

# CHAFFERS MARINA

## LONG TERM PLAN 2019 - 2034

### Project Status Summary to Shareholders

July 2020



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## REPORT SUMMARY

### What Are We Building?

1. Presently here are 4 primary scope and physical work elements to the Harbour Redevelopment Project. They are:
  - a) Pile Repair Works - comprising supply, fabrication and installation of fibre reinforced polymer (FRP) pile jackets to piles in the intertidal to seabed zone (28 piles plus 2 timber underpinning piles associated with travel lift).
  - b) Pile Repair Works – comprising installation of a non-structural HDPE sleeve over the timber piles with sand filled annulus (70 piles).
  - c) Breakwater Anchor Chains – comprising of the replacement of the 6 inward leading anchorage chains.
  - d) Outer Wave Screen – comprising of repairs to the steel UC pile and upper bracing, rust descale and repairs to failed welds and application of protective coating to all steel work.
2. Each of the current 4 primary elements have now been fully priced. Additionally, each element has been subject to a different procurement process.
  - Pile Repair Works - Negotiation with Undersea Construction Ltd and benchmarking against similar work (HDPE sleeves are a CML supplied item).
  - Breakwater Anchor Chains - Negotiation with Undersea Construction (anchor chains are a CML supplied item).
  - Outer Wave Screen – Negotiation with Undersea Construction Ltd.
3. New scope items have been added to the project in recent weeks relating to a more extensive outer wave screen refurbishment due to significant rust and deterioration.
4. The existing project budget to cover the 4 primary scope elements for the period 2018/19 and 2019/20 is \$872,629.00 +GST including purchase of sleeves, fees and contingencies.
5. The existing project budget to cover an additional 3 scope elements for the period 2018/19 and 2019/20 is \$150,000.00 +GST including fees and contingencies (these include the boat lift, timber wave screen and timber boardwalk).

### Update on Design Inputs

1. Due to the poor condition of many upper timber wave-screen key components; failure is imminent within the foreseeable short-term if a remedial process to address the condition issues isn't implemented promptly. A proposed remedial process and cost estimates has been forwarded to the OCEL Engineer for review.
2. A scope of work is to be developed regarding specifications for the replacement of the floating piers and a proposed procurement process.

### Harbour Works Procurement and Pricing

The 4 primary scope and physical work elements were negotiated previously between Chaffers Marina Ltd and Undersea Construction. Negotiation has continued with Undersea Construction regarding variations and additional works associated with these 4 work elements.

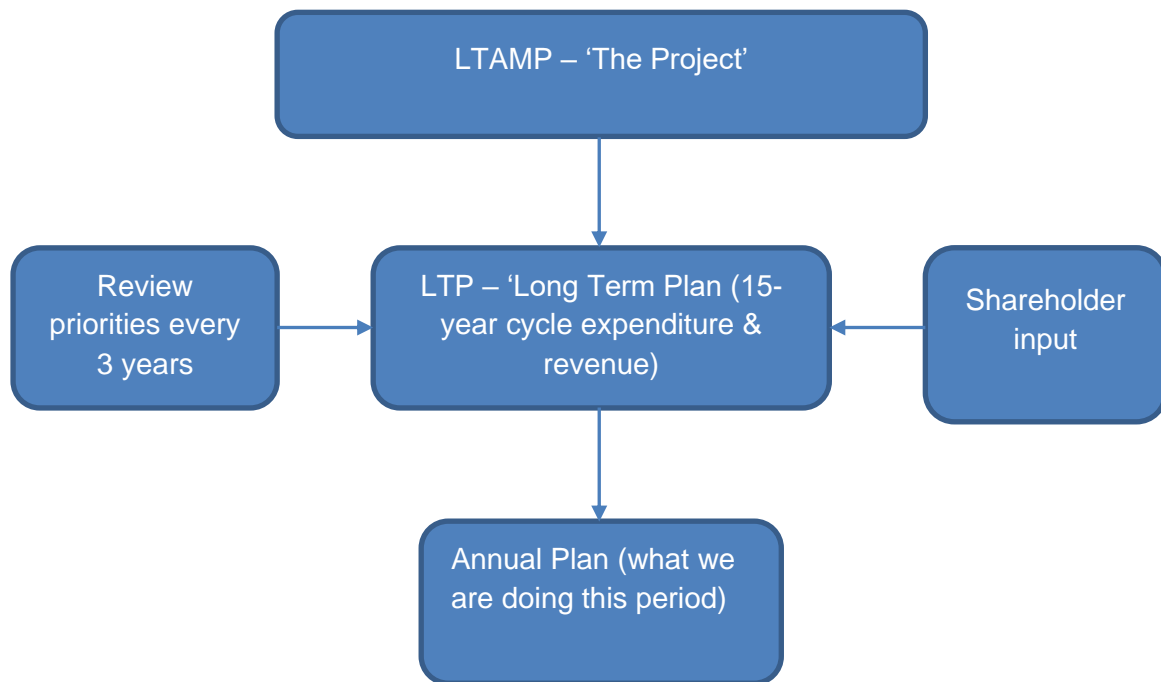
The Harbour Pier Replacement Tender and specifications will be developed over the next 12 months. Poralu Australia were contracted to provide cost estimates and design specifications for the works.

