

QUALIFIED PROFESSIONAL CHECKLIST FOR FORESHORE DEVELOPMENTS

The Qualified Professional (QP) Checklist is **required** for all foreshore developments with a **Moderate** or **High Risk** activity ranking (see Section 3.2). In addition a QP Checklist is required for Low Risk activities where Best Management Practices (BMPs) are not being followed. This checklist must be completed by the QP leading the environmental component of the foreshore development, who is defined here as an applied scientist or technologist, acting alone or together with another QP. He or she must be registered and in good standing in B.C. with an appropriate professional organization constituted under an Act, acting under that association’s code of ethics and subject to disciplinary action by that association. The individual is considered a QP only for that portion of the assessment that is within their area of expertise. In this case, it is expected that the QP(s) is/are experienced in inventory, impact assessment and mitigation associated with foreshore habitats, Shore Spawning Kokanee, Freshwater Mussels and Foreshore Plants, including species and ecosystems at risk (SEAR). Where required, the QP Checklist must be submitted as an attachment to all applicable provincial natural resource applications; incomplete applications will be rejected. If there is a change in the development design after the initial application, the proponent must ensure that the QP re- assess the proposal and complete a new QP Checklist.

Activity		Foreshore Sensitivity Zone		
Type	Risk Ranking	Shore Spawning Kokanee	Freshwater Mussels	Foreshore Plants
Dock/Piled Structure - Repair/Upgrade	Low	No Colour Zone	No Colour Zone	No Colour Zone

General Foreshore Values

Complete the following table for all foreshore developments with a Moderate or High Risk (see Section 3.2).

Question	Yes, No or N/A	Explanation
Are you a QP as identified above?	Yes	I am a Registered Professional Biologist with the College of Applied Biology of British Columbia.
Have you discussed this project with an Ecosystems Biologist or other provincial staff member? If so, provide the staff member’s name.	No	I have not engaged in discussion with Ecosystems staff on this specific project.
Have you reviewed <u>all</u> environmental data sources including BC Conservation Data Centre ¹ (CDC), wildlife species inventory ² (WSI), Fisheries Information Summary System ³ (FISS) and EcoCat ⁴ for available fisheries, aquatic habitat mapping, and SEAR data?	Yes	Relevant information is as follows: CDC data-occurrence ID 10214, Shape ID 74373 is associated with the occurrence of the Red-listed American Badger (<i>Taxidea taxus</i>). This occurrence covers the Okanagan Valley from the US



		<p>border to the north end of Okanagan Lake. The developed nature of the subject property is not conducive to supporting this species.</p> <p>The subject property occurs within Sensitive Ecosystem Inventory (SEI) polygon number 983 which is described as 100% non-sensitive.</p> <p>The property occurs within Segment 105 of the 2016 Foreshore Inventory Mapping (FIM). The segment is described as having a high level of impact (>40%), 82% disturbed shoreline and 18% natural, with a gravel beach shore type, moderate littoral zone (10-50 m), and single-family landuse. The slope is described as steep (20-60%). The riparian class is described as landscaped in mature coniferous forest stage; tree and shrub cover are described as moderate.</p> <p>The dock density at the time of the FIM was 25 docks per km, with retaining walls over 40% of the 439.7 m shore segment length. Juvenile rearing value was noted to be moderate. The Aquatic Habitat Index (AHI) rating is currently moderate, with an AHI potential of moderate. The rare plant potential was No.</p>
<p>Have you conducted a field assessment of the site to document environmental values associated with the site? If yes, list these values. A field assessment is expected in most cases.</p>	<p>Yes</p>	<p>A field assessment was completed March 5, 2021 of 12892 Pixton Road, Lake Country, BC. The subject property has an existing single-family dwelling (Photo 1). The private moorage adjacent the subject property that was present in the 2018-2019 orthophotos has been removed; however, a boat lift remains along the foreshore (Photo 2).</p>

