

Ellen Ransfield  
Subnatural Axis: resurfacing a post-industrial landscape  
2019  
School of Art and Design, Spatial Design  
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fulfilment of the requirements for the degree of Master of Design

## Abstract

“Subnature is not about what is natural to architecture; it is about the natures we produce through our most radical architectural concepts.”<sup>1</sup>

Hazardous liquid storage, rust, debris, weeds, crowds, and seagulls settle into the surface of Auckland’s Wynyard Point. These surface conditions are the remnants of human intervention into the environment of Wynyard Quarter.<sup>2</sup> As such, this project aims to elevate these surface conditions in resurfacing a post-industrial landscape through the medium of earthenware clay tile. Sourced directly from the subsoil in Wynyard Point’s terrain, the design proposal infects that of Panuku Development Auckland’s ‘Urban Design Framework’. As a result, the resurfacing of the former silo footprints acts as a marker of their historical value in the narrative of Wynyard Point.

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<sup>1</sup> David Gissen, *Subnature: Architecture’s Other Environments*, 1st ed. (New York: Princeton Architectural Press, 2009).

<sup>2</sup> In accordance with, *Ibid.*

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Attestation of Authorship

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning."

A handwritten signature in black ink, appearing to be 'ellen' followed by a stylized flourish.



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## Introduction

From a very young age, I have been a tinkerer. I would spend hours sculpting teddy bears and family members out of salt dough. Hailing from a lineage of labourers and engineers, I consider my hands to be my greatest asset. This passion for hands-on craft followed me into my teens and early twenties where I chose a career in design. Over my three-year undergraduate journey at AUT, I based projects around the fabrication of space with concepts directly pertaining to how well I could physically model them (with the tools of my hands). As a postgraduate student with the 'real world' looming over me, I set about engaging in material experimentation in order to develop skills in the fabrication of surface.

In the quest for a site that I could sink my hands into, I became aware of the fast-approaching mixed-use redevelopment of Auckland's Wynyard Point by Panuku Development Auckland, and so thought it particularly topical to begin my research here. Titled, Wynyard Quarter: Urban Design Framework (UDF) in 2007, conducted by then Sea + City Projects,<sup>3</sup> the UDF was formed to guide the development of the Wynyard Precinct through design principles indicative of the council's vision of Auckland City as the "world's most liveable city"<sup>4</sup>, by 2040. I have been basing my knowledge of the development designs on the revised 2014 version of the UDF as this is the most up to date resource available to me, published on the Auckland City Council's website. The plan indicates a mixed-use precinct with apartments, retail, urban parks, and access to marine facilities. My project, titled Subnatural Axis: resurfacing a post-industrial landscape infects the urban park axis to foreground prior occupancies of the site.

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3        Now Panuku Development Auckland.

4        Auckland City Council, Wynyard Precinct - Urban Design Framework, February 2014.

Wynyard Point, as a former industrial site with still operating boat building facilities, offers a myriad of surface textures stratified by its history of occupation and saltwater perimeter. In identifying and cataloguing these unique surfaces, I fell down a rabbit hole into the underworld of subnatures. A term coined by Professor of Architecture at the California College of the Arts David Gissen, subnatures describe the by-products of human construction.<sup>5</sup> From this moment on I was fascinated with bringing the often deemed inauspicious subnatures to the front and centre of the design.

**Therefore, my research seeks to spatialize the subnatures of Wynyard Point in order to interrogate the aesthetics of waste, and explore pollution as a modern industrial material.<sup>6</sup>**

The subnatural environment of Wynyard Point exhibits uncontrollable idiosyncrasies; characteristics conceived on-site through weather conditions and chemical storage contents, that threaten the built environment's stable material form. This results in a catalogue of industrial history constructed through texture and surface. Due to neighbouring the sea and its history as a site for hazardous liquid storage, material degradation in the urban fabrication of Wynyard Point is accelerated. I am drawn to these textures that make up our environments and the way that interactions with surface allow us to navigate space. As such, the leading textures that I have derived from the site that influence the project's design intention are topographic, experienced underfoot.

I begin the research project by reviewing subnatures in relation to Wynyard Point through contexts of subnatural surface condition fabrication, time-based materiality, and urban revitalisation. Examined through the precedence of The Ethics of Dust series by Jorge Otero-Pailos, Hapticity and Time by Juhani Pallasmaa, and The New Wild by Fred Pearce, these contexts situate the research project in a spatial design field.

Consequently, this practice-based research project follows a subnatural methodological framework as a guiding factor, giving the project a clear orientation. In realising the research, I utilised methods of freehand drawing textural analyses, subnatural surface mapping, site analyses, and ceramic enquiries.

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5 David Gissen, Subnature: Architecture's Other Environments.

6 As stated by Jorge Otero-Pailos in, Ibid.

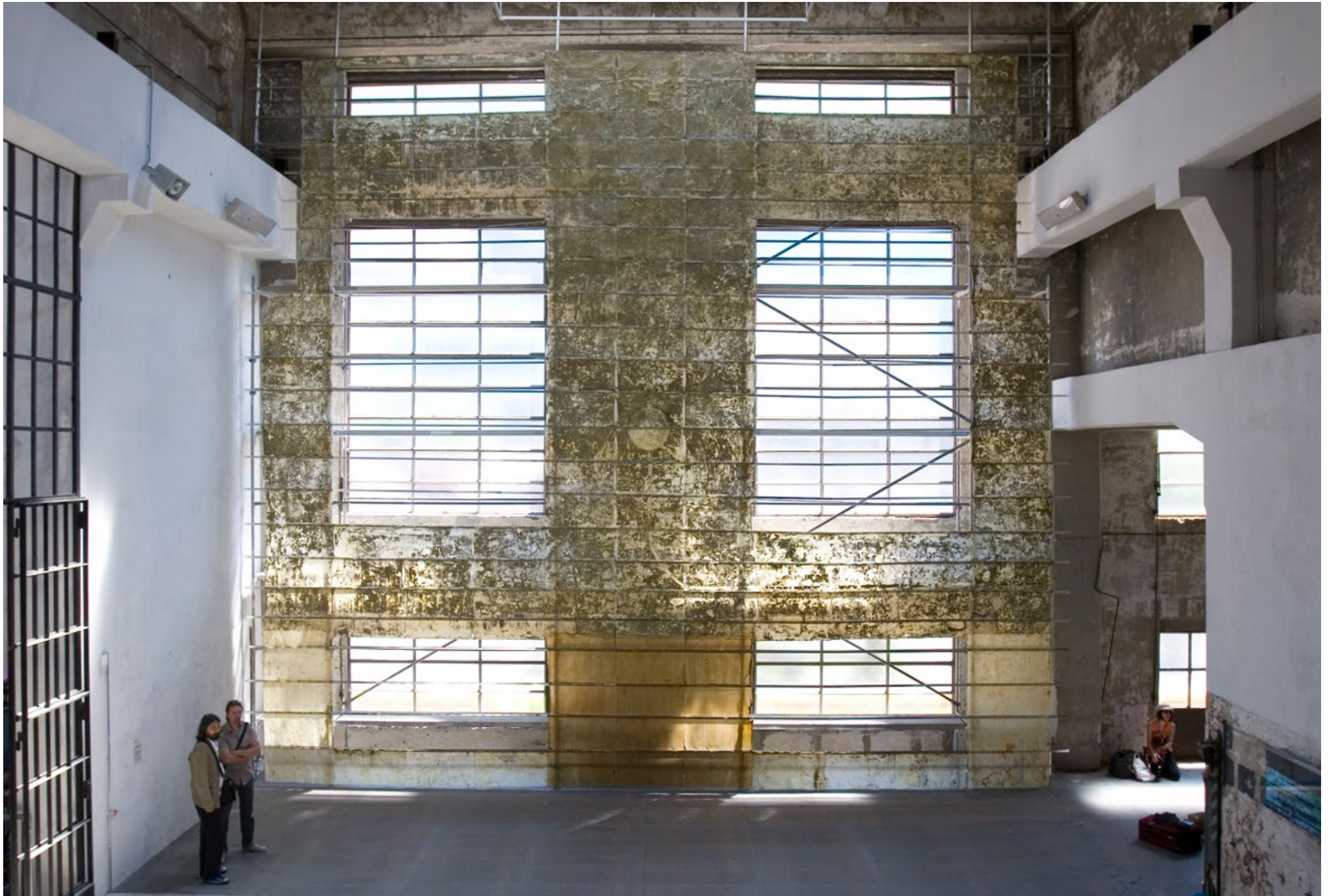


Fig. 1

In the following chapter, I unpack theorists and practitioners who bring to light ill-favoured site and material conditions that are usually swept under the rug. In the case of John Ruskin and Jorge Otero-Pailos, this is quite literal with both men highlighting dust as a desirable entity that represents time-based materials. Here I discuss the subnature of dust through the example of Otero-Pailos' *The Ethics of Dust* series, conceived from a review of Ruskin's *The Ethics of the Dust* treatise, both of whom are published in the *Subnatures* book.

In his treatise, *The Ethics of the Dust* (1865), English art critic John Ruskin argued that dust as particle matter made up the very objects it settled upon and thus was not to be feared, "you may at least earnestly believe, that the presence of the spirit which culminates in your own life shows itself in dawning, wherever the dust of the earth begins to assume any orderly and lovely state."<sup>7</sup> Ruskin, therefore, relates dust and decay as processes that occur from birth and not only from death. Previously it was believed that the generation of dust was the result of an unstable form. Scientists were beginning to study the process of how dust forms while Ruskin identified dust as a renewable resource that parts from a form and creates its own form.<sup>8</sup> This is to say that dust particles undergo a change of state as a displacement of matter and that dust makes everything and is from everything.

In the Victorian era, dust may have been understood as a marker of social class. It could be seen that the more objects a household acquired, the more surface area there was to gather dust. To keep a good house meant to remove traces of dust and thereby sediments of age and history. Dust, for Ruskin, was

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<sup>7</sup> John Ruskin, *The Ethics of the Dust* (London, Dent, 1908), accessed August 27, 2018, <http://archive.org/details/ethicsofdust1908rusk>.

<sup>8</sup> Ella Mershon, "Ruskin's Dust," *Victorian Studies* 58, no. 3 (2016): 464–492.





Fig.2

the by-product of the process of aging and cleaning it away was to take away that age and history.

Similarly, architect Jorge Otero-Pailos views dust as a snapshot of a certain period in time. He likens his latex casts of the walls of historical buildings to photography and exhibits them as artworks. Otero-Pailos is concerned with the process involved in cleaning dust off of prized objects, and how this often subtracts from the surface of these objects, “even when these prized objects become useless, cleaning them is how we take care of them.”<sup>9</sup> It was this interest that led him to begin *The Ethics of Dust* series (2008-2015). The series aims to preserve pollution as a documentation of history. Otero-Pailos’ technique involves painting liquid latex onto the interior and exterior walls of historic buildings and then peeling it off. This is the technique used in contemporary preservation and lifts the dirt and dust, embedding it into the relief of the surface of the latex. This translation shows that materials are in a constant state of change and exemplifies pollution as “a modern industrial material.”<sup>10</sup>

Like John Ruskin, Otero-Pailos refuted traditional means of cleaning surfaces with instruments, for fear of damaging and erasing the history and character embedded in the original surface. However, his application of latex is quite harsh on the surface and somewhat contradicts his intentions. Shown in the video of casting architectural details in latex at Westminster Abbey<sup>11</sup>, by removing the dried latex from the wall it clings to, with it comes not just the dirt and dust but also the mortar that keeps the stone bricks together. While the result is a display of how history is embedded in the walls, I debate whether it is a careful method of cleaning in the name of preservation. Regardless, Otero-Pailos’ methods effectively draw attention to chronicles of history settled in surfaces.

There is a certain way to behave around art that follows an unspoken etiquette. The high level of intention in the *Ethics of Dust* installation in terms of lighting, suspension, framing, and positioning in space, establishes a formal relationship between the viewer and the work. The architect has elevated his dust collecting building ‘skins’ by carefully laying them out, making dust

<sup>9</sup> Talk: *The Ethics of Dust* – Jorge Otero-Pailos in Conversation with Adam Phillips, 2016, accessed November 23, 2018, <https://soundcloud.com/artangel-2/talk-the-ethics-of-dust-jorge-otero-pailos-in-conversation-with-adam-phillips>.

<sup>10</sup> Jorge Otero-Pailos, “Correspondence with the Author, David Gissen in *Sunbature: Architecture’s Other Environments*,” July 2008.

<sup>11</sup> Artangel, Jorge Otero-Pailos: *The Ethics of Dust I Behind the Scenes*, 2016, accessed October 6, 2018, [https://www.youtube.com/watch?v=yqv5\\_pCCS-U&feature=youtu.be](https://www.youtube.com/watch?v=yqv5_pCCS-U&feature=youtu.be).

somewhat more decorous. Otero-Pailos' emphasis on subnatural surface textures as a focal point and how they inhabit a history is why I favoured his study of dust as an exemplary over alternative examples of subnatures.<sup>12</sup>

By categorising dust as a subnature in accordance with David Gissen's book, *Subnature*, The Ethics of Dust series shows parallels in its concern with subnatural environments. A term coined by Gissen to describe the by-products of human construction, I adopted this label as I am interested in the textures and surfaces that make up Wynyard Quarter. Due to neighbouring the sea and its history as a site for hazardous liquid storage, the materials used in the urban fabrication of Wynyard Quarter are in an accelerated state of change. In some areas, they are frictional natures, particularly ones close to the water's edge and in and around the silos at Silo Point. A subnatural environment at Wynyard Quarter can be seen as one that threatens the material form of the designer's original intentions in that it harbours the undesirable, for example; rust, moss, splintered wood, cracked pavement, debris, seagulls, and hazardous chemicals.

The highest concentration of subnature at Wynyard Point is the storage of hazardous liquids<sup>13</sup> and can be described as "undesirable"<sup>14</sup>. However, by incorporating subnatures in a design intervention at Wynyard Point and viewing them as a product of the process of time, rather than a threat to material form a material language is established which is inherent to the site, adding growth to its industrial history. Gissen calls this strategic engagement with subnature, "para-urban social networks"<sup>15</sup> an integration of subnatures with design rather than a designed replication of subnatures, comparable to Ruskin's and Otero-Pailos' aforementioned work.

Likewise, Juhani Pallasmaa discusses the language of materiality and surface in his essay, *Hapticity and Time: Notes on Fragile Architecture* (2000). Due to the need to make the built environment time proof, modern design is unnerved by the ephemeral effect that time has on material and surface.<sup>16</sup> Consequently, Pallasmaa argues that modern design is concerned more with the visual syntax of surface and timelessness, than it is with the experiential quality of texture,

<sup>12</sup> In David Gissen, *Subnature: Architecture's Other Environments*. some examples of these were; mud, gas, smoke, exhaust, and puddles.

<sup>13</sup> From tallow and food products to petroleum products as listed in, Beca Limited, America's Cup Preliminary Site Investigation Contamination, Resource Consent Application, April 2018.

<sup>14</sup> Term used to describe subnatures in David Gissen, *Subnature: Architecture's Other Environments*.

<sup>15</sup> Ibid.

<sup>16</sup> Juhani Pallasmaa, "Hapticity and Time. Notes on Fragile Architecture," in *The Architectural Review*, vol. 207 (London: EMAP Publishing Limited, 2000), 78–84.





