



City of Chilliwack

8550 Young Road
Chilliwack, B.C. V2P 8A4
Telephone: 604-792-9311
Fax: 604-795-8443

Our File No.

Director of Engineering

September 23, 2010

BC Flood Protection Program
Emergency Management BC
Ministry of Public Safety and Solicitor General
2nd Floor - 525 Fort Street
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Dear Sir/Madam:

Re: Flood Protection Program Applications – City of Chilliwack

Thank you for the opportunity to apply for funding through the BC Flood Protection Program. The City of Chilliwack has submitted on-line applications for our top three priority projects:

- Priority 1: East Dyke Upgrades
- Priority 2: Town Dyke Upgrades
- Priority 3: Collinson Pump Station Upgrades

These projects have been selected because they provide critical flood risk reduction and have the ability to be completed within the stipulated project timelines of the Flood Protection Program.

Please find enclosed the original copies of the applications.

The City appreciates the past funding provided under the Flood Protection Program, which has allowed the City to complete several critical flood protection projects. We look forward to receiving confirmation of funding under the 2010/14 Program. If you have any questions regarding our applications, please contact me at (604) 793-2701 or David Blain, Director of Engineering, at (604) 793-2841.

Sincerely,

Tara Friesen, P.Eng.
Manager of Flood Protection Infrastructure

Enclosures



Emergency
Management

Preliminary Application Form Intake 2010

Mail: Flood Protection Program
PO Box 9223 Stn Prov Govt
Victoria BC V8W 9J1
Courier: 2nd Floor 525 Fort Street
Victoria BC V8W 1E8
Telephone: 250 953-4002

All sections of the *Preliminary Application Form* must be completed

One project per application

SECTION 1 APPLICANT INFORMATION PLEASE PRINT CLEARLY

Name of Applicant City of Chilliwack
Name as it appears on the constitution and/or certificate of incorporation

Mailing Address 8550 Young Road
Unit, Street and/or PO Box

City Chilliwack, BC Postal Code V2P 8A4

Physical Address of Applicant
If different from above

City Postal Code

Name of Project Contact Person Tara Friesen, P.Eng.

Position Manager of Flood Protection Infrastructure

Phone 604-793-2701 Facsimile 604-793-2756 Mobile 604-703-4399

E-mail tfriesen@chilliwack.com

Name of person with authority to sign on behalf of the Applicant, if different from above:

SECTION 2 PROJECT FUNDING REQUEST

Specify the project for which you seek funding and indicate the amount of funding being requested.

Project Category (choose one only)

- ☐ Tier 1: For infrastructure projects (e.g. structural or erosion protection) to be completed before February 25, 2011, deadline for preliminary applications received by program staff is July 30, 2010.
- ☒ Tier 2: For infrastructure projects (e.g. structural or erosion protection) to be completed anytime before February 28, 2014, deadline for preliminary applications received by program staff is September 24, 2010.
- ☐ Tier 3: For all other strategic flood protection projects (e.g. in-stream sediment management) to be completed anytime before February 28, 2014, deadline for preliminary applications received by program staff is September 24, 2010.

Project Name: East Dyke Upgrades

Project Priority: One
Where there is more than one application.

Amount of Funding Requested: Total Project cost \$ 2,300,000 Funding Requested \$ 1,533,333

SECTION 3 PROJECT INFORMATION

Provide a project summary (anticipate two page, double side) based on the following template.

The template is intended to assist in the development of a project summary and is important to the evaluation of each project. Applicants should use their own judgement in determining what information should be provided. Please address each of the following items in your project summary, in the order as they appear. Please provide any additional supplementary information, reports, relevant drawings, etc., that will strengthen the application. Further information may be requested by program staff evaluating the summary. Top prioritized projects related to the Building Canada Fund – Communities Component will be asked to complete their application process through the SIMSI federal online database.

1. Risk Reduction**a. Project background**

Provide a detailed account or history of the project and should include: urgency of the issue, list of required work to solve the issue, volumes, lengths, existing or related reports (with names and dates), engineering studies underway or completed to date, existing studies, existing surveys, and photographs with captions.

b. Project Description

Provide a brief description of proposed work. For example: "Obtain and place 1250 cubic metres of riprap along 212 lineal metres of Wet Creek right bank immediately downstream of High Road to prevent further erosion of the East Walk Dike."

c. Cost and Spending plan**Spending Plan**

	2010	2011		2012		2013		2014	Totals
Task Group or Item	April - December	January - March	April - December	January - March	April - December	January - March	April - December	January - March	
Engineering and Site Supervision		\$ a							\$ a
Environmental			\$ b						\$ b
Construction (implementation)				\$ c					\$ c
Materials									
Totals		\$ a	\$ b	\$ c					\$a + \$b + \$c

Total Project Cost: \$ _____

Funding Requested: \$ _____

d. Project Plan/ Timeline

Attach a project plan, which includes a high level summary, that outlines the project's timeframe, phases, milestones, deliverables, related fisheries windows, load restrictions on roads, weather considerations, and other relevant factors.

e. Benefits

Provide information regarding why the project is important – include number of people, land area, dwellings, commercial buildings, public buildings and infrastructure (utilities) that will/could be protected, and any other benefits of the project.

In addition to the above, the project's importance may be described as depicted in the Critical Infrastructure Identification and Rating Workbook a copy is available upon request. This document describes the methodology to standardize the approach for critical infrastructure.

f. Ongoing Management, Operation and Maintenance Provisions

Provide information to demonstrate how the project will be supported by ongoing management, operation and maintenance.

2. Strategic Alignment

a. Alignment to existing of proposed strategies

Provide a description of how the project relates to national, provincial, local mitigation (including flood) strategies, climate change adaptation and mitigation.

b. Previous Project Funding

Provide an account of previous funding spent on or related to this project by both or either the applicant or a senior level of government.

c. Relation to remnant emergency protection works

Provide discussion around related remnant emergency protection works, sometime known as 'orphans', if applicable.

d. Relation to remnant emergency protection works

Provide discussion about transference of structures under the *Drainage, Ditch and Dike Act*, if applicable.

3. Implementation Barriers

a. Land tenure for the project

Provide a description of land tenure involved with the works of this project. The description should include whether there are any outstanding issues to be resolved, and how they will be resolved.

b. Anticipated regulatory permits required

Provide a description of anticipated regulatory permits that will be required to implement the project. Also provide any anticipated issues that may need to be addressed as a result of the regulatory process.

4. Other Important information

Provide any other important information that will assist in reviewing the project application.

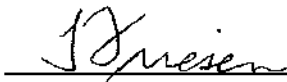
SECTION 4 - CERTIFICATION

My acceptance of this statement indicates that I confirm and acknowledge:

- I am a bona fide employee of the applicant making this application, and my position, title or role within it is as indicated herein.
- I am authorized to complete and submit this application by and on behalf of the applicant.
- I certify that the information contained in this application and the attached documents are correct and complete at the date of submission.
- The applicant understands and confirms that any information submitted herein may be disclosed by Emergency Management BC, in compliance with the *Freedom of Information and Protection of Privacy Act*.

Person Signing on Behalf of the Applicant

Signature



Date

September 21, 2010

Print Name

Tara Friesen

Title

Manager of Flood Protection Infrastructure

1. Risk Reduction

a. Project Background

The BC Ministry of Environment has commissioned several hydraulic modelling studies on the Fraser River over the past decade. The hydraulic modelling completed in 2001 (UMA Engineering Ltd.) and 2006/2008 (Northwest Hydraulic Consultants (NHC)) resulted in higher design flood water level estimates than previously estimated under the Fraser River Flood Control Program of the 1960's through 1990's.

Extensive upgrades were carried out on sections of the East Dyke from 2002 to 2010 with local, provincial and federal funding. Most of the East Dyke now meets the provincial standard, but some additional dyke raising and upgrades are still required, in particular for the section of dyke from the Wing Dyke to the Hope River (see Figure 1). Work on this section of dyke had been deferred pending a review of flood protection options for the Hope River, which is subject to backwater flood risk during the Fraser River freshet.

Associated Engineering Ltd. (Associated) has been retained to evaluate flood protection options for the Hope River in light of the increased Fraser River flood profile and erosion risk along the Wing Dyke. Under the Fraser River Flood Control Program, a decision was made to protect the Hope River area from backwater effects by constructing a Wing Dyke that reduces the elevation of water backing up from Fraser River into the Hope River during a flood event. Unfortunately, given the increased flood profile (NHC 2008), the Wing Dyke is no longer able to adequately control the water elevation during a design flood event. Further complicating the matter is the flow pattern change in the Fraser River adjacent to the Wing Dyke, which has resulted in aggressive bank erosion. The presence of a scour hole over 20 metres deep made bank protection impractical so the downstream portion of the Wing Dyke remains at risk of erosion.

The draft report from Associated identifies a new flood box and pump station on the Hope River as the superior solution, taking into account economic, environmental and social costs and benefits. By constructing a flood box and pump station on the Hope River, the Wing Dyke would no longer be required. Along with the flood box and pump station, upgrades to the East Dyke and Town Dyke are required. The City will not have the required one-third funding for the flood box and pump station during the 2010-14 time horizon for this Flood Protection Program. It is therefore proposed that the dyke upgrades be undertaken at this time and the flood box and pump station construction will take place in the future, once additional funds are available.

