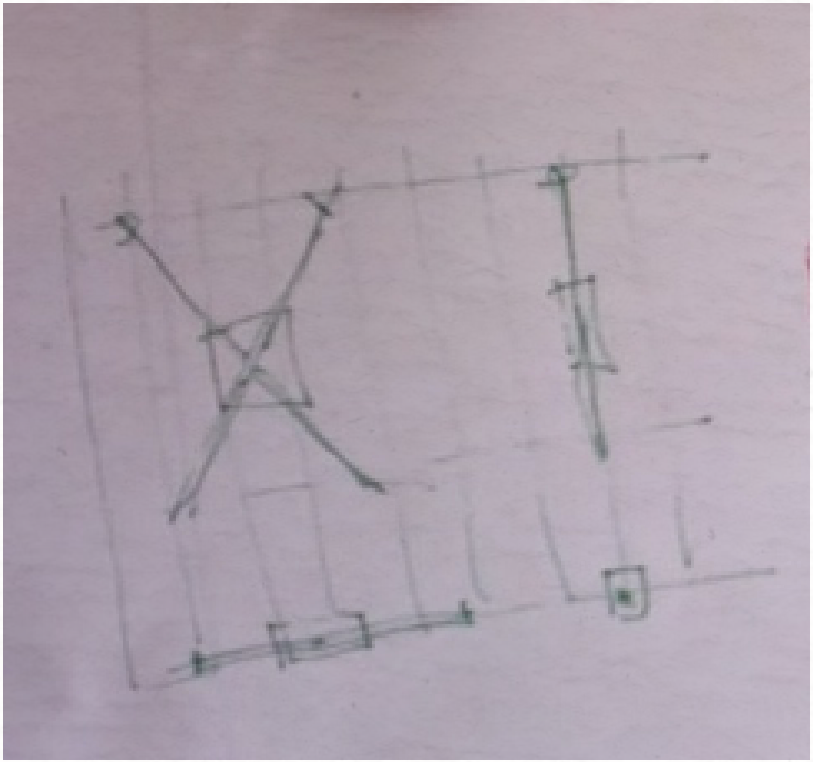
& students

design process
layout

I came to the design process at this stage, when David and James were testing and toying with the tectonic capabilities of the local unused red gum logs and how they would be imagined in a pavilion scenario.

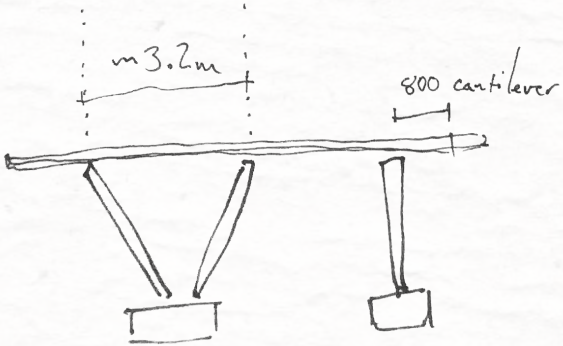
The task for me was to interpret this into a set of drawings that the engineers could then measure and use to make their calculations, as well as something clear and zoom screen-shareable that both parties could discuss and talk over.

Upon reflection, my input at this stage of the design process was fairly minimal, as I wasn't feeling particularly confident in my ability, nor with how much I was able to step into the design process. Having gone through the process, I can see that it is now a broader collage of ideas and that all are welcome, which I plan to take forward for both projects that I join after they've begun, but also to be receptive to others who join half way as well.



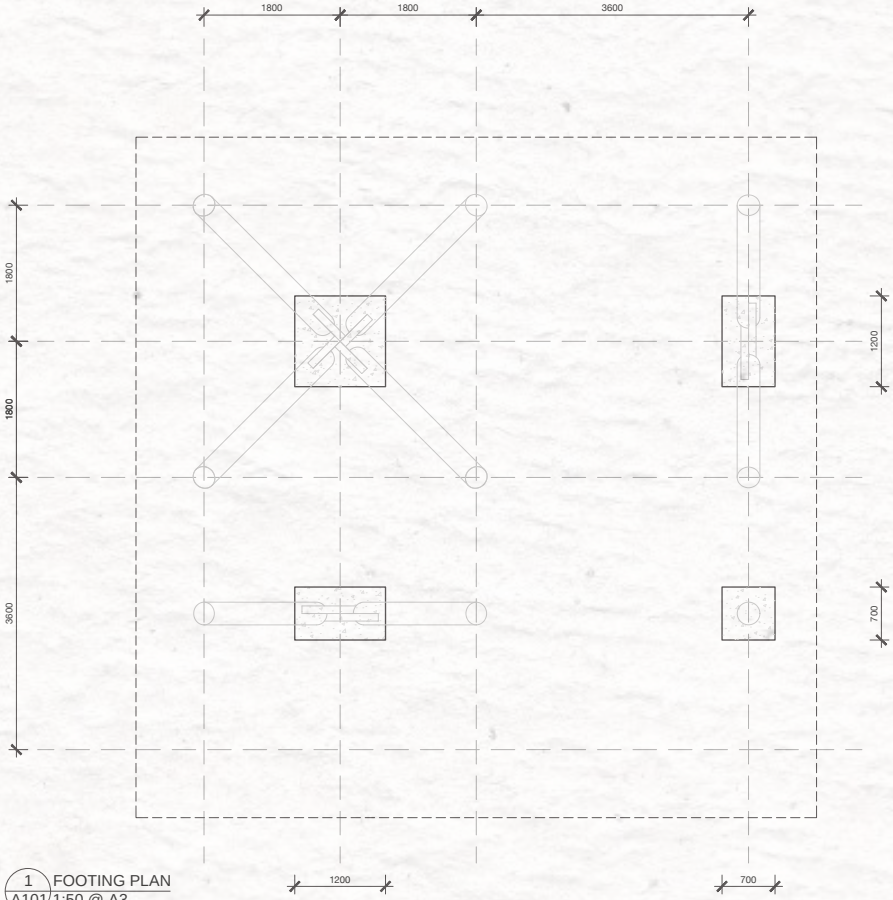
9metre roof → too big

↳ no more than 8x8 metre roof



design process

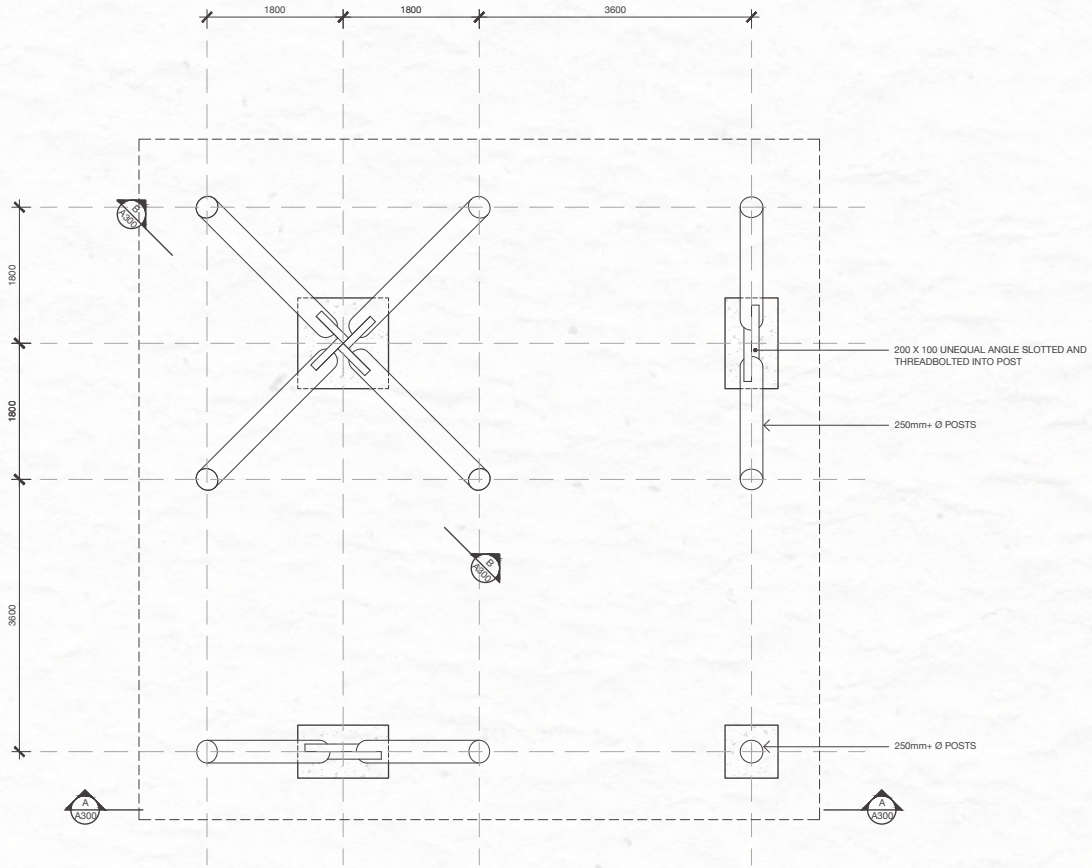
CAD plans, sections, and speculative details



1 FOOTING PLAN
A101 1:50 @ A3

PAGE A101 REV -	PROJECT CUMMERAGUNJA	DRAWING FOOTING PLAN	
	STAGE CONCEPT DESIGN	SCALE 1:50 @ A3	
	CLIENT -	DRAWN DC	
	ADDRESS CUMMERAGUNJA MOAMA, NSW 2731	DATE 22.07.2020	

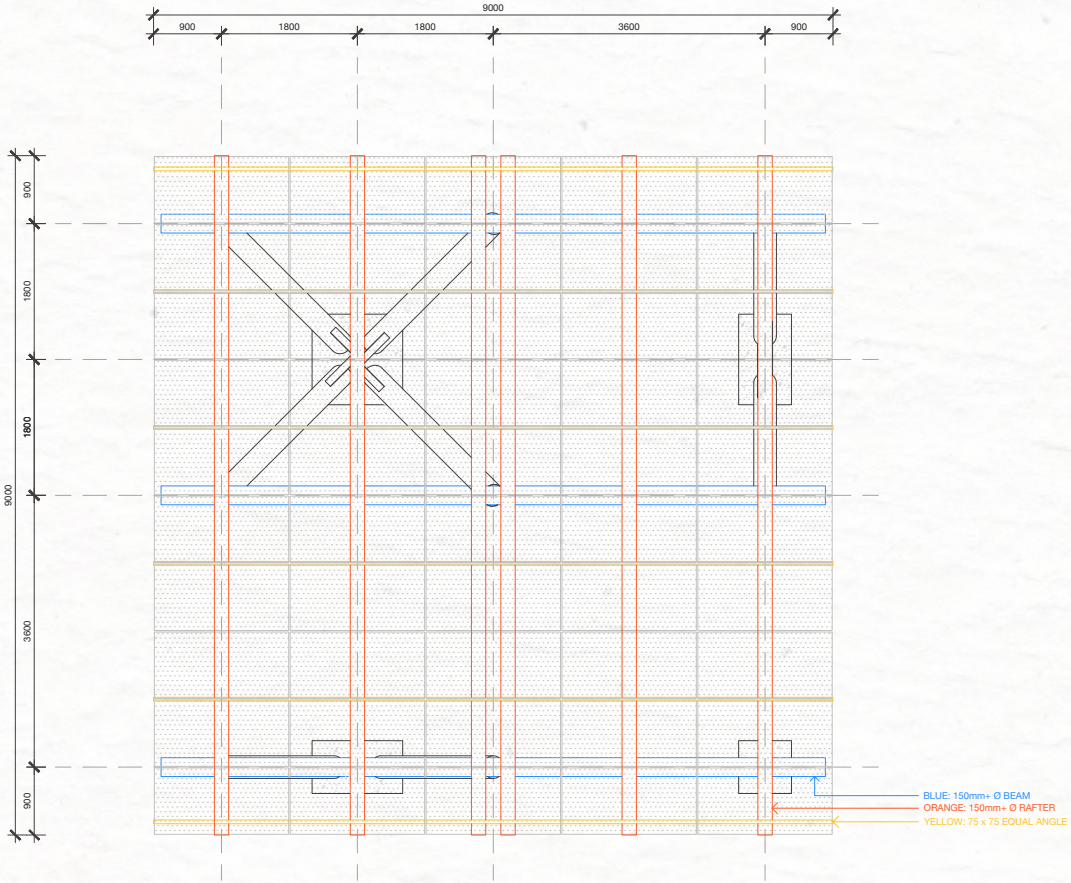
bower.
UNIVERSITY OF MELBOURNE



1 FLOOR PLAN
A100 1:50 @ A3

PAGE A100 REV -	PROJECT CUMMERAGUNJA	DRAWING PLAN	
	STAGE CONCEPT DESIGN	SCALE 1:50 @ A3	
	CLIENT -	DRAWN DC	
	ADDRESS CUMMERAGUNJA MOAMA, NSW 2731	DATE 22.07.2020	