these will be used in the evaluation process. We will also be promoting value engineering and alternative design and construction methodology in an attempt to maximise potential savings for CML.

## Risks

1. The project Risk Register and Control Measures have been updated. Several of the risks have reduced or fallen away as some works have started, but others remain with CML as the Risk Holder.
2. Key Risks to CML which require control and further work at this stage are;
  - Susceptibility to cost fluctuations due to specialised nature of marina construction and limited number of contractors
  - Infrastructure deteriorates or fails sooner than expected (especially the piers)
  - Disposal of old piers

## The Planning Process



## Project risk and controls

Legal	Andrew, Guy, Tom and Paddy	<ul style="list-style-type: none"> <li>➤ Review Marina Berth Licence Agreements and mechanisms for raising funds/equity <b>DONE</b></li> <li>➤ Confirm that any raising of equity and increases in charges via the 2018 agreement is permitted <b>DONE</b></li> <li>➤ Develop a variation to the 2043 agreement to permit the raising of equity and increase in charges (consider negotiating to extend agreements to 2058 and/or other variations) <b>TBA</b></li> <li>➤ Confirm (or develop a proposal) that raising of equity and increase in fees is binding and enforceable <b>UNDERWAY</b></li> </ul>
Finance	Tom, Michael and Andrew	<ul style="list-style-type: none"> <li>➤ Cost Management Risk Review 'no construction project is risk free'<sup>1</sup> <b>ON GOING</b></li> <li>➤ Maintain a mechanism to ensure economic viability of the project throughout its duration (including balance sheet, debt and cash flow)<sup>2</sup> <b>ON GOING</b></li> </ul>
Engineering	OCEL, Andrew, Tom and Paddy	<ul style="list-style-type: none"> <li>➤ Time management (programme / schedule) risk review<sup>3</sup> <b>ON GOING</b></li> <li>➤ Procurement &amp; contracts risk review<sup>4</sup> <b>UNDERWAY</b></li> <li>➤ Economic review of the project (including justification for the proposed expenditure) <b>DONE</b></li> <li>➤ Quality assurance review (scope definition, financial management and control of budgets and risk and issues management) <b>ON GOING</b></li> </ul>
Consenting	Andrew	<ul style="list-style-type: none"> <li>➤ Project needs to comply with the Resource Management Act 1991 (RMA) and the Building Act 2004 (the Building Act) and amendments <b>DONE</b></li> </ul>
WWF	Andrew, Guy and Paddy	<ul style="list-style-type: none"> <li>➤ Negotiate extension to Deed of Licence <b>CONSULTATION WITH WCC</b></li> <li>➤ Consider relinquishing of WWL berth ownership to CML <b>CONSULTATION WITH WCC</b></li> </ul>
Management/Stakeholder Liaison	Andrew, Guy, Michael and Craig	<ul style="list-style-type: none"> <li>➤ Project controls are approved and in place (policies and procedures) to ensure the efficient <b>DONE</b> coordination, monitoring and management of the project<sup>5</sup></li> <li>➤ Develop daily project management control procedures<sup>6</sup> <b>UNDERWAY</b></li> <li>➤ Develop daily project management monitoring procedures<sup>7</sup> <b>UNDERWAY</b></li> <li>➤ Oversight and review – advisory only with all decisions to be approved by CML Board <b>ONGOING</b></li> </ul>

<sup>1</sup> Risk management through identification, assessment / quantification, reduction, implementation and monitoring.