Fig.3

therefore asserting that modernity is built from the immaterial. The architect goes on to say that time-based materials<sup>17</sup> offer “positive qualities of vintage and authority”<sup>18</sup> and therefore greater character and rooting in history.

By resurfacing the landscape of Wynyard Point in site-sourced clay tile, this research project establishes a direct relationship to the industrial history of the land. Earthenware ceramic tiles are generally susceptible to processes of aging such as erosion and water absorption and require finishes to weather-proof.<sup>19</sup> However, in line with Pallasmaa’s views on time-based materials, the tiles in this project will be responsive to weathering and, as such will have only a thin layer of glaze on the surface of the clay substrate. Integrating temporal materials into the research allows the subnatural conditions found on site to thrive and invade the redevelopment of Wynyard Point.

#### Invasive Habitats

Traditionally, invasive species are undesirable as they invade established ecosystems which can cause environmental or economic harm, as well as have an effect on the health of human beings.<sup>20</sup> Science journalist Fred Pearce challenges conventional ecological theories in his controversial book,<sup>21</sup> *The New Wild: Why Invasive Species Will Be Nature’s Salvation* (2015). The chapter, *Rebooting Conservation in the Urban Badlands*, counters this argument concerning ecological damage, and is of particular note as Pearce discusses the revitalisation of urban wastelands such as abandoned landfill, power stations, and oil terminals, commonly referred to as brownfields. These wastelands become prime habitats for alien plants, nonnative species that may still contribute to a diverse ecosystem. Pearce states, “when industry abandons land, the open spaces and weird niches it leaves behind are full of unusual chemical and physical habitats, and ripe for colonization.”<sup>22</sup> defining a new wild.

17 Pallasmaa states these to be materials effected by aging and gives the examples of wood, bronze, and brick.

18 Pallasmaa, “Hapticity and Time. Notes on Fragile Architecture.”

19 The Editors of Encyclopædia Britannica, “Earthenware,” Encyclopædia Britannica (Encyclopædia Britannica, inc., June 4, 2015), <https://www.britannica.com/art/earthenware>.

20 Jacob Hill, “How Invasive Species Impact the Environment,” Environmental Science.Org, last modified 2019, accessed April 24, 2019, <https://www.environmentalscience.org/invasive-species>.

21 Traditional ecological science sees invasive species as a threat to native ecologies. See footnote 20.

22 Fred Pearce, “Rebooting Conservation in the Urban Badlands,” in *The New Wild: Why Invasive Species Will Be Nature’s Salvation* (London: Icon Books Ltd, 2015), 217–231.

Wynyard Point is currently battling a chemical habitat of its own, seen in the contaminants in the soil caused by leaking silos. The contaminated soil spans a one to two-meter radius from the silos<sup>23</sup> and therefore offers a variegated soil condition throughout the site. Add to this the contents of the reclaimed land originating from a myriad of places,<sup>24</sup> and what is created is a compilation of different ground conditions from which to grow a compilation of new wilds. These variations in soil quality will, therefore, dictate a planting scheme and the extent to which the plants will grow. The Highline in New York City designed by James Corner Field, Diller Scofidio + Renfro, and Piet Oudolf also follows a similar planting schema, influenced by a self-seeding landscape that emerged on the dormant railway tracks.<sup>25</sup> The park, therefore, is a successful example of the revitalisation of an urban wasteland that allows a new wild. I will use this knowledge as a resource in determining the spatial relationships between the soft (planting), and hard (tiles and built environment) landscapes in the design proposal.

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23 Beca Limited, America's Cup Preliminary Site Investigation Contamination.

24 Ibid. states these to be alluvium from Tauranga, East Coast Bays Formation, and construction waste from the demolition of the former gasworks site at Wynyard Quarter.

25 Pamela Hartford, "10 Landscape Design Projects That Turn Damaged and Neglected Spaces Into Healthy, Beautiful Environments.," ArchiWEB, last modified 2013, accessed May 5, 2019, <https://pedro.co.za/content/10-landscape-design-projects-turn-damaged-and-neglected-spaces-healthy-beautiful-environment>.





Fig.4, 5, 6

## methodological statement and methods Specificity of Site

The project uses subnatures as a methodological framework to take account of site-specific surface conditions, and establish a set of constraints that determine the research trajectory. To be eligible for subnatural status, surface conditions must meet Gissen's following criteria; a by-product of human construction, uncontrollable, and undesirable. The presence of these characteristics at Wynyard Point that are of particular note are hazardous liquid storage, rust, debris, weeds, crowds, and seagulls.

The Silos at Wynyard Point are used for the storage of hazardous liquids and stand tall above the flat, reclaimed land. Potentially viscous contents brood inside the cylindrical chambers, their toxicity contained temporarily. The chemical reaction between the exposed iron of Wynyard Quarter and the sea spray harboured by the moisture in the seaside atmosphere generates rust. The weakest points on metallic edge conditions are targeted, their thresholds bleeding into the next. Blisters bubble up from manholes creating peaks like corroded braille. Rust's flaking layers generate multifaceted levels that break off and scatter like debris. The etymology of debris is derived from eighteenth-century France and defines matter displaced from a built structure.<sup>26</sup> Haphazardly stowed away behind a fence, the collected debris of Silo Point at Wynyard Quarter includes a graveyard of maritime and construction remains. Weeds consume these boat carcasses, they creep up through the cracks and require active attention to keep them at bay. The undesirable nature of weeds is what makes them a subnature as opposed to an idealised nature, (like other garden plants). They sprout where water pools, seemingly overnight, and disrupt the order of space. Crowds occur when there is an imbalance in the movement of people in space. Silo Park at Wynyard Quarter plays host to a multitude of events which draw crowds. With them comes a "socio-climate" that creates an atmosphere generated by bodily heat,

<sup>26</sup>

David Gissen, *Subnature: Architecture's Other Environments*.



Fig. 7

odours, and noise. Lurking at the boundary of this human activity, seagulls eagerly wait to snatch up abandoned morsels. The remnants of their presence are identified by their droppings and fading screeches.

The subnatural methodology is comprised of customised qualitative and quantitative research methodologies, headed by a practice-based research paradigm. Working under a practice-based research structure informs my practices centred on site-specific design responses. As architecture based academics, Carol Burns and Andrea Kahn state, “The specificity of site is understood from a point of view, and for this reason a student of site must rely upon forms of analysis that lie between the centered and de-centered view.”<sup>27</sup> The qualitative/ quantitative composite, therefore, aims to examine subnatural research methods as a collective.

As an exploratory means of research, the subnatural methodology is interested in why particular research is being undertaken on surface conditions and how this research is being carried out. The research of subnatural surfaces initially occurs directly on site, and due to this context, is utilised to gain a greater depth of understanding or insight. The subnatural surfaces manifest in many ways such as analytical drawings, photographs, materials, and ceramic enquiries and are not predetermined by me in so far as I can only hypothesise but not control what data I am going to end up with. Thus, methods are subjective and are open to interpretation.<sup>28</sup> In contrast, quantitative subnatural surface research aims to collect solid data in the form of measurements such as dimensions of the site, weather conditions, and revision of proposed infrastructure in the Wynyard Point Urban Design Framework. Therefore, quantitative subnatural surface research is objective and is not dependent on interpretation.<sup>29</sup>

<sup>27</sup> Carol Burns and Andrea Kahn, *Site Matters: Design Concepts, Histories, and Strategies* (Psychology Press, 2005).

<sup>28</sup> Stefan Jost, “An Overview to Qualitative and Quantitative Research Methods in Design,” Medium, March 29, 2016, accessed May 27, 2018, <https://medium.com/digital-experience-design/an-overview-to-qualitative-and-quantitative-research-methods-in-design-de034a92f45c>.

<sup>29</sup> Ibid.

## Methods

The leading method that I choose to employ in enacting my research is freehand drawing, which I use to develop an initial understanding of the site of Wynyard Quarter, and that foreshadow later inquiries. I navigate space using textures and surfaces, so an inventory of these in my sketchbook is essential to interpret this experience. These records in pencil are samples of subnatures that interest me, picked from their contexts for their textural properties. By using drawing as a thinking space, I can take the time to think about the space that I am in. The result is carefully considered drawings, each preparatory and purposeful. At this point, the research is less concerned with colour as I 'zoom in' on the textures, so all drawings are carried out in graphite pencil. In Textural Analyses 1 and 2, beginning at the North Wharf restaurants in Wynyard Quarter, I followed the tram tracks to Hamer Street where I turned right and made my way to the north of Wynyard Point. As I traversed this path, I composed fourteen subnatural textural analysis sketches over two days in an A5 watercolour paper sketchbook. Translating the textures to sketches required regular pauses for a haptic engagement with the subnatural surface conditions to understand the depth of surface, which resulted in me stroking the rusted tram tracks (under the suspicious public eye).



