

INFORMATION PACK

DoC Ref 65531-OTH

Application To lease

Between

Department of Conservation (Lessor)

and

Fort Stony Batter Heritage Park Ltd (Lessee)

of Waiheke Island.

Lease:

Reserve: Fort Stony Batter - Located within MoW Station, Eastern Waiheke Island

Assets: Land, Buildings, Constructions, Subterranean Tunnel Complex, Fixtures, Plant, Equipment and Infrastructure, Name and Intellectual Property associated to the site, Historical official information relevant to the Asset.

Term: 20-year Exclusive Lease

Activity: Guiding, Tourism, Education, Exhibition, Museum, Astronomy, Grazing, Cafe, Accommodation, Commercial, Retail and Scientific Research

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1.0 Introduction:

1.1 Fort Stony Batter (FSB) forms part of New Zealand's coastal counter bombardment network established to protect our Country's shores during WWII. Construction at FSB commenced in 1942 in response to the United States of America's request for allied preparedness post attack by Japanese forces on Pearl Harbour the previous year. Planning for coastal defences actually commenced as early as 1936 in Parliament, however, until the Pacific campaign gained momentum implementation was deferred. The complex was completed in 1946, did not 'see' battle and was finally decommissioned in 1951 without a shot fired in hostility.

1.2 Design engineering was provided domestically; construction was assigned to the Ministry of Works Dept. on behalf of Ministry of Defence. Technical knowledge was drawn from the Tawa Rail Tunnel (1937), applied to demanding requirements of a direct strike engagement.

1.3 The complex comprised 3 x 9.2" Gun emplacements, supporting Magazines, ordnance stores, a generator plant and War shelters all linked by 1,000m of subterranean passages across 3 levels.

Throughout the construction phase the project was conducted as a Top Secret Ministry of Defence priority. A workers camp was established within the reserve, engineering workshops, mess halls and accommodation huts for a team of approx 100 personnel. Personnel were prohibited from socialising with local community, all requirements, clothing and provisions arrived by military barge at MoW Bay, including the massive 9.2" guns weighing in at 28,000kgs each, then transported via an especially constructed road to Stony Batter..

1.4 The strategic advantage in site selection is apparent, remote isolated location, clear line of sight to the shipping channel and early response capability viewed in terms of the combined regional network of Listening Posts, Radar Stations and Observation Posts stretching from Whangaporoa, Rangitoto, North Head and locations in between.

1.5 Post 1951 the site became obscure to public interest and was abandoned for a great many decades. From approx 2008/ Waiheke community members organised to set about cleaning the complex from 60 years of accumulated garbage, repair to vandalism and undertake restoration. However, in 2015 the complex was closed by DoC and has remained defunct since. In 2017/18 FSBHP Ltd obtained Concession to operate Charter Guiding and set about developing a comprehensive Visitor Experience heritage plan to manage the complex in to the future.

2.0 Kaupapa

2.1 The management plan adopts clear principles of Preservation, Conservation and Engagement. The site presents significant constraints encompassing geographical isolation, restricted access, no electricity or communication, Geological heritage, Archaeological features, remnant Ecology and Heritage 1 Classification.

2.2 Our approach is to design an enhanced visitor experience without modification to the Landform or Built structure. Consultation has been undertaken to ensure proposed activity has a less than minor effect across all of these areas so it can be maintained or reversed without damage to Heritage assets. In doing so we are able to turn constraint to advantage, preserve and exhibit post-colonial features in a contemporary context.

2.3 Prior to construction of the Fort there appears to have been little pre European activity at the location. DoC, Auckland Council and Heritage have undertaken archaeological survey to Maori occupation and record no evidence at the location. Iwi acknowledge occupation sites and Kaigna exist around the coastal areas and headlands. However, the site is inland from the coast and does not display evidence or characteristics to occupation. Regardless of these confirmations FSBHP intends to engage with Waiheke Iwi to re-examine the site and communicate a narrative of Island settlement from first arrival of Maruiwi from the Pacific circa 950AD, naming the Island Te Motu Arai Roa, to a complex whakapapa arriving at present day. In this respect we will draw on Ngati Paoa's Cultural Values Assessment, consult Ngai Tai ki Tamaiki, other interested parties, to present Song Lines, Cosmology, Celestial Navigation and interpretation to engage, educate community and visitors.

2.4 Our central objective is to develop the Land and Site in to a 'must see' destination visitor experience in the Auckland region maintaining principles of preservation.

2.5 To achieve these important objectives a programme of enhancement is required, exhibiting the range of heritage features to be understood at the Reserve. The following material sets out in overview proposed activity, management, development and restoration processes.

3.0 Objectives

3.1 Preservation over heritage assets comprising modified landscape, built structure, archaeological remains, geology, flora, fauna and night sky.

3.2 Apply for International Dark Sky accreditation. Implement Dark Sky programmes in partnership with ASTRONZ and DoC.

3.3 Inform and educate to historical function and process

3.4 Communicate narrative from a Cultural perspective

3.5 Deliver high value experience across a diverse range of activities

3.6 Achieve Tourism Quality Mark and recognition as a quality provider

3.7 Offer support services and facilities to achieve a fully integrated commercial heritage park

3.8 Develop multi use spaces within constructions / landforms to engage public as set out in **Section**

8.0

3.9 Maintain a creative, sympathetic and stimulating design aesthetic across all developments

4.0 Proposal

We propose to establish the site as Fort Stony Batter Heritage Park and Education Centre capitalising on inherent assets of:-

- 4.1 Subterranean built structure
- 4.2 Surface built structures
- 4.3 Culturally modified Landscape
- 4.4 Open spaces
- 4.5 Archaeological heritage
- 4.6 Geological heritage
- 4.6 Ecology values
- 4.7 Night sky values

4.8 Our proposal is to develop Fort Stony Batter Heritage Park in to a regional destination activity for community, tourists, cultural and educational engagement targeted to Domestic and International visitors.

