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AREA MASTER PLAN



SS SICAMOUS AREA MASTER PLAN



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- Vested Interest Group
- Penticton Indian Band Staff and Council
- Waterfront Enhancement Select Committee
- SS Sicamous Restoration Society
- All attendees at June 2014 charrette – On board SS Sicamous
- Ministry of Forests, Lands and Natural Resource Operations
- All residents and stakeholders that completed surveys throughout the project



TEAM

The project team included a diverse group of professionals and advisory members that addressed numerous interrelated topics for this Master Plan. The team members are available to discuss any details and the outcomes of this project. Please direct enquiries through CTQ.

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EXECUTIVE SUMMARY

The SS Sicamous Steamship turned 100 years old in 2014. The timing could not have been better to commemorate this anniversary with the preparation of a Master Plan for the SS Sicamous Heritage Shipyard area in Penticton. The vessel was beached in 1937 at the southwest end of the Okanagan Lake, after almost 25 years of plying the waters of the lake and adding immeasurably to the early years of development of the Okanagan Valley communities. The steamships of the Okanagan were known to benefit trade and commerce, tourism, transportation and life in general as they moved people and goods from one end of the Lake to the other. As such, the ship has become a treasured heritage feature and a significant tourism attraction for Penticton and the South Okanagan region. The area where it now rests was a former shipyard and has since become a destination for locals to enjoy and tourists to visit year round.



In 2013 the City of Penticton completed major enhancements to the Okanagan Lake Waterfront walkway leading to the SS Sicamous Heritage Shipyard. It is now the expressed interest of the City to pursue a plan that will see development and further improvements conducted in a coordinated manner with the guidance of this Master Plan. This area has been referred to as the SS Sicamous Heritage Shipyard Park which will further contribute to its profile as a valuable recreation and tourism asset for Penticton.

The Master Plan was commissioned by the City of Penticton and prepared by CTQ Consultants Ltd. In collaboration with specialists in various disciplines related to particular aspects of the water and land in the park area. The work was undertaken under the auspices of a committee (Vested Interest Group) that served as the sounding board throughout the planning exercise. The subject properties within the plan area include ownership by the Penticton Indian Band (PIB), the Province of BC and the City of Penticton; all owners had representation on the Committee and were kept apprised during the project.



Public consultation was an important part of the Master Planning. Besides using the VIG, several opportunities for input and feedback were offered to stakeholders and the general public in Penticton. Some of the critical consultation initiatives included a day-long planning and design charrette, a day-long survey at the Peach City Cruise event, displays and surveys in Cherry Lane Mall, posting on the City's website and ultimately, obtaining feedback on the final four options during the Farmer's Market on Main Street and at Cherry Lane Mall at the end of September 2014. The consultants also took the opportunity to meet PIB Council, the Waterfront Enhancement Committee and City Council on various occasions. The community was very engaged and interested in the outcomes. The Master Plan that follows has been extensively informed by public opinion but resulted from a combination of technical expertise and the principles articulated by the residents of Penticton.



KEY ELEMENTS OF THE PLAN

The following is a brief overview of the key elements of the Master Plan:

- The introduction of a major **entry plaza** that will serve as a gateway to the park. Public sculptures, water fountains, marine displays and events can be accommodated in this space.
- **Connecting walkways** to allow convenient access to the various attractions and destinations in and around the park. A primary objective is to continue the Okanagan Lake Waterfront walkway westward into the park.
- **Enhancement of the rock outlook/jetty** that is expected to become a new feature attraction for Penticton. A **small dock** to accommodate approximately five to seven boat slips for day moorage will be constructed along the east side of the jetty.
- **Enhancement and relocation of the Rose Garden** that will improve the contemplative space and integrate it with the remainder of the park.
- **The round-about and the roadway** at the northern end of Riverside Drive will be relocated to allow for greater space for a proper entry plaza and to enhance traffic mobility, pedestrian safety, temporary bus parking and convenient drop-off zones.
- **The public parking lot** next to Loco Landing will be expanded to approximately 120 spaces.
- **A boardwalk** that will serve as an improved entrance to the ship and that extends into the lake for water play, also addresses the need for a visual barrier between boats and swimmers near the bow of the SS Sicamous.
- **A Native Cultural Centre** to become an integral part of the park.
- **Viewing decks** over the River Channel at two locations.
- **Hard and soft landscape treatment**, including tree restoration, is included throughout the park. Park grounds will also accommodate sheds and artifacts in designated area only.
- **Canoe/kayak launch area** on the port side of the SS Sicamous.
- **Wetlands restoration and erosion control** on the west side of the park/foreshore; an elevated boardwalk through the wetlands will provide another opportunity to allow the visitor to experience the water's edge.



PHASING

The Plan sets out a series of phases to strategically implement the improvements. A timeline has not been set but the availability of funds will help determine how quickly progress can be made.

① The first phase of works entails the extension of the walkway into the park and the upgrades to the jetty. These improvements will then be followed by ② the relocation of the round-about southwards to the Churchill Avenue/Riverside Drive intersection and the shifting of the roadway to the east to ultimately make space for ③ the entry plaza development in the third phase.

④ The fourth and separate phase may be the First Nations Centre that will gain its access through the enhanced Rose Garden. It is likely the Rose Garden will proceed along with the creation of the entry plaza.

⑤ The last phase entails the expansion of the public parking lot both eastward and to the south.

■ NOTE - Each of these phases will include their own improvements such as landscaping, lighting and furniture, as required.



PRELIMINARY COST ESTIMATES

This project has used a Class C cost estimate to assist with preliminary budgeting by the City and an understanding of the scale of the various elements. Engineering design, contingency and taxes have been added to the unit prices estimated as of 2014 to derive a total estimate for each phase of the Plan. The unit prices are based on recent construction projects in Penticton and the Central Okanagan, and for some items, as provided by contractors such as Shoreline Pile Driving, Engineers such as Levelton and the Consulting Arborist. The preliminary cost estimates are itemized in a separate report. These preliminary costs will be reviewed and adjusted on an annual basis

Total costs for the jetty and walkway connection have been estimated at just over \$1.1 million. A very preliminary estimate for all projects is approximately \$4.5 million, not

including the First Nations Center. If all phases and costs are included, the estimate is closer to \$6.5 million. However, because Class C level estimates use a 25% contingency and due to the amount of special features that were included, the initial amount could be closer to \$2.4 million, without the First Nations Center but not including the special features at the start of the project.



GRANTS

The Master Planning exercise considered possible funding grants from various senior government programs that can help offset the above noted costs. The preliminary investigation indicated that there are numerous programs that either the City or non-profit organizations affiliated with the SS Sicamous Park, are eligible to pursue. Many of these programs must be cost shared. Programs that encourage partnerships between First Nations and municipalities are also currently available and may be very applicable to some of the elements in this Master Plan.

The grant program categories listed in this document and that were current as of 2014 include:

- Heritage
- Infrastructure
- Economic Development
- First Nations Partnerships
- Accessibility
- Environment
- Recreation

■ **NOTE:** IT IS UNDERSTOOD THAT FUNDING PROGRAMS ARE ADDED OR END ON AN ANNUAL BASIS; IT THEREFORE BEHOOVES THE CITY OF PENTICTON/SS SICAMOUS RESTORATION SOCIETY TO MONITOR THE GRANT OPPORTUNITIES ON A REGULAR BASIS. THERE ARE OTHER MEANS TO HELP OFF-SET THE CAPITAL COSTS, SOME OF WHICH ARE NOTED IN SECTION 10. EXAMPLES INCLUDE THE POTENTIAL FOR THE PROVINCIAL DEPARTMENT OF PUBLIC SAFETY AND PROTECTION (THAT OWNS AND OPERATES THE DAM) TO BE RESPONSIBLE FOR PROVIDING ALL RIP-RAP MATERIAL.



IMPLEMENTATION

The Master Plan offers a series of key steps to move forward and assist with the implementation of the Plan. These are as follows:

- **Assigning Responsibility/Organizational Review** – The City of Penticton owns the assets and the land and is therefore ultimately responsible for the continued development and improvements to the park. The SS Sicamous Restoration Society has been responsible for protection, restoration and marketing of the SS Sicamous and other artifacts in the marine collection. The PIB and the Province of BC also own property that is integral to the park area. As the Heritage Park grows as a tourism attraction for Penticton, it may be appropriate to confirm responsibilities to achieve efficiencies amongst all organizations involved.
- **Pursuing Grant Applications** – As noted above, grants should continue to be a focus of interest to help offset capital costs attributed to all of the improvements to the park and area. As grant programs are changing annually, the organizational effort should include on-going pursuit and monitoring of the grant opportunities.
- **Gaining Approvals from the Province** – Any works in the foreshore area or in the lake itself will require permits with attendant study or information supplied at key points in the process. In most cases the details of the approvals will not be known until engineering design of the works is undertaken. The Master Plan includes reference to the possible approvals and government agencies that may need to be addressed.
- **Zoning** – The Master Planning exercise identified a potential conflict between uses in the lake. Although most likely addressed by physical demarcation and signage, zoning can also benefit the understanding of permitted uses along the foreshore and on the lake. Zoning on the land should also be addressed to ensure compatibility between the various activities and to ensure that synergy is achieved with the First Nations project development on their property.
- **Recognition/Designation of the Park or Ship as a Heritage Site** – During the public input phase many people enquired about the designation of the ships. Information provided by the Heritage Branch of the BC Government and Heritage BC confirms that the SS Sicamous only has a municipal designation under the Local Government Act, while the SS Naramata (Tug) is provincially designated under the Conservation Act. Both historic places are eligible for funding through the Heritage Legacy Fund. Pursuing different or higher ranking designations for the (Heritage) park or the ships may assist with both profile and funding grants.



- **Special Studies** – Besides detailed design and engineering for various elements of the park, some special studies may be required to satisfy the ultimate program for the park. These may be in the form of concepts, feasibility studies or queries before committing to detailed design.
- **Negotiations with PIB** – The PIB lands form an integral component of the SS Sicamous Park. Nevertheless, PIB is a separate entity with its own aspirations. It is therefore important for the City to work with the PIB to ensure what is built on the PIB lands is compatible with the remainder of the park program.
- **Site Design and Engineering** – Site design and engineering will proceed on a phase by phase basis. This will include urban design, landscape architecture, engineering, and traffic analysis as necessary. Such detailed design and engineering will also assist in obtaining more definitive costs especially for some of the larger park elements and cost items.
- **Stakeholder and User Group Involvement** – Any fine tuning of this plan may require input from some of the stakeholders that participated in the formulation of the plan. It is recommended that adjacent land owners that may be directly affected by the roadway changes also be consulted as the City works towards detailed design.



SECTION 1

BACKGROUND TO THE MASTER PLAN

The Master Plan for the SS Sicamous Heritage Shipyard Area has been prepared for the City of Penticton. In 2014, the City deemed it necessary to develop a comprehensive plan that would set out “sustainable direction for the uses, programs and capital improvements in and around” the SS Sicamous. The SS Sicamous ship is a treasured heritage feature located at the southwest corner of Okanagan Lake in Penticton. Over the years, significant work has been done to restore and maintain the SS Sicamous. With the assistance of the SS Sicamous Restoration Society, the area has been transformed into a marine park which includes other ships and marine artifacts along with the Sicamous.

Although it is seen locally as an important piece of history in the evolution of the Okanagan Valley, this 100 year old boat (and the surrounding area) is now recognized as a significant tourist attraction for Penticton and the South Okanagan region. Further recognizing that since 1937 when the boat was beached for its last time, the location where it now rests has truly become a destination for locals to enjoy and tourists to visit year-round. As such, the City has recently (2013) completed major enhancements to a waterfront walkway leading to the Heritage Shipyard. It is now the expressed intent of the City to pursue a plan that will see development and further improvements conducted in a coordinated manner with the guidance of this document. The Master Plan recognizes that the changes to the several elements of the park will be undertaken over several years and as financial resources become available. Regardless of the timelines, it is the hope of the City of Penticton

that the vision expressed in this plan is maintained through to fruition.



1.1 TERMS OF REFERENCE

In early 2014 the City of Penticton prepared concise terms of reference for the Master Planning exercise, and subsequently retained CTQ Consultants Ltd. (CTQ) to oversee the preparation of the plan. Understanding the need to address a diversity of issues and opportunities at the site, CTQ drew upon number of professionals that were able to impart their skills and experience related to the water, land, environment, and planning of a special park and waterfront area. Particular attention was paid to engagement of public and stakeholder groups including the SS Sicamous Restoration Society, the PIB (PIB), and the Waterfront Enhancement Committee. Along with consulting the residents of the community (public), a committee of Vested Interest Groups (VIG) served as the sounding board throughout the planning exercise. The subject properties within the plan area include ownership by PIB, the Province and the City; all owners had representation on the committee and were kept apprised during the project.





First Nations marine uses; boat building; First Nations crafts/sales; wildlife viewing and interpretation; aquatic life interpretation; marine heritage.

Erosion Control – Areas adjacent to the shoreline especially in the channel approaching the dam are exhibiting signs of erosion. Consideration of repairs in the retaining walls and the rip-rap to be undertaken by qualified engineers. It was understood that Ministry of Environment approvals and cost implications would need to be addressed if remedial action is required.

Some of the main items in the Terms of Reference were as follows:

Land Ownership – Acknowledging the different parties that have interest in the study area, be it leased or owned and under control of the City, the Province or PIB.

Review of Previous Design Studies – Acknowledging the fact that some planning and design had been undertaken by the City and the SS Sicamous Society in the past. Although some of the material was used to build upon with this current plan, none of the former studies/concept plans ever progressed to implementation.

Swimming and Boating Areas – Investigation of the lake with regards to the swimming and boating areas incorporated elements such as water depth, recreational use, environmental, siltation, the dam, currents and the existing breakwater. It was recognized at the outset that there could be potential conflict between user groups/uses such as recreational swimmers, power boats and human powered boats in the vicinity of the SS Sicamous/rock outlook. The concept of a designated paddle boat area was suggested in the past.

Interpretive Potential – Interpretive programming opportunities abound in a tourist location such as this. Opportunities related to

Landscape Design – An integral component of the plan should incorporate a hard and soft landscape concept. Elements of such a concept may include a plaza, interpretive areas, walkways, street furniture, trees and planting areas. A tree assessment (type and quality) would assist in determining potential tree removal or retention.

Circulation of Pedestrians, Automobiles and Parking – Connectivity for pedestrian passage along the waterfront is very important in the vicinity of the SS Sicamous. A walkway system that serves the waterfront, the park and adjacent tourist area will form part of this plan. Opportunities to enhance access to the rock outlook area and make it more appealing for people to visit are to be explored. The adjacent road and round-about are subject to design changes to facilitate safe traffic movement,



access and aesthetics. Just as important and complementary to the traffic function may be the opportunity to move the roadway to provide more efficient space for the park and a new entry plaza.

Cost Estimates – Order of magnitude cost estimates for the main elements of the Master Plan are to be derived. These estimates will include design, project management and construction. It is expected that more definitive costs would be provided at the design stage of each element.

Sources of Funding – Investigate a course of action regarding means to help pay for improvements to the park and various elements or infrastructure. The consultant worked with the City’s Grant Writer to research applicable grants that could be sourced as the construction occurs over the forthcoming years of plan implementation.

Phasing – Develop a phasing plan that would assist in cost effective/affordable implementation over a period of time. Development of spaces and elements of the park improvements may follow a sequence to ensure coordination.

Consultation – A very comprehensive public consultation program was required to allow the VIG, key stakeholders and the general public opportunity for input throughout the creation of the plan. The SS Sicamous is an important asset valued by many, and as such the plan must respect vision, ideas and opinions of a cross-section of the community. The public consultation exercise garnered considerable interest about the heritage area and especially about how the land and water should be used to benefit the community.

1.2 SS SICAMOUS SOCIETY AND CITY MANDATES

The City of Penticton is the owner of the SS Sicamous and associated heritage artifacts on the park site. It is therefore responsible for the planning, operations and maintenance of the park. Nevertheless, the City has vested its authority in the SS Sicamous Restoration Society to oversee restoration of the boats, promotion of the Heritage Park and some day to day operations. The City will retain the mandate to lead in all infrastructure upgrades related to the park and contained within this Master Plan. Section 12 provides an overview of responsibilities and potential organizational review that may assist in advancing the Plan objectives.

-
- THE PLAN WILL SET OUT “A SUSTAINABLE DIRECTION FOR THE USES, PROGRAMS AND CAPITAL IMPROVEMENTS IN AND AROUND THE SS SICAMOUS”
-

SECTION 2

SITE DESCRIPTION

The SS Sicamous Master Plan area covers approximately five (5) acres of land. (This total would be closer to six acres if the roadway adjacent to the park is included; Riverside Drive where it connects to Lakeshore Drive will be subject to realignment.) The waterfront incorporates a shoreline that runs from the dam on the west side of the park to just beyond the bow of the ship on the east side. This shoreline or water's edge includes retaining walls, wetlands, rip-rap, the rock outlook, and sand beach. One of the smaller boats in the artifact collection is contained within the rip-rap edge; otherwise the others including the SS Sicamous are exposed to the water. The park site is bound by the Okanagan Lake on the north side, the River Channel on the west side, the roadway and round-about on the east side, and the Loco Landing Amusement Park to the south. Just south of the current parking lot that is adjacent to Loco Landing, the City owns undeveloped green space.



EXISTING CONDITIONS

- | | |
|---|--|
| 1 SS Sicamous Ship - Launched 1914 | 8 PIB Land Holdings |
| 2 SS Naramata Tug Boat - Launched 1914 | 9 Okanagan River Dam - 1953 |
| 3 Canadian National Tug Boat #6 - Launched 1946 | 10 Public Parking Lot |
| 4 Stern Wheel Salon From SS Okanagan - 1907 | 11 SS Sicamous Parking / Drop Off |
| 5 Dredge Shed - Original Location | 12 Roundabout at Lakeshore and Riverside |
| 6 Penticton Rose Garden | 13 Canada Trail Connection |
| 7 Okanagan Lake Waterfront Walkway 2013 | 14 Loco Landing - Adjacent to Heritage Park Area |
| | 15 Rock Outlook / Jetty |



1. SS Sicamous Ship - Launched 1914
2. SS Naramata Tug Boat - Launched 1914
3. Canadian Nation Tug Boat #6 - Launched 1946
4. Stern Wheel Salon From SS Okanagan - 1907
5. Dredge Shed – Original Location
6. Penticton Rose Garden
7. Okanagan Lake Waterfront walkway 2013
8. PIB land Holdings

9. Okanagan River Dam
10. Public Parking Lot
11. SS Sicamous Parking Drop Off
12. Round-about at Lakeshore and Riverside
13. Canada Trail Connection
14. Loco Landing Adjacent to Heritage Park Area
15. Rock Outlook/Jetty

SS SICAMOUS AREA MASTER PLAN

Figure 1



2.1 EXISTING CONDITIONS

Figure 1 illustrates the key uses within the Plan area. They are described as follows:

- **Main Artifacts**
 - SS Sicamous Ship (1914)
 - SS Naramata Tug Boat (1914)
 - Canadian National Tug Boat (1948)
 - Stern Wheel Salon (from SS Okanagan) (1907)
 - Dredge Building (In original location)
- **Rock Outlook/Jetty** – Approximate length is 117 meters and is set at 17.5 degrees N/NE. This element has crush gravel surface only. There are no services available or any docking facilities along the rock outlook. Temporary moorage of boats or other watercraft during the summer days has not been encouraged in the past or formalized by the City.
- **Penticton Rose Garden** – Occupies a central portion of the site. This manicured garden is a contemplative space enjoyed by locals and tourists but it does not form an integral component of the marine related theme park. It is maintained by the City of Penticton Parks Department. Over the years, and with the support of local clubs, the rose garden has become more than an ornamental flower garden, and now containing “memory” plaques for deceased family of local residents.



- **Okanagan Lake Waterfront walkway Connection** – The City of Penticton recently completed the waterfront walkway extending eastward from the Kiwanis Pier

to the SS Sicamous. The intent is to continue this walkway into and through the Heritage Park, and making further connection out onto the rock outlook and further south along the Penticton River Channel. This multi-purpose facility has garnered praise from locals and tourists, and with the connection to the park it is expected to further enhance the tourism appeal of the City.



- **First Nations Land** – The PIB owns approximately 0.38 acres of land immediately adjacent to the channel and near the dam. (Size of parcel to be confirmed.) The property contains remnants of a small water feature/concrete pond surrounded by lawn, trees and shrubs. It has been abandoned for some time but the City of Penticton maintains it as the site is contiguous with the SS Sicamous area. Access is provided through a pathway that leads to the Canada Trail and connects the site to the adjacent Riverside Drive.



- **The Okanagan Lake Dam** – Although on the edge of the site, it is important to note this element as it influences future possibilities in the area. The dam was constructed in 1953 and is located at the outlet of Okanagan Lake. It is a reinforced concrete dam supported on approximately 500 timber bearing piles which extend to 10 meters below the base slab. The height of the dam is approximately 5.5 meters above the sill elevation except at the center bay where the deck is 7.3 meters above the sill. The dam spans 36.6 meters between abutments and occupies the full width of the River Channel. Each of the four outer bays are equipped with a steel vertical gate. The fifth bay, at the center, is designed to act as a spillway in the event of a severe flood.

The dam does pose some safety concern for boaters and swimmers, and therefore

nautical and recreational activity on the water near the outfall is restricted. The dam is owned by the Province, and operated by the Public Safety and Protection Branch of the Ministry of Forests, Lands and Natural Resource Operations out of Penticton Regional Offices.

- **Parking and Access** – Parking for visitors to the Park/SS Sicamous is generally located in two main areas: ① Adjacent to the Lakeshore Drive between the boat and the round-about. This area contains approximately 15 spaces and drop-off area. It is unrestricted/no parking fees/no meters. ② A large surface (paved) parking lot containing approximately 80 spaces is located adjacent to Loco Landing and within close proximity to the SS Sicamous. This is a public parking lot and allows for free parking. Some of the spaces are designated for use by Loco Landing. Parking is often filled to capacity during peak tourist season or major events.



Access to the park and into the parking is gained via Lakeshore Drive (east-west traffic) and Riverside Drive (north-south traffic). The SS Sicamous Restoration Society has voiced concern about issues such as need for better drop-off space, bus parking, disabled accessibility, pedestrian/vehicle conflict along the road edge, and access into the site for operations and maintenance vehicles. Another issue



raised by the public and stakeholder groups is the need for unloading/loading area for personal watercraft (canoes, kayaks, etc.). Lastly, the condition of the asphalt throughout this corner/adjacent parking space has been recognized to be in need of repair.

- **Lights** - Lighting for the site is largely contained near the SS Sicamous and in the vicinity of the Dredge Shed near the rear of the boat. The City of Penticton has introduced ornamental light standards as part of the major waterfront walkway project. It is expected that similar pathway lighting will continue into the park as enhancements proceed. The outlook/jetty does not contain any lights. The SS Sicamous Restoration Society maintains a **formal accent lighting program** for the ship itself, supporting the security and aesthetics of this year round attraction.
- **Landscaping** - The landscape within the study area varies from lawn areas in the vicinity of the SS Sicamous and the associated structures and exhibits to the more formalized plantings and shrub beds in the Rose Garden. The existing trees are the most significant landscape features of the site. A tree assessment was undertaken to evaluate 42 trees for health and structural stability. The trees were documented with measurements of diameter, height, and canopy spread. The condition, structural stability and retention potential were also assessed and tabulated, and the attributes were outlined in an accompanying report.

Of the 42 trees assessed:

- 22 were identified as having a retention rating of 1 (Good)
- 12 were identified as having a retention rating of 2 (Fair)
- 8 were identified as having a retention rating of 3 (Poor)

The 8 trees identified as having a poor rating have a high risk rating and action to mitigate the risk is required in the very near future.