Property: 12892 Pixton Road, Lake Country, BC



		<p>Foreshore and riparian modifications include a staircase providing foreshore access, formal landscaping throughout the riparian area, and a riprap retaining wall along the subject property (Photos 3 and 4).</p> <p>The riparian area has been modified with formal landscaping, including turf and horticultural shrub species such as juniper and cedar. Mature willows occur along the property boundaries and appear to be situated on the neighbouring properties.</p> <p>Beach substrates consist primarily of gravel and cobble along the subject property, with sporadic boulders associated with retaining (Photo 5). A significant bedrock formation occurs along the property, largely towards the southern property boundary and beyond (Photos 6 and 7). The bedrock shoal extends as much as 41 m from the approximate high water level at the southern property corner (Photo 8).</p> <p>The proposed moorage is situated to the north of the majority of the bedrock; however, another patch of bedrock is visible to the north of the moorage location.</p>
<p>Have you conducted inventories to confirm presence/absence of fish, wildlife, SEAR or their habitats onsite? If yes, list which species. Inventories must follow provincial standards and must be conducted during the appropriate time of year.</p>	No	<p>Given the scope of the proposed works, no formal inventories were conducted onsite.</p>
<p>Have SEAR been newly identified at the site? If yes, list these SEAR. Have results been submitted to the BC CDC using appropriate forms⁵?</p>	No	<p>There were no SEAR newly identified at the site.</p>



Have you assessed potential changes to local shoreline and stream mouth accretion/erosion dynamics as a result of the project? This is a requirement for marina, infill and erosion protection works projects.	No	The proposed works are limited to reconstruction of an existing private moorage adjacent the subject property.
Are works scheduled during the least risk timing window for fish and wildlife species ⁶ ? List this window.	Yes	The proposed moorage works occur within a No Colour Zone for Kokanee shore spawning; therefore, there are no restrictions on timing of works.
Does the project follow the standard <i>Habitat Officers' Terms and Conditions</i> and existing BMPs ⁷ during construction of the project? Developments must follow the terms and conditions in order to be compliant with the <i>Water Sustainability Regulation</i> .	Yes/No	<p>The water depth of 0.8 m during low water (341.34 m asl) is met around 33 m from the approximate high water level. Depths were reviewed during the March 5, 2021 site visit (see attached). The original design extended the moorage to 46.3 m in order to avoid the prominent bedrock shoal; end decking and lifts were situated beyond 36 m. The moorage has been redesigned to adhere to the 40 m length maximum within the District of Lake Country. The lift will be situated beyond the 0.8 m at LWL, around 34 m from the HWL.</p> <p>The proposed structure will have an end deck area of 29.4 m² and 45.3 m² access, for a total area of 74.7 m².</p>
Are site-specific mitigation measures (e.g., avoid, redesign, relocate, minimize) required? If yes, list these measures.	No	Standard adherence to best management practices with construction and operation is recommended.
Are there residual effects to environmental values as a result of the project (i.e., adverse effects that cannot be mitigated)?	No	There are no adverse residual effects to environmental values anticipated, as a result of the project.
If residual effects have been identified, have offsetting measures been agreed to, to compensate for adverse effects to environmental values?	Not applicable	
Has a QP been retained to provide environmental monitoring?	No	An environmental monitor is recommended for project startup.



Is ongoing maintenance and/or monitoring required? If so, describe the plan for ongoing maintenance and/or monitoring.	No	The project is not anticipated to require an ongoing monitoring program.
In your professional opinion does the proposed work comply with the requirements of the Federal Fisheries Act for the protection of fish & fish habitat.	Yes	The proposed works should not result in a HADD if best practices to protect fish and fish habitat are adhered to throughout construction and operation.



Freshwater Mussels

Follow the species-specific guidance provided in [Guidance for Freshwater Mussels in the Okanagan](#) as required in Figure 2. Complete the following table if your activity is in a No Colour, Yellow or Red Zone for Freshwater Mussels. The sections identified below refer to those in the Guidance Document; refer to this document for additional information.

