



BYLAW NO. 559

A BYLAW TO AUTHORIZE THE DISPOSITION OF THE PORT NEVILLE WHARF FACILITY

WHEREAS the Regional District may, pursuant to Part 5 of the *Local Government Act*, acquire, hold, manage and dispose of land, improvements or other property or any interest in such property;

AND WHEREAS the Regional District owns and operates the Port Neville wharf facility for the benefit of the general public;

AND WHEREAS the Regional District wishes to transfer ownership of the said wharf facility to the Tlowitsis First Nation;

AND WHEREAS the requirements of Division 6 of Part 8 of the *Local Government Act* with respect to the disposition of Regional District property have been met;

NOW THEREFORE the Board of Directors of the Strathcona Regional District, in open meeting assembled, enacts as follows:

Transfer Agreement Authorized

1. The Strathcona Regional District is hereby authorized to enter into an agreement for the transfer of ownership for the Port Neville wharf facility to the Tlowitsis First Nation.

Form and Substance

2. The agreement referenced in section 1 shall substantially comply in form and substance with that shown in Schedule 'A', attached to and forming part of this bylaw.

Authority to Execute

3. The Chair and Corporate Officer shall have full authority to execute the agreement and such other documents as may be necessary to give effect to the agreement following adoption of this bylaw.

Effective Date

4. This bylaw shall take effect on the date of adoption.

Citation

5. This bylaw may be cited for all purposes as Bylaw No. 559, being Port Neville Wharf Disposition Agreement Authorization Bylaw 2024.

READ A FIRST TIME ON THE DAY OF , 2024

READ A SECOND TIME ON THE DAY OF , 2024

READ A THIRD TIME ON THE DAY OF , 2024

NOTICE OF PROPOSED DISPOSITION PUBLISHED ON THE AND DAYS OF , 2024

RECONSIDERED, FINALLY PASSED AND ADOPTED ON THE DAY OF , 2024

Chair

Corporate Officer

Schedule 'A'

Assignment Agreement

THIS AGREEMENT made as of the _____ day of (month)_____, 2024.

Between:

The Strathcona Regional District
A Regional District under the *Local Government Act*, RSBC 2015, c 1, having its offices located
at
990 Cedar Street,
Campbell River, BC V9W 7Z8

“SRD”

And:

The Tlowitsis First Nation
A First Nation having its offices located at
1345 Bute Crescent
Campbell River, BC V9H 1G6

“TFN”

Whereas:

- A. The Strathcona Regional District (“SRD”) owns a wharf located in the vicinity of Port Neville, British Columbia that it acquired from Transport Canada in 2014 (the “Wharf”). The Wharf is in need of repair work and the SRD is not in a position to continue to own, operate or maintain the Wharf. More specifically, the Wharf consists of a provincial crown foreshore tenure and the dock and pilings improvements located on the tenure area.
- B. The Tlowitsis First Nation (“TFN”) has lands in the vicinity of the Wharf and has advised SRD that TFN would have interest in acquiring the Wharf from SRD.
- C. The SRD has access to \$875,000.00 in funding from Transport Canada to make necessary repairs, improvements and maintenance work to the Wharf (the “Repair Fund”). The current funding agreement with Transport Canada requires SRD to expend the Repair Fund on or before November 1, 2024.
- D. The SRD has made initial investigations into needed repair work and to that end has obtained an inspection of the Wharf and a proposal from the McElhanney engineering consultancy in Courtenay for work to be done using the Repair Funds (the “Repair Work”). Copies of the inspection and proposal for the Repair Work are attached as Exhibits ‘A’ and ‘B’ to this Letter of Understanding.
- E. The SRD proposes to expend the Repair Fund on the Repair Work and upon completion of the Repair Work, transfer ownership of the Wharf to TFN for \$1.00.

The Parties Agree As Follows:

1. Upon completion of the Repair Work, SRD will sell and TFN will purchase the Wharf for the price of \$1.00 (the "Purchase Price"). More specifically, the Wharf will be sold as follows:
 - a. SRD will provide TFN with a Bill of Sale for the physical improvements constituting the Wharf along with all of the warranty and design material relating to the Repair Work;
 - b. TFN will apply to the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development for an assignment of Crown Tenure V924891 over District Lot 1950; together with unsurveyed Crown foreshore or land covered by water being part of the bed of Port Neville, all within Range 1, Coast District, shown outlined on sketch below containing 0.56 hectares, more or less, Provincial Crown Lands File 0131590 (the "Tenure");
 - c. The purchase and sale of the Wharf will be completed on that date that is 15 business days after the date upon which SRD gives TFN written notice of the completion of the Repair Work (the "Completion Date"). If the Repair Work has not been completed by October 31, 2025, SRD may elect to terminate or extend this Agreement.
 - d. SRD will assist TFN to the extent reasonably necessary in applying for an assignment of the Tenure to TFN and will hold the Tenure in trust for the benefit of TFN until an assignment is completed.
2. SRD will apply the entirety of the Repair Fund to completing the Repair Work. The SRD is not obligated to expend any funds in excess of the amount of the Repair Fund. The SRD may alter the scope of the Repair Work to either reduce the scope so as to not exceed the value of the Repair Fund, or alternatively to add aspects to the Repair Work if there are sufficient amounts in Repair Fund to permit additional work.
3. SRD makes no warranty as to the quality of the Repair Work or the condition of the Wharf generally. SRD will assign the benefit of any warranties provided by contractors retained for carrying out the Repair Work to TFN so that TFN may pursue those third parties for any defect in the Repair Work. SRD will provide all invoices, work orders, design drawings and similar material related to the Repair Work to TFN. SRD will sell the Wharf to TFN on an "as is" basis.
4. SRD will advise TFN of any changes to the scope of the Repair Work necessitated by the limits of the Repair Fund. TFN warrants that it has had an opportunity to review all aspects of the scope of the Repair Work and approves of the Repair Work as planned. SRD will provide TFN reasonable access to the Wharf for observing the progress of the Repair Work and preparing to take title to the Wharf (including but not limited to recording information for insuring the Wharf or obtaining financing over the Wharf for TFN's future use of the Wharf) where such observation does not interfere with the completion of the Repair Work.
5. The Wharf will be at the risk of SRD up until 12:00 midnight on the Completion Date. Following that time, the Wharf will be at the risk of TFN. SRD will indemnify and hold harmless TFN for any liabilities arising before 12:00 PM on the Completion Date. TFN will indemnify and hold harmless SRD for any liabilities arising after 12:00 midnight on the Completion Date.

6. SRD represents and warrants to TFN that:
 - a. SRD has no indebtedness to any person, firm or corporation which might by operation of law or otherwise now or hereafter constitute a lien, charge or encumbrance upon the Wharf;
 - b. there are:
 - i. no known actions, suits or proceedings before any court pending or threatened by or against or affecting SRD as it relates to the Wharf;
 - ii. no known proceedings by or before any governmental commission, department, board, authority or other administrative agency or by or before any administrative officer pending or threatened against the SRD as it relates to the Wharf;
 - c. the SRD has good title free of all encumbrances to the Wharf and has not made any default in the performance of the terms of the Tenure that would entitle the Licencor thereunder to terminate the Tenure or would render anyone claiming under it liable in damages;
 - d. neither the execution and delivery of this Agreement, nor the completion of the Purchase and Sale contemplated herein, will;
 - i. violate any Order, Decree, Statute, By-Law, Regulation, Covenant or Restriction applicable to the SRD or the Wharf;
 - ii. result in any fees, duties, taxes, assessments, or other amounts relating to any of the Wharf due or payable other than fees payable to the Province of British Columbia for the assignment of the Tenure, and such amounts as may be due and payable by SRD as a result of this sale, pursuant to the Income Tax Act (Canada).
 - e. SRD is a resident in Canada within the meaning of the *Income Tax Act* (Canada);
 - f. SRD has not experienced nor is it aware of any occurrence or event which has had or might reasonably be expected to have, a materially adverse effect on the Wharf.
7. TFN represents and warrants to SRD that neither the execution of this Agreement nor its performance by the TFN will result in the breach of any term or provision of, or constitute a default under any indenture, mortgage, deed of trust or other agreement to which the TFN is a party or will result in the breach of any law or regulation of the governments of Canada, or British Columbia or any regulatory body thereof.
8. Each party will be responsible for its own legal, accounting and other advisors retained in the course of this transaction.
9. This Agreement may be executed in counterparts and all such counterparts shall together

constitute one Agreement. A facsimile or email signature shall be of the same effect as an original signature.

The Parties have indicated their agreement to the above terms by applying the signatures of their authorized signatories below:

Strathcona Regional District

Tlowitsis First Nation

Signature

Signature

Signature
Print Signator(ies) Name(s):

Signature
Print Signator(ies) Name(s):



January 20, 2022 | Revision A

Marine Facility Condition Assessment of the Port Neville Wharf

Submitted to: Strathcona Regional District (SRD)
Prepared by McElhanney Ltd.

