

**Report: Okiato/Russell Walkway - Condition Assessment**

**From: Far North Holdings Limited**

**To: Far North District Council  
Infrastructure & Asset Management**

**Date: 1 October 2018**

**Synopsis: An assessment of the marine located structures of the walkway. Excludes general metal track and land-based staircases. An annual maintenance recommendation and a cost/value assessment of the existing structures is provided.**

### **Background:**

The track has been developed by the local community over a number of years although largely completed in 2015. There is on-going maintenance work done by various parties including the local Rotary Club, individuals and adjacent owners of private land. There is likely to be a number of other groups involved although they are not known to us at time of assessment.

The Bay of Islands/Whangaroa Community Board have also been supporters of the track's development.

FNHL were asked to complete an assessment of the structures that make up the high-risk elements and that are predominantly in or close to the marine environment.

No consideration is given to upgrades to sections of the existing track. The assessment is based on what is present at time of the assessment. No assessment has been made on the signage on the track which is minimal.

### **Assessment Methodology:**

The track was visually assessed over the course of three separate visits. Track structures were inspected at low tides. No destructive methods were used. Measurements of the various components were made and can generally be relied upon to a 90% accuracy.

FNHL have used their experience of marine structures and applied this to the life expectancy of these components. The structures have not been assessed by a certified structural engineer.

No assessment has been made of the staircases on the land-based components of the track although these have been well constructed and are in very good order. Given the damp shaded environments these will become slippery at times and care should be taken in using these.

### **Asset Description:**

The track is made up of sections of different types of construction/material. These include:

1. Grass (mown)
2. Earth/Soil (compacted)
3. Metal (GAP25 laid and foot compacted)
4. Timber planks (ground laid)
5. Timber planks (piles)
6. Timber (stair cases)

The sections of track accessed are the **1.045km** of timber structures of various designs.

The earth, grass and metalised sections all appear to be well maintained. There were sections of the earth tracks in the valleys and under tree canopies that were muddy in sections although these were passable by taking minor deviations to the route. A decision may be required as to whether it anticipated that this track be 100% passable or free of any such areas. Should this be the expectation then some remedial work would be required in these areas mainly with drainage/culverts.

The timber structures which are in the intertidal area have been double piled, single headstocked and running two joists. Decking timber has been placed on top. In some areas the timber decking has wire mesh attached for non-skid purposes.

There are large sections where boards of various lengths have been placed longitudinally over soft areas. These are nailed together with a cross section board.

There are no handrails on most of the sections constructed as the potential fall height is often below 1m and/or in to soft ground or mud. The stair cases are well constructed and have handrails.

### **Asset Volumes and Materials:**

Refer attached.

### **Asset Value/Cost:**

\$241,000 plus GST

### **Asset Condition Assessment:**

The timber components have been well constructed using suitable/appropriate timber treatment. The treatment was in a range of H4-H6.

Stainless Steel fastenings were used in 75% of the structures with the remaining areas using galvanised steel fasteners.

The timber sections have been built over a period of time however all the timber sections are in generally good order.

The most important structural elements are the timber piles supporting the walkway over water/mangroves. While some of these piles are less than 150mm in diameter they remain in good order with minimal degradation from marine pests or rot. The headstock timbers are appropriately sized and are in good order. The joists are in good order.

Timber sections placed on ground are in good order generally however there are sections of timber that are warping, buckled or bent. There are some sections that are showing signs of degradation through rot from being exposed to constant water egress or mud.

There are areas of the walkway where structures are partly covered by vegetation. Organic matter has rotted on top of the structures and become slippery and damp.

### **Remaining Life Assessment:**

- |                                   |             |
|-----------------------------------|-------------|
| • Timber piles                    | 12-15 years |
| • Timber decking/joist/headstocks | 15 Years    |
| • Timber (ground laid)            | 5-10 years  |
| • Fastenings                      | 20 years    |

It would be anticipated that the above components would require replacement in 15 years' time. Such a program will be influenced by the maintenance program under taken on the track.

### **Maintenance Requirement**

The timber structures require minimal maintenance however the following is a recommend annual program:

1. Vegetation removal	48 hours	\$2,200pa
2. Vegetation spraying	32 hours	\$2,500pa
3. Wet & Forget spray	32 hours	\$2,500pa
4. Materials		\$1,500pa
5. Metal	N/A	N/A
6. Labour (other)	40 hours	\$1,800pa
Total		\$10,500pa

The above assumes there is no continuing community volunteer work carried out in maintaining the track.

