

Tōia Mai

Waikato taiwharau, he piko, he taniwha, he piko, he taniwha.

Waikato of one hundred chiefs, at every bend, a chief.



Opening day 23/11/18 Ferrybank Reserve – Hamilton, Aotearoa -New Zealand

Tōia Mai means 'Pull (together) here'

This project was a multi-disciplinary collaboration between Wintec Māori Achievement, and the artist/ PhD candidate Joe Citizen, with the students and staff from Wintec, HCC, and industry partners.



Photos by Ying Wang

Joe Citizen – interactive artist



He whare kārero, he māramatanga - Interactive installation, Wintec, 2015, (with Zena Elliott, Jason Long, Tony Nicholls)



Silence is golden - Interactive installation, Waikato museum, 2016, (with Jason Long)



Glimmer - Interactive installation, Hamilton band rotunda, 2016, (with Jason Long, Jeremy Mayall)



{presence} Interactive dance performance, Hamilton Gardens 2015, (with Black Sheep, ACLX, Rob Thorne, Kent Macpherson and friends)



The Waikato Matrix - Interactive installation, Meteor Theatre, 2016, (with Jason Long and Gert Hattingh)



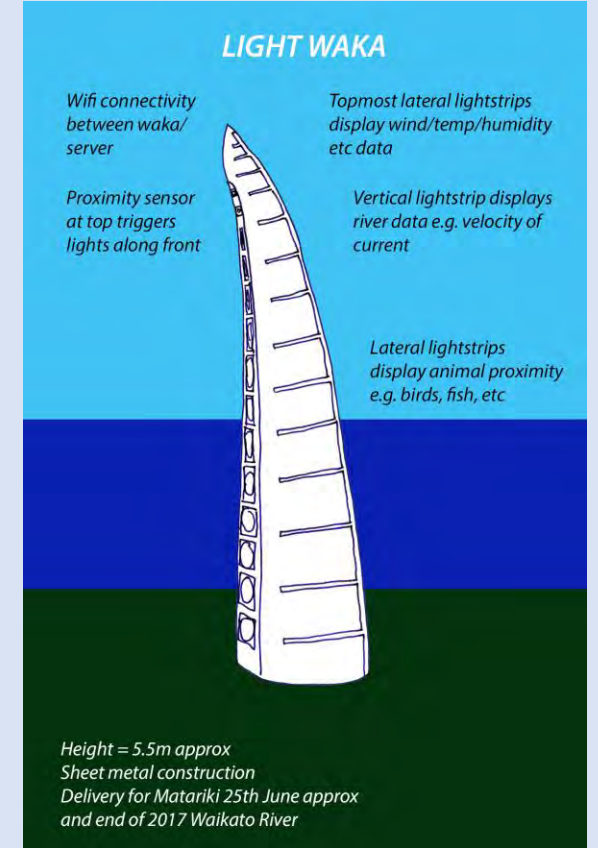
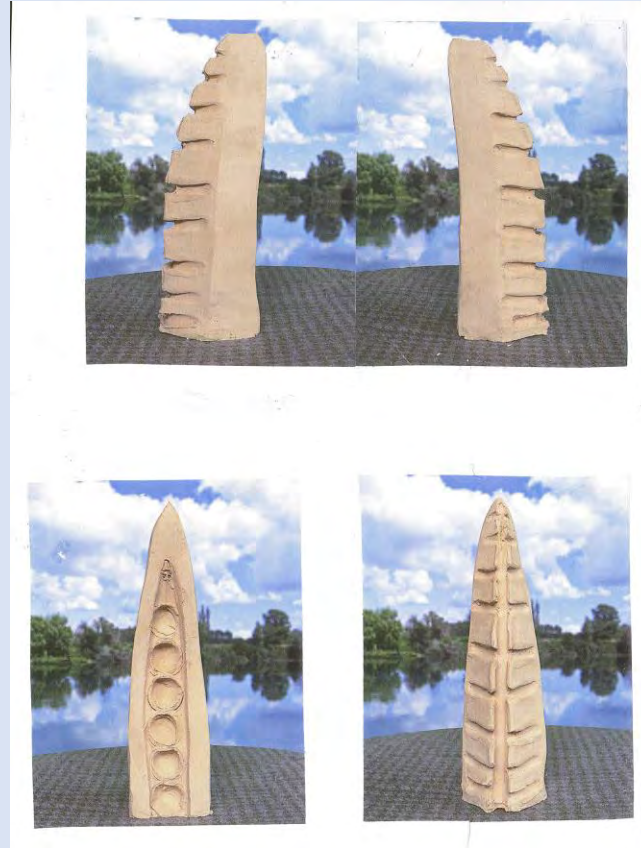
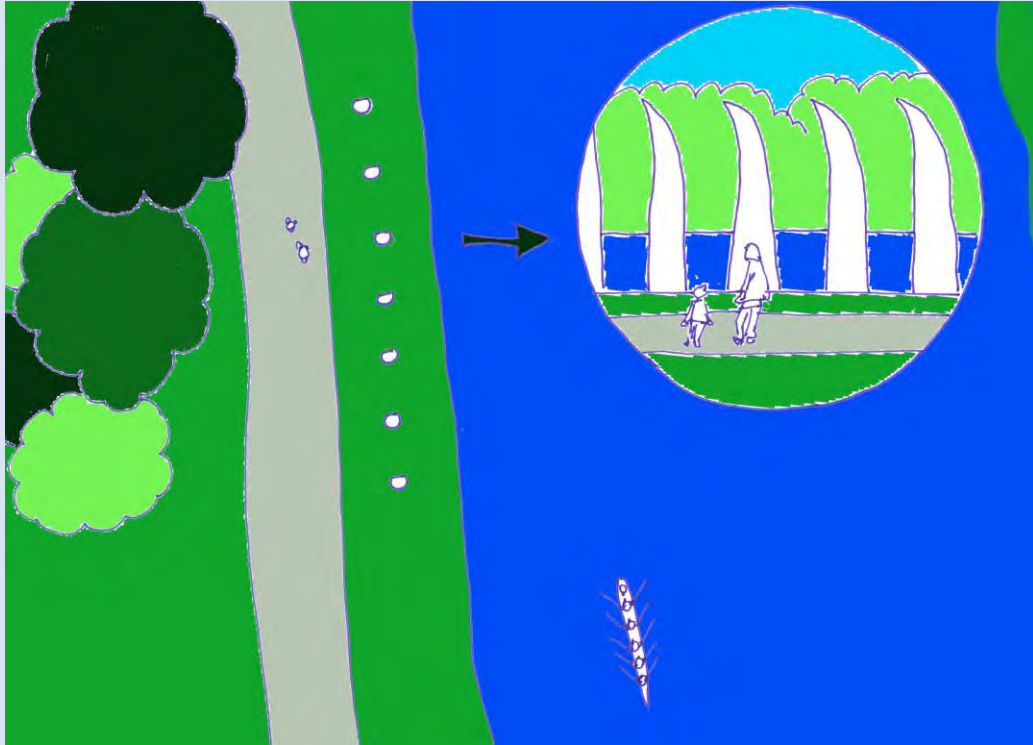
Oh yes we are - 360 interactive video, Waikato museum, 2014, (with Jason Long)



Te Winika (Waikato museum)

I wanted to make interactive art works beside Waikato river for my PhD:

- Early kōrero with kaumatua Tame Pokaia led me to visit *Te Winika* at Waikato Museum
- *Te Winika* gifted to Hamilton by Queen Dame Te Atairangikahu to help foster understanding between Māori and Pākehā
- Refers to an orchid that grows at Kawhia
- Inspired me to think about how flowers grow – like ideas/ education within the mind

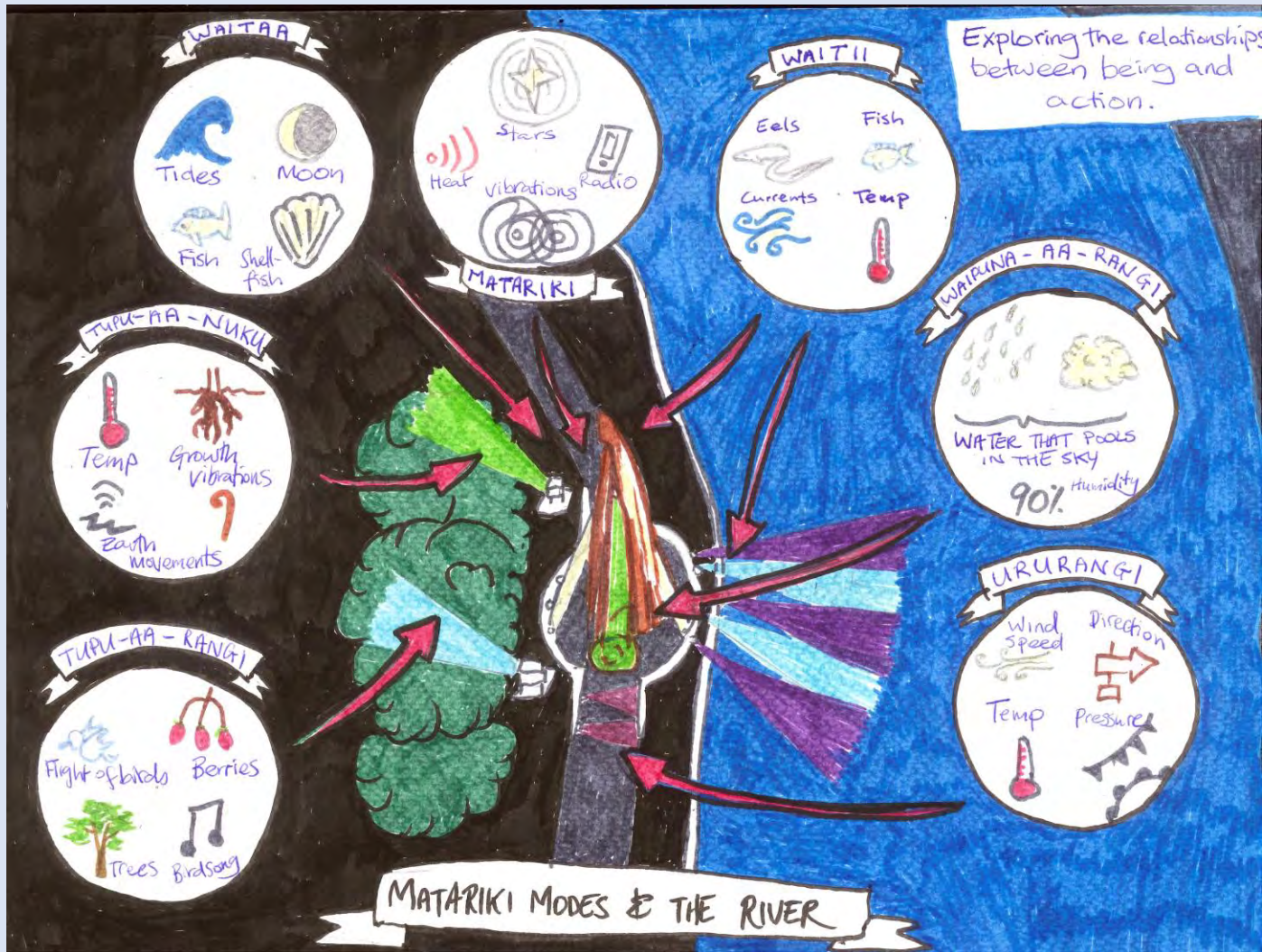


Early designs - inspired by *Te Winika*

Interest in Matariki – synergy with research

- *Research interest in agential realism*
“Matter is not a ‘thing’ as a fixed entity – it intra-actively becomes – not a thing but a doing. It “refers to phenomena in their ongoing materialization.” (Barad, 2007: 151)
- *Early conversation with Tame Pokaia led me to think about Matariki – start of Māori new year*
- *Later conversations: importance of Matariki to Kingitana, Waikato-Tainui, and relevance of individual stars (Mother and her 6 daughters)*





Seven stars of Matariki

- Act as 'portals' to different aspects of the interconnected environment
- Decision to align these with an Internet of Things network (environmental sensors)
- IoT relates to sound and lighting interactivity
- Not humancentric – humans are part of the universe we seek to understand (Barad, 2007)

Early concept sketch – back when I had far too much time on my hands!