5.0 Guiding- over land

5.1 The activity is proposed as self-guided tour demarcated by newly created pedestrian tracks linking all known and future discovered features. Presently visitors roam randomly across the landscape, climbing fences, stumbling through remnant forests and generally exploring without direction. We propose to establish a network of paths and signage to inform, encouraging 'Stick to track' principle. In this process we will enhance both Visitor experience and Preservation values by informing and mitigate disturbance to the ecology while promoting aesthetic.

5.2 In terms of the exact routes paths are to take- that will be determined through operational activity walking and mapping the most viable routs. However, the overview is to link all archaeological features, foundations, risers, tunnel entrances x3 and Gun Pits x 3, ecological and geological heritage so the Visitor is guided in an orderly sequence through the Reserve. Refer attached plan:- **'Subterranean Plan View Including overland route'**

5.3 The Over land experience will grow through accumulated enhancements set out in this Application.

5.4 Artists will be invited to submit sculpture for open space exhibition further enhancing values.

5.5 Archaeology research will present interpretation and displays to features that are currently unrecognisable, over grown by weeds/grasses or as yet undiscovered.

5.6 Geological research will create interpretation to inform the public to origin and heritage values.

5.7 Ecology research will create interpretation to inform the public to bio diversity in Flora and Fauna.

5.8 The **Land Reserve** will be open from 10:00-16:00 x 7 days across summer, reduced hours in winter months.

5.9 Entry is free across years 1-2, then migrating to pp charge including Tunnel access.

5.10 Path construction- Will be formed in the superficial layer @ 50mm-100mm of soil, battered sides and surfaced with permeable materials such as Waiheke quarry chip or similar with high drainage profile. Paths will be bordered by native style grasses sourced from Waiheke.

5.11 New Forest Trails- Currently visitors wander through the remnant forest as they choose. This process is destructive to the Forest floor, root systems and exposes opportunity for contamination by foreign microbes, spores and seeds. As the Overland pedestrian trails develop Forest walks will be designed to emphasise natural watercourses and significant flora.

6.0 Guiding- Site (subterranean tunnel complex)

6.1 The activity is proposed as a Guided experience for the first year in groups not exceeding 25-30 pax. The complex has capacity and exit points to accommodate moderately large groups safely.

6.2 By 2020 we propose to move to a self-guided option achieved by installation of lighting systems and interpretation to guide visitors. We anticipate installation of a photovoltaic power system delivering LED lighting to tunnel passages, chambers and exit points.

6.3 Times and Day of activity will be in response to public demand and seasonal fluctuations.

6.4 Initially it is envisaged to operate Friday thru Sunday 10:00- 16:00 December thru April - then Saturday/Sunday 11:00-15:00. However, these opening hours are provided as indication- flexibility remains discretion of the Lessee in response to demand. The reserves remote location and Waiheke's seasonal population will establish patronage pattern.

6.5 By 2021 Establish museum/exhibition components, integrate existing DoC trails, establish new trails through native forest, and plan for overnight/short stay accommodation.

6.6 2021 develop Night Sky programme, educational lectures.

6.7 Implement Educational tours targeting schools

7.0 Use of existing buildings and construction of support structures-

7.1 Coastal Defense Complex Layout-

In over view the 'tunnels' comprise 3 elevations in a repeating pattern of War shelter/ Entrance/ Magazine chamber, Gun Pit, Service passages. These are featured on the attached '**Site Plan and Elevation View**'. In a descending order of elevation 1, 2 & 3. However, the 'main' entrance is located at the middle level adjacent #2 Shelter leading directly to magazine and passage. Accordingly we start with #2 facilities referencing orientation- refer accompanying map for locations. It is stressed that specific building usage may change once operational and remedial maintenance commences. Suitability of one building over another will become apparent as the project advances, maintenance issues are resolved.

7.1.1 War Shelters The 3 existing War Shelters provide structures suitable for reuse without requiring any structural modifications, thus preserving heritage values and making good use of existing buildings. They are essentially concrete bunkers comprising open space rooms with a single dividing wall to latrines. We propose to utilise these structures, installing nonpermanent fit out sympathetic to the era and architecture. Historically fit out consisted of Barrack Bunk beds x14pax , 2 x Pot Belly stoves, cooking/mess area/wash basin and 2 x latrines. Internal window black out shutters and external steel blast shutters.. Concrete walls and ceilings were cavity battened and gib/soft board lined, no insulation. Shelter #2 is in relatively good condition- Shelters #1 & #3 are in very poor state of disrepair.

Officers' quarters were located separate.

7.2 War Shelter #2- Main Entrance –

Office/wet weather shelter for public, occasional seating/furniture, ticketing counter, stationery/pamphlet storage. Posters /Museum exhibition shelving and merchandise. Evacuation station, communications, First Aid station. Install PV/lighting, tele comm's and heating. Install PV water pump to service latrines.

7.3 Gun Pit #2-

Install wooden bench style seating (none fixed) to accommodate lectures/education/school groups/presentations 40 pax. Membrane style weather protection- none structural/ none permanent/ no structural modification.

7.4 War Shelter #1-

On site Ranger/Manager/ Security accommodation. Storage shelves/cupboards, overnight Security Office/ Onsite manager accommodation.

Design- Maintain open plan, install heating, and PV lighting. Install over ground water mains and PV water pump to service latrines.

The heritage site is in a very remote location a long distance from public services or residential populations. Provision is required to provide site security to discourage and protect from vandalism.

7.5 Gun Pit #1-

Astronomical platform/ Pacific navigation. No structural modifications will be undertaken. This feature is provision for future use in consultation with Iwi story tellers. We propose to erect a wooden deck resting on the concrete floor of the Pit to achieve a uniform and stable floor upon which to rest astronomical telescopes (temporary) and other portable navigation/celestial aids. Installation of PV lighting and removable weather protection is required. Utilisation of the adjacent storage and empty hydraulic room for support equipment. This use is envisaged in year 2-3. No structural modifications are proposed.