It is recognized that the East Dyke and Town Dyke will not offer the full level of protection until the Hope River flood box and pump station are constructed; however, it is important to raise these dykes to minimize the amount of emergency dyke upgrade work that may be required during a flood on the Fraser River. The City has an Emergency Dyke Upgrades Plan, which documents the work to be undertaken to minimize flood risk. The document includes details on how to block the Hope River between the Town and East Dykes, should that course of action need to be taken. The City intends to update the Emergency Dyke Upgrades Plan in 2011.

In addition to raising the section of East Dyke from the Wing Dyke to Hope River, minor upgrades are also needed on other sections of the East Dyke, particularly from

Orchard Slough to McDonald Road (see Figure 1). This section of the East Dyke was upgraded prior to the 2008 NHC hydraulic model and requires additional capping to meet the increased flood profile. Other areas of the East Dyke may require the placement of lower permeability material along the riverside slope to minimize seepage potential, subject to geotechnical testing.

The proposed flood protection upgrades are critical since the East Dyke protects a 132 square kilometre floodplain area. The dyke upgrades will enhance public safety and reduce flood risk by increasing flood protection to the more than 40,000 people residing in the floodplain, as well as critical infrastructure such as rail lines, TransCanada Highway, oil and gas infrastructure, utilities, hospital and care facilities, and wastewater treatment plant.

b. Project Description

The work will involve designing and constructing upgrades to sections of the East Dyke, which require raising by as much as 1 metre to meet the current provincial standard based on the 2008 NHC hydraulic model. A majority of the work will involve a 1200 metre section of East Dyke from the Wing Dyke to Hope River, which requires significant upgrades since it hasn't been upgraded since the Fraser River Flood Control Program.

Minor upgrades will also be carried out on other sections of the East Dyke, primarily from Orchard Slough to McDonald Road (approximately 3,300 metres). Figure 1 identifies the two key areas proposed for upgrades. Minor geotechnical testing may also be carried out on sections of the East Dyke to confirm if areas require the placement of lower permeability material along the riverside slope to minimize seepage potential.

c. Cost and Spending Plan

Project costs are outlined in the table below:

Task Group or Item	2011		2012		2013		2014	Totals
	Jan - Mar	Apr - Dec	Jan - Mar	Apr - Dec	Jan - Mar	Apr - Dec	Jan - Mar	
Dyke Upgrades Engineering and Site Supervision	\$ 50,000	\$ 100,000	\$ 40,000	\$ 40,000	\$ 45,000	\$ 60,000	\$ 15,000	\$ 350,000
Environmental	\$ 20,000	\$ -	\$ 5,000	\$ 15,000	\$ 5,000	\$ 15,000	\$ -	\$ 60,000
Construction	\$ -	\$ -	\$ 50,000	\$ 375,000	\$ 100,000	\$ 1,365,000	\$ -	\$ 1,890,000
Totals	\$ 70,000	\$ 100,000	\$ 95,000	\$ 430,000	\$ 150,000	\$ 1,440,000	\$ 15,000	\$ 2,300,000

Total Project Cost: \$2,300,000

Funding Requested: \$1,533,333 (2/3rds of project cost)

d. Project Plan/Timeline

As outlined in the project schedule below, the design work will be carried out in 2011 with construction taking place in the summer months of 2012-2013. Only a small portion of the work may take place near a watercourse, and it will coincide with the Fisheries work window of July 15 – September 15.

Task Group or Item	2011		2012		2013		2014
	January - March	April - December	January - March	April - December	January - March	April - December	January - March
Engineering - Design	◆	◆					
Engineering - Tender and Contract Preparation		◆	◆				
Engineering - QA/QC Inspection - Orchard Slough to McDonald Rd			◆	◆			
Engineering - QA/QC Inspection - Wing Dyke to Hope River					◆	◆	
Engineering - Record Drawings - Orchard Slough to McDonald Rd				◆	◆		
Engineering - Record Drawings - Wing Dyke to Hope River						◆	◆
Construction - Orchard Slough to McDonald Rd			◆	◆			
Construction - Wing Dyke to Hope River					◆	◆	
Total Project	◆	◆					◆

e. Benefits

As noted previously, the flood protection benefits of this project are significant since the East Dyke protects a 132 square kilometre floodplain area. The dyke upgrades will enhance public safety and reduce flood risk by increasing flood protection to the more than 40,000 people residing in the floodplain, as well as critical infrastructure such as rail lines, TransCanada Highway, oil and gas infrastructure, utilities, hospital and care facilities, and wastewater treatment plant.

A Quantitative Flood Risk Analysis was completed by BGC Engineering in 2009, which arrived at the following preliminary damage and loss estimates for a breach on the East Dyke:

- Damage to over 10,000 buildings, totalling \$483 million (cost does not include contents or inventory)
- Flood hazards to oil and gas pipelines, hydro-substations and communications infrastructure
- Extensive impacts to Chilliwack's intensive agriculture industry
- Inundation of 13 kilometres of the TransCanada Highway
- Significant reduction to Chilliwack's \$6.4 million/day economic output
- A \$20 million/day impact to the BC economy due to severed transportation links
- Total damages and losses exceeding \$1 billion

f. Ongoing Management, Operation and Maintenance Provisions

Ongoing management, operation and maintenance of the East Dyke will remain mostly unchanged by the proposed upgrade. The City has a comprehensive dyke maintenance program to ensure the continued effectiveness of the infrastructure.

2. Strategic Alignment

a. Alignment to Existing or Proposed Strategies

The proposed East Dyke Upgrade project is consistent with the goal of the National Disaster Mitigation Strategy, "To protect lives and maintain resilient, sustainable communities by fostering disaster risk reduction as a way of life." The project is also aligned with provincial and local strategies to maintain a dyke system that will protect against the Fraser River flood of record (estimated as an approximate 1:500 year return period). The dyke is currently low by as much as 1 metre, so the upgrades will significantly reduce flood risk to the community, including provincial, federal and local infrastructure.

b. Previous Project Funding

The City has committed \$60,000 for Associated Engineering to complete the Hope River Flood Protection Alternatives Study. The East Dyke Upgrades Design was completed in 2001-02 at a cost of \$253,000. This was funded through the Flood Protection Assistance Fund (\$190,000) and City of Chilliwack (\$63,000). The design included the section of dyke from Orchard Slough to McDonald Road, but not the section from the Wing Dyke to Hope River.

In terms of construction funding, the section of East Dyke from the Wing Dyke to the Hope River has not been upgraded since the Fraser River Flood Control Program (1990). The remaining sections of East Dyke have been upgraded over the past decade with senior government and local funding. The construction funding summarized in the following paragraphs is specific to only the section of East Dyke included in this funding application (section from Orchard Slough to McDonald Road).

The section of East Dyke from Orchard Slough to McDonald Road was partially upgraded in 2002-2003. This construction work was carried out with Flood Protection Assistance Fund contributions totalling \$500,000 and City of Chilliwack contributions totalling \$304,000.

Due to budget limitations, the dyke was only partially upgraded in 2002-2003, with 0.3 metres of freeboard instead of the standard 0.6 metres. The remaining upgrades were carried out in 2007 with Urgent Mitigative Flood Works funding. The upgrades to the section of dyke from Orchard Slough to McDonald Road cost an estimated \$500,000.

c. Relation to Remnant Emergency Protection Works

Not applicable.

d. Relation to Remnant Emergency Protection Works

No transference of structures under the Drainage, Ditch and Dike Act will take place as a result of the proposed works outlined in this application.

3. Implementation Barriers

a. Land Tenure for the Project

All work will be carried out within existing City road or dyke right of way.

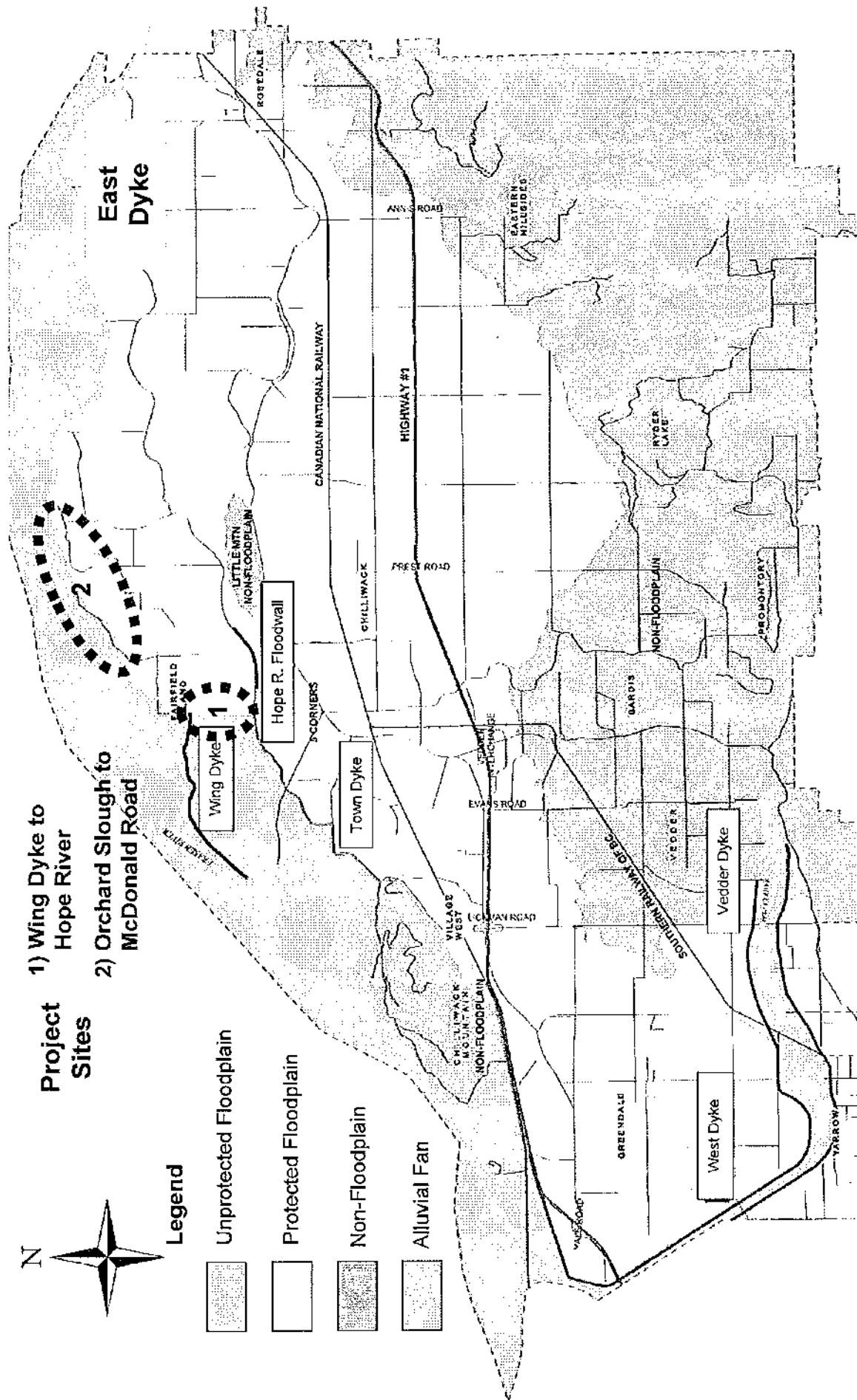
b. Anticipated Regulatory Permits Required