Pākehā attempting to work in a kaupapa Māori methodology

- Partnership with Wintec Māori Achievement Office
- Kaupapa is to embed Māori Achievement capability framework into real-world student learning
- Already existing framework – emphasis on myself to change the way I work
- Kaupapa is about transformational change – a ‘whole of organisation’ approach
- ***How things are done as important as what is done***

GROW YOUR SKILLS

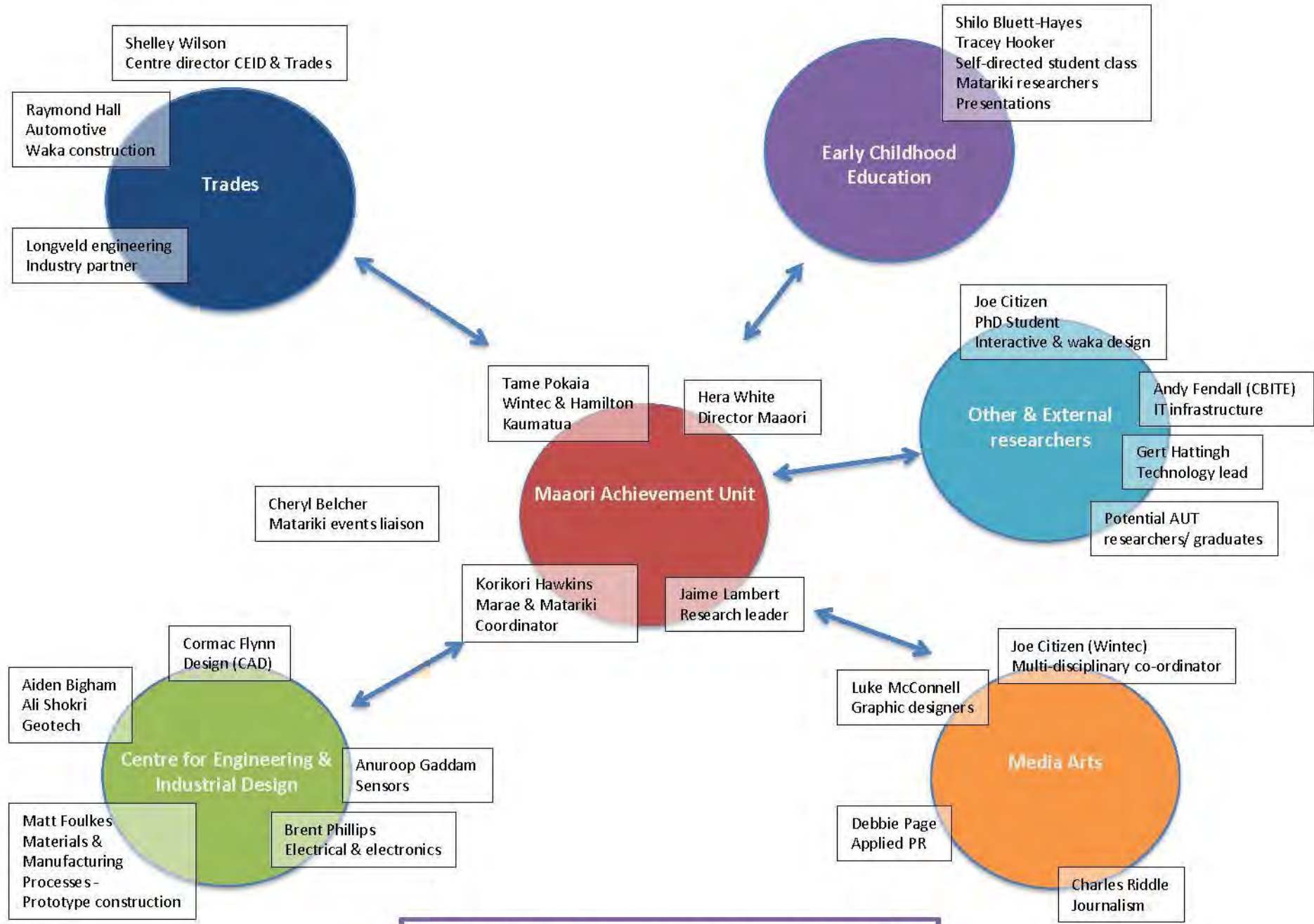
FIVE KEY FOCUSES FOR GREATER MĀORI ACHIEVEMENT:

Te Reo	Māori language and pronunciation
Tikanga	Māori cultural practices and etiquette
Te Tiriti	Understanding the Treaty of Waitangi and how it applies at Wintec
Ako	Māori teaching and learning pedagogies
Ahurea	Māori culture and society

Te Ngāwhā Whakatupu
Māori and Pasifika Educational Success

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Wintec
WAIKATO INSTITUTE OF TECHNOLOGY
Te Karanga o Waikato



Matariki waka – project partnerships

Whakawhanaungatanga



- *BBQ at Wintec's Rotokauri campus in early 2017 aimed to get everyone involved to meet each other*
- *Opportunity to introduce the aims and goals of project*
- *Undertaking blessed at the start by Tame Pokaia*



Student contribution - 2017



MATARIKI

THE CREATION

Matariki is a cluster of stars that can be seen from the beginning of June signifying the start of a Māori new year. Papatūānuku the earth mother and Ranginui the sky were separated by the strongest of their offspring Tane Mahuta, who is god of birds and trees. Tane Mahuta positioned himself in between his mother and father pushing them apart, thus creating light from what was once darkness. From then on Atua Māori (Māori gods) were free to explore, create and grow. Upon hearing of this news, Tawhīhīmaetia, god of the wind became so enraged that he ripped out his own eyes and threw them into the skies creating the whanau of Matariki. Matariki is made up of a cluster of seven stars. Together these stars represent the teachings of old and revitalise the new.

Matariki, the mother and her six daughters return each year to pay their respects to their kua, pass on their knowledge and to help prepare for the new year to come. Each of Matariki's daughters hold a crucial role in replenishing the teachings of Papatūānuku.

Tupu-aa-nuku returns to replenish the plants and rongoa of the forest. **Tupu-aa-rangi** celebrates this time and sings to enhance the revival of the all creatures, big and small, those which are the children of Tane Mahuta. **Wai-punga-aa-rangi** is the daughter of giving. She passes on her knowledge of Tangaroa (god of the sea) by providing food for others, she protects the essence of life, the lakes, oceans and rivers that flow through Aotearoa.

Whiti and **Whaitae** are twins, they take care of all of the tiny creatures that belong to Papatūānuku. They represent working together as a team and supporting each other (Museum of New Zealand Te Papa Tongarewa, 2015).

Uru-aa-rangi is the youngest of her sisters, she has a keen attitude to learn inspired by her kua to keep teaching.

Matariki is the mother, always seen to be directing, inspiring and encouraging while still taking care of all her children.

The guidance of Matariki has been passed down for hundreds of years, with each generation discovering the importance of reflecting on 'where you stand and who you are in this moment in time'.

By students Te Mania Kereopa and Jaimes Stevens
Wintec, Bachelor of Education (Early Childhood Education Programme)

Museum of New Zealand Te Papa Tongarewa. (2015, July 29). Matariki and the six sisters - story by Ngāi, Tia. Retrieved from <http://www.tepapamuseum.govt.nz/matariki>

MATARIKI

THE SEVEN STARS

There was once a man named Mital who had seven brothers, one day they were out hunting on their land, when they heard a wahine being sung in the distance.

They decided to follow the noise and they found seven bewitching wahine singing a beautiful waiata. Seven of the brothers were so entranced by their beauty and voices, that they married the wahine and brought them home. Mital was not bested as his brothers were. Soon after the brothers and the wahine got married, the brothers started to change. They were no longer hunting or eating, so they turned from fit, handsome men to weak and fragile, the seven brothers took no notice of the change in their appearance. The wahine demanded that they would only eat seafood.

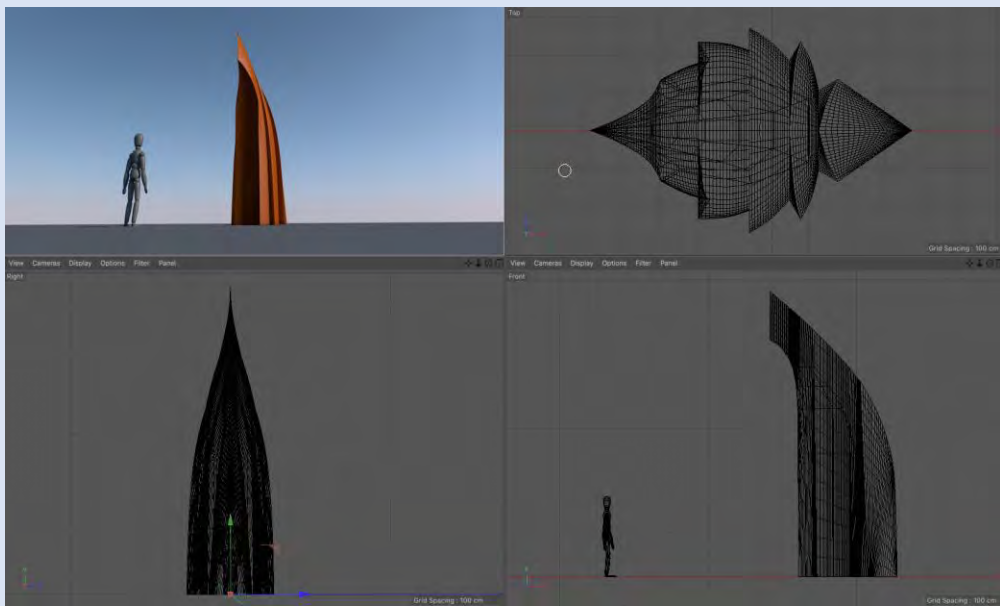
Mital started questioning what was happening to his brothers and decided to follow the wahine into the forest. Mital noticed seven birds perched up on a branch, they then suddenly turned into the seven wahine. Mital overheard the wives plan to malnourish Mital's brothers. Mital then flew back to warn his brothers of their wives plan. All eight brothers went to talk to their Koro, who helped them come up with a cunning plan to trap their wahine and send them away. The seven brothers trapped their wahine and Mital then turned into a giant albatross, delivered the wahine to Uru-te-ngangana, the God of the stars.

The wahine were then thrown to the far end of the sky, where their beauty can only be seen once a year, this time of the year is now known as Matariki.