7.6 War Shelter #3-

Picnic area, self-service style café/coffee/tea/water. Install PV lighting. Add interpretation. Install over ground water mains and PV water pump to service latrines.

Public access, seating and picnic tables.

7.7 Gun Pit #3-

Consolidate heavy machinery/artifacts, cartridge cradle, hydraulic pumps, generator room as authentic exhibition space. This is proposed in conjunction to sub-contracting the currently defunct Stony Batter Preservation Society to manage reconstruction of Engine Room #3 and Plotting Room as museum exhibits and contribute their valuable knowledge base through interpretation.

8.0 Ancillary Storage

Currently onsite storage occupies #2 Gun Store, #3 Magazine, #3 War Shelter and a large exterior storage shed adjacent #2 War Shelter. We propose to remove storage from within the Tunnel Complex, returning the vacated chambers to heritage standard. This shifts requirement to external storage. We propose 2 additional storage sheds of approx 8x4 positioned close to the #2 entrance. Designs will be enhanced aesthetic and colours in the dark tonal scale drawing from surrounding forest pallet. An additional implement shed is required to store landscape equipment, tools, mowers and miscellaneous maintenance office/provisioning.- Small foot print >50m2. All buildings are low impact, temporary removable structures short life span >15yrs interpreting historic design and roof lines.

9.0 Scientific Research

9.1 Opportunity exists to integrate heritage values of the site within a comprehensive research programme designed to establish baseline values, produce published research resource and document all facets of the heritage site and reserve.

9.2 The overarching principle in this Application is enhancement to Preservation, Conservation and Education to inherent heritage values delivering a high quality Visitor Experience. Heritage conservation falls across a number of areas all of which are worthy of expert examination.

9.3 To achieve this objective, develop a comprehensive communications strategy to interpretation material and grow a healthy knowledge data base- research will be undertaken forming partnerships with suitably recognised institutes to report, amongst other things;

9.3.1 Archaeology to;

- a) Iwi presence at the Reserve, and
- b) Colonial/WWII activity
- c) Producing research data, maps, distribution plans and technical reports to extent of activity at the site.
- d) Artifact recovery

9.3.2 Geology to report on unusual rock formations (dispersal of volcanic ejecta, Heritage)- dispersal 'patterns' and location of source caldera. Geological field programme to map quantify volumes and mass of materials, identify chemical composition and locate host crater. To overlay geologically modified landscape as effect of construction- produce communication, exhibits, reports and signage to inform.

9.3.3 Biology/Ecology research programme to survey bio diversity present in remnant forests, Gecko count, endemic entomology, glow-worm grottos and generally recording flora and fauna complexity/age. Map tree species dispersal and water courses- produce communication, exhibits, reports and signage to inform

9.3.4 Architecture perspectives, engineering and materials. Architectural/ Engineering research programme to identify design and construction process, research and present original planning blue prints and engineers drawings, calculations and blast/shock wave data. Produce communication, exhibits, reports and signage to inform.

9.3.5 In combination applying legitimate scientific examination will produce an immense volume of data and knowledge through none destructive processes, enhancing New

Zealand's understanding of this place, contributing to published reports, exhibition material and artifact recovery.

- 9.3.6 Each of the research subsets will be managed in accordance to Local, Regional, Heritage and Best Practice obligations. Comprise appointment of suitably qualified Research Manager, pre-approved programme, method and outcomes without disturbance to heritage or conservation.

9.4 Proposed structure Research programme;

9.4.1 Lead professional appointed

9.4.2 Investigation programme written in accordance to prevailing regulations and Iwi consultation.

9.4.3 Participation offered

9.4.4 Research undertaken

9.4.5 Lectures, data gathering, analysis undertaken

9.4.6 Off site data collated, reports compiled, published or shared.

9.4.7 Research data is of High conservation value in establishing measurable baseline indicators, culminating in improved knowledge and understanding to Archaeological, Geological, Ecological and Heritage asset. The material will flow to educational institutes, museums and available for publication.

9.4.8 Maintain principles of Open Source research

10.0 Onsite Ranger/Manager

10.1 Provision for onsite accommodation is required operationally to mitigate further vandalism of the Reserve, Site and investment. The requirement becomes more prevalent as Fort Stony Batter evolves from an abandoned dysfunctional Site to an in demand Visitor destination with capital improvements. Exposure to random night marauding presents an increasing threat to preservation of heritage and asset.

Refer **Section 7.4 War Shelter #1- Onsite Ranger**

10.2 Short Stay Accommm.

We propose;

10.2.1 To offer overnight short stay accommodation experience in Magazine #1 for Special interest groups, Students undertaking research, small Educational/School groups and/or in response to visitor demand. (20pax)

10.2.2 Facilities currently provide large dry, ventilated chambers, natural light, running water and toilets.

10.2.3 There are 3 x emergency exits

10.2.4 Design themed **Military Barracks**.

10.2.5 Fit out is proposed as none structural consisting of bunk beds, floor rugs, occasional furniture and none fixed movable partitions.

10.2.6 Mess is proposed on WWII concept- out door gas kitchen, Mess hall/tent positioned adjacent Shelter #1. Food storage by way of PV/gas caravan style refrigeration.

10.2.7 On site manager refer **8.4 War Shelter #1- Onsite Ranger**

10.3 We envisage developing this aspect to overall enhancement of Fort Stony Batter in 2021. It is appropriate to provide for the required expansion in Visitor Experience within this Application, subject to satisfaction of overarching Local and Regional consent requirements.

No structural alterations are proposed. No Camping is proposed.