Two Malus (crab apple) trees in the Rose Garden have been identified as heritage ornamental trees and a tree protection zone corresponding to the canopy drip should be observed during construction.

■ THE CITY OF PENTICTON HAS INTRODUCED ORNAMENTAL LIGHTING AS PART OF THE MAJOR WATERFRONT WALKWAY PROJECT



2.2 OWNERSHIP

Figure 2 illustrates the ownership and lease situation as of 2014. Generally, ownership and control as provided by the City's Lands Department is as follows:

Province of BC

City of Penticton

Penticton Indian Band



FIGURE 2



2.3 BATHYMETRIC / HYDRODYNAMICS

An integral component of the site appreciation has been a bathymetric survey and hydrodynamic study, both conducted in 2014. The findings represent a relatively finite understanding of the lake in the vicinity of the SS Sicamous. Nevertheless, this should not preclude more definitive assessment in particular areas of the lake or points along the shoreline where works may be involved during the implementation of the Plan elements. Such assessments, if required, could even be carried out along with future environmental permitting.

The following are highlights of the survey and the study noted above. More details of the hydrodynamic study and mapping (track route) for the bathymetric survey are contained in the Appendix.



FIGURE 3

BATHYMETRIC SURVEY

The bathymetric survey was based on recommended grid map of the area provided by Dr. Michael laasacson, P.Eng. of UBC Vancouver. The survey work on the lake was performed in May, 2014 using equipment known as a Lawrence Unit mounted on a boat provided by the City of Penticton Parks Department. The work was overseen by Brian Arquilla, MSc, RPBio of CTQ with the assistance

of City staff. The survey recorded depth of water to the floor of the lake extending out from the pier near the Penticton Lakeside Resort and Convention Center at the east end to the River Channel just west of the jetty at the SS Sicamous on the west end. (See Figure 3) Basically, the track route followed a linear progression from 25 feet at the outermost survey observations to 2 feet closest to the shore. Although surveying was undertaken to the west of the jetty just entering the River Channel, depths were not measured closer in towards the dam due to risk associated with the strong current in this location. It is not expected that any boat moorage will occur in this River Channel area nor is boating activity encouraged close to the dam.

The heavy siltation/sandy area along the Okanagan Lake beach between the pier near the Penticton Lakeside Hotel and the jetty at SS Sicamous has resulted in a gradual depth dropping from the shoreline to approximately 5-7 feet. Depths to approximately 30 feet were recorded well beyond the foreshore of the lake. (See Figure 4) Depths for the area in vicinity of the wetlands restoration on the western park's edge may need to be confirmed for erosion control and restoration works in the future. It is recognized that the shoreline area in question is controlled by the Province but with property interests by the City of Penticton and the PIB.



HYDRODYNAMIC STUDY

In consideration of building any boat moorage facilities or adding appurtenances to the jetty near the SS Sicamous, it is important to understand the hydrodynamics of the lake. Dr. Michael Isaacson of UBC was commissioned to undertake the hydrodynamic study. Dr. Isaacson determined immediately that there were virtually no historical studies or records available with respect to water/wave action in this area. Isaacson arrived at his hydrodynamic conclusions based on a site visit in May 2014, an understanding of the natural and man-made features along the foreshore (including Penticton Creek), a hind cast analysis to determine wave heights and wave periods, speaking to informants and from wind data provided by Environment Canada via the Penticton Airport. His study allowed him to garner an understanding of currents, sediment movement, and flushing characteristics, along with the wave action. This in turn led to

recommendations for any changes or improvements that would support potential day moorage dock construction. His conclusion addresses the following:

- Support for day moorage only on the east side of the jetty;
- If a large moorage facility (greater than 30 slips) is being considered, a breakwater extending east-west at the end of the jetty may be required;
- A pier/boardwalk on the east side of the SS Sicamous ship should incorporate piles as not to inhibit current flows; and,
- Upgrading of the jetty is likely required to incorporate the dock facility and a feature at its tip; safety features such as railings may be required especially at the viewpoint end.



FIGURE 4



2.4 ISSUES AND OPPORTUNITIES

A comprehensive list of issues or topics of discussion was raised by the VIG and various stakeholders at the outset of the project. These issues were generally described and mapped/illustrated for consideration by the public, and to assist in eliciting opinions and garnering feedback about the plan objectives and elements. Approximately 20 of those preliminary issues are referenced in Figure 5 and briefly described on following pages.



ISSUES



SS SICAMOUS AREA MASTER PLAN



Figure 5

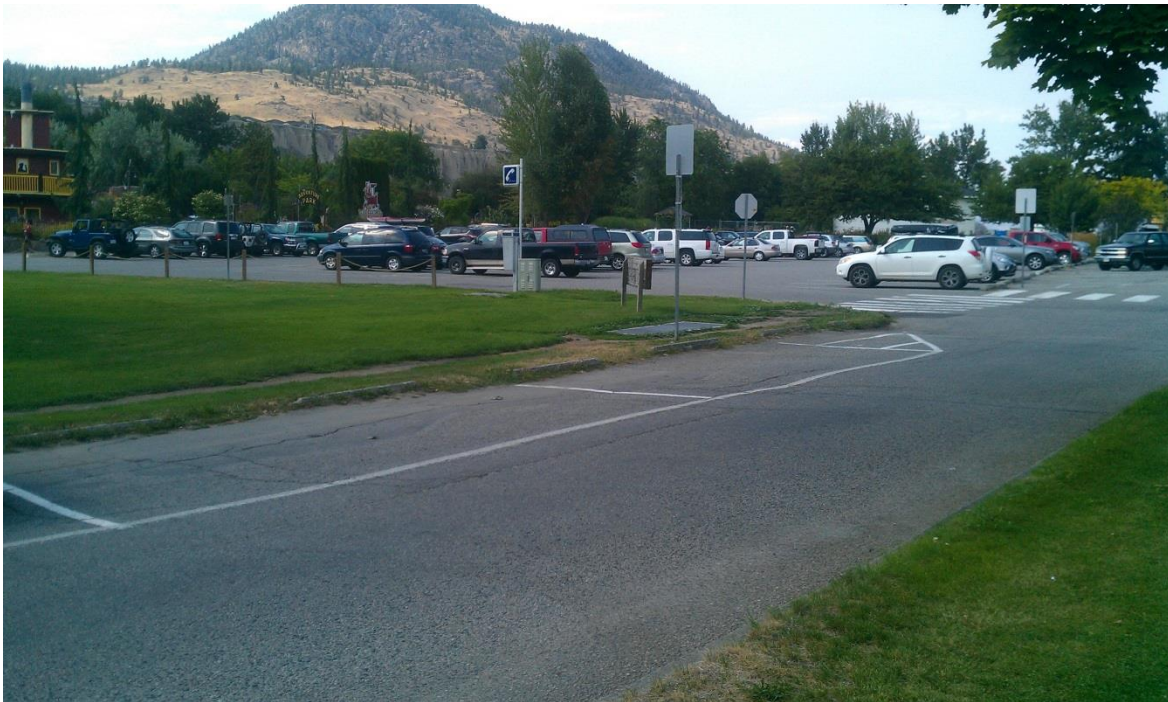


(No order of priority)

- **Sense of Entry/Gateway** – There is general consensus amongst the public and the VIG that the Heritage Park deserves a better sense of arrival or entry such as a gateway or plaza. This is also an area that is envisioned to accommodate visual appeal/aesthetics, public art, and gathering for special events and could serve as special profile for Penticton.
- **Future of the Rose Garden** – The garden is not integral to the marine theme, but is there value in retaining this special feature, and if so how can it be enhanced to benefit the community and the SS Sicamous Park area?
- **Parking to Support Growth** – As the Heritage Park becomes more of a tourist attraction, the need for vehicle parking, bus parking and drop-off areas will increase;

what are the options to satisfy potential demand?

- **Need for Pedestrian Connections** – The new Waterfront walkway along Okanagan Lake allows for pedestrian connections into and through the park, and ultimately with pathways (including the Trans Canada Trail) that will become part of a city-wide system. Such infrastructure should address pedestrian/bike and vehicle conflicts near the entryway to the park.
- **Potential Realignment of Roadway** – Lakeshore and Riverside Drives, along with the round-about near the entry to the park have long been considered for improvements to address traffic circulation, safety and general mobility in the area. The potential realignment of the roads and relocation of the round-about could also free-up land area for a park gateway/plaza as well as serve to expand the park itself.



- **Potential Enhancement of the Rock Outlook/Jetty** – Another feature that has received considerable attention in past years is the rock outlook. It is a functional element that currently serves to control water flow into the River Channel and to a more limited extent, to control siltation. It has the potential to become much more of a physical attribute for tourists and locals to enjoy the waterfront. The type and amount of possible improvements have ranged from simply surface upgrades to the jetty to allow ease of access, to including moorage of boats along part or all of its length, and even developing a major viewpoint or attraction at the end. Generally, the public is very supportive of some type of enhancements to this feature. (Although additional breakwater construction was contemplated, it does not appear necessary unless a large boat moorage area is to be constructed.)
- **Potential Moorage** – The most controversial issue has long been, and continues to be, the potential to construct day moorage for boats along the jetty. The Society and the business community have advocated that some moorage would benefit tourism by making the facility attractive to boaters coming to Penticton from the other communities along the lake. On the other hand, many residents have voiced concern about such moorage potentially causing conflict between power boats and recreational swimming or just beach recreation. Environmental impact has also been raised as a reason to avoid (power) boating activity in the vicinity of the beach. The debate has revolved around location, type and amount of boat slips.



■ THE MOST CONTROVERSIAL ISSUE HAS LONG BEEN, AND CONTINUES TO BE, THE POTENTIAL TO CONSTRUCT DAY MOORAGE



- **Means to Accommodate Power Boats and Human Powered Boats** – Along with the above-noted issue, ensuring that human powered boats such canoes and kayaks, are not compromised in this area by excessive power boat activity. Although the Heritage Park is primarily intended to commemorate steam power boats (due to the presence of the SS Sicamous), other forms of travel along the lake that preceded steam boats, must also be respected.
- **Opportunity for PIB Lands/First Nations Culture** – The PIB owns a strategically located parcel of land adjacent to the Rose Garden and the waterfront. It is thereby an integral part of the Heritage Park, and there is hope that the First Nations community will cooperate with the City/SS Sicamous Society to identify a compatible use. Historical boat building and interpretation of the Okanagan First Nations culture may be central to the theme of opportunity for the PIB lands.
- **Placement of New Structure/Artifacts** – The Heritage Park contains three ships and two buildings, all of which are central to the park and heritage marine theme. Restoration is considered to be a continuous activity ensuring maintenance of the artifacts and creating attractions for the park. There is always possibility of including more artifacts in the collection but care must be taken in how and where they are placed so that the character of the park space is not compromised. Similarly, any relocation of the current collection or the introduction of temporary installments must be considered as part of a comprehensive program. The open space, landscaped area, Rose Garden and the PIB land must all be carefully planned if changes are to occur so to avoid disruption to the overall experience of a waterfront Heritage Park.



- **Need for erosion control** – It is understood that a portion of the foreshore on the west side of the park is subject to continued erosion by the water flow entering the dam and River Channel. This edge is a mixture of failing retaining wall, rip-rap and wetlands. Restorative action may be integral to the enhancement of the park.
- **Concern for Risk to Boats near Dam** – As the water flow approaches the dam at the lake outlet; the current is faster and therefore presents risk to boats and human life. The Public Safety and Protection Branch of the responsible Provincial Ministry issues caution about allowing recreation in the vicinity of the dam. This concern for risk on the west side of the jetty (rock outlook) has been recognized as the main reason to avoid erecting docks/day moorage on that side, and therefore focusing potential (for moorage) on the east side only. As the park grows in profile, signs along the western edge and near the dam/River Channel should be erected to alert visitors of the risk.
- **Landscaping/Trees** – The entire site contains a mixture of lawn, shrubs and trees. This landscape forms part of the ambiance to help enjoy the Heritage Park. The landscaping program should be planned and designed to be compatible with other objectives of the Master Plan. Consideration is given to protection or removal of certain trees and shrubs. Any soft landscaped areas that are to be changed to hard landscaping (pavers, pathways, walls, concrete, etc.) may require some form of mitigation to retain some natural character.
- **Boardwalk** – Interest was expressed by the SS Sicamous Restoration Society, the public and Dr. Isaacson to include a small pier (boardwalk) on the starboard side of the

Sicamous. The boardwalk would satisfy several objectives, including separation of boating from swimmers; heritage access to the ship; and water play (i.e. allowing children to jump into water). It is noted that floating apparatus for summer time water play will be erected by the City just beyond the end of a proposed boardwalk.

- **Relationship to Adjacent Neighborhood** – The SS Sicamous park site is across the road from a mixed use residential and commercial neighborhood. Expansion or improvements to the park and the resulting tourism visitation should respect the relationship with residents and businesses in this area. Changes to Riverside Road and the round-about must ensure safe traffic and pedestrian mobility. Infrastructure such as sidewalks, crosswalks, boulevards and landscaping should address the needs of the adjacent neighborhood as well as the park upgrade requirements.



SECTION 3

PUBLIC CONSULTATION

This Master Plan has benefitted from considerable public engagement and consultation. Besides on-going communication with the Committee (VIG), the consultant undertook to receive input and feedback from the residents, stakeholders and City Council. The consultation was organized in such a fashion that permitted reviews of the consultant and committee work at the early stages of the project and once a series of concepts were created. The process allowed continued refinement and ultimately a final concept that would serve as the foundation for the Master Plan. The following provides an overview of the process.

- **MAY 2014** Project was initiated with a VIG and staff meetings to understand full background to the project and confirm how the project would proceed, including public consultation.
- **JUNE 3, 2014** A special meeting was held with PIB Council regarding the interest in their land at the SS Sicamous site, and an invitation to stay involved.
- **JUNE 11, 2014** A day-long Planning and Design Charrette was held with representatives of various stakeholder groups from Penticton. The results included a listing of issues, planning principles and initial concepts for the long-term development of the Heritage Park area (*See Section 4*);
- **JUNE 21, 2014** the first public survey was administered at the Peach City Cruise event. An outdoor booth complete with drawings, background information and a comment sheet/survey served to canvass the public

regarding opinions, ideas and issues related to the future potential of the SS Sicamous area. The consultants and City staff were available for the full day. Input was received via oral comments, indication of support directly applied to poster boards and written 'closed-ended' and 'open-ended' comment sheets handed out at the booth.

- The key questions addressed the following:
- Potential enhancement of the rock outlook
- Use of the Rose Garden space
- Potential addition of day-use Boat Moorage
- Showcasing First Nations culture on PIB land
- Pathways and Pedestrian connections into and through the site
- Buildings for storage of marine oriented recreation equipment
- Work sheds for interactive displays/boat building
- Entryway or plaza for greater profile of the park
- Public art installments, and signage for historical interpretation, and way finding
- Controlling potential conflict between swimmers and boats
- Roads and Parking enhancements in the vicinity of the park



Opportunity for feedback on this material was also afforded through the City's Website.



- **SEPTEMBER 27, 2014** the second public survey was administered at the Saturday Farmer’s Market on Main Street. This was another full day opportunity for the public to provide input, but this time, feedback and comments were solicited for four concepts that were prepared during the summer. Exit surveys and poster boards were made available to allow the public to record preferences for a concept. Such responses allowed the consultant and VIG to move towards a final concept plan that would then serve as the basis for this Master Plan.



- **OCTOBER 4, 2014**, a third opportunity for input was made available at the Cherry Lane Mall.



- **End of SEPTEMBER Beginning of OCTOBER, 2014** the survey and illustrative material was posted on the City’s website allowing the residents yet another opportunity for input and comment on the four concepts.

All survey results were combined and analyzed and then shared with the VIG and City Council. Meetings were again conducted with various stakeholder groups, including the SS Sicamous Restoration Society, the Waterfront Enhancement Committee and PIB. Throughout November and December, a final concept was chosen and refined with input from City Staff and the VIG.

SECTION 4

THE CHARRETTE

In early June, a day-long planning and design charrette was organized and held at the SS Sicamous. Several key representatives from various stakeholder groups were invited to participate. Participants included members of tour and adventure companies, local tourism businesses, Triathlon Club, Chamber of Commerce, Accommodation Industry, Penticton Museum, Waterfront Enhancement Committee, Penticton Marina, PIB, Province of BC (Forests, Lands and Natural Resource Operations), a local architect, Restaurants and the Penticton Tourism Office, along with the consultants and City Staff.



The charrette took the participants through a discussion of the issues, key goals or principles, followed by a design workshop that began to lay out some preliminary vision and concepts for the park area. The outcomes established a framework for the overall project but; most importantly, helped with the organization of the discussion topics for public consideration. The goals and principles also helped articulate the questions to the public.

In terms of framing the Plan/discussion, the charrette started with brief presentations on the following items:

- Heritage and Cultural – as it related to the marine theme, ship building, First Nations history, lake, tourism, etc. This set the tone for the basis of a heritage and interpretive based park using the marine/nautical theme as a foundation to the Master Plan.
- Waterfront/Recreation – use of the lake and waterfront as a major component of recreation in Penticton. This included an acknowledgment of the importance of boating, swimming, beach activities and water play near the SS Sicamous.
- Boats and Marine Theme – the SS Sicamous Restoration Society has the responsibility vested in them by the City of Penticton to protect the integrity of artifacts (boats and related equipment/buildings, etc.) and interpret the story of water transportation on Okanagan Lake.
- Tourism and Revenue Generation – The SS Sicamous is seen as an important tourist attraction for Penticton and the South Okanagan in general. As such there is value in enhancing the Heritage Park that accommodates the SS Sicamous. Tourism revenues can be used towards continued preservation and restoration, and economic development of the City.
- First Nations Interest – PIB’s interest is both cultural and economic. The availability of a strategically located property near their waterfront can help create many opportunities for PIB to become an integral part of the SS Sicamous Park vision.
- Hydrodynamics, Lake and Channel – the natural and man-made conditions of the water in the vicinity of the park must be understood to pursue the opportunities for enhancements to the SS Sicamous area. Items such as the water depth, flows and currents, the operations of the dam in the



River Channel and the natural environment will have implications on what can be built, activities permitted, etc.

- Roads, Access, Parking – Opportunities for relocating and improving transportation infrastructure near the park area were determined to be a critical ingredient for the success of the Heritage Park and transportation/mobility in general.
- Environmental Sensitivity – The Lake’s edge forms an important part of the park area. The fisheries and wetlands should not only be protected but the opportunity for interpretation of the natural environment can be integral to the marine theme.

KEY PRINCIPALS FOR THE SS SICAMOUS HERITAGE PARK

- Derived from the Charrette (in no order of priority and with minor editing)
- Respect the Environmental Integrity of the area (water, trees, wildlife)
- Living Museum should form an aspect of the park
- Include First Nations Culture displays
- Make it inviting for people to go out onto the rock outlook
- Resolve the Day Moorage Issue
- Integrate man-powered boats (canoe and kayak access)
- Make it a ‘people place’ for locals and tourists
- Enhance access to the Jetty/rock outlook
- Continue the walkway along the Okanagan Lake waterfront
- Consider a First Nations tourism anchor
- Enhance the entrance/curb appeal
- Security for the artifacts

- Enhance the rock outlook
- Provide a venue to profile tourism
- It should be a public attraction with little or no charge for entry
- Celebrate the water’s edge
- Maximize the property/use it efficiently, put investment in the right places
- Unified vision – provide some consistency in design throughout the site
- Promote the nautical/marine theme
- Ship Preservation
- Obtain national recognition (Coordinate “designation” of the Heritage Park through Penticton Area MP and MLA)
- Include a Maritime museum
- A Kiosk/Gazebo at the end of the Jetty/Rock Outlook
- Include public washroom on site
- Storage security for paddle boats
- Outdoor recreation culture - boat building with First Nations
- All Seasons programming and use
- Tour/tourism booking office/kiosk
- Carvers and artisans to enhance ambiance

■ TOURISM REVENUES CAN BE USED TOWARDS CONTINUED PRESERVATION AND RESTORATION, AND ECONOMIC DEVELOPMENT OF THE CITY



4.1 PRELIMINARY VISION AND CONCEPTS

Figures 6 and 7 are the preliminary sketches and illustrations that were created during the day-long workshop/charrette. The participants worked in two teams that offered their vision and ideas of what could or should happen to the SS Sicamous area in the future. The concepts were intended to reflect principles that they had articulated earlier in the day, but more importantly to provide a visual representation to help understand how many of the elements could be contained and evolve on the site. These sketches and illustrations, along with supporting graphics (to help describe the elements) were used to elicit feedback at the public events.

Some of the key aspects of the preliminary concepts that were captured are as follows:

- Relocation of the parking/drop-off zone
- Smaller round-about than currently exists
- First Nations opportunities on PIB land – boat building, retail/gifts, washroom
- First Nations cultural element/center
- Marine art/sculptures in keeping with the park theme
- New plaza and drop-off area
- Wetland restoration and viewing platforms near River Channel
- Visitors center near Dredge Shed
- Boat house
- Paddle Beach/paddling Area
- Relocated Rose Garden
- Multi-purpose pathway
- Boardwalk
- Fountains
- Limited of boat moorage/dock along Jetty



Figure 6

- Special feature at end of Jetty
- Buoys to protect swimming zone





Figure 7



SECTION 5

SITE PLAN OPTIONS

During the summer of 2014 CTQ prepared four site plan options or concepts that were then reviewed by the public, the VIG and City Council. (The four concepts were released to the public on September 27, 2014 at the Farmer’s Market.) The planning and design of the four options was informed by the results of the surveys (Peach City Cruise and website), the initial VIG input, the Charrette and the consultant’s analysis of the site. (See Figures 8, 9, 10 and 11)

The following is a brief description of each of the four concepts. They varied based on the level of focus on certain elements, inclusion of certain elements or how various elements related to the site and the other elements. Some elements are included throughout all four concepts but may entail various intensities of investment.

5.1 CONCEPT 1

- Significant focus/priority is placed on the Rock Outlook/Jetty. This would include hard surface treatment, lighting, safety rails and a major viewpoint feature. The public was strongly in support of enhancing this element.
- Allowance for approximately 30 boat slips for day moorage on the east side of the jetty. Such an element would necessitate a breakwater, buoys and possible small boardwalk to separate boaters from swimmers to the east of the SS Sicamous.
- No major entryway or plaza, but minor landscaping and bollards would be used to delineate park from the roadway.

- Major connecting pathway spine allowing visitors easy access to jetty, the interpretive area where the boats are displayed, and around the rose garden to a First Nations Cultural facility
- The existing round-about would remain in place with minor improvements.
- The parking lot remains as is with access/egress at Churchill Avenue.
- Rose Garden is enhanced in size and would include pathways, trellis and gazebo treatment.
- First Nations facility could include observation deck adjacent to water; the facility is connected via the circular pathway and boardwalk or trail near the waterfront.



FIGURE 8



5.2 CONCEPT 2

- Focus is on creating large entryway/plaza (say 75-80 m across) which would result in moving the round-about southward to Churchill Avenue intersection with Riverside Drive.
- Parking lot is expanded by approximately 35 more spaces.
- Roadway is shifted to combined two-way carriageway allowing for efficient movement of traffic, safe movement of pedestrians and convenient access into expanded parking lot. The new round-about and roadway would create a transition into the tourist area, calming traffic and announcing arrival.
- Day moorage is limited to approximately seven boat slips on the east side of the jetty. A boardwalk on the east side of the SS Sicamous ship would not need to extend into the water if boating is limited in this area.