The following approvals are anticipated for this project:

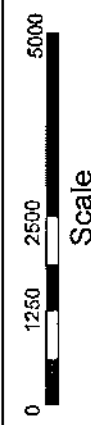
- Dike Maintenance Act
- Fisheries Act and Water Act (for work near Hope Slough)
- Utilities (BC Hydro, Terasen)

4. Other Important Information

A copy of the Draft Hope River Flood Protection Alternatives Study is available upon request.



City of Chilliwack



East Dyke Upgrades
Figure 1: Location Map
September 2010

PROJECT STREAMING TOOL - BCF-CC/Flood Protection Program (FPP)

Basic Project Information

Provincial Project Number: 2010-2-005
Date application was received: 2010-09-23
Date application was reviewed by the Joint Secretariat:
Applicant: Chilliwack, City of
Project Name: East Dike Upgrades
Project Location: Chilliwack
Tier identified in application: Tier 2

Step 1: Basic Applicant Eligibility Criteria

13. The applicant is eligible for FPP funding (local government or diking authority that is incorporated under the *Local Government Act* or *Drainage, Ditch and Dike Act*) Yes ☒ No ☐
14. The applicant is a local government with a population of less than 100,000
Base Funding Agreement (BFA) or the Building Canada Fund - Communities Component Yes ☒ No ☐
15. The applicant is an authority eligible for BCF-CC funding (a local government as defined as a municipality, a regional district, a greater board in the Community Charter, or a public authority responsible for delivering local services in BC, if that authority is approved by the Oversight Committee such as an NGO whose application is supported by a resolution from the local government). Yes ☒ No ☐

Note: When the answer to 1 is NO the application will not be considered further as it is ineligible.
If the answer to 1, 2 and 3 is Yes, the project can be considered for BCF-CC funding

Step 2: Basic Project Eligibility Criteria

21. The project addresses a flood related concern Yes ☒ No ☐
22. The project involves the construction, modification or reinforcement of structures that protect from, prevent or mitigate potential physical damage resulting from natural events, and impacts related to climate change AND/OR modification, reinforcement or relocation of existing public infrastructure to mitigate the effects of and/or improve resiliency to extreme natural events and impacts or events related to climate change. Yes ☒ No ☐
23. The construction, modification or reinforcement of the structure includes normal routine maintenance and operational work (dredging sediment, gravel removal, debris trap clean out). Yes ☐ No ☒
24. The project has been tendered and awarded, or construction has already begun or completed prior to approval. Yes ☐ No ☒
25. The project deals with assets owned by the Government of Canada or the Province of British Columbia. Yes ☐ No ☒

Note: When the answer to 1 and 2 is NO the application will not be considered further as it is ineligible.
When the answer to 3, 4, 5 is YES the project will not be considered for BCF-CC funding (unless for number 4, there is an exemption from the Oversight Committee).

Step 3: FPP and BCF-CC basic eligibility

Project can be considered for FPP Yes ☒ No ☐
Project can be considered for BCF-CC funding Yes ☒ No ☐

Step 4: Tier recommendation

- ☐ Tier 1 Flood Protection Infrastructure (project complete by February 2011)
☒ Tier 2 Flood Protection Infrastructure (project complete by March 2014)
☐ Tier 3 Other Strategic Flood Protection Projects

PROJECT STREAMING TOOL - BCF-CC/Flood Protection Program (FPP)

Comments:

Smith, Mona JAG:EX

From: Karger, Kristina SG:EX on behalf of Meredith, Dwayne W SG:EX
Sent: Monday, December 13, 2010 13:42
To: 'tfriesen@chilliwack.com'
Subject: Application to the BCF-CC/FPP Intake 2010 Tier 2

Sending on behalf of Dwayne Meredith

Re: Application to the Building Canada Fund Communities Component / Flood Protection Program Intake 2010 Tier 2

I am pleased to inform that one of your preliminary applications submitted to the Building Canada Fund Communities Component/ Flood Protection Program Intake 2010 Tier 1 has been selected for advancement. On your preliminary applications you were asked to prioritize those proposed projects and at this time you are asked to re-confirm your number primary application.

This decision was made by the Building Canada Oversight Committee to limit the number of applications proceeding for review.

Please proceed to complete your primary application through the SIMSI online database available at URL:
<https://bcfcc-fccvc.infrastructure.gc.ca/>

Your user name is:
Your temporary password is:

You must complete the SIMSI application by January 14, 2011 in order to continue under this process.

Once your application has been completed, the selection committees will complete their reviews and make a determination on whether an environmental assessment of the project, pursuant to the *Canadian Environmental Assessment Act*, is likely to be required, or whether additional information is required to make a determination on the need for an environmental assessment. A determination will also be made on the appropriate process as it relates the *Canadian Environmental Assessment Act* and relevant regulations. The results of the review and determination will be communicated as soon as possible.

If you have any questions, please contact the Flood Protection Program at:

BC Flood Protection Program
Emergency Management BC
Ministry of Public Safety and Solicitor General
2nd Floor - 525 Fort Street
PO Box 9223 Stn Prov Govt
Victoria BC V8W 9J1
Telephone: (250) 953-4002
Facsimile: (250) 953-4081
Email: EMBCCFloodProtection@gov.bc.ca

Building Canada Plan information:
<http://www.buildingcanada-chantierscanada.gc.ca/>

Building Canada Fund Communities Component
<http://www.bcbuildingcanadafundcommunities.ca>

SIMSI ONLINE APPLICATION

<https://bcfcc-fccvc.infrastructure.gc.ca>

Sincerely, and on behalf of the Building Canada Fund Joint Secretariat,

Dwayne Meredith

Manager, Strategic Mitigation Program

Emergency Management BC

525 Fort Street

Victoria, B.C. CANADA V8W 1E8

Ph 250.953.4002



Building Canada Fund - Communities Component Application Report

Project Number:	41722
Application Status:	Submitted
Current Date:	2011-02-07

SECTION I - MUNICIPAL APPLICANT OR SPONSOR

Legal Name of Applicant/Sponsor: City of Chilliwack		
Municipal Code/Band No.:	Municipal Type: City	
Street Address/P.O. Box No.: 8550 Young Rd	Street Address/P.O. Box No. (additional):	
Town/City: Chilliwack	Province: British Columbia	Postal Code: V2P 8A4
Contact Given/Family Name: Tara Friesen		
Contact Position: Mgr of Flood Protection Infrastructure	Language Preference: English	
Street Address/P.O. Box No.: 8550 Young Rd	Street Address/P.O. Box No. (additional):	
Town/City: Chilliwack	Province: British Columbia	Postal Code: V2P 8A4
Telephone No.: (604) 793-2701	Fax No.: (604) 793-2756	Email Address: tfriesen@chilliwack.com

SECTION II - PROJECT INFORMATION

Project Title: Chilliwack - East Dike Upgrades	
Provincial Project Number:	
Date of Submission (YYYY-MM-DD): 2011-01-15	Municipal Priority: 1
You will be required to provide a copy of a Local Government Resolution supporting this project. Do you intend to upload a copy with your application? Yes	
Project Description/Abstract: The project will upgrade approximately 4,500 metres of the East Dike. Work will include (1) upgrading 1,200 metres of the East Dike by raising the dike by up to 1 metre from Wing Dike to Hope River to meet the current provincial standard based on the 2008 hydraulic model; and (2) conducting minor upgrades on approximately 3,300 metres sections of the East Dike from Orchard Slough to McDonald Road. The dike upgrades will reduce flood risk by increasing flood protection to the more than 40,000 people residing in the floodplain, as well as critical infrastructure such as rail lines, the TransCanada Highway, oil and gas infrastructure, utilities, hospital and care facilities, and a wastewater treatment plant.	
Nature of Project: Renewal - Modification	
Public/Private Partnerships: No	
Joint Project Applicant: No	
Do you intend to upload a business plan with your application? Yes	