Question	Yes, No or N/A	Explanation
Do you meet the minimum surveyor qualifications (Section 2.0)?	Yes	I am a local RPBio with experience on Okanagan Lake surveying for, identifying, relocating, and conducting follow-up monitoring of Rocky Mountain Ridged mussels (<i>Gonidea angulata</i>), in conjunction with private moorages.
Have you conducted a Freshwater Mussel Survey of the site as per the methods identified in Section 4.0?	No	The proposed works are Low risk in regard to freshwater mussels and do not require further freshwater mussel works.
Have mussels been newly identified at the site as a result of the Freshwater Mussel Survey? Have results of all mussel species occurrences been submitted to the CDC ⁵ ?	No	There was no formal survey or incidental observations of mussels at the subject property during the March 5, 2021 site visit. A visual check of the foreshore for signs of mussels was conducted.
If mussels have been previously or newly identified at the site, what mitigation measures have been proposed to reduce the potential for adverse effects as a result of the project (refer to Guidance Document)?	Not applicable	
Are there residual effects to mussels as a result of the project (i.e., adverse effects that cannot be mitigated)?	No	The private moorage works are generally considered Low Risk and are not anticipated to result in adverse residual effects.
If residual effects have been identified, have offsetting measures been proposed to compensate for adverse effects to mussels?	Not applicable	



Foreshore Plants

Follow the species-specific guidance provided in [Guidance for Foreshore Plants in the Okanagan](#) as required in Figure 2. Complete the following table if your activity is in a No Colour, Yellow or Red Zone for Foreshore Plants. The sections identified below refer to those in the Guidance Document; refer to this document for additional information.

Question	Yes, No or N/A	Explanation
Do you meet the minimum surveyor qualifications (Section 3.0)?	Yes	My academic background is specific to fish and wildlife management and included multiple courses in botany and plant taxonomy and ecology, including terrestrial and aquatic species. My professional experience includes field, local knowledge and technical skills that meet the Plant Species at Risk Surveyor Qualifications.
Have you conducted a Preliminary Habitat Assessment of the site as per the methods identified in Section 4.1?	Yes	A desktop review was completed, as well as a site visit, where foreshore conditions and potential for SAR was evaluated.
Is high potential plant species at risk (SAR) habitat present (Section 4.1, Table 3)?	No	The subject property has been disturbed with formal landscaping throughout, including retaining wall construction. Vegetation was not present below the riprap retaining wall.
Is a Detailed Plant SAR Survey required based on the habitat present? If yes, have you conducted a Detailed Plant SAR Survey of the site as per the methods identified in Section 4.2?	No	A detailed plant SAR survey was not conducted; however, review of foreshore/riparian vegetation occurred.
Have plant SAR been newly identified at the site as a result of the Detailed Plant SAR Survey? Have results been submitted to the CDC ⁵ ?	Not applicable	
If plant SAR have been previously or newly identified as the site, what mitigation measures have been proposed to reduce the potential for adverse effects to plant SAR as a result of the project?	Not applicable	
Are there residual effects to plant SAR as a result of the project (i.e., adverse effects that cannot be mitigated)?	No	No residual effects to plant SAR are anticipated, as a result of the moorage renovation/extension.
If residual effects have been identified, have offsetting measures been proposed to compensate for adverse effects to plant SAR?	Not applicable	



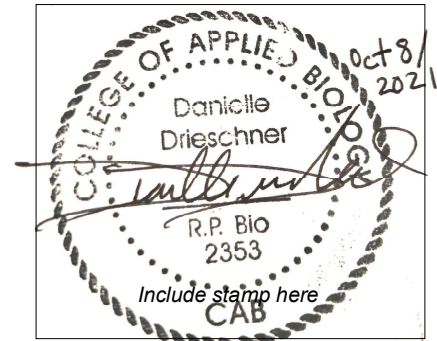
I confirm that all information provided in this checklist is to the best of my professional knowledge true and completed.