FIGURE 9

5.3 CONCEPT 3

- A smaller entryway/plaza (say 35-40 m across) which permits the divided roadway to remain, but the round-about is removed; a turn-around is created just north of the Churchill Avenue/Riverside intersection.
- Divided lanes allow for planted median (large trees) to continue northward along Riverside Drive.
- The connecting pathway spine system would be similar to Concept A, linking the jetty, marine history area, Rose Garden and the First Nations cultural facility.
- There is still some attention devoted to enhancing the jetty with surfacing and a minor viewpoint feature at the end.



FIGURE 10



5.4 CONCEPT 4

- An intermediately sized plaza forms the focal point of the park, around which will be located the marine interpretive area (boats/building), and access to the jetty, a view deck, the Rose Garden and the parking lot.
- The Rose Garden is re-established and enhanced along a crossing of pathways between the grand plaza and the First Nations Cultural facility.
- The Rose Garden, although repositioned, is enhanced to still allow it to be a contemplative space, aesthetically pleasing and have the ability to relate to the remainder of the park.
- The First Nations Pavilion is visible upon immediate entry to the plaza, and can be accessed through the Rose Garden via a landscaped pathway.



FIGURE 11

■ THE PLANNING AND DESIGN OF THE FOUR OPTIONS WAS INFORMED BY THE RESULTS OF THE SURVEYS, VIG INPUT, THE CHARRETTE AND CONSULTANT'S ANALYSIS OF THE SITE.

- *NOTE: Images of the various elements are contained in Section 8.*



SECTION 6

SURVEY RESULTS

This section provides an overview of the public input obtained via various surveys and communication noted in Section 3. The surveys were not intended to achieve statistical validity but the results from two main public input sessions, the two website postings, and attendance at Cherry Lane Mall, have provided sufficient and clear direction to the consultant and the VIG. The support, lack of support and concerns expressed for various elements or even the entire project has helped provide guidance to the Master Plan. The feeling of the VIG and the Consultant is that there is a mandate for the City to proceed. It is understood that costs were not included as criteria in any of the surveys, but the City is cognizant of proceeding with any upgrades in the most fiscally responsible manner and with a phased program of works. Government grants and other sources of funding are being sought accordingly.

6.1 SURVEY AT PEACH CITY BEACH CRUISE – JUNE 21 2014

Table 1 provides an indication of support for the various elements presented in the survey. The four that ranked highest were generally supported in the other surveys. Conversely, it is important to note that the relocation of the Rose Garden was the least supported, followed closely by the introduction of day moorage. It was understood that the boat moorage has been a controversial subject, nevertheless there was more support than non-support expressed in the surveys.

INDICATION OF SUPPORT

	Support	Not Support	Unsure
First Nations Cultural Centre/Facility	41	7	2
Plaza/Entryway	40	7	1
Enhance Rock Outlook	35	4	1
Pathways/Connections	34	5	
Roadway/Parking Upgrades	28	6	
Canoe/Kayak Storage Building	23	8	
Public Art/Signage	19	6	
Means to Control Conflict in Lake	18	7	
Worksheds	14	9	
Day Moorage	24	16	
Rose Garden Relocation	16	28	

Table 1

Seventeen comment sheets were returned. Eleven were supportive of most elements. Three were not supportive of almost every element; the remainder largely reflected the ratings above. Comments were also recorded on post-its left on the boards and noted through verbal communication at the survey booth. The majority of the comments reflected the concern about the possible impacts/conflicts with boats if moorage is introduced into the area.

- THE MAJORITY OF THE COMMENTS REFLECTED CONCERN ABOUT POSSIBLE IMPACTS/CONFLICTS WITH BOATS IF MOORAGE IS INTRODUCED – [RESULTS FROM SURVEYS AT PEACH CITY BEACH CRUISE SURVEY BOOTH.]



6.2 WEBSITE SURVEY

Table 2 provides an indication of support for the same elements that were presented in the first survey. Since the website survey approach did not have benefit of City staff or consultants being available to explain various aspects, the results were slightly different. Nevertheless, three of the four top ranked elements in the previous survey were still at the top of the list according to 22 respondents that participated in the website survey. The same graphics were made available on-line. The main difference of note: the entry plaza dropped in level of importance; the need to address conflict between boaters and swimmers rose to the top. The implications of both results have been respected in the Master Plan.

PUBLIC FEEDBACK

Via Website Survey – City of Penticton – 3 week period – 22 respondents

Element	Support
1. Pathway and Pedestrian Connections	70% Very High
2. Separate Conflict Between Boaters/Swimmers	77% Very High
3. First Nations Centre	64% High
4. Boardwalk/Outlook	60% High
5. Roads/Parking	58% Significant
6. Public Art and Signage	54% Significant
7. Entry Plaza (Design Implications)	45% (23% Low) Less Significant
8. Day Moorage	45% (36% Low) Less Significant
9. Canoe and Kayak Storage	41% (32% Low) Less Significant
10. Rose Garden – Reuse/Relocation	53% (34% Low) Less Significant
11. Work Sheds and Interactive Displays	32% (50% Low) Minor

Table 2

Elements such as the Day Moorage and the relocation of the Rose Garden received less support indicating that the community is certainly divided on these topics. The planning and design work has consequently respected these sentiments.

The results of these preliminary surveys were provided to and discussed with the VIG,

Waterfront Committee, PIB and Council. It was agreed that there was considerable support and reason to proceed with the inclusion of the following as key aspects of the Master Plan:

- A First Nations Cultural Facility – celebrating the Indigenous peoples heritage in the Okanagan.
- Enhancement of the Rock Outlook/Jetty – allowing residents and visitors to enjoy the lake.
- Pathways and Connections – enhancement of pedestrian movement into, through and within the park.
- Some form of entry feature or plaza – creating a greater profile and curb appeal for the park.
- Improvement of Parking/Roads – ensuring safe and efficient movement of vehicles, pedestrians and cyclists through the area.



6.3 SURVEYS TO REVIEW OPTIONS

- Survey at Farmer’s Market – September 27
- Cherry Lane Mall – October 4
- City Website – Sept/Oct

The four concept plans noted in Section 5 were presented to the public on three occasions, with the bulk of the input provided at the Farmer’s Market. 130 people completed surveys; 122 people posted their preference for a concept. The largest group (42%) selected Concept 4. (See Table 3) The details of the preferred concept will be described in Section 7.

OPEN HOUSE – RESULTS OF CONCEPT CHOICE

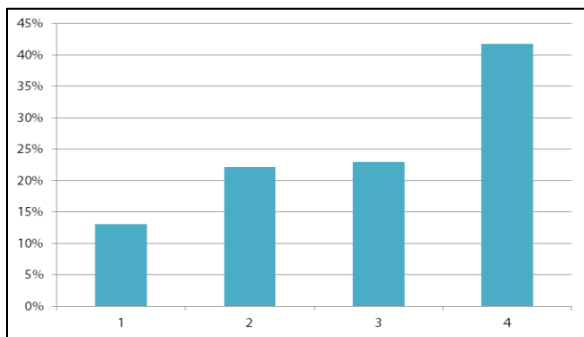


Table 3

Out of 122 people, the largest group selected Concept 4, which consists of:

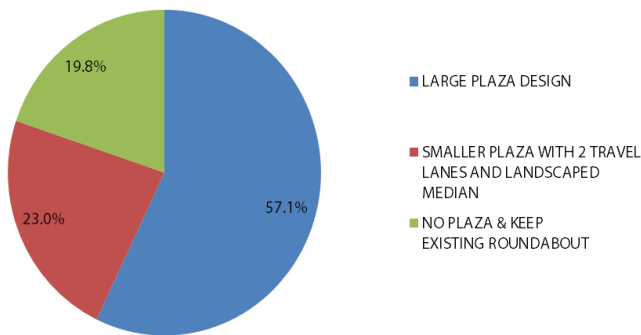
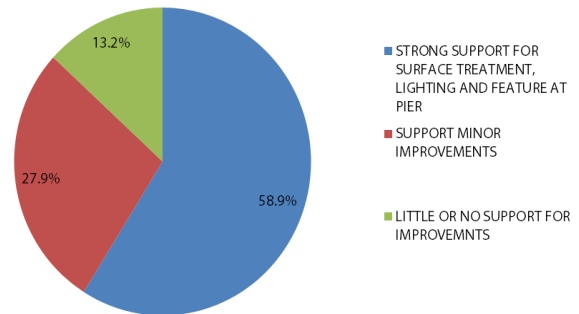
- A large plaza area
- New round-about at Churchill Avenue
- Expanded parking lot
- Enhanced rose garden
- Limited day moorage

■ THE OPINION OF THE VIG AND THE CONSULTANT IS THAT THERE IS A MANDATE FOR THE CITY TO PROCEED



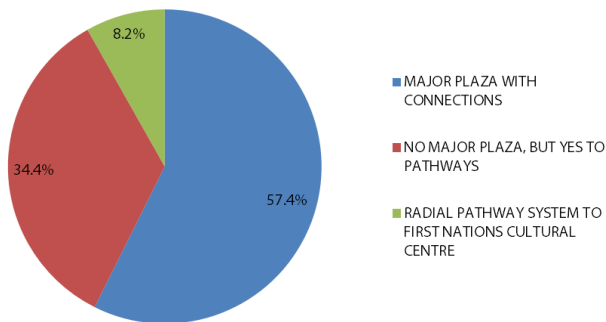
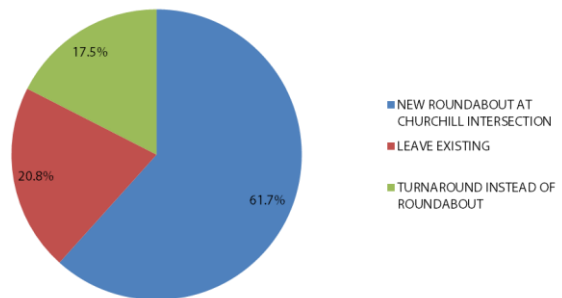
Other important findings from this last set of surveys included the following:

- Enhancement of the rock outlook – 90% of respondents supported; 60% very strong support



- Plaza/Entryway – 80% supported some form of plaza; 57% of respondents supported a larger plaza design

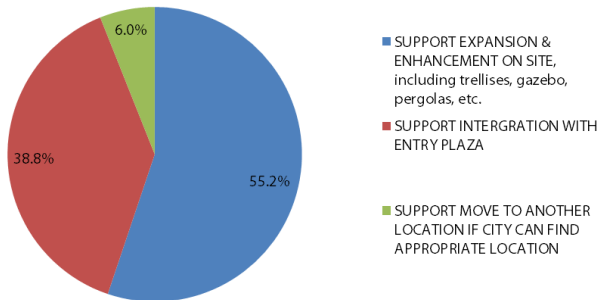
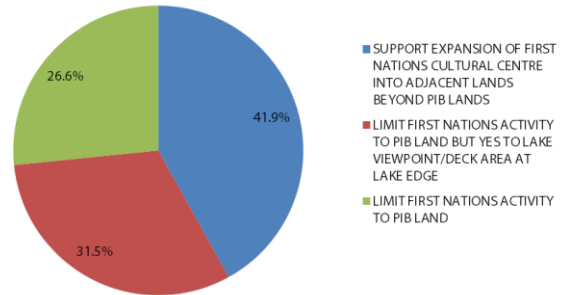
- Round-about and Road Changes – 61% supported the round-about at Churchill Avenue



- walkways – 100% supported any form of walkway; 57% supported connections to key elements of the park as shown in Concepts 2 and 4

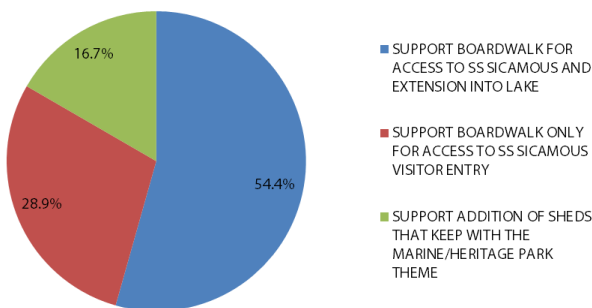
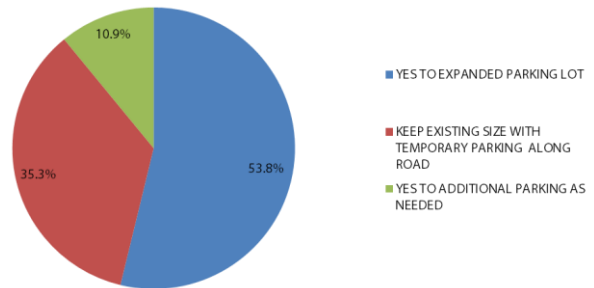


- PIB Cultural Centre – 42% supported expansion of First Nations Cultural Centre into adjacent lands beyond PIB lands; 32% supported viewpoint/deck at lake edge instead of expansion into other land areas



- Rose Garden – 55% supported an enhanced Rose Garden as shown in all concepts; an additional 39% supported integration of the garden with the entry plaza

- Parking – 54% supported an expanded parking lot as shown in Concept 2 and 4; an additional 11% supported parking as needed, including drop-off areas



- Boardwalk and Sheds – 54% would like to see a boardwalk near the SS Sicamous extend into the lake, as in Concept 1 and 3



- Day Moorage – 61% wanted limited (eight or less slips) or no day moorage at all; combined responses from survey questions, written comments and notes attached to display boards: 65% want limited or no day moorage; approximately 42% want no day moorage at all

Survey Results on Day Moorage

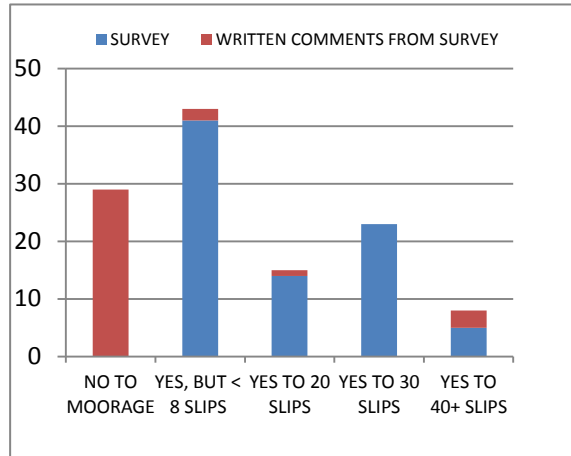


Table 4

Survey Results on Other Elements

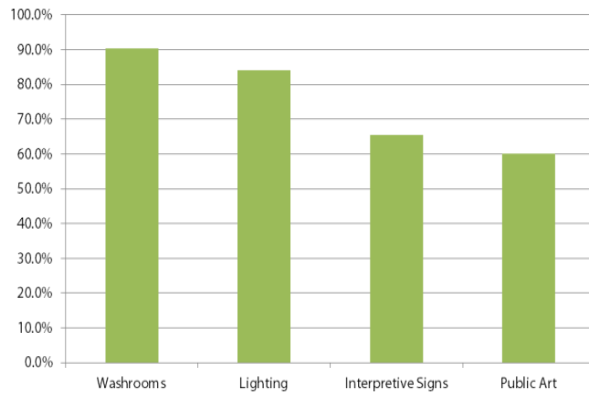


Table 5

- Other Elements – Washrooms and lighting received the highest support; interpretive signs received considerable support; and public art was still considerable but slightly less in popularity

The written comments that referenced day moorage were interpreted as follows:

- 29 were against any day moorage
- 2 comments were in support of limited day moorage
- 1 comment supported 20 slips with room to expand
- 3 comments were in support of 42 slips



SECTION 7

THE PREFERRED CONCEPT PLAN

7.1 MAIN FEATURES

Figure 12 illustrates the finalized concept that serves as the basis for this Master Plan. It has resulted from significant input and included strategic allocation of the various elements on the site. The main features are interrelated or co-dependent that allows synergy and continuity for the park. If one of the features is changed dramatically it may have significant implications for one or more of the other elements.



■ IF ONE OF THE FEATURES OR ELEMENTS ARE CHANGED DRAMATICALLY IT MAY HAVE SIGNIFICANT IMPLICATIONS FOR ONE OR MORE OF THE OTHER ELEMENTS

CONCEPT PLAN



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SS SICAMOUS AREA MASTER PLAN



Figure 12



1. **A major plaza** that will serve as the gateway to the park, become a focal point for the city and can accommodate marine/nautical displays, public art and theme related events.
2. **Connecting walkways** including the extension of the Okanagan Lake walkway and pathways that allow convenient access to the various attractions and destinations in and around the park. The pathways that will radiate from the plaza will connect to jetty, to the Ships, to the Rose Garden and to the PIB Cultural Facility. The visitor to the park can conveniently walk from the south end of the parking lot to the extreme end of the jetty without interruption by traffic.
3. **The enhanced rock outlook/jetty** will be a new feature attraction for Penticton. It will be enhanced to give it the profile it deserves with new surface treatment, lighting, possibly safety rails and a viewpoint or grander development at the end of the jetty.
4. **A small dock**, approximately 200 feet in length will accommodate five to seven boat slips for day moorage. It will be attached to the east side of the jetty.
5. **An enhanced Rose Garden** will feature upgraded planting beds, trellis and gazebo that will improve the contemplative space and integrate it with remainder of the park.



NOTE: 3D Images from various angles

6. **The round-about** will be shifted to Churchill Avenue, and along with an improved **roadway** at the northern end of Riverside Drive, greater space will be created to permit a proper entry area/plaza. The transportation improvements in this area are expected to enhance traffic mobility, pedestrian safety, bus parking and convenient drop-off zones. Other initiatives such as the expanded parking lot and upgrades to infrastructure such as drainage will also be considered in tandem with the road works.



7. **The expanded public parking lot** next to Loco Landing will add much needed spaces for the expected increased visitation as well as the current peak tourist periods. Approximately 120 spaces will be accommodated.
8. A **boardwalk** that will serve as a new entrance to the ship and extends into the lake for water play, also addresses the need for a visual barrier between any boats and swimmers near the bow of the SS Sicamous.
9. **PIB Native Cultural Centre** is expected to form an integral part of the park. A pedestrian connection will be made through the Rose Garden direct to the PIB lands. The access will permit delivery vans and emergency vehicles to enter and exit the site.
10. **Viewing decks** are proposed in two locations. These are intended to extend over the water to add to interpretive value. One is located on the PIB site and associated with the First Nations pavilion while the other becomes integral to the wetlands restoration area or marine interpretation area.
11. **Landscaping/park grounds** have been committed in two different ways: One is the area just north of the Dredge Shed where additional sheds or artifacts could be located. The other space (in green) is intended as lawns, landscaping and trees.
12. A **canoe/kayak launch area** will be protected on the port side of the SS Sicamous ship.
13. Erosion control along with **wetlands restoration** on the west side of the park site will be required eventually. An elevated **boardwalk** through the wetlands is yet another opportunity to allow visitors to experience the water's edge.



Note: 3D Images from various angles



7.2 RELATIONSHIP TO KEY PRINCIPLES

MARINE HERITAGE INTERPRETATION/ PRESERVATION OF SHIPS



The site plan is conducive to heritage interpretation and preservation of the ship as follows:

- Keeps the focus of the ship collection near the water
- Allows working area near ships, including new boatshed, living museum
- PIB Cultural Centre becomes integral to marine interpretation (long boats, fur trade, etc.)
- Plaza becomes central focus for marine displays, workshops, temporary exhibits
- Service vehicle access into the working area is enhanced
- Interpretive signage program and way-finding signs will help present a unified theme
- Space for organized antique and classic boat shows, steam engine exhibits, restoration projects

- Greater opportunity for security of the collection

TOURISM DEVELOPMENT

The concept plan offers the following possibilities to promote tourism profile for Penticton:

- The entry plaza becomes a tourism attraction unto itself; it can be animated, programmed and iconic for recognition beyond Penticton
- The enhancement of the jetty will become a natural draw to experience the lake without having to get into the water
- The Heritage Park becomes a destination that will serve to add to the critical mass of attractions in the downtown/Okanagan Lake waterfront area; pedestrian movement along the new waterfront walkway will create an inviting ambiance
- The First Nations Center, properly programmed, can become an international tourism draw

CELEBRATE FIRST NATIONS CULTURE

A First Nations Cultural center can take many forms with programming indoors or outdoors. The chosen site plan envisions opportunities for year round interpretation indoors and space for exhibits or outdoor events. The connection to the waterfront with a viewing deck adds considerable opportunity to enhance the visitor experience, interpretation of culture, and viewing the natural/aquatic environment. The site plan calls for physical integration of the cultural center building(s) with a direct sightline from the entry plaza and with pedestrian pathways through the Rose Garden.





ENVIRONMENTAL INTEGRITY

Any works conducted in the water/foreshore will require a permit from the Province. A wetlands restoration report for the west shore in the vicinity of the Stern Wheel Salon was prepared for the SS Sicamous Society but a works plan was never submitted. Other works will be in relatively shallow areas where shoreline spawning does not exist. Projects include two viewing decks on the west side, the boardwalk pier near the SS Sicamous, the small dock along the existing jetty and potentially the viewpoint at the end of the jetty. Materials are wood pile support structures and pressure treated timbers for decking and fascia.

On-site terrestrial wildlife or bird species are not an issue. Two resident beavers have been known to use the area as part of their habitat.

Care will be taken to either integrate them with the wetlands restoration or if deemed a hazard they can be relocated to a more suitable location.

LAND USE

The only major land use change will involve the relocation of the round-about and the shifting of a short section of Riverside Drive. A minor land use change will involve the shifting of the Rose Garden westward to allow the entry plaza to be accommodated in the best location. The public parking lot will be expanded but part of it will take up the old road right-of-way. A small extension will be added to the south end of the lot, onto vacant City-owned land.

CURB APPEAL

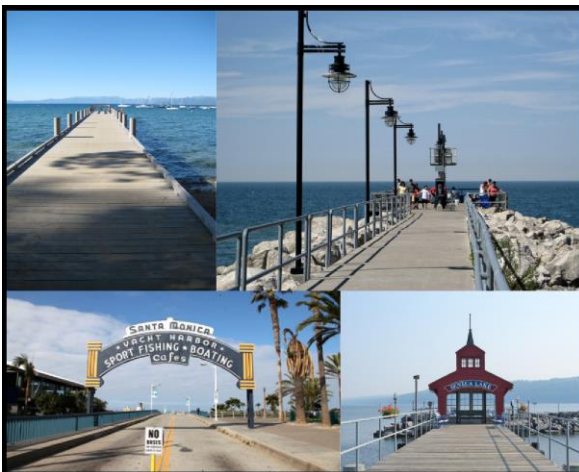
The introduction of an entry plaza will provide significant curb appeal and announcement of arrival at a special place. This was an aspect that received considerable support from the public and all stakeholders. The scale of the plaza is of a reasonable size to make a statement while efficiently accommodating several features such as space for events, public art, a fountain or iconic sculpture, seating areas and landscaping. It is expected that the entry plaza can be viewed coming northward along Riverside or westward along Lakeshore. The aesthetic value will be an important contribution to the park and complement the beauty of Okanagan Lake.



INTERACTION WITH THE LAKE

The chosen site plan has incorporated several opportunities to allow the visitor to interact with the water; the following are instrumental in achieving this objective:

- Jetty – Passive, walking, relaxing, views of lake, perspective of waterfront, access to boat dock, accessible day and night.
- Viewpoints/decks – three main viewing platforms, interpretive information, contemplative space, seating, view nautical events, fishing, and complements programs occurring on the ship, in the Cultural Centre and on the main grounds.
- Water play/access areas – Main water play areas include the canoe/kayak launch beach, the boardwalk at the SS Sicamous and the swim beach to the east of the SS Sicamous. Larger play apparatus on the lake can be easily accessed from the swim beach.



