



P.O. Box 1749
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Item No. 06
Halifax Regional Council
April 25, 2017

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: Original Signed by Director _____
Brad Anguish, Director, Parks, Recreation & Communities

DATE: April 5, 2017

SUBJECT: Sawmill Creek Daylighting

INFORMATION REPORT

ORIGIN

- Halifax Regional Council Motion, May 26, 2015:

MOVED by Councillor McCluskey, seconded by Councillor Fisher, that Halifax Regional Council request a supplementary staff report to determine the cost, timeline and scope in regard to undertaking a full investigation of costing of the potential of daylighting of the Sawmill River in Dartmouth, including:
 1. Consideration of the expenditure of unbudgeted funds, to be reviewed by the Audit and Finance Standing Committee for possible funding source, to engage external consultants to assist in obtaining the pertinent data outside the resources of the municipality in order to provide sufficient data for an informed decision of Regional Council on the issue of daylighting Sawmill River; and
 2. That any potential for floodwater damage to surrounding businesses and residents and risks related be included in the scoping of the report. Amended Motion Put and Passed
- Proposal from Halifax Regional Water Commission, March 16, 2017.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, Section 61 (5)(b) The Municipality may sell property at market value when the property is no longer required for the purposes of the Municipality;

BACKGROUND

The Halifax Regional Water Commission (HRWC) has identified the need to replace its existing storm sewer that runs from Sullivan's Pond to the Dartmouth Cove. The existing storm sewer is approximately 600 meters in length, constructed of a corrugated steel pipe that was installed in the late 1960s and early 1970s, and is in a deteriorated state. In July 2015, CBCL Limited (CBCL) developed a series of recommendations for the replacement of the storm sewer. Multiple renewal options were considered by HRWC. The renewal plan selected by HRWC includes a combination of a buried box culvert and a daylighted open channel between Irishtown Road and Sullivan's Pond that met Department of Fisheries and Oceans (DFO) accepted fish passage requirements, while also managing storm water flow. It was selected due to the lowest project life cycle cost and the shortest construction schedule.

To improve fish habitat and passage within Sawmill Creek, DFO requires that HRWC maximize the amount of daylight that reaches the watercourse. 'Daylighting' is the redirection of a watercourse that is typically in an underground pipe, into an above-ground channel, with a goal of restoring it to a more natural state to achieve a suite of localized benefits, including improved fish habitat and increased human interest.

On August 8, 2006, Regional Council, approved a policy to promote daylighting and directed that it be incorporated into the Regional Plan. Consequently, policy SU-10 of the Regional Plan identifies daylighting as an option when storm water infrastructure is being reviewed for significant repair or replacement.

DISCUSSION

After a detailed evaluation of storm sewer renewal, HRWC proposes a two-phased plan to daylight sections of the Sawmill Creek watercourse from Sullivan's Pond to Dartmouth Cove (Attachment A). HRWC recently received federal government funding for phase I, which includes:

- a new outfall from Sullivan's Pond that will include an approximately 20-metre-wide (narrowing to 6 meters wide) daylighted open channel and a pedestrian bridge;
- an open channel in the upper section of Starr Park that will include a naturalized embankment and handrail along its eastern boundary (towards the centre of the park) and a channel wall and fence along the western edge that abuts private properties that are comprised of houses containing commercial uses;
- segments of a box culvert and grated open channel on the "Lock 4 at Starr" condominium property that are currently being coordinated with the condominium corporation; and
- a temporary open channel installation located to the immediate south of the "Lock 4 at Starr" condominium property where it re-enters the existing buried storm water infrastructure.

A written description along with a plan and sections of the proposal are found in Attachments B and C. Two HRM parks will be affected by storm sewer replacement work: Sullivan's Pond Park and Starr Park.

Sullivan's Pond Park

The current outfall will be replaced with a new weir that will provide an improved understanding of the direction of the water flow towards Starr Park. A pedestrian bridge will also be constructed which, combined with the outfall and channel, will allow for public viewing. The construction will result in the removal of approximately three trees, but care has been taken to ensure their replacement and that the new outfall will not significantly compromise the continued use of the adjacent green space for passive recreation purposes and public events. HRM will need to provide a new easement to HRWC for the daylighting within Sullivan's Pond Park.

Starr Park

HRWC has the ability to daylight portions of Sawmill Creek that fall within the bounds of an existing easement, therefore much of HRM's interest is in coordinating the design and the work that will take place within the park.

The daylighting project has been designed to accommodate high volumes of storm water in significant events without flooding neighbouring properties. During such circumstances, naturalized areas of the

proposed channel, such as the upper section of Starr Park, may be the subject of water overflow but is designed to be contained by the inclined plane pathway.