Signature Danielle Drieschner

Name of Qualified Professional Danielle Drieschner

Professional Association Number 2353

Date October 8, 2021



Encl.:

- Site photos
- Depth transect completed by Three Pine Environmental Consulting
- Moorage Designs, provided by Shoreline Pile Driving

¹ <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre>

² <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-data-information>

³ <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/fish-and-fish-habitat-data-information/search-fish-fish-habitat-data-information/fisheries-inventory-data-queries>

⁴ <https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/libraries-publication-catalogues/ecocat>

⁵ <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre/submit-data>

⁶ <https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water/regional-terms-conditions-timing-windows/okanagan-timing-windows>

⁷ <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/laws-policies-standards-guidance/best-management-practices>

B.C. Conservation Data Centre. 2014. Occurrence Report Summary, Shape ID: 74373, American Badger. B.C. Ministry of Environment. Available: <http://maps.gov.bc.ca/ess/hm/cdc>, (accessed Mar 6, 2021).

Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 2018. Guidance for Foreshore Plants in the Okanagan. Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Resource Management, Ecosystems Section, Penticton, BC.

Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 2018. Okanagan Large Lakes Foreshore Protocol. Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Resource Management, Ecosystems Section, Penticton, BC.

Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 2020. Design Criteria for Batter Board Panels on Okanagan Lake.

Schleppe, J. and R. Plewes. 2017. Okanagan Lake Foreshore Inventory and Mapping Update 2016. Ecoscape Environmental Consultants Ltd.



Site Photos



Photo 1: Looking towards the subject property and the existing single-family dwelling (March 5, 2021).



Photo 2: Looking southwest towards Okanagan Lake and the boat lift remaining along the foreshore (March 5, 2021).





Photo 3: Looking towards the subject property and existing riparian condition; the mature willows occur on the adjacent properties (March 5, 2021).



Photo 4: Looking northwest along the foreshore towards the boat lift remaining from the previous moorage, rock retaining wall, and riparian condition (March 5, 2021).





Photo 5: Looking southeast along the foreshore of the subject property over predominantly gravel and cobble beach substrates (March 5, 2021).



Photo 6: Looking towards bedrock substrates along the subject property to the south of the proposed moorage location (March 5, 2021).





Photo 7: Looking southwest towards Okanagan Lake and the bedrock substrates (March 5, 2021).



Photo 8: Looking south towards Okanagan Lake and the bedrock that extends into the lake towards the southern property boundary (March 5, 2021).