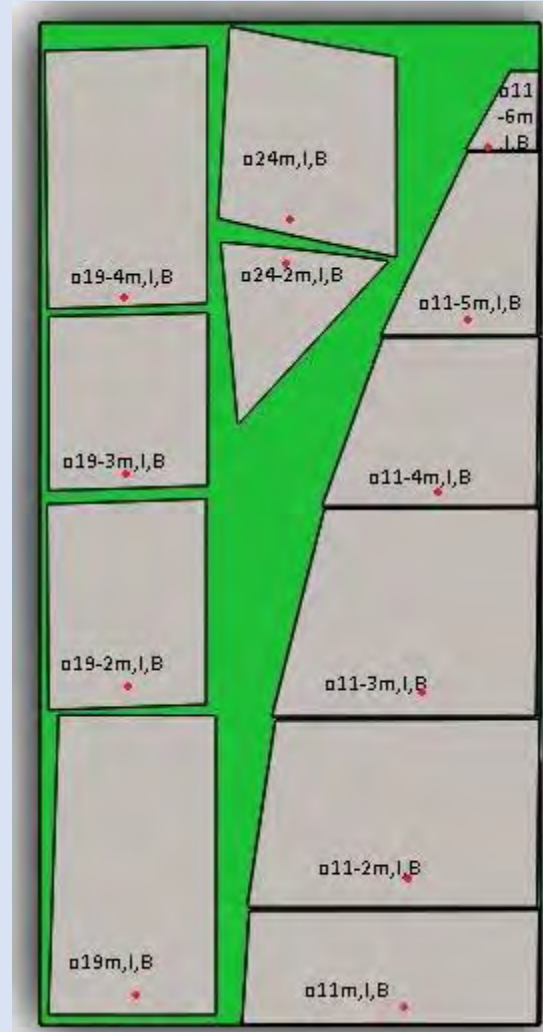
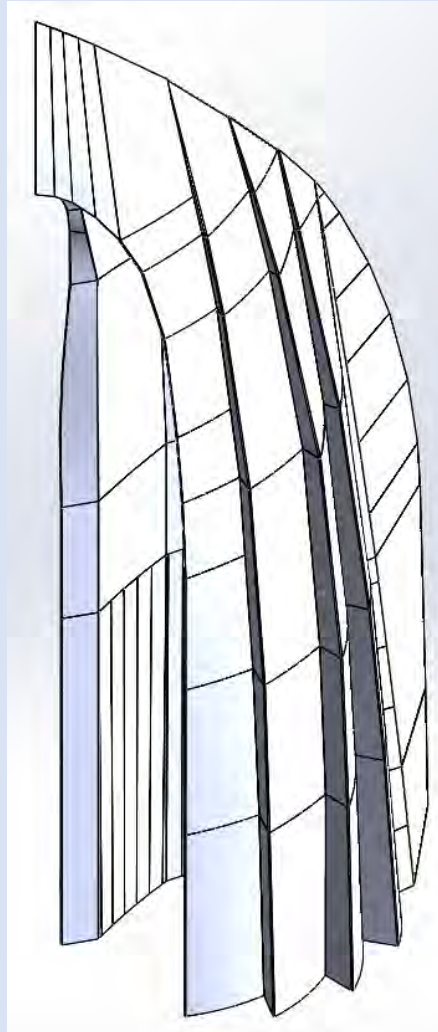
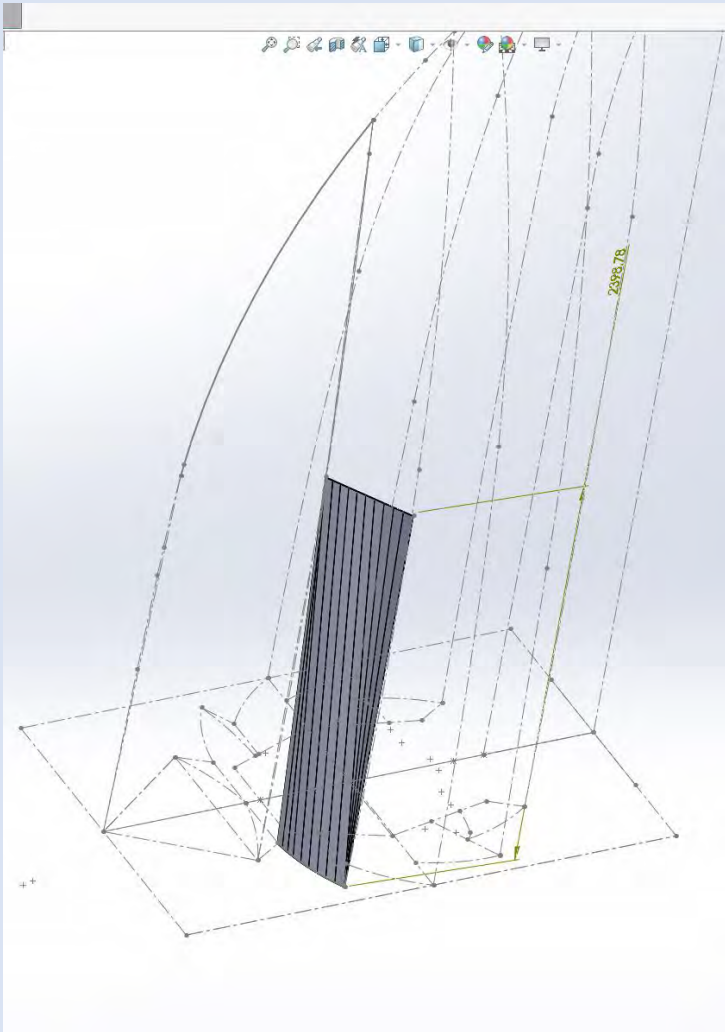
Sara Kingsbeer, Kayla Jackson & Sophie Taurua
Wintec, Bachelor of Teaching (Early Childhood Education Programme)

wickhamel. (2010, June 29). Seven Stars of Matariki read by the author. Tani. Retrieved from <https://www.youtube.com/watch?v=9g7eUdRk1kU>





Student – Industry engagement

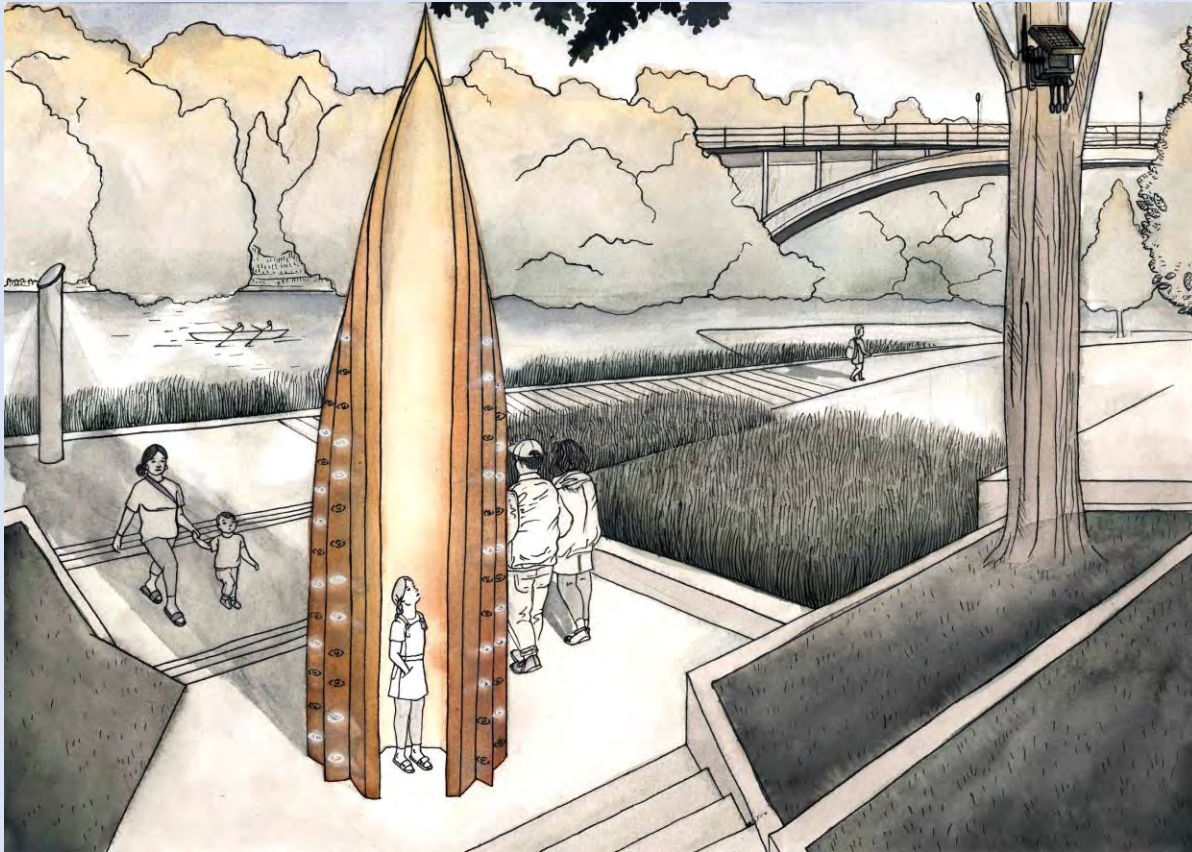


Original platework by Tully Billett

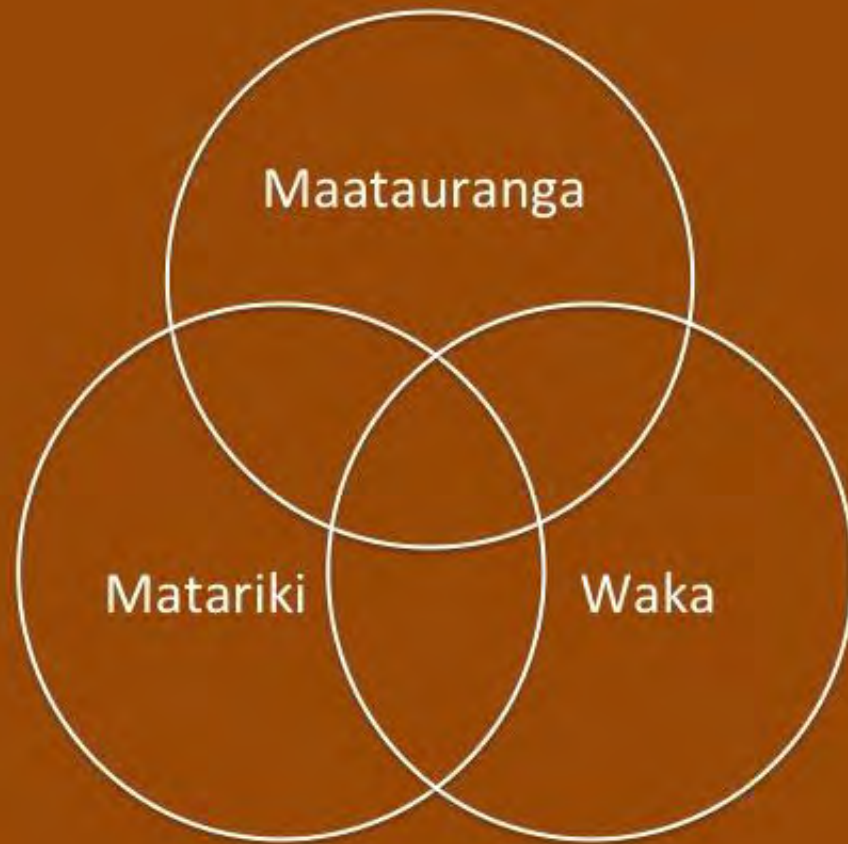


3D Model by Jemoal Lassey (Longveld)

Pre-visualisation: An essential resource



Original illustrations by Juliann Smith



*Kaupapa thinking: Intersections and overlaps
found in the Matariki Interactive Waka project*

Working out our process

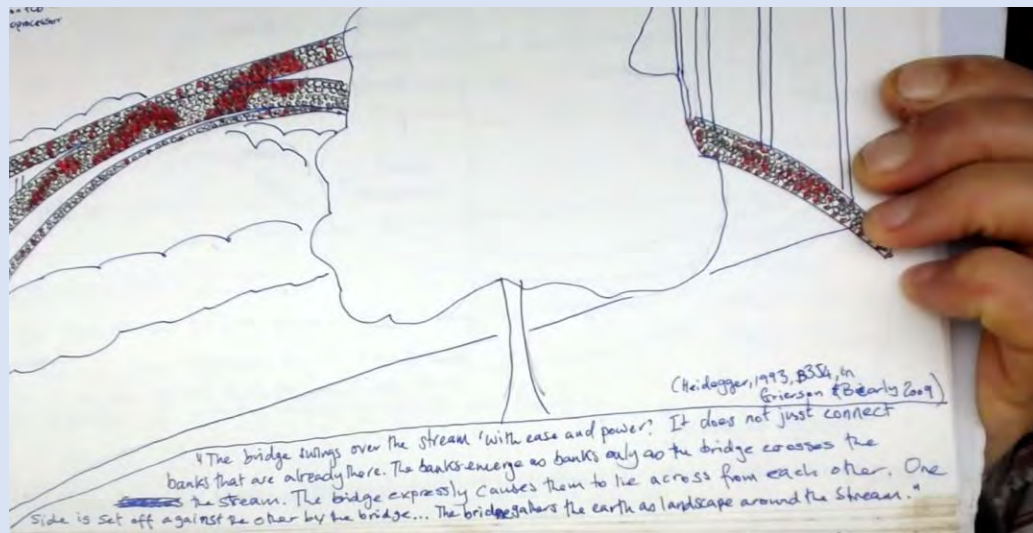
- Working with Kaumatua Tame Pokaia and Director Māori Hera White meant following their lead
- My roles were related to 'waka' – not 'things Māori'
- Listening is an action!
(Not a 'passive' perception)

And in the background ... Theory!

If an extension of Heidegger's original conception included the consciousness of nonhumans, then existing Western metaphysics has the means by which it might be able to engage with Māori knowledge of how whakapapa operates. This would most likely require relinquishing Heidegger's insistence on human exceptionalism, a point taken up by Carl Mika (2017) in his discussion of indigeneity and being:

As indigenous peoples, when we think, we are in fact giving some acknowledgement to Being. Being in its own right is evocative, and it draws the indigenous self on to ponder it, regardless of whether it is a conscious thing in a discussion. This proposition about Being is Heideggerian but only partially so, because unlike Heidegger's earlier ideas of Being it relies on a fundamental decision that Being is a force substantially within things, drawing out of power and place. Curiously, though, Being takes place throughout the world, whether thought about or otherwise.