Project Location

Do you intend to upload an electronic copy of the Project Site Map with your application? Yes	
Project Street Address Line 1:	Project Street Address Line 2:

Site 1) Young Rd between Cartmell & Hope R.		Site 2) East of McDonald Road
Project Town/City: Chilliwack	Project Province: British Columbia	Project Postal Code: V2P 8A4
Project Nearest Intersection or Legal Land Location:		Project Point of Interest/Placename:
Other Project Location Information: Refer to project location plans		
Provincial Zone:		
Project Latitude:		Project Longitude:

* Is the project consistent with all applicable land-use and resource management plans?	Yes
* Has the project tender been awarded?	No
* Has construction started?	No
* Does the project involve federal or provincial owned assets?	No
* Will the project be planned, constructed and operated in a manner that takes into account risks related to extreme natural events and/or climate change?	Yes

SECTION III - PROJECT SUB-CATEGORY

Primary Project Sub-Category:	Reduced vulnerability of communities or infrastructure from extreme natural events
% of Net Eligible Costs to this Project Sub-Category?:	100
Primary Asset Code:	

Project Screening Criteria

Category: Disaster Mitigation Infrastructure
<i>Building Canada investments will be directed towards projects that will reduce the vulnerability of a community or public infrastructure to the negative impacts of extreme natural events, including adverse events related to climate change.</i>
Please affirm that a risk assessment that supports the proposed mitigation project and includes the likelihood of a hazard, or combination of hazards occurring and the potential impacts has been completed.
Yes
Please list any non-structural disaster measures that support risk assessment currently implemented, or that will be implemented within two years of project completion. (e.g. municipal zoning by-laws, planning and building codes that reduce disaster risk, public awareness, education).
<i>Explanation:</i> A Quantitative Flood Risk Analysis study has been completed for the City of Chilliwack, which outlines flood risk and provides preliminary estimates of potential flood-related damages and losses. Given the significant floodplain area in Chilliwack (140 square kilometres), the City recognizes that a comprehensive flood management program is required that comprises structural and non-structural aspects to minimize risk and promote community resilience. Accordingly, the City's dyke system is supplemented by a variety of non-structural measures that support risk assessment and mitigation.
The City requires floodproofing and watercourse setbacks through a Floodplain Regulation Bylaw, to minimize potential flood-related infrastructure damage. The bylaw was developed taking into consideration the Flood Hazard Area Land Use Management Guidelines developed by the Province of British Columbia. The Bylaw also includes a provision to register Restrictive Covenants on properties in the floodplain, which helps increase awareness of flood risk.
The City also has a comprehensive flood protection website that provides extensive information on

flood risk and emergency preparedness. The website includes floodplain maps, links to the provincial River Forecast Centre, Fraser River water level information and a summary of flood response activities based on water levels.

Another non-structural measure is the City's Flood Response Plan, described in the following section.

Please describe the emergency operations/response plan that has been formulated based on the risk assessment, if such a plan has been developed.

Explanation: The City of Chilliwack's Fraser River Flood Response Plan outlines key actions to be taken during a flood emergency to protect lives and property. The Response Plan is linked to Fraser River water levels, and specifies increasing levels of activity according to flood risk. Response activities range from dyke patrols to coordination of emergency organizations, public notifications, evacuations and clean up. The Response Plan was supplemented by Dyke Breach Modelling work carried out in 2007, which provided critical information on water flow paths, depths and velocities that may occur in the event of a dyke breach in Chilliwack. The modelling assists with emergency preparedness by providing estimates on how long it would take water to reach critical areas of Chilliwack, such as the urban core and major roads including TransCanada Highway.

The Response Plan is used in conjunction with the City's Emergency Dyke Upgrades Plan, which specifies equipment and material requirements should the City need to upgrade dykes on an emergency basis. Also included in the Response Plan is a list of local equipment and material sources. The Emergency Dyke Upgrades Plan is scheduled to be updated in 2011.

Please describe how the project is consistent with the National Disaster Mitigation Strategy.

Explanation: The proposed East Dyke Upgrades project is consistent with the goal of the National Disaster Mitigation Strategy, "To protect lives and maintain resilient, sustainable communities by fostering disaster risk reduction as a way of life." The East Dyke lies at the upstream end of Chilliwack's dyke system that protects the community from Fraser River floods. Currently, the section of dyke from the Wing Dyke to Hope River would be overtopped during a design flood event. The proposed upgrades will increase the dyke height by approximately 1.0 metre. The other section of the East Dyke, from Orchard Slough to McDonald Road will be upgraded by approximately 0.3 metres, in order to provide the full amount of freeboard specified by the Province. This will meet the provincial standard to protect against a flood equivalent to the 1894 flood of record, estimated to be approximately a 1 in 500 year flood event plus provide 0.6 metres of freeboard.

The East Dyke protects a 132 square kilometre floodplain area. The dyke upgrades will enhance public safety and reduce flood risk by increasing flood protection to the more than 40,000 people residing in the floodplain, as well as critical infrastructure such as rail lines, TransCanada Highway, oil and gas infrastructure, utilities, hospital and care facilities, and wastewater treatment plant.

SECTION IV - PROJECT BENEFITS

Do you intend to upload a Cost Benefit Analysis or other study with your application?	Yes
Project Benefits	Applicable Benefit?
(1) Reduce the social, physical and/or economic risks associated with an extreme natural event and/or adverse effects related to climate change;	Yes
(2)	
(3)	
(4)	
(5)	
Additional Benefits:	

SECTION V -TIMELINES AND RATIONALE

Timelines or milestones represent key dates in the project when progress is achieved (such as the completion of a phase or a component of the project) and should be provided for projects whose construction time is expected to last beyond one year. A description of each milestone and its anticipated completion should be provided.

Project Start Date: 2011-04-01**Project End Date:** 2014-02-28**Tender Date:** 2011-12-01**Construction Start Date:** 2012-07-01**Construction End Date:** 2013-09-30**Project Rationale****1. What are the specific problems or objectives that this project will address?**

This section should provide a synopsis of what is happening currently within the municipality or region and what might happen if no action is taken at this time. Make sure that you define the business opportunity/problem in clear terms. If statistical information is available to support this business case then state what and where it can be found. It should describe the history and the current state of affairs giving rise to the general business problem and thus the need for the project.

The BC Ministry of Environment has commissioned several hydraulic modelling studies on the Fraser River over the past decade. The hydraulic modelling completed in 2001 (UMA Engineering Ltd.) and 2006/2008 (Northwest Hydraulic Consultants (NHC)) resulted in higher design flood water level estimates than previously estimated under the Fraser River Flood Control Program of the 1960's through 1990's.

There is a 1,200 metre section of dyke on Young Road from the Wing Dyke to Hope River that requires raising by approximately 1.0 metre. There is also some additional dyke raising (up to 0.3 metres) required on a 3,300 metre section of the East Dyke from Orchard Slough to McDonald Road to meet the current provincial standard based on the 2008 NHC hydraulic model.

If the flood of record were to occur and Chilliwack's East Dyke was overtopped and breached, it would affect the over 40,000 people residing in the floodplain and create significant damages and losses. A Quantitative Flood Risk Analysis was completed by BGC Engineering, which arrived at the following preliminary damage and loss estimates:

- Damage to over 10,000 buildings, totalling \$483 million (cost does not include contents or inventory)
- Flood hazards to oil and gas pipelines, hydro-substations and communications infrastructure
- Extensive impacts to Chilliwack's intensive agriculture industry
- Inundation of 13 kilometres of the TransCanada Highway
- Significant reduction to Chilliwack's \$6.4 million/day economic output
- A \$20 million/day impact to the BC economy due to severed transportation links
- Total damages and losses exceeding \$1 billion

2. How would your project address these specific problems or objectives?

This section should indicate how the project would improve or fix the problem stated in the "Project Rationale" section. It should explain why Federal - Provincial funding is required to enable the project to proceed, increase its scope (size) or allow it to proceed earlier than originally planned. Include a brief explanation of a) how the project supports the local development plan for the community and b) how the project will affect the social, economic and/or natural environment of the municipality.

The proposed dyke upgrades will result in two substandard sections of the East Dyke being raised to meet the provincial standard, which will offer increased flood protection to the community.

Federal-provincial funding is required for the project because the dyke upgrade costs are beyond the capacity of the City of Chilliwack. Given that the dyke system protects infrastructure of regional, provincial and national importance (e.g. TransCanada Highway, rail lines, utilities, etc.), senior government funding contributions are warranted.

The proposed dyke upgrades support Chilliwack's development plan by increasing flood protection for the downtown urban core. To preserve agricultural land, the City's Official Community Plan calls for densification within the urban containment boundary, with higher densities in the downtown area. The dyke upgrades, in conjunction with flood proofing requirements, will reduce the community's vulnerability to flooding.

The project will positively affect the social, economic and natural environment of the community by minimizing potential flood-related impacts. This is outlined in further detail in section 4 below.

3. What alternatives to the proposed solution have been considered?

Describe the alternatives considered.