11.0 Grazing

11.1 The Reserve is currently used by MoW Station Farm for pasture grazing on a casual arrangement. The reserve comprises approx 50 acres divided in to 4 large fenced paddocks and one section to the South East that is unfenced intermittent pasture disbursed through geological rock fields. Grazing animals are important in maintaining the reserve as healthy land. They assist in weed mitigation and deliver nutrient back to the soil layer. Remnant bush sections are fenced off. Grazing animals are also a novel attraction to Visitors, most of who travel from city locations or urban metropolises overseas. We see grazing as a natural and low impact attribute at the Reserve we wish to maintain and manage in conjunction to section **5.0 Guiding Overland**. We propose to continue the relationship with MoW Farm.

12.0 Additional ethos

12.1 Site subject to Lock Out from Sunset to Sunrise

12.2 Clean energy approach, Photovoltaic, PV lighting

12.3 *Back to nature* philosophy and adventure experience

12.4 Near zero waste/ rubbish in/rubbish out

12.5 Low to Zero carbon footprint

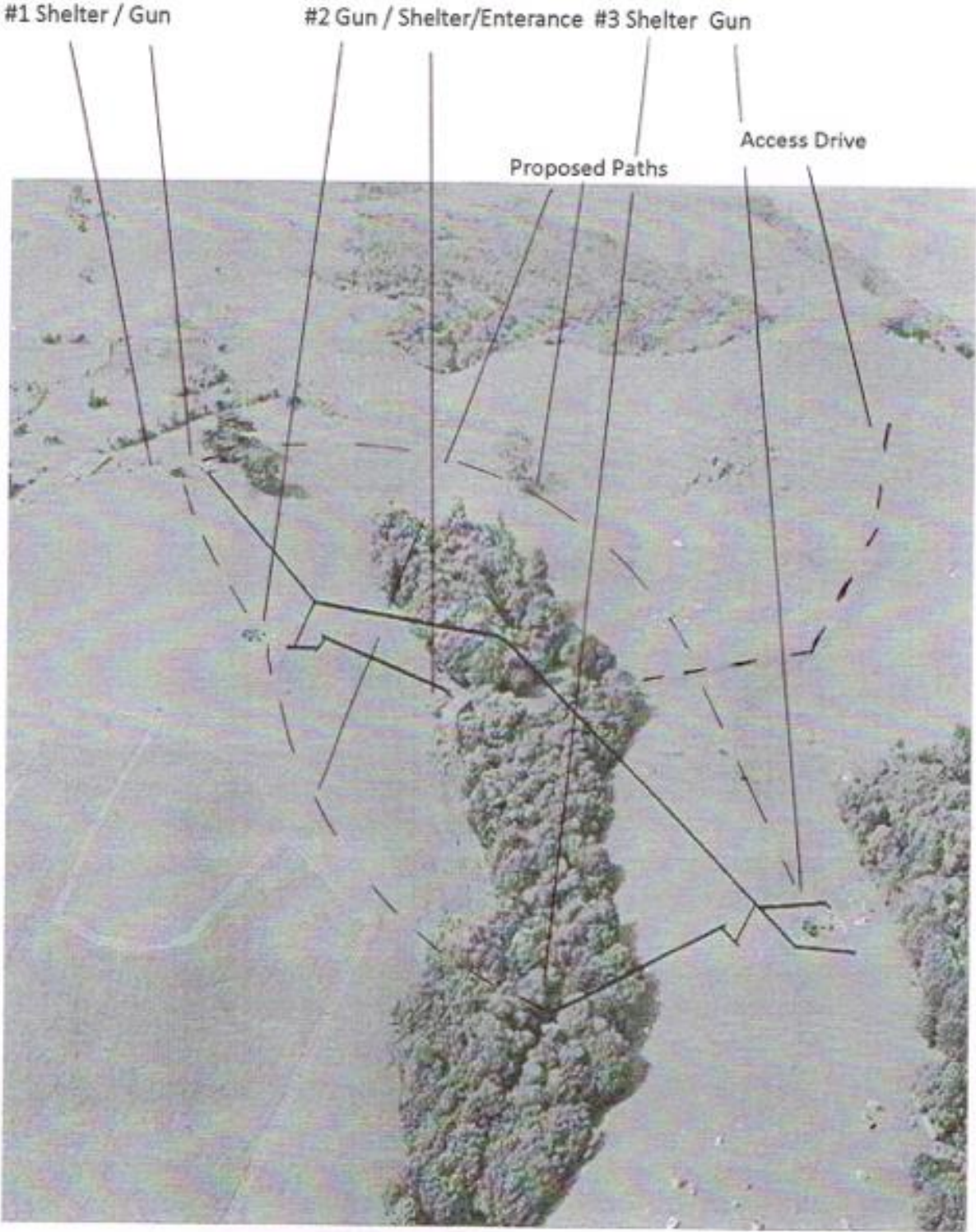
12.6 Develop tourism feeder services and infrastructure

12.7 Preservation and aesthetic in all design reuse and structures.

13.0 Further Documents attached:

- **Environmental Impact Assessment**
- **EIA Monitoring Program**
- **Appendix 1b Schedule buildings (Aerial POV) Fort Stony Batter**
- **Subterranean Plan View**
- **Plan and Elevation View**