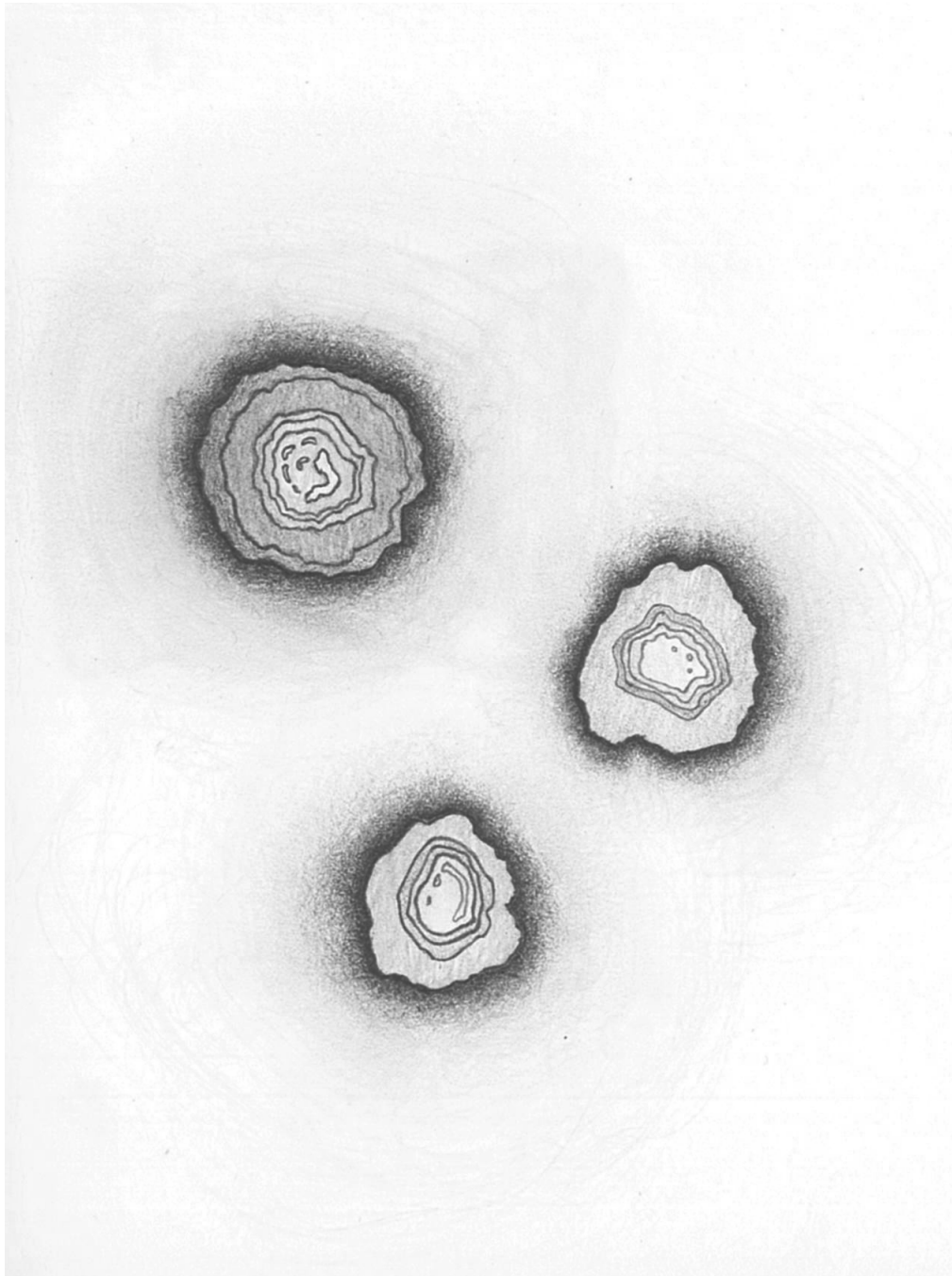


Fig. 8,9

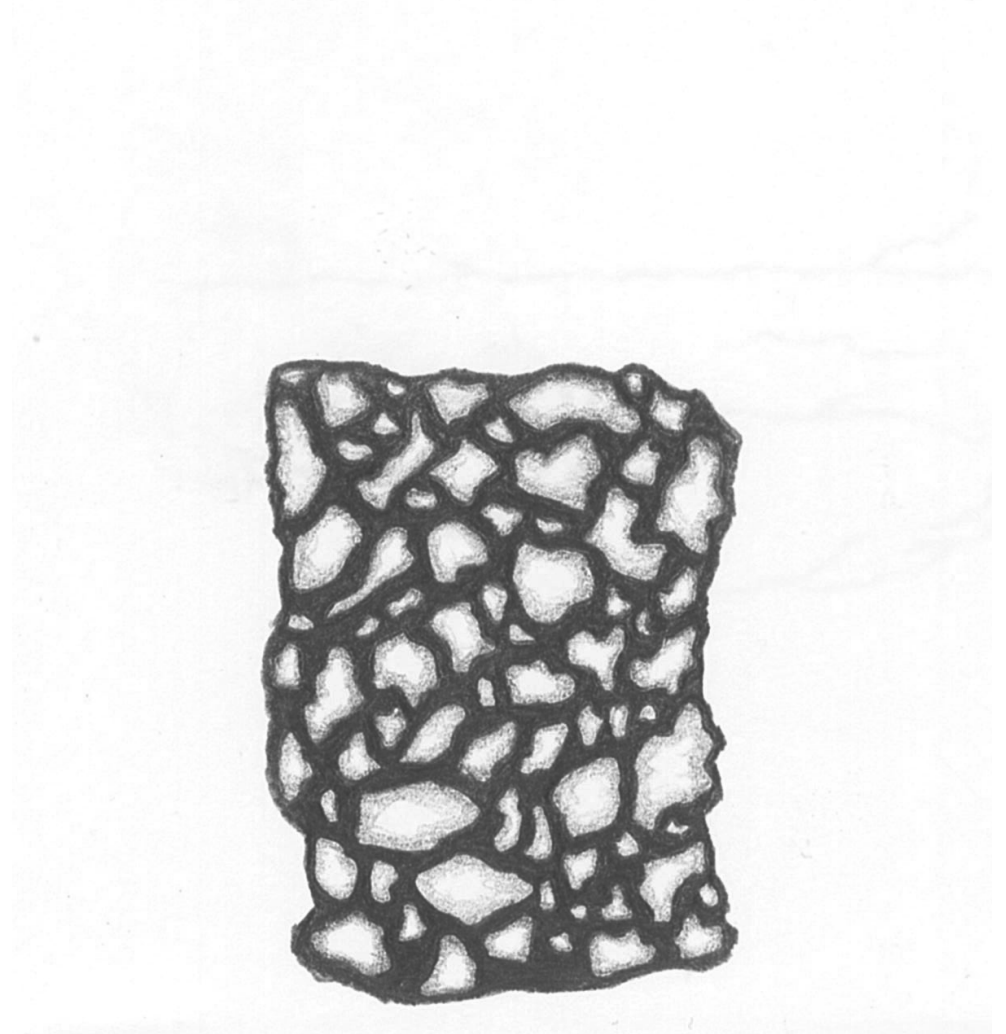
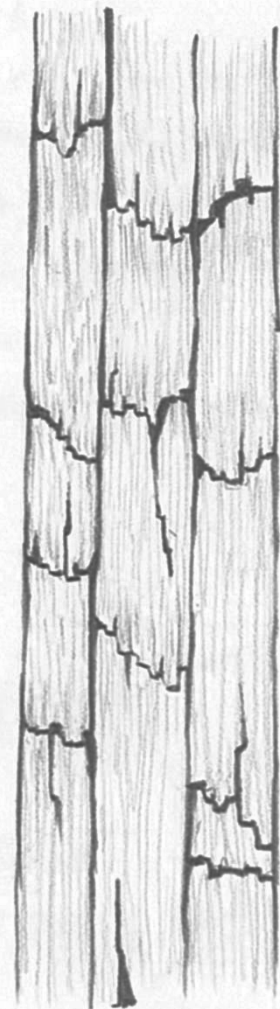
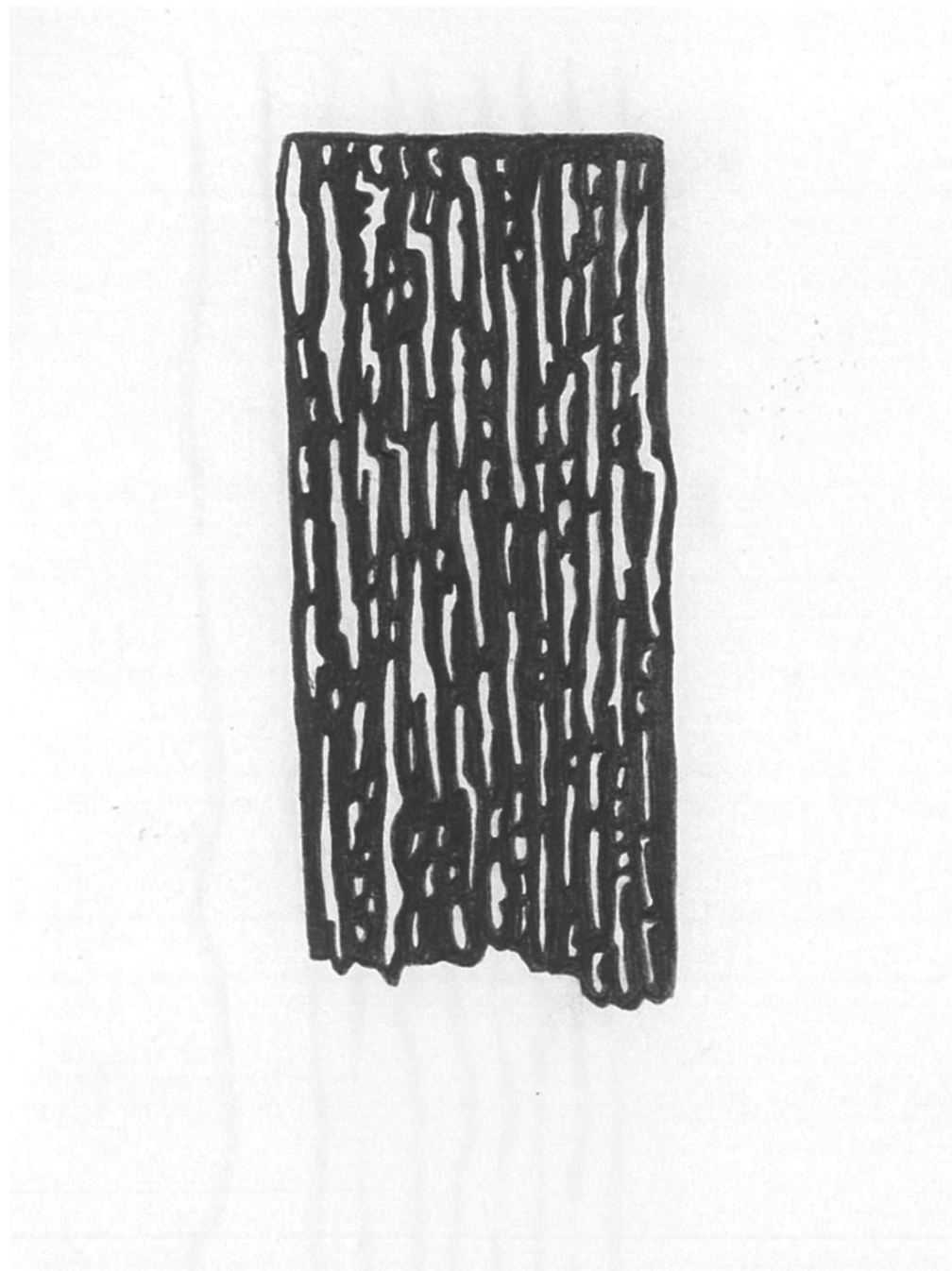
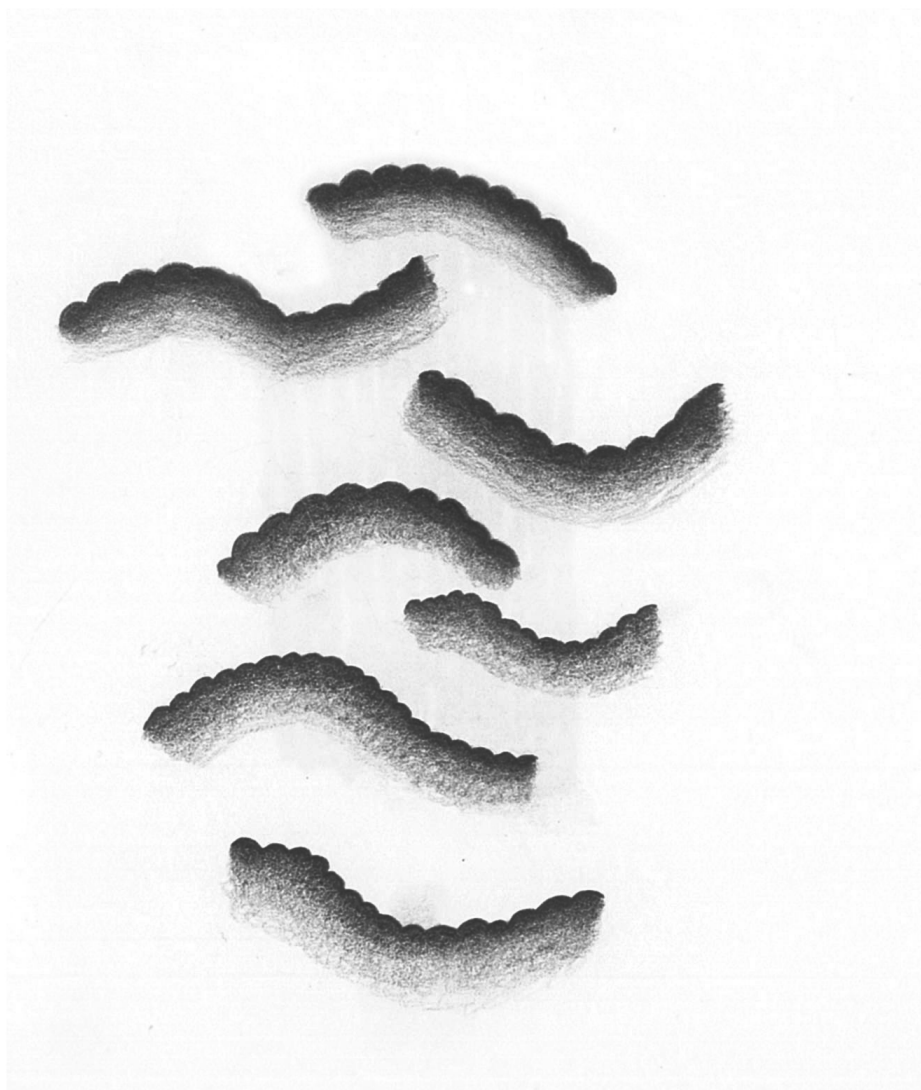






Fig. 10,11





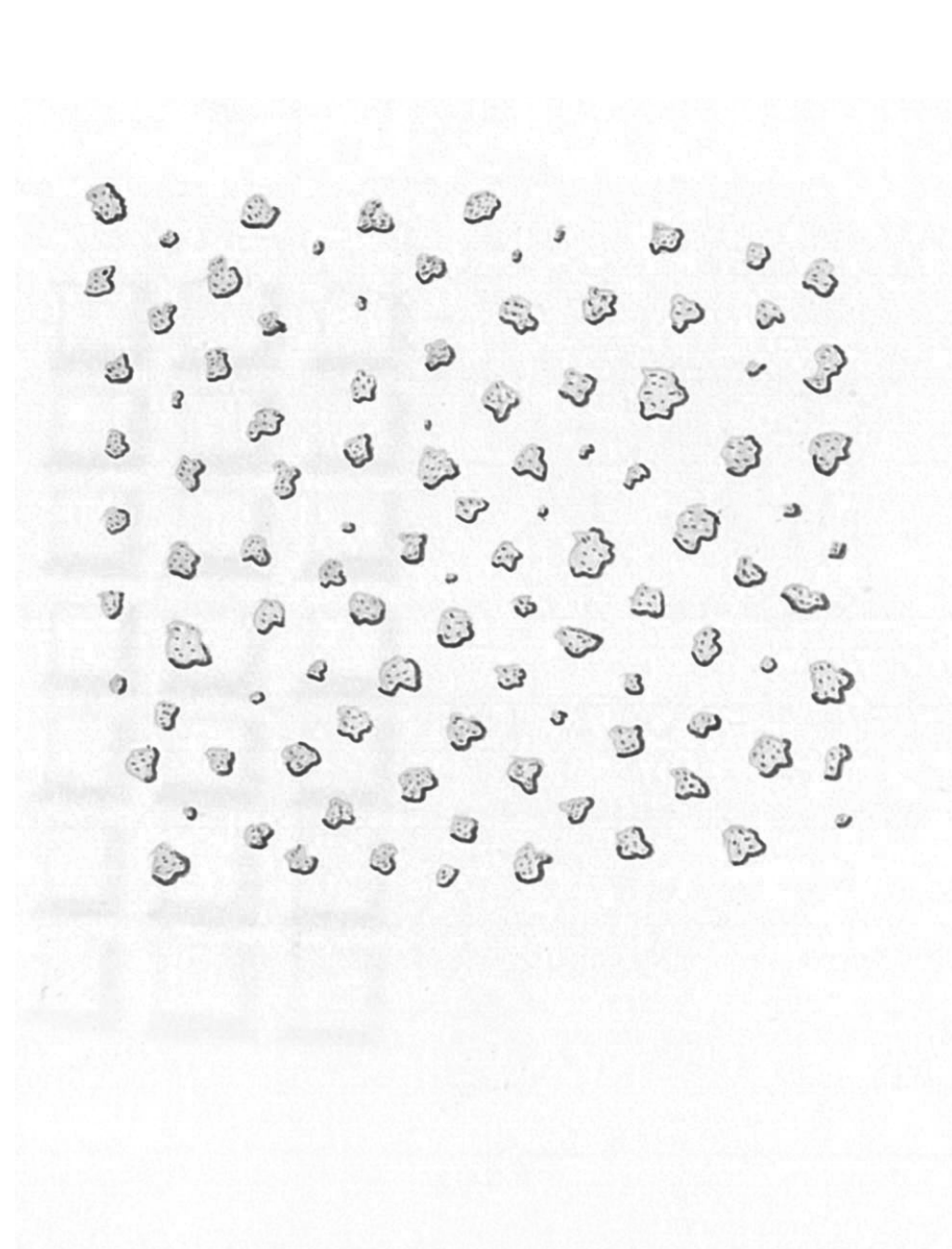
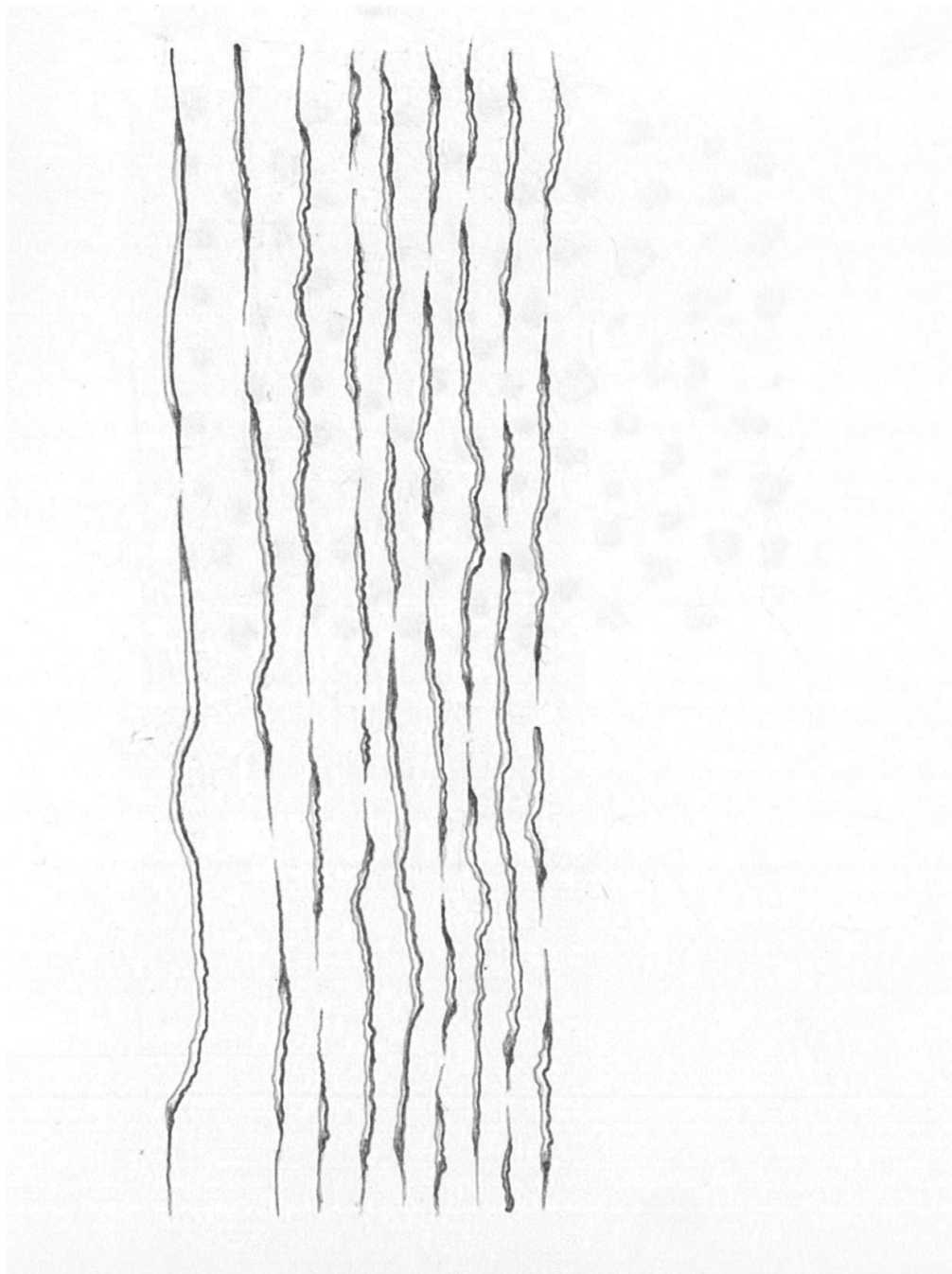