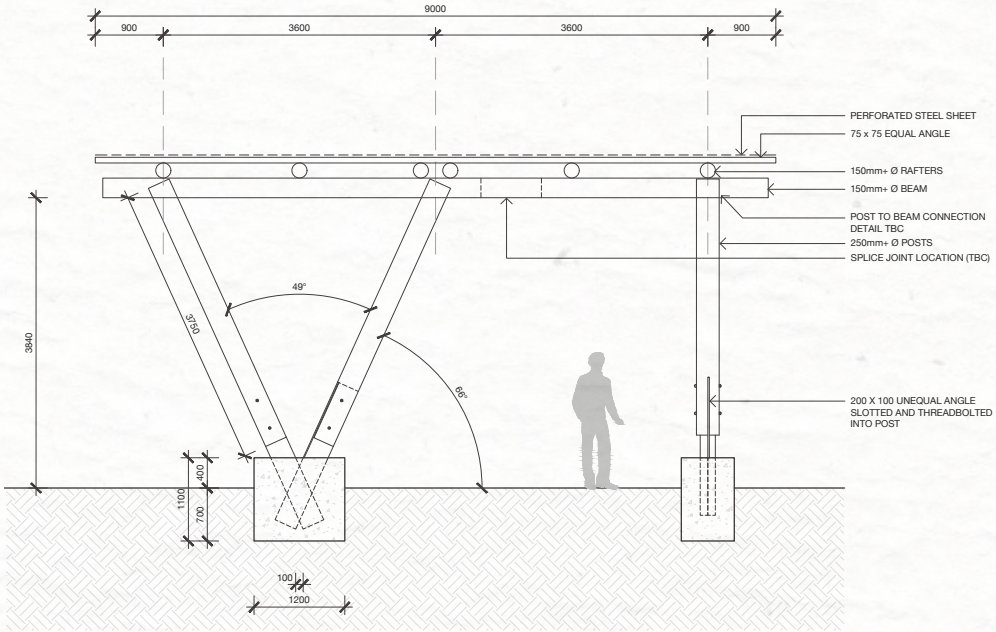
bower.
UNIVERSITY OF MELBOURNE



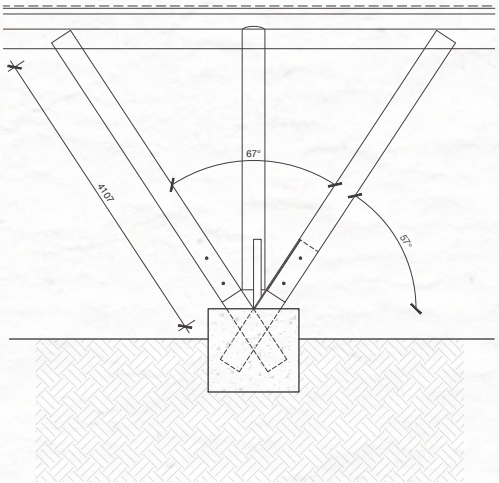
1 A102 ROOF PLAN
1:50 @ A3

PAGE A102 REV -	PROJECT CUMMERAGUNJA	DRAWING ROOF PLAN	
	STAGE CONCEPT DESIGN	SCALE 1:50 @ A3	
	CLIENT -	DRAWN DC	
	ADDRESS CUMMERAGUNJA MOAMA, NSW 2731	DATE 22.07.2020	

bower.
UNIVERSITY OF MELBOURNE



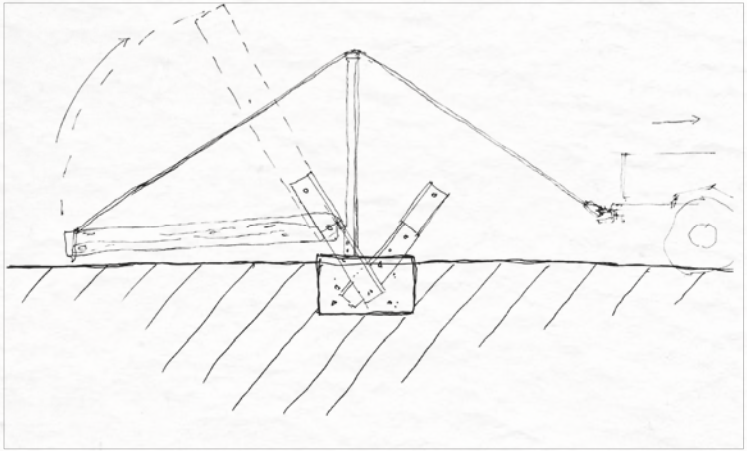
A A300 SIDE ELEVATION
1:50 @ A3

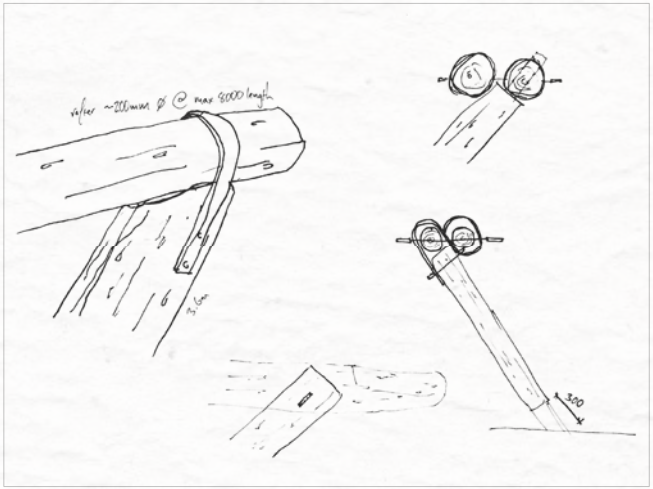


B A300 CENTRE SECTION
1:50 @ A3

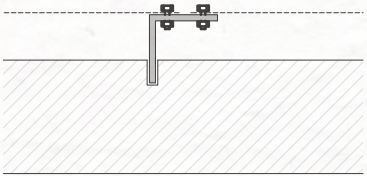
PAGE A300 REV -	PROJECT CUMMERAGUNJA	DRAWING SECTIONS	
	STAGE CONCEPT DESIGN	SCALE 1:50 @ A3	
	CLIENT -	DRAWN DC	
	ADDRESS CUMMERAGUNJA MOAMA, NSW 2731	DATE 22.07.2020	

bower.
UNIVERSITY OF MELBOURNE





1 A400 CONCEPT DETAILS



2 A400 ANGLE NOTCH INTO RAFTER
1:5

Second to the model (in real life or 3D), the section was the most explanatory drawing of the structure, and it was through this drawing I was able to begin to understand the trigonometry of the posts, namely which angles would be the same, and therefore how to group them for fabricating.

The groups were: Quad posts, Double posts, and a single post. This was slight, but was something I found I had to keep reminding myself of whenever we would begin to talk about the post-top connections.

PAGE A400 REV -	PROJECT CUMMERAGUNJA	DRAWING CONCEPT DETAILS	
	STAGE CONCEPT DESIGN	SCALE -	
	CLIENT -	DRAWN DC	
	ADDRESS CUMMERAGUNJA MOAMA, NSW 2731	DATE 22.07.2020	

bower.
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design process
the beginning of a discussion

From the CAD plans which were drawn, the first meeting with ARUP went ahead. The engineers on our project were Brigette Danks and John Noel.

Initial discussions were about the materials that we would be dealing with, namely red gum logs, the ground beneath the structure, concrete, steel, and weldmesh. Engineers were keen to get as much information about the properties of the materials which they would be needing to run calculations on, and their concerns seemed to be around the local soil conditions and non-standardised red gum logs. John asked James for a sample of the red gum from the site so that he could do some old-school analysis and calculations on it to form a basis for their design.

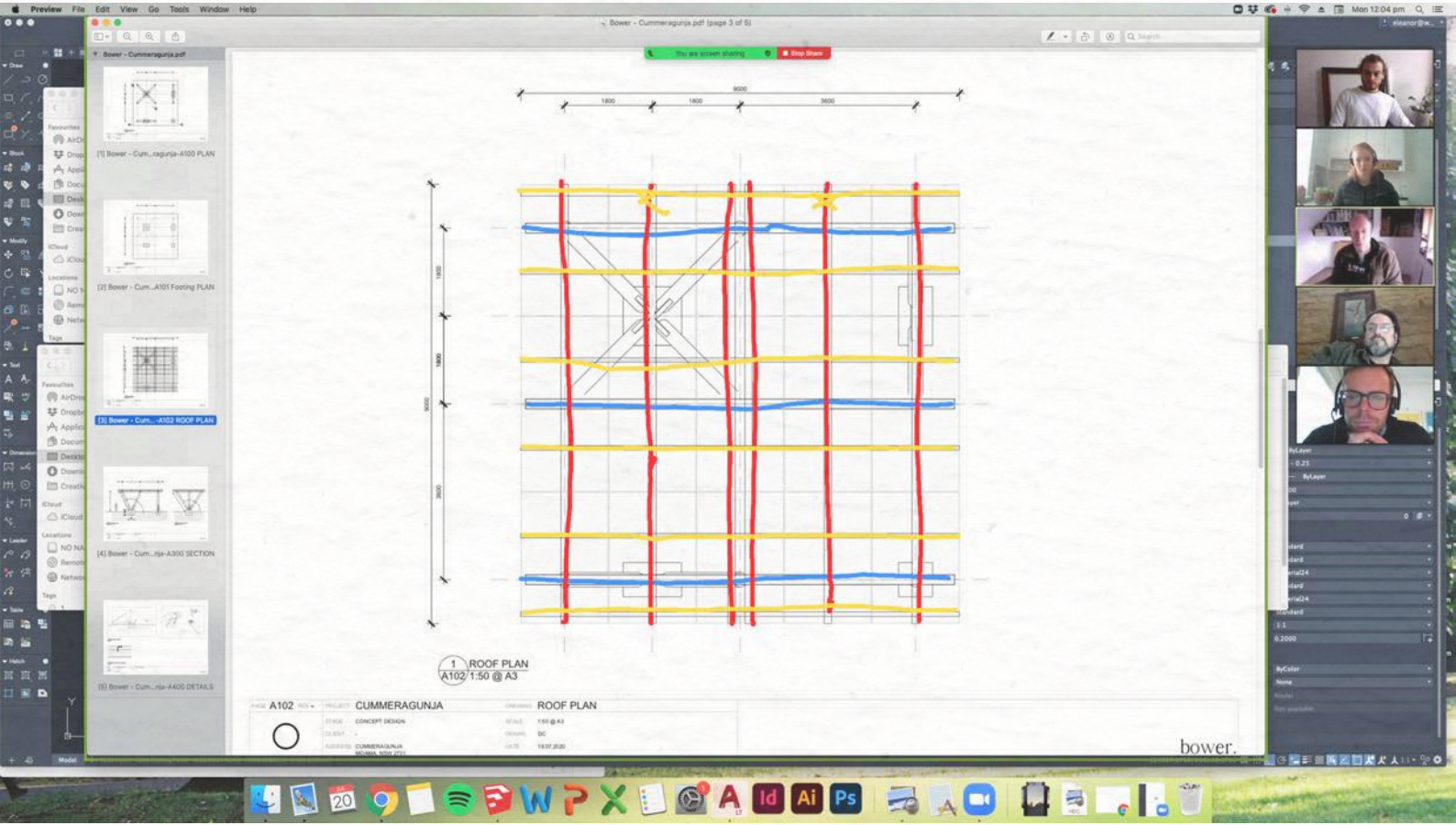
The next item of concern was how the roof structure would be arranged, and what different options would be available. Here they corrected some of the assumptions that we'd made about load paths and the amount of beams that would be required on the central spans.

We also spoke broadly about constructability, and about hypothetical connection joints and feasibilities, but most of those weren't as pressing to be resolved as the other issues.

The meeting also brought up issues of live/dead loads, lateral tolerances, and wind loads on the structure.

Their role after this meeting was to provide us with a certain width of parametres for the members that we needed to work with.

The first impression of ARUP was good. It was refreshing to see a large, multinational engineering firm that appeared to have a sense and understanding or perhaps a respect for the aesthetics and social imperatives of the design in question. It set up the commuication lines to be those of collaborative, fluid discussion rather than something more rigid.


Preview File Edit View Go Tools Window Help
Bower - Cummeragunja.pdf (page 3 of 5)
You are screen sharing
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1 ROOF PLAN
A102 1:50 @ A3
A102
CUMMERAGUNJA
ROOF PLAN
CONCEPT DESIGN
1:50 @ A3
DC
bower.

design details
connection: footing - post

On the left, the stack of logs that inspired the project, as well as David's tectonic form and connection joints, on the right. More-or-less a type of bridle joint out of the log and an unequal angle piece of steel, with strapping to hold it up.

Main concerns at this stage of the project were establishing a clear connectivity detail and architectural language that we would be able to show the engineers, and the strength and condition of the timber.

David's shed over zoom: discussing footing-post connections and systems

design details
connection: footing - post

The footing - post connection was the part of the process that David wanted to get sorted out earliest on, as they would be the first part to be built by impending future classes.

Of the four total footings, there are three types; one quad, two doubles, and one single. Understandably each varies in size for the amount of load which they're to carry. ARUP informed us that as a rule of thumb the load paths are taken from the centre point between each span, so the quad takes up a whole lot more of the weight than all of the other footings.

The shear force applied onto the steel elements from the angled posts into the concrete was a main concern. Engineers later spoke about their calculations for the volume and surface area of flat plate steel that required to be welded together, and how this would then be locked into the concrete with enough friction to stop them from cracking and overturning.

As well as this, all types of loads are factored into ARUP's calculations in order to reduce the movement of the footings to a degree, and then the design of the structure tolerates a certain amount of movement in its connections as well.

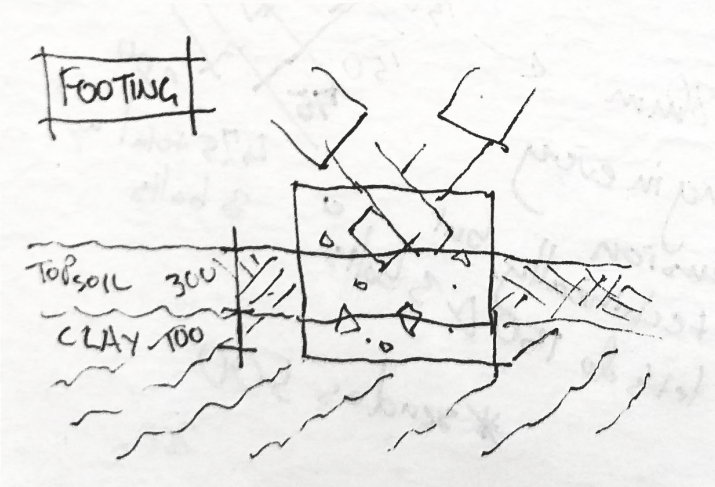
The 'dead loads' were gravity, the weight of the materials themselves. The 'live loads' were things like wind (with lateral and particularly upward forces considered), rain (and any captive water), people climbing on the structure, things being hung from the structure. All of these loads are correlated against the australian standards, which has some implications for the structure which one might not consider to be common sense.

For example, Brigette and John told us that because our roof structure was porous, that wind loads didn't have to be factored as heavily into the design calculations. However, there wasn't a segment in the Australian Standards which dealt with structures like these with only permeable roofs, so the whole roof has considered a non-permeable roof in its load design structure. This means that when it comes to roofing, we're not constrained to only non-permeable materials.

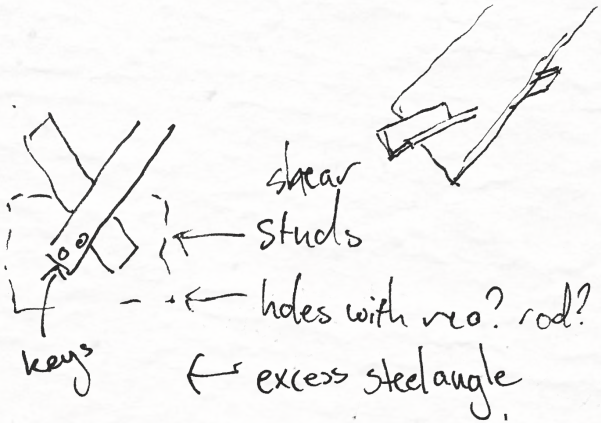
Finally, constructability is factored into whether we designed the footing-post steel connections as objects that would be screwed on later, or as part of the footing when it is set.

