



***Condition and Remedial Action
Report***

**Baring Head Lighthouse Compound
February 2014**

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1.0 Introduction

1.1 Commission

As an input to the development of the Heritage Plan commissioned by Greater Wellington Regional Council (GWRC) for the Baring Head Lighthouse Compound a condition survey of the compound, including the two lighthouse keepers' houses, the diesel generator building, the garage, the former WAAC Barrack foundations and the shelterbelt and setting was undertaken.

1.2 Heritage status

Currently, neither the compound as a whole nor any of its individual elements are statutorily recognised and protected.

1.3 Location, legal description and ownership details

The compound is located within the East Harbour Regional Park administered by GWRC and comprises 1.3ha of land adjacent to the Baring Head Lighthouse. The legal description of the land is Part Lot 1 DP 72418 (NZ Gazette 1995 pg.324, 1994 pg.2801-2802), Wellington Land District and is under the ownership of GWRC.

1.4 Description

The houses are timber framed and clad with a design based on the Californian Bungalow style with rectangular floor plans, timber joinery of two and six light double hung sash windows and doors, prominent chimneys, typical hipped roofs and exposed rafter ends to eaves. The interior also follows the general style with timber panelling and upright panelled timber doors.

The generator building appears to have roughcast rendered concrete walls with timber framed roof. All three buildings have corrugated asbestos roofing and added porches have trough section steel roofing.

The primary vegetation and landscape elements that contribute to the setting consist of the perimeter shelterbelt, vegetation within the compound, the rock garden and elements such as the remnants of the picket fences.

1.5 Inspection process

The inspection and reporting methodology are those described in lecture notes by Alejandro Alva Balderrama, *Condition Survey and Inspection of Historic Structures, ICCROM*. The visual-only architectural and landscape inspection of accessible areas and elements took place on 16 December 2013 and did not include destructive testing of fabric. Therefore the inspection and conclusions cannot guarantee that all defects have been defined. The authors of the Hutt City Council condition survey of 2 December 2010 were able to inspect the sub floor space and roof space and their comments on these areas of the buildings should be referred to. They also covered services, with notes on hot water cylinders and with respect to sewerage and stormwater, their report states:



The existing sewer systems appear to be in poor conditions, and it requires new systems with new septic tanks. It is recommended to install a storm water system with water tanks in order to improve water efficiency on the site.¹

The houses were inspected from the ground and from all available points. The inspection proceeded from the top to the bottom, west, north, east and south. The shelterbelt and setting were inspected from several vantage points both within the compound and external to it.

1.6 Summary of condition

The following is a summary of the condition of the four main buildings, shelterbelt and compound setting. The garage was not inspected in detail, nor was its interior inspected.

Permanent and Relieving Keeper's houses

- the asbestos cement roofing is disintegrating
- there is missing guttering
- some windows are broken and all are boarded up
- flashings and metal roofing are rusting
- some weatherboards are splitting
- external paint is peeling
- there are small areas of rot
- asbestos sheet base cladding is broken and missing in areas
- there is borer in timberwork
- there is mildew in many rooms
- there is minor peeling of paintwork on the interior

Diesel Generator house and office

- the asbestos cement roofing is disintegrating
- there is missing guttering
- flashings, hinges and metal roofing are rusting
- there is cracking on window sills and between the original building and extension and to interior plasterwork
- paintwork inside and out is peeling
- there is minor damage to the soffit

Garage

- the asbestos cement roofing is disintegrating
- there is missing guttering

¹ HCC Building Team, *Building Inspection Report - Baring Head's Keepers Houses*, 02/12/2010, for the greater Wellington Regional Council and the Department of Conservation

- flashings, hinges and metal roofing are rusting
- some weatherboards are splitting
- there is some rot in weatherboards
- there is peeling paintwork
- the building is being supported with timber braces

Former WAAC Barracks concrete foundations

- concrete foundation has cracking, with moss, lichen and weed growth either on or around it
- timber bottom plates are splitting and have rot, while fixings are rusting

Shelterbelt, Other Vegetation and Landscape Elements

- although macrocarpa are long-lived, the shelterbelt is nearly 80 years old and appears not to have had any arboricultural management
- shelterbelt intact and clearly defined along northern and western boundaries but nonexistent along south-eastern boundary and only occasional trees remain along south-western boundary
- in addition to gaps in the perimeter shelterbelt where trees have died or perhaps have been removed, the mature macrocarpa and pine trees in the shelterbelt have opened up thus reducing effectiveness of shelter at ground level
- several macrocarpa and pine have suffered storm damage and have been subsequently subject to variable pruning to remove damaged limbs, etc
- remnants of original shelterbelt that extended along northern boundary between compound and escarpment reduced to a few isolated and damaged trees
- pohutukawa on outside perimeter of shelterbelt are dead or struggling due to harsh conditions
- two mature golden macrocarpa within compound protected by shelterbelt are thriving
- Norfolk pines within compound well developed and thriving
- karo, which are well established, were possibly planted but more likely to have been distributed through bird recruitment; they have become established around the open edges of the shelterbelt and also in the scrubby area between the buildings and the section of shelterbelt along the northern boundary
- various local indigenous tree and shrub species have become established through bird and natural recruitment (eg taupata, *Olearia solandri*, pohutukawa, coastal flax, pohuehue)
- rock garden and succulent plants reasonably intact; succulents also established in other parts of the compound and adjoining areas



- sections of original picket fencing, some of which is in reasonably good condition and also a few original hardwood posts with mortises for rails remain.

2.0 Permanent Keepers' house condition and remedial repair regime

Fabric used to construct and line the building is listed with each elevation and is defined as original or early historic fabric (hf), reproduction or renewed fabric (rf), old but not original fabric (of), and non-historic fabric (nhf). Based on the findings of the condition survey, the following is a combined list of the condition of elements within each room with recommended repairs with priorities as follows:

Immediate (I) as soon as possible following funding being secured

Urgent (U) within three months of funding being secured

Necessary (N) within one to three years as funding permits

Desirable (D) whenever possible, or as use/function changes

Exterior

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
Roof	Lining	Fibre cement	Nhf	Moss and lichen growth, cut ends delaminating	Replace	U
				Sheets lifting to south	Replace	U
		Painted metal trough section to flat roof	Nhf	Extensive rusting	Replace	U
	Flashings	Painted galvanised steel	Hf	Rusting to ridges and corners	Treat rust and recoat	N
		Fibre cement flashing to	Nhf	Broken flashing	Replace as per roofing	U