Fig. 14,15

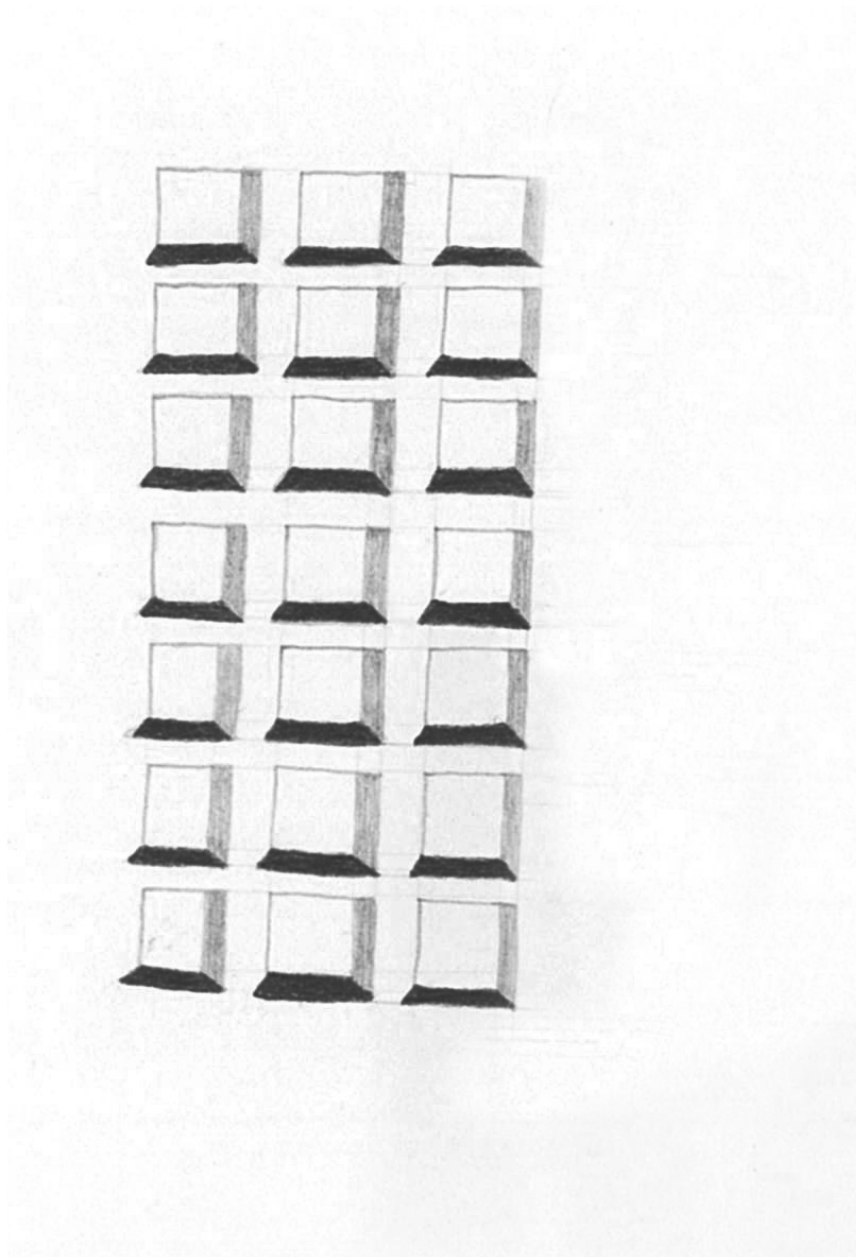


Fig. 16

Following this investigation into the site is an engagement with mapping. Mapping of the surface is in fluid watercolours to embody the viscous characteristics of subnatures, showing spatial relationships to one another in plan view. Mapping is a taxonomy of space in that it presents a glossary of subnatures in relation to their environment at Wynyard Point. It is at this stage that I 'zoom out' and incorporate colour. Dark, moody green represents the Hazardous Liquid Storage, leaching through the perimeter of the silos. Rust is concentrated on vulnerable surface edges most notably the harbour's edge, and bleeds out into a faded orange. Debris is crumbled throughout the site, identifiable by the stippled grey tones. Weeds peek through the ground haphazardly as muted green hues. Crowds are located under a haze of greys, yellows, blues, and purples, a mixture of moods. Detectable by the ink footprints and drops of milky grey, Seagulls are concentrated to the North Wharf restaurant area.

The research is situated at Wynyard Point within the Urban Design Framework which is used as the basis of visualising the surrounding context in place of using the current condition of the site. Thus as an acknowledgment of Auckland's fast developing landscape, Subnatural Axis is presented in 'real time'. Fundamental aspects of this research include collecting site dimensions which are important when analysing a site for spatial relationships. Along with site dimensions, weather conditions are also an important factor in a site analysis to predict wind direction, sun coverage, and rainfall as these have an effect on surface conditions. The wind direction at Wynyard Point is primarily South Westerly and will dictate the orientation in which foliage may grow.<sup>30</sup>

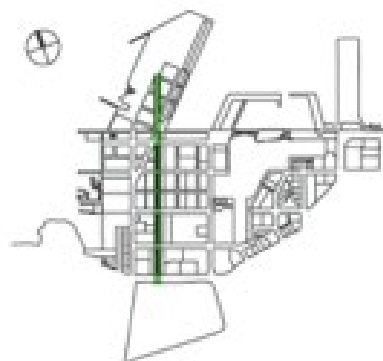
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30 Windfinder.com, "Windfinder.Com - Wind and Weather Forecast Auckland City," Windfinder.Com, last modified 2019, accessed May 8, 2019, [https://www.windfinder.com/forecast/auckland\\_city](https://www.windfinder.com/forecast/auckland_city).



Fig. 17





Location Plan

1. Headland Park
6. Victoria Park
2. Potential Attractor
5. Central Park
4. Jellicoe Plaza
3. Duddy Street Linear Park



Fig. 18

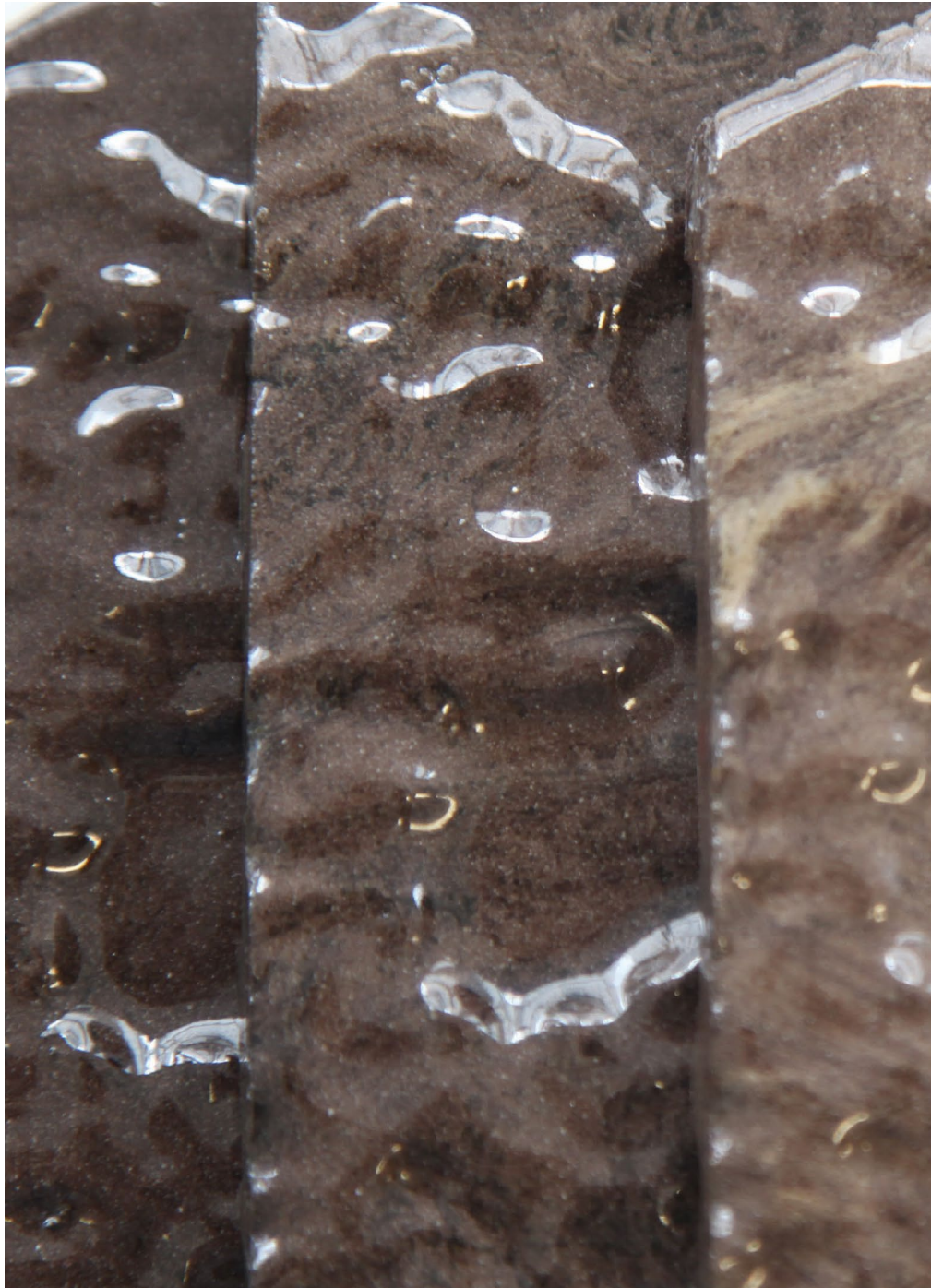


Fig. 19

Lastly, ceramic explorations while incorporating texture and colour ties the previous methods together. This mode of modelling as a taxonomy of site conveys a physical sense of depth where drawing and mapping could not. Tiles also allow for experimenting with finishes and gives more control to the crafting of surface that regular material manipulation does not. The ceramic enquiry was of particular importance to my practice as I was able to explore the manipulation of surface in a standard square shaped tile and non-standard 3D printed texture stamps and pre-glaze iron oxide pigmentation. Through the study of Jorge Otero-Pailos' surface extraction of dust technique, I 3D modelled subnatural texture stamps in Rhinoceros 3D modelling software. In Photoshop, I manipulated an image of a section of rusted tram track located in front of the restaurants at North Wharf to a black and white mode and increased the contrast. I then created a heightfield from image transformation in Rhinoceros which turned the two-dimensional image into a three-dimensional volume. The heightfield from image command turns the darkest tones of an image into peaks and the lightest tones into troughs. Where Otero-Pailos was peeling away the latex sheets and keeping this as the exhibition of historical surface, I too was peeling away the stamp and keeping the subnatural imprint.



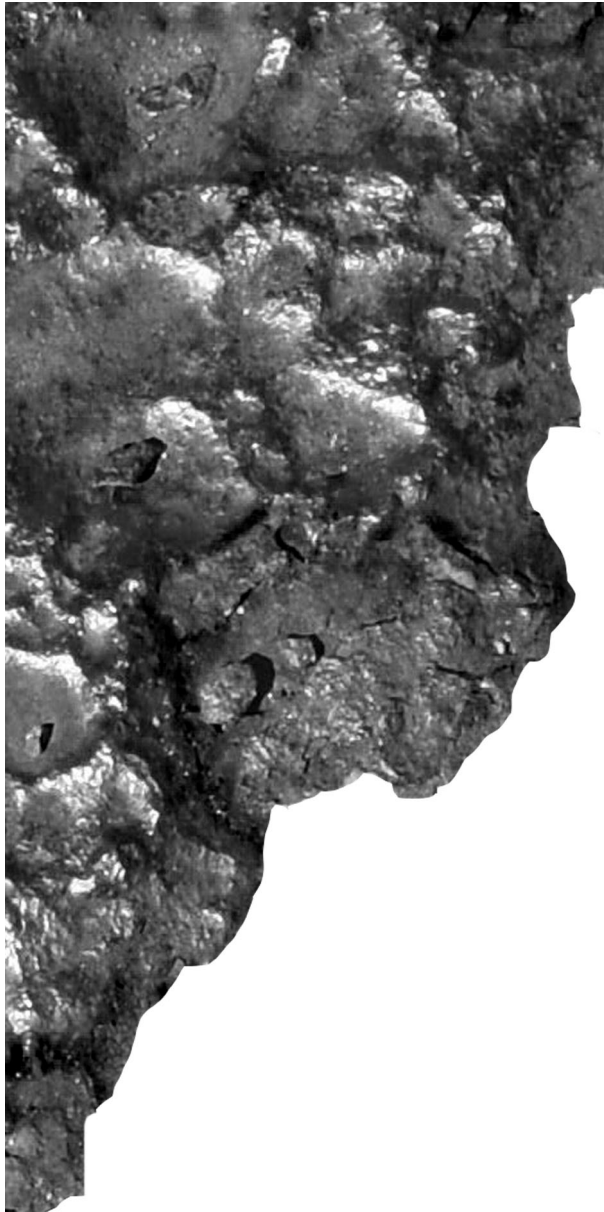
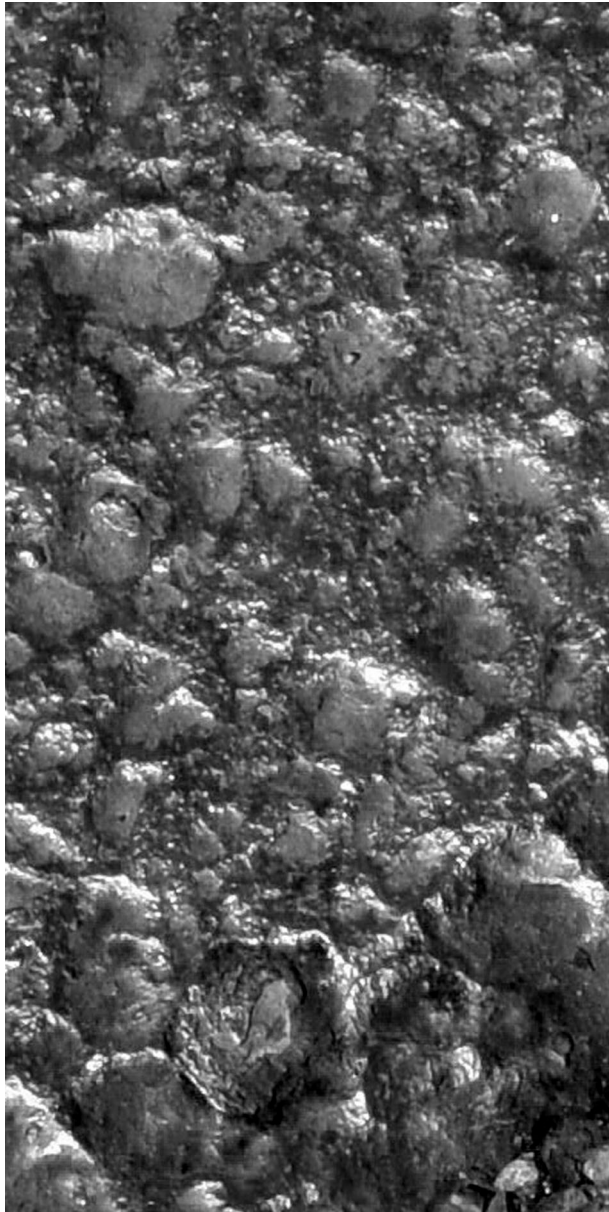