BOATS – MOORAGE, STORAGE AND USE

Both man-powered and motor boats have been accommodated in the plan. A small day moorage dock will allow up to five to seven slips for boaters to park their craft and enjoy the nearby attractions and restaurants. A building to store canoes and kayaks will be provided in close proximity to the water and the launch area. Motor boats and human powered boats will be directed to the open water along designated areas with the use of log booms/buoys, signs and zoning regulations.

MOBILITY/ACCESS/CONNECTIONS

The plan has clearly respected the need to improve vehicle, pedestrian and cycling mobility in the area around the SS Sicamous Heritage Park. This has been addressed with the relocated round-about and Riverside Drive. This infrastructure upgrade allows for convenient and safe drop-off zones, bike lanes, walkway connection into the park and an expanded public parking lot. The improvements will make the area pedestrian friendly with major and minor crosswalks, an interconnected pathway system with the Canada Trail, Okanagan Lake Waterfront walkway and the City sidewalks, and internal pathways.



SECTION 8

THE GOALS AND OBJECTIVES: KEY ELEMENTS

8.1 ENHANCEMENT OF THE ROSE GARDEN

GOAL: To Enhance the Penticton Rose Garden and Integrate it with the Heritage Park



OBJECTIVES

- A. Design to include hard surface pathways through the garden, connecting the Grand Plaza (entryway) to the First Nations Centre and the parking lot to the core of the park.
- B. Design to include structural trellis and gazebo to allow visitors refuge from sun and heat. Climbing roses can complement the trellis along the walkways.
- C. The design will allow for repositioning the rose garden to the west, making more space available for the entry plaza.
- D. Seating will be included and compatible with furniture in other parts of the heritage park. Furniture can be included in a donor program to help off-set costs.
- E. Public art/signage will announce entry to the garden.
- F. Although the new space is still expected to be a contemplative/ornamental garden, it should not preclude use of the space or features (e.g. gazebo) to be programmed occasionally with music, readings, or artist displays.
- G. A barrier-free pedestrian path that can also serve as a service access to the PIB property will form part of the Rose Garden enhancement. (Also see 8. 12-C)



8.2 UPGRADES TO THE ROCK OUTLOOK/JETTY

GOAL: To upgrade the rock outlook (jetty) to make it more inviting to visitors and for it to become an integral feature of the heritage marine park.

Note: It is not the intent to turn this feature into a “pier”; however a small (day moorage) boat dock is proposed to be constructed alongside the jetty, wherein pier-type construction materials such as piles, decking and fascia would be used.





OBJECTIVES:

- A.** The surface of the jetty will be made more accessible with the addition of a concrete deck. Consideration should be given to wheel chair accessibility, efficient maintenance and ability to withstand service vehicle access to the point and light delivery to the moored boats.
- B.** Improvements will include lights, safety rails and utilities such as electrical, water supply and sanitary sewer connection. The intent is to consider sufficient municipal service to permit a small restaurant or other attraction at the end of the jetty, should such ever be warranted in the future.
- C.** A special feature forming a “destination” or rest area such as a viewing deck or gazebo at the end of the jetty should be considered to truly make the jetty inviting. Such a feature could include things such as: viewing deck (elevated), mounted telescope, seating, interpretive plaques, permanent art, underwater sculptures, etc. Accent lighting would assist to draw visitors out to the end of the jetty.
- D.** A gateway located at the entry to the rock outlook/jetty may take the form of an arch, pilasters, public art, wrought iron gate or simply a sign announcing arrival at the “SS Sicamous Heritage Park Jetty”. The jetty should be a public area open at all times but rules of use may be posted near the entry.



8.3 DAY MOORAGE

GOAL: To provide a small boat docking area along the east side of the jetty for day moorage/short duration use.

OBJECTIVES:

A. Design will include a wood pile-supported dock with wood or composite decking and fascia large enough to accommodate approximately seven large water craft. Design may include opportunities for expansion should demand warrant and subject to public support.

Electrical and water services should be made available but fuel or sani station is not envisioned as the nearby Penticton Yacht and Marina offers a gas dock with marine fuel and septic service pump outs along

with some food and beverage, temporary and guest moorage and boat rentals. (See 8.2 – B Re: Services along the jetty)

- B.** The length and width of the dock/slips will be subject to detailed design; however Shoreline Pile Driving has estimated a structure of approximately 10 x 200 feet for a preliminary cost estimate.
- C.** A log boom will be used to control movement of boats/separation of power boats from personal watercraft or swimming area. Signage is also recommended to avoid conflict between all recreational activities in the vicinity of the jetty and the SS Sicamous Park. (See Section 12 – Implementation)



8.4 FIRST NATIONS CULTURAL CENTRE

GOAL: To encourage the PIB to develop a small facility that would celebrate First Nations/historical culture of the Okanagan Valley settlement and marine use.

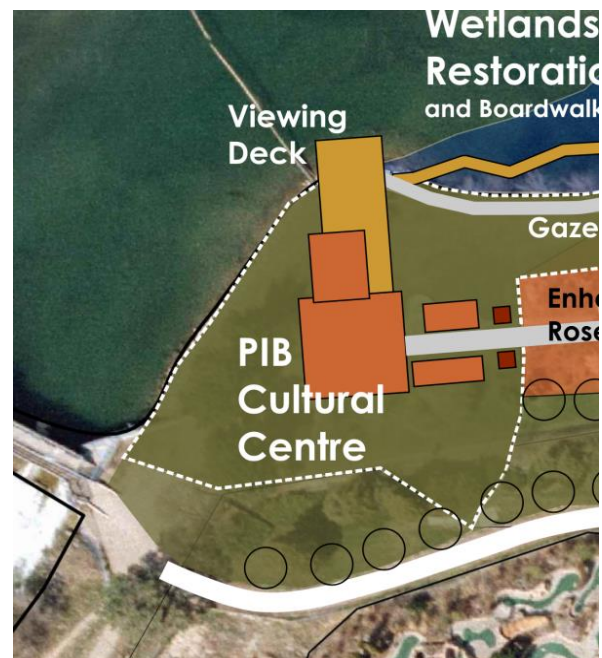


OBJECTIVES:

- A.** The City of Penticton and SS Sicamous Restoration Society will work with the PIB to plan and design a facility that includes both indoor and outdoor space that can be used and programmed to profile First Nations/Okanagan native culture and that can be integrated with remainder of the Heritage Marine Park theme.
- B.** Boats/boat building of First Nations historic watercraft (dugout canoes, war canoes, and transport boats) could be profiled in static displays, live restoration displays and during special events and celebrations. The site should be planned to allow both outdoor

and indoor storage of boats, paddles and related artifacts.

- C.** The First Nations Centre could include one or a combination of two or more strategically planned and designed smaller buildings, viewing decks and outdoor activity areas. Careful integration with the adjacent Rose Garden and remainder of the Heritage Park would allow for compatibility of the park program and ease of movement for the visitor to the site.
- D.** Programming and events for the First Nations Centre is expected to be the responsibility of PIB, however, combined planning with the SS Sicamous Restoration Society and the City of Penticton would benefit marketing, tourism and overall operations of the park.



CONCEPT ONLY

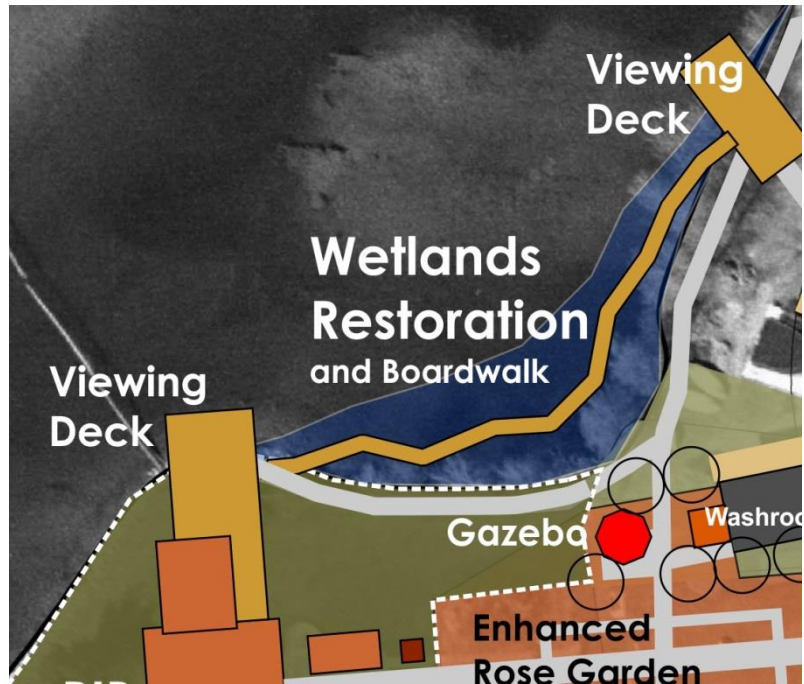


8.5 WETLANDS RESTORATION AND EROSION CONTROL

GOAL: To protect integrity of the shoreline on the western edge of the park near the outflow of Okanagan Lake.

OBJECTIVES:

- A. Approximately 100 meters of the shoreline along the channel inlet is to be considered for erosion control/waterfront rehabilitation. The shoreline abuts property that is the responsibility of PIB, the City and the Province. Cooperative action is necessary to move forward with further planning and design of this area and the means to use rip-rap to rehabilitate the shoreline slope. Levelton Consultants has provided a preliminary investigation and concluded that a rip-rap surfaced slope would be feasible in the proposed shoreline and boardwalk area. They have also concluded that a raised walkway and viewing deck within the rip-rap slope area and/or grade-supported walkway along the park area above the slope would be feasible.
- B. Wetlands restoration is an integral component of the shoreline rehabilitation area. Works to include shoreline materials (plants, etc.) will be undertaken under the direction of a QEP/RPBio and subject to permitting by the Province of BC (Natural Resources Department).



- C. Long-term protection of the wetlands can be enhanced by allowing residents and visitors to better appreciate the natural environment in this area, be they fish, plants, beavers or birds that would typically seek habitat on the water's edge. This objective calls for a boardwalk, viewing deck and interpretive signage to complement the restoration of the wetlands.





8.6 PADDLE BOAT AREA

GOAL: To protect a beach area on the port side of the ship for lake access by human powered boats.

OBJECTIVES:

- A.** The area is to be defined by floating log boom, buoys, and a boardwalk along with signage to manage users/recreational activity in this area.
- B.** A launch area along the beach will permit resting of canoes, kayaks and small sail boats that can be carried from the public parking lot or drop-off zones on the road. The area will need to be managed to avoid overcrowding during put in and take out of the water craft, especially during instruction of large classes and sporting/ racing events. Boats to be rented should not be stored on the foreshore/beach area.
- C.** A boatshed in the vicinity of launch area (see Figure 13) can be provided for short-term storage of canoes and kayaks. The SS Sicamous Restoration Society should view this as an opportunity for revenue generation if a secure building can be constructed.



Figure 13



8.7 BUILDINGS AND SITE IMPROVEMENTS

GOAL: To accommodate strategically located buildings and site improvements that will complement the marine park program, aesthetics and support the needs of visitors.

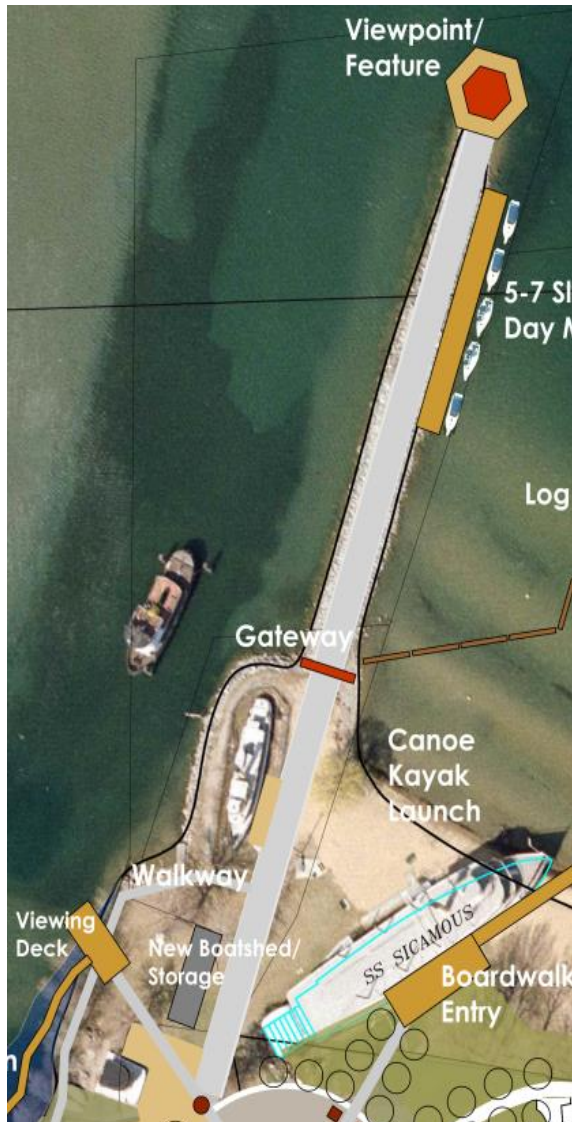


Figure 14

OBJECTIVES:

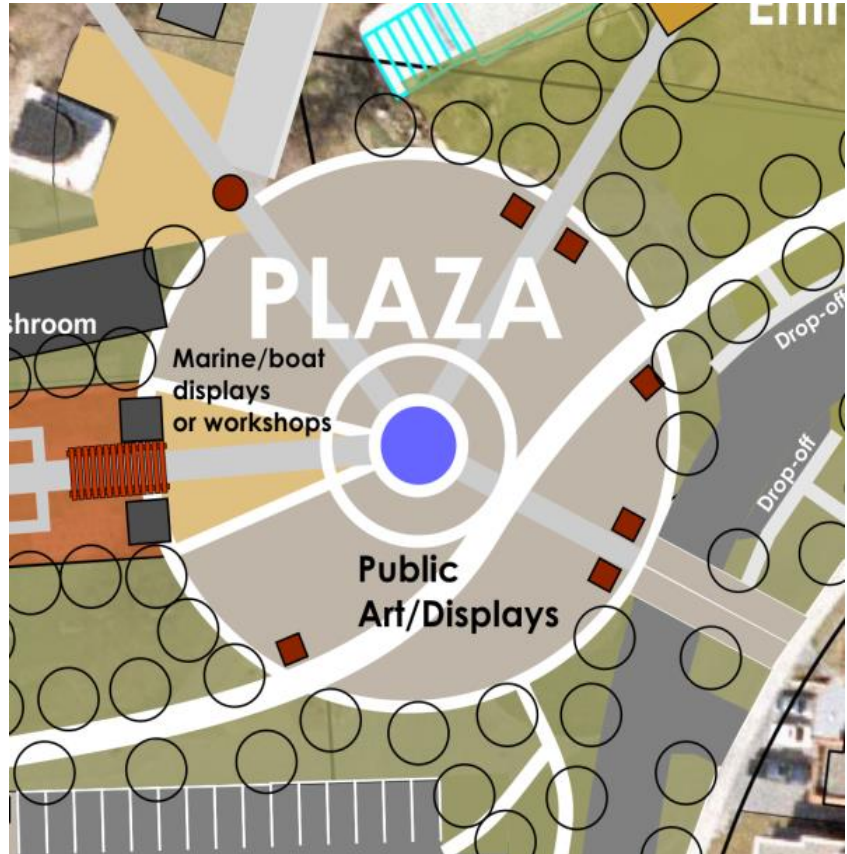
- A. Figure 14 defines the framework for the major uses, including pathways, the boats and most buildings. Buildings are referred to as sheds, washrooms, the boatshed and Dredge Shed, and decks. If additional buildings are required in the future, it is expected that they would be contained in the “works” area north of the salon and south of the tug boats. Caution should be exercised in planning the location of any additional structures so that they do not interfere with the planned walkways to the decks or out to the jetty. The washroom will be attached to the Dredge Shed and design should respect the heritage character of the old building.
- B. The landscape concept respects recommendations contained within the arborist report and the land use plan that depicts where planting is to be focused or changes made relative to trees, shrubs and lawn. Hardscape areas such as the plaza and the public parking lot will also contain areas of focused landscaping; the plaza may also contain some potted trees in areas where the site could be reconfigured for events such as a boat show.
- C. Site improvements call for lighting along walkways (bollard and lamp standards), in the plaza and on the jetty. A cohesive “kit of parts” will include benches and other seating opportunities, garbage receptacles and bike racks. (A donor program can be used to off-set costs, as noted for the Rose Garden.)

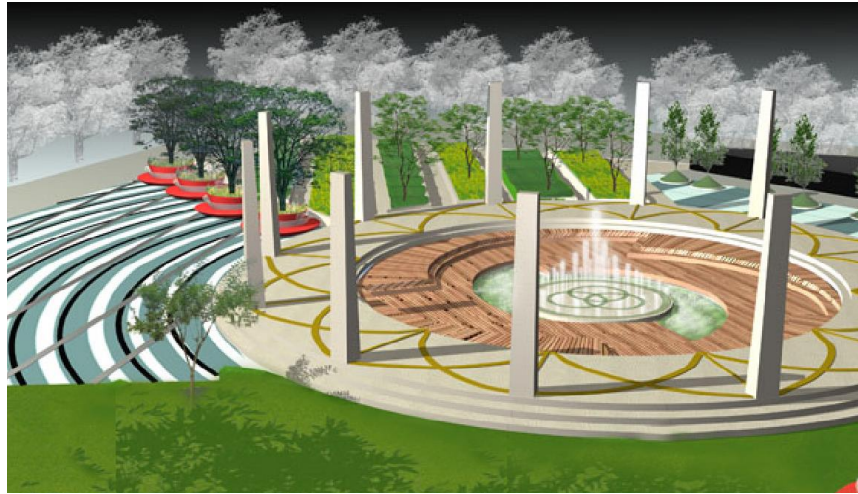
8.8 GATEWAY PLAZA

GOAL: To provide a sense of entry and profile to Heritage Park with a gateway plaza to be located at the east side of the park.

OBJECTIVES:

- A.** Design a plaza that will give the SS Sicamous Heritage Park the curb appeal to make it inviting, accommodate displays and complement the heritage tourism theme.
- B.** Consider a special feature such as a water fountain or public art with a significant scale that will embellish the area and serve as an attraction unto itself.
- C.** Use the plaza as a potential play area, meeting place/ resting area, programmed space for small events, permanent and temporary art/ sculpture installments related to the marine/ nautical theme, temporary vending, etc.
- D.** Make the space accessible to the public at night and year round. (Use CPTED design principles; lights; economic use of space including food trucks.)





Representative images only.

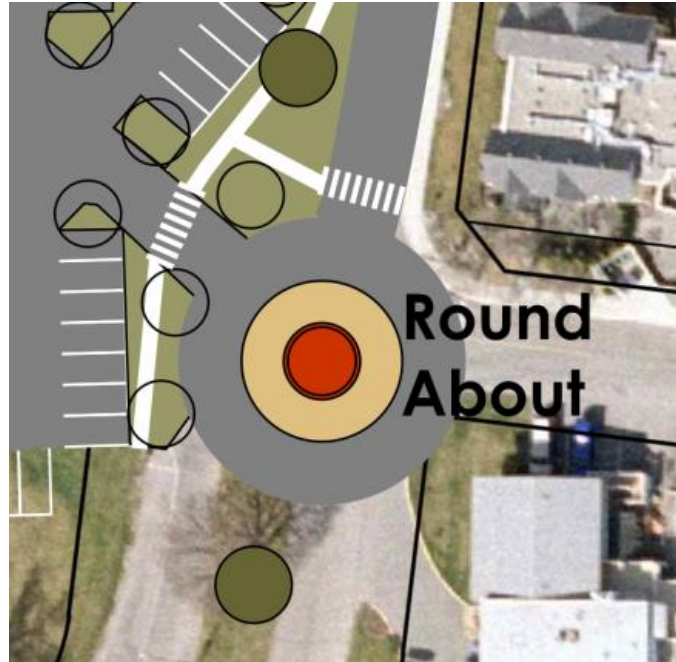


8.9 ROAD AND ROUND-ABOUT CHANGES

GOAL: To re-route a short length of Riverside Drive and relocate the round-about to accommodate the entry plaza and address vehicle and pedestrian mobility in the area.

OBJECTIVES:

- A.** Phase in the roadway and round-about changes in concert with the upgrades to the park site and public parking lot.
- B.** Design of the round-about at Churchill Avenue to address safe traffic and pedestrian movements including access points, crosswalks, entry feature and landscaping (within the round-about).
- C.** Work with adjacent property owners regarding landscaped boulevard treatment and sidewalk on east side of Riverside Drive between Churchill Avenue and Lakeshore Drive.
- D.** Address access locations to be provided off of Riverside Drive into the public parking



lot, drop-off zones, and into adjacent residential/commercial area.

- E.** Address main pedestrian access off Riverside Drive and into the plaza gateway with detailed design that respects sense of entry, aesthetics and prominent profile for the Park. This should include attention to signage, urban design features, lights, gate/entryway and pedestrian mobility.



8.10 SPECIAL FEATURES

GOAL: To implement a family of special features that will complement the marine heritage park program and help to enhance the “wow” factor of this destination.

OBJECTIVES:

- A.** In collaboration with the SS Sicamous Restoration Society and special committees of Council, create a public art program specifically for the site, allowing art to be designed and installed in a phased manner. This should not preclude temporary installments.
- B.** Design a special feature (noted in 8.8) that forms the focal point of the plaza; features in the round-about, at the end of the jetty, in the Rose Garden and even within the First Nations center may draw off this inspiration.
- C.** Create an interpretive program that communicates the history of marine/boat building, nautical, steamships, Okanagan Lake, First Nations water routes and lake/land use, natural heritage, and changes to the Okanagan Valley from various perspectives: Orchards/Vineyards/Wineries; personalities; transportation; recreation; economy; forest fires; water use and the various settlements along the lake. Interpretive plaques should not dominate and compromise the collection of historic ships and artifacts.



Representative images only.



8.11 PARKING LOT EXPANSION AND DROP-OFF ZONES

GOAL: To expand the public parking lot in keeping with the relocation of Riverside Drive and the round-about. (Drop-off zones will be integral to the road improvements, addressing convenient short-term parking for cars and buses.)

OBJECTIVES:

- A.** The public parking lot is to be expanded southward and eastward to accommodate approximately 120 spaces. (Additional 35 to 40 parking spaces)

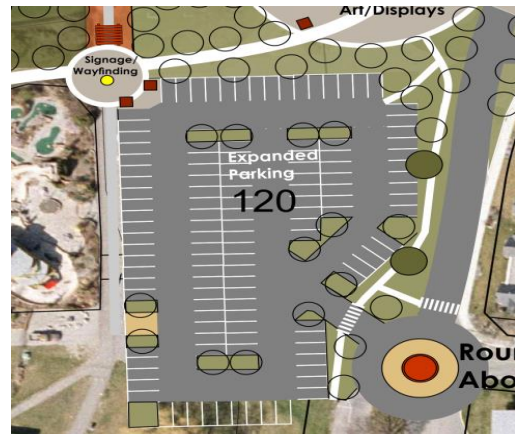
The lot will be re-striped for more efficient use of the space and for connections to the roundabout. Landscaped islands will be introduced for aesthetics and storm water catchment.

- B.** Bus parking can be accommodated in the public parking lot or during peak tourist seasons buses may need to park in nearby lots or along roadways beyond the park area. The Drop-Off Zones can be used for loading and unloading passengers. The City of Penticton will monitor parking demand for large/long vehicles including buses, vehicles with trailers and RVs. The lot is expected to remain a free public parking space until such time that supply/demand issue is noted by the City. An allocation of spaces to Loco Landing may be negotiated on an annual basis.