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1. Introduction

1.1. PROJECT BACKGROUND

McElhanney Ltd. (McElhanney) has been retained by the Strathcona Regional District (SRD) to complete a condition assessment of the marine facilities at the public wharf located in Port Neville, BC. Figure 1 shows the site location of the wharf.

The marine facilities are generally in moderate condition with assumed limited maintenance and inspection having been completed over the last 10 years. McElhanney's assessment will be used to determine the need for repairs and/or replacements.

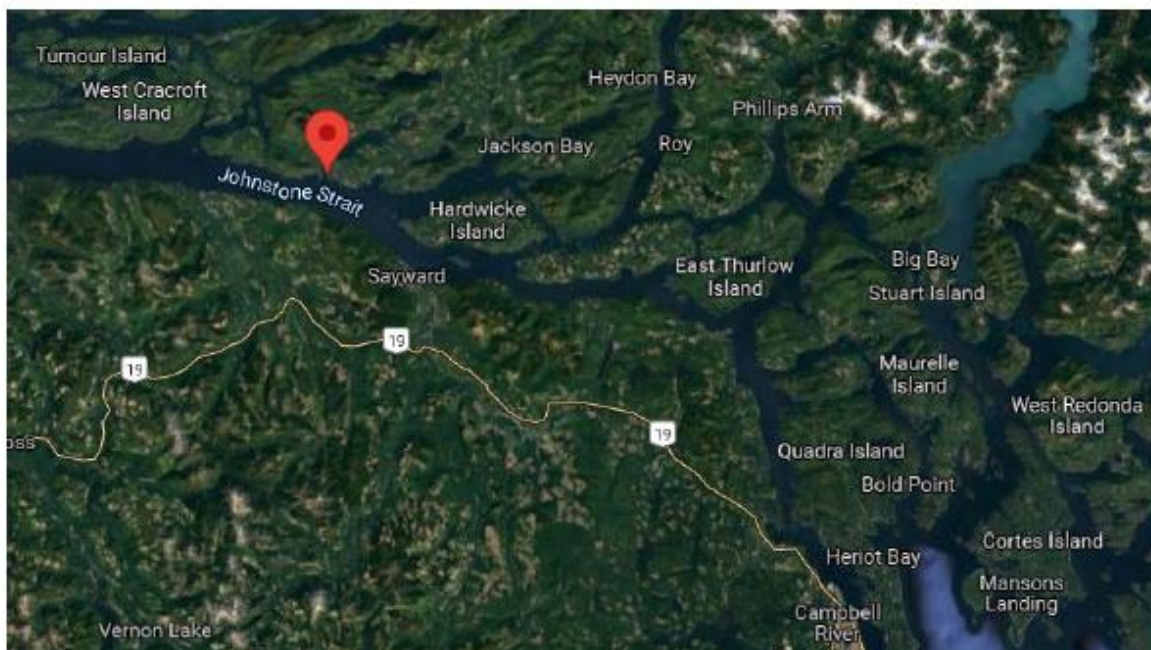


Figure 1 – Site Location

The visual site inspection, completed on September 1, 2021, and the coring inspection, completed on December 7th, 2021, was by the following McElhanney personnel:

- Hannah Hladkowicz, EIT, Marine Structural Engineer
- Zach Tillapaugh, EIT, Structural Engineer

1.2. REFERENCE DRAWINGS

The following reference drawings and documents are available and have been reviewed by McElhanney:

- Drawings 1-3: Port Neville, BC – Wharf and Float Repairs
- Port Divestiture Program – Final Report, January 2014
- Port Neville Location Map
- Transport Canada: Approach & Floats, Plan & Description Drawing
- Structure Condition Inspection and Report, Herold Engineering Ltd, February 2014.

1.3. REFERENCE SYSTEM

The reference system used in the inspection is consistent with Figure 2 below.

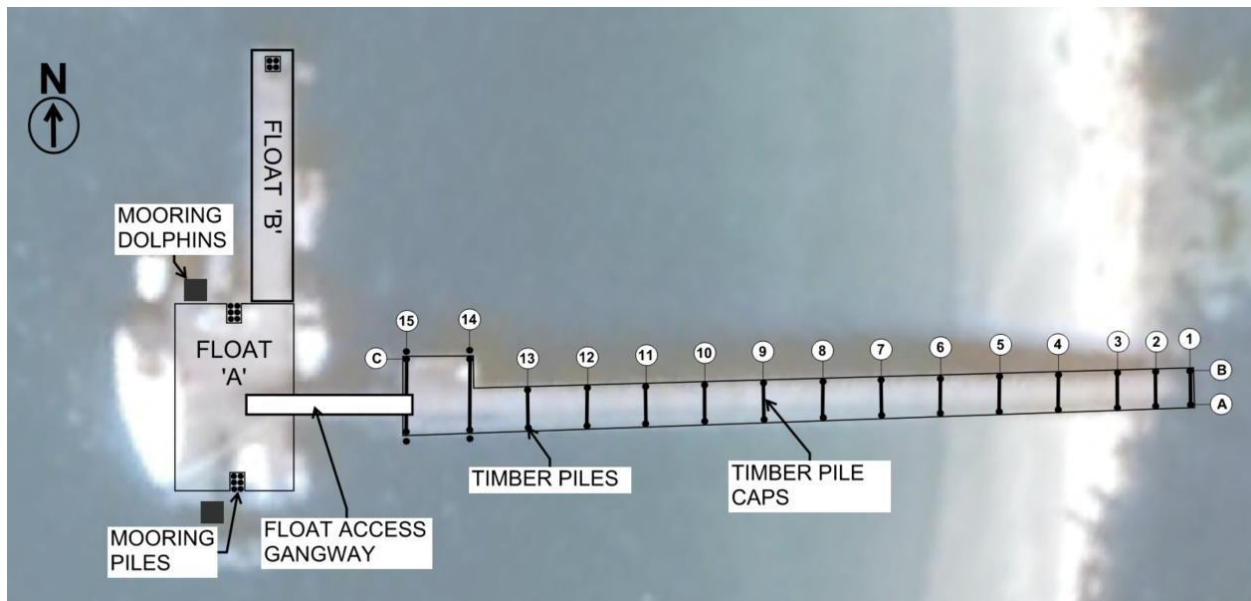


Figure 2 – Inspection Reference System

2. Description of Facilities

The wharf structure is a conventional treated timber wharf, approximately 60 meters long, and consisting of the following:

- Painted timber handrails including a top rail, mid-rail, and bull rail curb secured to handrail posts bolted to the edge stringer and bull rail
- Treated timber deck planks, typically 3" x 12"
- 6" x 12" stringers, typically at 30" centers
- 10" x 12" pile caps, typically at 15' centers
- 12" nominally sized creosoted treated piles at 8' centers along the bent. Bent Nos. 14 and 15 have (3) piles along the bent at the pierhead
- 12" fender piles at bents 14 and 15
- 12m long steel truss gangway
- The floating docks consist of treated timber decking and framing, and buoyancy billets.
- Float A has (12) mooring piles, (6) at the north end and (6) at the south end. There are two timber mooring dolphins, one at the north side of Float A, and one at the south side. Float B has 4 mooring piles at the north end.
- The North dolphin consists of 15 vertical timber piles and 4 batter piles, the South dolphin consists of 16 vertical piles. The mooring piles and dolphins are creosote coated timber piles.

Figures 3 and 4 provide reference sketches of the timber wharf approach trestle. Inspection photographs are provided in Appendix A.