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
		porch				
	Eaves/soffit	Painted exposed timber	Hf	Paint peeling	Clean down and recoat	N
				Algae growth	Apply biocide prior to repainting	N
				Split and rotten ends to flat roof extension	Remove rot, treat ends, splice repair new timber	U
	Vent pipes	Painted cast iron and galvanised steel	Hf	Extensive rusting	Replace	N
				Peeling paintwork	Replace	N
	Chimney	Painted rough cast	Hf	Moss and lichen growth	Treat with biocide	N
	Spouting	Pvc brackets	Nhf	Most broken or missing	Replace	U
	Downpipes			Missing	Replace	U
North	Walls	Painted timber shiplap weatherboards	Hf	Peeling paintwork, algae growth	Clean down, repaint	N
				Minor splitting	Monitor	N
				Rusting of fixings	Punch fixings, treat rust, fill and recoat with	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
		Painted fibre cement cladding to base with timber corner boards	Nhf	Holes in cladding	Replace sheet	N
				Split and loose corner boards	Refix loose and replace split	N
				Opening boarding up	Reinstate access door	N
		Painted timber coverboards, sills and architraves	Hf	Peeling paintwork	Clean down and repaint	N
	Windows	As interior	Hf	Boarded up	Remove boarding and make good	With new use
	Wall flashings	Painted steel flashings to window heads, sills and base moulding	Hf	Extensive rusting	Replace	N
West	Walls	Painted timber shiplap weatherboards	Hf	Peeling paintwork	Clean down and recoat	N
				Rust staining from rusting flashings	Will be removed with repainting	N
				Rot to porch base	Remove rot, treat ends,	U



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
					splice repair new timber	
				Splitting	Replace split weatherboards	N
				Rusting of fixings	Punch fixings, treat rust, fill and recoat with elevation	N
		Painted concrete base	Hf	Peeling paintwork	Clean down and repaint	N
		Painted timber base to north	Hf	Peeling paintwork	Clean down and repaint	N
		Painted timber coverboards, sills and architraves	Hf	Peeling paintwork	Clean down and repaint	N
	Windows	As interior	Hf	Boarded up	Remove boarding and make good	With new use
	Doors	Painted timber	Hf	Boarded up	Remove boarding and make good	With new use
	Wall flashings	Painted steel flashings to window heads, sills and base mounding	Hf	Extensive rusting	Replace	N
South	Walls	Painted timber shiplap	Hf	Peeling paintwork	Clean down and repaint	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
		weatherboards		Splitting	Replace split weatherboards	N
				Rusting of fixings	Punch fixings, treat rust, fill and recoat with elevation	N
		Painted asbestos	Nhf	Peeling paintwork	Replace	U
				Algae growth	Will be removed with renewed sheeting	U
		Painted timber coverboards, sills and architraves	Hf	Peeling paintwork	Clean down and repaint	N
	Windows	As interior	Hf	Boarded up	Remove boarding and make good	With new use
	Doors	Painted timber	Hf	Boarded up	Remove boarding and make good	With new use
	Wall flashings	Painted steel flashings to window heads, sills and base mounding	Hf	Extensive rusting	Replace	N
East	Walls	Painted timber shiplap	Hf	Peeling paintwork, algae	Clean down and repaint	N



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
		weatherboards		growth		
		Painted fibre cement	Nhf	Holes	Replace	U
		Painted metal vents to base	Nhf?	Staining	Treat rusting, clean down and repaint	N
		Painted timber coverboards, sills and architraves	Hf	Peeling paintwork	Clean down and repaint	N
	Windows	As interior	Hf	Boarded up	Remove boarding and make good	With new use
	Wall flashings	Painted steel flashings to window heads, sills and base mounding	Hf	Extensive rusting	Replace	N

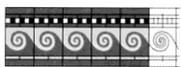
Interior

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
Bedrooms x 3	Ceiling	Painted plasterboard with painted timber battens	Hf	Mildew	Treat with cleaner	N
				Peeling paint from battens	Clean down and recoat	N
	Wall	Painted plasterboard with wallpaper Painted timber architraves and skirtings	Hf	Minor holes, impact damage	Repair holes	N
				Mildew	Treat with cleaner	N
	Flooring	Lino over timber strip?	Hf	Worn, lifting in corners, ripped	Replace	N
	Doors	Painted 3 panel	Hf	Peeling paint	Clean down and repaint	N
				Minor impact damage	Monitor	N
				Impact damage	Monitor	N
	Wardrobe	Uncoated vertical tongue and groove lining with painted flush hollow core door	Hf	Impact damage	Monitor	N
	Corridor	Ceiling	Painted softboard	Hf	Mildew	Treat with cleaner
Wall		Painted plasterboard with timber battens	Hf	Minor impact damage	Monitor	N
		Painted timber architraves and skirtings	Hf	Mildew	Treat with cleaner	N
Flooring		Lino over timber strip?	Hf	Worn	Replace	D



Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
	Doors			Missing		
	Cupboard	Painted timber 3 panelled door to cupboard with tg&v boarding	Hf	-		
Sun porch	Ceiling	Painted plasterboard with painted timber battens	Nhf	Mildew	Treat with cleaner	N
	Wall	Painted plasterboard with timber battens	Nhf	Minor impact damage	Monitor	N
		Painted timber architraves and skirtings	Nhf	Mildew	Treat with cleaner	N
	Flooring	Carpet over timber strip?	Nhf	Worn	Replace	D
	Doors	Clear coated timber 3 panelled and glazed	Nhf?	Missing furniture	Replace	U
Kitchen and entry porch	Ceiling	Pinex board	Of?	-		
		Painted hardboard to porch	Nhf	Mildew	Treat with cleaner	N
	Wall	Painted hardboard with timber corner battens	Nhf	-		
		Painted timber architraves and skirtings	Nhf	Minor paint damage	Clean down and repaint	N

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
Living room	Flooring	Lino over timber strip	Nhf	Worn	Replace	D
		Concrete to porch	Hf	-		
	Doors	Painted 4 panelled timber	Nhf?	Splitting panel	Replace panel	N
				Mildew	Treat with cleaner	N
		Painted timber panelled and glazed to porch	Hf	Peeling paintwork	Clean down and repaint	N
				Mildew	Treat with cleaner	N
	Windows	Painted timber fixed and casement	Hf	-		
	Fixtures and fittings	Stainless steel sinkbench	Hf	-		
	Cabinetry	Painted timber cabinetry	Nhf	-		
		Stove	Nhf	-		
Ceiling	Softboard ceiling tiles	Nhf	-			
Wall	Plasterboard with wallpaper	Hf	-			
	Clear coated timber architraves and skirtings	Hf	Minor paint damage	Clean down and recoat	N	



Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
		Painted timber pelmet	Nhf?	-		
	Flooring	Lino tiles over timber strip	Nhf	Worn	Replace	D
	Doors	Painted 4 panelled timber	Nhf?	Splitting panel	Replace	N
				Mildew	Treat with cleaner	N
	Windows	Painted timber double hung sash	Hf	-		
	Fixtures and fittings	Clear coated timber cupboards either side of fireplace	Hf	-		
		Brick fireplace with clear coated timber mantel and hearth	Hf	-		
Bathroom	Ceiling	Painted plasterboard with painted timber battens	Nhf	Mildew	Treat with cleaner	N
	Wall	Painted hardboard	Nhf	Mildew	Treat with cleaner	N
		Painted timber corner battens	Nhf	-		
		Painted timber architraves and skirtings, window sill	Nhf	-		
	Flooring	Lino over timber strip	Nhf	-		

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
Toilet	Windows	Painted double timber casement	Hf	-		
	Doors	Painted flush hollow core	Nhf	Mildew	Treat with cleaner	N
	Fixtures and fixings	Enamel bath	Hf	-		
		Plastic whb	Nhf	-		
		Laminate lined shower		-		
	Ceiling	Painted plasterboard with painted timber battens	Nhf	Mildew	Treat with cleaner	N
	Wall	Painted hardboard	Nhf	Mildew	Treat with cleaner	N
		Painted timber corner battens	Nhf	-		
		Painted timber architraves and skirtings, window sill	Nhf	-		
	Flooring	Lino over timber strip	Nhf	-		
Windows	Painted aluminium louvre	Nhf	-			
Doors	Painted 3 panelled timber	Hf	Mildew	Treat with cleaner	N	



Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
				Peeling paintwork	Clean down and repaint	N
	Fixtures and fixings	Ceramic wc	Nhf	-		
		Ceramic whb	Nhf	-		
		Laminate lined shower		-		
Laundry	Ceiling	Painted softboard painted timber battens	Hf	Mildew	Treat with cleaner	N
	Wall	Painted hardboard	Nhf	Mildew	Treat with cleaner	N
		Painted timber corner battens	Nhf	-		
		Painted timber architraves and skirtings, window sill	Nhf	-		
	Flooring	Lino over timber strip	Nhf	-		
	Windows	Painted timber double hung sash	Hf?	-		
	Doors	Painted 2 panelled timber and glazed	Hf	Mildew	Treat with cleaner	N
		Painted flush hollow core	Nhf>	Minor peeling of [paintwork	Clean down and repaint	N

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
				Peeling paintwork	Clean down and repaint	N
	Fixtures and fixings	Stainless steel tub with timber cabinetry	Nhf	-		
Roof space	Roof framing	Not able to be inspected, see HCC condition survey		-		
Sub floor	Foundation	Not able to be inspected, see HCC condition survey		-		
	Piles to bearer fixing	Galvanised wire and staples		-		



3.0 Relieving Keeper’s house condition and remedial repair regime

Fabric used to construct and line the building is listed with each elevation and is defined as original or early historic fabric (hf), reproduction or renewed fabric (rf), old but not original fabric (of), and non-historic fabric (nhf). Based on the findings of the condition survey, the following is a combined list of the condition of elements within each room with recommended repairs with priorities as follows:

Immediate (I) as soon as possible

Urgent (U) within three months

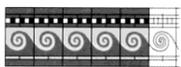
Necessary (N) within one to three years

Desirable (D) whenever possible, or as use/function changes

Exterior

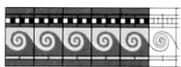
Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
Roof	Lining	Fibre cement	Nhf	Moss and lichen growth, cut ends delaminating	Replace	U
				Hole in south	Replace	U
	Flashings	Painted galvanised steel	Hf	Rusting to ridges and corners	Replace	U
	Eaves/soffit	Painted exposed timber	Hf	Paint peeling	Clean down and repaint	N
				Algae growth	Treat when repainting	N
				Rusting fixings	Treat rust prior to repainting	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
North	Chimney	Painted rough cast	Hf	Moss and lichen growth	Treat with biocide	N
		Metal cowl	Nhf?	Rusting	Replace if Nhf, otherwise treat rust and repair	N
		Ceramic chimney pot	Hf	-		
	Spouting	-		Missing	Install galvanised steel to match original profile	N
	Downpipes	-		Missing	Install galvanised steel to match original profile	N
	Walls	Painted timber shiplap weatherboards	Hf	Peeling paintwork, algae growth	Clean down and repaint	N
				Minor splitting	Monitor splitting	N
				Rusting of fixings	Treat for rust prior to repainting	N
		Painted timber cornerboards, coverboards, sills, base moulding	Hf	Peeling paintwork, algae growth	Treat with biocide prior to cleaning down and repainting	N
				Minor splitting	Monitor splitting	N



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
West				Rusting of fixings	Treat for rust prior to repainting	N
		Painted fibre cement cladding to base with timber corner boards	Nhf	Holes in cladding	Replace holed sheets	N
		Metal vents to base	Nhf	Rusting fixings	Treat for rust prior to repainting	N
	Windows	As interior	Hf	Boarded up	Remove boarding and make good	With new use
	Walls	Painted timber shiplap weatherboards	Hf	Peeling paintwork	Clean down and repaint	N
				Rusting of fixings	Treat rusting prior to repainting	N
		Painted fibre cement sheet	Nhf	Peeling paintwork	Clean down and repaint	N
				Holes	Replace holed sheets	N
	Painted timber coverboards, sills and architraves	Hf	Peeling paintwork	Clean down and repaint	N	

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
	Windows	Painted timber double hung sash	Hf	Boarded up	Remove boarding and make good	With new use
	Doors	Painted timber	Hf	Boarded up	Remove boarding and make good	With new use
South	Walls	Painted timber shiplap weatherboards	Hf	Peeling paintwork, algae growth	Treat algae with a biocide prior to cleaning down and repainting	N
				Minor splitting	Monitor splitting	N
				Rusting of fixings	Treat rust prior to repainting	N
		Painted timber cornerboards, coverboards, sills, base moulding	Hf	Peeling paintwork, algae growth	Treat algae with a biocide prior to cleaning down and repainting	N
				Rusting of fixings	Treat rust prior to repainting	N
				Painted fibre cement cladding to base with timber corner boards	Nhf	Holes in cladding
Painted metal flashing	Hf	Rusting	Treat rust prior to	N		