Because of both David and James' experience in the field, their estimates for the concrete footing dimensions were pretty much correct, and we went a little bit over the minimum to cover ourselves. The idea that part of the aesthetics of this structure were to convey a sort of bulkiness and readable tectonic (rather than trying to hide the structure) meant that we probably would always be in the ballpark, unless the engineers would have come up with something that we hadn't considered.

The other interesting part of the design was Brigette's requirement to calculate the whole roof as non-permeable, which I think is fascinating as a constraint as it would mean that the architecture could fall prey to broad-brushstrokes design rules and constraints.



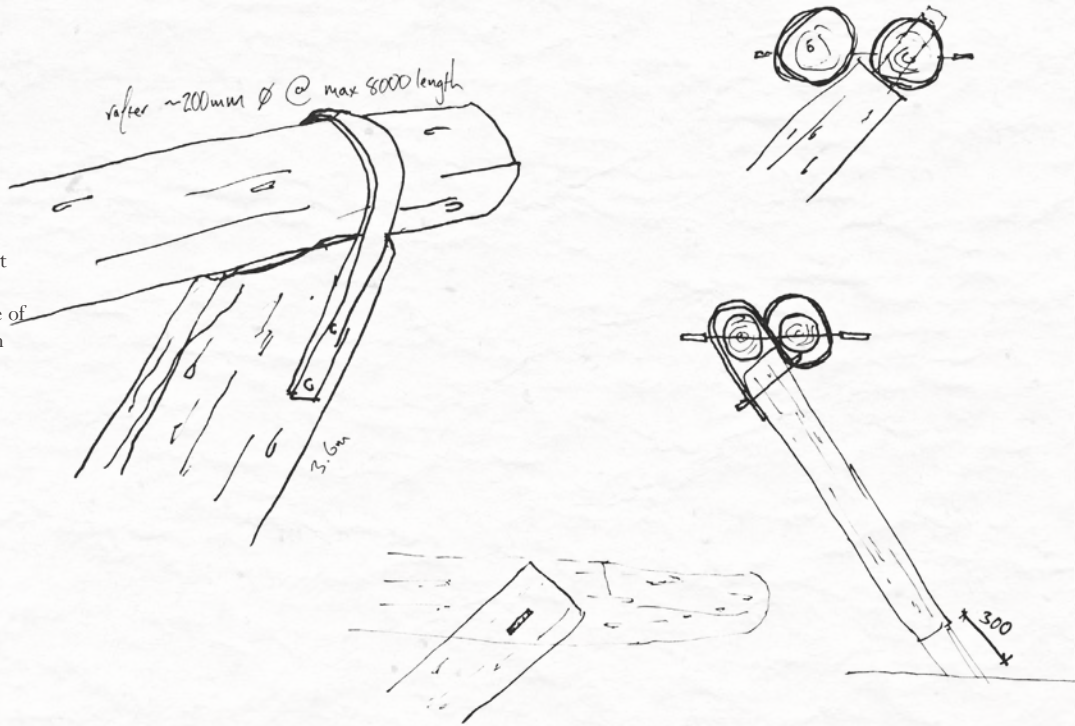
All fillet welds

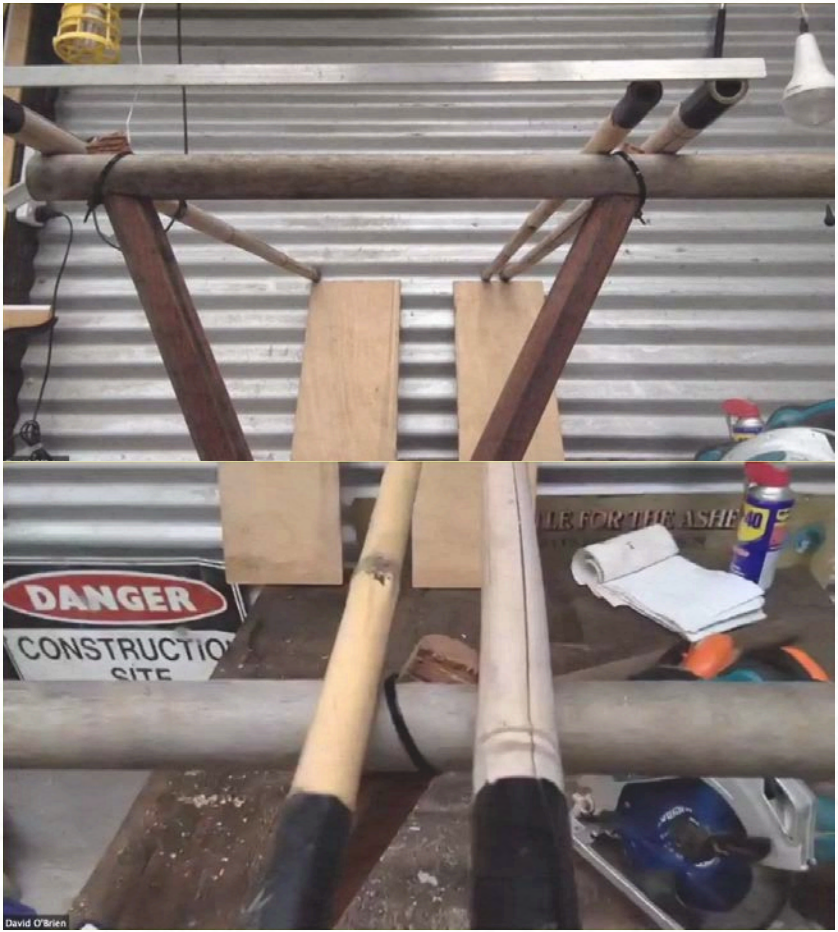


design details

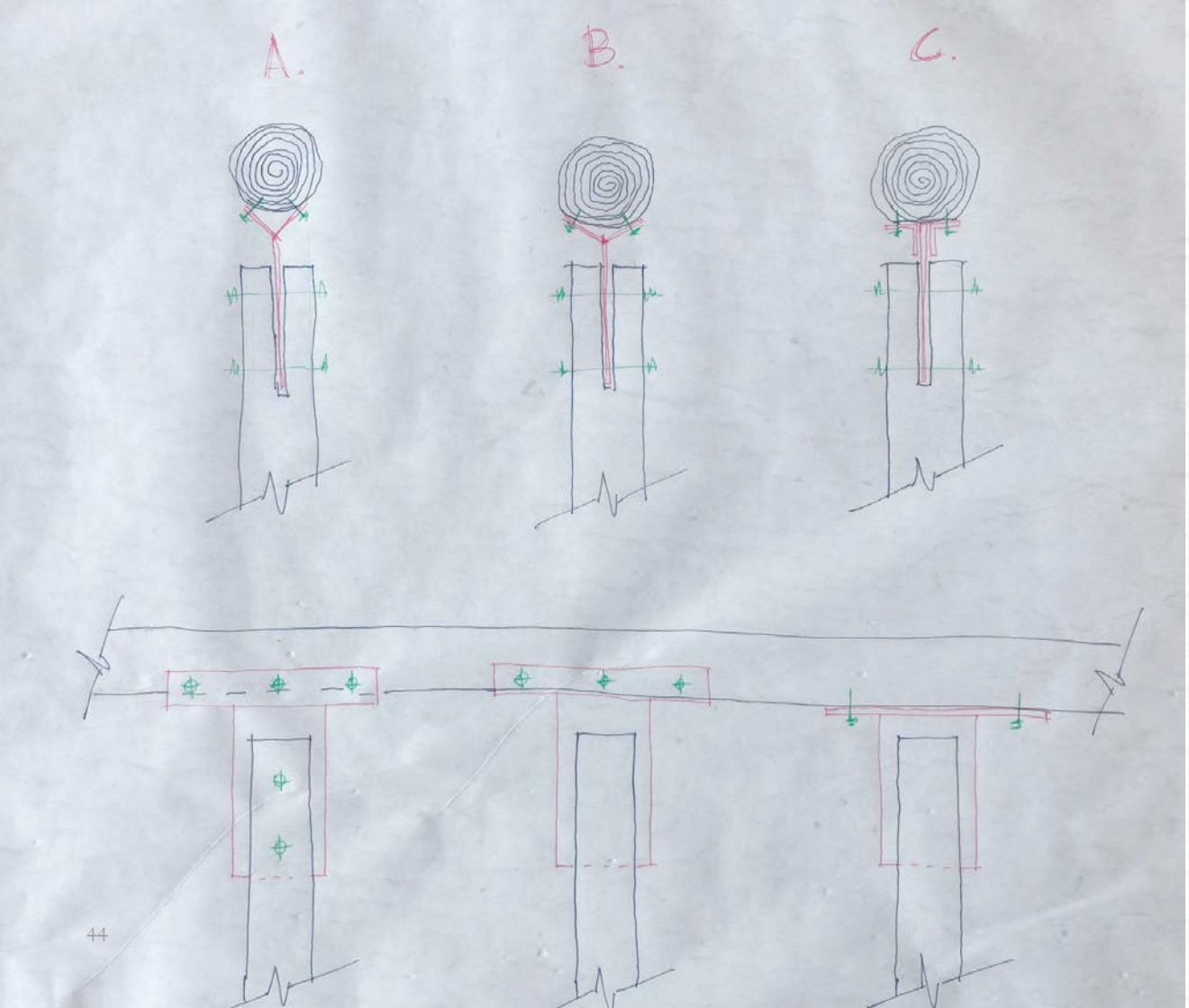
connection: post - beam

This connection detail is still being considered, and the drawings here show a beginning of thinking about how we might build it. They're an attempt at using minimal material interventions. Therefore you can see a predominance of single flat bars (potentially bent on site), threaded rods, and coach screws. All of the designs originate from a conceptual language of a structure that expresses itself, and its load-path bearing.

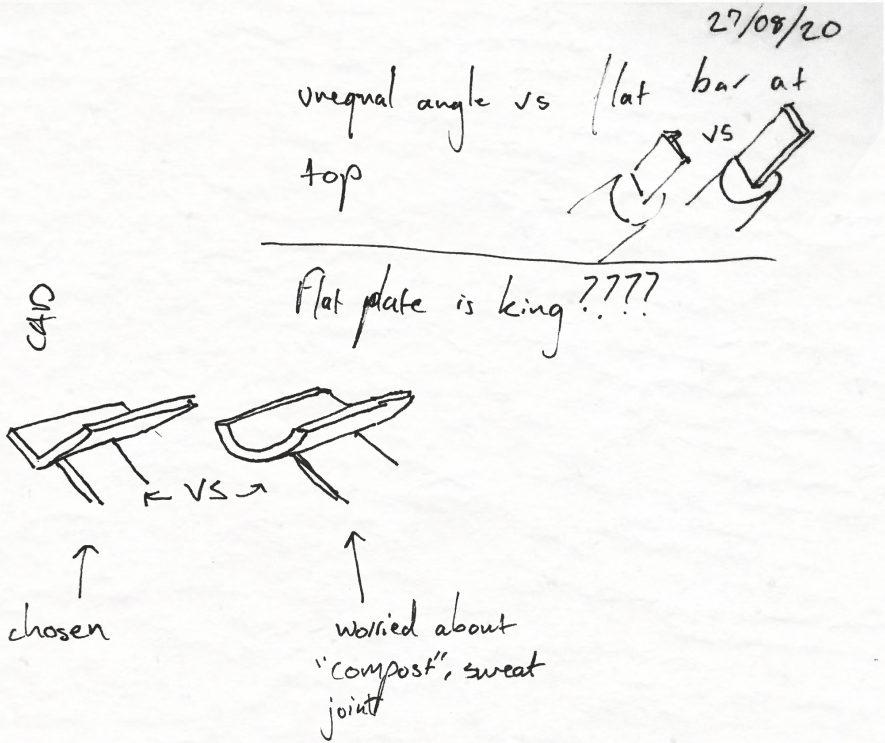




David's shed over zoom: discussing post-beam-rafter connections and systems

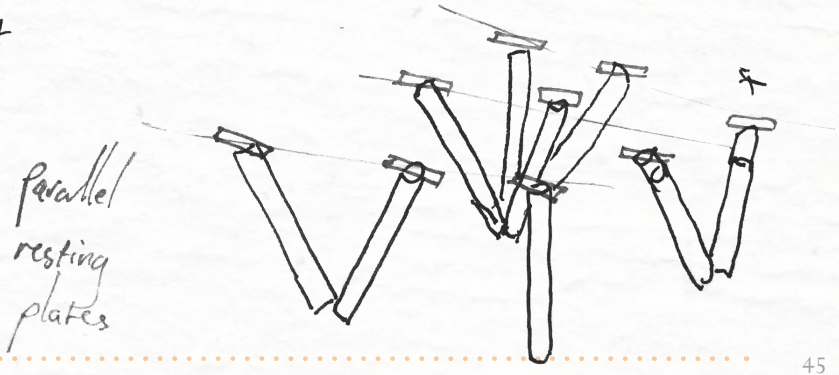


David's drawing of suggested joints



These drawings capture a discussion about how we might house the beams at the top of the posts. The sketches show considering unequal angle against flat bar (flat bar chosen as it was easier to fabricate, and the additional strength provided from the unequal angle wasn't that much compared to the additional complications of a) buying it at the correct size and b) working out how to cut and weld a 45° angle into a 60° angle on a 45° angle (you're welcome Jack)).

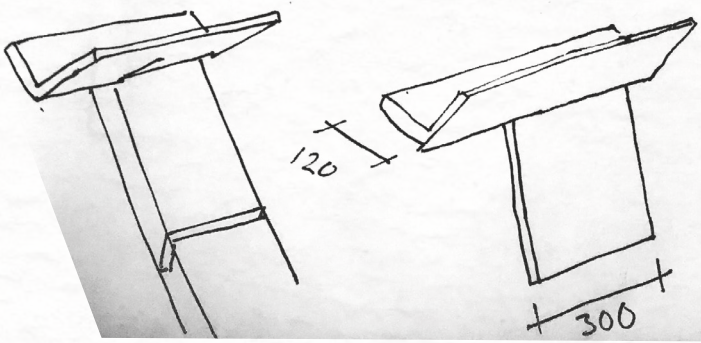
Issues of water sitting in whatever joint we chose became paramount, as the timber would just rot if any water stagnated within the joint. The joint therefore became about supporting the timber beams, but also minimising contact between the steel at the timber, and reducing air pockets or cupping whilst promoting slim gaps for air flow.