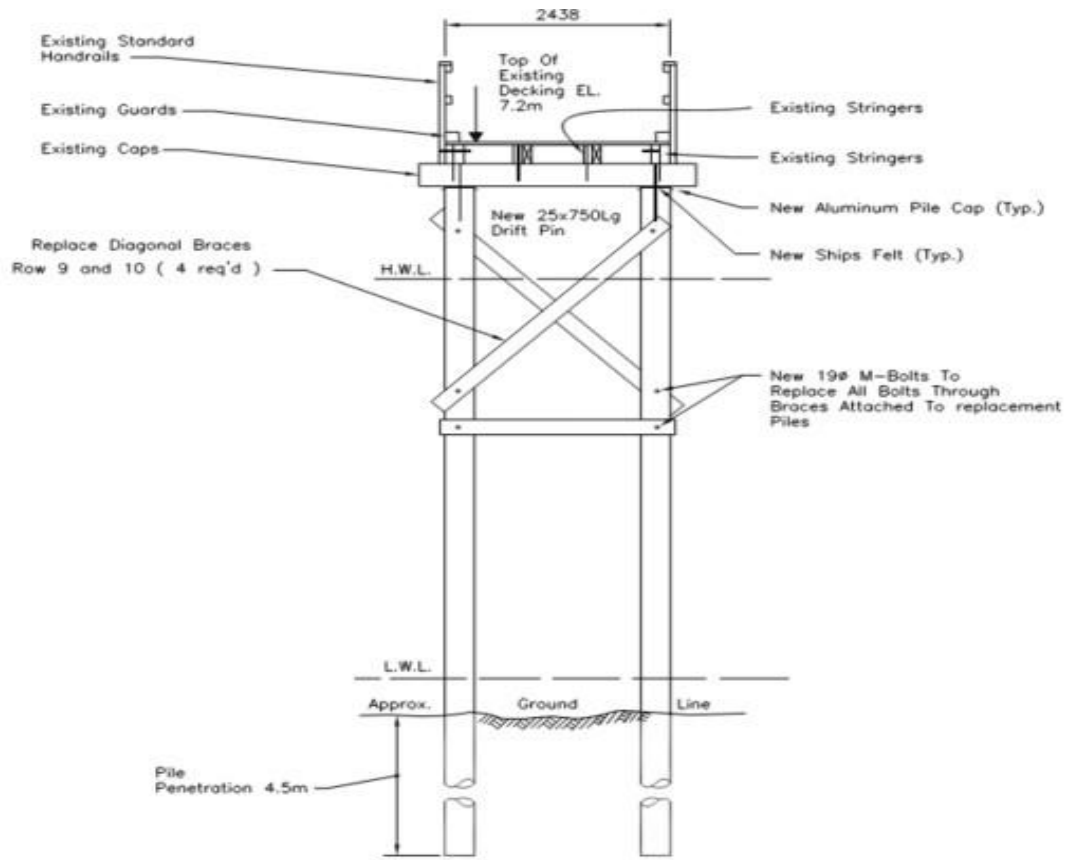


Figure 3 – Typical Structure Cross Section (Abutment to Bent No. 13)

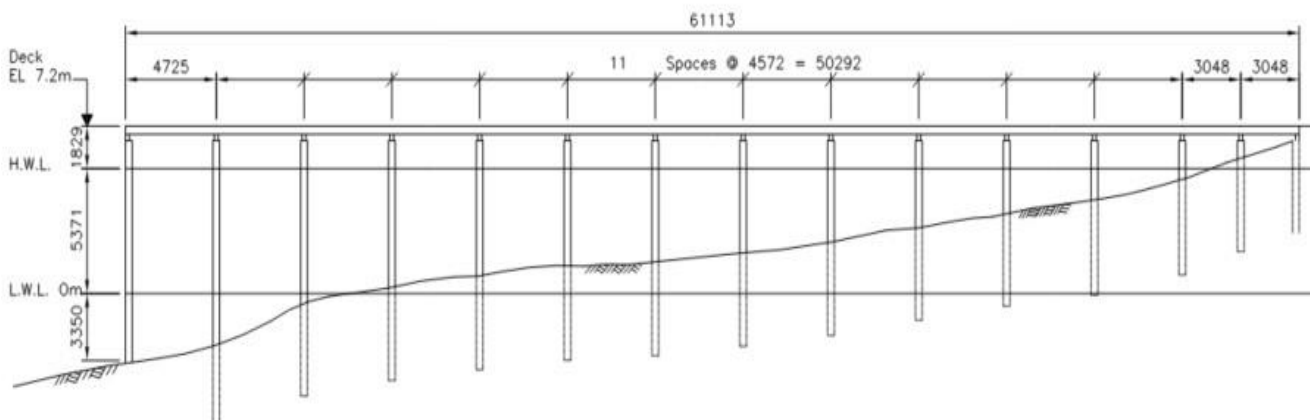


Figure 4 – Typical Structure Elevation

3. Inspection Methodology and Limitations

3.1. INSPECTION METHODOLOGY

An above water inspection of the marine assets was completed using visual inspections on September 1st, 2021, and timber coring on December 7th, 2021. The inspection methodology was completed in accordance with the procedures and recommendations provided in "Procedures for Inspection and Assessment of Fixed Timber Docks", by RG Sexsmith Ltd. and dated September 1994, 4th Edition. This reference has been widely adopted by the Canadian Coast Guard, Department of Fisheries and Oceans Small Craft Harbours Branch, and Transport Canada in the evaluation and assessment of timber docks, piers, and wharves along the BC Coast.

The inspection methodology used is summarized as follows:

- Visual inspection of the timber elements from the lower intertidal zone to underside of deck was completed from land and from a small boat during a low tide window.
- An underwater inspection was completed to assess the condition of the piles. The inspection was completed using an underwater ROV mobilized from a small boat underneath the wharf structure.
- Timber coring was completed at the tops of the piles, pile caps, and stringers where steel drift pins are present, from bents 1-8. The timber coring is completed using a 13mm diameter drill which extends approximately 50% to 75% through the timber member. Fungal decay has significantly less resistance for the drill and so the resultant torque and drill cuttings from fungal decay are obvious to the inspector. From timber coring, the extent of fungal decay and cross-sectional loss (CSL) is expressed in intervals of 10%, 25%, 50%, 75%, and 90% CSL.

3.2. INSPECTION LIMITATIONS

The following inspection limitations should be considered when evaluating the results of the inspection findings:

- Both bankia and limnoria marine borers species are actively present on the BC Coast and can damage the timber pilings from the seabed to the intertidal zone. This should be identified during underwater inspections.
- The findings and recommendations are for the use of the SRD only.
- Users of the facility should always report any unusual conditions so that they can be evaluated by a Professional Engineer registered in British Columbia.

3.3. CONDITION

In accordance with the Ministry of Transportation and Infrastructure, Asset Performance Measures, for each structural element type, the overall condition state is provided based on a site inspection of each structure component.

- Excellent Condition – as-built condition, no observed defects.
- Good Condition – normal wear and deterioration
- Fair Condition – minor loss in condition or minor observed defects.
- Poor Condition – advanced loss in condition or significant defects.
- Very Poor Condition – serious loss in condition or serious defects.

4. Inspection Findings

4.1. PIER STRUCTURE

4.1.1. Approach

The pier approach is in generally good condition (Photos 1). There are no signs of settlement in this area, and the slope around the pier abutment appears stable. No load rating sign has been posted.

Repairs are not considered necessary at this time; however ongoing monitoring of the pier approach is recommended. Consideration should also be given to posting a load rating sign and extending safety barriers to the approach area.

4.1.2. Topsides and Decking

The pier topsides are generally in poor to fair condition with widespread weathering and fungal decay (Photos 2 & 3). Inspection findings are as follows:

- The handrails appear generally well secured. The handrail posts are connected to the pier structure with two bolts, one through the outer stringer, and one through the bull rail. In some locations, the bull rails are deteriorated or not fully secured, and the handrail posts can shift, however they are still well secured to the stringer. There is significant deterioration to multiple other top rail connections, the approximate locations are directly above the following piles:
 - Between piles 4B and 5B (Photo 4)
 - Between piles 7A and 8A (Photo 5)
 - Between piles 8B and 9B (Photo 6)
 - Between piles 9A and 10A (Photo 7)
 - Between piles 11A and 12A (Photo 8)
 - Between piles 12A and 13A (Photo 9)
- Identified during the second inspection on December 7th, 2021, the top rail connection directly above pile 14B has deteriorated and is only connected on one end (Photo 10). *It is recommended that the bull rails and handrail posts be fully replaced and secured in places with deterioration and/or missing bolts. Consideration should be given to painting the handrails to extend the service life of the existing timber. Consideration should also be given to a full phased replacement of the topsides over the next 2-4 years.*
- The timber deck planks have widespread minor weathering, however, are generally in good condition. All deck planks appear well secured. *Installation of an anti-slip grating to improve the safety during wet weather conditions is recommended. Continued monitoring of the condition of the topsides should be regularly completed.*

4.1.3. Stringers

The treated timber stringers are generally in good condition (Photo 11). The stringers appear well secured between the decking and the pile caps, and there are no signs of significant splitting or structural deterioration. The ends of the stringers, where the end grain is present, does not show significant evidence of moisture or fungal decay. No cross-sectional loss was found in the stringers during the timber coring inspection.

Repairs are not considered necessary at this time; however ongoing monitoring of the stringers is recommended.

4.1.4. Pile Caps

The treated timber pile caps are generally in fair to good condition (Photo 12 & 13). The pile caps appear well secured, and there are no signs of significant splitting or structural deterioration. The pile caps are typically aligned well over the piles, with no evidence of shifting or displacement. There is minor weathering and deterioration to the end grains of the pile caps, notably at Bent 12 (Photo 14). No cross-sectional loss was found in the pile caps during the timber coring inspection.

Repairs are not considered necessary at this time, however ongoing monitoring of the pile caps and of the deterioration at the end grains is recommended.

4.1.5. Piles

The structural timber piles are generally in fair to good condition, with some damage to isolated piles. Table 1 provides a location of specific timber pile findings.