Mika, 2017: 39



End 2017 – substructure completed at Longveld



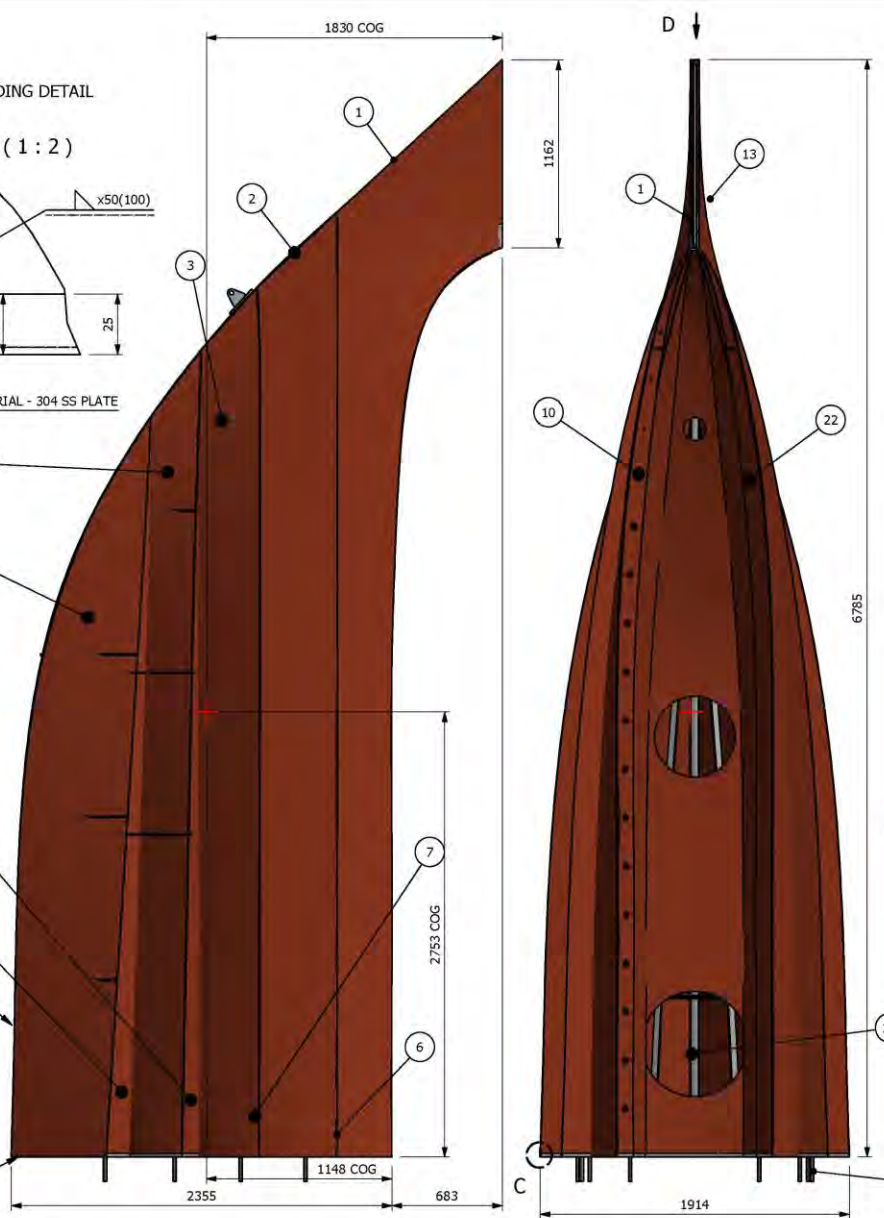
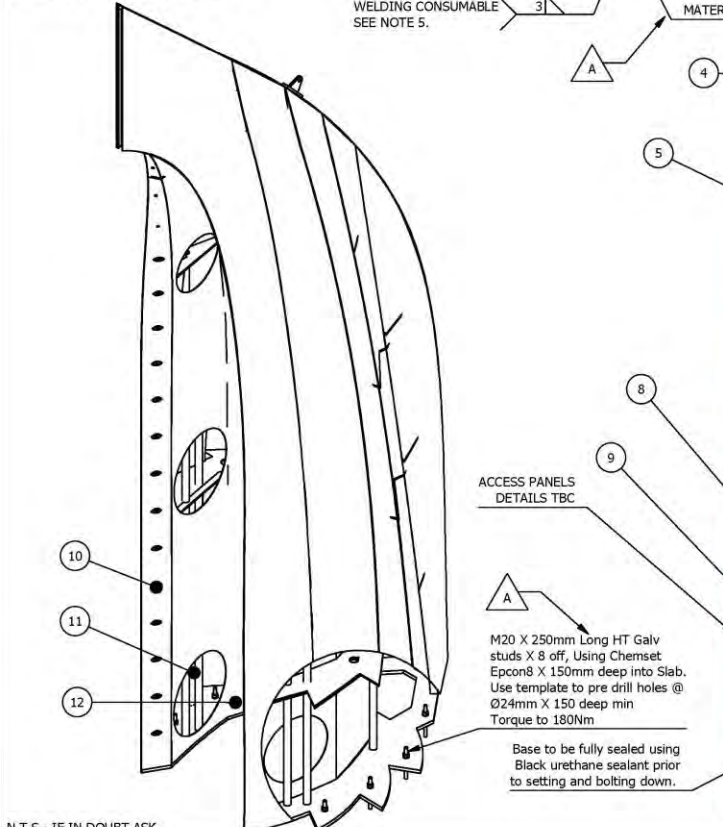
NOTES:

1. WELDING AS PER **AS/NZS 1554.1**
2. ALL BURRS AND SHARP EDGES TO BE REMOVED
3. ALL OUTER SLIN MATERIAL **3mm COR-TEN WEATHERING STEEL**
4. ALL SUB FRAME MATERIAL - **304 SS**. SEE SHEET 2 FOR DETAILS.
5. WELD SYMBOLS AS PER **AS 1101.3-2005**
6. WELDING CONSUMABLES:
COR-TEN to COR-TEN LINCOLN: LNM28 (or similar) - SOLID MIG WIRE 1% Ni&Cu
COR-TEN to STAINLESS: USE 309 GRADE SS
7. INTERNAL WELDS TO BE CONTINUOUSLY STITCHED 50(100), WHERE PRACTICAL.
8. EXTERNAL WELDS TO BE GROUND AS FOLLOWS:
EXT CORNER WELDS FULLY GROUND.
INT CORNER WELDS REMOVED WHERE PRACTICAL.

DESIGN CODES:

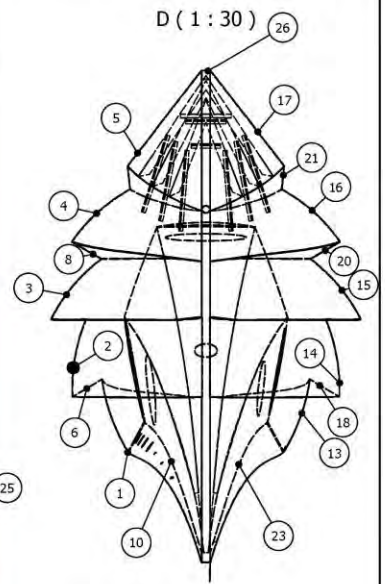
STRUCTURAL: **NZS 3404.1:2009**
 SEISMIC: **NZS 1170.5:2004**
 WIND LOADING: **NZS 1170.2:2011** (2.43kPa, Siesmic coefficient = 0.3)

LOCATION - HAMILTON CITY, WAIKATO.
 ESTIMATED TOTAL WEIGHT: 1830 KG



PARTS LIST

ITEM	DESCRIPTION	PART NUMBER	ITEM QTY
1	CORTEN SHEET	L1	1
2	CORTEN SHEET	L2	1
3	CORTEN SHEET	L3	1
4	CORTEN SHEET	L4	1
5	CORTEN SHEET	L5	1
6	CORTEN SHEET	L1A	1
7	CORTEN SHEET	L2A	1
8	CORTEN SHEET	L3A	1
9	CORTEN SHEET	L4A	1
10	CORTEN SHEET	L11	1
11	CORTEN SHEET	L12	1
12	CORTEN SHEET	L13	1
13	CORTEN SHEET	R1	1
14	CORTEN SHEET	R2	1
15	CORTEN SHEET	R3	1
16	CORTEN SHEET	R4	1
17	CORTEN SHEET	R5	1
18	CORTEN SHEET	R1A	1
19	CORTEN SHEET	R2A	1
20	CORTEN SHEET	R3A	1
21	CORTEN SHEET	R4A	1
22	CORTEN SHEET	R11	1
23	CORTEN SHEET	R12	1
24	CORTEN SHEET	R13	1
25	CORTEN SHEET	M11	1
26	CORTEN SHEET	Spine2	1
27	M20 A2-SS Threaded Rod	-	8
28	Metric Plain Washers	M20	8
29	Heavy Hex Nut	M20 x 2.5	8



N.T.S - IF IN DOUBT ASK.

FABRICATING TOLERANCES UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS TO WHOLE MILLIMETER ± 0.4mm
 DIMENSIONS TO ONE DECIMAL PLACE ± 0.1mm
 DIMENSIONS TO TWO DECIMAL PLACES ± 0.05mm
 ANGULAR TOLERANCE ± 0.5 DEGREE

FABRICATION TOLERANCE:
 0 - 1000mm ± 0.5mm
 + 1000mm ± 1.0mm U.F.I.G.

PROJECTION: THIRD ANGLE PROJECTION

REVISION HISTORY

REV	DESCRIPTION	DATE	APPROVED
A	Int now SS, Hold down bolts now M20	23/08/2017	
B	AS BUILT MARK UPS	10/07/2018	J.LASSEY
C	Added 25X5 EA Supports	13/07/2018	J.LASSEY

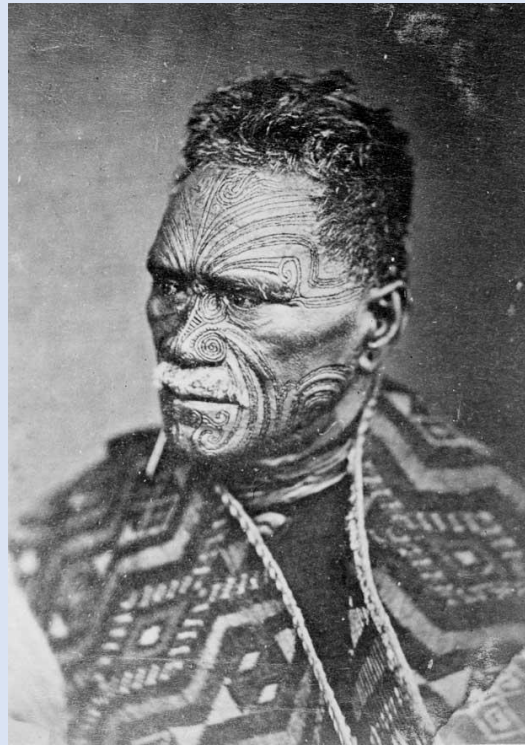
LONGVELD
wairua > our binding spirit

153-157 Ellis St, Frankton, PO Box 5538, Hamilton 3242, New Zealand

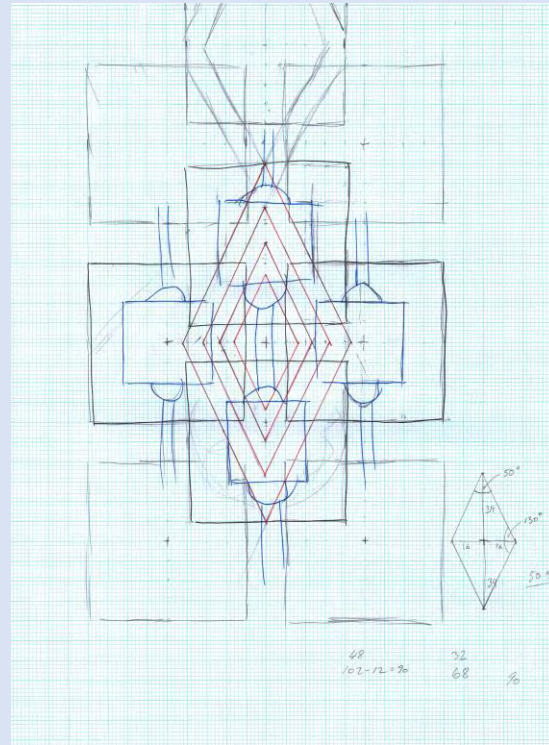
TITLE JOE CITIZEN MATARIKI WAKA		DRAWN J.Lassey	DATE 16/08/2017
CLIENT WINEC		CHECKED BY	DATE
DESCRIPTION GENERAL ASSEMBLY DRAWINGS		APPROVED	DATE
DRAWING NO. 21620-Waka_A01-1	SHEET NO. 1	REVISION C	