At the lower section of Starr Park, HRWC has considered the continuation of a defined channel or the construction of a pond which might serve as a fish-resting area. However, neither of these are within its current budget. In this area, it will construct a temporary channel to transition from the proposed box culvert at "Lock 4 at Starr" condominium into the existing steel culvert. This would remain in place until phase II of the project occurs, which would include a continuation of daylighting to the harbour. A temporary channel also allows for time to consider the finished design of this section of the park where the intent has been to complete the interpretive elements of the inclined plane and other representations of the industrial elements of what would have been present on the site in the 1860's.

With regard to HRWC's project, the following is noted:

- The daylighting will provide further historical interpretation of the presence of water within the park, in addition to its ecological benefits.
- Its design has considered the feasibility of the project with regard to surrounding environment, land use and ownership, adequacy of space, drainage and potential flooding issues during dry and high-flow events, and safety matters.
- The open channel described above will be largely comprised of a three-sided concrete box culvert with fish baffles and pre-cast block walls. This design promotes fish passage and accommodates potentially high volumes of water over relatively significant changes in elevation.
- While the project is underway, there will be the need to control the flow of water, which may temporarily cause upstream water to rise, which is a matter that will be coordinated between HRWC and HRM.
- Responsibility for the project rests solely with HRWC. HRM retains responsibility for its parkland.
- The cost of the project will be borne by HRWC, with funding from the federal government.

Previous Daylighting Considerations

The potential daylighting of Sawmill Creek has been the subject of past Community and Regional Council consideration. Issues with the daylighting of Sawmill Creek previously raised (e.g. interference with site archeology and historic features, achieving fish passage over a significant elevation change, establishing a naturalized channel, disposal of contaminated soil, high project costs) have been addressed in the current HRWC proposal through the following:

- The orientation of the current proposed daylighted channel does not impact the Flume House or other associated historical elements. The completion of phase II in the lower section of park will require consideration of future interpretation elements.
- The site will continue to be interpreted largely to what existed on the site in 1862. At that time, there was a watercourse (Sawmill Creek) on the western side of the site, largely in the location where the daylighting is to occur.
- There are substantial challenges associated with the change in elevation to allow the fish passage. However, the daylighting channel is being designed to facilitate this. When feasible, the daylighting should appear as natural as possible. This is being achieved in locations such as the upper area of Starr Park that will include a naturalized embankment along its eastern boundary (towards the centre of the park). Other daylighting sections will be within a defined channel, which is necessary to address storm water flow requirements and fish passage. It is the intent of both HRWC and HRM staff that the daylighted segments have naturalized features that are accessible to the public to the greatest degree possible within the parks.
- The overall costs of the daylighting project are within HRWC's budget, with funding from the federal government.

Easements

The proposed daylighted sections within Starr Park and the “Lock 4 at Starr” condominium property largely follow the location of the Sawmill Creek watercourse Easements were granted to the former City of Dartmouth to allow for the installation of the pipe, which have now been assumed by HRWC. The presence of the easements allows HRWC to undertake the daylighting within Starr Park and on the “Lock 4 at Starr” condominium property. Other sections, namely in Sullivan’s Pond Park, require HRM’s approval and the granting of an easement to HRWC. Due to the size and value of the easement, it is expected that the easement will be able to be granted by staff under HRM’s *Transaction Policy – Real Property Acquisitions and Disposals*. Should the terms of the easement exceed the *Transaction Policy – Real Property Acquisitions and Disposals*, staff will return to Regional Council for their approval.

Next Steps

HRWC has issued its tender for the daylighting project. It will also be hosting an information meeting to share details about the project with the public. HRM staff will participate in the meeting with HRWC. HRM staff will grant the easements that may be required and work with HRWC to ensure that the project is coordinated and results in improvements to the parks. HRWC is required to complete the work by March 2018.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this information report. Any financial implications related to future phases would be presented in future reports to Council.

COMMUNITY ENGAGEMENT

HRWC is currently discussing the work with property owners that are directly impacted by the project. This will continue over the next several weeks. Much of the work that is being proposed has been the subject of previous community and stakeholder engagements. As such, the need for broad community engagement in advance of plans being devised for the project is not seen as being warranted. However, for information sharing purposes, HRWC will host a community meeting before construction commences and will be attended by HRM staff.

ATTACHMENTS

- Attachment A Location and Context
- Attachment B Proposal Information from Halifax Water
- Attachment C Proposed Plan and Sections

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.php> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 902.490.4210, or Fax 902.490.4208.