Table 1 – Pile Inspection Findings

Location	Description	Recommendation
Pile 2A	Large split at the top of the pile. (Photo 15) 50% CSL due to internal fungal decay in the top 0.6m.	Replace timber pile.
Pile 2B	25% CSL due to internal fungal decay in the top 0.3m.	Monitor.
Pile 3A	25% CSL due to internal fungal decay in the top 0.3m.	Monitor.
Pile 3B	Moderate splitting at the top of the pile. (Photo 16) 25% to 75% CSL due to internal fungal decay in the top 0.9 m.	Replace timber pile.
Pile 4B	25% CSL due to internal fungal decay in the top 0.3m with wet fibres. Concrete footing is exposed, with signs of undermining and spalling of the concrete. (Photo 17)	Monitor.
Pile 5A	Moderate splitting at the base of the pile. (Photo 18)	Monitor.
Pile 5B	25-50% CSL due to internal fungal decay in the top 0.3m with wet fibres.	Replace timber pile.
Pile 7A	Pile is slightly misaligned. (Photo 19)	Monitor.

Pile 8A	Moderate splitting at the top of the pile. (Photo 20)	Monitor.
Pile 9A	Large open bolt hole at the top of the pile, likely from a previous cross-brace bolted connection. (Photo 21)	Monitor.
Pile 10A	Moderate splitting at the top of the pile. (Photo 22)	Monitor.
Pile 12A	Large open bolt hole at the top of the pile, likely from a previous cross-brace bolted connection. (Photo 23)	Monitor.
Pile 15B	Moss growing out of the top, indicating that there is fungal decay in the interior of the pile in this location. (Photo 24)	Monitor.

Repairs are not considered necessary at this time; however ongoing monitoring of the piles and areas of damage is recommended. It is anticipated that the piles identified with splitting and open holes will have established internal fungal decay in the next 5-10 years and should be considered for replacement.

4.1.6. Fendering System

The timber fender piles are generally in poor to fair condition, with one fender pile with severe fungal decay/marine borer cavities. Inspection findings are as follows:

- Fender Pile 10B has a marine borer cavity in the lower intertidal zone with 25% cross-sectional loss (CSL) (Photo 25).
- Fender pile 14A has a large marine borer cavity with 50% CSL, and likely severe cross section loss due to fungal decay (Photos 26 & 27). Marine growth appears to be coming out of the pile.
- Fender pile 15C has a large marine borer cavity with 50% CSL, and likely severe cross section loss due to fungal decay (Photo 28).

McElhanney understands that the fender piles are not longer used for vessel moorage and repairs are not considered necessary at this time as the fender piles are not structurally important to the pier.

4.1.7. Cross Bracing

The timber cross bracing is generally in fair to good condition (Photo 29 to 30). Inspection findings are as follows:

- There is widespread weathering, and minor fungal decay to the end grains of the members, however all cross braces appear well secured to the piles, apart from two locations.
- The cross bracing at Bent 8 appears to not be connected to pile 8A and is only resting on a timber block secured to the pile. (Photo 29)
- The cross bracing at Bent 15 is connected to the fender pile 15C, which has signs of significant cross-section loss. (Photo 30)

It is recommended that the cross braces at Bents 8 and 15 are re-secured. Ongoing monitoring of the cross bracing is recommended.

4.2. FLOATS

4.2.1. Access Gangway

The access gangway is in fair condition. The inspection findings are as follows:

- The upper hinge connection is slightly misaligned (Photos 31 and 32) which is likely to result in advanced wearing of the pinned connection.
- The timber gangway slider plate is in good condition with minor wearing and is well aligned with the gangway roller (Photo 33)
- The deck planks and anti-slip surface have moderate wearing (Photo 34).
- The steel truss members have typical minor to moderate coating failures and corrosion. No significant deterioration of the welded connections was noted (Photo 35).

McElhanney recommends that the access gangway be replaced in conjunction with future replacement of the floating docks.

4.2.2. Floats A and B

Float A is in poor to fair condition with minor deterioration to the topsides (Photo 36). Inspection findings are as follows:

- The timber deck planks have widespread moderate weathering and fungal decay, with localized deterioration. There is one location on Float B with plywood repair to the decking which is a tripping hazard (Photo 37)
- The floatation elements appear in fair condition.
- The west connection between Float A and Float B is rope (Photo 38). This is currently functioning properly, however this may be subject to rapid wearing and should be replaced with a steel chain in the future.
- The bull rails and fascia boards have widespread mechanical damage (Photo 39). The bull rail is missing in two locations.
- The east connection between Float A and Float B is chain which is causing moderate wearing to the floats (Photo 40).
- The mooring piles and mooring dolphins have moderate abrasion with the dock structures (Photo 41 to 33).

Consideration should be given to replacing Floats A and B along with the mooring system rather than continue regular minor maintenance/repairs.

4.2.3. Timber Mooring Dolphins

The timber mooring dolphins are in very poor condition. There is severe cross section loss due to internal fungal decay and marine borer cavity, as well as mechanical damage due to wearing of the floats.

Inspection findings are as follows:

- The north dolphin has vegetation growth near the tops of some of the piles. The timber blocking near the tops of the piles is deteriorating, and the cable wraps are loose (Photo 44)
- The south dolphin has significant vegetation growth near the tops of the piles. There is also severe cross section loss due to internal fungal decay and marine borer cavity in the intertidal zone, specifically on the front facing piles. The timber blocking is in poor condition, and the cable wraps are loose, but remain in place (Photo 45).

McElhanney understands that the mooring dolphins are no longer in service. To mitigate the risk of timber members contacting the dock, it is recommended that the timber dolphins be entirely removed and disposed of.

5. Residual Life Estimates

The marine facility is typically in fair condition. For the purpose of this evaluation, the residual life represents the estimated period of time between the inspection date and the time when the component will typically require repair or replacement.

For timber docks in a saltwater/marine environment, the residual life estimate is based on the follow:

- Where no established deterioration (marine borer cavities / fungal decay / mechanical abrasion) is noted in creosote treated timber, the remaining residual life is estimated to be 10+ years. As deterioration can progress rapidly in timber members once established, residual life estimates greater than 10 years are typically not given.
- Where deterioration has been established, the remaining residual life is estimated to be 2-7 years, depending on the extent of deterioration and likelihood to progress rapidly.
- Where there is deterioration which has significantly affected the structural capacity of the member the residual life is assumed to be minimal.

Based on McElhanney’s understanding of the environment, usage, and familiarity with similar structures, Table 2 provides the estimates of the remaining service life of the wharf elements:

Table 2 - Summary of Recommendations

Location / Structure	Residual Life Estimate
Pier Structure	
Approach	+10 years
Topsides	1-2 years
Decking	5-7 years
Stringers	8-10 years
Pile Caps	5-7 years
Piles	5-7 years
Fender Piles	1-2 years
Floats	
Gangway	2-4 years
Float A	2-4 years
Float B	2-4 years
Mooring Dolphins	1< years

6. Facility Recommendations and Cost Estimates

The Port Neville Wharf facility is generally in fair condition and is expected to continue servicing public access for small craft vessels. Based on the inspection findings, there are a number of small maintenance items recommended. Table 2 provides recommendations and cost estimates based on McElhanney’s understanding that the SRD intends to invest significant maintenance effort in the facility before 2024.

The cost estimates for the repairs are shown in Table 3.

Table 3 – Cost Estimates

Item	Priority	Description	Units	Quantity	Unit Cost	Subtotal
1	High	Install a load rating sign and approach barriers	LS	1	\$1,000	\$1,000
2	High	Repair and replace the handrails and bull rails where needed.	m	120	\$200	\$24,000
3	High	Phased replacement of the timber decking	m ²	150	\$250	\$37,500
6	High	Miscellaneous pile repairs/replacements (allowance)	Ea.	8	\$12,000	\$96,000
7	Medium	Replacement of the existing gangway.	m	15	\$2,000	\$30,000
8	Medium	Full Replacement of Float A and Float B	m ²	191	\$1,200	\$229,200
9	Medium	New steel mooring piles for Float A and B	Ea.	6	\$10,000	\$60,000
10	Medium	Remove and dispose of timber mooring dolphins.	LS	2	\$10,000	\$20,000
High Priority Subtotal						\$158,500
Contingency (25%)						\$39,625.0
High Priority Total						\$198,125
Medium Priority Subtotal						\$339,200
Contingency (25%)						\$84,800.0
Medium Priority Total						\$424,000
Total Capital Cost Estimate						\$622,125

In reviewing the cost estimates above, please note the following:

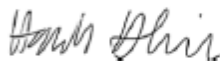
- The current vessel moorage capacity is sufficient for future use. No expansion or increase in vessel moorage capacity is anticipated.
- Estimated is based on available cost estimate material and labour rate data from recent projects between 2019 to 2021 and assumes competitive contractor pricing.
- Estimate is considered accurate to ± 50%. A contingency of 25% has been provided to account for cost items which have not been considered due to the extent of engineering work completed to date.