Hui with mana whenua

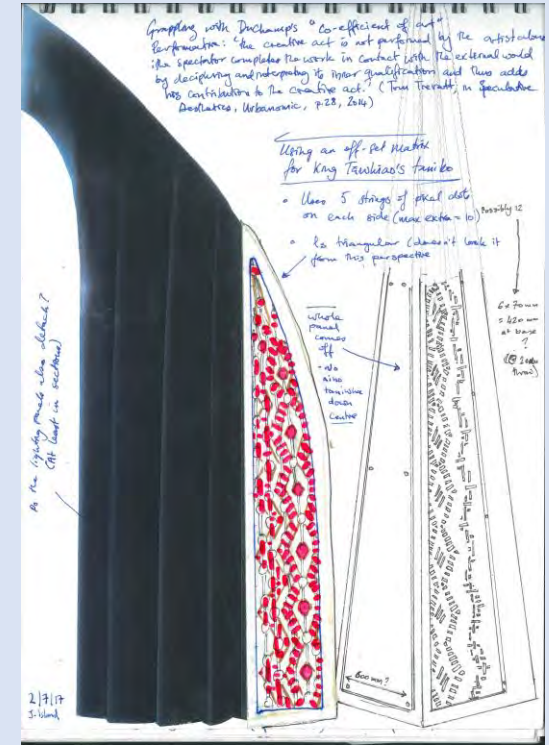
- Wiremu Puke (Ngāti Wairere) made a number of suggestions, including that the waka should have the tāniko (embroidered hem of cloak) of King Tāwhiao on it's keel
- Decision to include it into the lighting design – relationship between LEDs and pattern
- Material difficulties: from embroidery to 3mm weathering steel perforations



Kingi Tāwhiao

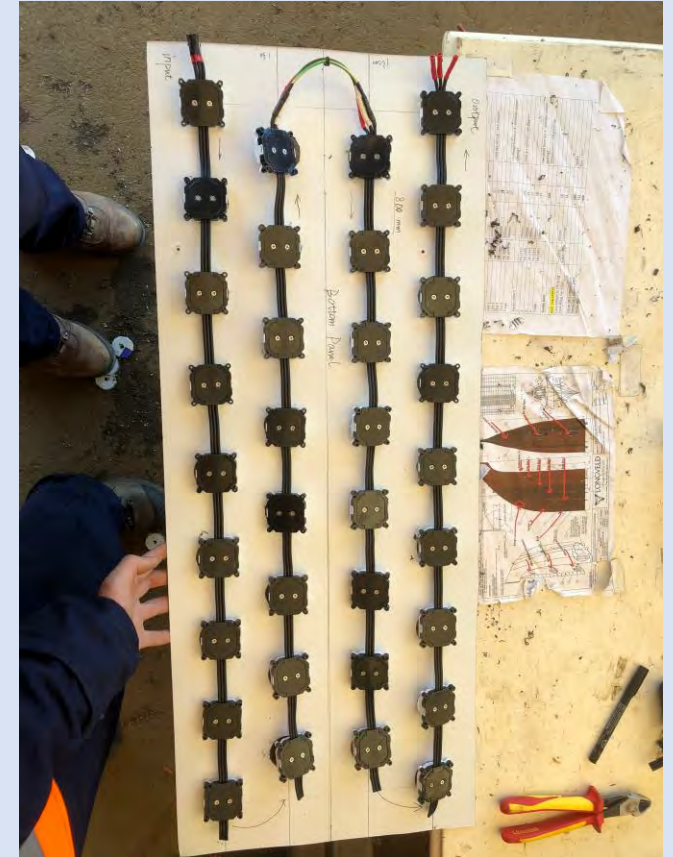
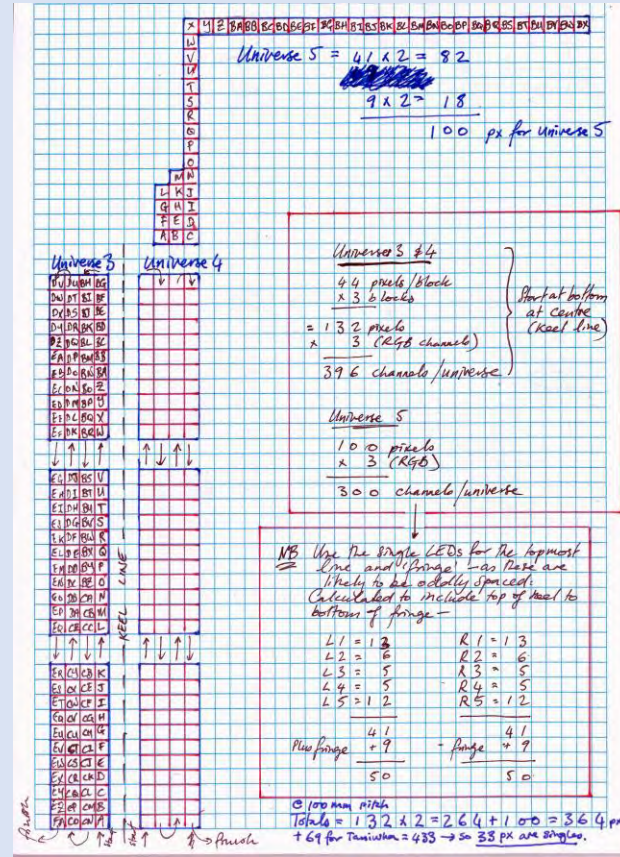
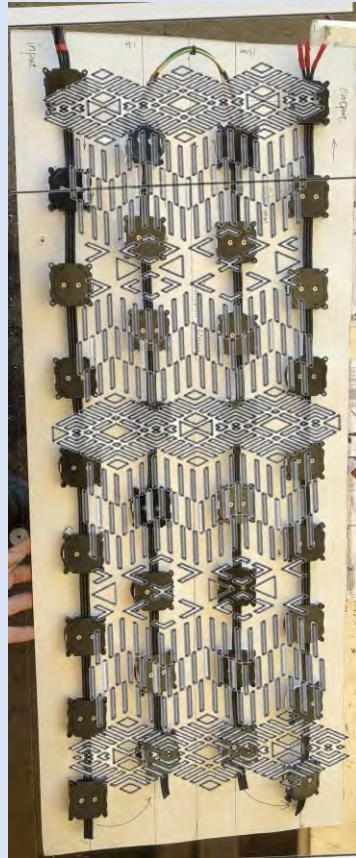


Tāniko embroidered hem to light pattern

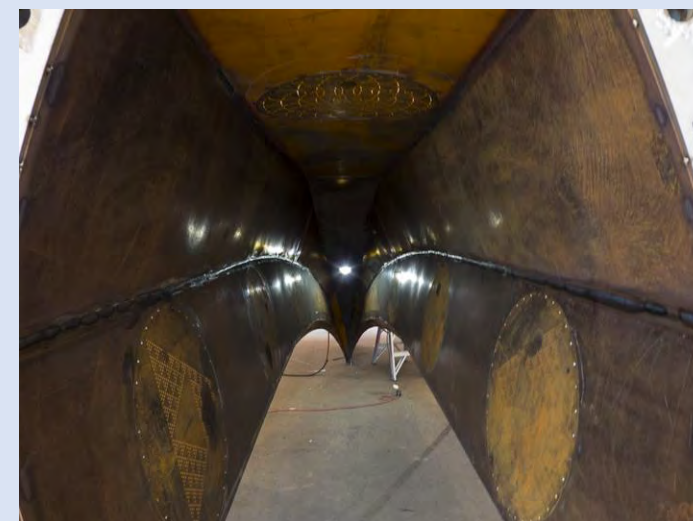
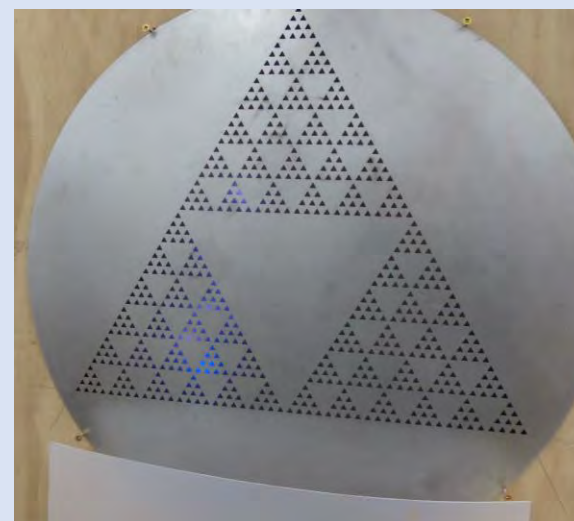
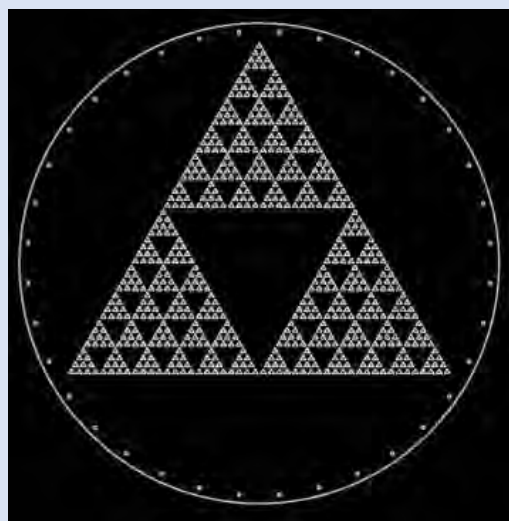
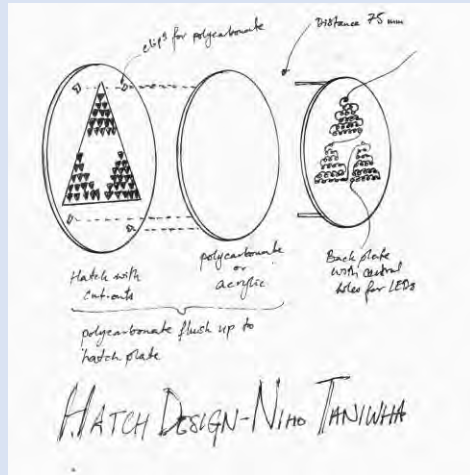


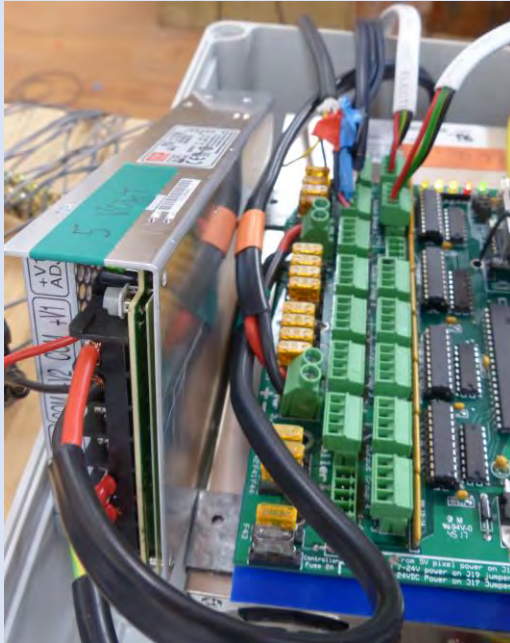
Flat surface to curved

From prototyping to installation – everything is interconnected



'Things' as mutually co-constituted and continuously emerging phenomena (after Barad, 2007)





SanDevices SACN/E1.31/Art-Net RGB Pixel Controller Model E682

System Information:

IP Address	Subnet Mask	MAC Address	Up-Time	Receive Mode	Timeout	Test Pattern	Gamma Value
192.168.1.206	255.255.255.0	4A:49:4D:26:67:4B	0000:18:28	<input type="radio"/> Multicast E1.31 <input checked="" type="radio"/> Unicast E1.31 <input type="radio"/> Art-Net	0	0	1.0