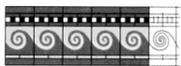


Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
		over door			repainting	
		Metal vents to base	Nhf	Rusting fixings	Treat rust prior to repainting	N
	Windows	As interior	Hf	Boarded up	Remove boarding and make good	With new use
	Timber decking	Timber decking	Nhf	-		
East	Walls	Painted timber shiplap weatherboards	Hf	Peeling paintwork, algae growth	Treat algae with a biocide prior to cleaning down and repainting	N
				Rusting of fixings	Treat rust prior to repainting	N
		Painted timber cornerboards, coverboards, sills, base moulding	Hf	Peeling paintwork, algae growth	Treat algae with a biocide prior to cleaning down and repainting	N
				Rusting of fixings	Treat rust prior to repainting	N
		Painted fibre cement cladding to base with timber corner boards	Nhf	Holes in cladding	Replace holed sheets	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
		Painted metal flashing over door	Hf	Rusting	Treat rust prior to repainting	N
		Metal vents to base	Nhf	Rusting fixings	Treat rust prior to repainting	N
	Windows	As interior	Hf	Boarded up	Remove boarding and make good	With new use

Interior

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
Bedroom 1	Ceiling	Painted plasterboard with painted timber battens	Hf	Mildew	Treat with cleaner	N
	Wall	Painted plasterboard with timber battens	Hf	-		
		Painted timber architraves and skirtings	Hf	-		
	Flooring	Lino over timber strip?	Hf	Lifting, paints splashes	Replace	N
	Doors	Clear coated timber 3 panel	Hf	-		



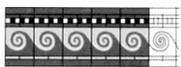
Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
	Fittings and fixtures	Wardrobe with painted vertical tongue and groove lining with clear coated timber 3 panel	Hf	Borer in shelving	Treat borer with borer Rentokil or similar	N
Corridor and entry porch	Ceiling	Painted t, g & v match lining	Hf	Mildew	Treat with cleaner	N
	Wall	Painted plasterboard above painted and clear coated timber t, g& v panelling	Hf	Minor impact damage	Monitor impact damage	N
		Painted timber architraves and skirtings	Hf	-		
	Flooring	Timber strip	Hf	Glue retained from lifting lino	Clean glue from floor and oil	N
	Doors	Clear coated timber 3 panelled and glazed	Hf	--		
	Fittings and fixtures	Cupboard with clear coated timber 3 panelled door with ledged door above to cupboard	Hf	-		

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
Bedroom 2	Ceiling	Painted plasterboard with painted timber battens	Hf	Mildew	Treat with cleaner	N
	Wall	Painted plasterboard with timber battens	Hf	-		
		Painted timber architraves and skirtings	Hf	-		
	Flooring	Lino over timber strip?	Hf	Paint splashes	Clean off paint	N
	Doors	Clear coated timber 3 panel	Hf	-		
	Fittings and fixtures	Wardrobe with clear coated vertical tongue and groove lining with clear coated timber 3 panel	Hf	Borer in lining	Treat borer with Rentokil borer fluid or similar	N
Dining room	Ceiling	Painted plasterboard with painted timber battens	Hf	Peeling paint above door	Clean down and repaint	N
	Wall	Painted plasterboard with timber battens	Hf	-		



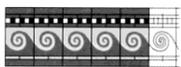
Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
		Clear coated timber architraves and skirtings	Hf	-		
	Flooring	Timber strip?	Hf	Paints splashes	Clean off paint	N
				Cut, loose boards in centre	Repair floor	N
	Doors	Clear coated timber 3 panel	Hf	-		
	Fittings and fixtures	Clear coated vertical timber panelled and glazed cupboard	Hf	-		
		Brick arched fireplace with clear coated timber mantelpiece and tiled hearth	Hf	-		
Kitchen	Ceiling	Painted hardboard	Nhf			
		Painted hardboard to porch	Nhf	Mildew	Treat with cleaner	N
	Wall	Painted hardboard with timber corner battens	Nhf	Mildew	Treat with cleaner	N
		Painted timber	Nhf	Minor paint damage	Clean down and repaint	N

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
		architraves and skirtings				
	Flooring	Timber strip	Hf	Remains of lino	Remove lino, clean down and oil	N
	Doors	Painted hollow core	Nhf	-		
	Windows	Painted timber fixed and casement	Nhf	-		
	Fixtures and fittings	Stainless steel and Formica sink bench	Nhf	-		
Porch	Ceiling	Painted tg&v match lining	Nhf?	-		
	Wall	Painted timber weatherboards as exterior	Hf	Mildew	Treat with cleaner	N
		Painted timber architraves and skirtings	Nhf?	-		
	Flooring	Concrete	Hf	-		
	Doors	Painted timber ledged and glazed panelled with 6 pane toplight	Hf	-		



Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
	Windows	-				
	Fixtures and fittings	-				
Living room	Ceiling	Painted plasterboard with painted timber battens	Hf	-		
	Wall	Painted plasterboard with timber battens	Hf	-		
		Clear coated timber tg&v panelling	Hf	Borer	Treat borer with Rentokil borer fluid or similar	N
		Clear coated timber architraves and skirtings	Hf	-		
	Flooring	Lino over timber strip?	Hf	Paints splashes	Clean odd paint	N
	Doors	Clear coated timber 3 panel	Hf	-		
	Fittings and fixtures	Clear coated vertical timber panelled and glazed cupboards	Hf	-		
		Brick arched fireplace with clear coated timber	Hf	-		

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
		mantelpiece and tiled hearth				
Bathroom	Ceiling	Painted plasterboard with painted timber battens	Nhf	Mildew	Treat with cleaner	N
	Wall	Painted hardboard with painted timber battens	Nhf	Mildew	Treat with cleaner	N
		Painted timber architraves and skirtings, window sill	Hf	-		
	Flooring	Timber strip	Hf	Paint splashes	Clean off paint, clean down and oil	N
	Windows	Painted timber double hung	Hf	-		
	Doors	Painted flush hollow core	Nhf	Mildew	Treat with cleaner	N
	Fixtures and fixings	Plastic bath	Nhf	-		
		Plastic whb	Nhf	-		
Toilet	Ceiling	Painted plasterboard with painted timber	Nhf	Mildew	Treat with cleaner	N



Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
		battens				
	Wall	Painted hardboard with painted timber battens	Nhf	Mildew	Treat with cleaner	N
		Painted timber architraves and skirtings, window sill	Nhf	Mildew	Treat with cleaner	N
	Flooring	Lino over timber strip	Nhf	Paint splashes	Clean off paint	N
	Windows	Aluminium louvre	Nhf			
	Doors	Clear coated timber 3 panelled timber	Hf	Mildew	Treat with cleaner	N
	Fixtures and fixings	Ceramic wc	Nhf	-		
		Fibreglass whb	Nhf	-		
Laundry	Ceiling	Painted hard board	Nhf	-		
	Wall	Painted hardboard	Nhf	Mildew	Treat with cleaner	N
		Painted timber corner battens	Nhf	-		
		Painted timber	Nhf?	Mildew	Treat with cleaner	N

Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
		architraves and skirtings, window sill				
	Flooring	Timber strip	Hf	Remains of lino	Remove lino, clean down and oil floor	N
	Windows	Painted timber double hung sash	Hf	-		
	Doors			Missing	Reinstate door	N
	Fixtures and fixings	Concrete double tub	Hf?	-		
		Hot water cupboard	Nhf?	-		
Room next to laundry	Ceiling	Painted hard board with painted timber battens	Nhf	-		
	Wall	Painted hardboard	Nhf	Mildew	Treat with cleaner	N
		Painted timber corner battens	Nhf	-		
		Painted timber architraves and skirtings, window sill	Hf?	Mildew	Treat with cleaner	N



Space	Location	Fabric	Type	Condition	Remedial Action	Timeframe
	Flooring	Timber strip	Hf	Remains of lino	Remove lino, clean down floor and oil	N
	Windows	Painted timber double hung sash	Hf	-		
	Doors	Painted flush hollow core	Nhf	-		
	Fixtures and fixings					
Roof space	Roof framing	Pitched rafters	Hf	Borer	Treat for borer with Rentokil borer fluid	N
Sub floor	Foundation	Concrete piles	Hf	Not inspected		

4.0 Diesel generator house and office condition and remedial repair regime

Fabric used to construct and line the building is listed with each elevation and is defined as original or early historic fabric (hf), reproduction or renewed fabric (rf), old but not original fabric (of), and non-historic fabric (nhf). Based on the findings of the condition survey, the following is a combined list of the condition of elements within each room with recommended repairs with priorities as follows:

Immediate (I) as soon as possible

Urgent (U) within three months

Necessary (N) within one to three years

Desirable (D) whenever possible, or as use/function changes

Exterior

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
Roof	Lining	Fibre cement	Nhf	Moss and lichen growth, cut ends delaminating	Replace	U
		Painted metal trough section to flat roof	Nhf	Extensive rusting	Replace	U
	Flashings	Painted galvanised steel	Hf	Rusting to ridges and corners	Treat rust and recoat	N
	Eaves/soffit	Painted timber	Hf	Paint peeling	Clean down and recoat	N



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
				Rusting fixings	Treat rust before repainting	N
				Loose and splitting timber to flat roofed section	Refix loose and replace splitting timber	N
				Missing section above flat roof	Reinstate missing section	N
	Spouting	Galvanised steel brackets	Hf	Spouting missing	Install new spouting to match original	N
	Downpipes			Missing	Install new downpipes to match original	N
North	Walls	Painted stucco with rendered base	Hf	Cement patches	Monitor	N
				Rusting fixings	Treat rust	N
		Painted rendered sills	Hf	Peeling paintwork	Clean down and repaint	N
				Cracking	Repair cracks when repainting	N
	Windows	Painted timber double hung sash	Hf	Boarded up	Remove boarding and make good	With new use

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
West	Walls	Painted hood to south	Hf	Peeling paint	Clean down and repaint	N
		Painted stucco with rendered base	Hf	Paint worn, peeling	Clean down and repaint	N
				Cracking to base with efflorescence	Repaint cracks and remove efflorescence when repainting	N
				Rusting fixings	Treat rust when repainting	N
	Painted rendered sills	Hf	Peeling paintwork	Clean down and repaint	N	
			Cracking	Repair cracks when repainting	N	
Windows	Painted timber double hung sash	Hf	Boarded up	Remove boarding and make good	With new use	
	Painted hoods	Hf	Peeling paint	Clean down and repaint	N	
Rusting fixings			Treat rust when repainting	N		
South	Walls	Painted stucco with rendered base	Hf	Paint worn, peeling	Clean down and repaint	N
				Cracking to base with	Repaint cracks and	N



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
				efflorescence	remove efflorescence when repainting	
				Vertical cracking at junction of flat roofed section and also by doorway	Repair cracks when repainting	N
				Cracking by sill of central window	Repair cracks when repainting	N
				Rusting fixings	Treat rust when repainting	N
		Painted rendered sills	Hf	Peeling paintwork	Clean down and repaint	N
				Cracking	Repair cracks when repainting	N
		Painted cement vent	Hf	-		
		Concrete steps	Hf	-		
	Windows	Painted timber double hung sash	Hf	Boarded up	Remove boarding and make good	With new use
		Painted hoods to two east	Hf	Peeling paint	Clean down and repaint	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
				Rusting fixings	Treat rust when repainting	N
	Door	Painted timber solid with pane	Hf	Peeling paint	Clean down and repaint	N
				Extensive missing section	Repair door	N
				Missing bead to pane	Replace missing bead	N
East	Walls	Painted stucco with rendered base	Hf	Paint worn, peeling, algae	Clean down and recoat	N
				Rusting fixings	Treat rust when repainting	N
		Painted rendered sill	Hf	Peeling paintwork	Clean down and recoat	N
		Concrete ramp	Hf	-		
	Windows	Painted timber double hung sash	Hf	Boarded up	Remove boarding and make good	With new use
	Door	Painted timber solid double with boarded up toplight pane	Hf	Peeling paint	Clean down and recoat	N
				Rusting hinges	Treat rust when repainting	N



Interior

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
Entry/corridor	Ceiling	Painted timber tg&v match lining	Hf	Mildew		
	Wall	Painted rough cast	Hf	-		
		Painted timber architraves	Hf	Peeling paint work	Clean down and repaint	N
				Impact damage	Repair damage	N
				Vertical crack by central doorway	Repair crack	N
				Vertical crack by entry door	Repair crack	N
	Flooring	Concrete	Hf	Peeling paintwork	Clean down and repaint	N
	Doors	2 x Painted timber ledged	Hf	Peeling paint	Clean down and repaint	N
				Minor impact damage	Monitor	N
		Painted timber ledged double to entry	Hf	Peeling paint	Clean down and repaint	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe		
South west room				Splitting where hardware is missing	Repair door	N		
					Reinstate hardware	N		
				Painted timber leaded and louvered	Hf	Peeling paint	Clean down and repaint	N
					Impact damage	Monitor	N	
	Windows	3 x painted timber 4 pane fixed	Hf	-				
		1 x single painted timber fixed above door	Hf	-				
	Fixtures and fittings	-						
	Ceiling	Painted plasterboard with painted timber battens	Hf	-				
	Wall	Painted plaster	Hf	Peeling paintwork	Clean down and repaint	N		