7. Closure

Please do not hesitate to contact the undersigned with any questions or comments.

Sincerely,
 McElhanney Ltd.
 Permit to Practice No. 1003299
 Prepared by:

Reviewed by:



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Matthew Friderichs, P.Eng.
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mfriderichs@mcelhanney.com

Revision History

Date	Status	Revision	Author
October 6, 2021	Draft Issue	A	M.Friderichs
January 20, 2022	For Use	0	M.Friderichs

Statement of Limitations

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APPENDIX A – INSPECTION PHOTOS



Photo 1 – Pier Approach Area



Photo 2 – Pier Structure Topsides



Photo 3 – Pier Structure Handrails



Photo 4 – Handrail deterioration between piles 4B and 5B



Photo 5 – Handrail deterioration between piles 7A and 8A



Photo 6 – Handrail deterioration between piles 8B and 9B



Photo 7 – Handrail deterioration between piles 9A and 10A



Photo 8 – Handrail deterioration between piles 11A and 12A



Photo 9 – Handrail deterioration between piles 12A and 13A



Photo 10 – Handrail deterioration between piles 14B and 14C



Photo 11 – Typical View of Timber Stringers



Photo 12 – General View of Timber Pile Cap Bents



Photo 13 – Typical Timber Pile Cap End Grain



Photo 14 – Timber Pile Cap at Bent 12



Photo 15 – Split in Pile 2A



Photo 16 – Split in Pile 3B



Photo 17 – Pile 4B concrete footing



Photo 18 – Split in Pile 5A



Photo 19 – Pile 7A



Photo 20 – Split in Pile 8A



Photo 21 – Hole in Pile 9A



Photo 22 – Small split in Pile 10A



Photo 23 – Hole in Pile 12A



Photo 24 – Moss growth in Pile 15B



Photo 25 – Underwater image of damage to fender Pile 10B



Photo 26 – Fender Pile 14A



Photo 27 – Underwater image of marine borer cavity of fender pile 14A



Photo 28 – Fender Pile 15C



Photo 29 – Cross Bracing at Bent 8



Photo 30 – Cross Bracing at Bent 15



Photo 31 – Gangway Upper Hinge Connection



Photo 32 – Gangway Upper Hinge Connection



Photo 33 – Gangway Timber Slider Plate and Roller



Photo 34 – Gangway Timber Deck Planks



Photo 35 – Steel Gangway



Photo 36 – General view of Float A



Photo 37 – General view of Float B



Photo 38 – Rope connection to Float B



Photo 39 – Missing Bull rail on Float A



Photo 40 – Chain Connection to Float B



Photo 41 – Wearing to Float A from North Mooring Dolphin



Photo 42 – Wearing to Float A from South Mooring Piles



Photo 43 – Float A North Mooring Piles



Photo 44 – North Mooring Dolphin



Photo 45 – South Mooring Dolphin

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McElhanney



STRATHCONA REGIONAL DISTRICT



CLIENT

ADDRESS / CONTACT INFO.

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PROJECT NAME

2023 MARINE FACILITY REPAIRS

DESCRIPTION

REHABILITATION AND REPAIRS TO THE TIMBER TRESTLES AND FLOATS AT OWEN BAY, PORT NEVILLE AND SURGE NARROWS

McELHANNEY PROJECT

2211-71343-00

STATUS

ISSUED FOR 100% REVIEW



OWEN BAY



PORT NEVILLE



SURGE NARROWS



1211 Ryan Road
Courtenay BC
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DRAWING LIST		REVISIONS					
SHEET #	SHEET TITLE						
		PK	PC	0	1	2	3
000	CONTRACT						
001	GENERAL NOTES & GENERAL CONDITIONS						
010	PORT NEVILLE GENERAL ARRANGEMENT AND PER PLAN						
020	PORT NEVILLE NEW FLOAT DESIGN						
030	OWEN BAY GENERAL ARRANGEMENT AND PER PLAN						
040	OWEN BAY NEW FLOAT DESIGN						
050	SURGE NARROWS GENERAL ARRANGEMENT AND PER PLAN						
060	SURGE NARROWS NEW FLOAT DESIGN						
070	TYPICAL PERMANENT AND TEMPORARY DETAILS						
080	STRUCTURAL SANDBAY DETAILS						

GENERAL NOTES

1.0 GENERAL

- 1.1 VERIFY ALL DIMENSIONS PRIOR TO COMMENCING WORK.
- 1.2 ALL DIMENSIONS ARE METRIC UNLESS NOTED OTHERWISE.
- 1.3 ALL WORK SHALL CONFORM TO THE BC BUILDING CODE AND INDUSTRIAL HEALTH AND SAFETY REGULATIONS OF THE WORKERS COMPENSATION BOARD OF BRITISH COLUMBIA.
- 1.4 CLIMATIC DESIGN DATA (FROM BC BUILDING CODE)

LOCATION	SNOW LOAD (kPa)		WIND PROFILES (km/h)	
	SB	SB	1/10	1/50
CAMPBELL BEACH	2.0	0.4	0.60	0.50
DOUGLAS SPRING	1.7	0.4	0.50	0.50

- 1.5 THE INTENT OF THE TIMBER FIBRE/STILES REPAIR WORK IS TO RESTORATION THE CAPACITY OF THE ORIGINAL DESIGN MEMBERS. NO INCREASE IN STRUCTURAL CAPACITY HAS BEEN CONSIDERED.
- 1.6 WHERE CODES AND STANDARDS ARE REFERENCED, THE LATEST EDITION APPLIES.
- 1.7 SUBMIT DETAILS OF PROPOSED SCHEDULES AND WORK METHODS TO THE CONSULTANT PRIOR TO PROCEEDING WITH THE WORK.
- 1.8 DETAILED REQUIREMENTS FOR MATERIALS AND FABRICATION ARE DESCRIBED IN THE SPECIFICATIONS. FOR COMPARISON, CERTAIN DETAILS ARE REPRODUCED BELOW IN THE EVENT OF CONFLICT, THE SPECIFICATIONS SHALL GOVERN.
- 1.9 MATERIALS AND TESTING HAVE BEEN SPECIFIED TO CONFORM TO THE CURRENT EDITIONS OF RELEVANT STANDARDS PUBLISHED BY THE FOLLOWING ORGANIZATIONS:
-CANADIAN STANDARDS ASSOCIATION (CSA)
-AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
- 1.10 UPON COMPLETION OF THE WORK, REMOVE ALL DEBRIS AND SURPLUS MATERIALS FROM SITE. LEAVE THE WORK AREA IN A CLEAN AND NEAT CONDITION TO THE SATISFACTION OF THE ENGINEER.
- 1.11 CONTRACTOR TO NOTIFY ENGINEER AND ESTABLISH INSPECTION SCHEDULES PRIOR TO INSTALLATION OF PILES.
- 1.12 NO GEOTECHNICAL ASSESSMENT HAS BEEN COMPLETED FOR THE SITES SHOWN. CONTRACTOR TO INSTALL ALL PILES USING A SUITABLE SIZED VIBRO TAPY HAMMER AND COMPRESSING PILE REFUSAL, USING A DROP HAMMER WITH A MINIMUM 2500 FOOT POUNDS OF ENERGY WITH A MAXIMUM OF 25 BLOWS PER INCH OF PILE PENETRATION. MINIMUM PILE DISMOUNT TO BE 130 UNLESS APPROVED BY THE ENGINEER.
- 1.13 SRD HAS NO OWNERSHIP OR LEASE OF LANDS AROUND THE WHARVES OR PERILAT OWN BAY AND SURGE HARBOUR. SRD HAS A SMALL RIGHT OF WAY AROUND THE WHARVES AT PORT NEVILLE. IF THE CONTRACTOR INTENDS TO USE THE LAND FOR A LAY DOWN AREA OR OTHERWISE DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMISSION FROM THE LAND OWNERS.
- 1.14 CONTRACTOR MUST ADHERE TO THE ENVIRONMENTAL MANAGEMENT PLAN.

2.0 DEMOLITION

- 2.1 TAKE ALL NECESSARY PRECAUTIONS TO CONTAIN THE DEMOLITION WITHIN THE LIMITS DESIGNATED. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO EXISTING STRUCTURES.
- 2.2 ANY DAMAGE INCURRED IN THE EXECUTION OF THIS CONTRACT TO ANY PART OF THE PROPERTY OR STRUCTURES NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED, REPLACED, AND/OR RECONSTRUCTED BY THE CONTRACTOR AT THEIR EXPENSE TO ITS ORIGINAL CONDITION.
- 2.3 REMOVE AND DISPOSE OF ALL DEMOLITION MATERIAL OFF SITE IN ACCORDANCE WITH ALL MUNICIPAL, PROVINCIAL, AND FEDERAL REQUIREMENTS.