<sup>2</sup> Includes external economic factors such as interest rate changes and global crisis

<sup>3</sup> These risks can change throughout the project lifecycle and the controls will need to match the identified risks

<sup>4</sup> The project cost, time and quality impacts/risks need to be considered together

<sup>5</sup> Project controls include risks, communication and roles/responsibilities

<sup>6</sup> Control procedures must include a project management plan, risk and opportunity register, issues register (processes for managing construction and any issues that may arise), clear documentation of contract procedures and regular, documented meetings to consider key risks

<sup>7</sup> Includes compliance, action lists/responsibilities, formal assurance and expediting reports

## Risk Register

Updated 09/07/2020

No.	Risk Description	Status	Threat or Opportunity	Consequence		Likelihood		Score = C x L
				Description	Rating C	Description	Rating L	
1	Rejection of variation to licence agreements	Closed	Threat	Substantial	10	Possible	2	20
2	Shareholder rejection of LTAMP proposal	Closed	Threat	Medium	10	Possible	2	20
3	Negative feedback from shareholders	Parked	Threat	Medium	40	Possible	4	160
4	Failure to secure banking support	Parked	Threat	Major	40	Possible	3	120
5	Deferment of project (3 – 5 years)	Closed	Threat	Major	10	Possible	3	30
6	Susceptibility to cost fluctuations due to specialised nature of marina construction and limited number of contractors	Parked	Threat	Medium	40	Certain	5	200
7	Infrastructure deteriorates or fails sooner than expected	Emerging	Threat	Medium	40	Likely	4	160
8	Unable to provide secure facilities due to project delays	Parked	Threat	Medium	40	Unlikely	2	80
9	Consents are declined	Parked	Threat	Minor	10	Possible	3	30
10	Lack of timely resolution of issues as raised by various stakeholders	Parked	Threat	Medium	40	Possible	3	120
11	Lack of knowledge of project tracking during design and cost estimating	Parked	Threat	Medium	40	Unlikely	2	80
12	Damage to existing infrastructure during construction	Parked	Threat	Major	70	Unlikely	2	140
13	Potential for pollution to enter harbour due to construction activities	Emerging	Threat	Minor	10	Possible	3	30
14	Weather affects construction timetable	Emerging	Threat	Medium	40	Likely	4	160
15	Client and shareholder expectations not met	Parked	Threat	Major	70	Unlikely	2	140
16	Difficulties in relocation of vessels	Parked	Threat	Major	70	Possible	3	210
17	Disposal of old piers	Live	Threat	Major	70	Likely	4	280
18	Failure of Travel Lift Piles	Emerging	Threat	Substantial	100	Possible	3	300

	Extreme	> = 350	Live	Threat	Substantial	100	Certain	5
	Very High	200 - 349	Emerging	Opportunity	Major	70	Likely	4
	High	70 - 199	Parked		Medium	40	Possible	3
	Moderate	30 - 69	Closed		Minor	10	Unlikely	2
	Low	4 - 29			Negligible	1	Rare	1
	Negligible	1 - 3						