Report Prepared by: Richard Harvey, Manager of Policy and Planning, 902.476.5822
Stephen Cushing, Landscape Architect, 902.292.1565

ATTACHMENT B - PROPOSAL INFORMATION FROM HALIFAX WATER



March 16, 2017

Via Email: harveyri@halifax.ca

Mr. Richard Harvey, LPP, MCIP
Manager, Policy and Planning
Halifax Regional Municipality
Parks and Recreation
PO Box 1749
Halifax, NS B3J 3A5

Dear Sir:

Re: Sullivan's Pond Stormwater Replacement - Phase 1

Further to our meeting of January 26, 2017, the following provides a description of Phase 1 of this project which is scheduled to be constructed in 2017. The entire stormwater system from the outlet to the Harbour to Sullivan's Pond is approximately 600 metres in length and Phase 1 consists of the upper half of the system. A plan view of Phase 1 is attached. The Phase 1 project consists of a number of distinct segments and, commencing at Sullivan's Pond, these can be described as follows:

- 1) Thirty (30) metres of open channel will be constructed from the southerly corner of Sullivan's Pond to a new bridge under Ochterloney Street. Further detail as follows:

Appearance: See the attached cross section A. The bottom part of this channel will be constructed of concrete and include a baffle/weir system to provide for fish passage. The upper part of this channel will be constructed of pre-cast concrete blocks. Reinstatement will be undertaken of areas disturbed by construction. A foot bridge will be constructed over this open channel so as to provide for continuity of a pedestrian walkway.

Security: A railing system will be constructed along the top of both sides of this open channel so as to provide pedestrian safety.

Land Ownership/Easement: This section of the work will be constructed on HRM property over which Halifax Water has no easement.

ATTACHMENT B - PROPOSAL INFORMATION FROM HALIFAX WATER

- 2) A 73 metre long bridge will be constructed under Ochterloney Street. Further detail as follows:

Appearance: The bottom part of this bridge will be constructed of concrete and include a baffle/weir system to provide for fish passage. The upper part of this bridge will be constructed of pre-cast concrete units. The street, curb, sidewalk, and all impacted utilities will be reinstated.

Land Ownership/Easement: It is noted that the bridge, due to its orientation to the street, will extend nominally beyond the limits of the public right-of-way on both the upstream and downstream ends. The upstream end will be located within a HRM property over which Halifax Water has no easement. The downstream end will be located within the property of the Esso service station and HRM Starr Park property. Halifax Water has an easement over both of these properties. Halifax Water has engaged the owner of the Esso service station and informed them of the project. Discussions are ongoing relative to what impacts will result during construction.

- 3) Immediately downstream of the new bridge will be a 65 metre section of open channel. Further detail as follows:

Appearance: See the attached cross section B. The bottom part of this channel will be constructed of concrete and include a baffle/weir system to provide for fish passage. On the westerly side the upper part of this channel will be a retaining wall constructed of pre-cast concrete blocks and it will abut the rear of properties which front on Ochterloney Street. The ground on the westerly side of this open channel will be regraded so as to provide greater public access and ability to view the channel. All disturbed areas will be reinstated.

Security: A security fence will be erected along this side of the westerly side of the channel. A railing system will be installed along the easterly side of the channel which will enable the public to view the system and will provide for public safety.

Land Ownership/Easement: This section of the stormwater system is located on the HRM Starr Park property over which Halifax Water has an easement. It is noted that the regrading of the land on the easterly side will extend beyond the limit of the easement and work in this area will be by permission of the HRM.

At this time the contractor's construction methodology is unknown and thus it is uncertain if the construction will need to extend beyond the limits of the westerly limit of the easement. Beyond this westerly limit are four properties, which front on Ochterloney Street, and Halifax Water is currently in the process of contacting these property owners to inform them of them project and the potential for some disruption to their property during construction.

ATTACHMENT B - PROPOSAL INFORMATION FROM HALIFAX WATER

- 4) The next section will be a 20 metre bridge so as to provide for vehicle access to the Lock 4 @ Starr Condominium building. Further detail as follows:

Appearance: This bridge will be a pre-cast concrete structure and will include a baffle/weir system to provide for fish passage.

Land Ownership/Easement: The structure will be on property owned by the Lock 4 @ Starr Condominium over which Halifax Water has an easement. In 2016 Halifax Water met with representatives of the Lock 4 @ Starr Condominium to advise of the project. During construction the primary impact will be lack of direct vehicle access to this building. Halifax Water has been exploring means of providing a suitable option for parking as well as other issues such as refuse collection, etc. Halifax Water expects to meet with representative of this building in March to review the final detailing of the project.

- 5) Below the bridge for the Lock 4 @ Starr Condominium building will be a 91 metre section located on private property. Further detail as follows:

Appearance: The construction will consist of a pre-cast concrete structure and include a baffle/weir system to provide for fish passage. As light is deemed beneficial for fish passage, light will be accommodated via a system of openings to the surface.

Security: The openings provided for natural illumination of the channel will be covered with grates.