No alternatives exist for the section of dyke between Orchard Slough and McDonald Road; the work is required to bring the section of dyke up to provincial standards. It involves a standard earth dyke that complies with the provincial Dyke Design and Construction Guide. As outlined under the Project Screening Criteria section, the City has implemented non-structural flood protection measures, but these cannot achieve the necessary level of flood protection on their own, they must be accompanied by a robust dyke system.

For the section of dyke between the Wing Dyke and Hope River, alternatives were explored in a study by Associated Engineering, and the dyke upgrades along with a new pump station and floodbox on the Hope River were identified as the superior solution based on economic, social and environmental costs and benefits (further information is provided in the attached Business Plan).

4. Does this project contribute to a sustainable environment?

Indicate how the project will contribute to a sustainable environment.

Yes. Sustainability calls for a balance of environmental, social and economic issues. The dyke upgrades will reduce flood risk for the community, which will reduce potential flood-related environmental, social and economic impacts. If significant flooding were to occur in Chilliwack's floodplain, it would affect the over 40,000 people residing in the floodplain and create significant damages and losses. Over 10,000 buildings would be damaged at a total estimated cost of \$483 million. Transportation and utility infrastructure would be impacted and BC Stats estimated an over \$20 million per day impact to the BC economy due to business interruption and severed transportation links.

In addition to the economic impacts, the flooding would create substantial social impacts. During a flood emergency, the residents would be subjected to extensive stress. Dyke overtopping or breach could result in as much as half of Chilliwack's population being displaced, and recovery could take months. Even residents living outside the floodplain would be affected, for example due to work or service interruptions. There would likely be health care interruptions since Chilliwack General Hospital is situated in the floodplain, as well as numerous other community care facilities.

From an environmental perspective, the impacts would also be substantial. The floodwaters would become contaminated after coming into contact with manure, fertilizers, hydrocarbons and other contaminants. The contaminated water would flow overland and into groundwater and surface water resources, creating environmental and health concerns. There would also be a considerable amount of waste generated during the recovery phase.

5. Describe any innovative technology that will be employed during the realization of the project.

Provide details on the technology to be incorporated in to the proposed project. Focus on new approaches, best practices and whether the project uses the best available technologies (that are economically feasible) or innovation to address the problem.

The dyke upgrades will be carried out using best practices, but will not require innovative technology. The upgrades will be completed through the placement and compaction of soil using conventional construction and testing equipment.

6. What are the significant project risks and what is your strategy to mitigate those risks?

Risks are uncertainties or constraints that may prevent the project from completing on time, on budget, or in its original scope. Few projects are completely without risk, however, most successful projects manage or mitigate their risks through good planning and on going management. Indicate

any known risks (such as short construction season, possible uncertainties in building site that might influence cost, etc) and specify how those uncertainties may impact the performance of the project, either in duration, cost, or meeting the requirements. Then indicate what actions are possible in advance or during the project to reduce the effect of the risk (mitigation).

The main project risk is the geotechnical aspect. The successful engineering firm will be required to carry out a detailed geotechnical investigation of the East Dyke section from the Wing Dyke to Hope River and make recommendations for dyke upgrades. Less extensive geotechnical analyses will be required for the other section of East Dyke to be upgraded (Orchard Slough to McDonald Road), since a comprehensive geotechnical assessment has been carried out on that section of dyke previously.

The City may procure the work using the design-build approach, which would allow the City to transfer more risk to the contractor and consultant than the traditional tendering process.

Depending on the outcome of the geotechnical assessment, changes may need to be made to the design (eg. seepage control measures, seismic mitigation measures), which may affect the total length of dyke that can be raised within the project budget. The City is committed to raising the maximum length of dyke achievable with the funds available, with the priority being the section of dyke from the Wing Dyke to Hope River.

The detailed dyke design will include extensive geotechnical considerations to ensure the raised dyke will be stable and potential seepage risks will be mitigated. A geotechnical consultant will provide material testing throughout the project to ensure appropriate materials are used and compaction targets are met.

The City recognizes that weather conditions may affect progress, but there is sufficient time allocated for the project to allow construction during favourable work windows.

SECTION VI - PROJECT COSTS

You will be expected to provide detailed cost estimates with your application. Do you intend to upload detailed cost estimates with your application?	Yes
Eligible Costs:	
Environmental Assessment Costs	60,000.00
Design / Engineering Costs	315,000.00
Materials	0.00
Construction	1,924,754.30
Contingency Costs	0.00
Federal Taxes (or HST)	275,970.52
Provincial Taxes (no HST)	0.00
Other Eligible Costs:	
Total Eligible Cost:	2,575,724.82
Tax Rebate:	235,724.82
Net Eligible Cost:	2,340,000.00
Ineligible Costs:	
Land Acquisition	
Leasing Land, Buildings and Other Facilities	
General Repairs and Maintenance	

Financing Charges	
Legal Fees	
Other Ineligible Costs:	
Total Ineligible Cost:	0.00
Tax Rebate:	
Net Ineligible:	0.00
Total Estimated Gross Project Costs:	2,575,724.82
Tax Rebate:	235,724.82
Total Estimated Net Project Costs:	2,340,000.00
Federal Taxes (or HST)	275,970.52
Provincial Taxes (no HST)	0.00
Net Eligible:	2,340,000.00
Net Ineligible:	0.00
Total Net Project Cost:	2,340,000.00

Proposed Financing of Eligible Costs						
Fiscal Year	Municipal Source(s)	Provincial (BCF-CC)	Federal (BCF-CC)	Other Federal	Other	Total
2007-08	0.00	0.00	0.00	0.00	0.00	0.00
2008-09	0.00	0.00	0.00	0.00	0.00	0.00
2009-10	0.00	0.00	0.00	0.00	0.00	0.00
2010-11	0.00	0.00	0.00	0.00	0.00	0.00
2011-12	780,000.00	780,000.00	780,000.00	0.00	0.00	2,340,000.00
2012-13	0.00	0.00	0.00	0.00	0.00	0.00
2013-14	0.00	0.00	0.00	0.00	0.00	0.00
2014-15	0.00	0.00	0.00	0.00	0.00	0.00
2015-16	0.00	0.00	0.00	0.00	0.00	0.00
2016-17	0.00	0.00	0.00	0.00	0.00	0.00
Total	780,000.00	780,000.00	780,000.00	0.00	0.00	2,340,000.00
% of Costs	33.33%	33.33%	33.33%	0%	0%	100%

Other Federal Funding Amount 1	0.00
Specify Other Federal Funding Source 1	
Other Federal Funding Amount 2	0.00
Specify Other Federal Funding Source 2	
Other Federal Funding Amount 3	0.00
Specify Other Federal Funding Source 3	

Indicate the person who has verified that these project cost estimates are accurate, as well as the date that the estimates were verified.

* Name	Tara Friesen
* Date (YYYY-MM-DD)	2011-01-12

Other Federal Funds include Gas Tax / Public Transit Funds?	
Specify Other Funding Source	

Other Project Financing	
--------------------------------	--

Is this a multi-stage project? If so, please indicate which stage. Please note that each phase must be able to be considered a stand-alone project.: No

Will the project require the borrowing of funds?: No

Will the project serve commercial operations?: Yes

Yes, the East Dyke protects approximately 286,000 square metres of commercial floor space.

Does the applicant have a plan to fund, operate, and maintain the asset over its lifecycle?: Yes

Yes, the City has a well-established dyke maintenance program that is funded in the City's Comprehensive Municipal Plan (\$560,000/yr). The proposed dyke raising will not affect the City's dyke maintenance procedures or annual budget since the dyke system is not being expanded.

Please affirm that the contract award process will be competitive, fair, and transparent (e.g., no sole-source contracts, no union-only processes) and consistent with the Agreement on Internal Trade and Canada's international trade obligations.: Yes

Please state who will own the asset in which the infrastructure investment is being made.:

City of Chilliwack

Documents Uploaded

Descriptive Title	Filename	Date Uploaded
Business Plan	Business_Plan_-_East_Dyke_Upgrades_-_2011-14.pdf	2011-01-13
Site Location Maps	Location_Maps.pdf	2011-01-13
Council Resolution	Council_Resolution.pdf	2011-01-13
Detailed Cost Estimates	Detailed_Cost_-_East_Dyke_Upgrades.pdf	2011-01-13
Quantitative Flood Risk Analysis Executive Summary	QFRA_Executive_Summary.pdf	2011-01-13

SECTION VII - ENVIRONMENTAL ASSESSMENT

I. Environmental Considerations - Primary Project Category

Category: Disaster Mitigation Infrastructure

1	If the project is for the purpose of repairing or preventing damage to property as a result of a natural disaster or a severe weather event, does it involve construction of a new municipal building, structure or facility?	No
2	If the project is for the purpose of repairing or preventing damage to property as a result of a natural disaster or a severe weather event, does it involve expansion of an existing municipal building, structure or facility?	No
3	If the project is for the purpose of repairing or preventing damage to property as a result of a natural disaster or a severe weather event, does it involve modification of an existing municipal building, structure or facility?	No
4	If the project involves the construction, expansion, modification or removal of a building providing emergency facilities or services, is it located within 250 metres of an environmentally sensitive area?	No
5	Does the project involve works or activities on, under, over, through or across a water body such as a wetland, stream, river or lake?	No
6	Does the project involve works or activities within 30 metres of a water body?	Yes

II. Environmental Considerations

Not applicable to this Project.

III. Aboriginal Considerations

Not applicable to this Project.