Subterranean Plan View
Including overland route



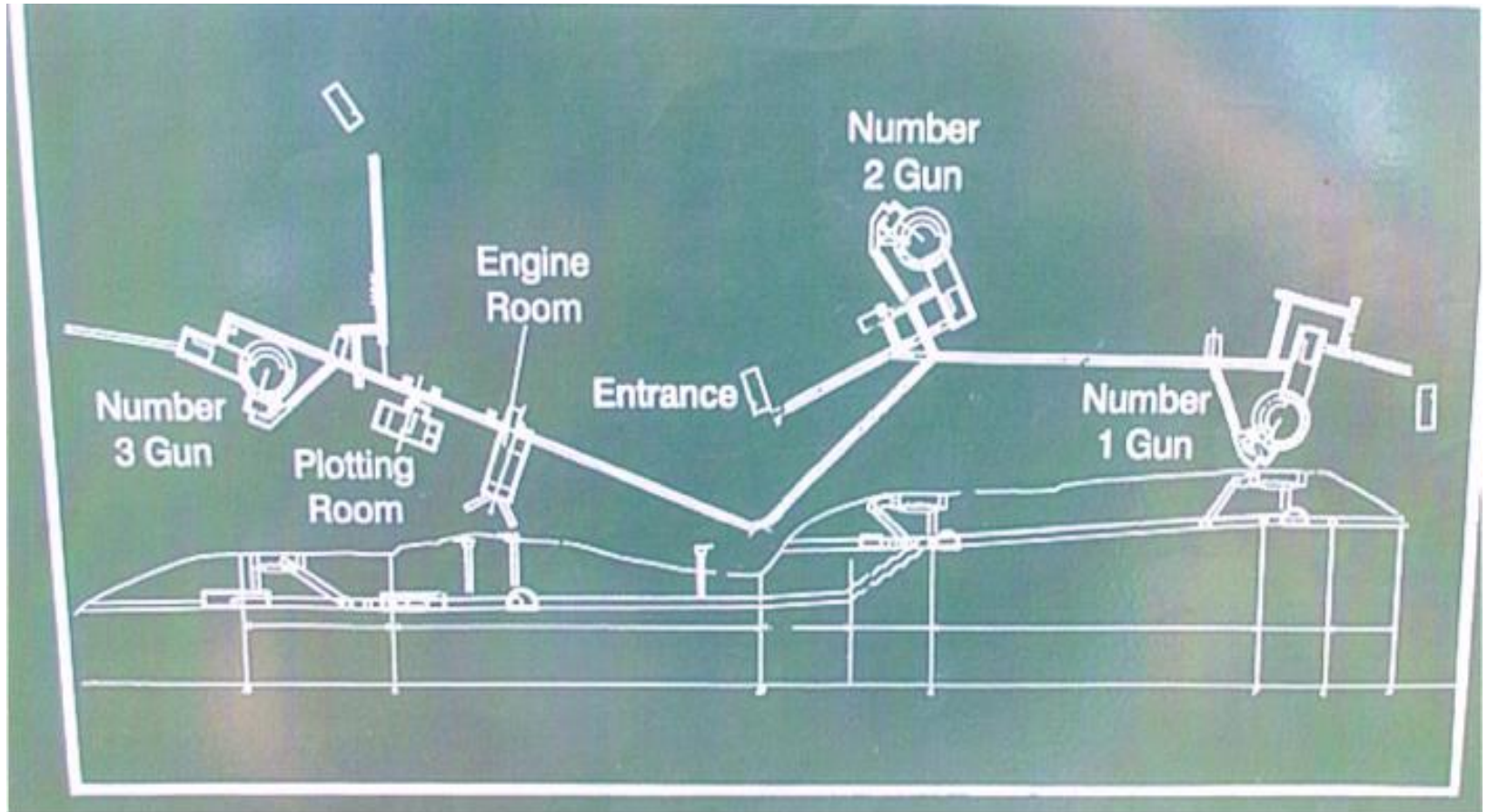
Site Plan and Elevation View

War Shelter #3
Café/Picnic/Public use

War Shelter #2
Ticketing/Museum

Gun#1
Star deck

Mag #1 War Shelter #1
Accomm.
ManagerAccomm/Mess



Application ref 65531-OTH	<u>Fort Stony Batter Historic Reserve</u> <u>Environmental Impact Assessment</u> <u>MAY 2018</u>
1 Consulted Parties:	Jurisdiction: Department of Conservation- Hauraki Gulf Islands Applicant: Fort Stony Batter Heritage Park Ltd Cultural: Ngati Paoa Ngai Tai ki Tamaki Agency: Heritage NZ Other: Stony Batter Preservation Society (defunct)
2 Reference Documents:	<ul style="list-style-type: none"> ▪ Conservation Act 1987 s17ZG(2)(A) ▪ Fort Stony Batter Conservation Plan 2006 ▪ Stony Batter Reserve Visitor Plan 2003 ▪ Auckland Council Conservation Management Plan 2014-2024 ▪ FSB Cyclical Maintenance Plan 2001 ▪ FSB Boulder Field 1999 ▪ FSB Remedial 2001 ▪ Historic Listing 2000 ▪ CHI Places 10966 2004 ▪ Evaluation Building Heritage ID 363 2006 ▪ NZAA Site Record ▪ FSBHR EOI (4) (DoC Expectations)
3 Scope:	<p>The purpose of this assessment is to understand any likely adverse effects produced under the proposal.</p> <p>Activity has been undertaken at the site for some 65 years. Composition and patronage has developed over the past 15 years. That recent period is adopted as a baseline observation to assess historical effects and likely effects produced through growth in services and expansion in foot traffic. Hard data may not be available, however, the cumulative effects (observational) over 15 years of moderate tourist visits evidences - effect of activities on Natural and Built environment to be Low.</p> <p>In this assessment we project higher visitor numbers in support to growth.</p> <p>Overall the proposal is consistent to historical use as a Low Impact Activity.</p>
4 Environment/Asset:	<p>WWII Coastal Defense battery. Construction 1942- Decommissioned 1951</p> <p>Land- Comprising (circa 18.4HA) open pasture grassing, 2 pockets remnant Forest, Geology.</p> <p>Site- Comprising built structure x 3 surface, 1000m subsurface tunnel complex</p> <p>Concrete Gun Emplacements x 3, Foundation platforms and miscellaneous Vent/Risers.</p> <p>Archaeological , Heritage and Conservation site.</p>