Land Ownership/Easement: This section of the structure will be on land owned by the Lock 4 @ Starr Condominium and PID#00230953 (a vacant property) which is located south of Lock 4 @ Starr Condominium. Halifax Water has an easement over both of these properties. As previously discussed Halifax Water has engaged representatives of the Lock 4 @ Starr Condominium. As well, in 2016 Halifax Water met with Mr. Dixon, the owner of PID#00230953, to understand his perspective on the project.

At this time the contractor's construction methodology is unknown and thus it is uncertain if the construction will need to extend beyond the limits of the westerly limit of the easement. Beyond this westerly limit are three properties, which front on Ochterloney Street, and Halifax Water is currently in the process of contacting these property owners to inform them of them project and the potential for some disruption to their property during construction.

- 6) The final 20 metres of Phase 2 will be a temporary connection from Phase 1 to the existing stormwater structure. Further detail as follows:

Appearance: To accommodate the temporary connection approximately 10 metres will consist of buried pipe and 10 metres will be open channel. See the attached cross

ATTACHMENT B - PROPOSAL INFORMATION FROM HALIFAX WATER

section C which represents the open channel. It is noted that the open channel section is located toward the westerly boundary of the HRM Starr Park property and thus not in immediate proximity to the historical interpretation being developed within Starr Park. This 20 metres will be reconfigured at such time that Phase 2 of the Sullivan's Pond Stormwater Replacement is undertaken.