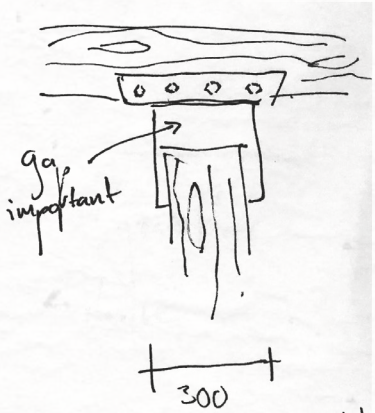


- celebrate timber
- not too clunky

Perf sheet = 1.5m x 3m panels

vendors

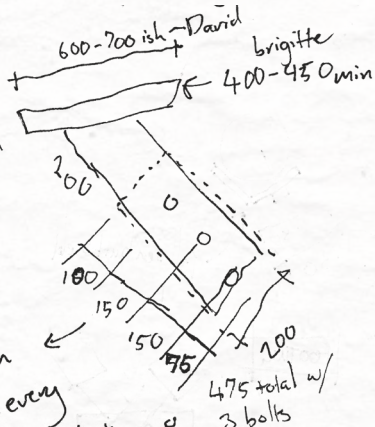




idea of perpendicular stems

so long! only need 2 or 3 bolts

bolts / threaded rod?
↳ 20mm threaded rod
↳ aiming for 2 bolts
+ banding → 50mm x 2mm steel

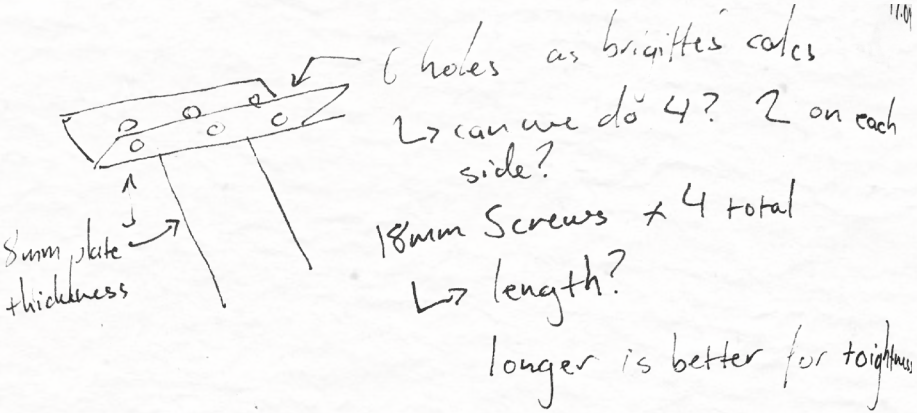


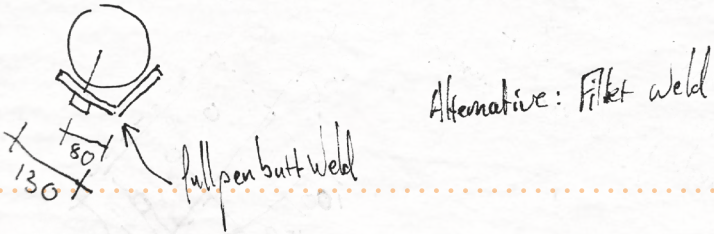
min. 80mm spacing in every dimension
→ technically, but let's do 150 & 3 bolts

475 total w/ 3 bolts

* sends as 500

700x

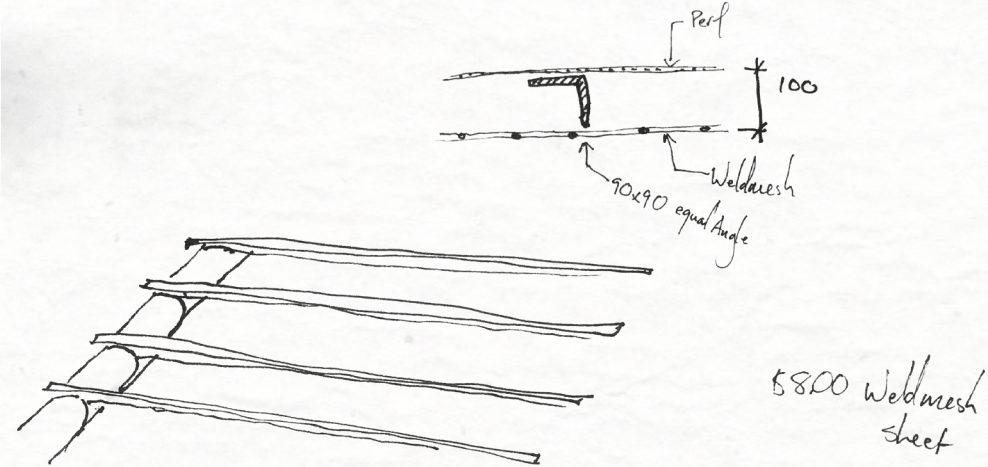




These sketches were taken from a discussion with John and Brigette about how many connections would be required into the timber (two, three or four?), what sort they needed to be (coach screws or threaded rod?), and how far apart they needed to be from each other or the ends of the timber.

This discussion also dictated the angle that the V-plate connection holding the beam would be, in order to allow for the most amount of take on the coach screw. This angle, which ended up being two flat plates butt-welded at a 120° angle, allowed for a beam of roughly 150-200mm Ø to have 120mm coach screws into the centre of the timber. The holes for the screws in the V-plate were staggered so they didn't intercept each other.

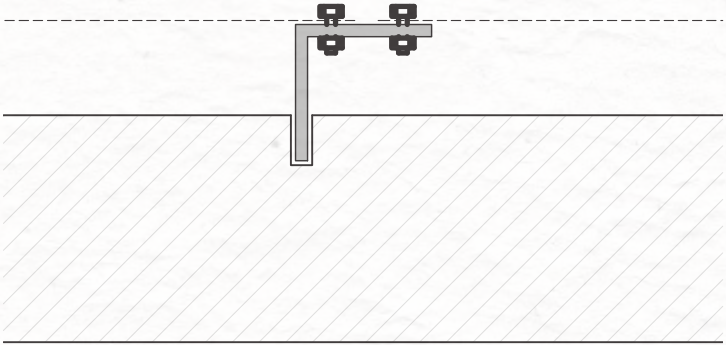
design details
connection: beam - roof



These details received the least attention because a) they are quite a ways down the track and b) their maximum loading was fairly easy to factor into the minimum strength required for the structure.

It's also the part of the design where symbolic or artistic elements could be incorporated into the design really easily, and so some of the stories that might come out of the continued building process working with community might be able to be latent designed into the shade.

David's shed zoom discussions:
rafter-weldmesh connections



2
A400

ANGLE NOTCH INTO RAFTER

1:5

PAGE A400 REV -	PROJECT CUMMERAGUNJA	DRAWING CONCEPT DETAILS	
	STAGE CONCEPT DESIGN	SCALE -	
	CLIENT -	DRAWN DC	
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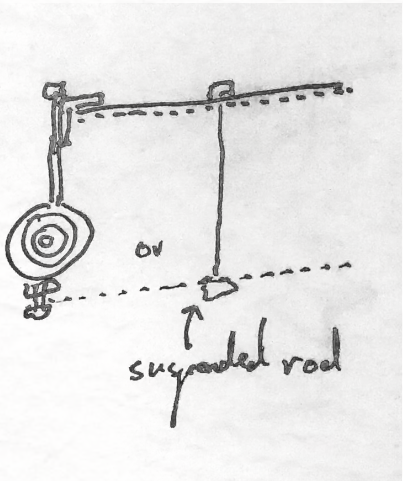
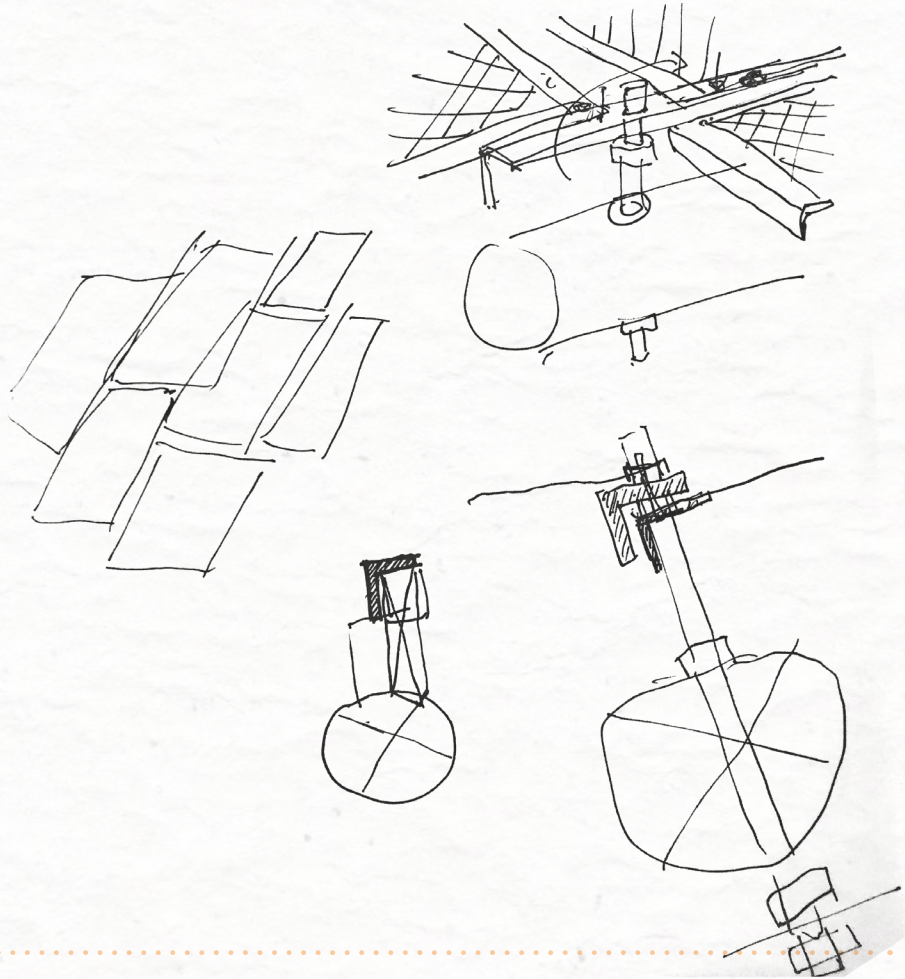
1.5 x 3m sheets

↳ with gap inbetween



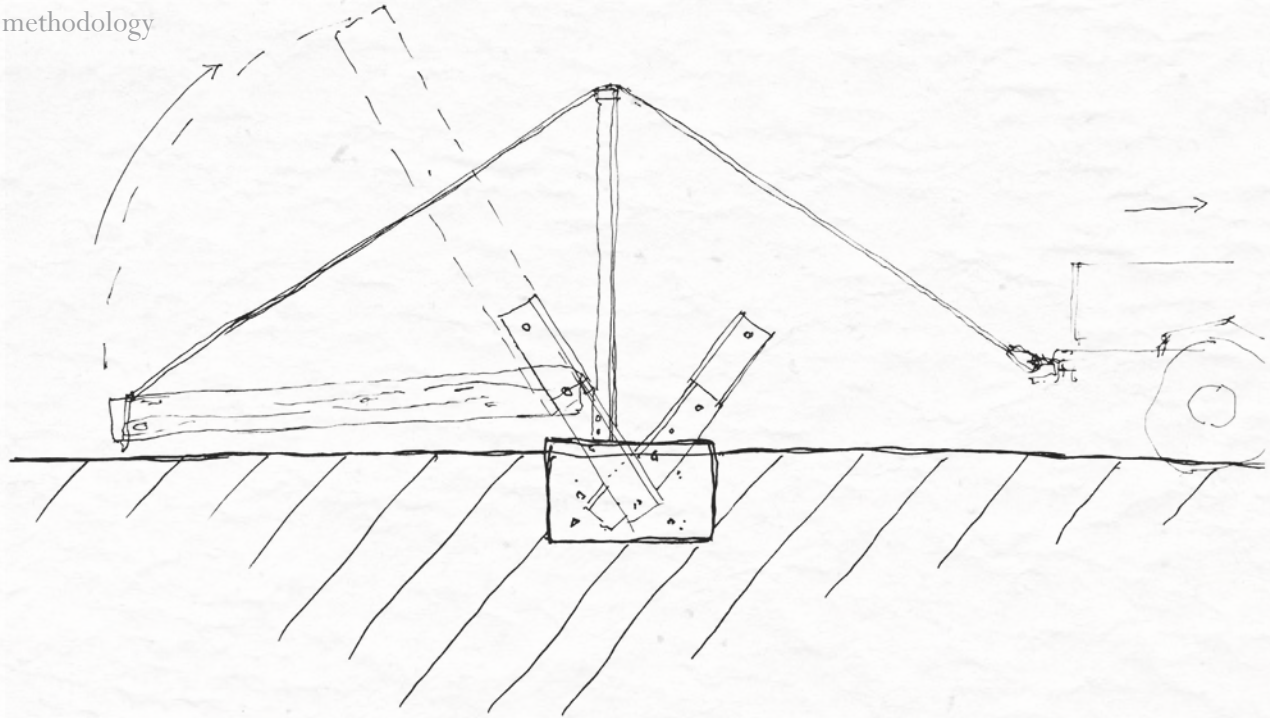


After a zoom discussion, these sketch details came to mind about a further system which could be used to attach varied sheets at varied heights. Preliminary ideas which I would eventually expand on later.

The fact that all of the design details aren't completed before construction begins is novel to me, and really highlights the capacity of the designer/builder architect to make decisions on the fly.

In NMBW's talk 'Observation Matters' for the Robin Boyd Foundation (2020), the firm talks about working closely with their builders during the demolition and framing process to refine these details, and adapt the design continuously up until it is finished. I think every construction project would do it to some degree, but it's nice to be closer to one end of the spectrum during this process.

design details
construction methodology



Because of the limited scope of the budget, and the limited access of heavy machinery to the site, we had a few discussions early on about how you would actually lift the posts up and hold them in place.

Early on we devised a few theories of 'redneck engineering' to winch certain elements up using the utilities that we would have available to us; namely steel members, cables, chains, and vehicles.

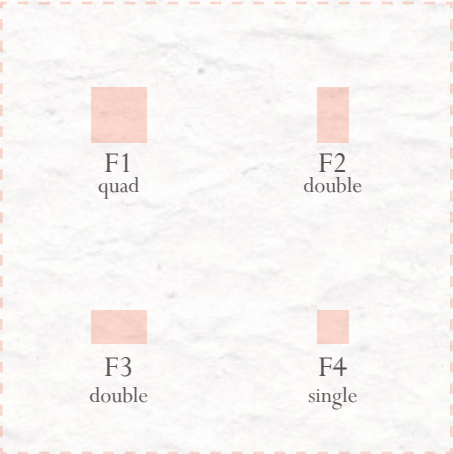
The reason why this was so important that it happened so early on is because it then factors into every design decision that gets made as we go along, without it needing to be mentioned at all. It influences and quickly culls a lot of the 'pie in the sky' ideas about how to construct things which are too heavy, or having to manufacture large parts together before they're lifted into position. From working in residential architecture there has always needed to be some understanding of the broad process of how something will be constructed, in architecture studios it is at best sometimes considered. Here, absolutely nothing is left to implausibility; there is no, 'well it just gets up there' without genuinely knowing that you're probably going to have to either do it yourself or have your peers do it. I've spoken about the reality of the design process that the Bower program teaches you and this diagram from a conversation with Jamie and David is exemplary of that.