VALUES	CONSERVATION ATTRIBUTES	POTENTIAL BENEFITS/EFFECTS AND MITIGATION
5 Description:	<p>Fort Stony Batter is an abandoned ex defense complex located at the Eastern end of Waiheke Island, mid way distal end of a peninsular located within Man O War Station Farm. The site is land locked- access pedestrian only It is an isolated location No electricity supply Water supply is limited via Wellhead The Site is Heritage Classification 1. The site comprises Archaeological features; WWII Coastal Defense bunkers Tunnels and Gun emplacements- Maori occupation- NZAA record -none occupational site or use.</p>	<p>Heritage values High</p> <p>Activity is low impact, pedestrian only. Effects Low</p> <p>Tangata Whenua will be engaged to communicate their narrative to occupation of the greater area, including Night Sky (ref 14) Navigation and Cosmology.</p> <p>Cultural heritage values High</p>
6 Physical and Social Values:	<p>The Land has high visual character, offering dominant distant views of Waiheke , the Hauraki Gulf/Islands, the Channel through to Corramandel. These were impetus for MOD site selection.</p> <p>The Land and Site offer High Social values through their cultural modification in the 1940's.</p>	<p>Little other 'natural' features are immediately present save a small pocket of remnant Forest set out in this assessment (7).</p> <p>Social value is expanded through the proposed activity enhancing inherent construction and functional attributes to deliver an improved visitor and educational outcome.</p>
7 Natural and Historic Resource:	<p>Two small pockets of remnant native forest exist in a 'Gut' mid site running NE/SW intersected by WWII modification. A minor stream is present. A small stand (3-4) Exotic trees occupy East ridge adjacent Gun Emplacement #1. No other significant flora is present.</p> <p>Structures represent significant archaeological heritage Night Sky (Dark Sky Sanctuary) represents significant celestial heritage</p>	<p>Forests represent a significant natural feature, including (unaudited) Fauna /Entomology. Conservation is encouraged through Research/Field School Data Capture. Boulder Fields represent significant geological heritage. Demarcated trails will guide visitors, reducing potential damage. Archaeology robust/ Effects Low Dark Sky Accreditation= preservation. Effect Nil</p>
8 Current Status:	<p>The site is abandoned and falling to dilapidation. Public access is by walking following a Farm Road (1.5km). Walking paths across the Land are None existent, none directed. Tunnel access- Closed 2015</p>	<p>Implement restoration programme.</p> <p>Demarcate trails- effect Low</p>

	<p>Due to closure FSB has fallen in to state of disrepair. The tunnels and associated buildings have been subjected to break in and vandalism. The Site requires none structural repairs.</p> <p>The Land is open to public, however, without formed trails people wander aimlessly across the landscape and through the sensitive forests.</p> <p>Grazing has been undertaken across the past 50 years.</p> <p>Animal intrusion on Forests. Noxious weeds- Water run off has produced minor damage- concentrated at established farm road and redundant access drive wash outs. Erosion not observed. The Land was modified in 2000 for a Vineyard- now decommissioned. Little evidence to past Military/Construction camp can be observed on the surface. Tunnels are structurally sound.</p>	<p>Implement onsite security.</p> <p>DoC refer Cyclical & Remedial Sec 2 above.</p> <p>Pasture condition High Value Effect Low Fenced= Effect Minor. Effect Minor</p> <p>Superficial drainage. Low The Land is in good condition, forests healthy. Past grassing activity (MoW Farm) across many decades has produced less than minor effects.</p>
9 Proposed Activity:	Set out in Application 65531-OTH and Response.	Activity consistent to historical use. Low Impact Activity
10 Summary:	It is proposed to reopen the Tunnels for paid public access.	Deliver enhanced visitor experience via improved Interpretation, heritage presentation and added services utilising existing structures. No structural modifications are proposed. Effect Low
11 Surrounding Land :	<p>Visitors will be guided via a series of new Paths - Bush walks by demarcated trails.</p> <p>Some light footprint art sculptures will be exhibited to enhance the Land tour.</p> <p>Addition of 2 storage sheds required operationally.</p> <p>Weed control and grass maintenance by light grassing, sheep/horses/other- no cattle</p>	<p>Paths cut in the superficial layer of soil. Effect Low. Tailings (soil) will be screened for artifact recovery, soil stored on site for reuse at later date. Effects Low.</p> <p>Minor site coverage, none permanent Effect Low</p> <p>Concealed under tree canopy & finished in recessive colour/dark. Small scale/temporary. Effect Low/Moderate</p> <p>Effect Low</p>

	Some spraying will be required to control seasonal weed growth.	OSH policy complied, avoid spray drift. Effect Moderate
12 Visitor Numbers:	Visits are seasonally driven. High season Dec-April/ Low May-Nov. Current data is unclear. However, assessment suggests past activity (open tunnels) attracted approx 2,100 pax annually with out improvement/promotion. Additional Walk up visitors (closed tunnels) is assessed @ 780 pax annually	Total visitor numbers under Application are predicted to be Y1 @ 3,000 pax , leveling off by Y3/4 @ 4,200-5,000pax. All proposed improvements support increase in site visits and mitigate effects via demarcation. Effects Moderate/Low
13 Increase Visitor numbers (Likely Impacts)	Averaged over 52 weeks produces 100 pax /7 days. Occupying Land @ 18.4 ha and Site @ 1,000m (lineal) - this is a very low density of visitor:site ratio . Applying for the purpose of EIA a consolidation of visitors across weekends produces approx 288pax Sat/Sunday. .	Effect is Low . Mitigation measures are designed to manage expanded numbers from very low to moderate volumes. The site has capacity. Effect is Low The Complex and Land is substantial in area- Effect is Moderate . The effect of secondary activity is Moderate . Mitigating programmes include; People create rubbish. Implement 'Rubbish in Rubbish out' policy. Provide additional waste bins to mitigate littering Shoe clean station at car park entrance to mitigate microbe/spoor migration. Overland paths- eliminate/reduce disturbance to Pasture/Forest floor. Low Wear and tear to Tunnel access/Passages/Chambers – anticipated effect Very Low . The system is designed to resist direct explosive impacts and accommodate 50-60 personnel operating simultaneously 24/7. Visitor effect Low Provision of waste bins- mitigate litter. Industrial sweeper- mitigate dust- Low