IV. Environmental Assessment Contact Information

Please fill out the information for Environmental Assessment contact verification.

Name of EA Contact: Tara Friesen
 Position: Mgr of Flood Protection Infrastructure
 Address: 8550 Young Road
 Phone Number of EA Contact: (604) 793-2701
 Email: tfriesen@chilliwack.com

ANALYST CHECKLIST**I. Environmental Considerations**

- | | | |
|---|--|--|
| 1 | Does the project involve works or activities within 30 metres of a water body? | |
| 2 | Does the project involve works or activities on, under, over, through, or across a water body such as a wetland, stream, river or lake? | |
| 3 | If the project is within 250 m of an environmentally sensitive area (ESA), does it comply with any laws or management plans in relation to that ESA?

Definition: An ESA refers to an area protected for environmental reasons in regional and land use plans, or by a local, regional, provincial or federal body. It includes site designated under international conventions such as Ramsar, national or provincial parks, park reserves, wildlife and conservation areas, bird sanctuaries, cultural habitats for species at risk, marine wildlife and conservation areas, heritage rivers, designated wetlands, areas of natural and scientific interest and ESAs protected in local and regional land use plans. | |
| 4 | Is a provincial environmental assessment required or has a provincial environmental assessment been carried out for this project? | |

II. Aboriginal Considerations

- | | | |
|---|---|--|
| 5 | Will the project have adverse impacts on established or potential Aboriginal and Treaty rights? | |
| 6 | Have aboriginal groups been consulted about the project? | |

PROJECT INFORMATION PART 3

Federal Gas Tax Fund / Public Transit Fund Project Number	
Provincial Gas Tax Fund / Public Transit Fund Project Number	
Project Officer	
Officer Decision	
Officer Decision Date	
Officer Reason	
File Intake	Intake 4
Census Division	
Census Subdivision	
Sub-Region	Mainland/Southwest
Fed EDC	Chilliwack-Fraser Canyon
MP Name	The Hon. Chuck Strahl
Secondary Fed EDC 1	
Secondary Fed EDC 2	
Secondary Fed EDC 3	
Prov EDC	Chilliwack
MLA Name	Mr. John Les
Secondary Prov EDC 1	
Secondary Prov EDC 2	
Secondary Prov EDC 3	
Eligible Applicant Type	
Primary Asset Code 2	
Secondary Asset Code 1	

Secondary Asset Code 2	
Selected Audit	No
Technical Score	Out of:
JS Score	Out of:
Provincial Holdback (%)	0
Joint Reference Project Number	
Original Assessment Date	

PROJECT ALLOCATION	
Total Federal Share	780,000.00
Budget Account	Allocation Amount
Total	0.00

RECORD OF DETERMINATION: ENVIRONMENTAL ASSESSMENT	
EA Track Determination	
Assessment Follow-up Required	
Schedule	Paragraph
Assessment Determination:	
Determination Officer	
Assessment Start Date (YYYY-MM-DD)	
Date of Determination for EA (YYYY-MM-DD)	
EA Type	
Federal Sign-off of EA (YYYY-MM-DD)	
Is the project also being assessed by the Province?	
Please list any other Responsibility Authorities (RAs) identified.	
EM Tracking	
Decision:	
EA Recommend to Proceed	
Public Review	
Public Notice Filed (YYYY-MM-DD)	
Follow-up in Place	
CEA Registry Number	

AUTHORIZATION/CERTIFICATION			
I/we certify that the information contained in this application and the attached schedules is correct and complete at the date of submission. I further certify that no local announcement related to this project will be made until a joint announcement is approved by all partners, and that I have been duly authorized by a resolution dated _____ of _____ to submit this application.			
Name (Please Print):	Title:	Signature:	Date:

Name (Please Print):	Title:	Signature:	Date:
Name (Please Print):	Title:	Signature:	Date:

**East Dyke Upgrades 2011/14
Building Canada Fund - Communities Component Application
Project #41722**

AUTHORIZATION/CERTIFICATION			
I/we certify that the information contained in this application and the attached schedules is correct and complete at the date of submission. I further certify that no local announcement related to this project will be made until a joint announcement is approved by all partners, and that I have been duly authorized by a resolution dated the <u>19th of July, 2010</u> to submit this application.			
Name (Please Print):	Title:	Signature:	Date:
Tara Friesen, P.Eng.	Mgr of Flood Protection Infrastructure		January 13, 2011
Name (Please Print):	Title:	Signature:	Date:
David Blain, P.Eng.	Director of Engineering		January 13, 2011
Name (Please Print):	Title:	Signature:	Date:

EAST DYKE UPGRADES 2011-2014

BUSINESS PLAN



2011/14 FLOOD PROTECTION PROGRAM FUNDING APPLICATION



City of Chilliwack

EAST DYKE UPGRADES BUSINESS PLAN

Problem Statement

The BC Ministry of Environment has commissioned several hydraulic modelling studies on the Fraser River over the past decade. The hydraulic modelling completed in 2001 (UMA Engineering Ltd.) and 2006/2008 (Northwest Hydraulic Consultants (NHC)) resulted in higher design flood water level estimates than previously estimated under the Fraser River Flood Control Program of the 1960's through 1990's.

Extensive upgrades were carried out on sections of the East Dyke from 2002 to 2010 with local, provincial and federal funding. There is one remaining 1,200 metre section of dyke on Young Road from the Wing Dyke to Hope River (refer to Figures 1 and 2) that has yet to be raised, which will form the majority of this project. This dyke section requires raising by approximately 1 metre. Work on this section of dyke had been deferred pending a review of flood protection options for the Hope River, which is subject to backwater flood risk during the Fraser River freshet.

Associated Engineering Ltd. (Associated) has been retained to evaluate flood protection options for the Hope River in light of the increased Fraser River flood profile and erosion risk along the Wing Dyke. Under the Fraser River Flood Control Program, a decision was made to protect the Hope River area from backwater effects by constructing a Wing Dyke that reduces the elevation of water backing up from Fraser River into the Hope River during a flood event. Unfortunately, given the increased flood profile (NHC 2008), the Wing Dyke is no longer able to adequately control the water elevation during a design flood event. Further complicating the matter is the flow pattern change in the Fraser River adjacent to the Wing Dyke, which has resulted in aggressive bank erosion. The presence of a scour hole over 20 metres deep made bank protection impractical so the downstream portion of the Wing Dyke remains at risk of erosion.

The draft report from Associated identifies a new flood box and pump station on the Hope River as the superior solution, taking into account economic, environmental and social costs and benefits. By constructing a flood box and pump station on the Hope River, the Wing Dyke would no longer be required. Along with the flood box and pump station, upgrades to the East Dyke and Town Dyke are required. The City will not have the required one-third funding for the flood box and pump station during the 2011-14 time horizon for this Flood Protection Program. It is therefore proposed that the dyke upgrades be undertaken at this time and the flood box and pump station construction will take place in the future, once additional funds are available.

It is recognized that the East Dyke will not offer the full level of protection until the Hope River flood box and pump station are constructed; however, it is important to raise the dyke to minimize the amount of emergency dyke upgrade work that may be required during a flood on the Fraser River. The City has an Emergency Dyke Upgrades Plan, which documents the work to be undertaken to minimize flood risk. The document includes details on how to block the Hope River between the Town and East Dykes, should that course of action need to be taken. The City intends to update the Emergency Dyke Upgrades Plan in 2011.

There is also some additional dyke raising required on a 3,300 metre section of the East Dyke (Orchard Slough to McDonald Road, Figure 3) that was previously raised, in order to meet the 2008 design criteria. The previous dyke raising was based on 2006 hydraulic model results, and the most recent hydraulic model update (NHC, 2008), resulted in an increase in the estimated water level. This section requires raising by as much as 0.3 metres to meet the current provincial standard based on the 2008 NHC hydraulic model. Currently, the substandard section poses a flood risk to the community, since it does not have the full freeboard allowance of 0.6 metres for the design flood event.

Rationale for Chosen Option

The dyke requires raising to meet the flood protection standard set by the Province of British Columbia. The upgrades to the East Dyke were selected as the top priority because the section of dyke protects a majority of the floodplain in Chilliwack and therefore the project offers the most significant risk reduction benefits to the community. Further details are provided in the Rationale/Expected Benefits section below.

The work involves raising an earth dyke, and is subject to provincial approval under the Dyke Maintenance Act. To ensure conformance with provincial requirements, the dyke upgrades will be designed in accordance with the provincial Dyke Design and Construction Guide.

Project Objective

The objective of the project is to raise two substandard sections of East Dyke to meet the provincial standard based on the 2008 Fraser River Hydraulic Model. Once the work is complete, the East Dyke will offer increased flood protection to the community.

Description of Activities

Once funding has been confirmed, the design and construction of the project will be carried out through a competitive, fair and transparent public Request for Proposals/Tender process that is consistent with the Agreement on Internal Trade and Canada's international trade obligations.

The successful consultant will produce the detailed design for the project, which will be submitted to the Ministry of Environment to secure provincial Dyke Maintenance Act (DMA) approval. Once the DMA approval has been received, construction will commence. The work will involve placing and compacting dyke fill material to raise the earth dyke to meet the provincial standard. The section of dyke on Young Road will also have a paved surface. The consultant will then prepare the as-built drawings and construction completion report. The City will administer the contract and prepare a final claim submission after all work has been completed.

Timelines and Milestones

The project will commence upon notice of funding approval and proceed according to the proposed schedule below, with project completion by the specified deadline of February 28th, 2014.