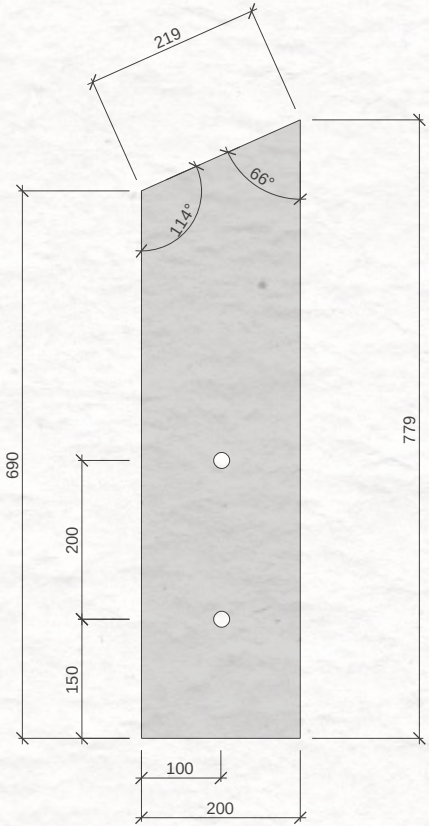
malmsbury
steel cutting and fabrication and pre-assembly testing

Based on the Rhino model which I had then been working on and updating for a few months, it was soon time to fabricate the first of the steel connections - the measurements of which had been decided upon in meetings with ARUP prior.

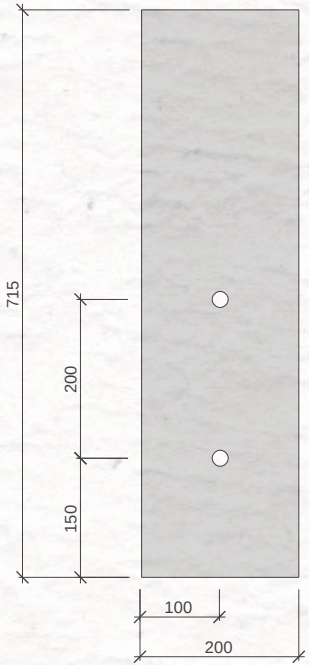
The following pages are the detailed cutting lists of the steel connection joints for Jack to fabricate, and represents a culmination of discussions with the bower team and engineers team, from broad concept down to the details of where the measurements would have to be made in the flat bar so that the cuts would achieve the angled V-plates that we were after.

F codes refer to footing numbers and their respective steel connections, top and bottom, and are as follows:

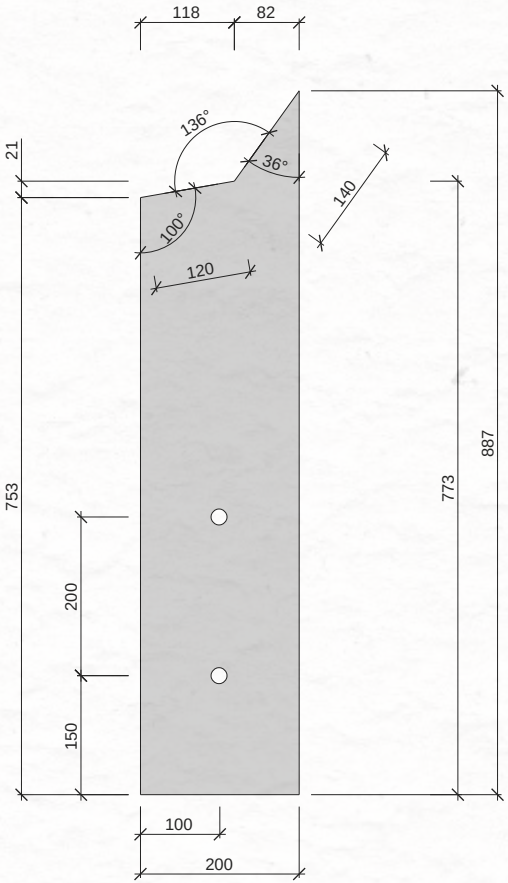




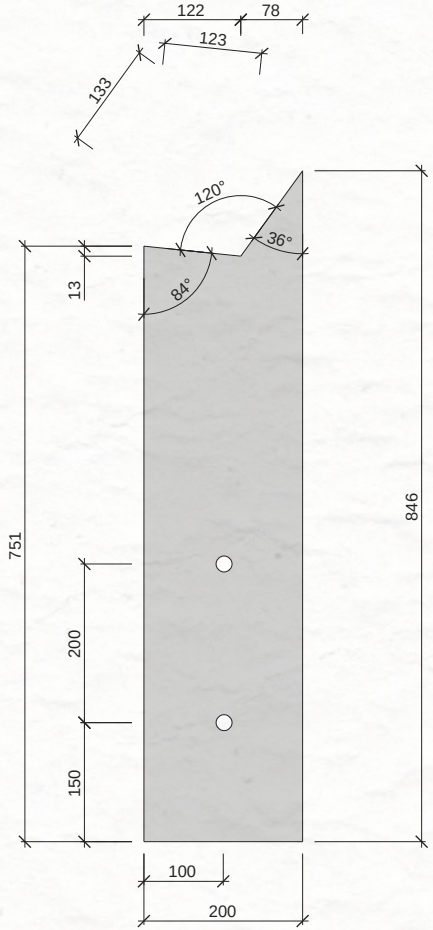
F3 TOP
x2



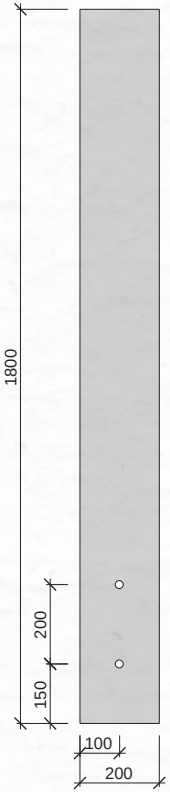
F4 TOP
x1

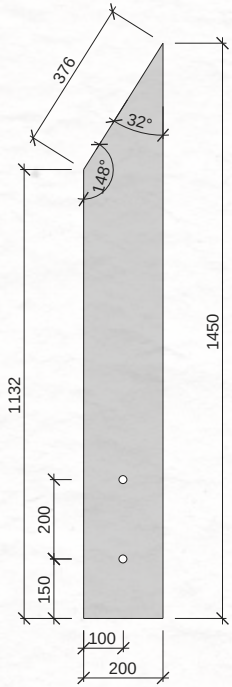


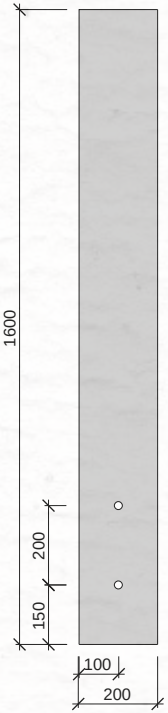
F1 TOP
x4

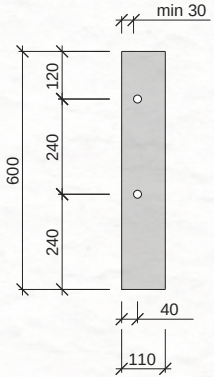


F2 TOP
x2









F1, F2, F3 BOT
x6

F1 BOT-PERP
x2

F4 BOT
x1

V-PLATES
x18

Measuring up & cutting the steel

Taking the cutting list (shown on the previous pages), the flat bar was marked, then cut, with holes sited and punched to be drilled.

This process has to be done before we arrive on site, as the machinery required to cut the steel in such large portions (and with the same accuracy) isn't transportable.

Cleaning up steel edge

An angle grinder is used to correct/clean up any mistakes or make minor cuts in the flat bar. A flap disc is then used to clean up the steel and take off any sharp edges so that the cut sheets can be handled.

This process will apply to any thick metal cutting that would be done on site. It's imperative to ensure that sparks are managed when on site to reduce fire risk.

Drilling holes in steel for threaded rod

Using either a standard drill bit or tungsten hole saw, holes for the threaded rod were drilled into the flat bar that will later be inserted into the posts.

Managing the drilling into steel was difficult, as there is a knack for appropriate amounts of pressure, speed, and coolant that need to be factored into the drilling or else the bit will either seize or, in the case of the holesaw, break.

If there's to be a lot of drilling into steel on site it might be good to have someone that becomes the 'steel hole driller' so that one person can get a feel for the skill and develop it, reducing the risk of breaking bits.

Welding of the post-beam connections

As the integrity of these joints is incredibly important, all welding was done by Jack, and then cleaned up.

It's not forseeable that we would weld anything on site, so this step would only be pre-fabricated.

Cutting slots in the post

The post is marked, and then a chainsaw is used to cut down the centreline of post by eye. The post was checked for pre-existing cracks or checks, as cuts should align with pre-existing cracks where possible.

Problems with aligning the two slots might occur, as too much flexing off the centrelines would put stress on the post in unintended places.

We could just be careful and cut the slots by eye, or alternatively we could rig up some sort of jig that cradled the log and held the chainsaw along a centreline.

Generally with these stages there is an increased level of difficulty in managing each of the posts because they are so heavy. It would be good to have access to snatch straps, ropes, or crowbars to help manage moving the posts around the site.

The auger jig

A jig was created with the purpose of being clamped to the steel in the slot, and then it would be rested a specific distance from the top of the post so that the jig would pilot the auger into the holes already in the steel every time.

Threaded rods and bolts

Housing slots were chiselled into the post before the rods were threaded through so that washers would have a clean, flat surface area to contact into, increasing the strength of the hold on the joint.

The threads on the rods were then compromised so that the nuts weren't able to be undone.

Weathering on the mesh

The mesh was left out to weather over a period of a few months, allowing the top layers of metal to corrode and become russett in colour, allowing the structure to show its age over time.

cummeragunja
testing on site by creating a totem


ANY PERSON ABUSING OR THREATENING ANY STAFF AT THIS MEDICAL SERVICE WILL BE ASKED TO LEAVE THESE PREMISES IF UNWILLING TO LEAVE THE POLICE WILL BE CALLED AND WILL REMOVE THIS PERSON FROM THE PREMISES.
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Wednesday 8am to 4pm
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PLEASE ENSURE THE DOOR IS CLOSED PROPERLY AT ALL TIMES.
Got symptoms?
Get tested.
Protect yourself from viruses
NO SMOKING
CAUTION
WATCH OUT FOR SNAKES
CURRENT VACANCIES

Hydrochloric acid, de-galvanising the fixings

The galvanised components of the design are dipped in hydrochloric acid to remove the properties which prevent them from rusting.

Whilst this seems counter intuitive, this process was regarded by the engineers as not having any dramatic impacts on the integrity of the structure for the anticipated life of the building, and it correlates with designing an atmosphere of something that weathers and responds to its environment. Additionally, in continued future visits to the community, individual nuts can be replaced as needed.

An issue with handling hydrochloric acid is that it is corrosive to your skin and eyes, and can also be harmful if inhaled. Due to this, using it on site should only be done by staff. It could perhaps be done by a select student who had a briefing on the safety requirements of handling such a chemical and became their 'job,' though this might trigger an amount paperwork which is not proportionate to the design lessons learned by students throughout this process.

Sheet metal strapping

Strips were cut out of found-sheet metal to be used for strapping. Cuts were made with an angle grinder on a concrete slab.

Significant sparks were made during this process, and conditions might require strips to be cut in an enclosed space such as the shed, or near to a water source to avoid fire.

Additionally, the edges of these weren't finished and were quite sharp. Because of the fact they're so close to the post timber, it probably means that it wouldn't matter as much, but perhaps the strapping that's used within reach on the structure could be cleaned with a flap disc so as to not snag people's clothes etc.

Nailing the strapping to the post

Hitting nails on a 45° angle away from a previously fixed nail allows the strapping to be tensioned to the post, keeping it really tight. Other than that, the process was fairly straight forward.

Strapping required access and a hammer swing to the entire circumference of the timber, which means that this process would be quite difficult if the timber was already in the air. Hence, all strapping should be done prior to erection where possible.

an exemplary footing

This smaller, non-structural iteration of a concrete footing outside of the medical centre was placed in order to slowly build up the presence of these structures in the town, and to convey the tectonic and aesthetic qualities of the build.

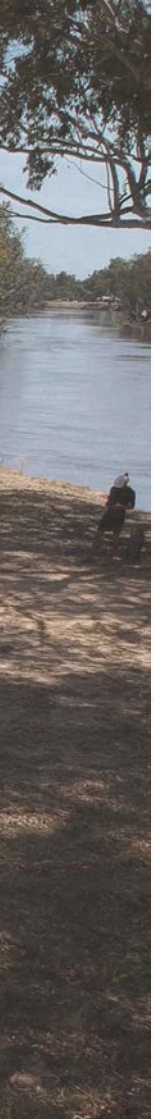
They're also a useful tool for the team, as when we return we can check to see how the assembly changes over time.

fixing the beam to the top-post connection

Pilot holes and coach screws were used to fix the beam to the steel.