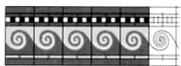
Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
				Holes in south wall	Repair holes	N
		Painted timber architraves and skirtings	Hf	Peeling paint work	Clean down and repaint	N
				Impact damage	Monitor	N
				Area missing to north	Replace missing section	N
	Flooring	Lino over timber strip	Hf	Lifting, cracked, holes, areas missing	Replace	N
	Doors	Painted timber ledged with glazed pane	Hf	Peeling paint	Clean down and repaint	N
				Minor impact damage	Monitor	N
	Windows	3 x painted timber fixed with top hung casement	Hf	Peeling paintwork	Clean down and repaint	N
		Metal bar over window	Nhf	-		
		Painted timber borrowed light	Hf	-		

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
South east room	Fixtures and fittings	Timber table	Nhf			
	Ceiling	Painted timber tg&v match lining	Hf	-		
	Wall	Painted plaster	Hf	Extensive peeling paintwork	Clean down and repaint	N
				Cracking	Repair cracking when repainting	N
				Peeling paint work	Clean down and repaint	N
	Flooring	Concrete	Hf	Impact damage	Repair damage	N
				Stained	Clean off stains	N
	Doors			Missing	Reinstate doors	N
	Windows	2 x painted timber fixed	Hf	Peeling paintwork	Clean down and repaint	N
		Metal bars over windows	Nhf	-		



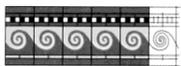
Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
North east room	Fixtures and fittings					
	Ceiling	Painted plasterboard with painted timber battens	Hf	Peeling paint	Clean down and repaint	N
				Mildew	Treat with cleaner	N
	Wall	Painted concrete	Hf	Peeling paintwork	Clean down and repaint	N
				Cracking where plastered	Repair cracking when repainting	N
		Painted timber architraves	Hf	Peeling paint work	Clean down and repaint	N
				Impact damage	Repair damage when repainting	N
	Flooring	Concrete	Hf	Stained	Clean off stains	N
	Doors	Painted timber double ledged	Hf	Peeling paint	Clean down and repaint	N
				Impact damage	Repair damage when repainting	N
Windows	Painted timber fixed with top hung	Hf	Peeling paintwork	Clean down and repaint	N	

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
		casement				
		Metal bar over window	Nhf	-		
	Fixtures and fittings	-				
North room	Ceiling	Painted plasterboard with painted timber battens	Hf	Peeling paint	Clean down and repaint	N
	Wall	Painted concrete	Hf	Peeling paintwork	Clean down and recoat	N
				Cracking where plastered repair	Repair damage when repainting	N
		Painted timber architraves	Hf	Peeling paint work	Clean down and recoat	N
				Impact damage	Repair damage when repainting	N
	Flooring	Concrete	Hf	Stained	Clean off stains	N
	Doors	Painted timber ledged	Hf	Peeling paint	Clean down and recoat	N
				Impact damage	Repair damage when repainting	N



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
East room	Windows	5 x painted timber fixed with top hung casement	Hf	Peeling paintwork	Clean down and recoat	N
		Metal bar over window	Nhf	-		
	Fixtures and fittings	Painted metal lining timber bench	Hf	Peeling paint	Clean down and recoat	N
	Ceiling	Painted plasterboard with painted timber battens	Hf	-		
	Wall	Painted concrete	Hf	Peeling paintwork	Clean down and recoat	N
				Cracking where plastered repair	Repair damage when repainting	N
		Painted timber architraves	Hf	Peeling paint work	Clean down and recoat	N
	Flooring	Concrete	Hf	Stained	Clean off stains	N
Uneven				-		

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
	Doors	Painted timber ledged and louvred	Hf	Peeling paint	Clean down and recoat	N
				Impact damage	Repair damage when repainting	N
				Missing furniture		
	Windows	2 x painted timber fixed with top hung casement	Hf	Peeling paintwork	Clean down and recoat	N
		Metal bar over window	Nhf	-		
	Fixtures and fittings					



5.0 WAAC barracks foundations condition and remedial repair regime

Fabric used to construct and line the building is listed with each elevation and is defined as original or early historic fabric (hf), reproduction or renewed fabric (rf), old but not original fabric (of), and non-historic fabric (nhf). Based on the findings of the condition survey, the following is a combined list of the condition of elements within each room with recommended repairs with priorities as follows:

Immediate (I) as soon as possible

Urgent (U) within three months

Necessary (N) within one to three years

Desirable (D) whenever possible, or as use/function changes

Exterior

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
Foundations	Foundations	Concrete, remains of timber bottom plates	Hf	Weeds, moss and lichen growth	Apply biocide, cut weeds	N
				Rotting, splitting timberwork	Treat with zinc naphthenate	U
				Rusting fixings	Apply fish oil	U
				Cracked and broken concrete	Monitor	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
				Undermining of foundation edges	Monitor	N



6.0 Shelterbelt, other vegetation and landscape elements condition and remedial repair regime

Based on the findings of the condition survey, the following is a combined list of the condition of elements within the setting of the compound along with recommended remedial actions and priorities as follows:

Immediate (I) as soon as possible

Urgent (U) within three months

Necessary (N) within one to three years

Desirable (D) whenever possible, or as use/function changes

Element	Condition	Remedial Action	Timeframe
Existing Shelterbelt	Variable	Removing deadwood, pruning, wound repair by arborist	N
Shelterbelt reinstatement	Gaps, trees have died	Replacement as per original except perhaps original shelterbelt between compound and escarpment along northern boundary	N
Norfolk Pines & Golden Macrocarpa	Good	Check for damage/disease	D
Vegetation in compound	Variable	Remove	D
Karo	Vigorous & spreading	Remove	N
Rock garden	Reasonable	Maintenance & plant replacement	D

Picket fence	Variable, some in reasonable condition while others damaged	Offers template for reinstatement	D
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Garage condition and remedial repair regime

Fabric used to construct and line the building is listed with each elevation and is defined as original or early historic fabric (hf), reproduction or renewed fabric (rf), old but not original fabric (of), and non-historic fabric (nhf). Based on the findings of the condition survey, the following is a combined list of the condition of elements within each room with recommended repairs with priorities as follows:

- Immediate (I) as soon as possible
- Urgent (U) within three months
- Necessary (N) within one to three years
- Desirable (D) whenever possible, or as use/function changes

Exterior

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
Roof	Lining	Corrugated fibre cement sheet	Nhf	Extensive moss and lichen growth, disintegrating sheets	Replace	U
				Areas of missing roofing, exposing sarking	Replace	U
	Flashings	Painted galvanised steel to ridge and part gable	Nhf	-	-	-
				Fibre cement flashing to part gable	Nhf	Extensive moss and lichen growth
	Gables	Painted timber bargeboards	Hf	Paint peeling	Clean down and recoat	N
Spouting	Galvanised steel	Nhf	Damaged or missing	Replace	U	



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
				Brackets to galvanised spouting are rusting extensively, staining and splitting weatherboards	Replace	U
		Pvc	Nhf	Moss and lichen growth	Treat with biocide or replace with galvanised	N
	Downpipes	Galvanised steel	Nhf	Rusted through in areas and bent	Replace	U
North	Walls	Painted timber shiplap weatherboards and coverboards	Hf	Peeling paintwork, algae growth	Clean down, repaint	N
				Minor splitting	Monitor	N
		Painted rendered stepped concrete foundation wall	Hf	Cracked and loose render	Remove loose and cracked render, re-render to natural break line	N
				Paint peeling	Clean down and repaint	N
	Windows	Painted timber architraves and sills	Hf	Paint peeling	Clean down and repaint	N
				Boarded up	Remove boarding and make good	With new use

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
West	Fittings and fixtures	Painted galvanised head flashings	Hf	Peeling paint	Clean down and repaint	N
		Painted timber buttresses	Nhf	Extensive rusting of fixings	Reconstruct wall to enable removal of buttresses	N
	Walls	Painted timber shiplap weatherboards and coverboards	Hf	Peeling paintwork, algae growth	Clean down, repaint	N
				Minor splitting	Monitor	N
				Scriber and cornerboard separating from wall	Refix	N
	Windows	Painted rendered concrete foundation wall	Hf	Cracked render	Monitor cracking	N
				Paint peeling	Clean down and repaint	N
				Paint peeling	Clean down and repaint	N
				Boarded up	Remove boarding and make good	With new use
			Painted galvanised head	Hf	Peeling paint	Clean down and repaint



Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
South	Walls	Painted timber shiplap weatherboards	Hf	flashings		
				Peeling paintwork, extensive algae growth	Clean down and repaint	N
				Extensive rot to weatherboards (and framing visible at top of wall where weatherboards missing)	Remove rotten timber, repair	U
				Missing weatherboards to top	Fix replacement weatherboards	U
				Splitting weatherboards	Replace	N
				Rusting fixings	Treat rust, clean down and recoat	N
		Painted rendered concrete foundation wall	Hf	Scriber and cornerboard separating from wall	Refix	N
				Cracked render	Monitor cracking	N
				Paint peeling	Clean down and repaint	N
				Algae growth	Treat with biocide	N

Elevation	Element	Fabric	Type	Condition	Remedial Action	Timeframe
East	Windows	Painted timber architraves and sills	Hf	Paint peeling	Clean down and repaint	N
				Boarded up	Remove boarding and make good	With new use
		Painted galvanised head flashings	Hf	Peeling paint	Clean down and repaint	N
				Rusting	Treat rust, clean down and repaint	N
	Walls	Painted timber shiplap weatherboards	Hf	Peeling paintwork, extensive algae growth	Clean down and repaint	N
				Painted timber coverboards	Peeling paintwork	Clean down and repaint
	Door	Galvanised roller door	Nhf	Rusting	Treat rust or replace with original timber	N
	Wall flashings	Painted steel flashings to door head	Hf	Rusting, peeling paint	Treat rust, clean down and repaint	N



7.0 Possible causes of deterioration

7.1 Rot

There are two main forms of rot, brown and white rot. It is likely that the form of rot in the building is brown rot and is caused by damaged flashing and roofing over the area of the rot.

Rot occurs where fungi have the right conditions to grow. Fungi are simple plants that require moisture, air, a suitable temperature and a source of food. Given the right conditions, certain fungi can consume the lignin and cellulose that are the main structural components of timber, leaving them valueless as load bearing elements of a structure.

Brown rot or wet rot is caused by a number of fungi that require a high moisture content, about 35% and above. Brown rot attacks the cellulose in the timber, leaving the lignin. It attacks both hardwoods and softwoods and is probably the most common wet rot. Brown rot is recognisable by excessive splitting of the wood along and across the grain into a cubic, brittle surface. There is a large strength loss through the action of the rot. The removal of the source of moisture will stop the rot, but decayed timber will still have to be replaced.

A particular fungus called *serpula lacrymans* causes white rot also known as dry rot. Despite its name, the dry rot fungus needs a moisture content in the timber of at least 20%. The rot attacks lignin in the timber, leaving the cellulose and turns the timber white. The rot attacks primarily hardwoods and there is a gradual loss of strength. Removal of the source of moisture is not sufficient to kill the fungus: all affected timber must be removed, adjacent plaster or brickwork must be sterilised, and new treated timber used for the repairs.

7.2 Worn paintwork

The building is located near the sea and in a location that suffers from high winds. The atmosphere is therefore clearly one with a high salt level, which is likely to contribute to the wearing or, in some areas, breakdown of the paint coating. Cleaning the building regularly will help to counter the problems with salts and pollution while prolonging the life of the paint coating.

The longevity of paint coatings on timber work is dependent on colour, exposure to the sun, quality of preparation and paintwork, and the level of maintenance. Paint on timberwork should be touched up every two years and repainted every seven to eight years.

7.3 Rust

Rust is corrosion of steel caused largely by the oxidation of steel in presence of water. The oxide does not form a protective film, unlike other metals, but promotes the continued corrosion of the metal. Atmospheric corrosion is the most common form of corrosion of steel where moisture on the steel acts as an electrolyte. The rate of atmospheric corrosion generally increases with humidity levels. Industrial atmospheres and sea water both contain corrosive agents. Salt from sea water is

especially corrosive and can affect metals as far away as 70 km from the sea. Chlorides can cause oxidation without the on-going presence of water.

7.4 Cracking of render

This can be caused by inadequate adhesion between render coats or the substrate from poor preparation or incompatible differential strengths of coats and substrates. The presence of water and soluble salts will exacerbate this problem and are likely to also be the cause of efflorescence and peeling paintwork.