## Project Roles

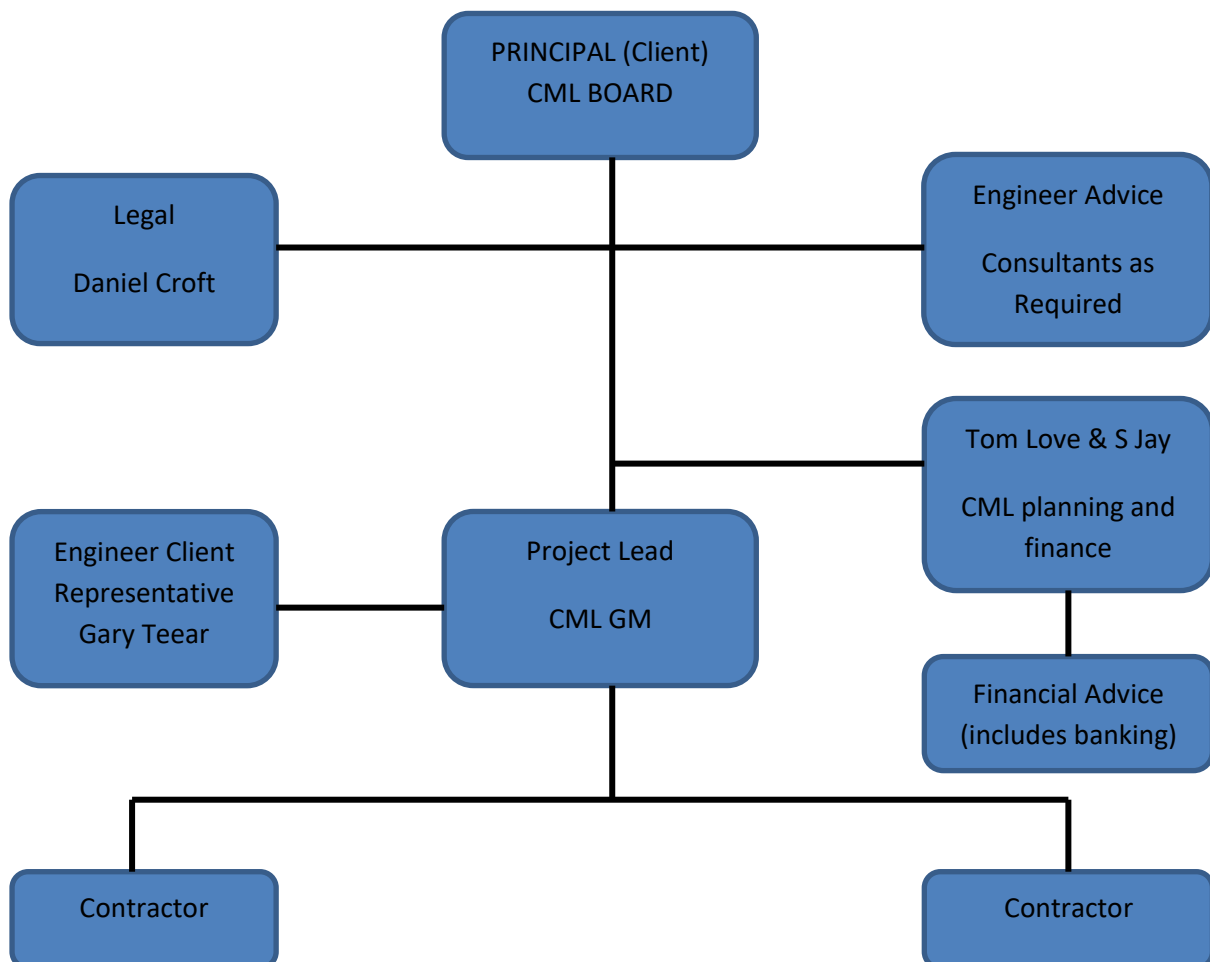
The following table sets out the various parties involved in the project, their role and nominated contact persons.

Role	Company	Contact
Client	CML Board	Guy Beaumont
Client Engineering Representative	OCEL	Gary Teear
CML Engineer Advice	N Duckworth (when and as required)	
CML Planning/Finance	Tom Love	T Love
Legal Representative	Morrison Mallett	Daniel Croft
Project Lead	CML	Andrew Welsh
Consenting Advice	Beal Consultancy	Andrew Welsh
Contractor(s)	As Appointed	Andrew Welsh

It is legal and consenting matters is provided directly to the Board via the GM and representatives.

Monthly project control group meetings will be held during the course of the planning of the works with weekly written updates provided by the GM. The schedule of meetings will be reviewed prior to physical works starting.

The following chart illustrates the project reporting structure.



## **Physical Works – Update**

### **Marina Piles**

The timber piles at Chaffers Marina are predominantly H6 CCA treated *Pinus Radiata*, however a small percentage of piles (ex-Fender piles from the OPT) are Hardwood.

The major cause of pile deterioration within Chaffers Marina results from marine borer infestation of the timbers; predominantly from the 'Sea Gribble – *Limnoria*'; and to a lesser extent 'Ships Worm – *Teredo*'.

Burrowing of molluscan and crustacean organisms, that are found in abundance in Wellington harbour waters, are responsible for the most severe damage to piles in the marine environment.

The accepted standard for timber preservation treatment in a marine environment is H6 CCA treatment. H6 treatment uses copper-chrome-arsenate (CCA). Several variations of treatment technique and strength are available but consist mainly of immersing suitably seasoned timber within a solution inside a pressure vessel. The solution is forced into the timber until the required degree of impregnation has been attained.