<p>14 Energy</p>	<p>Policy is Photovoltaic/renewables.</p> <p>Effects of Internal Exterior/Security lighting- PV/LED. Complying to international Dark Sky guidelines- down lights/no spill lighting-</p>	<p>Effect Very Low</p> <p>Conservation value is High</p> <p>Illumination Low to nil on environment, Positive to Health & Safety of visitors.</p> <p>Effect Low</p>
<p>15 Night Sky and Lectures</p>	<p>Conducted in accordance to Lighting/Energy policy Governed H&S Policy</p>	<p>Effect Minor</p>
<p>16 Accommodation- Security</p>	<p>Required Onsite. Energy compliant (13). Food and general waste- central sealed collection and removal from site. Well water supply</p>	<p>Small organic compost on site. Effect Low/Moderate</p> <p>Water consumption in accordance to AC daily use @180ltr pp. for normal household. Effect Low/Moderate</p>
<p>17 Accommodation Public</p>	<p>Energy policy compliant (14B). Short stay Waste generation as byproduct human presence Moderate in volume.</p> <p>Water consumption @180ltr pp. for normal domestic household- People movements- in tunnels and related structures- Effect Low, well below operational capacity.</p> <p>Overland Land-</p> <p>Noise generation</p>	<p>Food and general waste- central sealed collection and removal from site. Organic compost on site. Encourage Green Foot Print Effect Low/Moderate</p> <p>Reduced to 90ltr for casual occupation and limited access to faucets. Effect Low/Moderate</p> <p>'Stick to Paths' policy- effect Low</p> <p>Controlled noise policy- Effect Low</p> <p>Encourage Rubbish in Rubbish out to reduce waste volumes- Effect Moderate</p>
<p>18 Construction Activity</p>	<p>Repairs/Maintenance/Restoration- storage of building materials and work functions.</p> <p>Authentic restoration works</p> <p>Dangerous goods storage.</p>	<p>Activity periodical and conducted considerate to heritage values. Effect Low/Moderate</p> <p>Construction noise/machinery- contained to engine room Lvl 3 and periodical- Effect Low</p> <p>Mitigation- reduce quantities of oils and solvents, Cabinet storage and fire extinguishers. Effect Low</p>

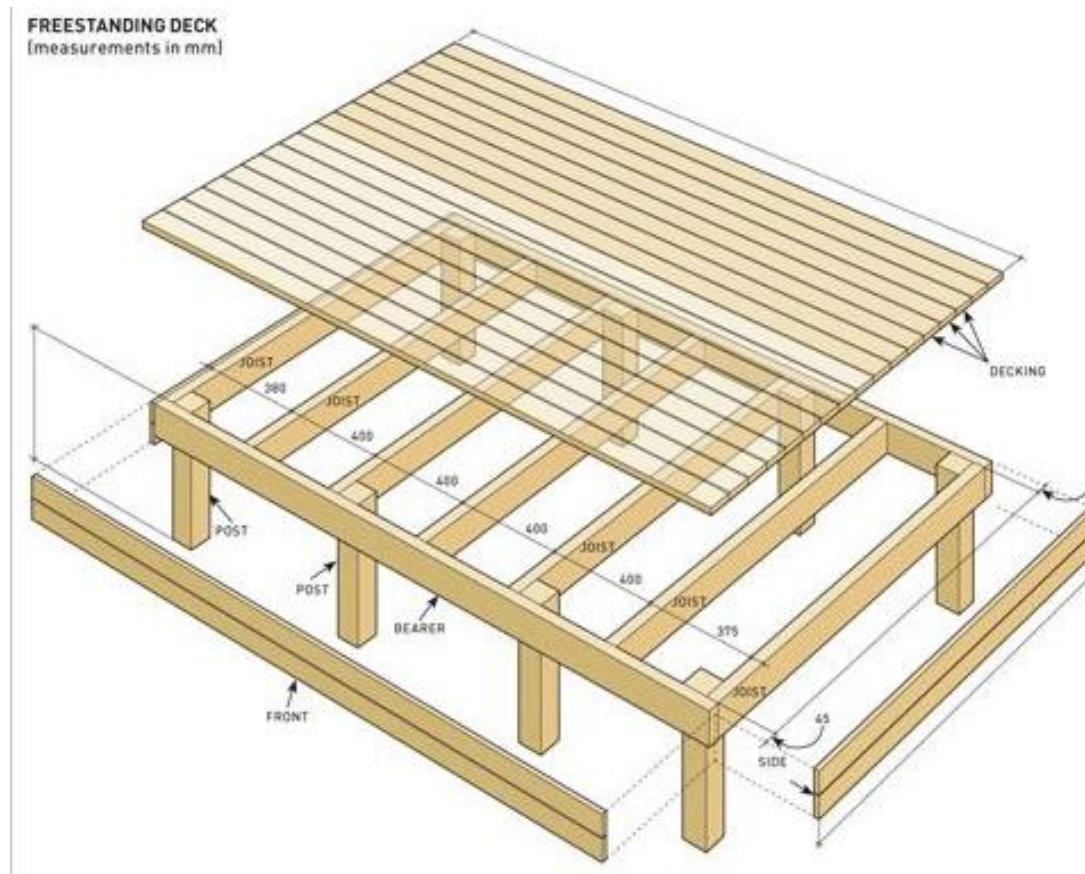
<p>19 Parking/Access Road</p>	<p>An increase in parking and traffic movements is anticipated. Any additional requirements in the parking area are accommodated under AT Rooding Policy. Parking and rooding requirements lie well outside the Reserve property. However, requirement for mitigation is anticipated.</p> <p>Pedestrian foot Traffic access is via an existing farm road x 1.5km (approx), arriving at FSB gate. Pedestrians could pose a problem for farm traffic.</p> <p>Litter en route could develop-</p>	<p>Consultation with AT indicates they are in a position to meet demand and their assessment is the effect will be Minor.</p> <p>Provision of improved toilet and litter collection points, together with improved Pedestrian access is identified in the application. Effect Low</p> <p>Signage will reduce obstacle and danger. Effect Low.</p> <p>Provision for receptacles at beginning/mid/end of pedestrian route combined Rubbish in/out policy- Effect Low</p>
<p>20 Pest Control</p>	<p>Rabbit/Stoat/Rat eradication in accordance to DoC guidelines/method.</p>	<p>Implementation by DoC of eradication programme- Effect Low. Without eradication effect Moderate/High</p>
<p>21 Grazing/Weed control</p>	<p>Damage to remnant Forest-</p> <p>Damage to surface-</p> <p>Pasture surface soil- Summer Low/ Winter Moderate.</p> <p>Weed infestation-</p> <p>Construction implement shed- Small foot print >50m2, short life span >15yrs Animal waste-</p>	<p>Eliminated by fencing off areas- Effect Very Low</p> <p>Archaeological remains below superficial layer- Effect Low Mitigate by limiting animal numbers and managing rotation across pasture- best grazing practices.</p> <p>Without grazing- Moderate /High, With grazing Moderate/ Low Recessive pallet, Compliant- Effect Low</p> <p>Low stock numbers- natural decomposition- Effect Low</p>
	<p>Monitoring Programme</p>	