- C.** Drop-Off Zones are to be accommodated on both sides of Riverside Drive near the entryway to the Park. The zones should be time-marked for short duration use, especially during peak tourist season. Drop off of boats should be discouraged/ avoided in this location so that there is no conflict

between pedestrians and people carrying boats across the roads and pathways.

- D.** Human powered boats should be dropped and picked up by vehicle within the public parking lot. Small trailers can be used to transport boats such as canoes and kayaks, and only along designated pathways. Caution should be exercised to avoid conflict between pedestrians and people moving boats to and from the launch area. Spaces for boat drop-off within the public parking lot should be designated.



8.12 WALKWAYS/PEDESTRIAN FACILITIES/ACCESS

GOAL: To construct a system of walkways/ pedestrian facilities, and vehicle access into and through the park.

OBJECTIVES:

- A.** A primary objective of the phased works will be making the connection of the Okanagan Lake Waterfront Walkway with an extension through the park (and ultimately the Plaza) over to the dam/river channel pathway and the Trans Canada Trail.
- B.** Access to key destinations in the park will be made by a series of pathways that will radiate or extend out from the entry plaza. This includes access into the ① Rose Garden and through to the ② First Nations Centre; out to the end of the ③ jetty; to the main entry of the ④ SS Sicamous and onto the ⑤ boardwalk; through to the ⑥ public parking lot; into the ⑦ boat building/works area, and over to the ⑧ river channel. The pedestrian system will also allow for ease of access to Loco Landing, and across Riverside Drive.
- C.** Vehicle access and deliveries can be made through the plaza to reach the jetty, the port side of the ship and the First Nations Center. The surfaces, widths and structural integrity of these paths will be sufficient to accommodate small delivery vehicles, vans and trucks.

- D.** Way finding can be implemented for the on-site destinations. Information can also be provided about tourist sites and services throughout Penticton on sign boards, digital read out displays or in a pamphlet box. The way finding signs should be designed in keeping with a comprehensive theme.

-
- DROP OFF OF BOATS SHOULD BE DISCOURAGED IN THIS LOCATION, SO THERE IS NO CONFLICT BETWEEN PEDESTRIANS AND PEOPLE CARRYING BOATS ACROSS THE ROADS AND PATHWAYS.
-



SECTION 9

PHASING PLAN

It is expected that improvements and major changes to the park area can be undertaken in a strategically phased manner. Sufficient resources and Council support must be made available for each phase to proceed. The strategic phasing implies a sequence of works that the City Engineering Department will coordinate along with the detailed design for each element. For example, the phasing will need to respect matters such as maintaining construction vehicle access, pedestrian safety, vehicle flow, and achieving cost efficiencies.



PHASING



SS SICAMOUS AREA MASTER PLAN



Figure 15



9.1 PHASE 1

Okanagan Lake Walkway Connection and Jetty Upgrade

Since underground services and construction materials for the jetty will need to come off the road right-of-way and through the center of the park, a logical initial phase will be the upgrades to the Jetty, followed by the main walkway connection. Interim rerouting of traffic on the southbound lane of Riverside Drive may be required (or no work within the existing travelled road surface in Phase 1.)



PHASE 1



9.2 PHASE 2

Riverside Drive and Round-About Relocation

The removal and relocation of part of Riverside Drive and the existing round-about will be necessary to begin any major works on the entry plaza (Phase 3). The new alignment of the (double lane) road will include crosswalks, sidewalks and drop-off zones. Interim changes to the access into the public parking lot will also be required. (Depending on detailed design and construction standards for the asphalt, it may be prudent to proceed with the expanded parking lot following the road and round-about changes.)



PHASE 2



9.3 PHASE 3

CORE OF SHIPYARD

This phase may be separated into three sub-phases:

- 3A.** Boardwalk areas on starboard side of Sicamous
- 3B.** Plaza and Rose Garden
- 3C.** Wetlands Restoration

Pathway connections would be strategically staged to gain priority access, as required.

Depending on the duration of timeline lag between phases, some interim uses (e.g. lawn) could be introduced for some small remnant areas. Phase 3C could proceed earlier to avoid any disruption of the park center with construction trucks and material storage that may be required for the rip-rap project.



PHASE 3



9.4 PHASE 4

FIRST NATIONS CENTRE

Once services and access to the PIB property is gained, construction can proceed on the proposed center/grounds. (NOTE: Erosion control for the shoreline along the PIB property should be completed in advance of any major construction on that site.)



PHASE 4



9.5 PHASE 5

PUBLIC PARKING LOT

This phase of work can be completed along with the road/round-about relocation or anytime afterwards. Adjacent landscaping and the installation of a parking pass machine or meters could be an integral component. (NOTE: Negotiations with LOCO Landing Amusement Park owners regarding parking allocation and cost recovery will also help determine sequence of these works.)



PHASE 5



SS SICAMOUS AREA MASTER PLAN



-
- PHASING WILL NEED TO RESPECT MATTERS SUCH AS MAINTAINING CONSTRUCTION VEHICLE ACCESS, PEDESTRIAN SAFETY, VEHICLE FLOW AND ACHIEVING COST EFFICIENCIES.
-



SECTION 10

PRELIMINARY COST ESTIMATES

The Master Plan is a comprehensive guide to a set of initiatives and projects that will be undertaken over a period of time (say five or more years) and as the resources of the City and other contributors become available. Costs for such a Master Plan are allocated by phase and by category, or items of improvements and capital works. The Preliminary Cost Estimates were prepared accordingly at a Class C level which included a contingency of 25%, soft costs such as engineering (15%), environmental assessment and permitting (5%-10%) and tax (5%).

As overall strategic priorities may change and as future costs will be effected by funding and inflation only Preliminary Cost Estimates for Phase 1, the Rock Outlook and waterfront walkway connection are provided here. The remaining Preliminary Costs Estimates are itemized in a separate report and contains a series of spreadsheets by phase/area. Preliminary costs for future Phases will be reviewed and adjusted on an annual basis and integrated in to the City’s Five Year Capital Budget as appropriate.

It is understood that the City of Penticton will not be responsible for paying for all items directly from the municipal budget. Some of the items will be eligible for grants, donor programs, Development Cost Charges from other projects in the City, and be cost shared with other players such as the Province, Penticton Indian Band, and non-profit societies. Based on these preliminary costs and potential

access to external funds, the City will establish a long-term budget to phase the works and improvements outlined in the Master Plan.

The following Preliminary Phase 1 Costs Estimates are in 2014 dollars.

1. Phase 1 Jetty and Walkway Connection - Design	\$150,000
2. Phase 1 Jetty and Walkway Connection - Construction	\$1,185,650

THE DETAILED (CLASS ‘C’ ESTIMATE) COSTS ARE ITEMIZED IN A SEPARATE REPORT THAT CONTAINS A SERIES OF SPREADSHEETS BY PHASE/AREA.



SECTION 11

GRANTS/FUNDING

The cost estimates for the key elements of the Master Plan are presented in Section 10. As noted throughout this Plan, capital projects and improvements at the park will occur over several years, and as funding becomes available. Although the City recognizes that a phasing program should unfold as suggested in Section 9, priorities may need to change from time to time. The City also recognizes that as grants become available and extra funding is sourced, emphasis may be applied to various elements (and sub components) identified in Section 10.

The City's Grants Writer, Sarah Morden, assisted in providing a snapshot of the current (2014) funding programs that may be a potential match for implementation of various elements in the Master Plan. She has noted that due to opportunities changing fairly frequently, more detailed research closer to the date of the application would be required to update and confirm funding availability and project fit or eligibility.

The attached table in the Appendix provides an overview of a series of applicable programs known to be available as of December 2014. The consultant included some of the key elements that are possibly eligible. It must be noted that some programs are only eligible for non-profit organizations/societies and others are directed to the local government. The programs have been sorted under the categories of Heritage, First Nations Partnerships, Environment, Economic Development, Recreation, Accessibility and Infrastructure.

The means to achieve the greatest benefit from government programs is two-fold:

- ① determine the budget needs of a project or

element and then attempt to source the most applicable grant program(s) that may be cost-shared or outright grant; ② continue to research and keep apprised of the funding sources under all of the categories noted above. There is typically continuous change in these types of programs, with new ones being announced annually and existing ones either being renewed with more funds, or exhausted and closed. As noted above, if opportunities arise and an application is successful, phasing priorities may need to change as most grants must be used within a specified period of time. It should also be noted that the SS Sicamous Park site can benefit from the partnership opportunities between PIB (First Nation) and City of Penticton (municipality) in joint applications.

With regard to the erosion control there may be opportunity to work cooperatively with the Public Safety and Protection Branch of the Ministry of Forests, Lands and Natural Resource Operations. Funding may be provided in-kind (e.g. Rip-rap, materials/hauling) as works would be adjacent to the dam.*

-
- THE GRANT PROGRAMS HAVE BEEN SORTED UNDER THE CATEGORIES OF HERITAGE, FIRST NATIONS PARTNERSHIPS, ENVIRONMENT, ECONOMIC DEVELOPMENT, RECREATION, ACCESSIBILITY AND INFRASTRUCTURE.
-

*Communication with Sean Reimer, Section Head Okanagan-Shuswap District



SECTION 12

IMPLEMENTATION AND RECOMMENDATIONS

The following provides a brief description of some important steps and items to move forward with implementation of the Master Plan. Once again, it must be understood that the Plan is a guiding document for the long-term and implementation is not expected overnight. In fact, there may be checks and balances along the way to confirm that progress is being made and it is being made to reflect the Plan, or to reassess where necessary. Nevertheless, the following recommendations should be addressed at the outset to establish a foundation from which to move forward.

1. Assigning Responsibility/Organizational Review

Although the main players to this point have been the City of Penticton (owner of the SS Sicamous and much of the park area), the SS Sicamous Restoration Society (day-to-day operations and promotions) and to a more limited extent, PIB (land owner of a portion of the site) and the Province (responsible for the dam and owner of crown land/foreshore), moving forward should ensure that responsibilities for future initiatives are understood. This could also entail a reassignment of the responsibilities. Some of the critical responsibilities will be as follows:

- Detailed design and engineering of capital works/site improvements
- Refinement of Master Plan – concepts to design (as required)
- Pursuing grants/funding – recognizing that many of the grants available must be secured by non-profit organizations as the municipality may not be eligible
- Promotions – as the facility becomes a larger, regional tourist attraction

- Negotiations – collaborative efforts between all parties to secure necessary support for moving forward
- Event planning – the Heritage Shipyard will become an important venue for community events and festivities
- Overseeing the day moorage aspect – management, revenue opportunities, sharing of risk, marketing
- Safety, security, maintenance and site management
- Pursuing elevated Heritage/Park status with the Provincial and Federal governments

Organizational structures could entail those such as maintaining the VIG, restructuring the SS Sicamous Restoration Society, assigning responsibility to a (dedicated) City Staff, creating a new organization, or leaving the current players and responsibilities in place but with more defined areas of responsibility.

2. Pursuing Grant Applications

As noted in Section 11, there are several grant and funding opportunities that will become available over the years of implementation. Eligibility, specific projects, timelines and which group is best to pursue the funds are important considerations. Although the City has a grant writer available, coordination of ‘who is chasing what’ will be an important consideration to make most effective use of time amongst all players, including the City.

Monitoring of the grant programs and pending deadlines from year to year will also be critical in successfully accessing grants. It will behoove the Master Plan implementation program to create a chart or tracking method.

Grants are available for many aspects of the Master Plan, including but not limited to:

- Capital Works (major works such sewer, water, storm management, roads)
- Organizational reviews (includes staffing)
- Marketing and Promotions
- Environmental



- First Nations
- Joint Municipal and First Nation
- Special Projects including Heritage, Tourism, Recreation, Accessibility

The most challenging aspect for municipalities or Non-profit organizations is their ability to source matching funds that are often required to secure the available grant. (See Section 11) Similarly, the City will need to assess where it wants to direct funds within the community and where the SS Sicamous Park fits into their list of priorities. The Gas Tax fund that is currently being directed at the Main Street Revitalization is an example of one such priority.

Wherever joint pursuit of a grant can yield results, even if the amount sought is relatively small, there may be benefit in the long term. The grants should be considered as incremental initiatives be they for capital, marketing or special projects. Any opportunity to offset the total expenditure by using grants instead of annual municipal budgets will benefit the entire Plan and the City overall.

Possibilities of working with PIB or ONA to access grant funds will be discussed below.

3. Gaining Approvals from Provincial and Federal Government Agencies

It is understood that permitting (authorization) will be required from responsible Provincial and Federal Government agencies to undertake works in Okanagan Lake and along its foreshore. Permits to build or install elements such as the boardwalk, boat dock (day moorage), any extension to the jetty, viewing decks and work on the wetlands restoration may be required under the auspices of the following agencies and respective legislation:

Government of Canada

Fisheries Act - protection of fish and fish habitat

Fisheries Act Notification - Fisheries review by DFO, addressing stream bank stabilization or in-

stream habitat enhancement efforts pursuant to Section 35 (2)

Species at Risk - Any species at risk pursuant to Section 79 (1) of the Species at Risk Act

Migratory Bird Convention Act - acceptable degree of due diligence that migratory birds are protected from risk of harm or mortality during the upgrade project, pursuant to Section 35 (1) of the Act

Navigable Waters Protection Act - Notification of structures to be installed into navigable waters

Crown Lane Tenure – any construction below high water mark

Provincial Government

Foreshore Application – Provincial authorization

BC Water Act – Section 9 authorization

BC Wildlife Act – regarding protection of vertebrate animals from direct harm or harassment

BC Weed Control Act – duty to control weeds through construction when heavy machinery is moving on and off-site.

Regional District of Okanagan-Similkameen

Riparian Area Regulation Assessment – all works within 30 m of the high water mark requires a RAR assessment



4. Zoning

The City of Penticton has the authority in accordance to the Local Government Act of BC to zone both land and water (lake surface and foreshore) for uses deemed appropriate and lawful and in keeping with this Master Plan. It will be prudent to ensure that uses are controlled for the following areas:

- Heritage Park- Interpretive uses, tourism and recreation
- First Nations Centre – Cultural and heritage uses, buildings and outdoor event grounds
- Water – Swimming area, paddle boat launch and use area, dock and motor boat area;
- Foreshore – Protected by RAR and an appropriate zone to protect foreshore uses

The City may use existing zones from within their Zoning Bylaw and make appropriate wording changes (text amendments) or rezone the areas to accommodate the objectives of the Master Plan. Zoning should not preclude the use of signs to add another dimension of safety in the lake.

The Official Community Plan should be amended accordingly.

5. Designation of Park or Ship as a Heritage Site

The SS Sicamous is currently on the list of Canada’s Historic Places giving it recognition as an important heritage resource and community asset. In order to be eligible for certain grants and funding opportunities and for enhanced tourism profile, it may be worthy to consider seeking a higher ranking in the Provincial and National Parks scale. Any designation that can turn it into a more recognized tourism destination and a heritage feature would improve its standing to be supported for continued upgrades. A start will certainly be giving the park the recognition in Penticton as the Shipyards Heritage Park. This could be acknowledged by appropriate signage and

ultimately other features that form important aspects of this Plan.

6. Special Studies

Besides the detailed site design and engineering for the various elements of the park, some special studies may be required to satisfy the ultimate program. Some of these may be in the form of further concepts, feasibility studies or queries as to what something may become before committing to detailed design. In other instances, assessments may be required for gaining approvals from senior government authorities.

Examples include the following:

- First Nation Centre/Pavilion (Building and event grounds)
- Rose Garden (Selection of flowers/roses and other landscaping)
- Feature at end of etty
- Environmental Impact Assessment (combined with #3 above)
- Art and Sculptural Elements
- The Plaza
- The Paddling Centre (Is it more than just a shed?)
- The on-site interpretive program

7. Negotiations with PIB

The PIB lands form an integral component of the SS Sicamous Heritage Park. Nevertheless, PIB is a separate entity with its own aspirations. It is therefore important for the City to work with the PIB to ensure that what is built on the PIB lands will be compatible with the remainder of the park program. This will entail scale of the project, design, activities, access, commercial uses and possibly, a timeline. The City appreciates that there may be some negotiating required to ensure that all parties can achieve their objectives.

The Okanagan Nation Alliance (ONA) may be another complementary party that can participate from a planning or financial perspective. There is also merit in jointly



pursuing grant funds where First Nation and municipal objectives can be achieved. Section 11 provides examples of grant programs that promote First Nation/Municipal partnerships as of December, 2014.

8. Site Design and Engineering

Site design and engineering can proceed phase by phase. This will include urban design, landscape architecture, engineering and traffic analysis, if necessary. Such detailed design and engineering will also assist in obtaining more definitive costs, especially for some of the larger cost items. Since the City has identified access to the jetty and walkway connections into the park as phase one, the City should begin to source funds and move forward with the design and engineering. Any need for property acquisition or exchanges and legal surveys should also be addressed on a phase by phase basis.

9. Stakeholder and User Group Involvement

Any fine-tuning to this plan may require input from some of the stakeholders and user groups that were party to the formulation of the plan or that may be directly affected by changes to the park area. Consideration should be given to the following:

- PIB Staff and Council
- Ministry of Forests, Lands and Natural Resources (Public Safety and Protection)
- SS Sicamous Restoration Society (re: selection of specific sites for locating artifacts)
- Penticton Tourism (re: marketing and promotions)
- Penticton Canoe and Kayak Club (re: paddling center/launch and boatshed)
- Loco Landing (re: access and public parking lot)
- Adjacent Land Owners (Directly affected by Roadway changes)



APPENDIX A

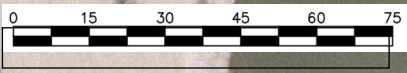


EXISTING CONDITIONS

- 1 SS Sicamous Ship - Launched 1914
- 2 SS Naramata Tug Boat - Launched 1914
- 3 Canadian National Tug Boat #6 - Launched 1948
- 4 Stern Wheel Salon from SS Okanagan - 1907
- 5 Dredge Shed - Original Location
- 6 Penticton Rose Garden
- 7 Okanagan Lake Waterfront Walkway 2013
- 8 PIB Land Holdings
- 9 Okanagan River Dam - 1953
- 10 Public Parking Lot
- 11 SS Sicamous Parking / Drop Off
- 12 Roundabout at Lakeshore and Riverside
- 13 Canada Trail Connection
- 14 Loco Landing - Adjacent to Heritage Park Area
- 15 Rock Outcrop / Jetty



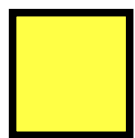
FIG.1



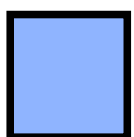
LAND OWNERSHIP



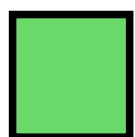
PIB



Province Owned
Leased to City



City Owned



Province Owned
No Lease in place



FIG.2





ISSUES



FIG.5



CONCEPT PLAN



FIG.12

REV NOV 21

SS SICAMOUS AREA MASTER PLAN





PHASING



FIG.15





IMAGES



IMAGES



APPENDIX B



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January 14, 2015

Levelton File # R714-0770-00

CTQ Consultants Ltd.
1334 St. Paul Street
Kelowna, BC V1Y 2E1

Attention: Mr. Ed Grifone, MCIP, RPP

Project: SS Sicamous Waterfront Rehabilitation, Riverside Drive, Penticton, BC
Subject: Geotechnical Engineering Assessment Letter Report

Dear Mr. Grifone,

1.0 INTRODUCTION AND PROJECT DESCRIPTION

As requested, Levelton Consultants Ltd. (Levelton) has prepared this letter report pertaining to geotechnical considerations for the above-referenced proposed waterfront rehabilitation in Penticton, BC.

Based on the information provided to us, we understand that it is desired to rehabilitate the wetland area on the west side of the SS Sicamous site, along the shoreline of the Penticton channel inlet. The rehabilitation would include a rip-rap slope with a raised boardwalk-style walkway and viewing deck and/or an on-grade walkway. A site plan showing the area under consideration is attached as Figure 1.

2.0 DISCUSSION

Levelton conducted a visual review of the area on May 27, 2014. Levelton has also reviewed the following documents provided to us:

- “2001 Design Rip Rap Shoreline”;
- “Concept Plan” dated November 21, 2014; and
- “S.S. Sicamous Area Master Plan – Hydrodynamic Study” dated December 17, 2014.

At the time of our site visit, a portion of the existing shoreline was covered with rip-rap and a portion of the shoreline was retained by timber retaining walls. The existing timber retaining walls were of the order of 1.5 m high and appeared to be old and generally in poor condition at the time of our site visit.

It is our opinion that a rip-rap surfaced slope would be feasible in the proposed shoreline and boardwalk area identified to us. It is also our opinion that a raised walkway and viewing deck within the rip-rap slope area and/or a grade-supported walkway along the park area above the slope would be feasible.

Additional information is required to provide a rip-rap design, as the Hydrodynamic Study provided to us did not include the area of the proposed rip rap shoreline and walkway. To provide a suitable rip rap design to resist the required wave action and water velocities, we will require information on the maximum anticipated flow velocity, the recommended design velocity for the rip-rap design, the proposed angle of the slope to be protected with rip-rap, and the water depth and ground profile to be covered. Information on whether the shoreline area under consideration would be subject to long term scour or deposition would also be useful.

3.0 RECOMMENDATIONS

Once the additional information noted above is provided we can provide a detailed rip-rap design. However, in the absence of this information our preliminary comments are as follows:

- It is anticipated that a rip-rap surfaced slope would consist of a layer of geotextile, overlain by angular rock. The type of geotextile required and the size of the rock required will be dependent on the slope angle and flow velocities. Alternatively, a commercial product consisting of a flexible interlocking system of concrete blocks available in “sheets”, such as the Armorflex system by Armortec placed on a suitable filter/geotextile layer could be considered. This product is available in a style that allows for vegetation growth between the blocks.
- The timber walls could be removed if desired, however it is feasible to leave them in place and create a rock slope against them. The timber walls could remain embedded in a new rip-rap slope, which could be beneficial for constructability and would provide additional stability to the ground behind the walls.
- For the proposed raised walkway and viewing platform, we recommend a pile or pier supported system. The piles should be placed prior to placing the geotextile and rip-rap.
- For construction of the rip-rap slope, it should be noted that a coffer dam or similar system may be required to provide a “dry” construction area during site works, grading of the slope, and placement of the geotextile and rip-rap rock.
- It is assumed that a grade-supported walkway within the existing park area would be gravel-surfaced and not subject to vehicle traffic. Preparation for the path should consist of removal of surficial vegetation and topsoil, excavation to at least 150 mm below surrounding grade, and placement and compaction of 25 mm minus crushed sand and gravel fill to develop the walkway surface. It should be noted that, if post-construction settlement of the path is not tolerable, or the path will also be subject to some level of vehicular traffic, additional excavation and a greater thickness of granular fill material may be required.

4.0 CLOSURE

This geotechnical engineering assessment letter report has been prepared by Levelton Consultants Ltd. exclusively for the Client and their appointed agents. The opinions and recommendations provided in this report reflect our judgement in light of the information provided to us at the time that it was prepared.

Any use of this report by third parties, or any reliance on or decisions made based on it, are the responsibility of such third parties. Levelton does not accept responsibility for damages suffered, if any, by a third party as a result of their use of this report.

The attached Terms of Reference form an integral part of this geotechnical report.

We trust that the information presented in this report meets with your immediate requirements. If you have any questions or require additional information, please do not hesitate to contact our office.

Yours truly,

Levelton Consultants Ltd.