Security: A security fence will be erected along the westerly side where it abuts private property. A railing system will be installed along the easterly side of the channel where it abuts the Starr Park so as to provide for public safety.

Land Ownership/Easement: This section of the stormwater system is located on the HRM Starr Park property and on the vacant property (PID#00230953). Halifax Water has an easement over PID#00230953 that will permit the required work. The infrastructure to be constructed on the HRM park property will mostly be within the bounds of an existing easement but some will extend beyond the easement limit.

It is noted that the contractor will be responsible for the control/flow of water from Sullivan's Pond so that the project can be executed. This will include the management of water levels within Lake Banook in accordance with 2009 Terrain report (Lake Banook Weir Operation Study) and Nova Scotia regulatory requirements. In order to manage the water levels within Lake Banook the damaged HRM berm will require repair and this will be undertaken within the project construction contract.

We trust that this provides a sufficient description of our proposed project but please contact the undersigned should there be any questions via phone 902-490-6176 or via email at ellisda@halifaxwater.ca.

Sincerely,

Original signed



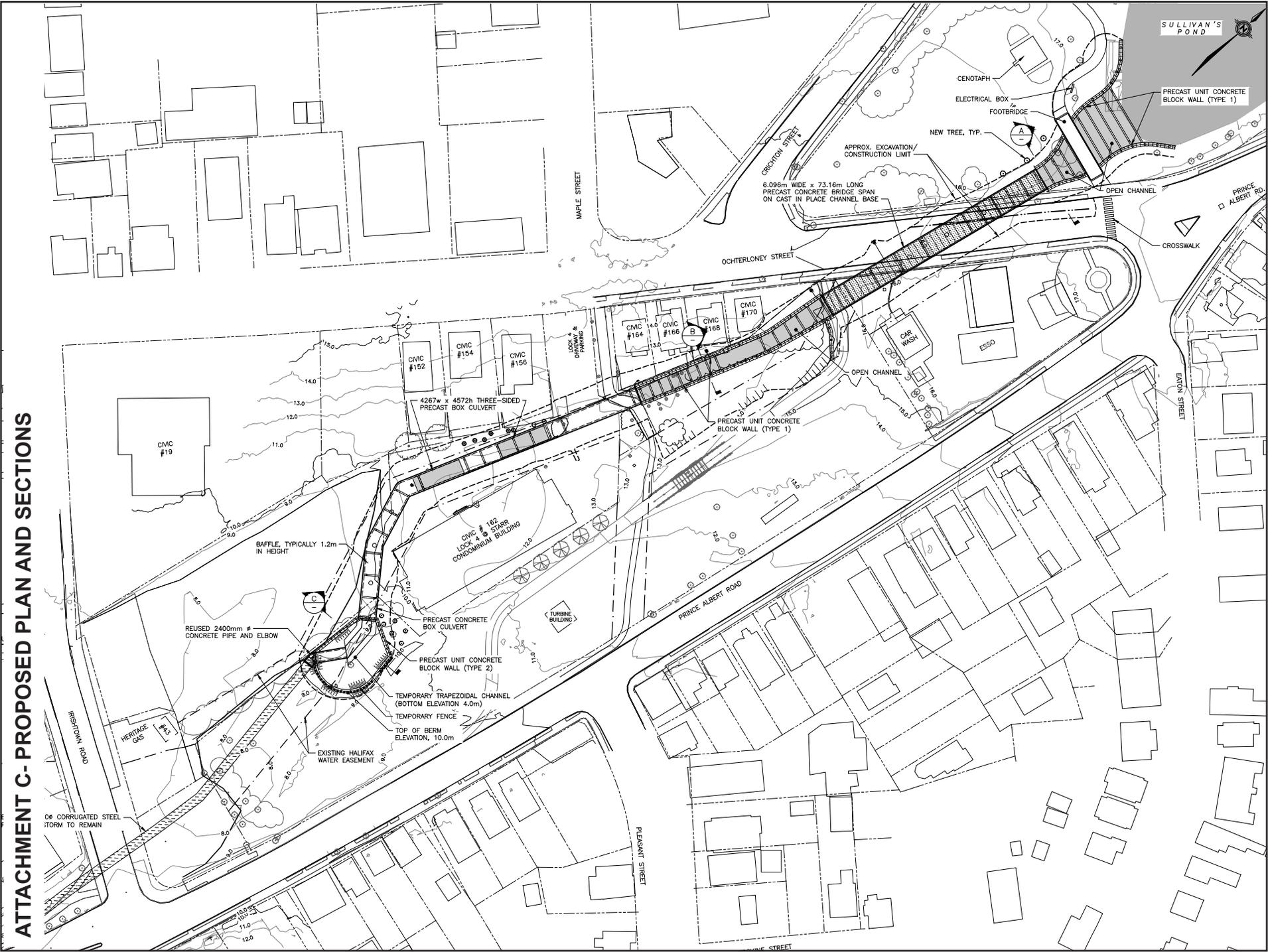
David Ellis, P.Eng.
Manager, Wastewater Stormwater Infrastructure Engineering