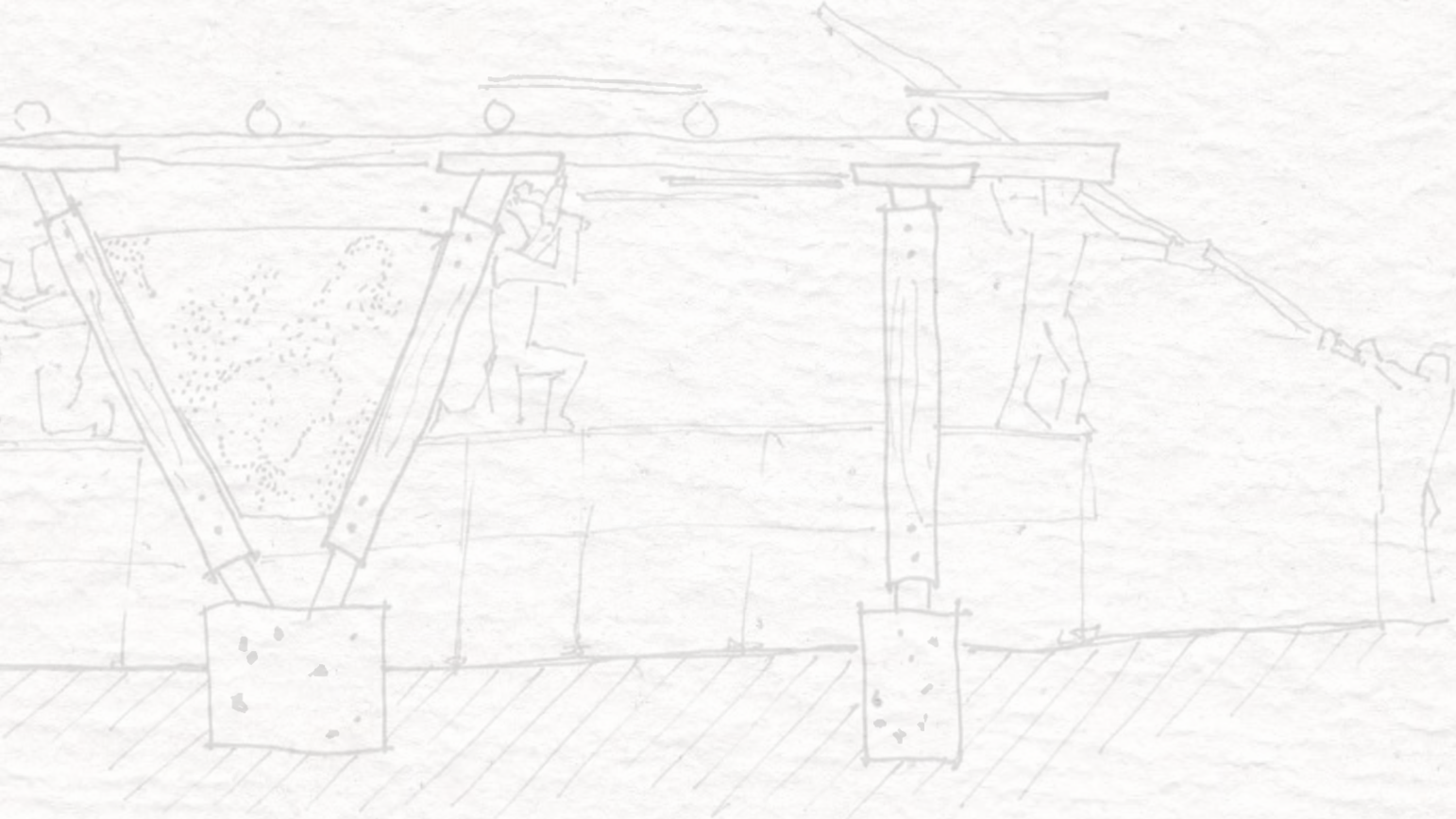
The screws and locations themselves can't be changed, so the mesh connections that come later to the structure needs to consider these in their system.

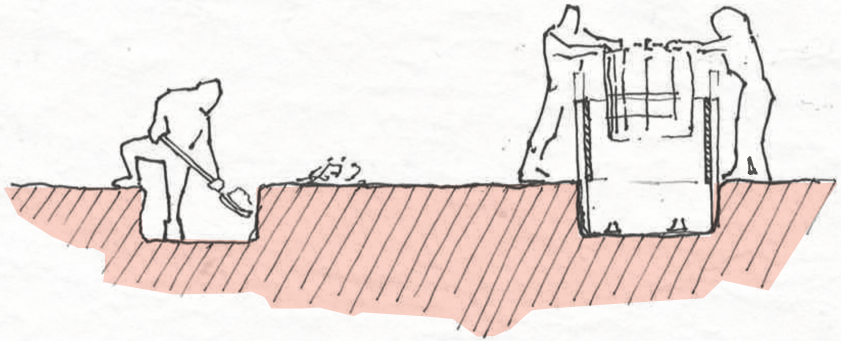
pre-construction
visualisation

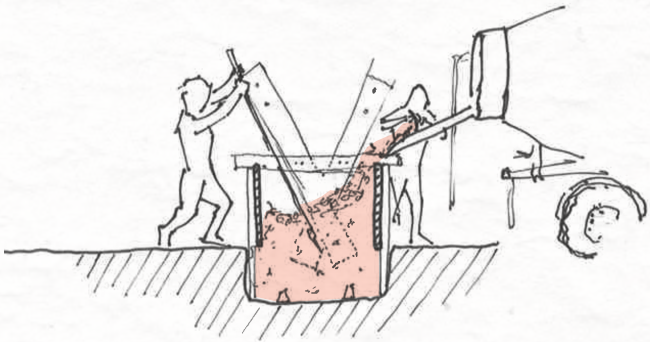


construction methods

experience, analysis, and speculation







completed construction methods:
formwork and footings

Process:

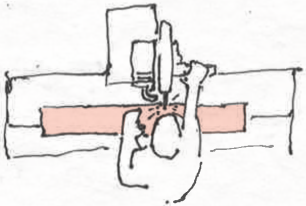
- Site chosen, holes for footings measured out and stringlined
- Digging holes following stringlines, to 400mm depth, allowing for respective footing dimensions as well as formwork to be placed into them
- Placement of formwork, bar stools, reinforced mesh, and steel footing-post connectors

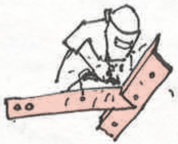
- Additional supporting 90x45s to aid in holding the steel in the correct position
- Concrete pour and trowelling the top to allow for water to drain away from the steel in the centre

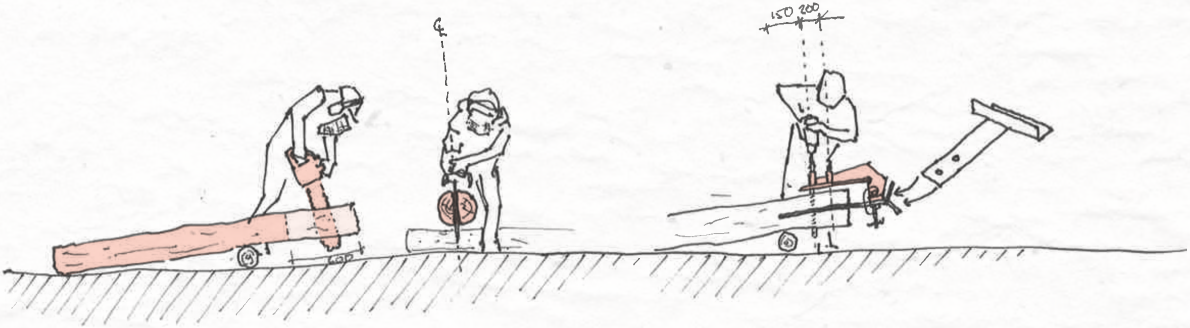
This part of the project which is now completed is quite straightforward, but is significant for the community. It's the first stage of the process that is the most real, where people can get to terms with the scale of the build, the location; it is essentially not writing it in stone but with it.

For the community therefore, this stage can be the most exciting but also the most alarming, and where they might feel they would need to be heard most.

It leads to question whether or not the 'concreteness' of the project at this stage can be expressed over a period of time before physically pouring the concrete, which is time and effort to move. Perhaps it can't, but is something that could be considered for future consultation.



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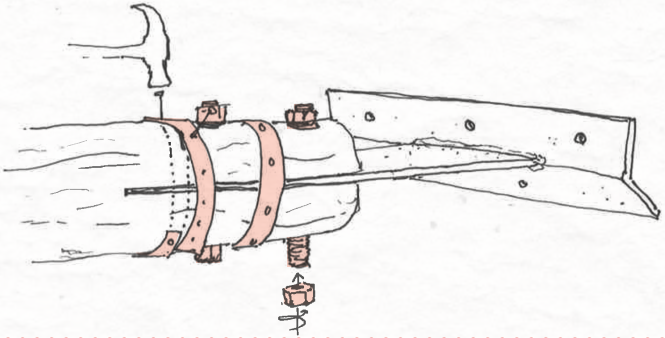


completed construction methods:
posts and their connections

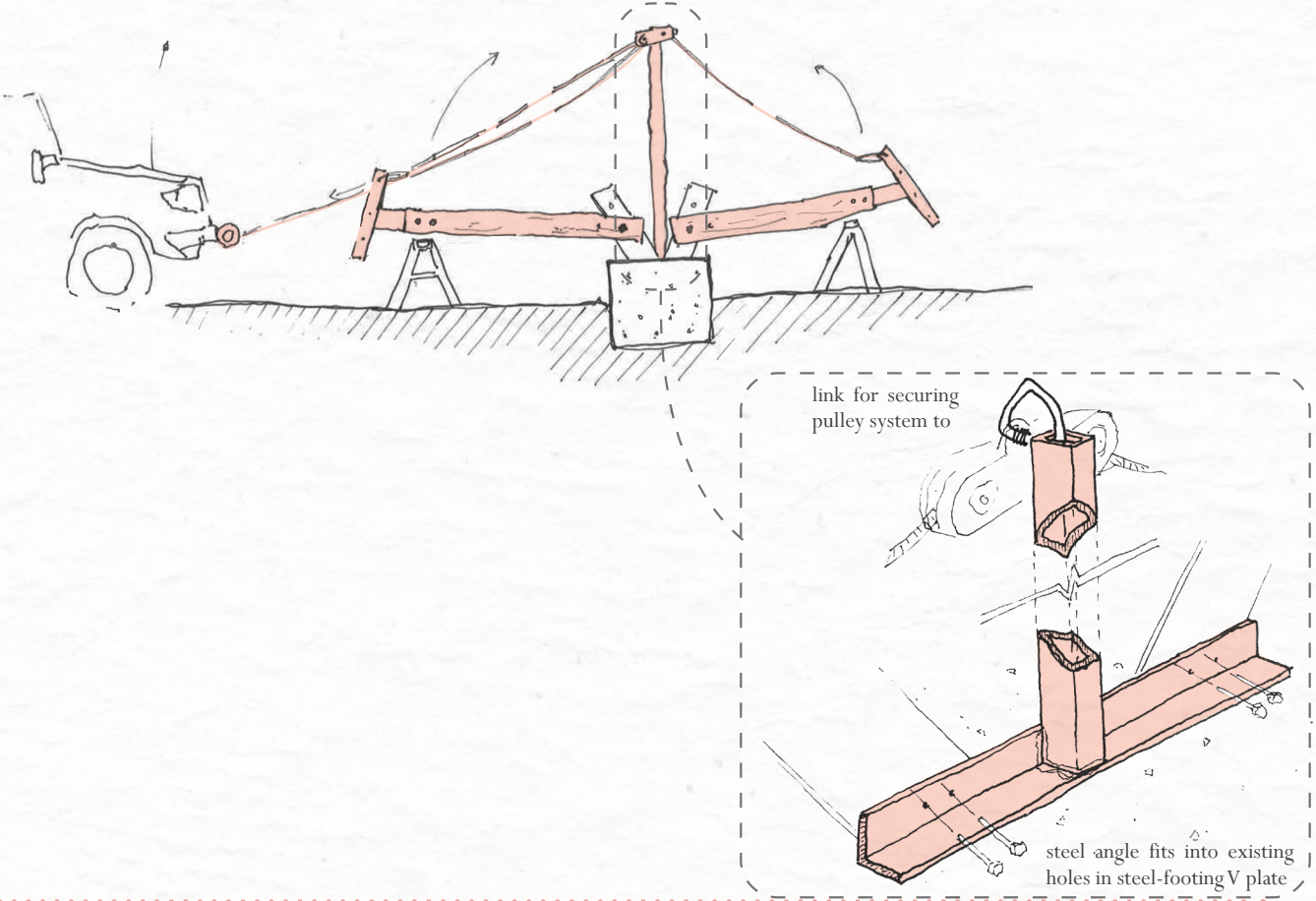
Process:

- Cutting and welding steel connections as per the steel cutting drawings generated through discussions with engineers. All of this work to be done off site.

- Chainsawing slots into redgum logs for steel connections to sit into. Knots and existing cracking within the logs to be taken into account when selecting the appropriate centrelines. Centrelines on all posts to be parallel.

- Steel Top-connection to be inserted into log, fitted with the clamped jig and then for 25mmø holes to be timber auger drilled through trunk.

- Notches chiselled to house pre-ungalvanised threaded rod bolts which are sawn off and thread compromised for security
- Metal strapping to be nailed at the split connection surround and anywhere else along the log as required for strength.


link for securing
pulley system to
steel angle fits into existing
holes in steel-footing V plate

speculative construction methods:
erecting double and quad posts

For the most part, construction in rural communities can be difficult in regards to access to machinery that will do the appropriate jobs and other solutions can be required. Additionally, the hiring of equipment incurs extra costs which increase pressure on the budget.

With that in mind, I'm proposing this hypothetical of how to raise the posts of the structure without the requirement for hired cranes or otherwise, and would require a standard 4WD winch to completed, as well as a bolt & tackle, and a metal post welded to an angle.

This is all as an alternative to hiring a crane, which a few companies in Echuca provide.

Though theoretically the central post is not needed, it is there to anchor the bolt & tackle, otherwise the posts may lift unevenly and create a toppling risk.

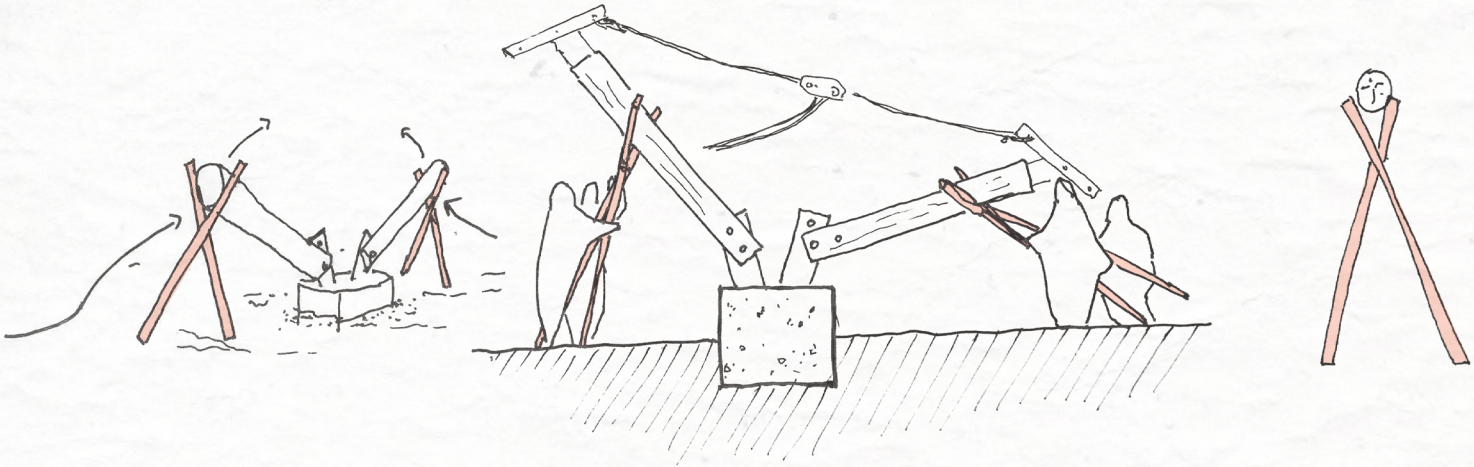
Process:

- Attach lowest bolt to steel-footing
- Rest opposite end with steel-top connection already connected
- Rest top-end of post on saw stool or similar, so that top end is higher than base bolt
- Drill holes in steel-top connection for 90x45 bracing (refer to detail on next page).
- Secure a steel winch cable with a bolt and tackle or other pulley system to both opposing steel-top connections
- Set up scaffolding parrallel next to the footing
- Draw winch in, raising one post first and fixing the secondary bottom threaded rod.
- Once the first post is secured, raise the second post using the first as the winching point.