Original Signed By:

Per: Paul R. Ell, P.Eng.
Senior Geotechnical Engineer / Principal

Reviewed By:
Michael Gutwein, P.Eng.
Senior Geotechnical Engineer

ML/PRE

Attachments: Terms of Reference for Geotechnical Reports
Figure 1 - Site Plan

Original Signed By:

Per: Marisa Loude, ASCT, LEED Green Assoc.
Senior Engineering Technologist



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TO PROPERLY UNDERSTAND THE INFORMATION, OBSERVATIONS, FINDINGS, SUGGESTIONS, RECOMMENDATIONS AND OPINIONS CONTAINED IN THE REPORT, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. LEVELTON CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT AND ITS VARIOUS COMPONENTS.

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Levelton prepared the Report for the Client for the specific site, development, building, design or building assessment objectives and purpose that the Client described to Levelton. The applicability and reliability of any of the information, observations, findings, suggestions, recommendations and opinions contained in the Report are only valid to the extent that there was no material alteration to or variation from any of the said descriptions provided by the Client to Levelton unless the Client specifically requested Levelton to review and revise the Report in light of such alteration or variation.

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The information, observations, findings, suggestions, recommendations and opinions contained in the Report, or any component forming the Report, are for the sole use and benefit of the Client and the team of consultants selected by the Client for the specific project that the Report was provided. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION OR COMPONENT WITHOUT THE WRITTEN CONSENT OF LEVELTON. Levelton will consent to any reasonable request by the Client to approve the use of this Report by other parties designated by the Client as the "Approved Users". As a condition for the consent of Levelton to approve the use of the Report by an Approved User, the Client must provide a copy of these Terms of Reference to that Approved User and the Client must obtain written confirmation from that Approved User that the Approved User will comply with these Terms of Reference, such written confirmation to be provided separately by each Approved User prior to beginning use of the Report. The Client will provide Levelton with a copy of the written confirmation from an Approved User when it becomes available to the Client, and in any case, within two weeks of the Client receiving such written confirmation.

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TERMS OF REFERENCE FOR GEOTECHNICAL REPORTS
ISSUED BY LEVELTON CONSULTANTS LTD. (continued)

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- a. **Nature and Exactness of Descriptions:** The classification and identification of soils, rocks and geological units, as well as engineering assessments and estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1 above. The classification and identification of these items are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations or assessments utilizing the standards of Paragraph 1 involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to changes over time and the parties making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or when the Client has special considerations or requirements, the Client must disclose them to Levelton so that additional or special investigations may be undertaken, which would not otherwise be within the scope of investigations made by Levelton or the purposes of the Report.
- b. **Reliance on information:** The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site investigation and field review and on the basis of information provided to Levelton. Levelton has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Levelton cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.
- c. **Additional Involvement by Levelton:** To avoid misunderstandings, Levelton should be retained to assist other professionals to explain relevant engineering findings and to review the geotechnical aspects of the plans, drawings and specifications of other professionals relative to the engineering issues pertaining to the geotechnical consulting services provided by Levelton. To ensure compliance and consistency with the applicable building codes, legislation, regulations, guidelines and generally-accepted practices, Levelton should also be retained to provide field review services during the performance of any related work. Where applicable, it is understood that such field review services must meet or exceed the minimum necessary requirements to ascertain that the work being carried out is in general conformity with the recommendations made by Levelton. Any reduction from the level of services recommended by Levelton will result in Levelton providing qualified opinions regarding adequacy of the work.

6. ALTERNATE REPORT FORMAT

When Levelton submits both electronic and hard copy versions of the Instruments of Professional Services, the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding upon Levelton. The hard copy versions submitted by Levelton shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions; furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed and sealed versions of the Instruments of Professional Services maintained or retained, or both, by Levelton shall be deemed to be the overall originals for the Project.

The Client agrees that the electronic file and hard copy versions of Instruments of Professional Services shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Levelton. The Client warrants that the Instruments of Professional Services will be used only and exactly as submitted by Levelton.

The Client recognizes and agrees that Levelton prepared and submitted electronic files using specific software or hardware systems, or both. Levelton makes no representation about the compatibility of these files with the current or future software and hardware systems of the Client, the Approved Users or any other party. The Client further agrees that Levelton is under no obligation, unless otherwise expressly specified, to provide the Client, the Approved Users and any other party, or any or all of them, with specific software and hardware systems that are compatible with any electronic submitted by Levelton. The Client further agrees that should the Client, an Approved User or a third party require Levelton to provide specific software or hardware systems, or both, compatible with the electronic files prepared and submitted by Levelton, for any reason whatsoever included but not restricted to an order from a court, then the Client will pay Levelton for all reasonable costs related to the provision of the specific software or hardware systems, or both. The Client further agrees to indemnify and hold harmless Levelton, its officers, directors, employees, agents, representative or sub-consultant, or any or all of them, against any claim or any nature whatsoever brought against Levelton, whether in contract or in tort, arising or related to the provision or use or any specific software or hardware provided by Levelton.



Approximate extent of hydrodynamic study

Approximate proposed restoration area

LEGEND	ADAPTED FROM Google Earth Image		TITLE Site Plan			
	DATE Jan 13, 2015	PROJECT NO. N/A	PROJECT SS Sicamous Waterfront Rehabilitation			
	This drawing is the sole property of Levelton Consultants Ltd. and cannot be used or duplicated in any way without the expressed written consent of Levelton Consultants. The general contractor shall verify all dimensions and report any discrepancies to Levelton Consultants Ltd.		ADDRESS Riverside Drive, Penticon, BC			
	 LEVELTON 108 - 3677 Hwy 97N Kelowna, BC V1X 5C3 p: 250-491-9778 f: 250-491-9729 www.levelton.com		CLIENT CTQ Consultants Ltd.			
DWN ML	CHK PRE	SCALE NTS	DATE January 2015	PROJECT NO. R714-0770-00	DRAWING NO. FIGURE 1	

APPENDIX C



LEVELTON CONSULTANTS LTD.

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kelowna@levelton.com
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January 16, 2015

Levelton File # R714-0770-00

CTQ Consultants Ltd.
1334 St. Paul Street
Kelowna, BC V1Y 2E1

Attention: Mr. Ed Grifone, MCIP, RPP

Project: SS Sicamous Waterfront Rehabilitation, Riverside Drive, Penticton, BC
Subject: Rip-Rap Shoreline Protection - Preliminary Construction Budget Estimate

Dear Mr. Grifone,

1.0 INTRODUCTION AND PROJECT DESCRIPTION

As requested, Levelton Consultants Ltd. (Levelton) has prepared this preliminary budget estimate pertaining to geotechnical design considerations, construction, and geotechnical construction services for the above-referenced proposed waterfront rehabilitation in Penticton, BC.

Further to our geotechnical engineering assessment letter report dated January 14, 2015, we understand that it is desired to rehabilitate the wetland area on the west side of the SS Sicamous site, along the shoreline of the Penticton channel inlet. The rehabilitation would include a rip-rap protected shoreline slope. A site plan showing the area under consideration is attached as Figure 1.

2.0 DISCUSSION

As discussed in our January 14, 2015 letter report, additional information is required to provide a rip-rap design, as the Hydrodynamic Study provided to us did not include the area of the proposed rip rap shoreline. To provide a suitable rip rap design to resist the required wave action and water velocities, we will require information on the maximum anticipated flow velocity, the recommended design velocity for the rip-rap design, the proposed angle of the slope to be protected with rip-rap, and the water depth and ground profile to be covered. Information on whether the shoreline area under consideration would be subject to long term scour or deposition would also be useful.

For the purpose of providing a general budget estimate for the construction of a rip-rap protected shoreline slope for the waterfront rehabilitation, we have assumed the following design information for preliminary budgeting purposes:

- Length of shoreline to be restored: approximately 100 m;
- Finished slope angle: 3H:1V (Horizontal:Vertical);
- Timber walls to remain in place;
- Flow velocity: 3.0 m/s;
- Average dimension of rip-rap: 300 mm; and
- Nominal thickness of rip-rap: 500 mm.

It should be noted that these design assumptions may vary once the required information is provided, which could affect the budget estimate provided herein.

3.0 BUDGET ESTIMATE

3.1 GEOTECHNICAL ENGINEERING DESIGN SERVICES

Once the additional information noted above is provided we can provide a detailed rip-rap design. Our lump sum fee for the preparation of a geotechnical letter report providing a detailed rip-rap design would be on the order of **\$3,000 plus applicable taxes**.

3.2 CONSTRUCTION

Based on our assumptions for the rip-rap design, we anticipate that the existing timber walls in the area would remain in place and a rock slope would be constructed against them. The rip-rap surfaced slope would consist of a layer of non-woven geotextile, overlain by 300 mm diameter angular rock. We have assumed a shoreline length of about 100 m and a width of shoreline to be protected of about 10 m. A local contractor was contacted to provide estimates for material supply, trucking and placement costs. The estimated construction budget to carry out this work would be on the order of **\$90,000 plus applicable taxes**.

It should be noted that for construction of the rip-rap shoreline protection a coffer dam or similar system may be required to provide a “dry” construction area during site works, grading of the slope, and placement of the geotextile and rip-rap rock. The budget estimate provided above does not include any environmental services costs.

Alternatively, if desired, a commercial product consisting of a flexible interlocking system of concrete blocks available in “sheets”, such as the Armorflex system by Armortec, could be used in place of the rock rip-rap. Based on our assumptions for the rip-rap design, this system would be placed over a layer of non-woven geotextile and a layer of clean aggregate. The estimated construction budget to carry out this work would be on the order of **\$260,000 plus applicable taxes**.

3.3 GEOTECHNICAL ENGINEERING CONSTRUCTION SERVICES

The fees provided for design services do not include provision of geotechnical engineering services following submission of the design report, such as revisions to the report, consultation during design development,

attendance at meetings, or construction review services. Fees for any additional geotechnical engineering services would be based on our hourly rates.

It is anticipated that a site meeting would be required prior to the start of construction, and four field reviews would be required during construction of the rip-rap slope. Our estimated budget for construction review would be on the order of **\$4,000 plus applicable taxes**.

A proposal and detailed budget estimate for the provision of detailed rip-rap design services and / or construction review services can be provided upon request.

4.0 CLOSURE

This preliminary budget estimate has been prepared by Levelton Consultants Ltd. exclusively for the Client and their appointed agents. The opinions and recommendations provided in this letter reflect our judgement in light of the information provided to us at the time that it was prepared.

Any use of this report by third parties, or any reliance on or decisions made based on it, are the responsibility of such third parties. Levelton does not accept responsibility for damages suffered, if any, by a third party as a result of their use of this report.

We trust that the information presented in this letter meets with your immediate requirements. If you have any questions or require additional information, please do not hesitate to contact our office.

Yours truly,

Levelton Consultants Ltd.

Original Signed By:

Per: Paul R. Ell, P.Eng.
Senior Geotechnical Engineer / Principal

Original Signed By:

Per: Marisa Loude, ASCT, LEED Green Assoc.
Senior Engineering Technologist

Reviewed By:
Michael Gutwein, P.Eng.
Senior Geotechnical Engineer

ML/PRE

Attachment: Terms of Reference for Geotechnical Reports
Figure 1 - Site Plan



TERMS OF REFERENCE FOR GEOTECHNICAL REPORTS ISSUED BY LEVELTON CONSULTANTS LTD.

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All documents, records, drawings, correspondence, data, files and deliverables, whether hard copy, electronic or otherwise, generated as part of the services for the Client are inherent components of the Report and, collectively, form the instruments of professional services (the "Instruments of Professional Services"). The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to Levelton by the Client, the communications between Levelton and the Client, and to any other reports, writings, proposals or documents prepared by Levelton for the Client relative to the specific site described in the Report, all of which constitute the Report.

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TERMS OF REFERENCE FOR GEOTECHNICAL REPORTS
ISSUED BY LEVELTON CONSULTANTS LTD. (continued)

5. INTERPRETATION OF THE REPORT

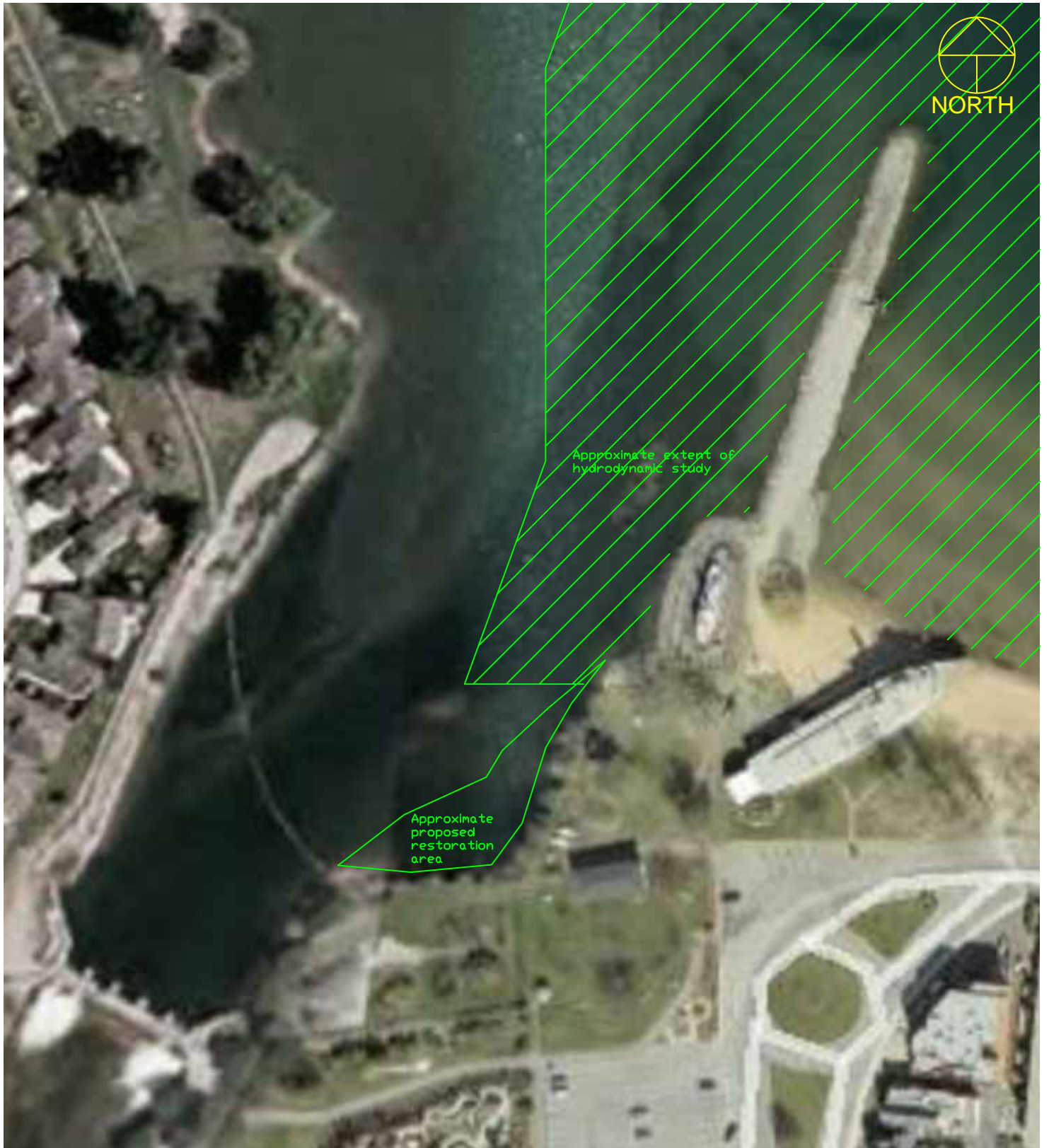
- a. **Nature and Exactness of Descriptions:** The classification and identification of soils, rocks and geological units, as well as engineering assessments and estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1 above. The classification and identification of these items are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations or assessments utilizing the standards of Paragraph 1 involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to changes over time and the parties making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or when the Client has special considerations or requirements, the Client must disclose them to Levelton so that additional or special investigations may be undertaken, which would not otherwise be within the scope of investigations made by Levelton or the purposes of the Report.
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- c. **Additional Involvement by Levelton:** To avoid misunderstandings, Levelton should be retained to assist other professionals to explain relevant engineering findings and to review the geotechnical aspects of the plans, drawings and specifications of other professionals relative to the engineering issues pertaining to the geotechnical consulting services provided by Levelton. To ensure compliance and consistency with the applicable building codes, legislation, regulations, guidelines and generally-accepted practices, Levelton should also be retained to provide field review services during the performance of any related work. Where applicable, it is understood that such field review services must meet or exceed the minimum necessary requirements to ascertain that the work being carried out is in general conformity with the recommendations made by Levelton. Any reduction from the level of services recommended by Levelton will result in Levelton providing qualified opinions regarding adequacy of the work.

6. ALTERNATE REPORT FORMAT

When Levelton submits both electronic and hard copy versions of the Instruments of Professional Services, the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding upon Levelton. The hard copy versions submitted by Levelton shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions; furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed and sealed versions of the Instruments of Professional Services maintained or retained, or both, by Levelton shall be deemed to be the overall originals for the Project.

The Client agrees that the electronic file and hard copy versions of Instruments of Professional Services shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Levelton. The Client warrants that the Instruments of Professional Services will be used only and exactly as submitted by Levelton.

The Client recognizes and agrees that Levelton prepared and submitted electronic files using specific software or hardware systems, or both. Levelton makes no representation about the compatibility of these files with the current or future software and hardware systems of the Client, the Approved Users or any other party. The Client further agrees that Levelton is under no obligation, unless otherwise expressly specified, to provide the Client, the Approved Users and any other party, or any or all of them, with specific software and hardware systems that are compatible with any electronic submitted by Levelton. The Client further agrees that should the Client, an Approved User or a third party require Levelton to provide specific software or hardware systems, or both, compatible with the electronic files prepared and submitted by Levelton, for any reason whatsoever included but not restricted to an order from a court, then the Client will pay Levelton for all reasonable costs related to the provision of the specific software or hardware systems, or both. The Client further agrees to indemnify and hold harmless Levelton, its officers, directors, employees, agents, representative or sub-consultant, or any or all of them, against any claim or any nature whatsoever brought against Levelton, whether in contract or in tort, arising or related to the provision or use or any specific software or hardware provided by Levelton.



Approximate extent of hydrodynamic study

Approximate proposed restoration area

LEGEND	ADAPTED FROM Google Earth Image		TITLE Site Plan			
	DATE Jan 13, 2015	PROJECT NO. N/A	PROJECT SS Sicamous Waterfront Rehabilitation			
	This drawing is the sole property of Levelton Consultants Ltd. and cannot be used or duplicated in any way without the expressed written consent of Levelton Consultants. The general contractor shall verify all dimensions and report any discrepancies to Levelton Consultants Ltd.		ADDRESS Riverside Drive, Penticon, BC			
	 LEVELTON 108 - 3677 Hwy 97N Kelowna, BC V1X 5C3 p: 250-491-9778 f: 250-491-9729 www.levelton.com		CLIENT CTQ Consultants Ltd.			
DWN ML	CHK PRE	SCALE NTS	DATE January 2015	PROJECT NO. R714-0770-00	DRAWING NO. FIGURE 1	

APPENDIX D

MEMORANDUM

To: Ed Grifone
CTQ Consultants Ltd.
Tel: 250-979-1221 x 119
e-mail: egrifone@ctqconsultants.ca

From: Michael Isaacson, P.Eng.
Tel: 604-822-4338
Cell: 604-367-7598
e-mail: isaacson@apsc.ubc.ca

Date: December 17, 2014

RE: S.S. SICAMOUS AREA MASTER PLAN – HYDRODYNAMIC STUDY,

SUMMARY

This report is in support of a proposed Master Plan for the SS Sicamous Heritage Shipyard Area on Okanagan Lake that is intended to consider potential moorage adjacent to the site. The report focuses on the relevant conditions and criteria for the project, and on categorizing the broad choices needed to develop a set of conceptual designs. For most of the choices, the engineering aspects of the designs are quite feasible.

1. INTRODUCTION AND SCOPE OF WORK

The City of Penticton has contracted CTQ Consultants Ltd. to develop a Master Plan for the SS Sicamous Heritage Shipyard Area on Okanagan Lake. The study is to consider the possibility of some boat moorage adjacent to the site. The site is indicated in Fig. 1.

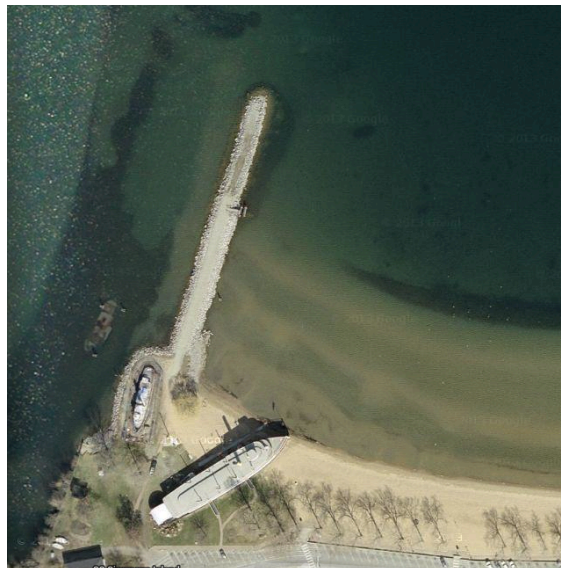


Fig. 1. Project Site.

The objective of this report is to outline the context for developing conceptual designs with respect to potential boat moorage at the site. The scope of work has included the following:

1. Review of previous reports and information as may be relevant and available.
2. Site visit to review the site and to meet with representatives of the SS Sicamous Restoration Society, city and provincial officials, CTQ staff, and other participants in the project.
3. Determination of wave conditions at the site (wave directions, heights and periods) as may be relevant, based on available wind data and a wave hindcast analysis.
4. Assessment of other environmental conditions, including lake levels and water depths, currents, sediment movement, and flushing characteristics.
5. Categorization of preliminary design choices, including potential moorage locations, intended usage, and breakwater options.
6. If requested, development of conceptual designs of potential moorage options.
7. If requested, preliminary design of a preferred option taking account of contractor and dock builder input.

2. AVAILABLE INFORMATION

Relatively little information from previous studies appears to be available. A concept plan for the S.S. Sicamous Site was developed in March 2011 by *Allen + Maurer architects ltd.* This was an architectural / planning study that did not include an engineering assessment. However, based on the May 27 site visit and related interviews, additional information and observations have been assembled as summarized below.

Overview of Lake Okanagan shoreline. Figure 2 provides an indication of the Lake Okanagan shoreline at Penticton, with various features highlighted as follows. The project site is denoted A. Immediately east of the site (B), the beach is designated for swimming only. Temporary docks are located in area C, where a company provides rental of various craft such as See-Doos, kayaks and powerboats. Adjacent to Penticton Lakeside Resort (D), a small dock is protected by a vertical timber breakwater, and with a small rock groin limiting sediment movement from the east. Penticton Creek flows into the lake at E. Finally, Penticton Yacht Club (F) includes a rubblemound breakwater that provides a high level of protection for moored vessels.



Fig. 2. Lake Okanagan Shoreline at Penticton.

Of particular interest, Figs. 3, 4, 5 and 6 show views of some of the above features.



Fig. 3. View of swimming beach.



Fig. 4. View of temporary dock used for boat rentals.



Fig. 5. View of dock at Penticton Lakeside Resort.



Fig. 6. View of Penticton Creek flowing into Lake Okanagan.

Penticton Yacht Club. Rudy Enzmann, Club Commodore, has provided relevant information as follows. The Club operates from April to the end of October (dry storage in the winter months); the rubblemound breakwater has been found to be very effective; winds are predominantly from the north during the summer months, with maximum wave heights (vertical distance from trough to crest) up to about 1.2 m; and lake levels vary by about 1.5 m, being highest in May, remaining high during the summer, and lowest in the winter.