7.5 Micro-biological growth

Potential biodeterioration threats include: retention of moisture, mechanical damage from roots and thalli, chemical damage from organic and inorganic acids, production of chelating agents, and the introduction of soluble salts. The presence of mosses, lichens, and algae indicate persistent damp and sheltered conditions while also retaining moisture. A high moisture content can make masonry vulnerable to frost damage.

Lichen thalli (roots) deteriorate masonry by their action during wetting and drying - shrinkage of the roots detaches small sections of masonry. Higher plant roots cause damage by their penetration and expansion. Their mean pressure is 14 atmospheres.

One acid-forming compound produced by all aerobic organisms, through cellular respiration, is carbon dioxide (Co₂), which forms carbonic acid. Other acids formed include nitrous, nitric, sulphuric, and oxalic acids which are likely to cause deterioration in the masonry and other surfaces.



8.0 Approach to repairs

8.1 Conservation treatments

The selection of the appropriate conservation treatment is defined by the heritage values of the building. The New Zealand *ICOMOS Charter on the Conservation of Places of Cultural Heritage Values*, 2010 (the ICOMOS NZ Charter) described treatment options. Levels of authenticity define the choice of conservation treatment.

Where there is authenticity in design, the aims of conservation treatments are maintenance, repair, stabilisation, and restoration. Where there is authenticity in materials, the aim of conservation is maintenance of materials related to the significant periods of construction. Where there is authenticity in workmanship the aim of the conservation treatment is maintenance of significant fabric and structures, and compatible repairs. Authenticity in setting requires the retention of the relationship of the setting with the structure.

8.2 Remedial work - principles

General principles of conservation should be followed when carrying out repairs. These include:

- repair rather than reuse, and reuse before replacement. Replacement, reuse and repair should match in colour, texture, quality, material, profile, dimensions and strength. Where a significant item of decorative fabric is deteriorated, this should be stabilized or consolidated and retained in situ wherever possible.
- repairs should match the original in form, quality, profile, dimension, material, colour, texture and strength but be identifiable on close inspection. Date stamping new material or large areas of repair is recommended. A technically higher standard of repair may be justified where the life expectancy of the material is increased, the new material is compatible with the old, and the cultural heritage value is not diminished.
- where possible any intervention should be reversible if technically possible.
- while undertaking the conservation work, workers should be aware of any construction marks or other archaeological evidence. Where any evidence is uncovered, this should be recorded.
- all work should be documented.

8.3 Specifications and contract observation and administration

It is recommended that drawings and a specification be prepared and the work observed by an appropriately trained and experienced architect and conservator. The required repairs involve a high level of knowledge timber building repair

A specification and conditions of contract, such as the New Zealand Institute of Architects' (NZIA) Conditions of Contract, will determine the nature and scope of the contract and establish responsibilities of all parties, by which the work can be

measured.

8.4 Skills required

All of the work will need to be carried out by skilled work people with experience in repairing timber and concrete buildings.

8.5 The Building Act 2004

The Building Act 2004 regulates all building work in New Zealand. Under the Building Act 2004 (amendments March 2005), it is the owner's responsibility to:

- apply for a building consent for any proposed building work
- provide the necessary information with the building consent application to confirm compliance with the New Zealand building code
- notify the council when a change of use is proposed
- apply for a code compliance certificate on completion of building work
- ensure that inspection, maintenance and reporting procedures are carried out where required by any compliance schedule
- maintain the building in a safe and sanitary condition at all times.

A Building Consent or a Resource Consent is not normally required for maintenance work, but it is best to check with the local authority. The Building Act 2004, Schedule 1, Exempt Building Work states:

A building consent is not required for the following building work:

(a) any lawful repair and maintenance using comparable materials, or replacement with a comparable component or assembly in the same position, of any component or assembly incorporated or associated with a building, including all lawful repair and maintenance of that nature that is carried out in accordance with the Plumbers, Gasfitters, and Drainlayers Act 1976.“

17 All building work must comply with building code

All building work must comply with the building code to the extent required by this Act, whether or not a building consent is required in respect of that building work.

8.6 Hutt City District Plan

The buildings are not listed on the District Plan nor are they registered by the NZHPT, although a proposal has been made for their registration by the NZHPT. Therefore, modifications to the buildings, which may have an effect on heritage values, will not need resource consent.

8.7 Recording

Recording of the work carried out on the building is recommended as this is national and international best practice and is a recommended conservation action in the ICOMOS NZ Charter.



8.8 Maintenance

Consistent with the ICOMOS NZ Charter, it is recommended that a preventative cyclical maintenance plan be written for long-term care of the buildings.

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Appendix 1 Photos of condition

North house



Paint peeling, cracked asbestos roofing, algae growth - typical of all elevations



East elevation splitting sill



Rusting vent pipe, rusting nails and split and damaged weatherboards – east elevation





Rusting head flashings, missing guttering, fraying corrugated asbestos roofing edging – east elevation



Rot in the north east corner



Rusting under side of corrugated steel ridge flashing – west elevation



Rotten rafter end, rusting nails, peeling paintwork – west elevation



Rusting underside of the trough section roofing – south west corner



Lifting asbestos roofing – east elevation



Fraying cut edges to roofing – east elevation



Damaged flooring to kitchen

South house



Rusting head flashings, peeling paint, missing guttering – typical of all elevations



Damaged asbestos roofing - west elevation



Peeling paint, dining room



Borer in living room paneling

Generator building



Cracked sill, west elevation



Loose molding, rusting trough section roofing





Cracking to corner, west elevation



Missing section of eaves, south west corner



South west corner room, peeling paint and cracked plaster



Damaged front door

WAAC Barracks foundations





Figure 22 lichen and mold on concrete foundation



Shelterbelt, other vegetation and landscape elements





Golden macrocarpa and Norfolk Island pines contribute distinctive landscape elements
Distinctive form of Norfolk Island pine extending above shelterbelt



Example of one of the few remaining original fence posts



Rock garden remains largely intact, requiring only minor maintenance



Shelterbelt has suffered storm damage in places requiring remedial arboricultural attention



Only a few straggly trees that were part of the original shelterbelt between the north-western boundary and the escarpment remain



Local native vegetation has established, particularly along the south-east boundary of the compound



Some tree removal and arboricultural management required for plantings within the compound



Remnants of the original picket fencing remain in a few places



Shelterbelt viewed from outside the compound, noting pohutukawa along the outer edge with macrocarpa and pine contributing the main structural elements