Stargazing

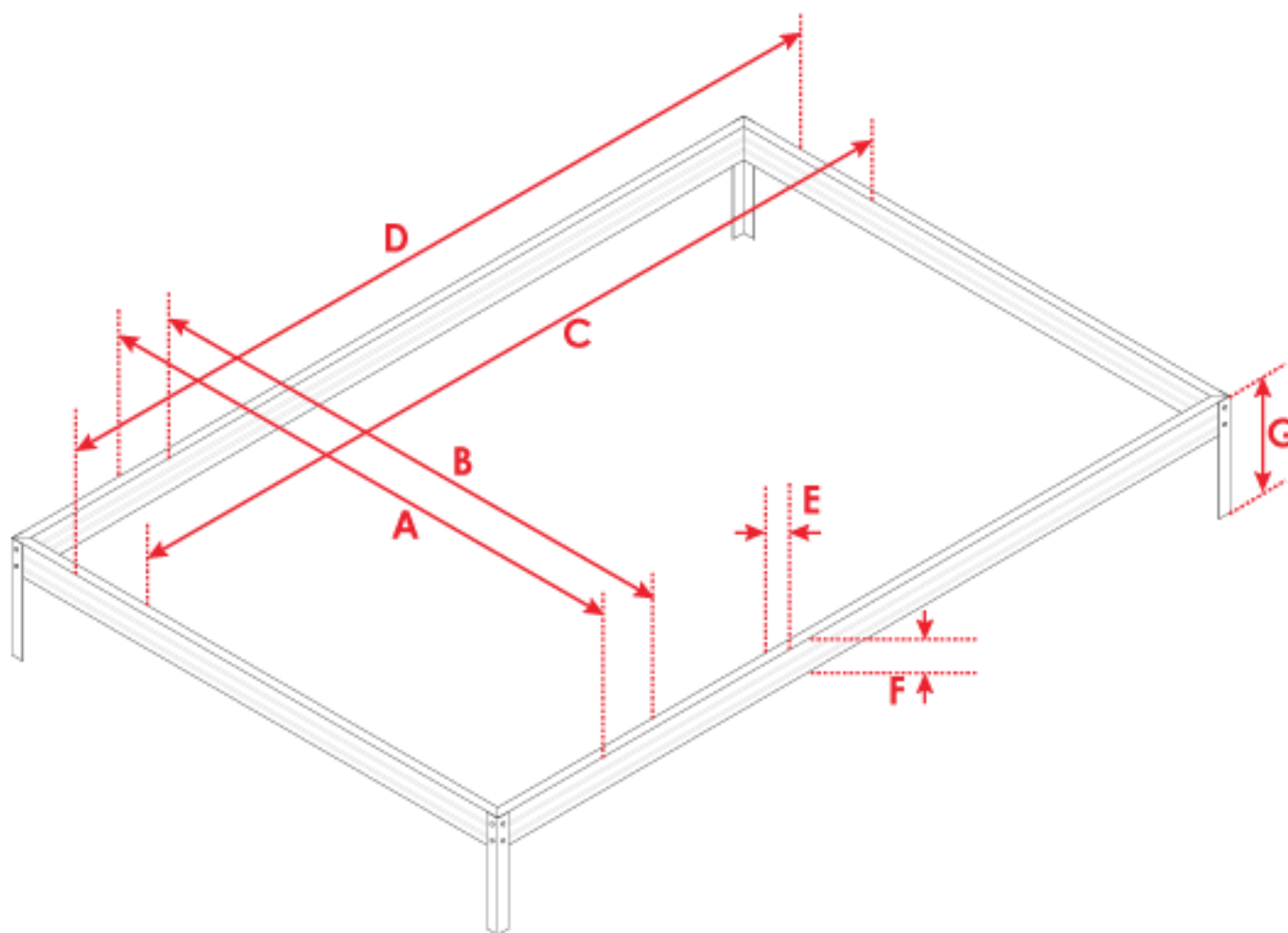
Telescope Platform Deck - Example only.

Built over Concrete floor, not fixed.

Subject to approval final measurements/design



Ancillary Storage
Design Concepts:



Foot Print-foundation Wooden post, wooden floor
A= 4m, D= 8m, G= 0.3m
Height 2.85m

Implement Shed
A= 6m, D= 8m, G= 0.3m
Height 2.85m

Gabel pitched roofline reflects design of original construction quarters.
Subject to Auckland Council Building permits.