Firmware Version: 4.081 Firmware update status: None Tried [Update Firmware](#)

Universe Selection and Packet Statistics:

Universe	Multicast, Unicast or Art-Net Universes						Unicast or Art-Net Only Universes						
	1	2	3	4	5	6	7	8	9	10	11	12	
Packets Received	44478	44478	44478	44478	0	0	0	0	0	0	0	0	0
Sequence Errors	0	0	0	0	0	0	0	0	0	0	0	0	0
Invalid Packets	0	0	0	0	0	0	0	0	0	0	0	0	0

Output Configuration:

Outputs	In Use	Output Type	Length Pixels	Group Size	Color Order	Start Address		End Address		Reverse				Zigzag				Null Pixels				Refr. Rate
						Universe	Channel	Universe	Channel	1	2	3	4	Every	1	2	3	4				
1-1 to 1-4	4	DMX	170	1	RGB	1	1	4	510												47	
2-1 to 2-4	4	DMX	170	1	RGB	5	1	8	510												47	
3-1 to 3-4	4	DMX	170	1	RGB	9	1	12	510												47	
4-1 to 4-4	4	DMX	170	1	RGB	4	271	8	270												47	

[REFRESH PAGE](#)
[RESTART CONTROLLER](#)
 0 [SYSTEM COMMAND](#)



Considering digital and tangible on the same metaphysical spectrum (Citizen, 2019, forthcoming)

Maramataka modifiers – ‘star modes’ determined by multiple live environmental factors

MODIFIERS: Add to averaged percent	MATARIKI MODE: <i>Values turned into percentages which are averaged into total percent Where 100% is highest known value & 0% is lowest known value</i>	WAIPUNA-AA-RANGI MODE: <i>Values turned into percentages which are averaged into total percent Where 100% is highest known value & 0% is lowest known value</i>
	Ultra Violet light Presence of mobile phones in area via Meshlium scanner Presence of heat sources in immediate areas via FLiR thermal sensors Number of Matariki Waka website hits per hour	Humidity Rain as volume per hour Volume (sound & frequency values) of rain hitting waka Temperature of top of waka structure
<i>Pipiri</i> - starts with appearance of Matariki, until duration of lunar cycle? May - June	+20	
<i>Hoongoongoi</i> June - July	+ 10	+ 10
<i>Hereturikookaa</i> July - August		+ 15
<i>Mahuru</i> August - September		+ 10
<i>Whiringa-aa-nuku</i> September - October		+ 5
<i>Whiringa-aa-rangi</i> October - November		
<i>Hakihea</i> November - December		
<i>Kohitaatea</i> December - January		
<i>Hui Tanguru</i> January - February		
<i>Poutuuterangi</i> February - March		

The screenshot shows a Visual Studio window titled "Waka.Azure.Functions - Microsoft Visual Studio" running on a Windows 10 virtual machine. The code editor displays the following C# code in the file "WakaCommon.cs":

```
58     "Hoongoongoi",
59     "June - July", 10, 0,
60     (t) => NZSTDateTimeOffset.Month == 6));
61
62     ruleSets[MatarikiWakaStarMode.Matariki].Add(new MatarikiWakaStarModeRule(
63         "Whiro Onwards",
64         "Nights of the new moon to quarter moon", 5, 0,
65         (t) => LunarUtilities.CalculateMoonAge(NZSTDateTimeOffset.DateTime) <= LunarUtilities.MoonAge.FIRST_
66
67     ruleSets[MatarikiWakaStarMode.Matariki].Add(new MatarikiWakaStarModeRule(
68         "Te Ngahuru / Hune",
69         "Tenth day after start of lunar cycle", -20, 0,
70         (t) => LunarUtilities.CalculateMoonAge(NZSTDateTimeOffset.DateTime) >= 10 && LunarUtilities.Calculat
71
72     ruleSets[MatarikiWakaStarMode.Matariki].Add(new MatarikiWakaStarModeRule(
73         "Te Ngahuru / Hune",
74         "Nights between quarter moon to full moon", -5, 0,
75         (t) => LunarUtilities.CalculateMoonAge(NZSTDateTimeOffset.DateTime) > LunarUtilities.MoonAge.FIRST_C
76
77     ruleSets[MatarikiWakaStarMode.Matariki].Add(new MatarikiWakaStarModeRule(
78         "Te Ngahuru / Hune",
79         "Nights of full moon", 10, 0,
80         (t) => LunarUtilities.CalculateMoonAge(NZSTDateTimeOffset.DateTime) == LunarUtilities.MoonAge.FULL_M
```

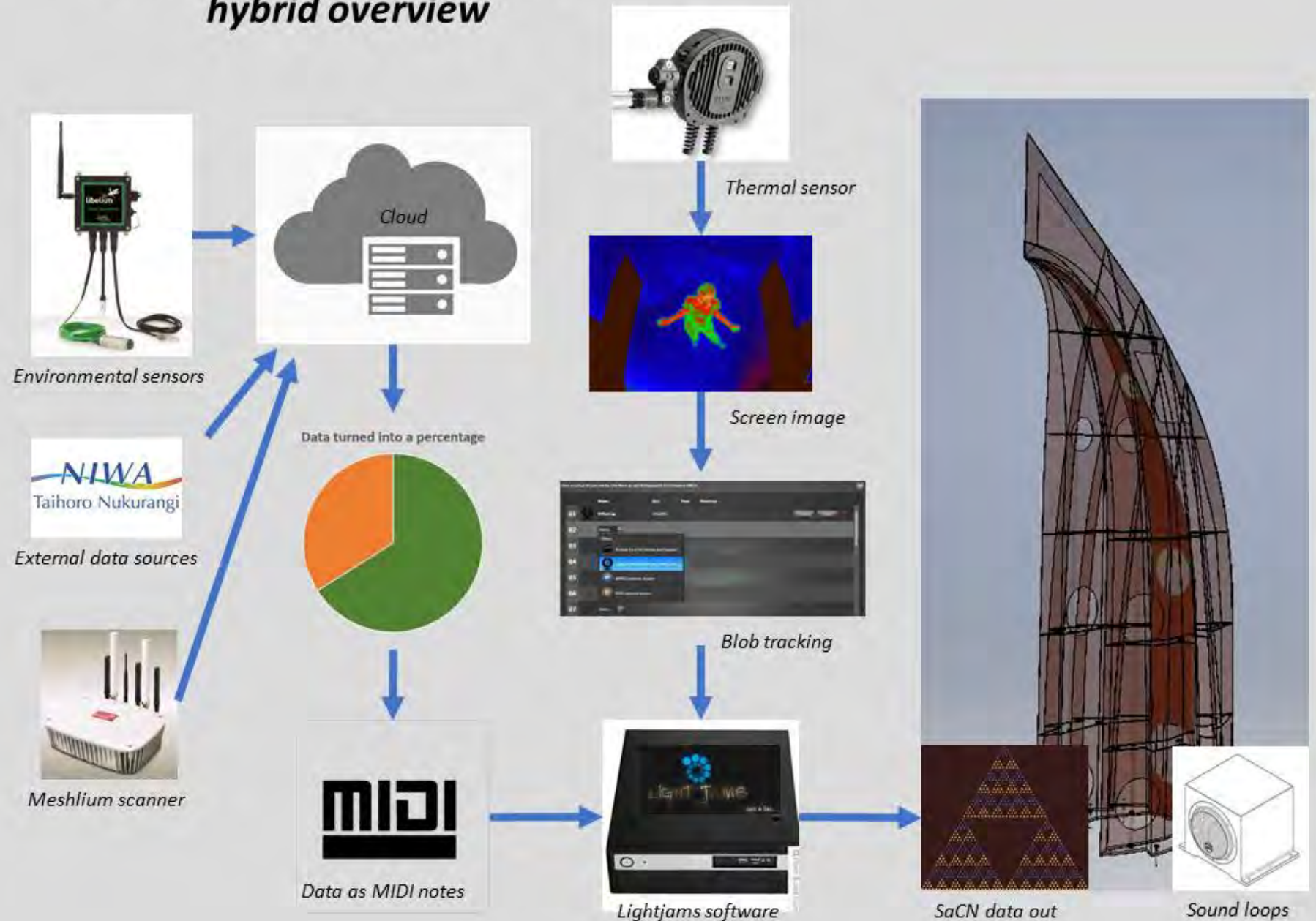
The code uses the `LunarUtilities` library to calculate moon phases and integrate them into the 'star mode' decision-making process. The code is currently at line 80, column 13. The status bar at the bottom shows the file is named "waka-azure-functions" and is on the "master" branch.

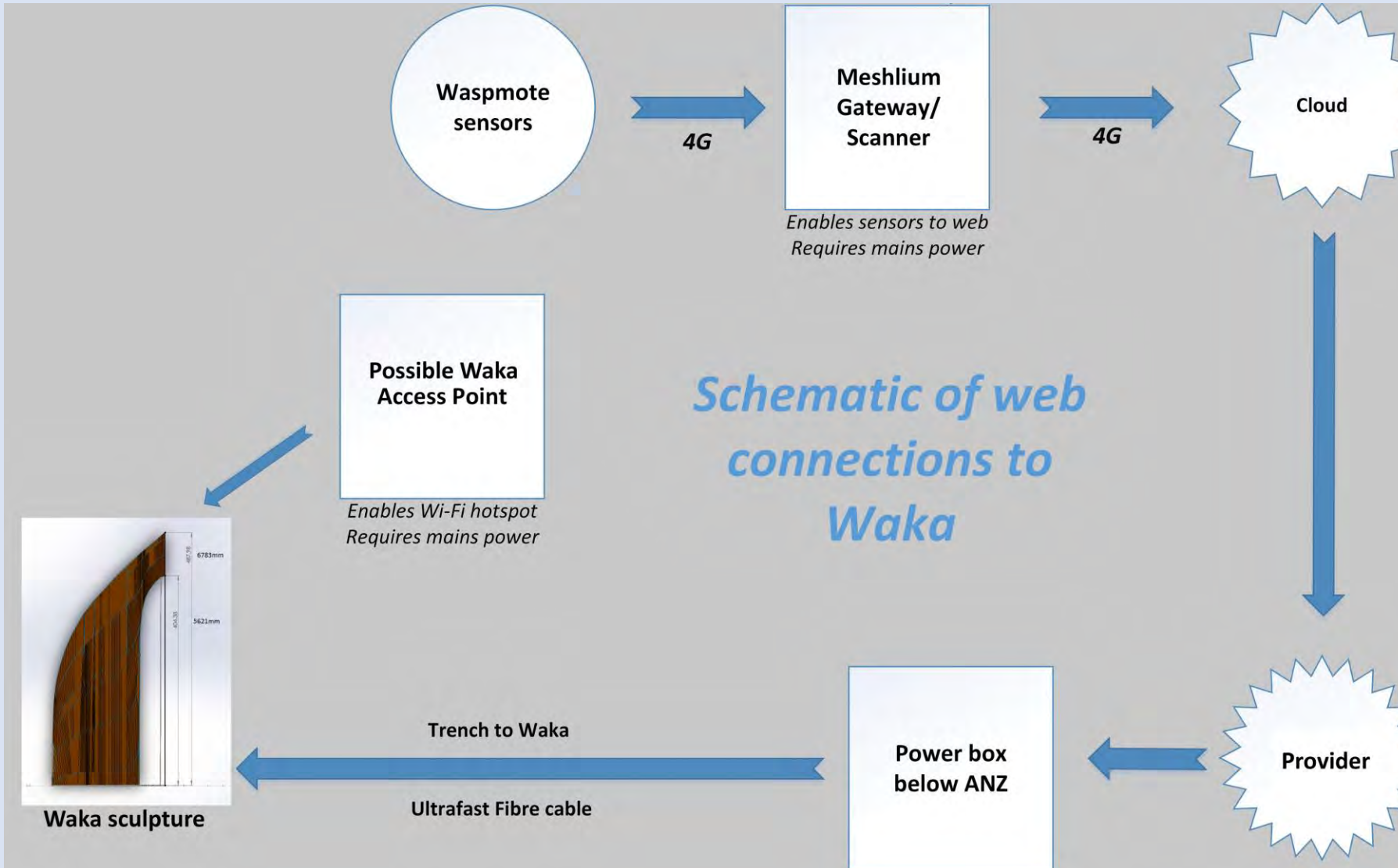
Incorporating the lunar calendar into 'star mode' decision making process.
IT architecture by Jordan Templeton – Aware Group.