Project: 12892 Pixton Road, Lake Country, BC

Date: 05-Mar-21

Okanagan Lake water level during KO spawning (m asl): 341.8

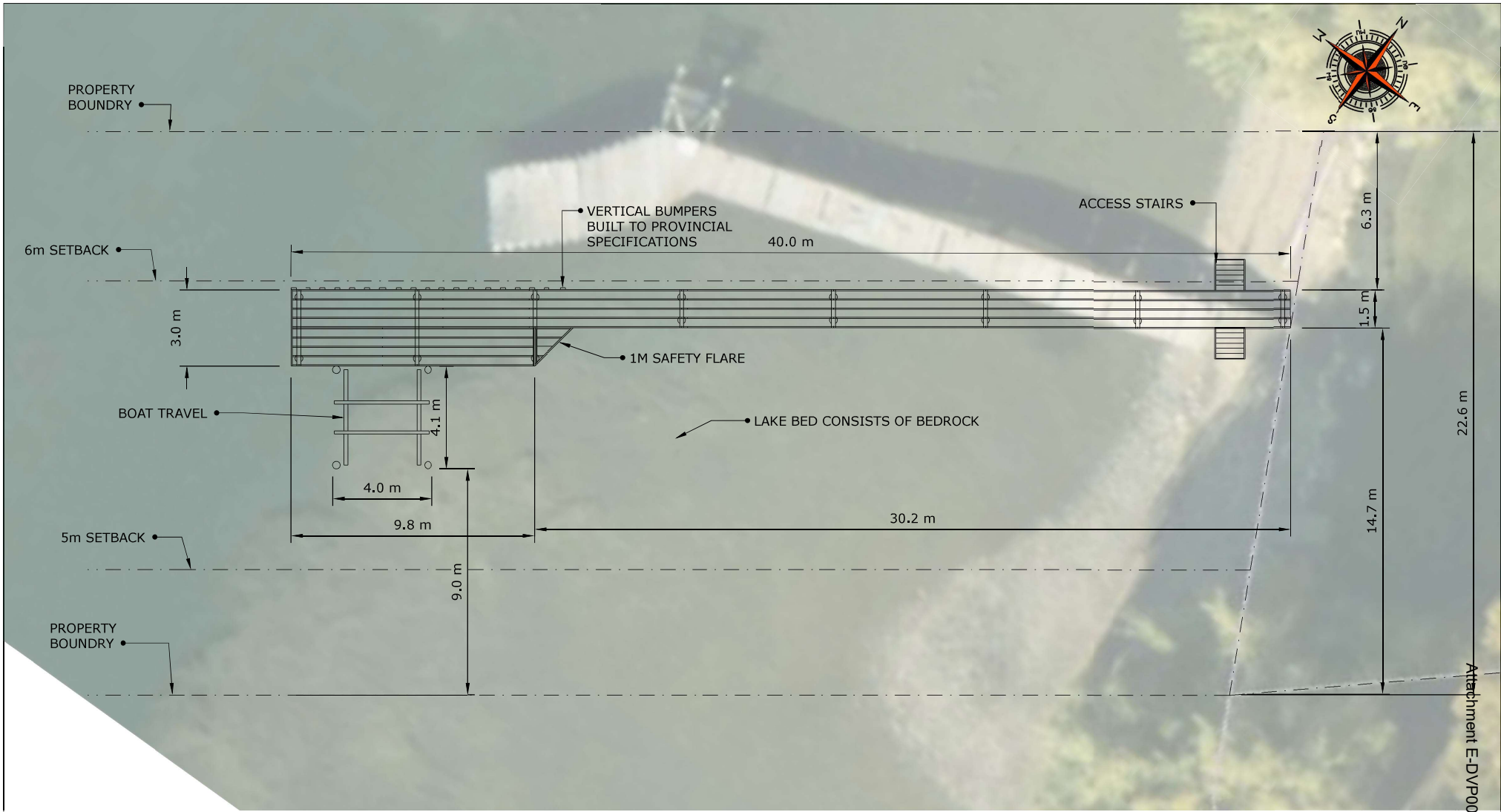
Okanagan Lake water level (m asl): 341.61 taken March 5, 2021 at 13:35 (LST)*

Okanagan Lake LWL (m asl): 341.34

Depth transect	Mar 5 (m)	LWL (m)	Comments
		0.27	
0	0	-0.27	
1	0	-0.27	
2	0	-0.27	
3	0	-0.27	
4	0	-0.27	
5	0	-0.27	
6	0	-0.27	
7	0	-0.27	
8	0	-0.27	wetted level
9	0.05	-0.22	
10	0.08	-0.19	
11	0.14	-0.13	
12	0.24	-0.03	
13	0.29	0.02	
14	0.32	0.05	
15	0.35	0.08	
16	0.35	0.08	
17	0.39	0.12	
18	0.4	0.13	
19	0.49	0.22	
20	0.46	0.19	
21	0.46	0.19	
22	0.47	0.20	
23	0.54	0.27	
24	0.55	0.28	
25	0.59	0.32	
26	0.66	0.39	
27	0.69	0.42	
28	0.76	0.49	
29	0.79	0.52	
30	0.86	0.59	
31	0.92	0.65	
32	1.01	0.74	
33	1.13	0.86	0.8 m depth met at LWL
34	1.24	0.97	
35	1.33	1.06	
36	1.37	1.10	
37	1.4	1.13	
38	1.48	1.21	
39	1.52	1.25	
40	1.56	1.29	
41	1.61	1.34	
42	1.64	1.37	
43	1.62	1.35	
44	1.7	1.43	
45	1.72	1.45	
46	1.74	1.47	

<https://wateroffice.ec.gc.ca/report>





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DOCK HEADING - 234deg APPROX.