Fig. 20

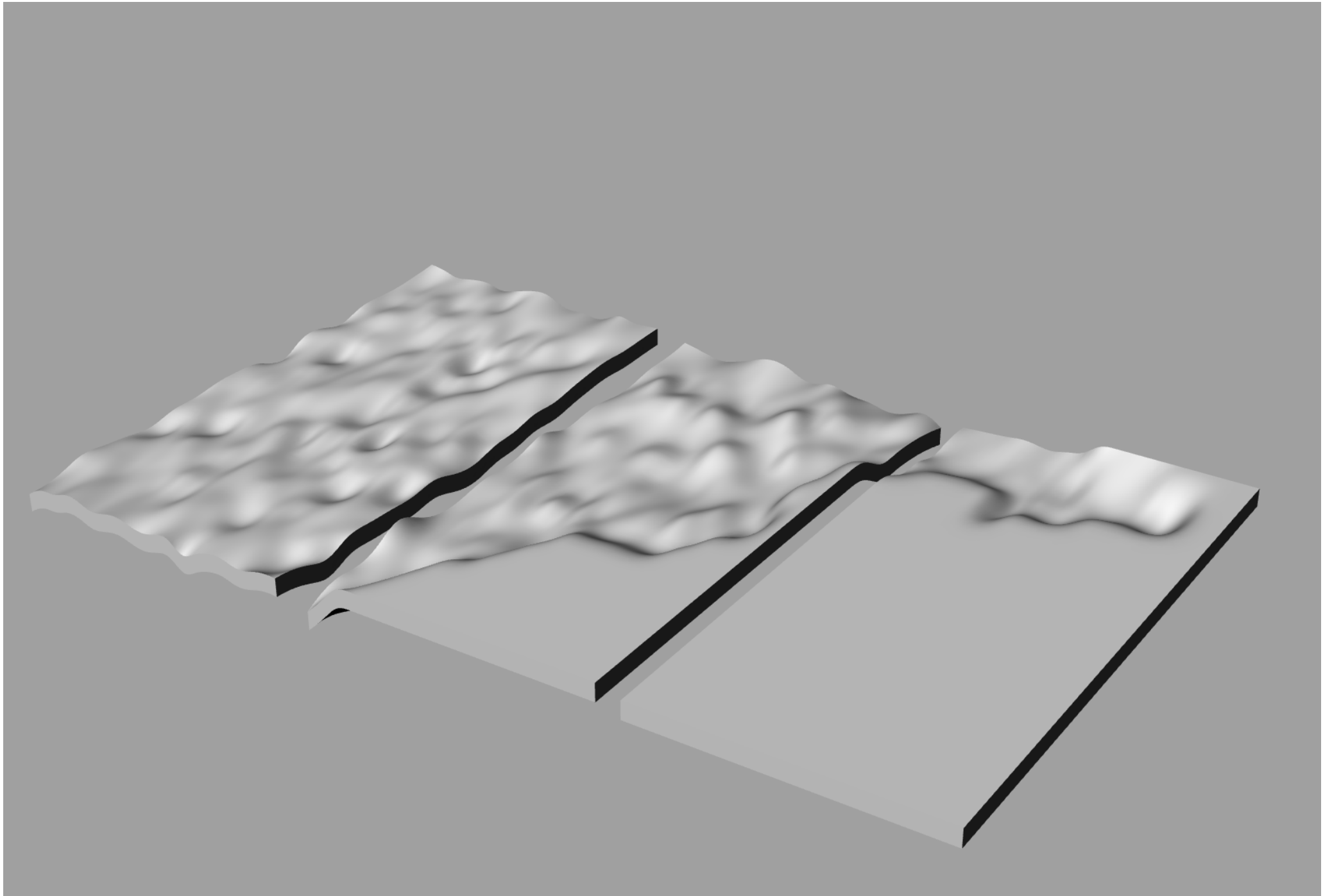


Fig. 21



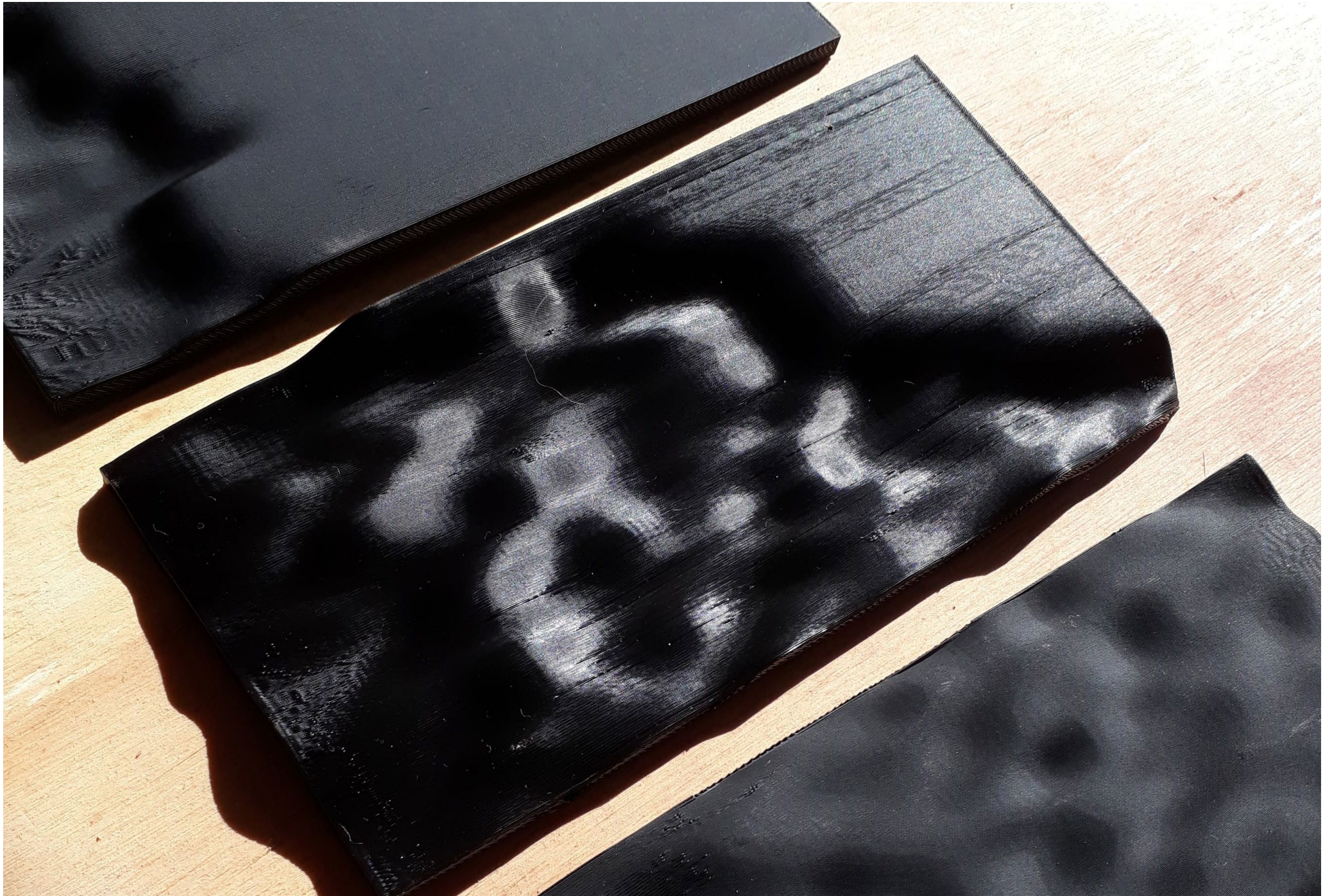


Fig. 22





Fig. 23

## description of practice Subnatural Surface Artifacts

The year 1930 saw the completion of Auckland's Western Reclamation, concluded by a project aimed at providing a peninsula of land that aided in the transport of goods to the harbour now named Wynyard Wharf<sup>31</sup>. Initially, home to timber processing facilities, boat manufacturing, and joineries the area became known as an industrial district with the transformation to bulk storage of fuel and cement. Today Wynyard Wharf is in an active state of change under Panuku Development Auckland's plan to turn the site into a mixed-use precinct encompassing retail, residential, urban park, and commercial zones<sup>32</sup>. Panuku along with Wynyard Quarter's Tangata Whenua,<sup>33</sup> Ngāti Whātua o Ōrākei, work together to protect Auckland's waterfront. The Urban Design Framework, a set of design constraints by which development must follow, favours maritime themes in the redevelopment of Wynyard Quarter as stated by the Auckland City Council, to bring attraction to Auckland's culture of maritime history as a "world-class destination"<sup>34</sup>.

Wynyard Quarter was a destination I often frequented as an undergraduate. Many a student project was focused on the maritime histories, while I was intrigued by the covertness of the industrial histories embedded within the

31 "Wynyard Quarter I History," accessed March 12, 2019, <https://www.wynyard-quarter.co.nz/history>.

32 Panuku Development Auckland, "Panuku I Wynyard Quarter," Panuku, last modified 2019, accessed March 12, 2019, <http://www.panuku.co.nz/wynyard-quarter>.

33 (noun) local people, hosts, indigenous people – people born of the whenua, land as defined in, "Tangata Whenua - Māori Dictionary," accessed April 15, 2019, <https://maoridictionary.co.nz/search?idiom=&phrase=&proverb=&loan=&histLoanWords=&keywords=tangata+whenua>.

34 Auckland City Council, Wynyard Precinct - Urban Design Framework.

terrain. Confronted by the common theme of covering up I decided to embark on a research project that would prove to bring forward political points, one that insisted upon bringing to the surface that which were unsavoury to most, but compelling to me.

Initially, I intended to research how the role of surface treatment in spatial design could be inspired by natural textures found within the habitat of Auckland's Wynyard Quarter. I saw the term 'nature' to pertain to the organic growth of trees, shrubs, and flowers, as well as shoreline inhabitants such as limpets and oysters. Out of this came a site map and textural analysis #1. Here I was documenting the relationships between the surface condition textures and their surrounding environment at Wynyard Quarter as well as their relationship to one another. As the project progressed, however, I found this to be a superficial analysis of what natural textures were, and I came to refer to them as 'idealised natures'. I became more and more interested in the eroded surface textures (later I would be thrown into the world of subnatures), those that were discouraged in the built environment. I discovered these to be cracking, flaking, rusting, seeping, bleeding, splintering, and rippling. These naturally occurring conditions appeared to be the vernacular of post-industrial Wynyard Quarter, and I sketched them with a particular concentration to detail to capture as much of the gritty essence as I could. Textural analysis #2. Accordingly, taking the time to observe these surfaces that make up space helped to give a deeper understanding of the environment that people directly interact with. As a spatial designer, this is important to my practice because as a discipline we are actively engaged with the design of human environments.

The threshold of where the harbour meets the shores of Auckland City activates an eroded textural climate to an extent not seen further inland. The built environment here is affected by an increased exposure to saltwater causing erosion. The porous nature of construction materials such as concrete, timbers, and brick makes them vulnerable to weathering provoked by sea-spray<sup>35</sup>. Mixed with industrial activities and chemical storage, the material palette throughout Wynyard Point is rich in texture. It was these conditions that attracted me to situate my research in Wynyard Point for their influence on the surface.

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35 Robert J. Flatt et al., "Chemo-Mechanics of Salt Damage in Stone," *Nature Communications* 5 (September 11, 2014): 4823.