Requirements. Based on discussions at the May 27 site visit, it appears that a marina with gas and other service facilities is not required. As well, moorage for yachts and larger vessels is not required. Rather, discussion focused on small powerboats, most likely with day moorage, as well as possible access to kayaks, paddleboards and other non-powered craft. There are four user groups to be taken into account: casual swimmers, long-distance swimmers, powerboat users, and non-powered craft users.

3. WAVE CLIMATE

Generally, adequate protection from storm waves is a primary requirement in the design of any dock and moorage facility. Therefore, a general assessment of the wave climate at the site is now provided. Based on information obtained, the duration of intended usage is assumed to extend over a seven-month period, from April to October, and therefore the wave climate for this period only is considered.

Methodology. The usual approach to estimating wave climate is to obtain relevant wind data as may be available (speed, duration, direction, frequency of occurrence, monthly distribution); obtain estimates of the fetch at the site for different wind directions as may be relevant; and apply these to a wave hindcast analysis so as to determine corresponding wave heights and wave periods. (Wave height is the vertical distance from trough to crest.) Finally, this approach may need to take account of modifications to waves due to shoaling and refraction as waves reach the site. In such work, the "*significant wave height*," which is the average height of the highest one-third of waves in a sea state or storm condition, is used as the reference wave height.

Wind data. Wind data at Penticton Municipal Airport, as obtained by Environment Canada, is available over many years. A useful source of such data is weatherstats.ca. This provides relevant data on wind speeds, gust speeds, and wind directions over extended periods, broken down by month, quarter or year.

Fetch. Lake Okanagan in the vicinity of Penticton is shown in Fig. 2. This provides the relevant fetches for different wind directions. In fact, winds from the north are predominant and the corresponding fetch is the longest.

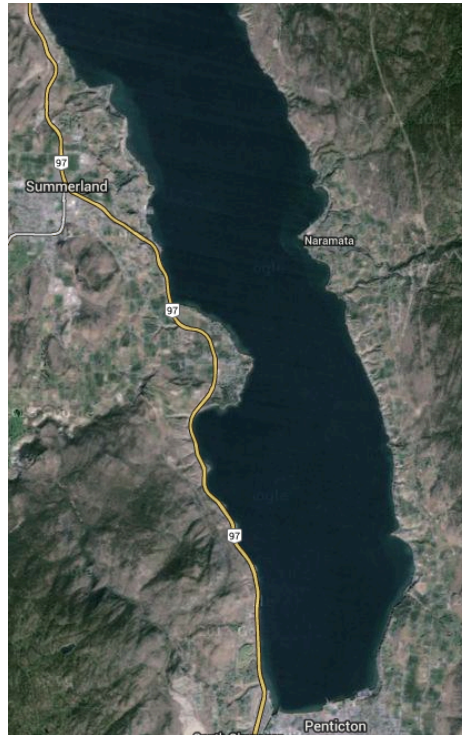


Fig. 7. Fetch adjacent to the site.

Corroboration. If possible, it is appropriate to validate a hindcast analysis based on additional information whenever available. In this case, this has been validated for extreme wave heights reported near the Penticton Yacht Club; and as well for wave periods measured during the site visit on May 27.

Findings. Over the period April – October, the predominant wave direction is from the North, and therefore only one wave direction need be considered in the design. Based on the hindcast analysis, the most severe wave conditions are found to have a wave height and period (in deep water) of 1.2 m and 3.1 sec respectively.

Vessel-generated waves. In addition to wind-generated waves, vessel-generated waves may be a design constraint for some docks and marinas. However, this is not a consideration in the present case.

4. OTHER CONDITIONS AND CRITERIA

Beyond protection from adverse wave conditions, the design of a facility will need to take account of a range of other criteria and conditions at the site, including water levels and water depths, currents, sediment movement, soil conditions, and flushing, all in the context of the intended usage of the facility. Preliminary comments on these are provided below.

4.1 Lake levels and water depths. The figure below, developed from data obtained from Environment Canada, shows the mean, maximum and minimum lake levels each month for five years (2009 – 2013). This indicates that lake levels may vary by up to about 1.2 m over the year, being the highest in the summer and the lowest in the winter.

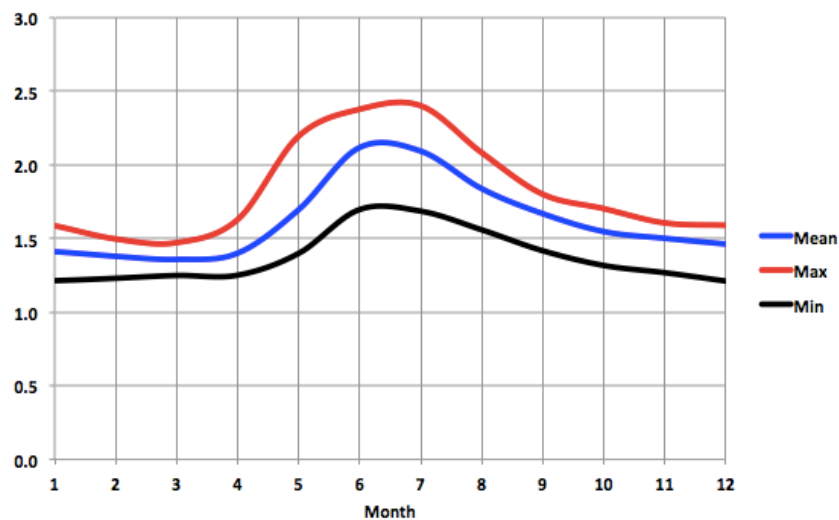


Fig. 8. Monthly water levels in Lake Okanagan.

In May 2014, CTQ Consultants undertook a bathymetric survey of Penticton's Okanagan Lake foreshore. The results are given in Fig. 9 below (depth measurements are in feet).

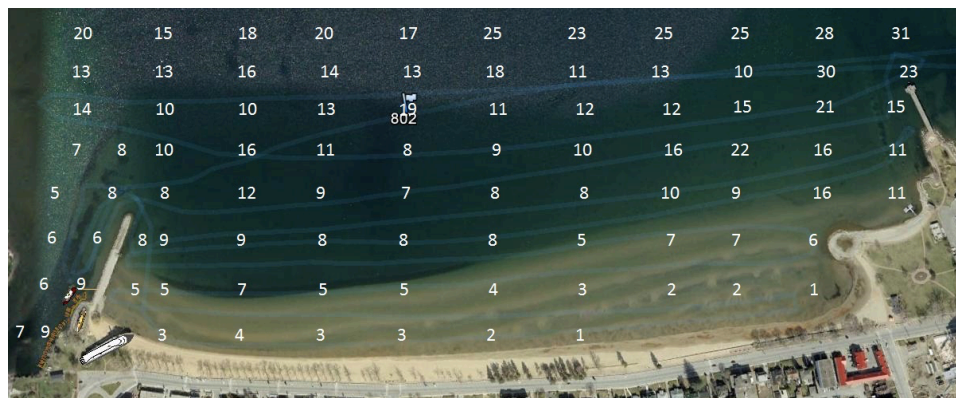


Fig. 9. Measured water depths adjacent to the site (May 2014).

4.2 Currents. Currents are reasonably strong on the west side of the groin near the approach to the dam. Otherwise, east of the groin and along the Penticton shoreline, the currents are modest with a general flow from east to west, associated in part with the outflow from Penticton Creek and with the inflow to the dam.

4.3 Sedimentation. Based on the prevailing current direction, there is generally a weak movement of sediment from east to west. This is evident at the rock groin adjacent to the hotel. Therefore, it is expected that sediment at the site will build up slowly over time. However, this is expected to be very gradual and it is suggested that no remedial measures need be taken to address this. Rather, should the extent of the build-up warrant it in future years, minor dredging at the site may be required.

4.4 Flushing. One aspect of design relates to the accumulation of debris and poor water quality associated with reduced flushing, especially for a lake where there is no natural flushing (water exchange) due to tidal fluctuations. Any proposed design may need to be assessed from this viewpoint.

4.5 Navigability. There is generally open access to the site, and navigability is not expected to be an issue. However, some protection of the designated swimming area with respect to craft may be required.

4.6 Acceptable wave conditions. Traditionally, breakwaters are designed to protect pleasure craft in marinas from damage due to excessive wave heights. Although more elaborate criteria are available, a rule of thumb is that wave heights at the location of moored vessels should be less than 0.3 m. Smaller powerboats would be more susceptible to wave damage than larger vessels, corresponding to smaller limiting wave heights. On the other hand, the wave height requirement can be relaxed notably for a facility that is used for day moorage only, with no vessels moored overnight or over extended periods.

4.6 Permitting. Any dock and moorage that is developed may need to undergo permitting or other approval process. This may be more challenging for some locations / arrangements at the site than for others.

4.7 Summary. Overall, it is expected that, given the estimated wave climate and the preceding considerations, the engineering design of the facility should be quite reasonable to undertake, once the scope of the project has been fully defined.

5. CONCEPTUAL DESIGN OPTIONS

In developing conceptual design options, the following are the broad parameters that require consideration.

5.1 Moorage location. Any potential moorage may be to the east and/or west of the groin, and possibly to the west of a new pier located at the extreme east of the site. In this report, "pier" refers to a small pleasure pier intended for use as a walkway and supported by piles to allow currents to flow almost unhindered. However, we would

advocate against the use of the west side of the groin. As discussed, there may be issues with stronger currents, fish passage, potential safety issues relating to the dam, and permitting. But in addition, there will also be exposure to more severe wave conditions (since the groin is oriented at about 15° from North such that its west face is more exposed to waves than is its east side. A breakwater on the west side that provides sufficient protection may not be practicable with respect to higher cost, increased current magnitudes in some portions of the channel approaching the dam, and permitting. Therefore, only moorage to the east side of the groin is recommended.

5.2 Breakwater layout. Given the findings in Section 5.1 above, if a breakwater is considered necessary (depending on the extent of any moorage that may be provided), it would extend to the east from the tip of the groin, as sketched in Fig. 10. The figure is for illustrative purposes only. If a breakwater is to be developed, then its location, length and orientation will need to be determined through a detailed design study.



Fig. 10. Potential locations of a breakwater (A) and pier (B).

5.3 Pier. A pier as sketched in Fig. 10 is recommended. This is intended primarily to separate the swimming area to the east from an area for human-powered or motorized vessels to the west. Once more, the figure is intended for illustrative purposes only. Once other parameters are more clearly defined, the nature, length and east-west location of the pier, as impacting on the extent of the swimming and moorage areas, will need to

be determined. It is emphasized that the pier should incorporate piles so as not to inhibit current flows.

5.4 Vessels. The sizes and number of craft to be accommodated, if any, and the associated arrangements – support facilities if any, land access and mooring requirements (day moorage versus extended moorage – need to be established by the client. These will impact the total moorage area and the extent of wave protection to be provided. Based on the May 27 site visit, it appears that day moorage for up to about 30 – 40 small powerboats may be accommodated if this is considered desirable.

5.5 Human-powered craft. The option of accommodating kayaks, pedal-boats, paddleboards and other human-powered craft in a distinct area needs to be determined. Given such usage, it is expected that this will be limited to the area immediately west of the pier. This area may include some modest separation feature from the area to be used by powerboats.

5.6 Land access. The requirements and location of land access, including pedestrian access and possibly a boat ramp, need to be determined.

5.7 Breakwater type. Depending on aesthetics, cost and effectiveness, several options may be considered, including a rubblemound breakwater or a timber wall breakwater. It is expected that a pile-restrained or moored floating breakwater will not be recommended.

5.8 Docks and moorage. The nature of the docks and moorage arrangements need to be determined, depending primarily on the number of vessels to be accommodated. This may range from a simple dock parallel to the groin to accommodate a few vessels through to a more elaborate arrangement of slips accommodating up to about 30 vessels.

5.9 Access and attractiveness. Finally, in order to enhance the access and attractiveness of the site, it is proposed that the groin is suitably upgraded (in part to incorporate access to the boat slips), it might incorporate a lookout or other feature at its tip; and the pier should be open to pedestrian access.

6. SUMMARY FINDINGS

A hydrodynamic study of the site has been undertaken with a view to developing conceptual designs for boat moorage in the SS Sicamous Heritage Shipyard Area on Okanagan Lake. It is understood that the site may be used only for the day-moorage of small powerboats, with no gas or shore-side facilities, and no boat ramp for vehicle access from the shore; and that the option of accommodating kayaks, canoes and other non-powered craft in a distinct area is desirable.

Key findings of the study are as follows:

- The site may accommodate slips for up to about 30 powerboats

- Boat moorage should be provided on the east side of the groin only
- If considered necessary – depending on the number of vessels to be accommodated – a breakwater extending east from the tip of the groin should be used to provide protection from waves
- A pier at the east side of the site is recommended in order to separate the area used for swimming; the pier should incorporate piles so as not to inhibit current flows
- The area to the immediate west of the pier may be used for human-powered craft but not for power-boat moorage; this area may in turn entail a modest separation feature from the area to be used by powerboats
- The groin should be suitably upgraded (in part to incorporate access to the boat slips), it may incorporate a lookout or other feature at its tip; the pier should be open to pedestrian access

APPENDIX E

CURRENT FUNDING PROGRAMS THAT MAY APPLY TO SS SICMOUS HERITAGE PARK

Program	Brief Description	Coverage/ \$	Master Plan Elements
HERITAGE			
1. Canada Cultural Spaces			
<ul style="list-style-type: none"> Arts and heritage facilities Municipal and non-profit organizations 	<ul style="list-style-type: none"> Improvements, renovations and construction Feasibility studies Acquisition of specialized equipment 	50% (typically only 38%)	<ul style="list-style-type: none"> First Nation center Sensitive restoration of buildings The boat Dock/ boardwalk at SS Sicamous
2. BC Creative Spaces			
<ul style="list-style-type: none"> No-profit cultural organizations Municipalities not eligible in the past 	<ul style="list-style-type: none"> To improve local arts infrastructure Purchase of specialized equipment Annual intakes of applications not guaranteed 	75% to the max of \$50,000	<ul style="list-style-type: none"> Arts Sculptures Plaza items, possible
3. Heritage Legacy Fund			
<ul style="list-style-type: none"> Conservation and public awareness/ Understanding of heritage resources 	<ul style="list-style-type: none"> Municipalities eligible 		
<ul style="list-style-type: none"> o Conservation 	<ul style="list-style-type: none"> Presentation, rehab and restoration of built resources 	50% (\$25,000 max per project)	<ul style="list-style-type: none"> All boats on site
<ul style="list-style-type: none"> o Awareness 	<ul style="list-style-type: none"> Research, documentation presentation, interpretation, publication, education 	50% (\$10,000 max per project)	<ul style="list-style-type: none"> Interpretive plaques, promotional material and announcements for entire site or the boat, events, etc..

CURRENT FUNDING PROGRAMS THAT MAY APPLY TO SS SICMOUS HERITAGE PARK

Program	Brief Description	Coverage/ \$	Master Plan Elements
<p>4. Special fund for Infrastructure</p> <ul style="list-style-type: none"> Prime ministers announcement In November 2014 regarding \$5.8 billion, \$2.8 of which earmarked for historic, national parks and marine protected areas 	<ul style="list-style-type: none"> Not clear if municipalities are eligible Tie into Canada’s 150th birthday 2017 marks 125th anniversary of first steam ship on Okanagan Lake 	<p>(Open ended)</p>	<ul style="list-style-type: none"> Hull of SS Naramata Infrastructure for site Plaza Shoreline restoration Heritage shipyard
FIRST NATIONS PARTNERSHIPS			
<p>5. FCM First Nations/Community Infrastructure Partnership</p>			
<ul style="list-style-type: none"> Partnerships fostered Between First Nations and municipalities 	<ul style="list-style-type: none"> Resources, templates, support and guidance First Nations and municipality should be co-applicants Water service has been a priority 	<p>(Open ended)</p>	<ul style="list-style-type: none"> Planning and design for First Nations Center
<p>6. First Nation Infrastructure Fund</p> <ul style="list-style-type: none"> Administered by INAC First Nation band is eligible Cost sharing for roads 	<ul style="list-style-type: none"> Planning skills and development Solid waste management Roads/ bridges Connectivity Energy Systems 	<p>(Open ended)</p>	<ul style="list-style-type: none"> Shoreline restoration Trail/ path to First Nations Center

CURRENT FUNDING PROGRAMS THAT MAY APPLY TO SS SICMOUS HERITAGE PARK

Program	Brief Description	Coverage/ \$	Master Plan Elements
<p>7. Western Diversification</p> <ul style="list-style-type: none"> Strategic investments to enhance and strengthen economy of Western Canada 	<ul style="list-style-type: none"> Municipality eligible Capital improvements Two intakes per year 5 categories (Tourism recognized as important sector) Partnerships with First Nations very important 	<p>(50%) \$250,000 (could be more)</p>	<ul style="list-style-type: none"> Entire First Nation project International/ Provincial tourism destination potential Highlight heritage/ park as one of the largest tourist draws in the Okanagan valley
ENVIRONMENT			
<p>8. Eco-Action Community Fund</p> <ul style="list-style-type: none"> Promotes action on clean air, clean water climate change and nature 	<ul style="list-style-type: none"> " Nature" category supports projects focused on protecting, rehabilitating or restoring natural environment Projects must have measurable positive environmental results and promote community participation 	<p>50% \$100,000 max per project</p> <p>—————→</p>	<ul style="list-style-type: none"> Wetlands restoration/ erosion control <p>* Could be ONA, PIB, Province, City, Society and other clubs involved</p>
<p>9. RBC and TD Banks</p> <ul style="list-style-type: none"> Blue Water Community Action Program 	<ul style="list-style-type: none"> Projects that promote "drinkable, swimmable, fishable water" 	<ul style="list-style-type: none"> RBC - \$10,000 TD - \$2500.00 	<ul style="list-style-type: none"> Community/ Rose gardens Landscaping Habitat restoration

CURRENT FUNDING PROGRAMS THAT MAY APPLY TO SS SICMOUS HERITAGE PARK

Program	Brief Description	Coverage/ \$	Master Plan Elements
10. Environment Canada <ul style="list-style-type: none"> • Green Fund Database 	<ul style="list-style-type: none"> • Environmental projects • Data base contains current grant opportunities offered by government and outside government 	(Open ended)	<ul style="list-style-type: none"> • Wetlands restoration
ECONOMIC DEVELOPMENT			
11. Western Economic Development			
<ul style="list-style-type: none"> • See #8 above 			
12. Southern Interior Development Trust			
<ul style="list-style-type: none"> • Grow and diversify economy of Southern Interior of BC • 10 key sectors, including tourism 	<ul style="list-style-type: none"> • Municipalities are eligible • Emphasis on: Strategic alliances, community sustainability, regional impact, job creation, preservation and enhancement • Does not typically fund capital projects 	\$50,000 max per project	<ul style="list-style-type: none"> • Follow-up with program staff Re: details
13. Community Works (Gas Tax)			
<ul style="list-style-type: none"> • Allocated gas tax funds For municipalities 			
<ul style="list-style-type: none"> • Recreation projects now eligible 			
<ul style="list-style-type: none"> • Boatshed/ paddleboat launch area • Tourism related projects 			

CURRENT FUNDING PROGRAMS THAT MAY APPLY TO SS SICMOUS HERITAGE PARK

Program	Brief Description	Coverage/ \$	Master Plan Elements
RECREATION			
14. Community Works (Gas Tax)			
<ul style="list-style-type: none"> See #14 above 			
15. Strategic Priorities (Gas Tax)			
<ul style="list-style-type: none"> Administered by UBCM \$145 million available in current 5 year agreement 	<ul style="list-style-type: none"> Intake deadline for current program – April 15, 2015 Cultural, tourism, sport and recreation infrastructure are eligible 	100% eligible	<ul style="list-style-type: none"> Entire site development should be considered
16. Mountain Equipment Coop (Access and Activity)			
<ul style="list-style-type: none"> Projects that inspire and enable people to be active outdoors 	<ul style="list-style-type: none"> Access – planning, construction and maintenance of facilities and infrastructure Paddling is specific to MEC interests SS Sicamous Society eligible/ not municipality 	\$15,000	<ul style="list-style-type: none"> Paddling center Buoys Log boom Boat storage shed Safety equipment
ACCESSIBILITY			
17. Enabling Accessibility			
<ul style="list-style-type: none"> Improving accessibility in communities Municipalities are eligible *Town of Ladysmith accessed program for their dock/gangway at marina 	<ul style="list-style-type: none"> Renovating and retrofitting or constructing community facilities where programs or services are offered to people with disabilities 	Past max funding between \$50,000-\$75,000	<ul style="list-style-type: none"> Boardwalk and jetty Bathroom Paddling beach Boatshed Viewing decks

CURRENT FUNDING PROGRAMS THAT MAY APPLY TO SS SICMOUS HERITAGE PARK

Program	Brief Description	Coverage/ \$	Master Plan Elements
INFRASTRUCTURE			
18. Strategic Priorities			
<ul style="list-style-type: none"> See #16 above 			
19. Small Communities Fund			
<ul style="list-style-type: none"> Part of new Building Canada fund Population less than 100,000 	<ul style="list-style-type: none"> First intake for BC communities has deadline of February 18th 2015 More traditional infrastructure such as water, sewer and roads 	2/3 of eligible project costs	<ul style="list-style-type: none"> Main Street – Penticton (underway) Riverside Drive/ Round-about Services to jetty Services out to First Nations site
20. Green Municipal Fund			
<ul style="list-style-type: none"> Improvements to environmental performance 	<ul style="list-style-type: none"> Retrofitting, construction, replacement, expansion, purchase or installation of fixed assets or infrastructure Low interest loans and grants 	Low interest loans - \$ 10 million; Grants – 20% of value of loan (max)	<ul style="list-style-type: none"> Perhaps on-site sewer that ensures protection of the lake

CURRENT FUNDING PROGRAMS CONTACT INFORMATION

Program	Contact Information
Canada Cultural Spaces	http://www.pch.gc.ca/eng/1267728945673
BC Creative Spaces	http://www.cscd.gov.bc.ca/arts_culture/
Heritage Legacy Fund	http://www.heritagebc.ca/hlf-grant-applications
FCM's First Nations/Municipal Community Infrastructure Partnership Program	http://www.fcm.ca/home/programs/community-infrastructure-partnership-program/about-the-program.htm
First Nation Infrastructure Fund	https://www.aadnc-aandc.gc.ca/eng/1100100010656/1100100010657
Eco-Action Community Funding Program	http://www.ec.gc.ca/financement-funding/default.asp?lang=En&n=923047A0-1#_06
RBC and TD banks	RBC: http://www.rbc.com/community-sustainability/apply-for-funding/guidelines-and-eligibility/blue-water-project.html TD: https://fef.td.com/funding/
<i>Of interest</i>	http://www.ec.gc.ca/financement-funding/sv-gs/index_e.cfm
Western Diversification Program	http://www.wd-deo.gc.ca/eng/301.asp
Southern Interior Development Trust	http://www.sidit-bc.ca/grant_applications.html
Community Works (Gas Tax)	http://www.ubcm.ca/EN/main/funding/renewed-gas-tax-agreement/community-works-fund.html
Strategic Priorities Fund (Gas Tax)	http://www.ubcm.ca/EN/main/funding/renewed-gas-tax-agreement/strategic-priorities-fund.html
Mountain Equipment Co-op "Access & Activity Fund"	http://www.mec.ca/AST/ContentPrimary/Community/CommunityContributions/AccessAndActivity.jsp

CURRENT FUNDING PROGRAMS CONTACT INFORMATION

Enabling Accessibility	http://www.esdc.gc.ca/eng/disability/eaf/index.shtml
Small Communities Fund	http://www2.gov.bc.ca/gov/topic.page?id=BF4B6CE910FA49E0BAA869054C0B691A
Green Municipal Fund	http://www.fcm.ca/home/programs/green-municipal-fund.htm

APPENDIX F

Assignment

Assess the trees identified within the concept plan for health and structural stability. Provide mitigating measures on tree retention methods for construction site.