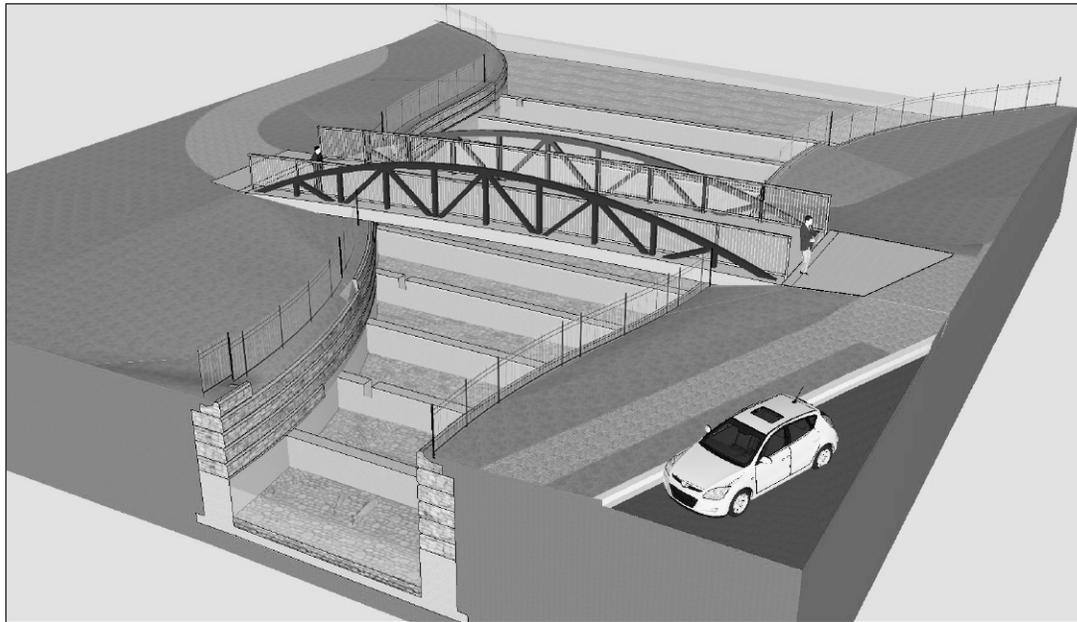
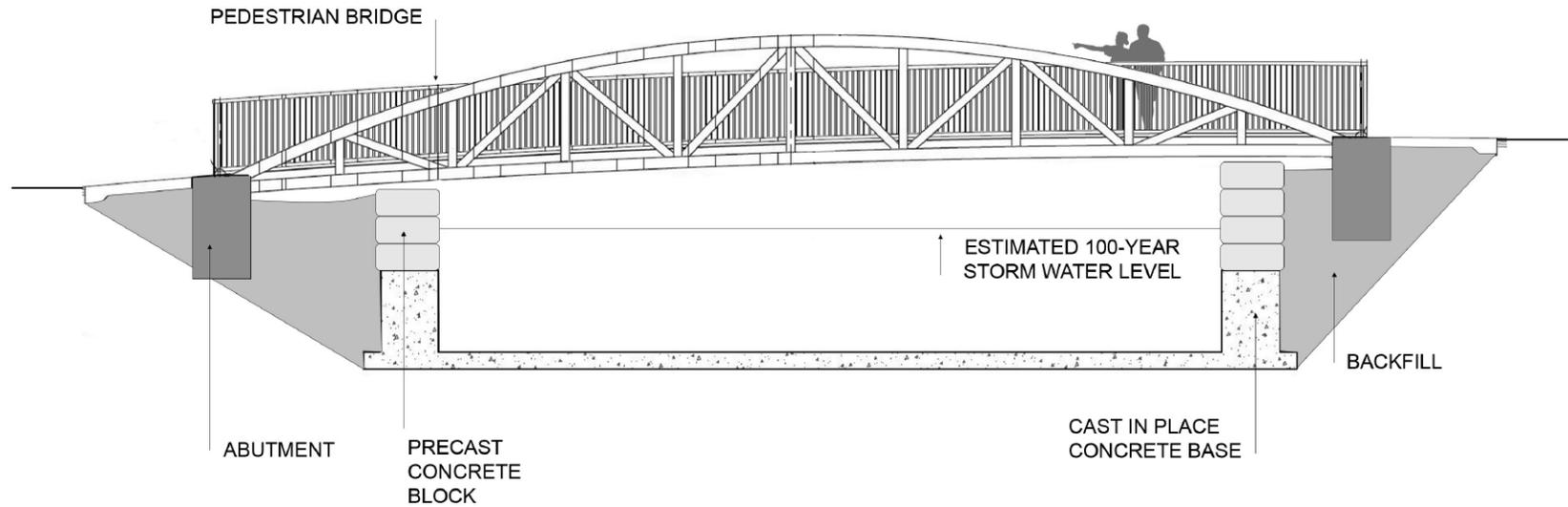
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Attachments