Fig. 24, 25





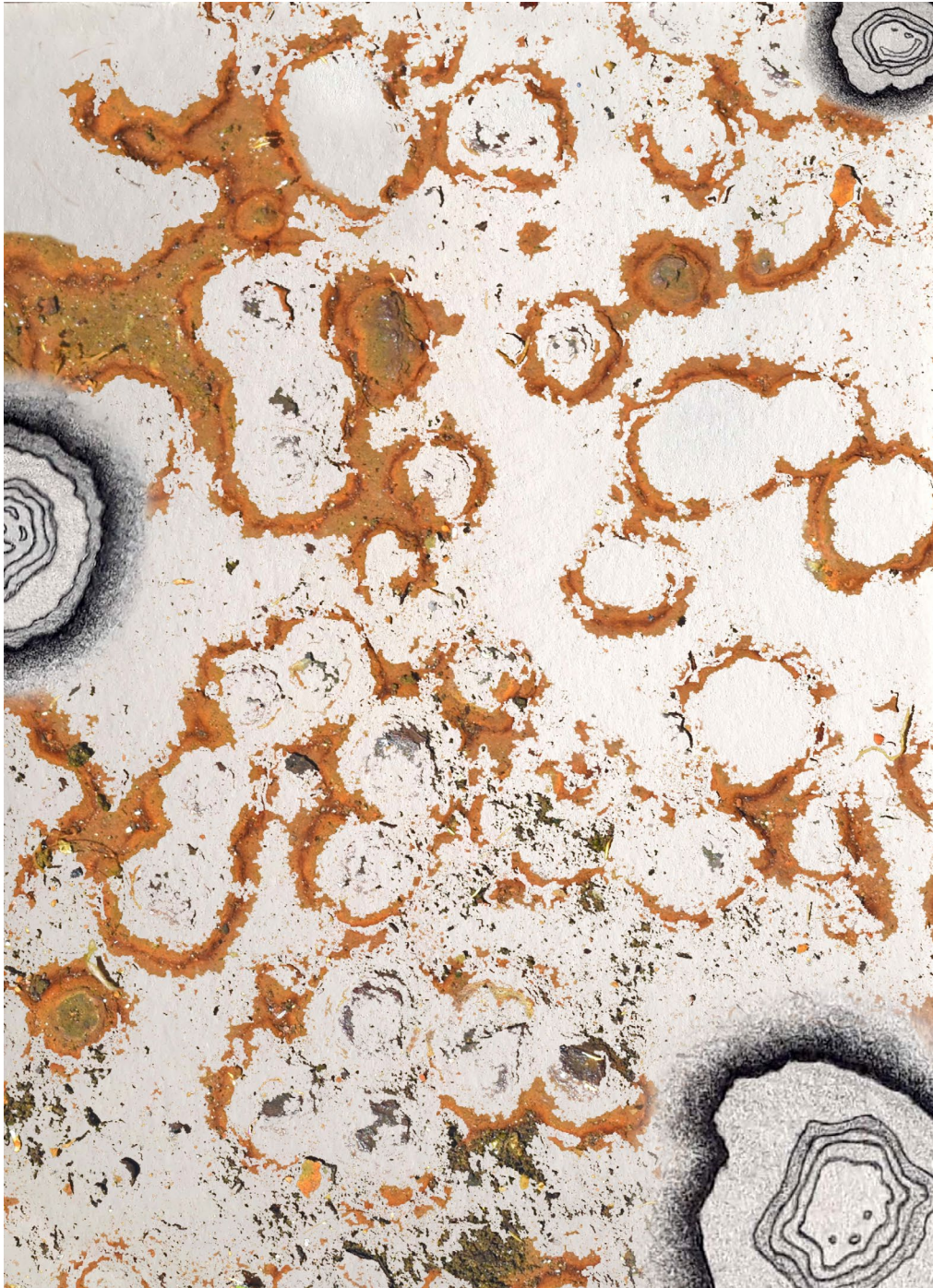
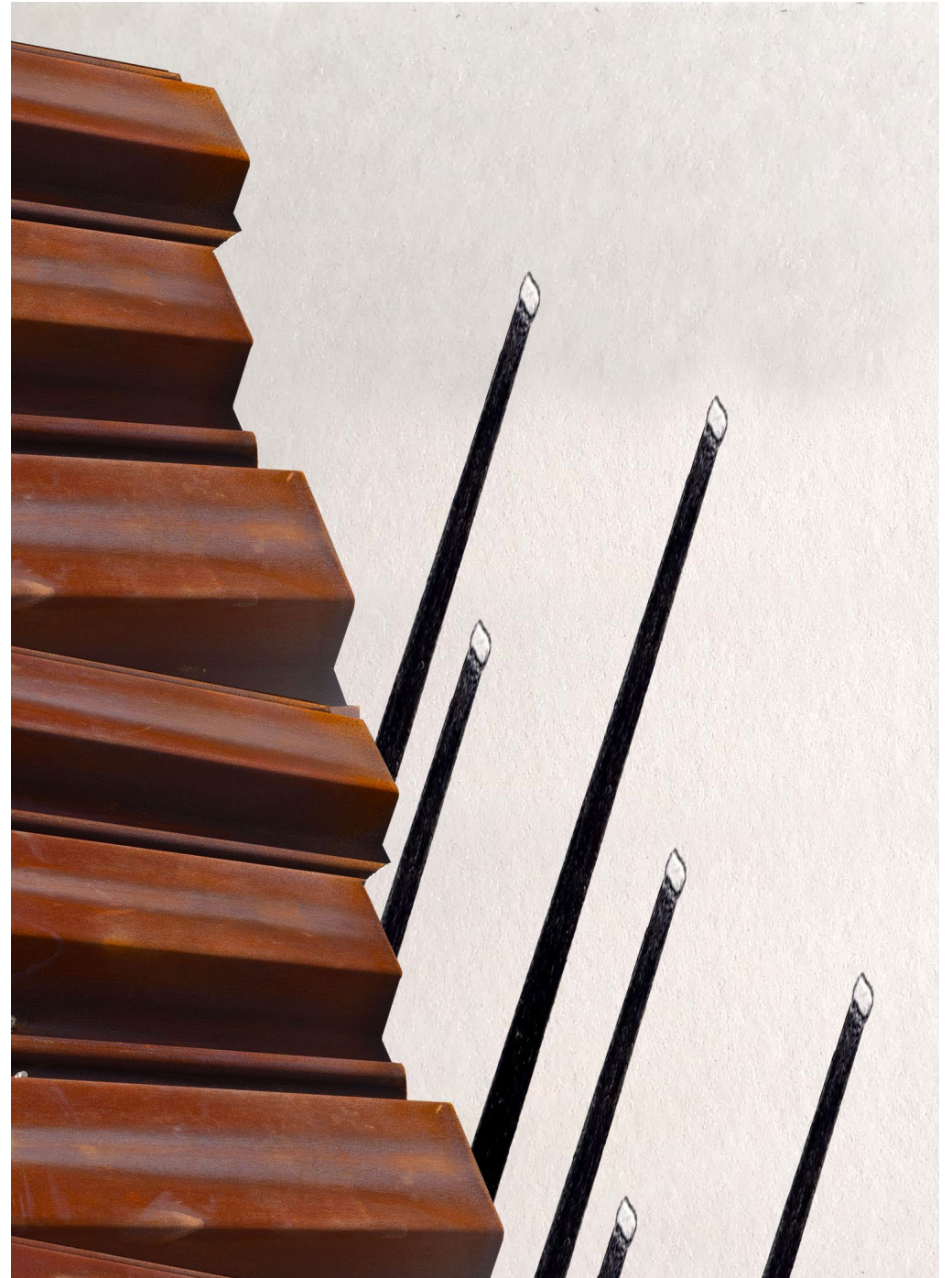


Fig. 26, 27





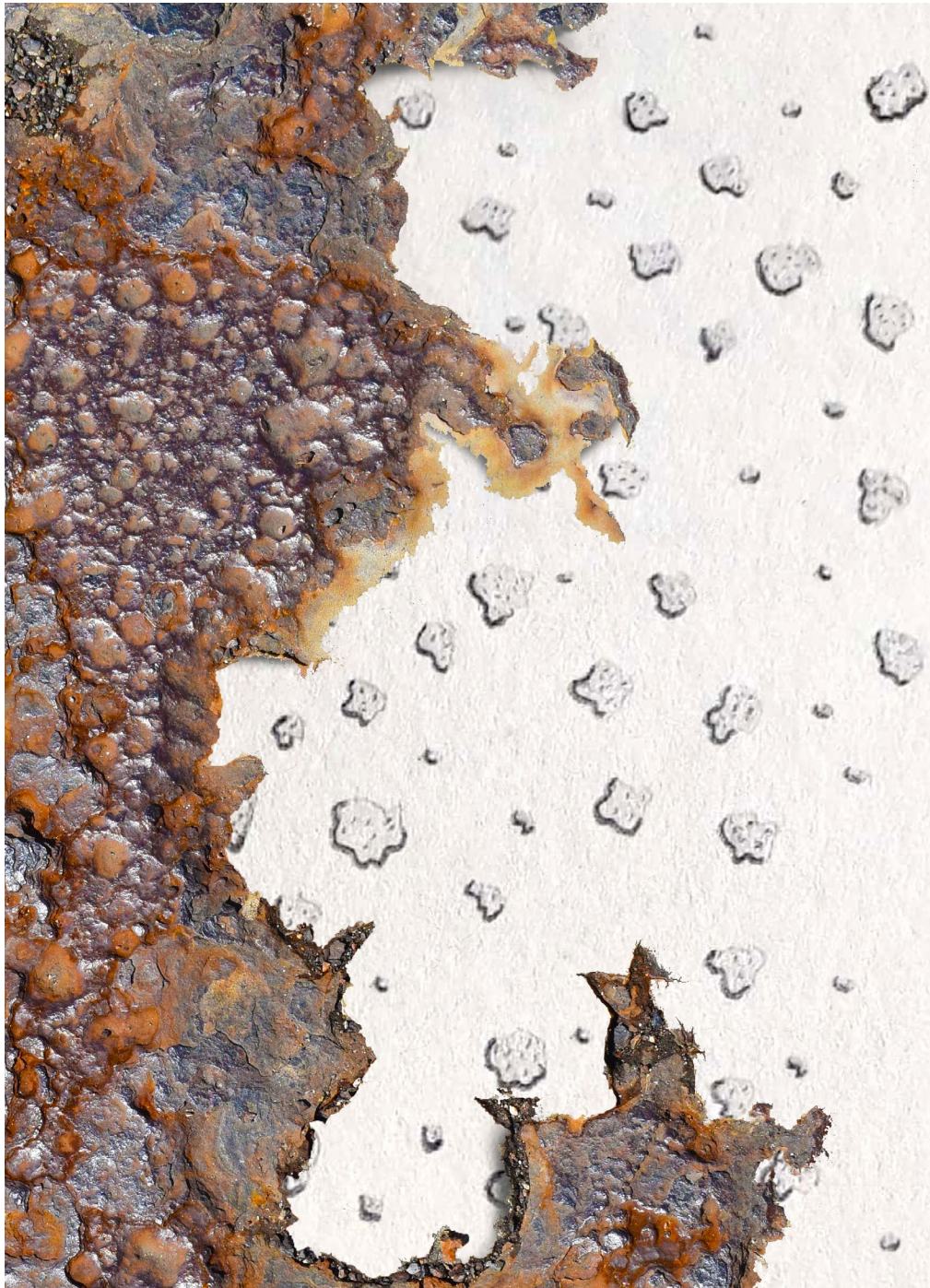


Fig. 28

Following the textural analyses, I created collages by digitally combining the textural sketches from textural analysis #2 with site images. With these, I aimed to spatialise the relationship between the photographs of the site, an objective reality, and my interpretation of it through sketches, a subjective perception of the site.<sup>36</sup> This was to explore multiple facets of Wynyard Quarter simultaneously in order to build up my research knowledge. By nature, I am a tactile designer; I prefer to create with my hands alongside digital processes rather than purely image-based making, or solely model making. However, I wanted to explore the fabrication of surface through a digital platform as an alternative study of the construction of surface. Difficulties I encountered with the collages were flatness, failure to communicate the uninhibited quality of subnatures, for example, rust as it bleeds, as well as a disconnect between the sketches and the photographic images. Consequently, my efforts at collage became stagnant, and while it did not work for my research, it would be a waste to give up and disregard it, so I printed out one of the collages and used it as a blueprint to build a surface model upon. For this experiment, named Additive Surface Modelling, I utilised white crepe to act as the sketch component, as previously mentioned in the methods chapter I do not use colour in my textural sketches. Shellac was also applied in pursuance of the photograph component, as I wanted to capture the flaky nature of rust as well as the richness of colour. As a result of the translation of sketches and photographs into a surface model, the spatial relationship between the two realities became clearer.





Fig. 29

While searching for a term to describe these alternative natures, I discovered David Gissen's book, *Subnatures*. At this point, the research began operating under a Subnatural paradigm. This was a pivotal moment in the research and gave me a solid contextual basis as well as a methodological framework. To get a deeper understanding of the text, I translated a section of the book into a diagram extrapolating relationships to my existing site analysis and concepts articulated in Gissen's theory. This diagram discussed the subnature of dust through the example of Jorge Otero-Pailos' *The Ethics of Dust* series, conceived from a review of John Ruskin's *The Ethics of the Dust* treatise. FIG This diagrammatical mapping of context served to bring further visual analysis to theories extrapolated from the text to me, a visual learner.

Constructing A Taxonomy of Wynyard Quarter Through Subnatural  
Surface Artifacts.