3.0 STEEL WORK

- 3.1 ROLLED STEEL SECTIONS, STEEL BARS AND PLATE TO CONFORM 040-21 GRADE 300M UNLESS NOTED OTHERWISE.
- 3.2 STEEL PILES SHALL BE ASTM A572 GRADE 2 PILES. PILES ARE NOT TO BE SPliced WITHOUT PRIOR APPROVAL BY THE ENGINEER.
- 3.3 SHOP PAINT ALL STEEL COMPONENTS USING COATING SYSTEM APPROVED BY THE ENGINEER.
- 3.4 BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE A327.
- 3.5 ALL MISCELLANEOUS METAL AND FASTENERS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH CSA STANDARD G40M UNLESS NOTED OTHERWISE.
- 3.6 WELDING SHALL BE IN ACCORDANCE WITH CSA W8 AND W17.1.
- 3.7 ALL RE-USED HARDWARE SHALL BE INSPECTED AND APPROVED BY THE CONSULTANT.

4.0 TIMBER

- 4.1 ALL TIMBER WORK SHALL CONFORM TO CSA STANDARD 086.
- 4.2 ALL SAWN TIMBER SHALL BE COMST DOUGLAS FIR, NO. 1 STRUCTURAL GRADE OR BETTER, AND UNLESS SPECIFIED OTHERWISE, SHALL BE PROPERLY AIR-DRIED AND SEASONED, CONTAINING NOT MORE THAN 20% MOISTURE.
- 4.3 DECAYING AND GUARDRAIL TIMBERS SHALL BE GIVEN AN ACQ SALT PRESERVATIVE TREATMENT TO A NET RETENTION OF 0.4 kg PER CUBIC METER IN ACCORDANCE WITH CSA 086.
- 4.4 TIMBER SIZE AND DIMENSIONS SHALL BE IDENTICAL TO EXISTING, UNLESS NOTED OTHERWISE, VERIFY PRIOR TO PURCHASING.
- 4.5 THE EXACT LENGTH OF EACH TIMBER TO BE REPLACED SHALL BE MEASURED BY THE CONTRACTOR AND SUBMITTED TO THE CONSULTANT FOR APPROVAL PRIOR TO PURCHASING.
- 4.6 LENGTH OF CORNERS SHOWN ON THE DRAWINGS ARE NOMINAL. CONTRACTOR SHALL VERIFY THAT THE LENGTH SHOWN CAN BE INSTALLED OR ADJUST THE LENGTH REQUIRED TO SUIT ADJACENT PILES. SUBMIT FINAL LENGTHS TO THE CONSULTANT FOR REVIEW PRIOR TO PURCHASING.
- 4.7 FIELD CUTS TO NEW TIMBERS WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER.
- 4.8 AFTER CUT-UP, THE TOPS OF ALL TIMBER SHALL BE TREATED WITH 2 COATS OF COPPER 8 NAPHTHATE AT 6mm THICK. IN ADDITION, THE TOPS OF ALL PILES SHALL BE COVERED WITH A SHEET OF 22 GAUGE ANNEALED CORROSION RESISTANT DOWN AND SECURED TO THE PILE WITH 8 ALUMINUM ROOFING NAILS. THE SHEET SHALL NOT BE CUT TO FACILITATE FITTING.

5.0 GANGWAY

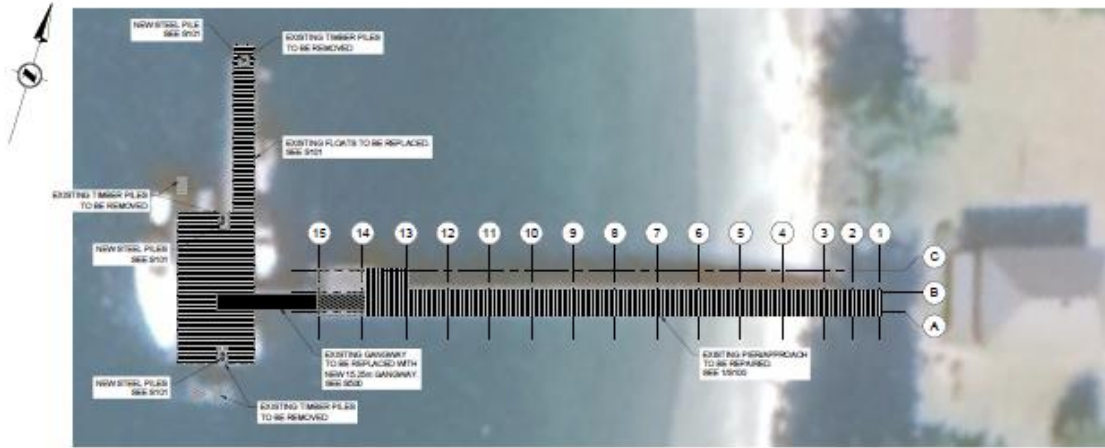
- 5.1 TYPICAL DPO-STYLE STEEL GANGWAY SHOWN IN DWG 9000 FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR DETAILED DESIGN (LIVE LOAD 2.4 kPa PER DPO 800 GAUGE BARS), SUPPLY AND CONSTRUCTION. SUBMIT SEALED SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO PURCHASING OF MATERIALS FOR FABRICATION.
- 5.2 CONTRACTOR IS TO PROVIDE WEARING PROFILES AND ATTACHMENTS TO PIER DESIGN FOR ENGINEER'S APPROVAL PRIOR TO PURCHASING OF MATERIALS FOR FABRICATION.

GENERAL NOTES (CONT.)

6.0 FLOAT DESIGN REQUIREMENTS

- 6.1 THE FLOAT SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF CANADIAN CODES FOR THE APPLICABLE MATERIAL, AS WELL AS THE REQUIREMENTS SHOWN ON THE DRAWINGS AND OTHER CONTRACT DOCUMENTS. THESE CODES MAY INCLUDE:
 - a. CSA A23.3 DESIGN OF CONCRETE STRUCTURES
 - b. CSA 086 ENGINEERING DESIGN IN WOOD
 - c. CSA S16 DESIGN OF STEEL STRUCTURES
 - d. CSA S167 STRENGTH DESIGN IN ALUMINUM
 - 6.2 THE BRITISH STANDARD BS 5846 MAY BE USED AS A MARINE CODE, AS APPLICABLE WHERE THE CANADIAN CODES DO NOT PROVIDE MARINE GUIDANCE. ALTERNATIVELY, REFERENCES CAN BE MADE TO OTHER INTERNATIONAL CODES, STANDARDS OR GUIDELINES, SUBJECT TO THE ENGINEER'S APPROVAL.
 - 6.3 THE DRAWINGS INDICATE THE GENERAL INTENT OF THE FLOAT. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE DETAILED DESIGN, CONSTRUCTION, INSTALLATION AND QUALITY CONTROL.
 - 6.4 THE SURFACES OF THE FLOATS SHALL BE NON-SLIP RPP M18 MESH GRATING OR EQUIVALENT, APPROVED IN WRITING BY THE ENGINEER.
 - 6.5 THE MINIMUM SERVICE LIFE OF THESE FLOATS SHALL BE 25 YEARS.
 - 6.6 THE CONTRACTOR SHALL SUBMIT DRAWINGS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN BRITISH COLUMBIA. THESE DRAWINGS SHALL IDENTIFY DESIGN REQUIREMENTS, DESIGN CODES USED, LAYOUT, MEMBER SIZES, CONNECTIONS, DIMENSIONS, MATERIALS AND FINISHES.
- 7.0 FLOAT PERFORMANCE CRITERIA
- 7.1 THE FLOAT SHALL BE LEVEL WITH A MAXIMUM CROSS SLOPE OF 2%, AND A MINIMUM ACCEPTABLE FREEBOARD OF 400mm.
 - 7.2 A POSITIVE METACENTRIC HEIGHT IS REQUIRED FOR ALL EXPECTED LOADING CONDITIONS AND ANGLES OF TILT.
 - 7.3 FLOATS SHALL BE DESIGNED TO CARRY A UNIFORMLY DISTRIBUTED LOAD OF 3.0 kPa OVER THE WHOLE OR ANY PART OF THE DECK. STABILITY SHALL BE CHECKED AND VERIFIED FOR THIS LOADING CONDITION INCLUDING THE SURBERGARD ELEMENTS, MAXIMUM ANGLE OF HEEL, SHALL NOT EXCEED 10 DEGREES.
 - 7.4 FLOATS SHALL BE DESIGNED TO CARRY, AT ANY LOCATION ON THE FLOAT DECK, A CONCENTRATED LOAD OF 1.8 MN PLACED AT ANY LOCATION, NO CLOSER THAN 300mm TO ANY EDGE. STABILITY SHALL BE CHECKED AND VERIFIED FOR THIS LOADING CONDITION INCLUDING THE SURBERGARD ELEMENT, MAXIMUM ANGLE OF HEEL, SHALL NOT EXCEED 10 DEGREES.
- 8.0 FLOAT APPURTENANCES AND HARDWARE
- 8.1 RENDERS OR RUB STRIPS SHALL BE PROVIDED AROUND THE PERIMETER OF THE FLOAT. THESE CONTINUOUS ITEMS SHALL HAVE HIGH RESISTANCE TO ENVIRONMENTAL ELEMENTS, SUCH AS UV LIGHT, AND MARINE GROWTH.
 - 8.2 RIGID SAFETY LADDERS SUFFICIENT FOR BARRIS FROM THE WATER SHALL BE PROVIDED, SPACED AT INTERVALS LESSER THAN 20M. THE LADDERS SHALL EXTEND A MINIMUM OF 1M BELOW THE WATER SURFACE. CORROSION SHALL BE CONSIDERED IN THE MATERIAL SELECTED AND FABRICATION DETAILS OF THE LADDERS.
 - 8.3 FLOATS SHALL PROVIDE MOORING WELLS IN THE LOCATIONS PROVIDED FOR THE MOORING SYSTEM.