Task Group or Item	2011		2012		2013		2014
	January - March	April - December	January - March	April - December	January - March	April - December	January - March
Engineering – Design *Possible Design/Build							
Engineering - Tender and Contract Preparation							
Engineering - QA/QC Inspection - Wing Dyke to Hope River							
Engineering - QA/QC Inspection - Orchard Slough to McDonald Rd							
Engineering - Record Drawings - Wing Dyke to Hope River							
Engineering - Record Drawings - Orchard Slough to McDonald Rd							
Construction - Wing Dyke to Hope River							
Construction - Orchard Slough to McDonald Rd							
Total Project							

Rationale/Expected Benefits

The dyke upgrades will provide significant flood reduction benefits to the highly developed floodplain area. The low sections of dyke lie on the upstream portion of Chilliwack's dyke system and therefore pose a significant flood risk to the community. In some sections, the dyke not only lacks sufficient freeboard, but has a dyke crest below the new design flood water level, which creates an increased hazard of overtopping and potential dyke failure.

Potential consequences of flooding are substantial. The East Dyke protects over 40,000 people living in the floodplain, as well as 286,000 square metres of commercial and 172,300 square metres of industrial building floor space. Because the dyke protects large agricultural operations, utilities (hydro, gas, telecommunications, water and sewer), Highway 1 and two major rail lines, flood impacts would extend far beyond the local community.

A Quantitative Flood Risk Analysis was completed by BGC Engineering, which arrived at the following preliminary damage and loss estimates for a failure of the East Dyke:

- Damage to over 10,000 buildings, totalling \$483 million (not including contents and inventory)
- Flood hazards to oil and gas pipelines, hydro-substations and communications infrastructure
- Extensive impacts to Chilliwack's intensive agriculture industry
- Inundation of 13 kilometres of the TransCanada Highway
- Significant reduction to Chilliwack's \$6.4 million/day economic output
- A \$20 million/day impact to the BC economy due to severed transportation links
- Total damages and losses exceeding \$1 billion

The proposed dyke upgrades will substantially reduce flood risk in Chilliwack, mitigating the above economic risks and offering increased protection to the people residing in the floodplain protected by the East Dyke.

The project will also generate economic benefits during construction. The construction will be carried out by a private contractor, and will provide employment opportunities for approximately 20 weeks.

In addition to the economic benefits, the project also offers social benefits by reducing flood risk. During a flood emergency, the residents would be subjected to extensive stress and hardship. Dyke overtopping or breach could result in as much as half of Chilliwack's population being displaced, and recovery could take months. Even residents living outside the floodplain would be affected, for example due to work or service interruptions. There would be health care interruptions since Chilliwack General Hospital is situated in the floodplain, as well as numerous other community care facilities.

From an environmental perspective, the impacts would also be substantial. The floodwaters would become contaminated after coming into contact with manure, fertilizers, hydrocarbons and other contaminants. The contaminated water would flow overland and into groundwater and surface water resources, creating environmental and health concerns. There would also be a considerable amount of waste generated during the recovery phase.

Overall, the proposed dyke upgrades will contribute to the sustainability of the community by offering significant environmental, social and economic benefits through with flood risk reduction. The benefits also extend beyond the local area. Because the dyke will offer increased flood protection to major infrastructure such as the TransCanada Highway, two rail lines, and utilities (oil, gas, telecommunications), the benefits extend beyond the region to the national level.

Performance and Progress Measures

The quality of the work will be monitored on a daily basis by the consultants, to ensure the work is constructed according to project specifications. The City will monitor progress on a regular basis by comparing to the project schedule. As required under the funding agreement, the City will prepare and submit monthly updates to the Province.

Project Risks

The main project risk is the geotechnical aspect. The successful engineering firm will be required to carry out a detailed geotechnical investigation of the East Dyke section from the Wing Dyke to Hope River and make recommendations for dyke upgrades. Less extensive geotechnical analyses will be required for the remaining section of East Dyke to be upgraded, since a comprehensive geotechnical assessment has been carried out on that section of dyke previously.

The City may procure the work using the design-build approach, which would allow the City to transfer more risk to the contractor and consultant than the traditional tendering process.

Depending on the outcome of the geotechnical assessment, changes may need to be made to the design (eg. seepage control measures, seismic mitigation measures), which may affect the total length of dyke that can be raised within the project budget. The City is committed to raising the maximum length of dyke achievable with the funds available, with the priority being the section of dyke from the Wing Dyke to Hope River.

The detailed dyke design will include extensive geotechnical considerations to ensure the raised dyke will be stable and potential seepage risks will be mitigated. A geotechnical consultant will provide material testing throughout the project to ensure appropriate materials are used and compaction targets are met.

The City recognizes that weather conditions may affect progress, but there is sufficient time allocated for the project to allow construction during favourable work windows.

Budget

The project budget is itemized below (costs do not include HST):

	2011		2012		2013		2014	Totals
Task Group or Item	January - March	April - December	January - March	April - December	January - March	April - December	January - March	
Engineering and Site Supervision	\$ -	\$ 50,000	\$150,000	\$ 60,000	\$35,000	\$ 40,000	\$15,000	\$ 350,000
Environmental	\$ -	\$ 20,000	\$ 5,000	\$ 15,000	\$ 5,000	\$ 15,000	\$ -	\$ 60,000
Construction	\$ -		\$100,000	\$1,365,000	\$50,000	\$375,000	\$ -	\$1,890,000
Totals	\$ -	\$ 70,000	\$255,000	\$1,440,000	\$90,000	\$ 430,000	\$15,000	\$2,300,000

*Note: Above costs include an overall \$200,000 contingency for the project.

Non-structural mitigation measures

Given the significant floodplain area in Chilliwack, the City recognizes that a comprehensive flood management program is required that comprises structural and non-structural aspects to minimize risk and promote community resilience. Accordingly, the City's dyke system is supplemented by a variety of non-structural measures that support risk assessment and mitigation.

The City requires floodproofing and watercourse setbacks through a Floodplain Regulation Bylaw, to minimize potential flood-related infrastructure damage. The bylaw was developed taking into consideration the Flood Hazard Area Land Use Management Guidelines developed by the Province of British Columbia. The Bylaw also includes a provision to register Restrictive Covenants on properties in the floodplain, which helps increase awareness of flood risk.

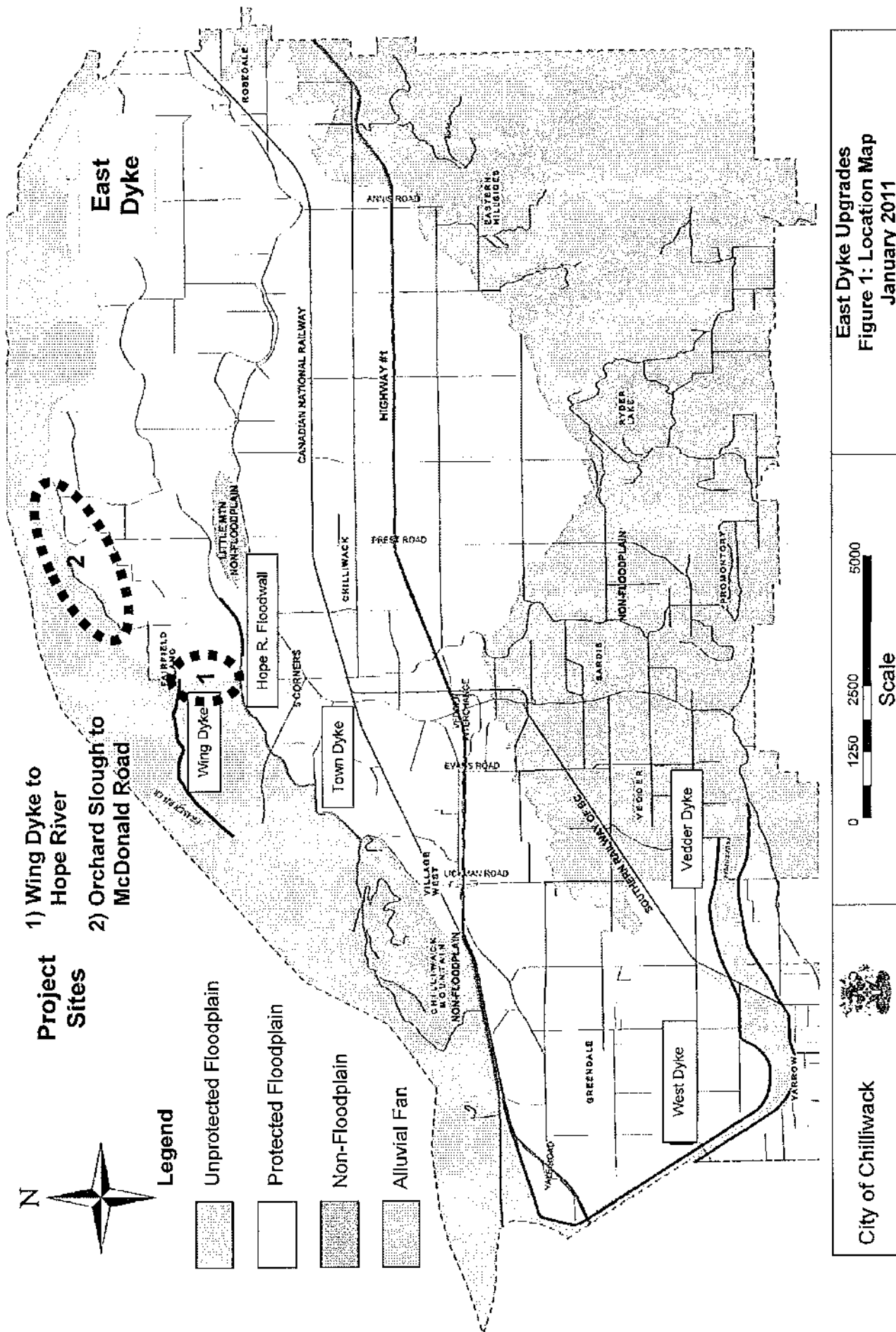
The City also has a comprehensive flood protection website that provides extensive information on flood risk and emergency preparedness. The website includes floodplain maps, links to the provincial River Forecast Centre, Fraser River water level information and a summary of flood response activities based on water levels.