Reviewing the diagram and Jorge Otero-Pailo's technique led me to consider

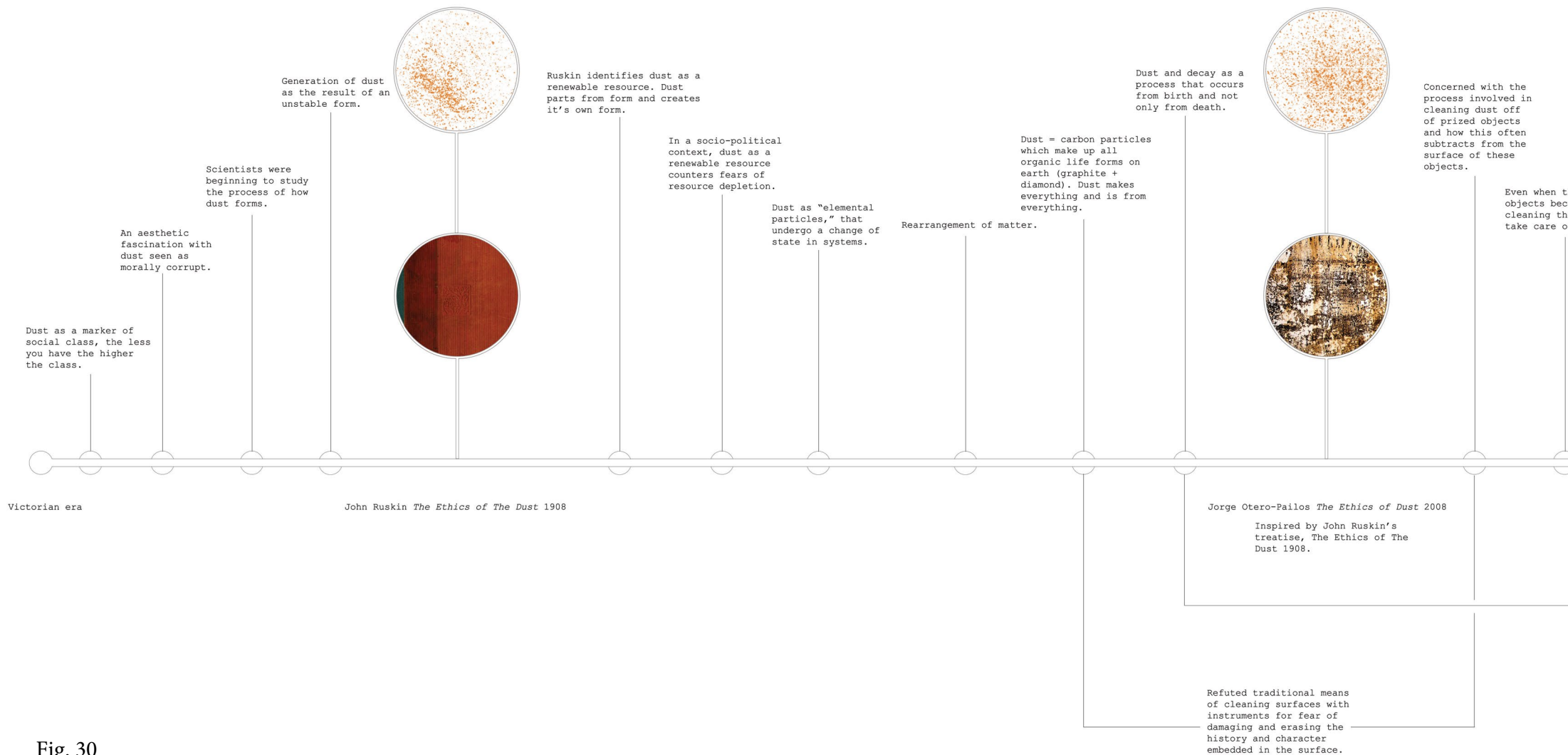
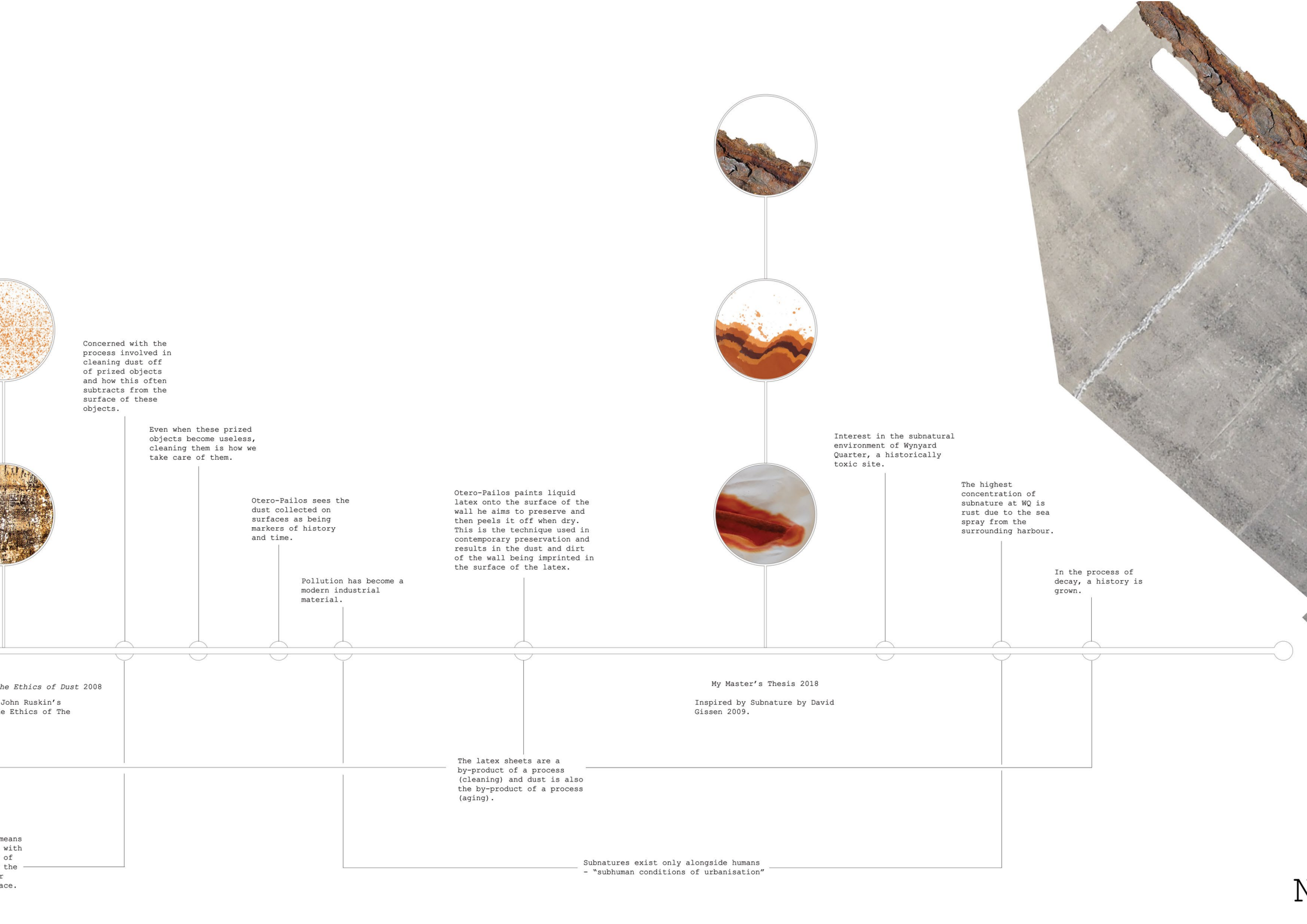
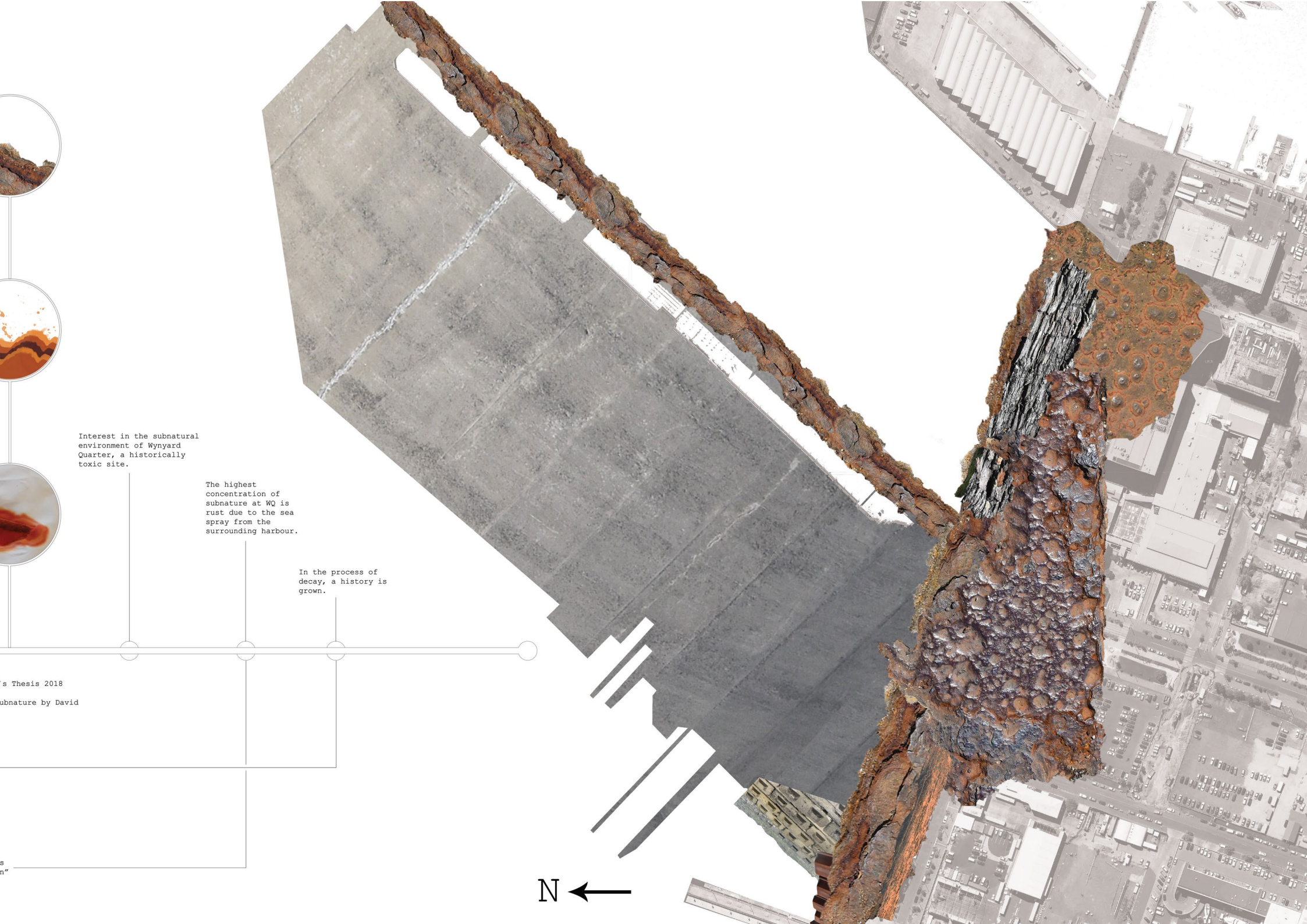


Fig. 30







Interest in the subnatural environment of Wynyard Quarter, a historically toxic site.

The highest concentration of subnature at WQ is rust due to the sea spray from the surrounding harbour.

In the process of decay, a history is grown.

N





Fig. 31

how to distress materials in relation to their surface.<sup>37</sup> I conducted a study of subnatural colours and textures by way of ceramic tiles to create a catalogue of subnatural narratives. The tiles were in response to the subnatural surface conditions and study of edges and vulnerable thresholds induced by subnatures at Wynyard Point. This was to be displayed as part of AUT's Art and Design Exhibition 2018.

As I was unable to complete the full tile making process from beginning to end, due to time constraints and kiln availability, my exhibition was centred around my subnature inspired tile making methods and workspace. Harriet Stockman, AUT wet lab technician and skilled ceramicist, and I discussed my options for an exhibition design that drew from an archetypal ceramics studio layout (FIG). Harriet suggested vertical design elements and porous materials like timber to prevent the clay from sticking to a work surface. I decided upon displaying the tiles on trestle tables for the workspace and hung the cloth to capture the different pigment stains from kneading iron oxide into the clay.<sup>38</sup> The stains were to be a documentation like a drawing, creating a dialogue between the process of making and the resulting tile. Along with this process, I also exhibited a Subnatural site map of Wynyard Quarter and a dossier containing context and information on these subnatures in relation to the map.

#### Stained Process Cloth

Kneading the different coloured iron oxides into the clay left behind a stain on my work surface. Through displaying the cloth that I worked upon, I was exposing the process and opening up my research methods. As I later came to find out, the pigmentation of the oxides is changed drastically after glaze firing and so having the documentation of my intentions and thought processes through these textile artefacts allowed me to reflect and make a second attempt at a colour and texture palette of Wynyard Quarter. This is all a part of research as design is not a linear process.

#### Map + Dossier

The tile process station was accompanied by a dossier and a subnatural site map that charted the subnatures I have investigated thus far to give context to my research. The dossier categorised these subnatures and contained tabs that pertained to the watercolour painted subnatures on the map which acted as a key (fig.).

The categories were as follows:

<sup>37</sup> For example, acid etching, laser etching, water blasting, and kiln firing.

<sup>38</sup> Commercially bought stoneware clay.



Fig. 32

Seagulls  
Crowds  
Weeds  
Debris  
Rust  
Hazardous Liquid Storage

#### Process Tiles

The tiles that were in process were a colour and texture palette in response to subnatural surface conditions of the site. When the full tile process is complete, they will read as a collection of site analyses and will inform the design of a resurfacing programme at Wynyard Quarter. To create the textured surface, I 3D printed a 130mm x 130mm stamp derived from a photograph of a rusted tram track found in the pavement I had taken on a site visit. This stamp was then pressed into three clays, each previously kneaded into three pigment combinations and displayed on a white cloth upon a board of timber. The separate pigment combinations in jars were set in front of their relative tile. The clay sculpted at my hands acted as an extension of my motions and took form through a ritualistic knead, roll, and imprint cycle.

Once air-dry the tiles were ready for the kiln. They underwent a bisque firing which is the first round of firing for a body of clay not yet glazed. A bisque makes the clay resistant to water, protected against breakage while applying pigments and glazes, and permeable to glaze.<sup>39</sup> Following the bisque firing, I mixed iron oxide red, iron oxide yellow, and crocus martis<sup>40</sup> with water to make a liquid pigment, and applied these to the tiles with a damp sponge in soft, dabbing motions. Crocus martis was concentrated on the bubbled peaks, iron oxide red was painted on the edge of where the peaks met the flat tile, and iron oxide yellow was blended into the iron oxide red, and then bled out onto the flat tile. In this exploration, I was interested in emulating the bleeding quality of when rust stains a surface as rust is one of the subnatures in my catalogue of Wynyard Point.

Next came the application of a clear glaze to the tile façade through dipping the tile into the glaze, and a subsequent glaze firing which created a vitrification of the tile surface.<sup>41</sup> Upon the glaze firing, the iron oxide pigments

39 Tony Hansen, "Bisque, Bisquit Firing," Reference Library, DigitalFire.Com, last modified 2015, accessed May 4, 2019, [https://digitalfire.com/4sight/glossary/glossary\\_bisque\\_bisquit\\_firing.html](https://digitalfire.com/4sight/glossary/glossary_bisque_bisquit_firing.html).

40 A purple-coloured iron oxide.

41 Tony Hansen, "Glaze," Reference Library, DigitalFire.Com, last modified 2015, accessed May 4, 2019,



Fig. 33

disappeared and the tile surface darkened to a deep brown/black hue. While this was not my intention, it offered a glassy veneer under light reminiscent of an oil spill, many of which have occurred around the silos at Wynyard Point.<sup>42</sup> I had expected the glaze to act as a liquid glass and did not realise that glaze alters the colour of the clay substrate.

Following this exploration, I repeated the tile making process up until the glaze firing phase where I then fired the tiles without a glaze to seal the pigment. In omitting the glaze, the tile surface retains the sponged pigments and holds a matte texture. After a second kiln firing the pigments appear vividly and blend together at the thresholds to create a gradient.

#### Clay Collection from Site

As the research is concerned with uncovering post-industrial histories embedded within the subnatural surface conditions of Wynyard Point, delving

[https://digitalfire.com/4sight/glossary/glossary\\_glaze.html](https://digitalfire.com/4sight/glossary/glossary_glaze.html).

<sup>42</sup> Ministry for the Environment, Manatū Mō Te Taiao, "What Is the Problem? New Zealand's Legacy of Soil Contamination.," accessed May 4, 2019, <http://www.mfe.govt.nz/publications/rma/2-what-problem>.





Fig. 34

beneath the surface and developing an exploration into a site-sourced clay substrate was necessary in reviewing a specificity of site. So, equipped with bucket and hand shovel, I walked down Hamer Street, Wynyard Point in search of construction sites who were excavating the ground and exposing clay. About halfway down, at the ASB carparks, I came across some contractors who were laying concrete next to a large pile of upturned clay covered by a tarp. I spoke with the project manager and asked for permission to collect a bucketful from this pile. He advised against it as the reason the pile was under a tarp was that it was contaminated. While I could not harvest this clay, I was permitted to collect some further north on Hamer Street where the grass on the berm thinned.

The excavation into the earth uncovered metal, coal, timber, and oxide fragments as well as rock segments. These sediments will be left in the clay as they add a richness of character specific to Wynyard Point that I believe will





Fig. 35, 36, 37, 38

bring value and expediency to the project that clay that has no relationship to this site would lack. Being able to utilise a material that has been unearthed from Wynyard Point is an exciting aspect of this research concerned with the notion of uncovering histories that are actively being interred.

This inquiry into a site sourced clay substrate brought up a new three-step process that had to be incorporated into the production of the tiles:

Crumble clay onto a timber board to let dry out, using hands like a sieve to remove large rocks.

Place the board into drying cupboard for two days.

Once dried, tip clay crumbs into a bucket and cover with hot water approximately two finger widths above the level of clay. Let soak for several hours.

Deposit clay slurry into a towel and wring out excess water. Leave to sit in a towel for a few days allowing surplus water to absorb.

At this point, the clay is ready to be manipulated with the addition of oxides, 3D stamp texture imprints and glazes. A series of tests were performed with this new clay to determine its material properties such as whether it was elastic enough and workable or whether store-bought earthenware needed to be added in to improve pliancy. Additional properties I was looking for were; how well the glaze would fit the clay body or whether the glaze would craze and induce cracks or splintering, whether stones embedded inside would explode in the kiln and to what extent, and what colours would evolve. Built from site-sourced hand-made bricks, just over the water to the north-west sits the Chelsea Sugar Refinery. The clay was excavated from the factory site in Birkenhead and was used to make one million bricks for the construction of the factory.<sup>43</sup> The bricks are a coral colour, and I used this to hypothesise what the colour of the clay sourced from Wynyard Point could potentially be. This knowledge assisted in the development of conceptual programme designs parallel to the developing tiles. Shifting between methods of making tiles, and methods of reflecting and drawing constructs a consistent thought process, keeping the research systematic and on task.

<sup>43</sup> NZ Sugar Company Ltd, "Chelsea Sugar - Our Story," last modified 2019, accessed May 5, 2019, <https://www.chelsea.co.nz/our-story/>.

Subsequently, five test samples of this new clay with an emphasis on the finish were important at this point of the research into tile surfaces as an avenue not yet developed. The first with oxides painted onto a bisque fired tile and no glaze, the second with glaze half-dipped, the third with glaze full dipped and sponged back, the fourth glazed through a spray application, and the fifth matte glazed and sponged back. As I had predicted, the fired clay colour was akin to the Chelsea Sugar Refinery bricks.