cc. Jamie Hannam, P.Eng., Director Engineering & IS – Halifax Water

ATTACHMENT C- PROPOSED PLAN AND SECTIONS





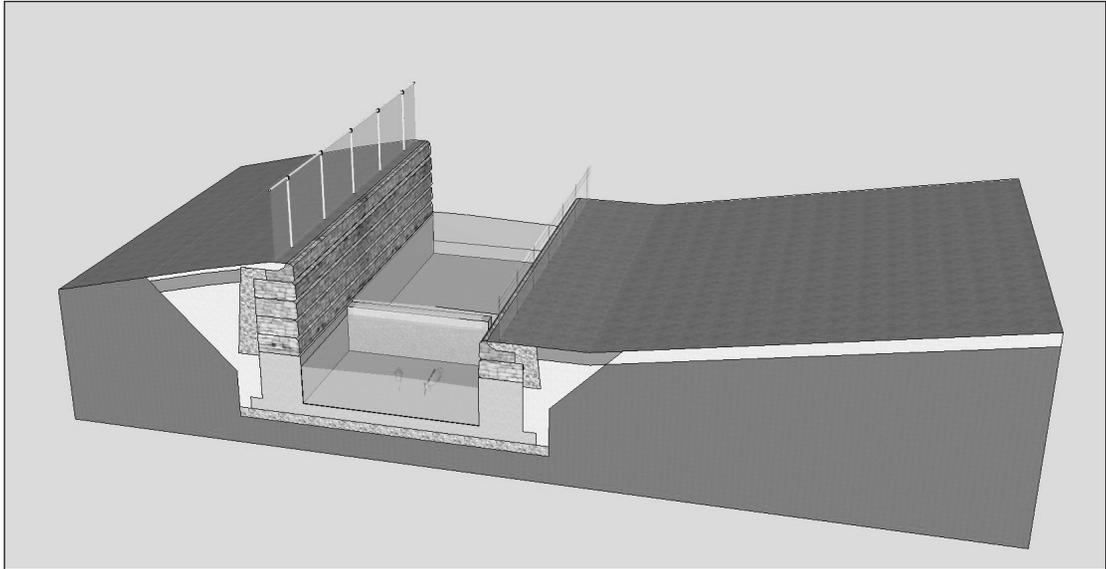
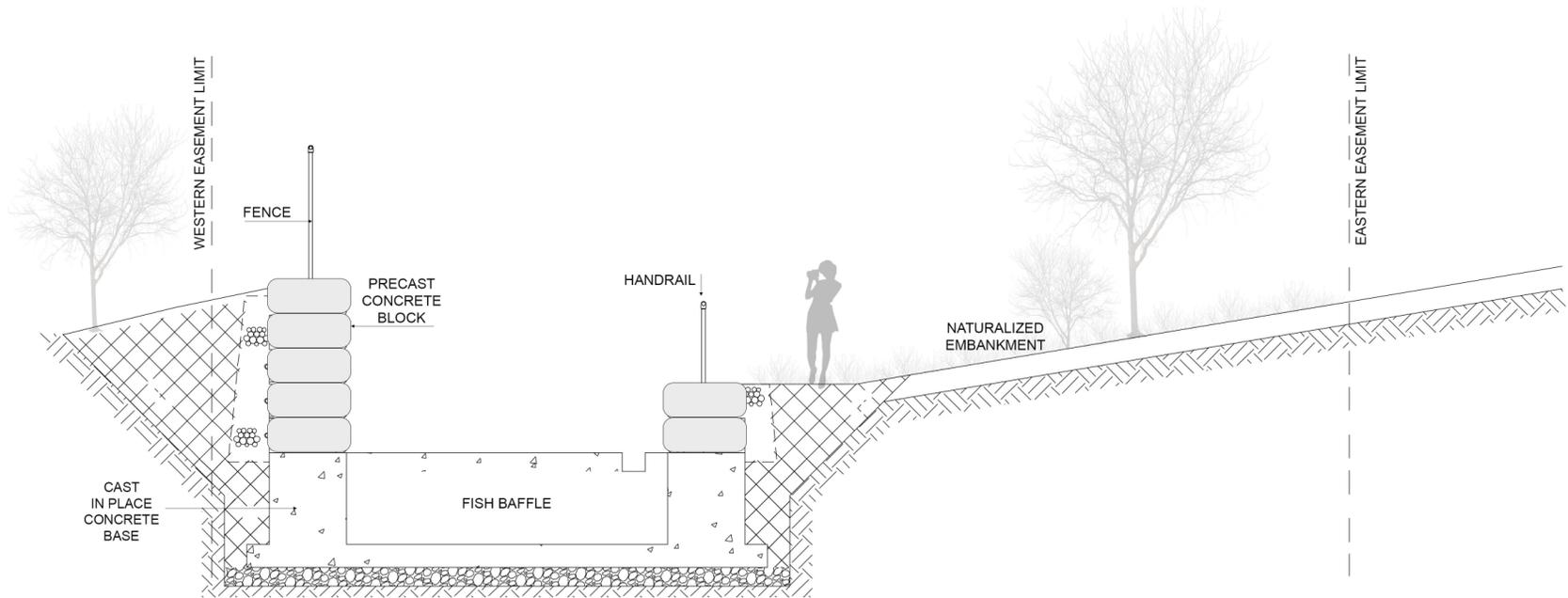
NOTES:

- OPEN CHANNEL TO BE LINED WITH A PEDESTRIAN HANDRAIL.
- PEDESTRIAN BRIDGE TO BE A BOWSTRING DESIGN WITH BLACK POWDER-COATED FINISH AND A CONCRETE DECK. BRIDGE IS TO BE APPROXIMATELY 20-METRES LONG AND 4-METRES WIDE.
- ASPHALT PATH TO CONNECT SULLIVAN'S POND PARK TO OCHTERLONEY STREET.

SECTIONS PROVIDED BY CBCL LIMITED AND VOLLIK MCKEE PETERSMANN & ASSOCIATES LIMITED. MODIFIED BY HRM PARKS AND RECREATION, POLICY AND PLANNING.