A pressure of 1400 kPa is satisfactory for total penetration of sapwood, but for useful impregnation of heartwood 7 Mpa is required.

Therefore, adequate treatment penetration into the heartwood seldom occurs.

### **Piles - Sleeving**

- Pile sleeving is underway. Certification of the UCL Work Brage took a lot longer than anticipated but it is completed.
- 45 additional pile sleeves have been ordered from Asmuss Water Systems Ltd. CML has secured pricing that is the same as the 2016 rates and will include the use of some recyclable materials (HDPE).

### **Piles – Jacketing (24 piles)**

- In 2019 following Timber Pile condition assessment and reporting; acceptance of a rehabilitation option; approval of the rehabilitation specification and methodology: FRP sleeve installations were completed on a number of designated piles requiring strengthening, both within the general Marina berth positions and also under the Boatlift structure.
- The seabed position was targeted as priority for timber pile rehabilitation by FRP process for piles within the berth areas; and at the Boatlift, timber pile deterioration was most prevalent and therefore a priority for FRP jacketing within the tidal zone.
- The repairs undertaken were Standard Repair – Intertidal to Seabed
- A Standard repair was required where a pile has a reduced cross-sectional area but retains partial structural integrity and remains intact.
- UCL prepared the surface of the pile and fitted the FRP jacket around the pile. The length of the FRP jacket is determined by the length of the deteriorated pile plus enough top and bottom development length back onto the undamaged pile section.
- The FRP jacket was then grouted with high strength grout (Sika 212 or equivalent).

### **Breakwater – Anchor Chains**

The Chaffers Marina floating concrete breakwater and its mooring systems form a major and integral structure crucial to the location and operation of the marina. The floating breakwater is a continuous post-tensioned pre-stressed concrete structure of 200 metres in length x 10.5 metres wide x 2.1 metres depth.

The floating structure is moored by a series of chains both transversely and longitudinally. At the surface top-end these chains are secured to the concrete structure through heavy steel anchor-points, and at the seabed the chains are secured to driven universal column stake piles. Construction of the floating concrete breakwater structure was completed in February 1993. The original construction design life for the breakwater was specified as being a minimum of 50 years; with both the breakwater and its mooring systems being designed for 100-year wave conditions.

Following completion of a condition assessment survey and mooring technical design analysis reporting on the Concrete Breakwater mooring systems; staged renewal of unserviceable catenary chains, along with the applying of correct pretension to the mooring systems was given approval to proceed.

During 2018 initially the 11 north-leading chain top-end catenary sections were renewed and pretensioned (1 shot length ea. / 27.5 metres).

Followed in 2019 with renewal and pretensioning of the 6 south-leading chain top-end catenary sections (1 shot length ea. / 27.5 metres).

### **Outer Wave Screen**

A full refurbishment of the outer wave screen is complete. This included welding and steel repairs to the steel (IC) columns and application of paint.

### **Travel Lift**

Works to the steel UC and timber piles that support the travel lift (Denso protective system to the upper 2 metres of the 31 boat lift timber piles incorporating the intertidal zone and pile penetration into the concrete boatlift structure and application of marine tape wrapped polystyrene blocking to fill between the internal flange faces on the 16 steel UC raker piles) are approved and will be incorporated into the works programme – this work will be done when the weather is too bad for pile sleeving.

### **Works Programme - 2020**

As per the LTAMP, the replacement of D (inner) and E piers is scheduled for 2026 and 2028 respectively.

As of 1 July 2020, \$123,000 is budgeted to upgrade the H piles (or steel UC {universal column} piles), upper wave screen and walkway replacement for the section of pier between D and E piers - this work is required due to the severe deterioration of the sub structure within the intertidal zone (primarily the piles).