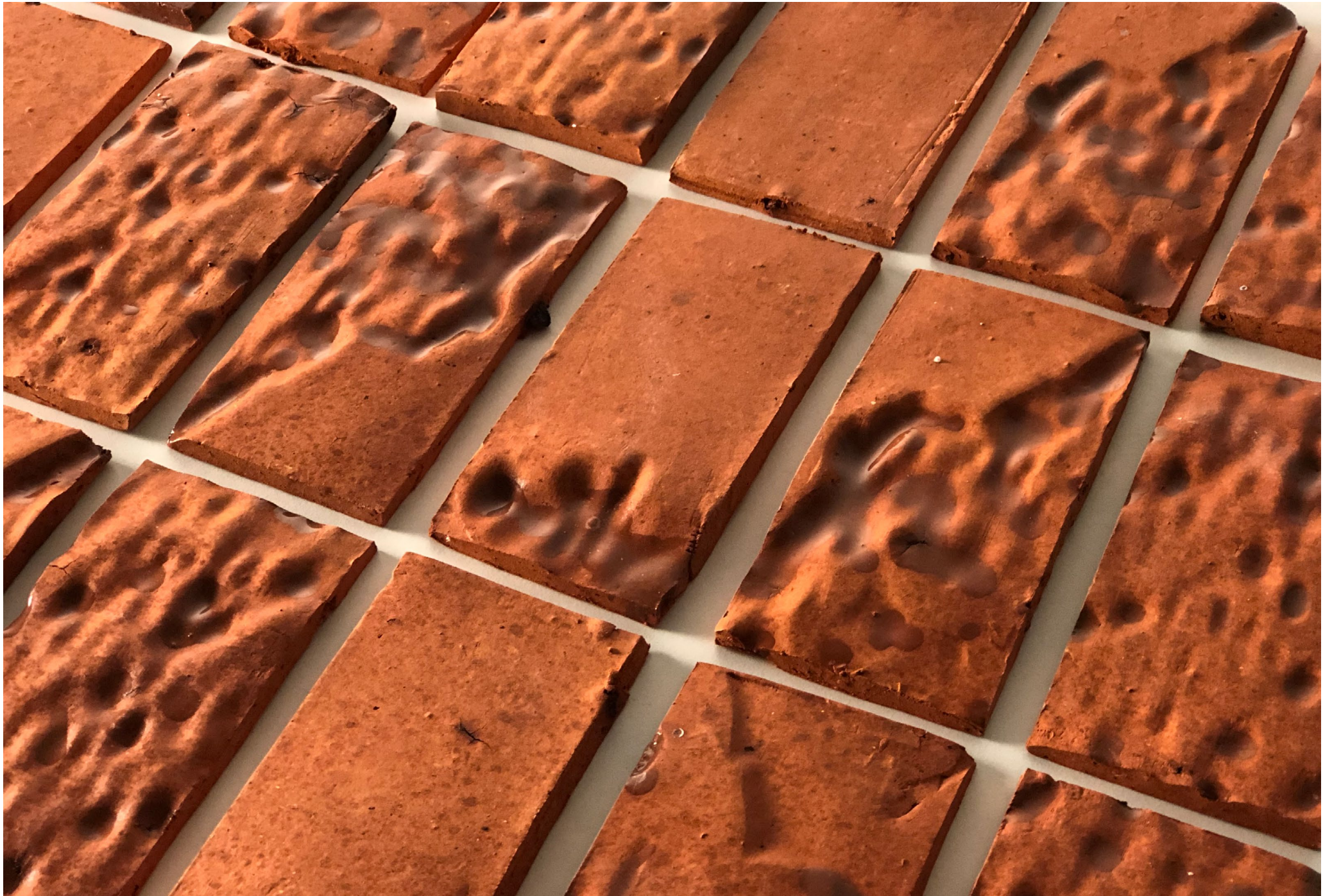


Fig. 39



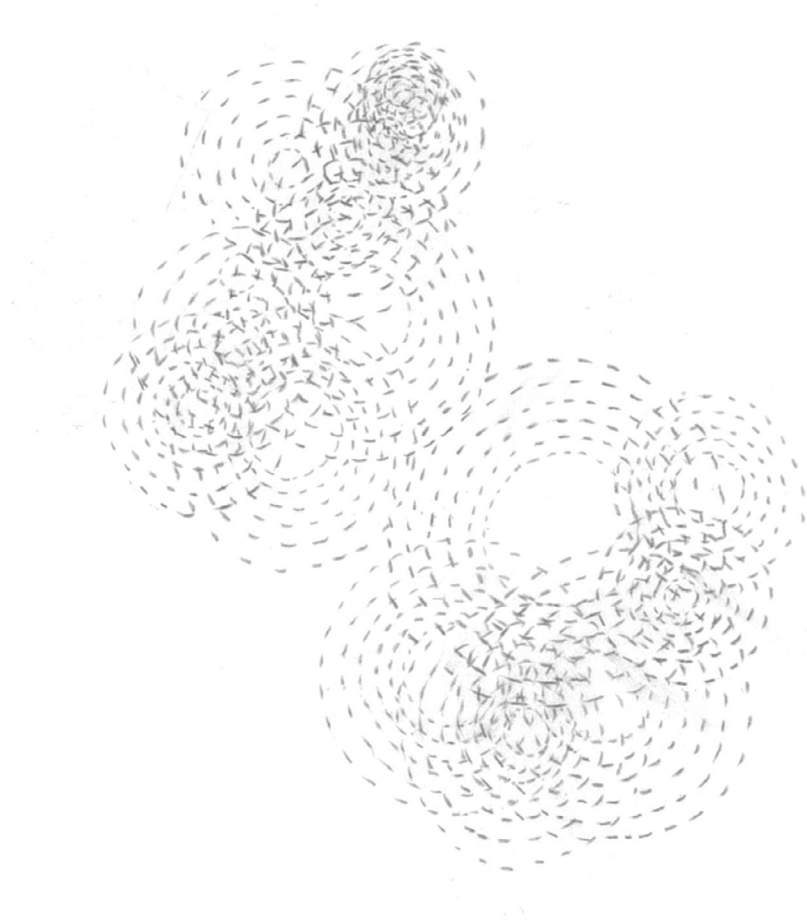


Fig. 40

## The Design Proposal Development

Alongside the research into tiles, I was also creating design iterations conceptualising the resurfacing of Wynyard Point programme within the UDF park axis. A study of the contamination perimeter around the silos was used to determine the orientation of the final iteration of tiles and their scale. For this, I have chosen a 140mm by 170mm tile surface to allow an intimate scale to be handcrafted by myself. The scale also speaks to the act of infection, a small volume gradually multiplying into a large volume. The tiles appear on the perimeter of the contaminated soil, exaggerated by six meters from the silo footprints at an incremental outward radius of one meter, though contained within the boundaries of the park axis. Inward of the silo footprint, lie seating following the curvature of the silos as mentioned earlier. These hard landscaping elements will be complemented by soft landscaping with the planting scheme dictated by the contaminated soil also in a similar radial fashion. The tiles will be recessed into the earth and set with a sand grout.

## Conclusion

This master's thesis synthesises my research findings in a way that speaks to

WYNYARD POINT CONTAMINATION PERIMETER 1:1000 @A1 → Z



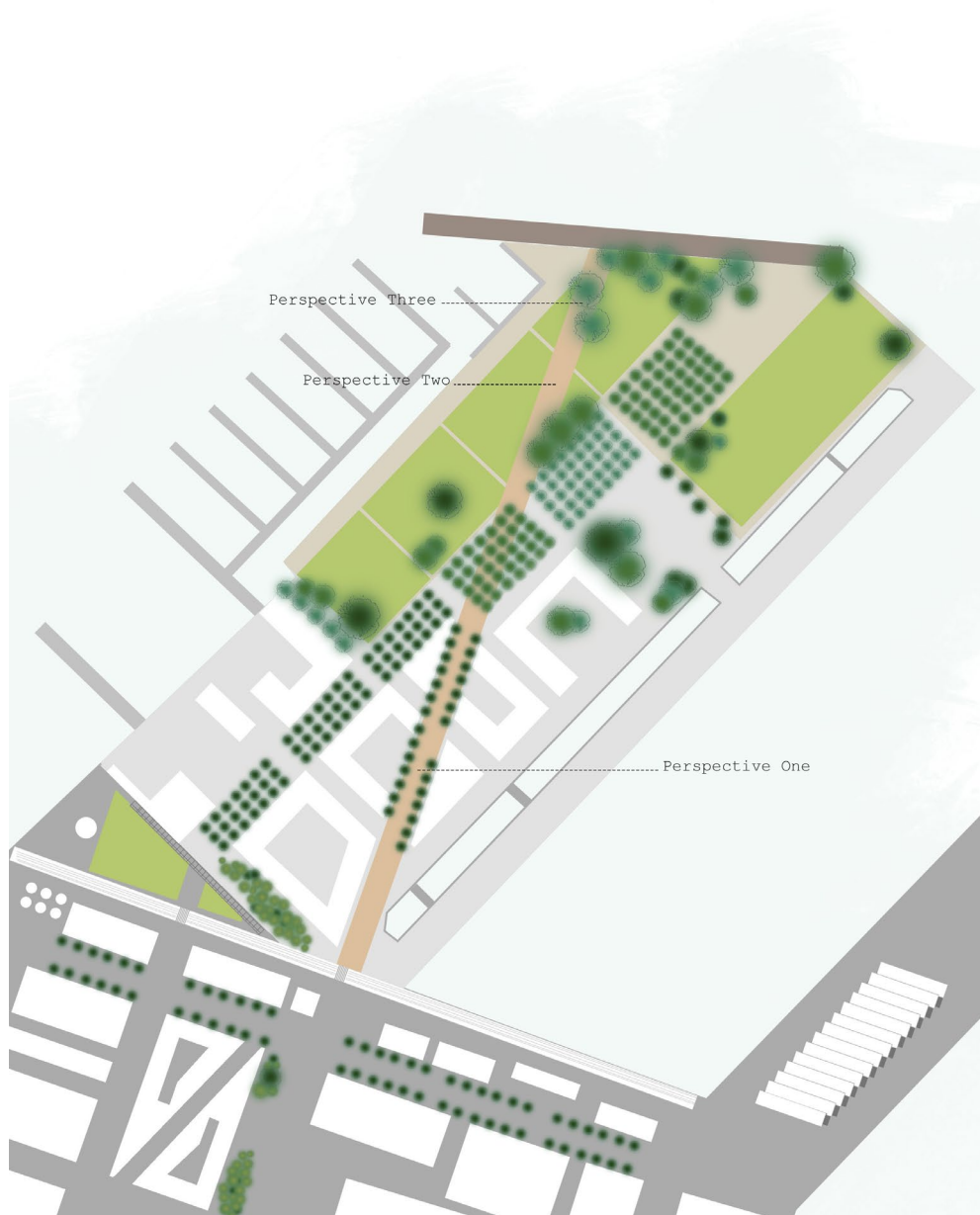
Fig. 41



my design practice through a site-specific, craft-focused approach that builds the foundations for a post-industrial design proposal situated at Wynyard Point on Auckland's harbour. Throughout the research project I have followed a sub-natural methodological framework which insists on site specificity to produce a body of work that generates new knowledge into surface texture conditions. The research began with a specific interest in the surface conditions in the subnatural environment at Wynyard Point, intending to resurface the ground where the former silos stood. Through material explorations into site-sourced earthenware clay tile, subnatures are highlighted as desirable surface conditions that act as a catalogue of site occupancy and history. They aim to interrogate the aesthetics of waste through semi-glazed tile surfaces that speak to pollution as a modern industrial material. As a material programmed into the landscape of Wynyard Point, the subnature inspired tiles coexist with the established subnatures of hazardous liquid storage, rust, debris, weeds, crowds, and seagulls. Examining spatial relationships between site-specific surface conditions and surface fabrication strengthened my practice in material exploration beyond a basic level.

The following pages document the final work as part of the Matariki Postgraduate Exhibition 7 June - 15 June 2019 in St Paul Street Gallery Two, AUT.

Wynyard Point Site Map showing Subnatural Axis 1:1000 @A1







Perspective One depicting north through park axis lined by mixed-use buildings with subnatural tiles in initial establishment.





Perspective Two delineating landscape view towards Auckland CBD with subnatural tiles in intermediate acclimation.

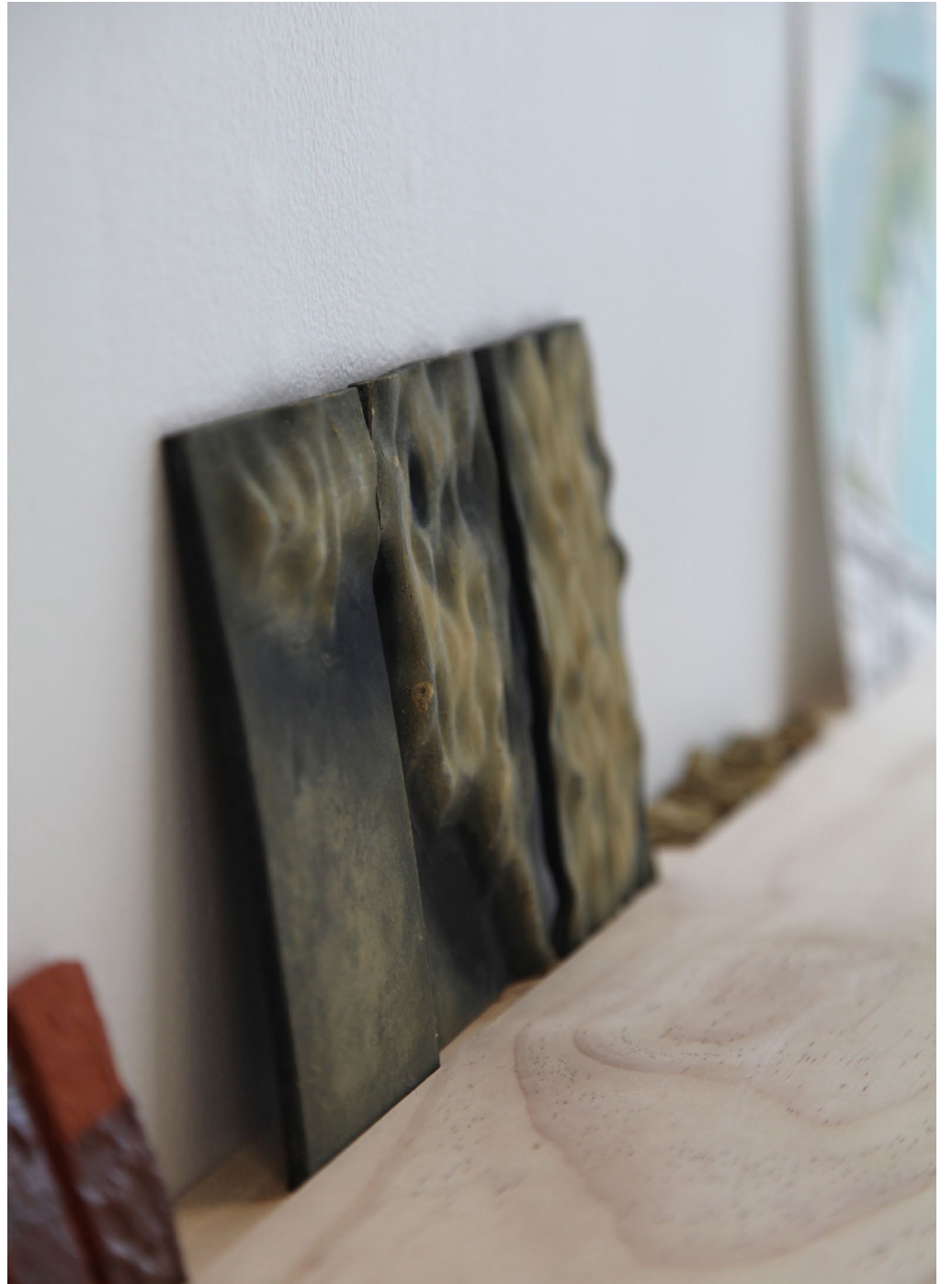


Perspective Three illustrating northern most edge of Wynyard Point, with subnatural tiles in well-established state of occupation and weathering.





Floating shelf housing process tiles







Tiles installed on gallery floor in arc formation, indicative of proposal.

















Detail of the exploding effect that kiln firing has on rocks within clay substrate.











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