Concerns:

- Risks that without strapping the post may split as it is raised on its threaded rod hinge
- Risk of posts 'see-sawing' as the first one is raised if there isn't enough guidance of lifting the first

In conversation about this proposal, concerns were raised about the strength of the steel post in this scenario, and if it would be able to hold the weight of two redgum posts. Additionally, there were problems cited around the idea that if the cable snapped or broke it would pose a significant hazard.



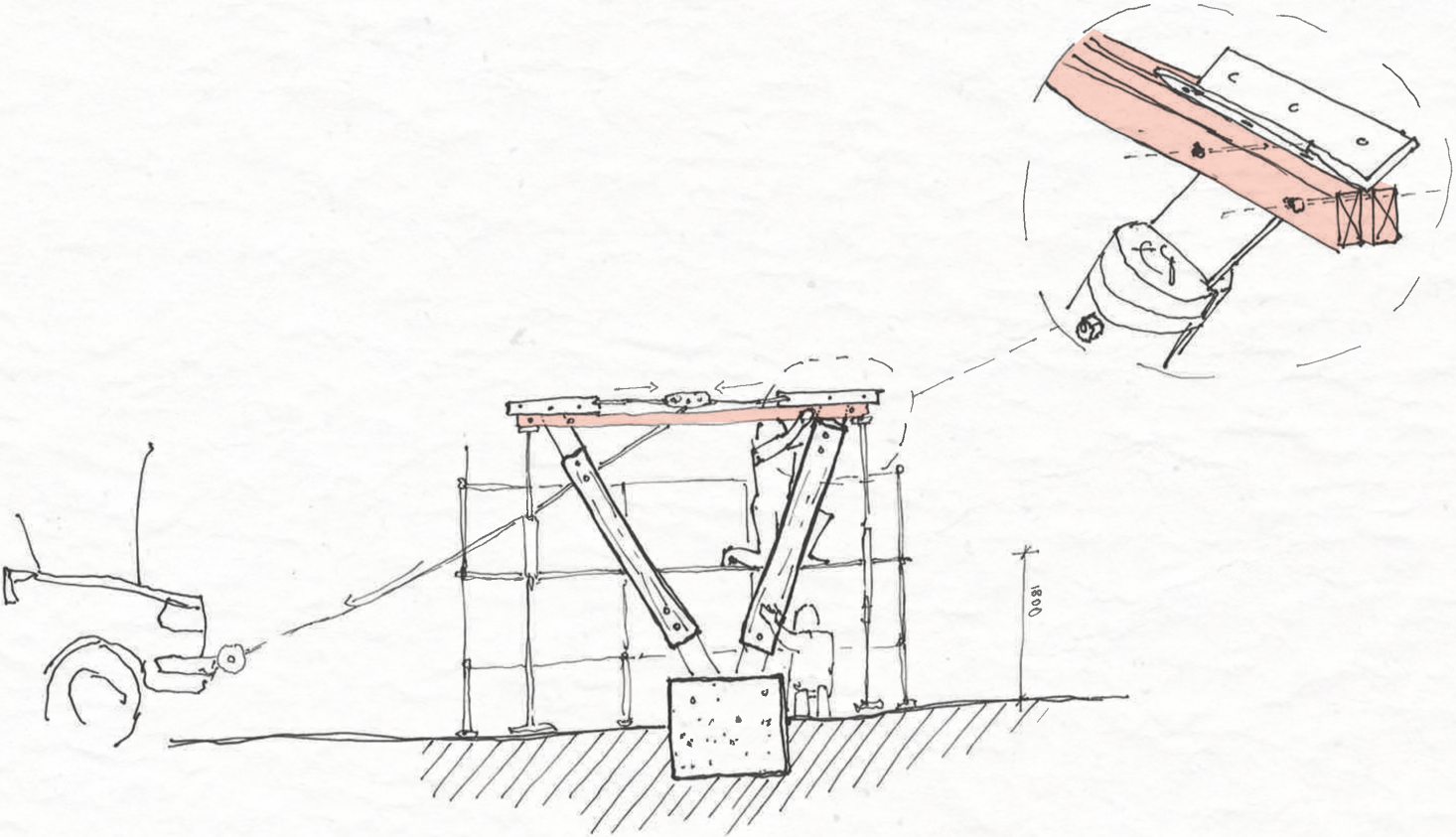
speculative construction methods:
erecting double and quad posts

Process:

- An x-brace is made out of 90x45s
- place under the post, it is used to progressively push the post up into position
- Can hold each post in position for an indefinite period of time, and prevents a lot of the dangers of the post suddenly falling.

Concerns:

- Concern generally around having students in or near the 'fall zone' of the post if it does somehow fall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speculative construction methods:
fixing double and quad posts

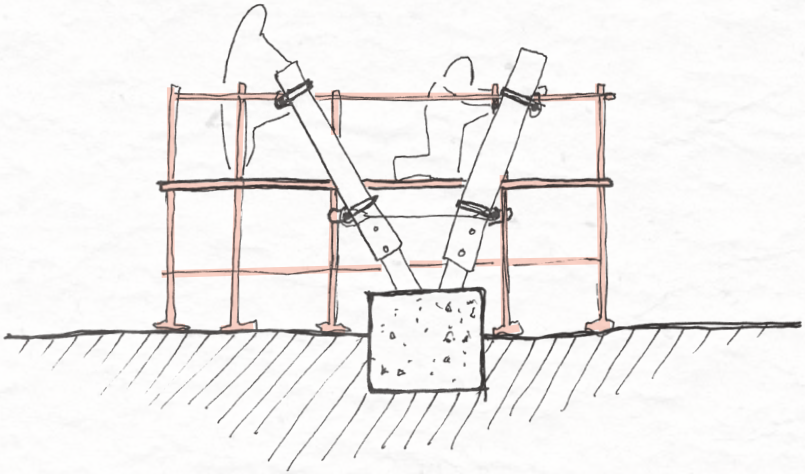
Process:

- Add the second threaded rod bolt into the steel-footing connection
- Temporarily prop steel-top joints from ground if necessary
- Secure two 90x45 timber braces underneath the V of the steel-top connection (the timber could be supplemented with cable or steel bar if requried to avoid splitting of the timber)
- Strap timber posts at bottom

Concerns:

- Without bracing to the adjacent quad parts, the full triangle of the double posts might flex laterally.

Conversation around this detail was fruitful, as while the bracing of this connection was deemed as to be required, scaffolding could also be used to brace elements of the design as well as being used for construction access purposes. In an instance where scaffolding might not be available or plausible such as when posts on a 45° angle to the rest of the scaff, this technique might still be useful.



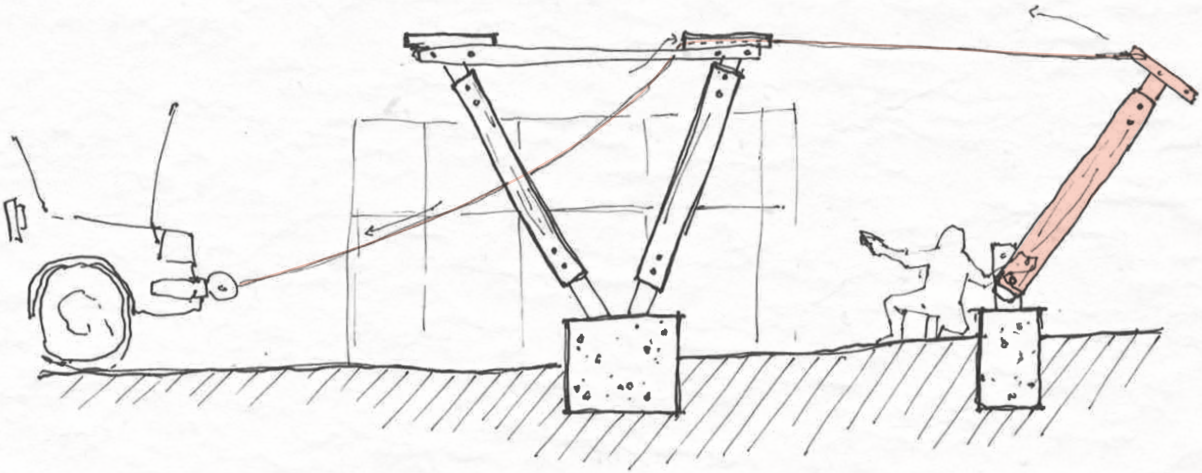
speculative construction methods:
erecting double and quad posts

Process:

- The scaffolding is set up in such a way that cross bars can be fixed to it which support the post as it is levered into position.
- The benefits of this are that you use the structural strength of the scaffolding as well as access to construction, getting a two for one deal.

Concerns:

- Not a concern, but a consideration of the quad posts being on a 45° angle, and the necessity for two separate scaffolding structures to be set up at both angles.



speculative construction methods:
erecting single post

Process:

- Similar to the double and quad post, except using the adjacent double as a fulcrum for the winch cable
- Bolt threaded rod at base when assembled.

Concerns:

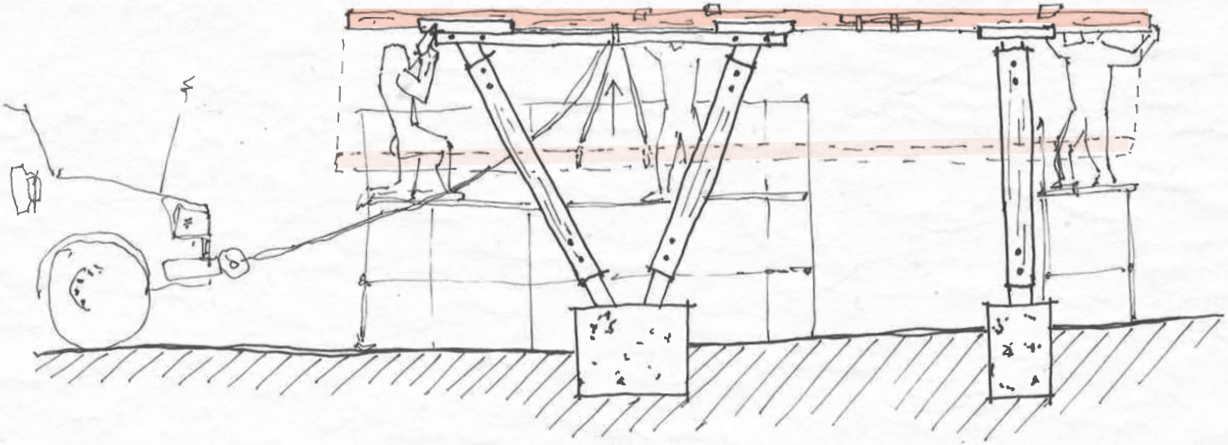
- The engineered parametres for the double post and footing may not have taken this amount of lateral force into consideration.

Building upon the structure that is already there and using them as static winching points was regarded as fairly do-able, and this method of construction used in conjunction with others was emphasised.

This brings me to a point of revelation in the discussion with David and Jamie, that rather than working out one particular method of construction that is the best, it was better to come to a construction program with a 'library' of techniques of construction that could be used on site.

This pre-thinking is helpful to give a general idea to the provisions we might need to take to site in the first place (such as a winch, ropes and extra bracing timbers), but is ultimately unpredictable until you're actually there doing it, wherein a multitude of the 'a priori' resolutions become useful.

The moment of expecations meets reality, and being as prepared on as many fronts as possible for that.



speculative construction methods:
erecting single post

Process:

- Similar to erecting the single post, the majority of the lifting of the beams could be assisted by winching off the existing erected structure, and then guided by students.
- Beams are hoisted into the cradle and secured to each steel-top connection with 6 coach screws

Risks:

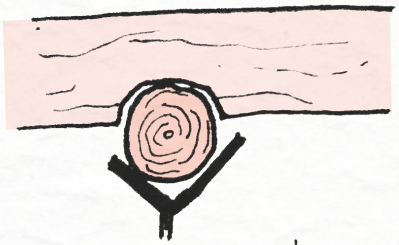
- Dropping the logs.

Lifting in this manner was considered feasible - and using a winch to help made sense. It was mentioned that the members might be raised in smaller segments, which meant that the requirement for additional winching wouldn't be necessary, but again, another option in the arsenal.

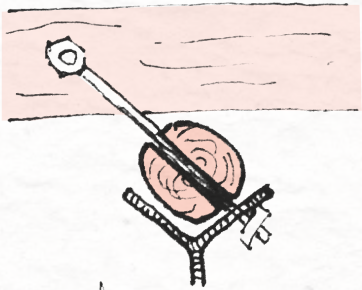
speculative construction methods:

beam - rafter connection detail

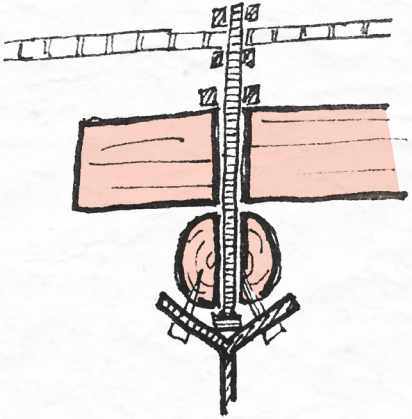
Threaded rod fixings to the logs mean drilling holes through the timber, which might increase the chances of splitting the timber, and for rotting of the timber from the interior. Internal rotting wouldn't necessarily be readily observable from underneath to initiate fixing/replacing until significant rotting has taken place. The likelihood of this being problematic may be negligable however.