Observations

On January 25 and 26, 2015 Mumby assessed the trees in the SS Sicamous Master Plan area. Tree locations seen on Maps A and B. Small metal tree tags were nailed near the base of each tree, see Picture 1.

Forty-two trees were assessed measuring their diameter, height, canopy spread; determining condition, structural stability and retention potential. Table 1 outlines the attributes about each tree.



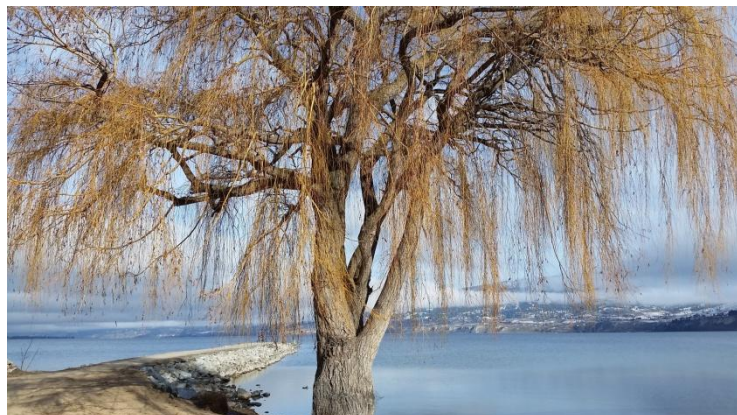
Map A



Map B



Picture 1



Tree 925

Table 1

Tree Tag #	Tree Type	DBH (cm)	Height (m)	Condition %	Tree Risk Rating Chart pg 5	Mitigating measures	Tree Protection Zone (m)	Retention rating 1, 2, 3
925	<i>Salix alba</i>	105	10	80	3	Prune out dead wood	5	1 (good)
926	<i>Populus x jackii</i> 'Northwest'	93	17	50	10	See report	-	3 (poor)
927	<i>Populus x jackii</i> 'Northwest'	74	16	55	10	See report	-	3 (poor)
928	<i>Quercus palustris</i>	17	8	70	3	PHC ¹	3	1
929	<i>Fraxinus pennsylvanica</i> 'Vahl'	49	10	80	3	Prune out broken branches	4	1
930	<i>Populus balsamifera</i>	25	11	70	3		4	2 (fair)
930A	<i>Populus balsamifera</i>	30	11	50	10		-	3
930B	<i>Populus balsamifera</i>	20	10	70	3			2
930C	<i>Populus balsamifera</i>	26	12	70	3		4	2
930D	<i>Ulmus pumila</i>	24	9	85	3		4	2
930 E	<i>Populus balsamifera</i>	17	7	70	3		4	2
930F	<i>Populus balsamifera</i>	21	7	70	3		4	2
930G	<i>Populus balsamifera</i>	28	13	70	3		4	2
930H	<i>Populus balsamifera</i>	16	10	70	3		4	2
931	<i>Populus balsamifera</i>	35	14	70	9	Not viable	-	3
931A	<i>Ulmus pumila</i>	10	6	80	3		3	2
931B	<i>Populus balsamifera</i>	15	10	70	3		3	2
931C	<i>Populus balsamifera</i>	40	15	60	9	Not viable	-	3
932	<i>Gleditsia triacanthos</i>	14	8	80	4	Prune	4	1
933	<i>Gleditsia triacanthos</i>	24	8	80	4	Prune	4	1
934	<i>Gleditsia triacanthos</i>	23	9	80	4	Prune	4	1

¹ PHC Plant Health Care

Tree Tag #	Tree Type	DBH (cm)	Height (m)	Condition %	Tree Risk Rating Chart pg5	Mitigating measures	Tree Protection Zone (m)	Retention rating 1, 2, 3
935	<i>Prunus</i>	12	4	55	3	PHC	2	2
936	<i>Fraxinus pennsylvanica</i> 'Vahl'	28	14	85	4		4	1
937	<i>Gleditsia triacanthos</i>	29	6	75	3		4	1
938	<i>Malus</i>	55	8	85	3	See report	14	1
939	<i>Tilia cordata</i>	49	10	80	3		10	1
940	<i>Gleditsia triacanthos</i>	80	13	85	5	See report	9	1
941	<i>Populus x jackii</i> 'Northwest'	78	24	50	10	Not viable	-	3
942	<i>Populus x jackii</i> 'Northwest'	95	24	60	9		9	2
943	<i>Populus x jackii</i> 'Northwest'	73	24	60	9		9	3
944	<i>Ginkgo biloba</i>	18	6	85	3		3	1
945	<i>Acer platanooides</i>	77	11	70	4		10	1
946	<i>Acer platanooides</i>	68	10	70	4		10	1
947	<i>Populus x jackii</i> 'Northwest'	74	19	50	9		9	3
948	<i>Ginkgo biloba</i>	18	7	85	3		3	1
949	<i>Malus</i>	68	8	80	3	See report	15	1
950	<i>Populus grove</i>	44	17	75	6		10	1
951	<i>Malus</i>	21	4	80	3		5	1
952	<i>Tamarix chinensis</i>	11	4	80	3		2	1
953	<i>Pinus mugo</i>	26	4	80	3		3	1
954	<i>Quercus macrocarpa</i>	25	7	80	3		4	1
955	<i>Amelanchier</i>	11	4	80	3		7	1

Photos of trees specifically not mentioned in the report are on pages 14 and 15.

APPENDIX
1

RISK CATEGORIES WITHIN THE TWELVE POINT RATING SCHEME



The Overall Risk Rating and Action Thresholds (1-3 points)

<i>Risk Rating</i>	<i>Risk Category</i>	<i>Interpretation and Implications</i>
3	Low 1	Insignificant - no concern at all.
4	Low 2	Insignificant - very minor issues.
5	Low 3	Insignificant - minor issues not of concern for many years yet.
6	Moderate 1	Some issues but nothing that is likely to cause any problems for another 10 years or more.
7	Moderate 2	Well defined issues - retain and monitor. Not expected to be a problem for at least another 5 - 10 years.
8	Moderate 3	Well defined issues - retain and monitor. Not expected to be a problem for at least another 1 - 5 years.
9	High 1	The assessed issues have now become very clear. The tree can still reasonably be retained as it is not likely to fall apart right away, but it must now be monitored annually. At this stage it may be reasonable for the risk manager/owner to hold public education sessions to inform people of the issues and prepare them for the reality that part or the entire tree has to be removed.
10	High 2	The assessed issues have now become very clear. The probability of failure is now getting serious, or the target rating and/or site context have changed such that mitigation measures should now be on a schedule with a clearly defined timeline for action. There may still be time to inform the public of the work being planned, but there is not enough time to protracted discussion about whether or not there are alternative options available.
11	High 3	The tree, or a part of it has reached a stage where it could fail at any time. Action to mitigate the risk is required within weeks rather than months. By this stage there is not time to hold public meetings to discuss the issue. Risk reduction is a clearly defined issue and although the owner may wish to inform the public of the planned work, he/she should get on with it to avoid clearly foreseeable liabilities.
12	Extreme	This tree, or a part of it, is in the process of failing. Immediate action is required. All other, less significant tree work should be suspended, and roads or work areas should be closed off, until the risk issues have been mitigated. This might be as simple as removing the critical part, drastically reducing overall tree height, or taking the tree down and cordoning off the area until final clean up, or complete removal can be accomplished. The immediate action required is to ensure that the clearly identified risk of harm is eliminated. For areas hit by severe storms, where many extreme risk trees can occur, drastic pruning and/or partial tree removals, followed by barriers to contain traffic, would be an acceptable first stage of risk reduction. There is no time to inform people or worry about public concerns. Clearly defined safety issues preclude further discussion.

The Table shown above outlines the interpretation and implications of the risk ratings and associated risk categories. This table is provided to inform the reader about these risk categories so that they can better understand any risk abatement recommendations made in the risk assessment report.



Tree 926 (see Picture 2):

Risk assessment attributes:

Poor incremental growth / epicormic growth in upper canopy / slow callus development over wounds / 3 cm cavity on south side at base of tree / large diameter branches dying / compacted and damaged root zone.

Tree has begun its' mortality spiral, not safe to retain.

Picture 2



Picture 3



Picture 4

Tree 927 (see Picture 3)

Risk assessment attributes:

Poor incremental growth / no callus development over wounds / large cavity at 6 meter with decay (see Picture 4) / large diameter branches dying / compacted and damaged root zone. Tree is not safe to retain.

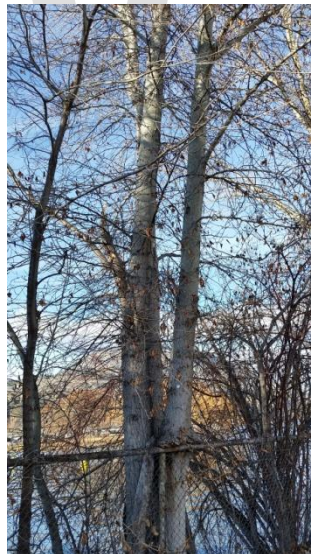


Picture 5

This row of poplar trees are growing along an old wooden retaining wall (see Picture 5). 930A has stem canker at 3 meter height (see Picture 6) and is not safe to retain. One stem of Tree 931 (Picture 7) and both stems of 931C (Picture 8) are growing over fence causing structural damage to the trees. These cannot be retained.



Picture 6



Picture 7



Picture 8

The *Gleditsia* trees (932, 933, and 934) are in good condition and require pruning to remove dead and broken branches. See Pictures 9 and 10.

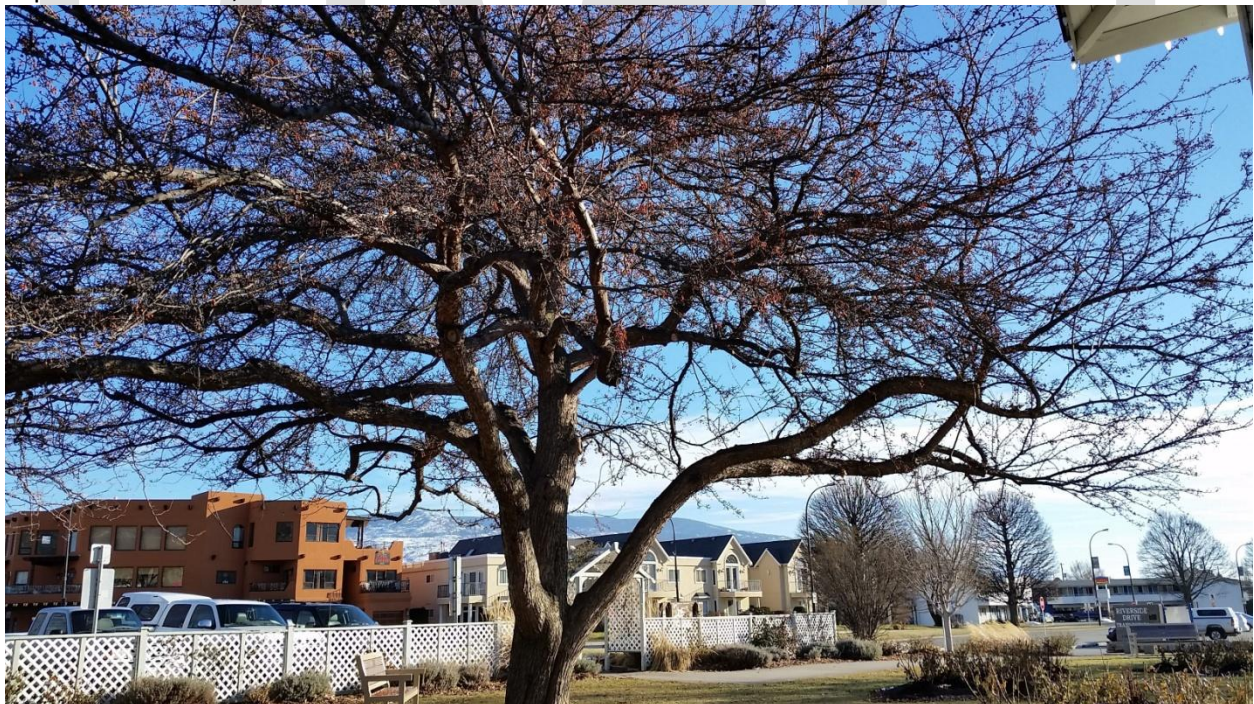


Picture 9



Picture 10

Tree 938 is a heritage ornamental tree, see Picture 11. Tree Protection Zone (TPZ) must be outside the drip line of the tree, measured to be 14 meters.



Picture 11

Tree 940 is one of the largest trees on the site and requires a large TPZ of 9 meters. Construction within the TPZ will require mitigating measures to protect the root zone. See Picture 12.



Picture 12

The poplars near the SS Sicamous are #941, 942, and 943. Tree 941 has a red tag with #1503 and #942 has a red tag #1502, assuming from previous inventory work. All the poplars have had multiple topping events over the years.

Tree 941

Risk assessment attributes:

Poor incremental growth / slow callus development over wounds / cavity on east side; saw starlings flying in and out of cavity (see Picture 13) / large unsealed cuts / compacted and damaged root zone due to new infrastructure (see Picture 14). Tree is not safe to retain.



Picture 13



Picture 14

Tree 942 (See Picture 15) does not have negative risk attributes. Prune out the large dead stub (indicated in Picture 15). The tree should be assessed yearly for risk and the TPZ of 9 meters must be strictly followed. Disturbance to the root zone will negatively affect the health of the tree.



Picture 15



Picture 16

Tree 943 (Picture 16) is in fair condition however structurally, weak. Scaffold branches in the upper canopy are poorly attached, see Picture 17. Although the tree stem is sound, the upper canopy is a safety concern as the tree continues to grow.



Picture 17

Tree 948 (Picture 18) located in the median is a good specimen (Ginkgo) to retain. If it needs to be moved, it will transplant with good success. (Tree 940 is in the background of the photo).



Picture 18



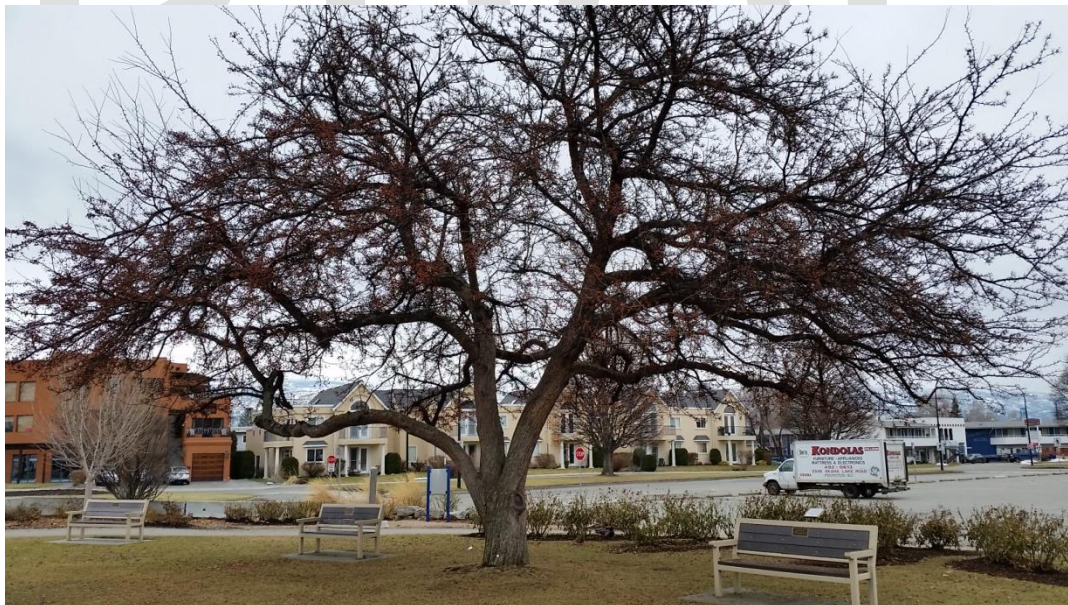
Picture 19



Picture 20

Tree 947 (with red tag 1507) is located on the beach. Picture 19 shows the canopy of the tree and Picture 20 shows stem decay mushrooms growing out of one unsealed cut. The tree has fair incremental growth and pruning cuts have no or poor callus development.

Tree 949 is another heritage tree in the park, see Picture 21. TPZ of 15 meters must be strictly followed.



Picture 21

Discussion

Retain trees on a construction site that are healthy and structurally sound. Construction causes stress to trees no matter how well we plan to mitigate the event. This report is to inform management the trees' over all health, trees not safe to retain and measures to help keep them healthy and structurally sound.

Risk Assessment:

The poplars are beginning to show signs of mortality spiral and management should not retain trees 926 and 927. Of the poplars along the walkway, tree 941 is not viable to retain. The remaining three (942, 943 and 947) should be further discussed with management to determine the importance of retaining these trees. Trees 943 and 947 will require a high amount of monitoring and mitigating.

Pruning:

Table 1 mentions pruning for some of the trees. Needs are removal of dead or broken branches. This measure should be done prior to construction.

PHC (Plant Health Care) is a measure recommended when trees are not a robust as they could be. Slow release fertilizing in the spring will help their vigor. While construction is going on, all the trees should have their root zones soaked with water every 10 -14 days. Lack of water (water stress) is the leading cause for tree decline during and after construction.

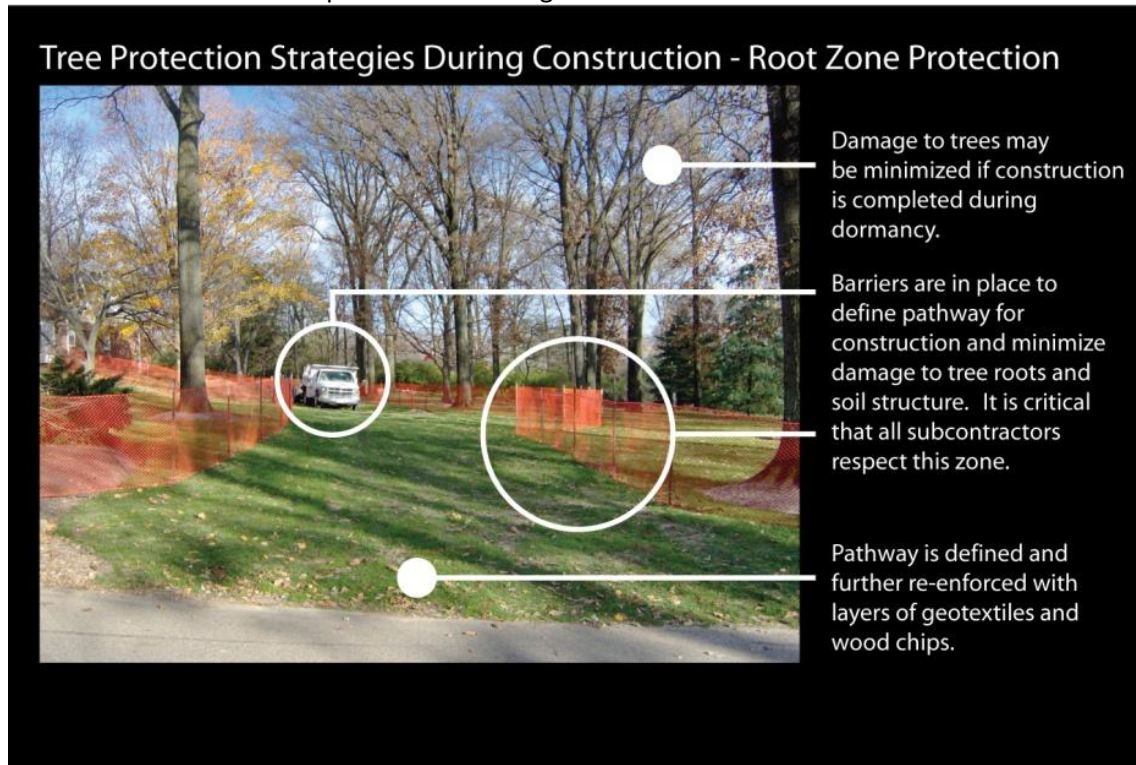
Tree Protection Zone (TPZ): Purpose; to protect the root zone of the tree from damage

On Table 1, the radius required for each trees' tree protection zone is listed in meters. Good TPZ fencing is recommended to protect the root zones, Picture 22 is an example of type.



Picture 22

Picture 23 talks about tree protections strategies.



Picture 23

The last column of Table 1 is the retention rating for each tree. 1 is good, 2 is fair and 3 is poor. This rating is assigned to the tree with consideration of the tree attributes, location, etc. along with the assumption the owner of the trees will be using proper tree protection strategies.

Conclusion

There are 42 trees inventoried for this project.

Mitigating measures for this project are:

- Remove trees 926, 927, 930A, 931, 931C, 941
- Discuss with management the retention of 943 and 947,
- Prune trees 925, 929, 932, 933, 934 before construction begins,
- Install tree protection fencing and put up signage,
- Apply additional water or fertilizer to those trees requiring it,
- Monitor the trees during construction,
- After construction is complete, remove TPZ fencing and
- Reassess the trees if they need additional Plant Health Care (PHC).



931, A - C



935 & 928 in background



936



937



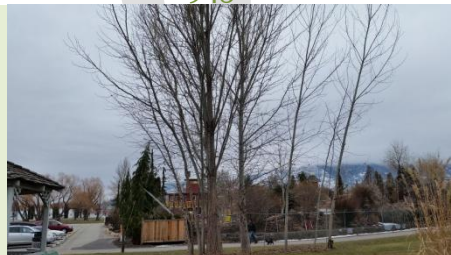
939



945



944



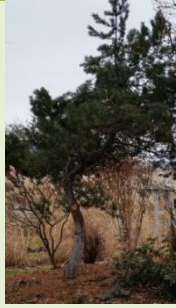
950 grove



951



952



953



954



955

DRAFT

Certification of Performance

I, Verna Mumby, CERTIFY to the best of my knowledge and belief:

- I am aware that under Subrule 11-2(1) of the Rules of Court, I have a duty to assist the court and not be an advocate for any party. I have prepared this report in conformity with my duty to the court as articulated in Subrule 11-2(1) of the Rules of Court. If I am called upon to give oral or written testimony in relation to this matter, I will give that testimony in conformity with my duty to the court as articulated in Subrule 11-2(1) of the Rules of Court.
- I am personally responsible for the content of this report.
- I have personally inspected the trees and the property referred to in this report, and has stated my finding accurately. The extent of the evaluation or appraisal is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboriculture practises.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favours the cause of the client or any other party, or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.
- The information contained in this report covers only those items that were examined and reflect the condition of these items at the time of appraisal. The inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees or property in question may not have been present at the time of the site visit.
- The opinions in this Report are given based upon observations made using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Report are valid only as at the date any such testing, observations and analysis took place.
- That my appraisal is based on the information known to me at this time. If more information is disclosed, I may have further opinions.
- Alteration of any part of this report invalidates the entire report.

I further certify that I am a member in good standing of the American Society of Consulting Arborists and the International Society of Arboriculture. I have been involved in the field of Arboriculture in a full time capacity for a period of more than twenty years.



TREE INVENTORY

RETENTION RATING

- Poor
- Fair
- Good





TREE INVENTORY AND CONCEPT PLAN