Following discussions with UCL the following works are planned:

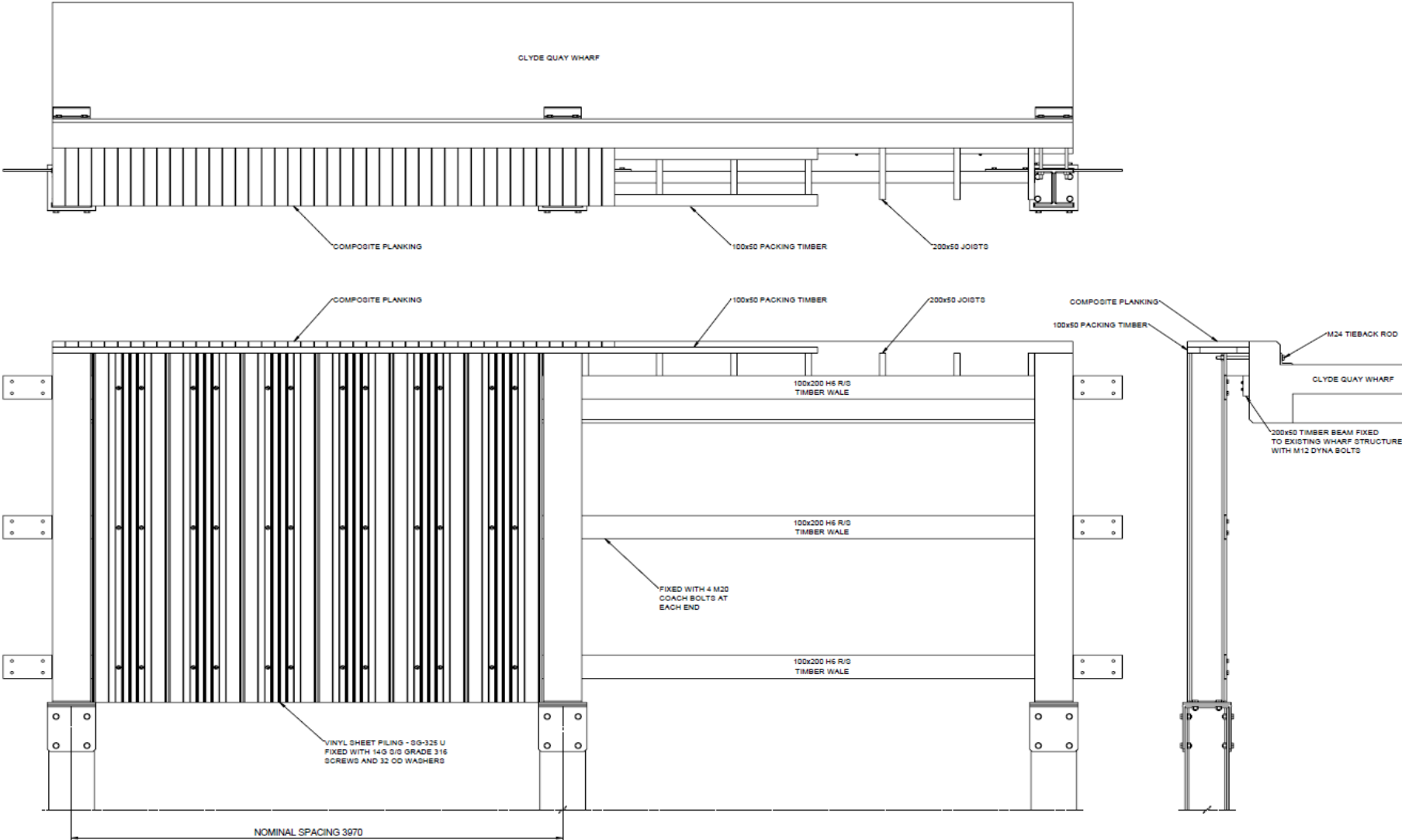
- the repair (sleeving) of the underpinning piles (WTP 62, WTP 63 and WTP 54) – these piles are in all poor condition (*CML/UCL Cantilevered Walkway – Underpinning Piles Condition Assessment 2019*)
- this repair will maintain the life of the infrastructure until 2027/2028 and so the section of fixed walkway will be maintained until the period 2027-2030
- E pier and D pier gangways are replaced as scheduled (scheduled 2019, \$50k)



Pile WTP 63



# Wavescreen Refurbishment Proposal



## **Pier Replacement Specification**

The replacement of the piers and finger piers starts in 2022 with the replacement of A Pier.

In preparation of the tender specification, MetOcean Solutions (a division of state-owned enterprise, Meteorological Service of New Zealand (MetService) were contracted to prepare a Marina Design Statement (including vessel wake analysis and tsunami threat analysis).