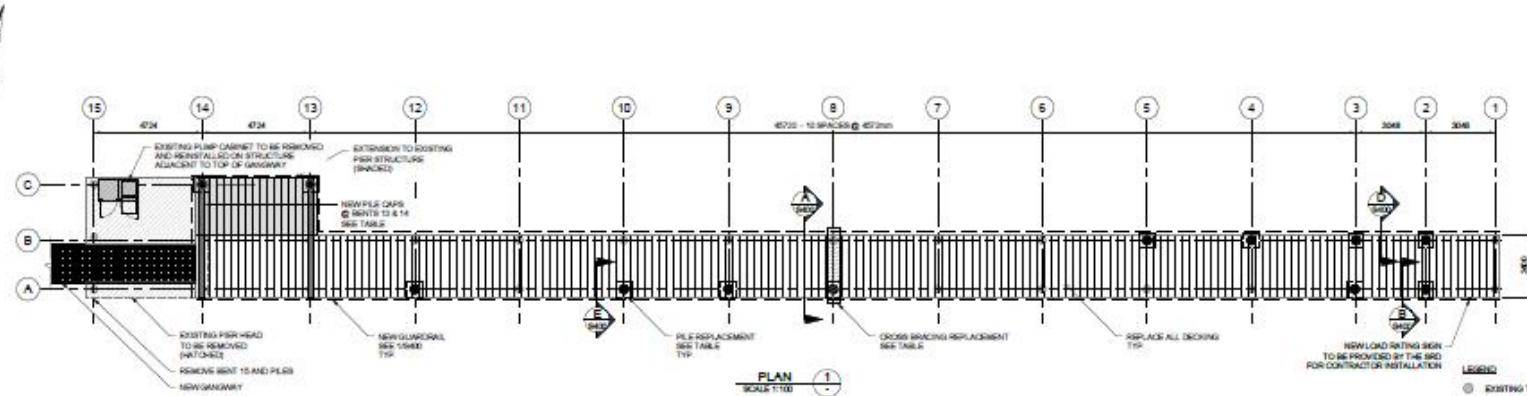
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PLAN
SCALE 1:200



KEY PLAN
NTR



PLAN
SCALE 1:100

PILE REPAIRS	
FILE NO.	REPAIRS
1A	REPLACE PILE
2B	FRESH HEAD AND INSTALL NEW SINGLE CORNER
3A	FRESH HEAD AND INSTALL NEW SINGLE CORNER
3B	REPLACE PILE
4B	FRESH HEAD AND INSTALL NEW SINGLE CORNER
5A	REPLACE PILE
6A	INSTALL GALVANIZED STEEL PILE CLAMPS
6B	REPLACE PILE
10A	INSTALL GALVANIZED STEEL PILE CLAMPS
12A	REPLACE PILE
13-15	MODIFICATIONS TO TRUSSES SEE PLAN

NOTES:
 1. CONTRACTOR TO PROVIDE 2 ADDITIONAL PILES ON SITE IF NEEDED
 2. CONDITION OF PILES AT BENT 13 AND 14 TO BE INSPECTED PRIOR TO INSTALLATION OF NEW PILE CAPS AND REPLACED IF REQUIRED

PILE CAP REPAIRS	
BENT NO.	REPAIRS
13	REPLACE PILE CAP
14	REPLACE PILE CAP

CROSS BRACE REPAIRS	
BENT NO.	REPAIRS
6	REPLACE CROSS BRACE

LEGEND

- EXISTING TIMBER PILE
- NEW TIMBER PILE
- NEW TIMBER PILE CAP
- ▨ REPLACE TIMBER CROSS BRACING
- NEW GALVANIZED

NOTES:

- FOR GENERAL NOTES SEE 0100.
- SEE SHEET 5400 FOR ALL TIMBER REPAIR DETAILS FOR PILES, PILE CAPS AND CROSS BRACING.

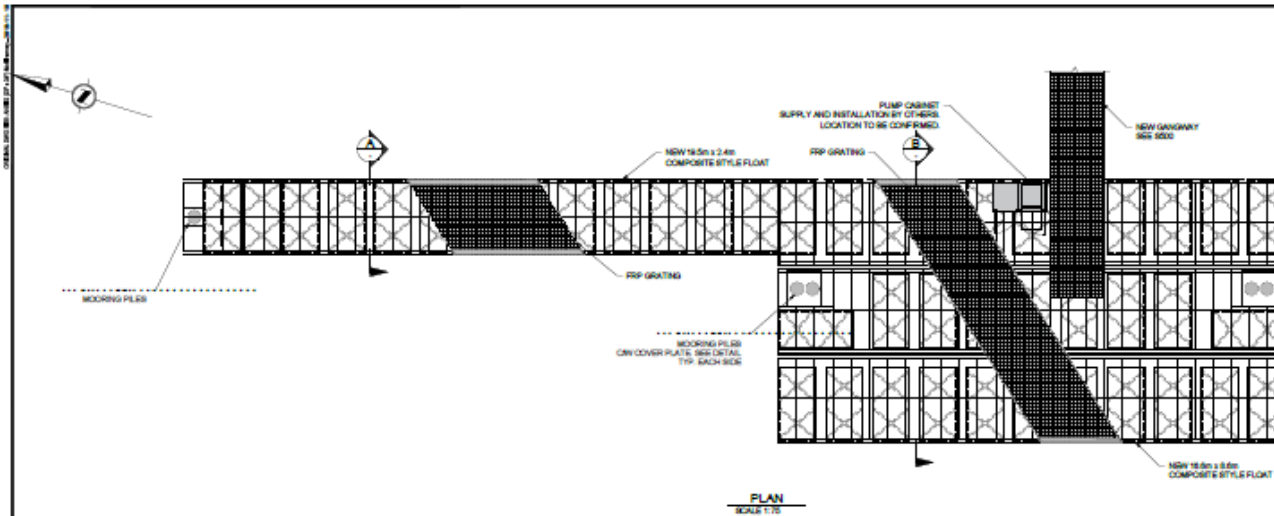
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PC 220504E		ISSUED FOR 90% REVIEW	ST	
PC 220504B		ISSUED FOR CONCEPT	ST	



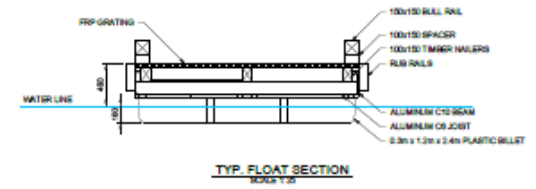
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STRATHCONA REGIONAL DISTRICT
PORT NEVILLE
GENERAL ARRANGEMENT
AND PIER PLAN

Drawing No.
S100
PROJECT NO.
22-15-71345
REV.
PC

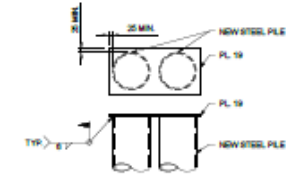


PLAN
SCALE 1:25

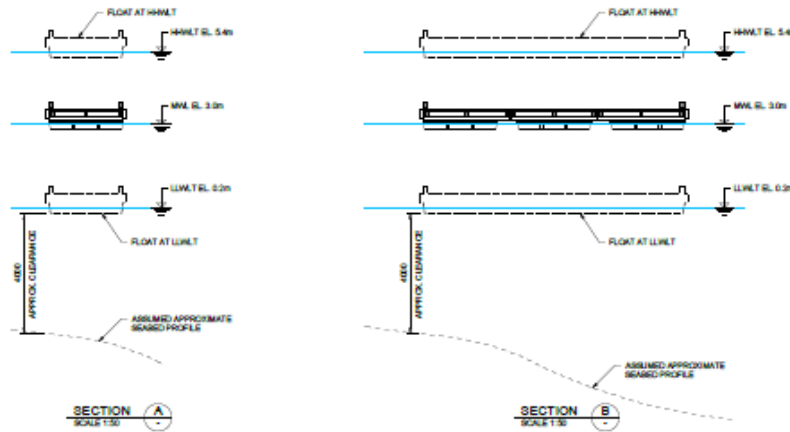


TYP. FLOAT SECTION
SCALE 1:25

NOTE:
COMPOSITE FLOAT ARRANGEMENT SHOWN IS INDICATIVE ONLY. CONTRACTOR IS RESPONSIBLE FOR THE FINAL DESIGN OF THE FLOATING DOCK AND WILL PROVIDE REALED SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO MATERIAL PROCUREMENT AND FABRICATION.