Sensors to sound and light hybrid overview

Mid 2018

But quite a lot changed from here – smaller PC, used DMX not MIDI, used Microsoft Azure for Cloud platform...



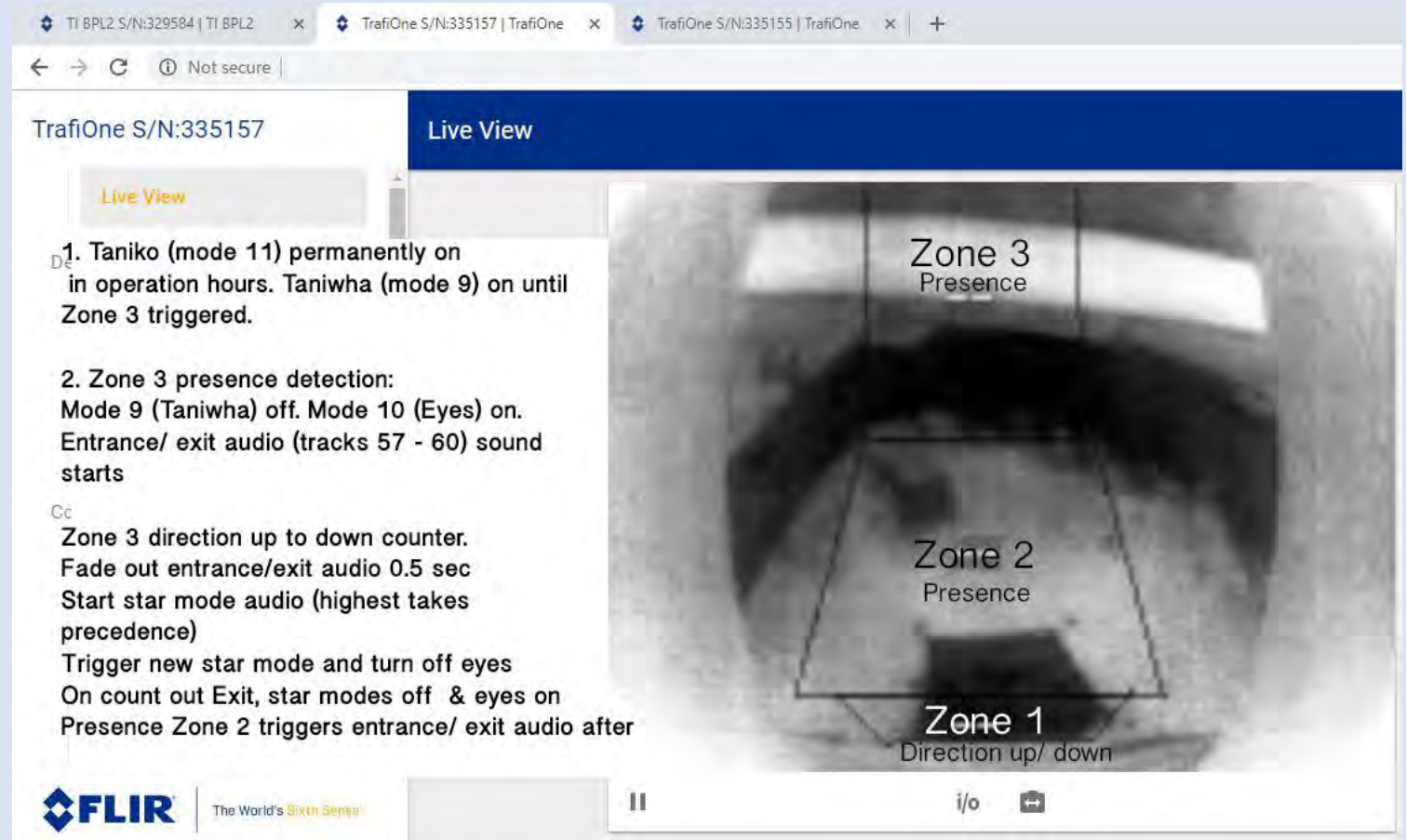


Sept 2018

But a plan is 'a basis for change' – this too needed a little alteration..

“It is not ‘a body’ as a thing, but embodiment as incipient activity. Embodiment is a continuously emergent and active relation. It is our materialization and articulation, both as they occur and as they are about to occur. Embodiment is moving-thinking-feeling, it is the body’s potential to vary, it is the body’s relations outside. And embodiment, I contend, is what is staged in the best interactive art.”

(Stern 2013: 2)



Thermal imaging sensors used to create particular zones of activity

```
[09:26:11 INF] [SCENE] Transitioning from 'Zone 3' to 'Default - No Occupancy'
[09:26:11 INF] [SCENE] Skippable: True Duration: 299.998153(s) Expiry: 6/12/2018 9:31:11 AM +13:00
[09:26:11 INF] [MULTIDAP] Fading volume to 0 over 0.5s
[09:26:11 INF] [MULTIDAP] Playing track 0
[09:26:11 INF] [MULTIDAP] Fading volume to 0 over 0.5s
[09:26:12 INF] [SACN] Updating universe 1...
[09:26:12 VRB] [SACN] [0, 0, 0, 0, 0, 0, 0, 0, 255, 0, 255, 0, 0, 0, 0, 0, 0, 0, 0]
[09:26:12 INF] [SACN] Updating universe 2...
[09:26:12 VRB] [SACN] [162, 152, 4, 0, 18, 91, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 127, 0]
[09:26:12 INF] [SACN] Updating universe 3...
[09:26:12 VRB] [SACN] [255, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
[09:26:12 INF] [SCENE] Transition complete.
[09:26:57 VRB] [FLIR] {"Time":"2018-12-05T20:27:17.333+00:00","Type":"PedestrianPresence","Level":0,"ZoneId":2,"BeginEventNumber":0,"EventNumber":26322,"State":"Begin","MessageType":"Event"}
[09:26:57 INF] [FLIR] [1]: 0, [2]: 1, [3]: 0
[09:26:57 INF] [SCENE] Transitioning from 'Default - No Occupancy' to 'Zone 2 - Entrance'
[09:26:57 INF] [SCENE] Skippable: True Duration: 143.9982504(s) Expiry: 6/12/2018 9:29:21 AM +13:00
[09:26:57 INF] [MULTIDAP] Fading volume to 0 over 0.5s
[09:26:57 INF] [MULTIDAP] Playing track 58
[09:26:57 INF] [MULTIDAP] Fading volume to 100 over 0.5s
[09:26:58 INF] [SACN] Updating universe 1...
[09:26:58 VRB] [SACN] [255, 0, 0, 0, 0, 0, 0, 0, 255, 255, 0, 0, 0, 0, 0, 0, 0, 0, 0]
[09:26:58 INF] [SACN] Updating universe 2...
[09:26:58 VRB] [SACN] [162, 152, 4, 0, 18, 91, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 127, 0]
[09:26:58 INF] [SACN] Updating universe 3...
[09:26:58 VRB] [SACN] [255, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
[09:26:58 INF] [SCENE] Transition complete.
[09:26:58 VRB] [FLIR] {"Time":"2018-12-05T20:27:18.587+00:00","Type":"PedestrianPresence","Level":0,"ZoneId":1,"BeginEventNumber":0,"EventNumber":26323,"State":"Begin","MessageType":"Event"}
[09:26:58 INF] [FLIR] [1]: 1, [2]: 1, [3]: 0
[09:26:58 INF] [SCENE] Transitioning from 'Zone 2 - Entrance' to 'Zone 1 - Star Mode (Ururangi)'
[09:26:58 INF] [SCENE] Skippable: False Duration: 158.9980259(s) Expiry: 6/12/2018 9:29:37 AM +13:00
[09:26:58 INF] [MULTIDAP] Fading volume to 0 over 0.5s
[09:26:58 INF] [MULTIDAP] Playing track 10
[09:26:58 INF] [MULTIDAP] Fading volume to 100 over 0.5s
[09:26:59 INF] [SACN] Updating universe 1...
[09:26:59 VRB] [SACN] [0, 0, 255, 0, 0, 0, 0, 0, 0, 0, 255, 0, 0, 0, 0, 0, 0, 0, 0]
[09:26:59 INF] [SACN] Updating universe 2...
[09:26:59 VRB] [SACN] [162, 152, 4, 0, 18, 91, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 127, 0]
[09:26:59 INF] [SACN] Updating universe 3...
[09:26:59 VRB] [SACN] [255, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
[09:26:59 INF] [SCENE] Transition complete.
[09:27:03 INF] [AZUREIOTHUB] Uploading 1 telemetry event(s)
[09:27:04 INF] [AZUREIOTHUB] Upload complete
[09:27:04 INF] [AZUREIOTHUB] Waiting for message...
[09:27:08 VRB] [FLIR] {"Time":"2018-12-05T20:27:28.502+00:00","Type":"PedestrianPresence","Level":0,"ZoneId":1,"BeginEventNumber":26323,"EventNumber":26324,"State":"End","MessageType":"Event"}
```

Zone activations - custom software by Jourdan Templeton (Aware Group)

Star modes and their sensors

Star	Sensors
Matariki	UV light (waspmote), Number of mobile phones in area (meshlium), Number of heat sources in field of view (flir thermal camera)
Ururangi	Wind speed (waspmote), Air temperature (waspmote), Air pressure (waspmote), Wind direction (waspmote) (8 values: N, NE, E, SE, S, SW, W, NW)
Waitii	River temperature (WRC), River volume (WRC), Turbidity (lawa.org.nz), River speed (lawa.org.nz)
Waitaa	Lunar phase (8 values), Ocean temperature (Port Waikato), Tidal coefficient (PW), High tide height (PW), Lunar activity (PW)
Waipuna-aa-rangi	Rainfall (waspmote), Air temperature (waspmote), Humidity (waspmote)
Tupua-aa-rangi*	Particulate levels in the air (WRC), Hamilton power load (Transpower) *Want other values but can't find anything suitable to present
Tupua-aa-nuku*	Seismic activity Waikato region (Geonet), Lunar phase (8 values)
Trigger for eyes and	(Flir thermal cameras)

*Both Tupua-aa-rangi and Tupua-aa-nuku are under resourced in terms of data. Any and all suggestions welcome.

^Taniwha mode (see below) informed by Waitii and Waitaa sensor values. Taniwha is never on when star mode is in operation.