The Marina Design Statement covers both oceanographic and meteorological data for Chaffers Marina based on a 50-year return period (a return period is the probability that events such as windstorms or extreme weather events will occur - often expressed as a return period. The inverse of probability (generally expressed in %), it gives the estimated time interval between events of a similar size or intensity).

This is the key document in the tender – rather than Chaffers Marina requesting a specific type of pontoon the manufacturer will be required to provide the necessary warranties/guarantees that the proposed infrastructure will be fit for purpose and meet the conditions that are set out in the Marina Design Statement.

In addition to the replacement of the piers we are also looking at the upgrade to the electrical reticulation (i.e. taking into consideration current and future demand as well as considering future changes to vessel propulsion), upgrade to water supplies, WIFI and sewage disposal.

## **Breakwater Coating**

We are considering applying a protective coating to the concrete on the breakwater as a means of maintaining the life of the structure and determine the areas and extent of possible repairs.

Previously a decision was agreed upon not to attempt use of impermeable membrane-forming polymer coatings such as epoxy or polyurea on the concrete surface of the breakwater.

Through our engineer we are considering the Suitability and Merit of a Permeable Barrier Surface Coating – the aim is to see if the life of the breakwater can be extended and in doing so how we will repair cracks, sea-joints and remediation of areas of concrete spalling; any repairs will need to be effective and affordable.

## **Pile Sleeving and Replacements**

Pile sleeving will be ongoing, this is weather dependant and is a large portion of the planned works for this calendar year.

We are also in discussions with potential operators to do some pile replacements. We have at least 5 piles that need immediate replacement – given the length of piles (19m – 22m depending on water depth) steel casings with a HDPE Sleeve will be used.

## **Capital Contribution**

Shareholders will be aware that this was scheduled to start as of 1 July 2020, it is anticipated the IRD Tax Advice will be in place for August 2020 start of contributions.

The CML Office will be able to accommodate payment plans that suit Shareholders; these are as follows:

- adding the LTAMP Capital Contribution to the normal monthly charges
- annual payments
- lump sum payments

The Capital Contribution is required to minimise company borrowings and the period in which the company cash flow will go into deficit.

## Expenditure (2018 – 2020 current)

Expenditure is down on forecasts due to delays to the pile sleeving, it is forecasted to pick up during 2020/21.

Administration/Management includes \$41,617 of contract insurance, legal/tax fees, engineers fees and specialist advice from Poralu Marine and staff hours (Project Management).

### Chaffers Marina

#### Long Term Asset Management Plan

May 2020

	Current Year				Project To Date			Total Budget			
	Opex 2019-20	Capex 2019-20	Total 2019-20	Budget 2019-20	Unspent B/Fwd	Updated Budget	Balance 2019-20		Total Spend	Total Budget	Variance
Admin & Management	44,476		44,476		(30,531)	(30,531)	(75,006)	75,006	0	(75,006)	
Floating Breakwater	10,925		10,925	50,000	116,800	166,800	155,875	14,125	170,000	155,875	608,125
Anchor Chains	37,222		37,222		(4,504)	(4,504)	(41,726)	71,726	30,000	(41,726)	287,748
Timber Wavescreen - H Piles			0		(15,185)	(15,185)	(15,185)	15,185	0	(15,185)	444,016
Timber Wavescreen - Timber	5,062		5,062	50,000	0	50,000	44,939	5,062	50,000	44,939	620,822
Timber Boardwalks	2,100		2,100	50,000	0	50,000	47,900	2,100	50,000	47,900	806,299
Temporary Gangway			0		0	0	0	0	0	0	30,000
Floating pontoons	303		303		0	0	(303)	303	0	(303)	3,880,671
Piles	7,709	42,963	50,672	237,946	(10,509)	227,437	176,765	261,181	437,946	176,765	1,932,500
Boatslip - Structure	25,726		25,726	50,000	(22,215)	27,785	2,059	47,941	50,000	2,059	437,941
Contingency			0	43,795	35,000	78,795	78,795	0	78,795	78,795	863,050
	<b>133,522</b>	<b>42,963</b>	<b>176,485</b>	<b>481,741</b>	<b>68,857</b>	<b>550,598</b>	<b>374,113</b>	<b>492,628</b>	<b>866,741</b>	<b>374,113</b>	<b>9,911,171</b>