NO.	ISSUE	DATE	BY
4	-		
3	-		
2	ADJUSTED DOCK LENGTH	8/10/2021	DC
1	INITIAL RELEASE	13/10/2020	NM

Project: CRYSTAL CARLSON
 12892 PIXTON RD, LAKE COUNTRY
 PID:009-444-301
 KAP12231

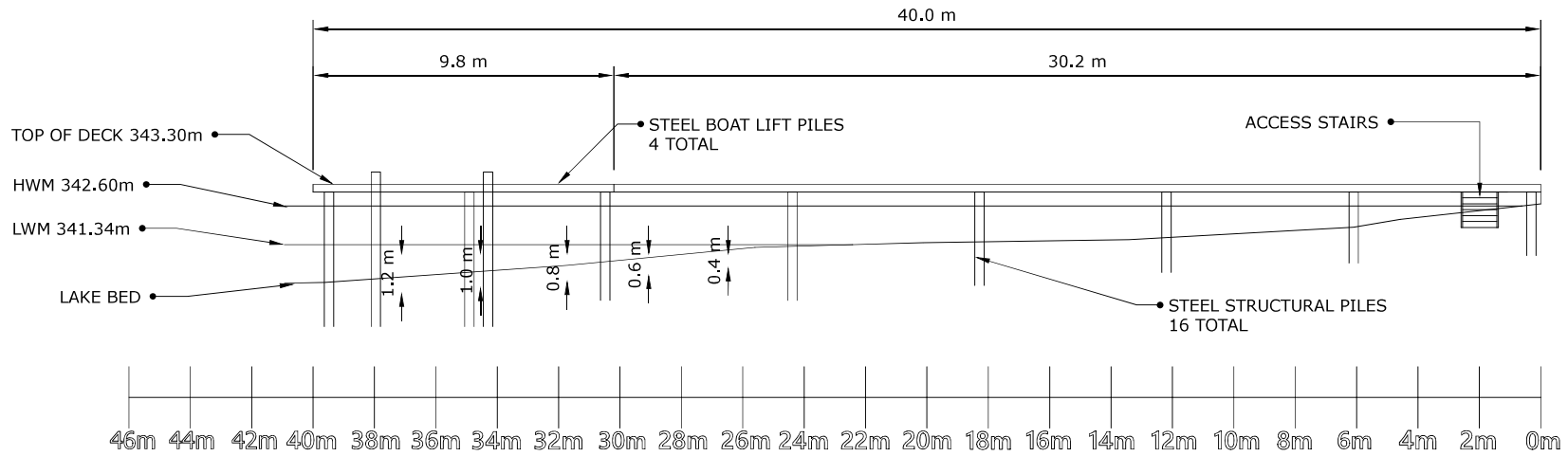
Dock Details:
 STEEL PILES, AL FRAME, MS
 DECKING

Scale: **NTS**
 Date: **OCT 8 2021**
 Drawn By: **DC**
 Zone: **CLEAR**

Dock Design: **PADDLE**
 Drawing No.

OV-02-01

Attachment E-DVP00377-QP Checklist



DOCK HEADING - 234deg APPROX.

4	-		
3	-		
2	ADJUSTED DOCK LENGTH	8/10/2021	DC
1	INITIAL RELEASE	13/10/2020	NM
NO.	ISSUE	DATE	BY

Project: CRYSTAL CARLSON
 12892 PIXTON RD, LAKE COUNTRY
 PID:009-444-301
 KAP12231
Dock Details:
 STEEL PILES, AL FRAME, MS
 DECKING

Scale: **NTS**
 Date: **OCT 8 2021**
 Drawn By: **DC**
 Zone: **CLEAR**

Dock Design: **PADDLE**
 Drawing No. **EV-02-01**

Attachment E-DVP00377-QP Checklist