SECTION A - PEDESTRIAN BRIDGE AND OPEN CHANNEL
SULLIVAN'S POND PARK

ATTACHMENT C - PROPOSED PLAN AND SECTIONS

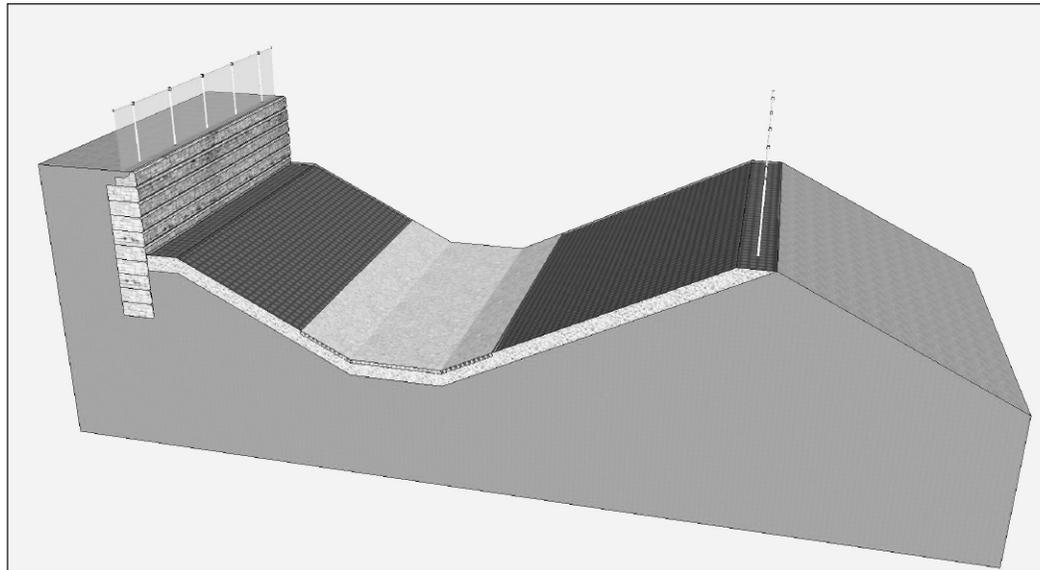
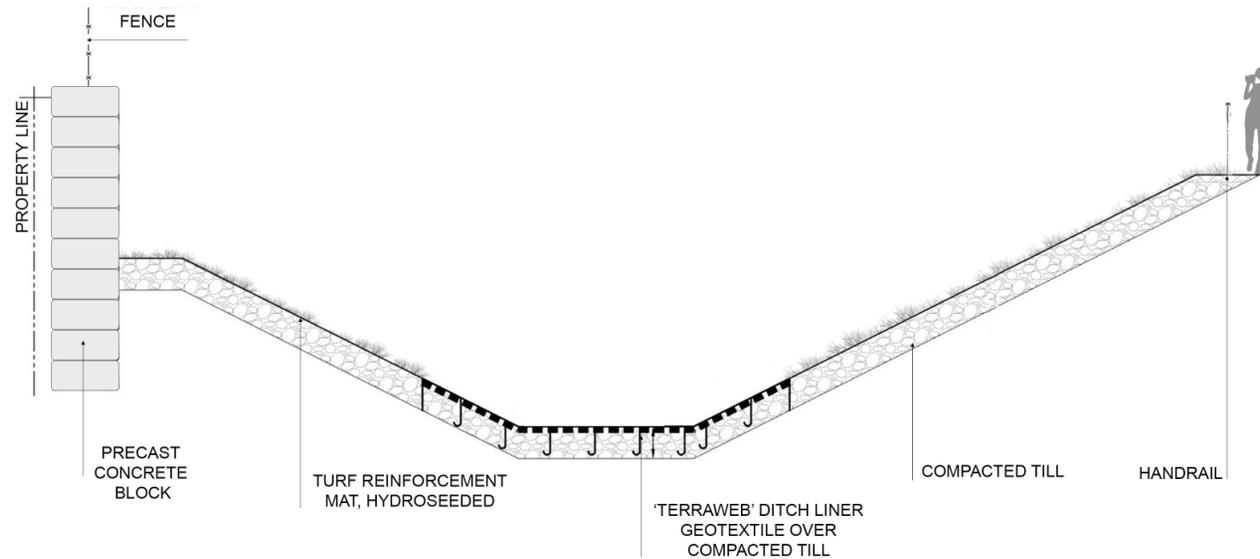


NOTES:

- NATURALIZED EMBANKMENT TO BE HYDROSEEDED AND PLANTED WITH REINSTATED TREES.
- A CHAIN-LINK FENCE WILL LINE THE PRIVATE PROPERTY LINE AND A PEDESTRIAN HANDRAIL WILL LINE THE EASTERN CHANNEL WALL.

SECTIONS PROVIDED BY CBCL LIMITED AND VOLLIK MCKEE PETERSMANN & ASSOCIATES LIMITED. MODIFIED BY HRM PARKS AND RECREATION, POLICY AND PLANNING.

SECTION B - OPEN CHANNEL AND NATURALIZED EMBANKMENT
STARR PARK



NOTES:

- A HEADWALL CONSTRUCTED OF CONCRETE BLOCK WILL BE A PERMANENT FEATURE TO REMAIN AFTER PHASE II OF THE STORM SEWER REPLACEMENT.
- TREES WILL BE REINSTATED BEHIND THE HEADWALL.
- THE TEMPORARY CHANNEL EMBANKMENT WILL BE HYDROSEEDED AND LEFT TO NATURALIZE UNTIL ITS REMOVAL AND REPLACEMENT IN PHASE II.
- A HANDRAIL WILL BE INSTALLED BETWEEN THE WINGS OF THE HEADWALL.

SECTIONS PROVIDED BY CBCL LIMITED AND VOLLLICK MCKEE PETERSMANN & ASSOCIATES LIMITED. MODIFIED BY HRM PARKS AND RECREATION, POLICY AND PLANNING.

SECTION C - TEMPORARY CHANNEL
STARR PARK