COVER PLATE DETAIL
SCALE 1:25



SECTION A
SCALE 1:25

SECTION B
SCALE 1:25

NOTES:
1. FOR GENERAL NOTES SEE 5100

REV	DATE	DESCRIPTION	APP'D
PC	22/06/24	ISSUED FOR 100% REVIEW	ST
PL	22/06/24	ISSUED FOR 90% REVIEW	ST
PC	22/06/24	ISSUED FOR CONCEPT	ST
Rev	Date	Description	App'd

CLIENT:



1100 BAY ST. CAMPBELL, BRAS. BC, V8R 2G5



1211 Bay Road
Surrey BC
Canada V4B 5G5
T 604 281 3466

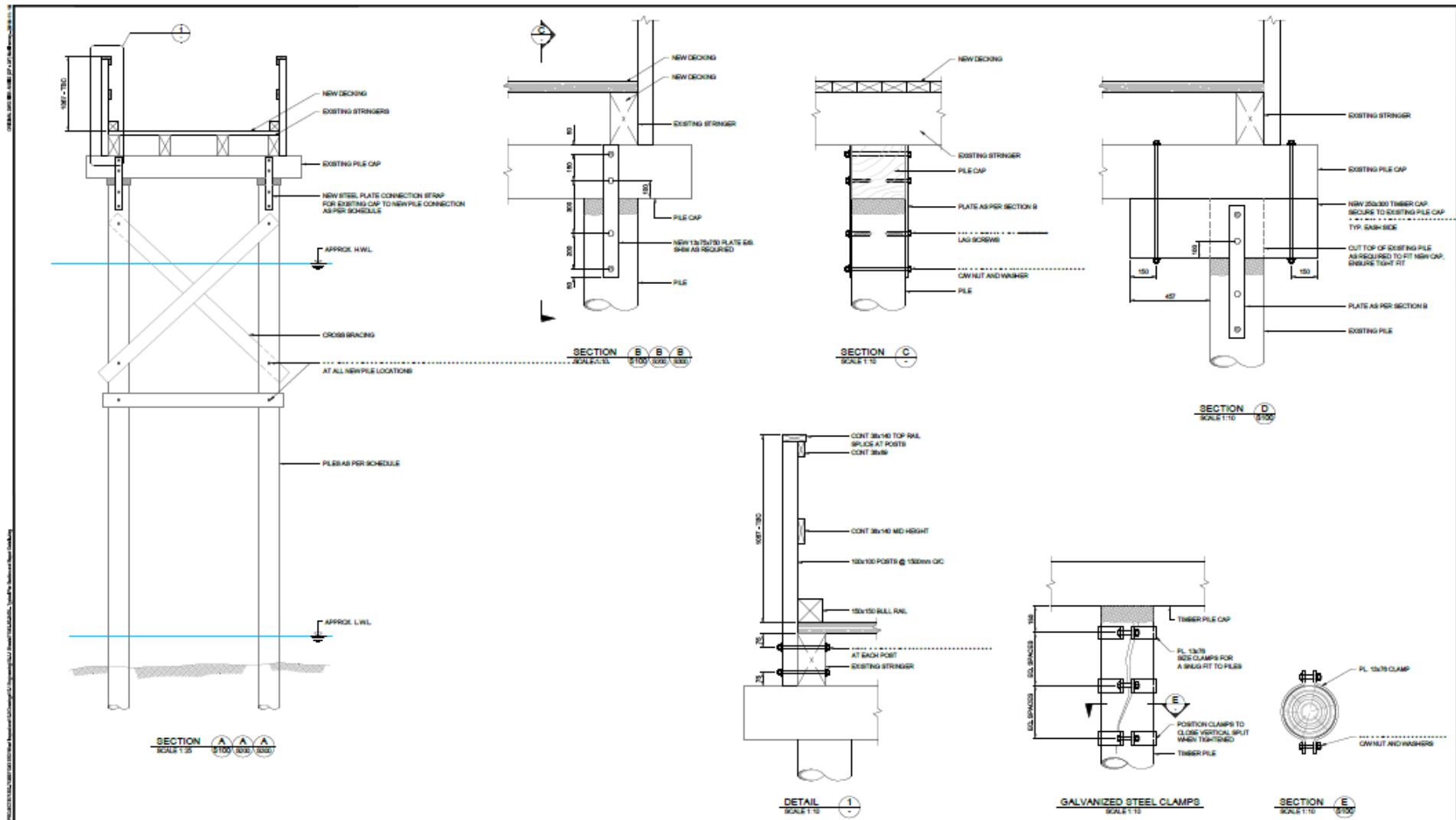
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Drawn: ST
Checked: ST
Designed: ST
Checked: ST
Approved: ST

STRATHCONA REGIONAL DISTRICT

PORT NEVILLE
NEW FLOAT DESIGN

Drawing No.
S101
Project No.
2211-71345
Rev.
PC



NOTES

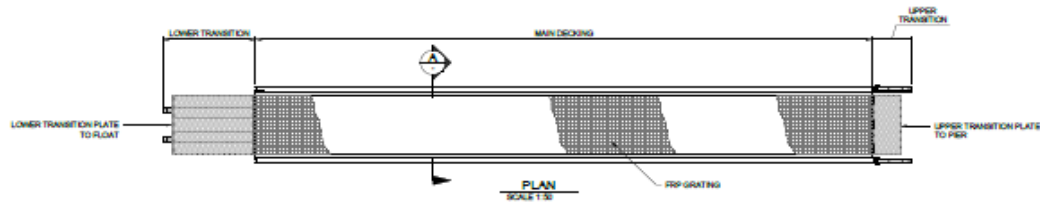
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PL	2025/04/01	ISSUED FOR CONCEPT	50%
Rev	Date	Description	Notes

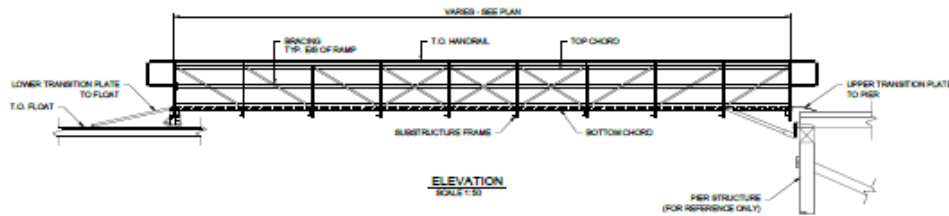


<p>PRELIMINARY NOT FOR CONSTRUCTION</p>	<p>STRATHCONA REGIONAL DISTRICT</p>			
	<p>TYPICAL PIER SECTION AND REPAIR DETAILS</p>			
<p>Project No: 221171345</p>	<p>Drawing No: S400</p>	<p>Scale: 1:5</p>	<p>Author: [Name]</p>	<p>Check: [Name]</p>

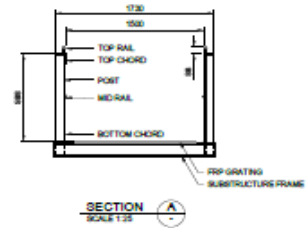
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NOTE:
INTERNAL NOT SHOWN FOR CLARITY



NOTE:
STRUCTURAL GANGWAY ARRANGEMENT SHOWN IS INDICATIVE ONLY. CONTRACTOR IS RESPONSIBLE FOR THE FINAL DESIGN OF THE GANGWAY AND WILL PROVIDE SEALED SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO MATERIAL PROCUREMENT AND FABRICATION.



NOTES:
1. FOR GENERAL NOTES SEE 5100

REV.	DATE	DESCRIPTION	APP'D.
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CLIENT:



McElhenny
121 Main Street
Dunsmuir BC
Canada V6C 2S6
7 30 28 188

PRELIMINARY
NOT FOR
CONSTRUCTION

STRATHCONA REGIONAL DISTRICT
STRUCTURAL GANGWAY DETAILS

Drawing No.	S500
Project No.	2215-71343
Rev.	IPC