Order of interactions

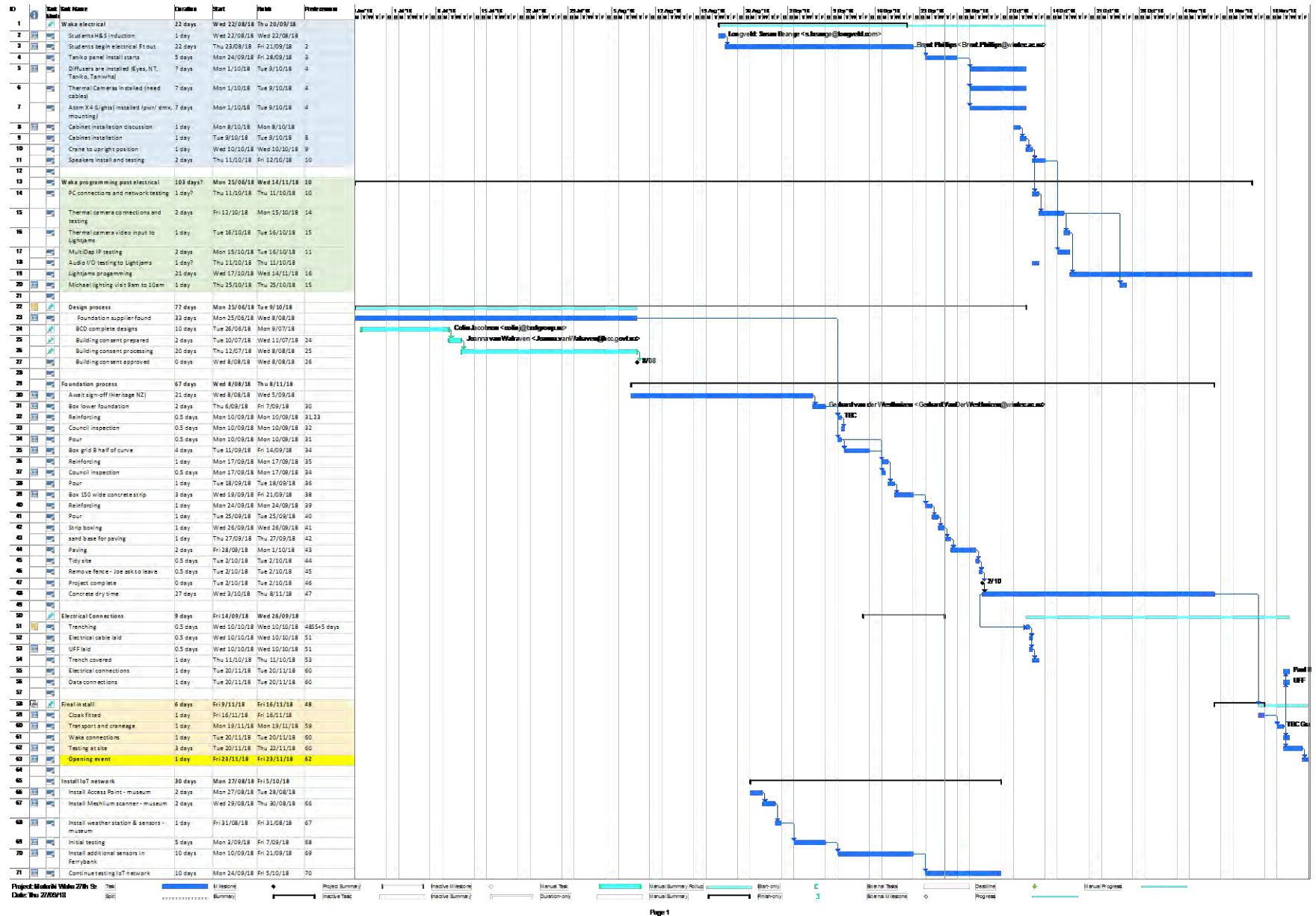
1. Taniwha, and Aniko go when nobody has entered thermal camera range
2. Thermal camera trigger (entrance) activates appropriate star sound player track (plays until end), fades out Taniwha and fades in eyes and top spiral light
3. Thermal camera trigger (exit of entrance area) fades out eyes, activates triangular niho Taniwha pattern (star) informed by
4. Thermal camera trigger (exit of all heat sources, or time out) fades out niho Taniwha (star), and top spiral light, delay, fades in eyes for 1.5 seconds, then fade out
5. Resets to start

Intra-activity

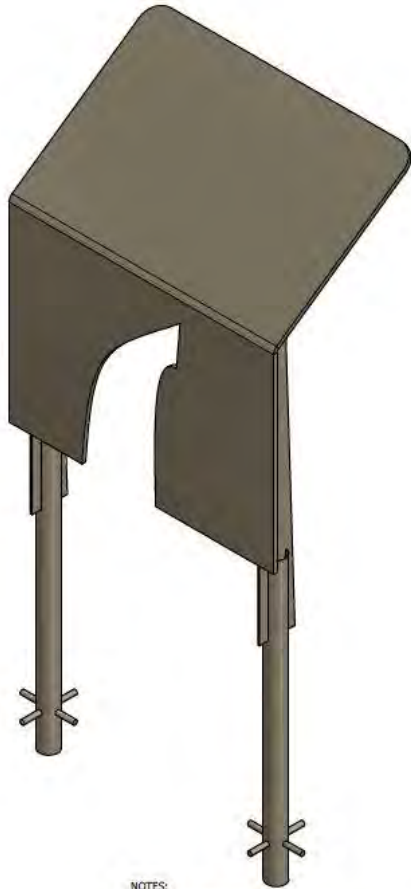
- *Rather than a Cartesian informed universe of ontologically discrete entities acting upon each other (interactivity), phenomena occur through agential relational emergence (intra-activity), where “agencies are only distinct in relation to their mutual entanglement, they don’t exist as individual elements.” (Barad, 2007: 33)*
- *Embodiment as “incipient activity” (Stern, 2013: 2) presumes human participants – not non-human ones*
- *What happens when humans are only one of many possible participants in any given interactive experience?*
- *Potential metaphysical synergies and parallels between quantum physics, new materialism and mātauranga Māori?*

TIME!

There's nothing like a deadline ...



Always something else: Heritage NZ, fundraising, foundations, electrical, crane, signage



- NOTES:**
1. EXTERNAL FINISH ZB
 2. ALL BURRS AND SHARP EDGES TO BE REMOVED
 3. ALL MATERIAL S/S 304 UNLESS OTHERWISE SPECIFIED



COMPUTER FREEHOLD REGISTER UNDER LAND TRANSFER ACT 1952



Search Copy

Identifier 445084
Land Registration District South Auckland
Date Issued 19 September 2008

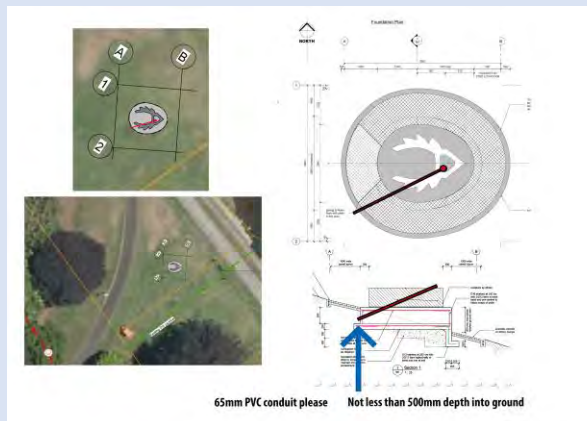
Prior References
 SA1023/235 SA9D/1341

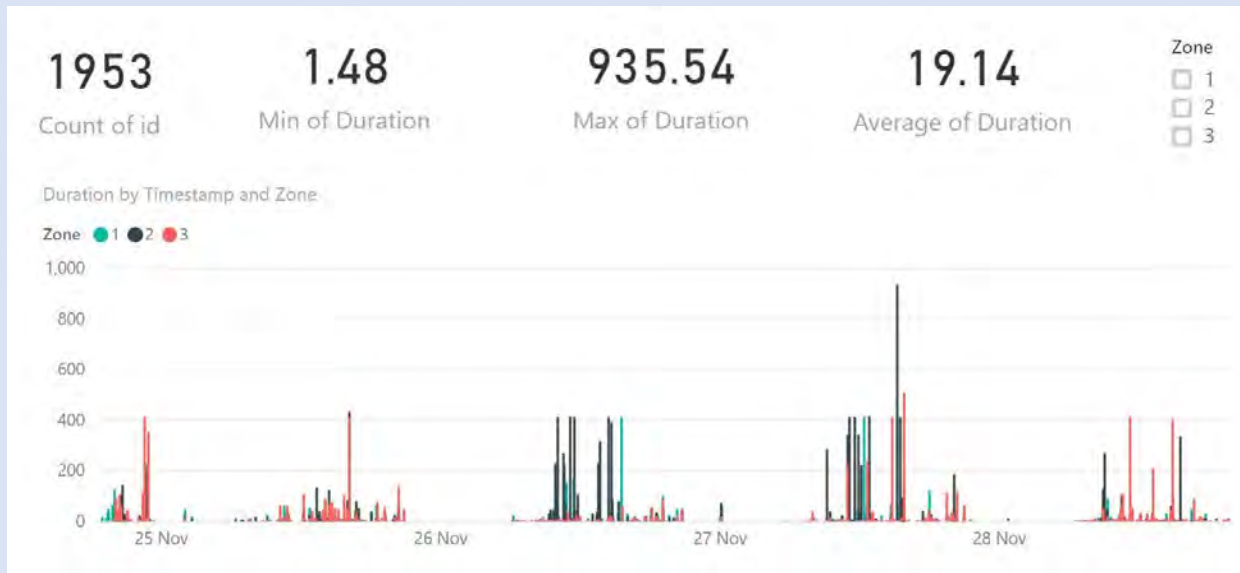
Estate Fee Simple
Area 7490 square metres more or less
Legal Description Allotment 498 Town of Hamilton West and Part Lot 2 Deposited Plan South Auckland 257 and Part Allotment 499 Town of Hamilton West and Lot 1 Deposited Plan South Auckland 257

Purpose Recreation Reserve

Proprietors
 Hamilton City Council

Interests
 SUBJECT TO THE RESERVES ACT 1977



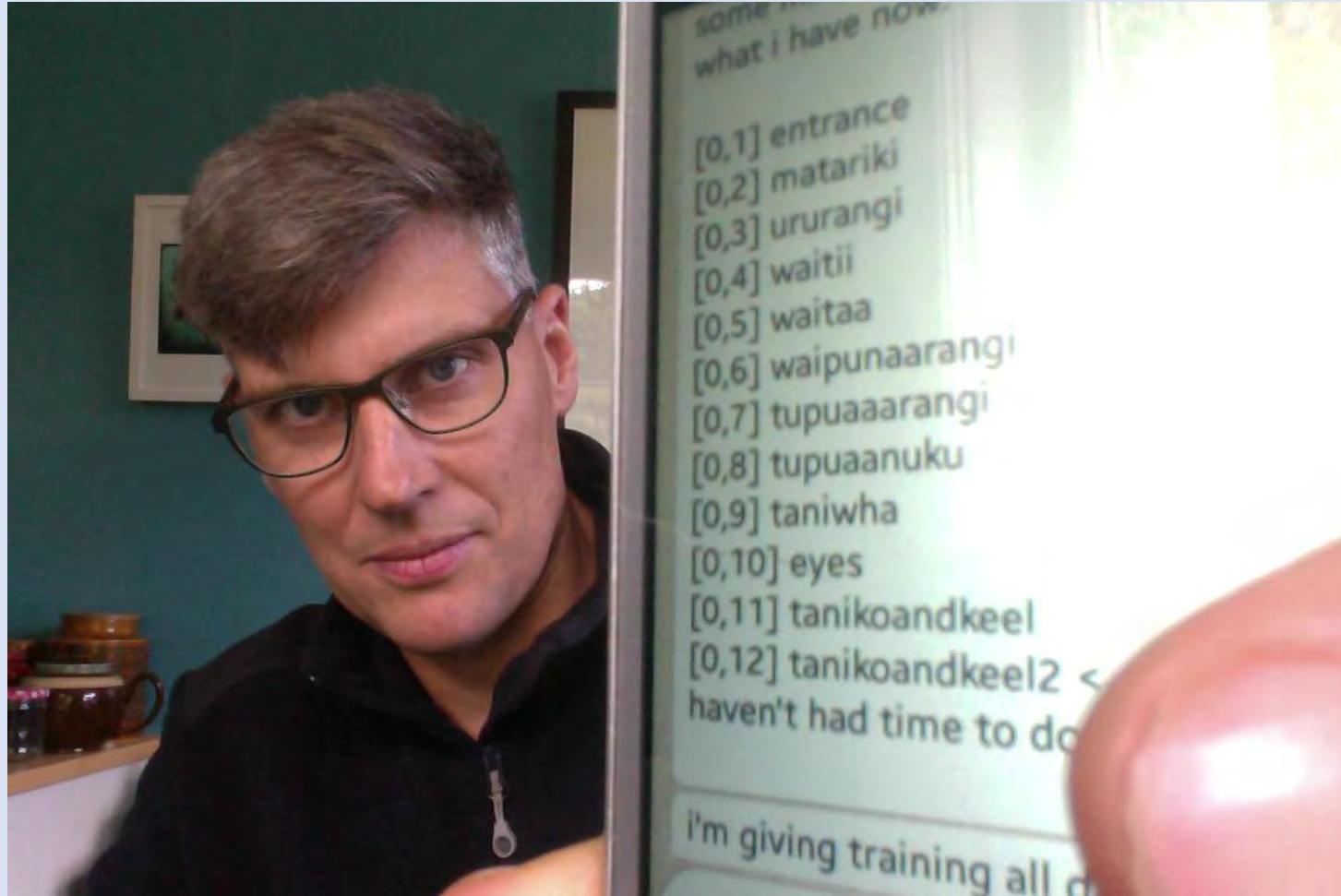


Metadata

- Anonymised data
- Will become publically accessible (open source)
- Includes calculation of visitor numbers
- Enables ongoing student engagement
- One or two waka? (Digital and tangible interconnections)

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Ngā mihi nui