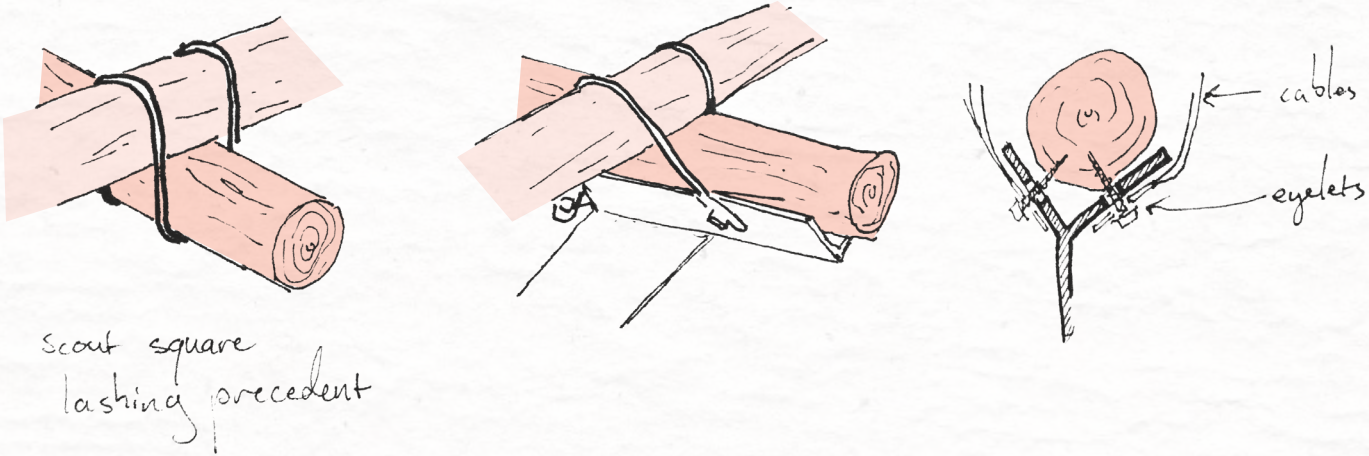
cove cutting with a chainsaw



rods extend thru beam

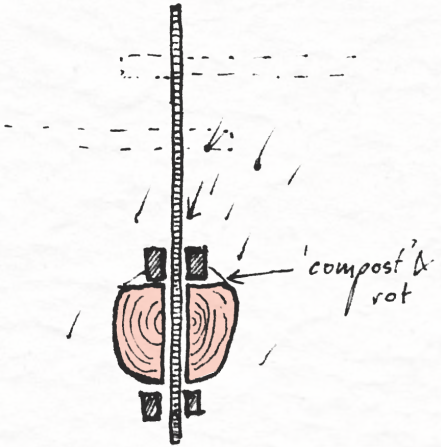


Fixing the beams with strapping cables could also present an option which maintains the integrity of all timbers, though takes on an aesthetic detail not yet developed in any other part of the design and therefore may not be cohesive.



speculative construction methods:

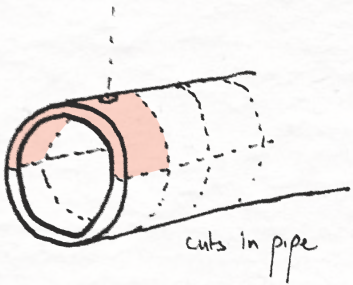
rafter - mesh connection detail

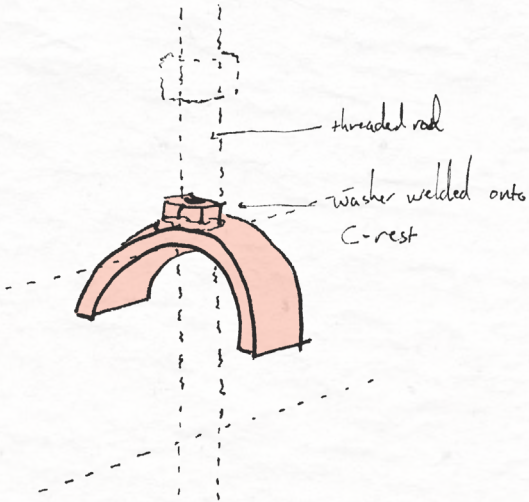


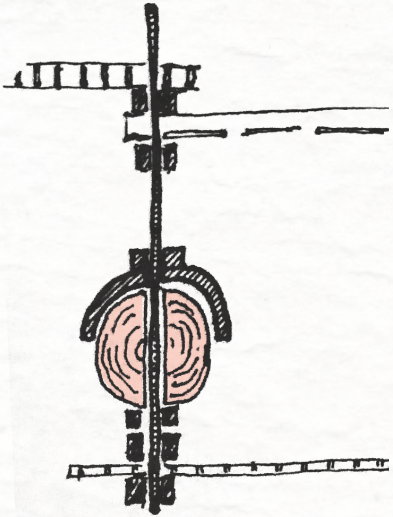
Discussion with James and David on the topic of creating rot resistant joints for the structure lead to the topic of 'sweating joints'. The experience has been that when working with timber to steel connections it is important that there is air flow between the two materials to encourage moisture to evaporate out of the joint.

The two mechanisms for joining articulated on this page, contribute to a negotiation between stability and damage to the timber, both of which are unavoidable in construction but can be mitigated to different levels depending on which path is taken.

The fabricated saddle-like joint (shown right) was considered less desirable than a simple washer / bolt connection because it might sweat too much.


cuts in pipe


threaded rod
washer welded onto
C-rest



thoughts at this point

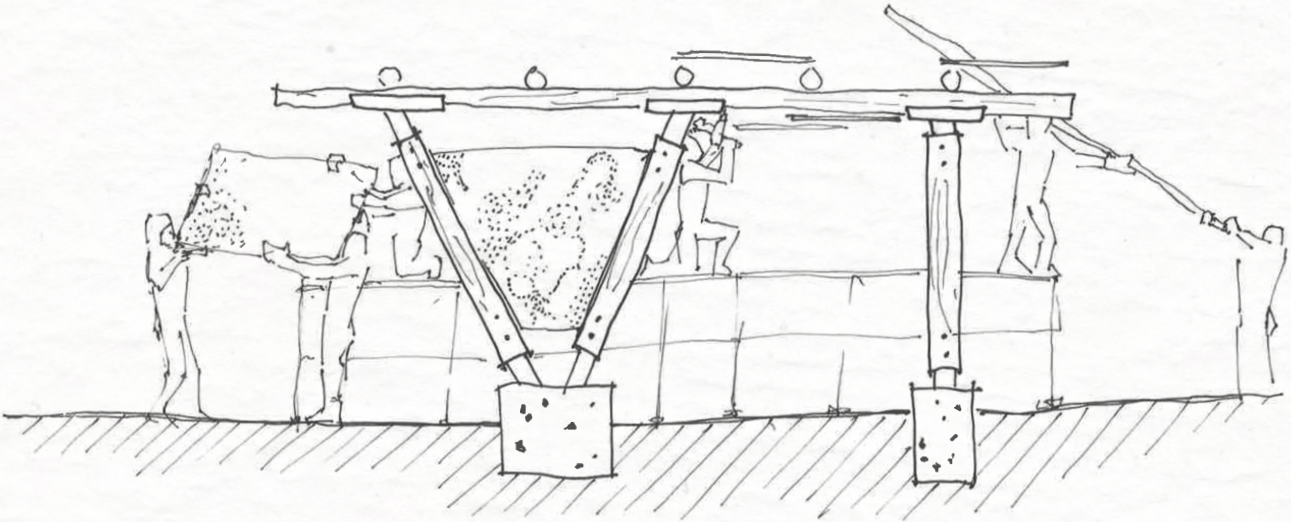
overall construction comments

The story of the Bower Cummeragunja shade pavilion up to this point, and speculating on the construction processes beyond have been documented and speculated in this journal so far. From zoom consultations to discussing the semantics of bracing steel in concrete pours on site, the process of design discovery and real-world skills learned have been immense.

Key lessons learned involve:

- Understanding how communication with engineers and other consultants using sketches, real life models, CAD drawings, 3D computer models, and site visits
- Understanding the engineering process through consultation and discussions, their considerations of live and dead loads, constraints regarding regulations and standards, and equations regarding soil types, conservative equations for non-standard timber
- Understanding the complexities of timber to steel joints in those timber members, and how testing through model and prototype making affects the overall steel manufacturing process
- Communicating with clients on site, in regards to consulting with the public and talking in everyday terms about architectural narratives, structures, and aesthetic responses.
- Understanding the context of working with and in indigenous community, their structure of authority and ownership, and
- The history of the indigenous community at Cummeragunja and how this discourse is instilled in the pride and ownership of the space, country, and environment.
- Understanding the importance Traditional Owners place on the transfer of knowledge to younger people of indigenous descent and otherwise, and how incorporating both into the design and construction process can create a deeper sense of ownership and kinship.
- Understanding the breadth of the process of building, and the resolution of structures being a broad path of many options rather than a single line of progression that is worked out beforehand
- Understanding that the design process of an element in a structure isn't complete until it is fixed into position, and even still then remains open to change through maintenance or repair.

I am grateful for having been chosen for the student mentor role, and look forward to helping with the completion of the structure with David, James, and students in the future.



a broader story

the Cummeragunja structure positioned in theoretical architectural discourse

The nature of Bower projects are that they are closely interwoven with their respective communities, and often are an exchange of a) the opportunity for the university to learn from building structures, *for* b) a piece of architecture in the community. This creates a mutually beneficial system whose effects are an architectural education for university students but also for the people in those often remote communities.

The design process, then, largely becomes something that can be at times more casual and opportunistic, rather than something formally refined from the outset. It enables community members to have their say before *and* during construction, allowing for input throughout the design practice. This lack of formality returns the act of designing to something more closely resembling the 'master builder' architect rather than contemporary architectural practice. Some design decisions can be made on site and as a result of the process of construction rather than in anticipation of it. There appear to be benefits to this method of design and build; it switches architecture for something that otherwise is totally *a priori* to something which is the result of testing on site and with clients. Admittedly, the process of structural certification from engineers means that the overarching designs aren't able to be changed so much, but they are compared to the authoritarian structures in place in, for example, residential practice where town planning permits negate any desire to change a design post-application.

The opportunity for steps in the project to be completed incrementally and for the design to change tact in response to various factors at these increments creates an almost responsive architecture within a single project. On a broader scale, however, the completion of a small pavilion with the potential to lead to future projects within the community allows for a comparably macro-feedback conversation between different projects, and over a longer timeframe. Meaning that both the designers and community have time to reflect on the successes and failures of each iteration of the built form, and can come to the next iteration with a stronger understanding of both the process, the place, and how what is built is actually used.

Understanding Frampton's 'Critical Regionalism' as a theory of architecture being heavily tied to both the peculiarities of a place and the people in it is key to placing the Bower projects within the broader discipline. The catalyst for the pavilion being the practice of thinning of red gums

along the Murray not only places the pavilion geographically but also temporally; the design of the pavilion using post-colonial steel fabrication, concrete and engineering potentiating with a bi-product of enduring indigenous environmental choreography.

This correlates to the concept of 'Network Specificity' as defined by Ratti et al (2013), where recognition of projects can be given not only to the architects, engineers, and builders, but to the human and non-human agents that curated and generated the sense of place which the design ultimately responds to. The authorship of this Bower project departs from the traditional notion that the lone architect casts their will upon a landscape, and suggests, rather, an accumulation of both active and passive participation of numerous actors as the directors of construction. Where the authorship from a people whose cultural custodianship of the river and surrounds afford the building of and design of this project in turn with the architecture, and imbue this architecture within deeper economies of community and country.

Part of the design of the pavilion is the imprinting of symbolic motifs in the reliefs of the concrete seating. Four symbols have been discussed with the traditional owners as representative of Cummeragunja - weatherboards, fish scales, the soil, and river reeds.

In her writings in Architecture Australia on symbolism in architecture relating to indigenous Australian cultures, Shaneen Fantin (2003) questions who aboriginal symbolism is for, and how it relates to the stories, ancestors, and indigenous and non-indigenous people who inhabit or visit it. The idea that ancestral symbolism should be contained in the landscape (before being provided by abstracted architecture) is raised, and secondly indigenous identity should be through "occupation first, representation later". The article also raises important questions about embodied western technology in contemporary architecture, and questions the validity of 'indigenous architecture' that uses symbolism as a branding technique rather than addressing broader cultural issues.

So where is the pavilion on the banks of the Murray at Cummeragunja positioned amongst these questions? The pavilion, borne out of tree thinning practices and intended to be used as a place from which to gather and observe the river and landscape around the old Cummeragunja Mission can be seen as *for* the Yorta Yorta people. The symbolism used in the concrete speaks less to the tokenism of appearing 'indigenous' to

Fish scales impressed into the concrete seating of the pavilion, and the team on site

visitors, and could be interpreted as reminders and recognition of place for those who already frequent the area and have the prior knowledge to understand the meanings behind the motifs. It has been established through numerous discussions that the continuation of cultural knowledge into the younger generations of the Yorta Yorta is a priority for the Traditional Owners, and so the symbols can also be seen as teaching points for when the pavilion is used as a yarning circle - perhaps similar to the phenomenon of the of the Bower T-shirt design, where someone is able to convey their ideas when a visual cue for the concepts are present.

And what does it mean to have a group of predominantly non-first nations students and teachers to design and build the structure?

Alain de Botton in his text, 'The Architecture of Happiness' (2006) argues that architecture represents the social and philosophical ideals of the group of people that build it. It is noted that through discussions on site about the design and through talks given by Traditional Owners with students that the structure - and their hopes for the future of the country - is the cooperation of indigenous and non-indigenous people. This can be illustrated through the process of procurement for the build - the fact that indigenous communities were sought out to work with students, through the continued consultation and goal of understanding the Yorta Yorta community at Cummeragunja, and through the build itself, in working with Rob Briggs coordinating students from the ASHE program to help build the structures on site. The act of construction therefore pragmatically works with the community at Cummerganja and broader communities of the Yorta Yorta to achieve an entirely localised architecture, that teaches the community about the process of building designed structures, whilst affording an opportunity for university students to do the same.

The incorporation of students from the ASHE program into the build was also a key driver for Traditional Owners, and, whilst an intended end-use of the structure is anticipated to be for yarning and the passing down of knowledge and tradition, the process of building the structure itself can be regarded in the same way. It is culturally significant that descendents of families that have lived on Cummera come back and spend time on country to learn actively and passively about the country itself, the stories of the owners who inhabited it, and their role in its continuation. The building and design process, and by extension the Bower program, can therefore be seen as a vehicle for facilitating these opportunities. Additionally, the incorporation of ASHE students into the build allows university students from a diverse range of backgrounds to be privy to the aforementioned formats of knowledge sharing they may not be familiar with, creating a latticework of formal and informal knowledge exchange.

The work at Cummeragunja can therefore be seen as an architecture that exists somewhat at the intersection of what traditionally western and contemporary indigenous architecture can be, not through necessarily just the built outcome but through the establishment and continuation of relationships and a process of working with communities that sets a precedent to follow.

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