**Far North Holdings Limited**

# FNHL Russell to Okiato Boardwalk Asset Inspection and Valuation – August 2018

## Russell Okiato Boardwalk Materials Cost

Dimensions	Quantity / Length	Specification	Unit Price	Total
100 x 100	34.50	H4 Treated	\$ 22.80	\$ 786.60
150 x 50	6,802.00	H4 Treated	\$ 4.82	\$ 32,785.64
200 x 50	1,690.00	H4 Treated	\$ 6.44	\$ 10,883.60
250 x 50	323.00	H4 Treated	\$ 14.20	\$ 4,586.60
300 x 50	49.50	H4 Treated	\$ 18.37	\$ 909.32
75 x 50	70.00	H4 Treated	\$ 5.37	\$ 375.90
Bolt - 12mm SS	81.00	SS	\$ 14.23	\$ 1,152.63
Bolt- 20mm SS	858.00	SS	\$ 41.41	\$ 35,529.78
Galv Nails	23,209.00	Hand driven	\$ 0.13	\$ 3,017.17
Piles -150 mm dia	30.00	H5 treated	\$ 38.48	\$ 1,154.40
Piles -175 mm dia	1,112.20	H5 treated	\$ 38.48	\$ 42,797.46
Materials				\$ 133,979.09
Labour				\$ 106,535.00
Total Valuation ex GST Aug 2018				<u>\$ 240,514.09</u>

Labour - 2 labourers @  
\$55/hour x 1 metre of  
boardwalk per hour x 968.5  
m

Note materials quoted at regular retail rates

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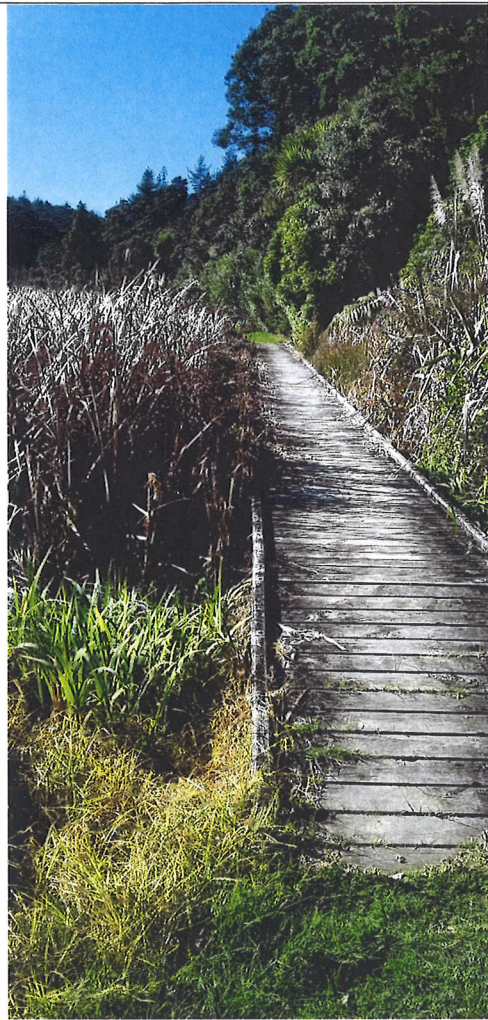


Figure 1 Aucks Rd Section



Figure 2 Bearer on Oyster Farm Section





*Figure 3 At start of Oyster Farm Section*



*Figure 4 Low tide - Oyster Farm Section*





*Figure 5 Oyster farm section*



*Figure 6 Misc Boardwalks/ timber planks*





*Figure 7 Pedestrian Bridge near Gas Station*



*Figure 8 Gas Station bridge - side elevation*



Figure 9 Aucks road pedestrian bridge



Figure 10 Aucks road pedestrian bridge





Figure 11 Start of boardwalk near Gas Station

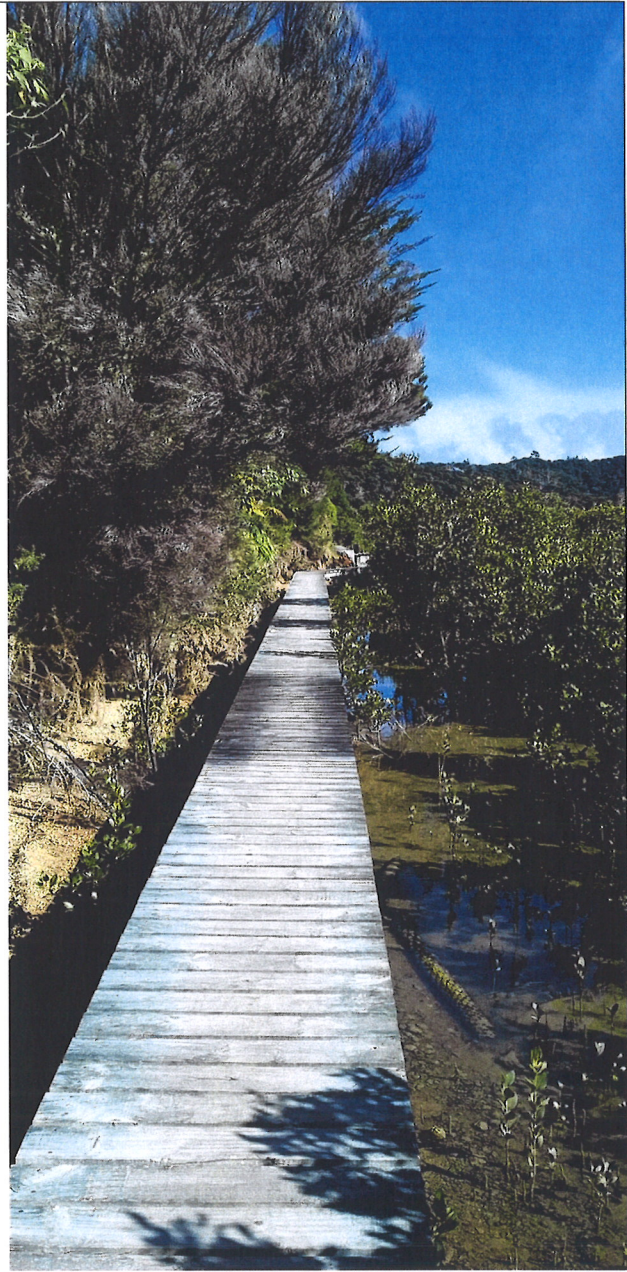


Figure 12 880mm wide boardwalk





Figure 13 Pile for 880 mm boardwalk section



Figure 14 880 mm Boardwalk section



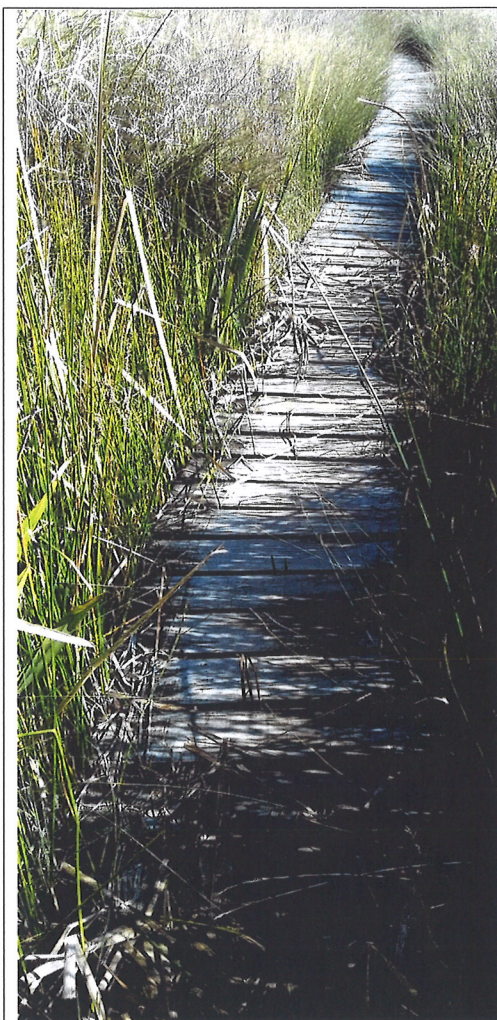


*Figure 15 Vegetation clearance required*



*Figure 16 Area near private jetty*





*Figure 17 Vegetation clearance required*



*Figure 18 Vegetation clearance required*





Figure 19 Start of Uruti Road Section



Figure 20 Uruti Road Section





Figure 21 Uruti Rd to Russell Town Section



Figure 22 Uruti Rd to Russell Town Section



Figure 23 Uruti Rd to Russell Town Section