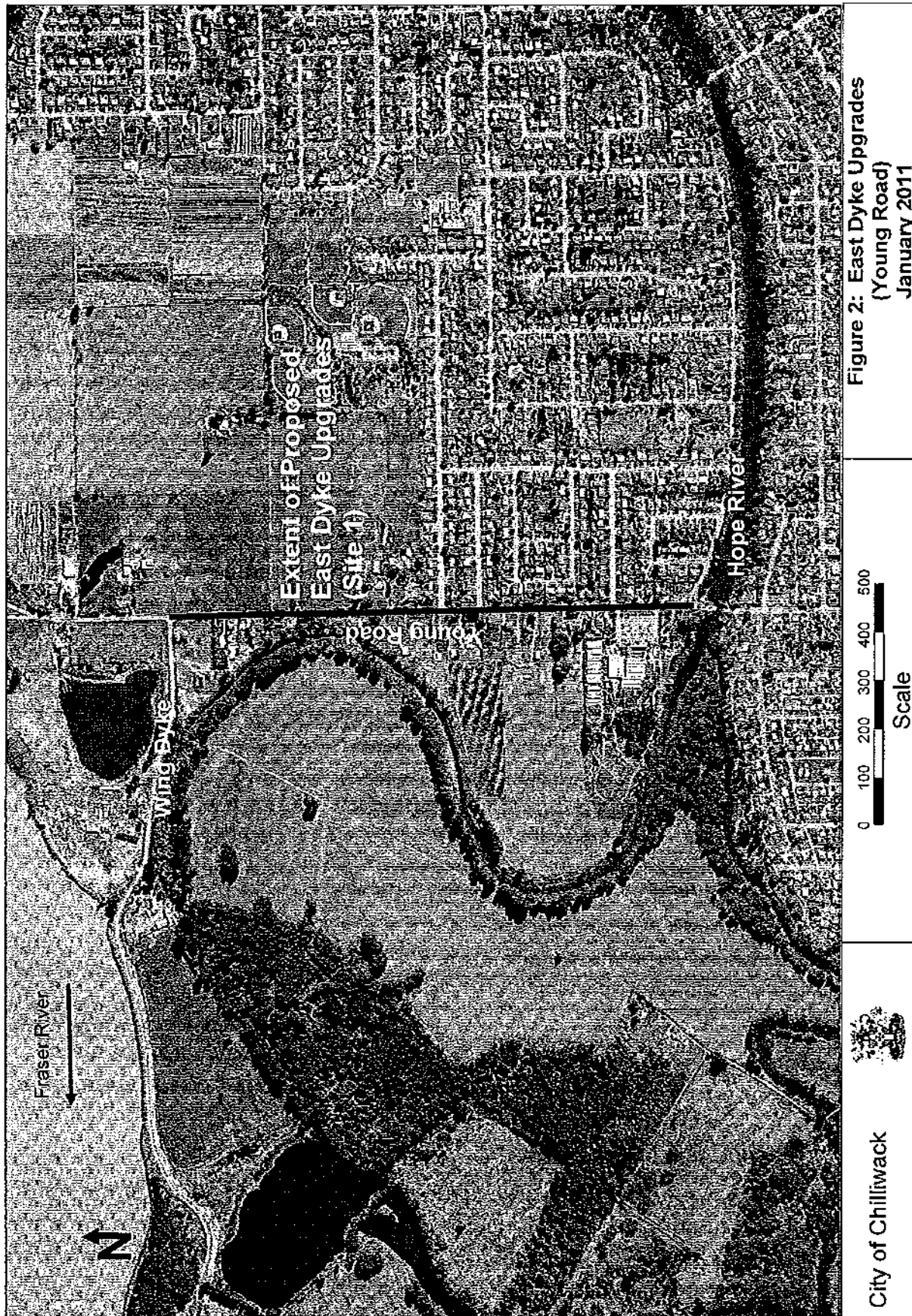
Another non-structural measure is the City's Flood Response Plan, which outlines key actions to be taken during a flood emergency to protect lives and property. The Response Plan is linked to Fraser River water levels, and specifies increasing levels of activity according to flood risk. Response activities range from dyke patrols to coordination of emergency organizations, public notifications, evacuations and clean up.

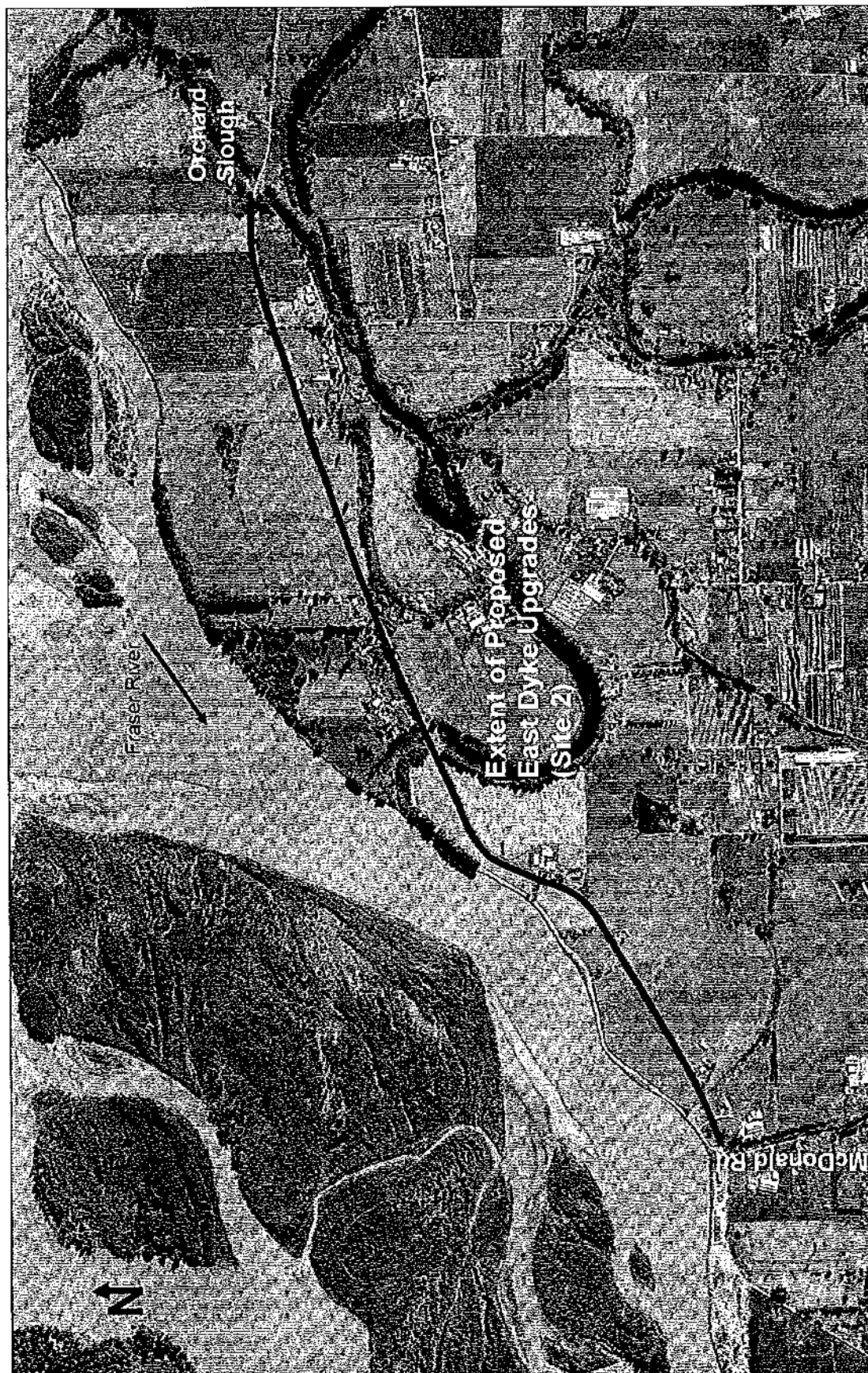
The Response Plan was supplemented by Dyke Breach Modelling work carried out in 2007, which provided critical information on water flow paths, depths and velocities that may occur in the event of a dyke breach in Chilliwack. The modelling assists with emergency preparedness by providing estimates on how long it would take water to reach critical areas of Chilliwack, such as the urban core and major roads including TransCanada Highway.

The Response Plan is used in conjunction with the City's Emergency Dyke Upgrades Plan, which specifies equipment and material requirements should the City need to upgrade dykes on an emergency basis. Also included in the Response Plan is a list of local equipment and material sources.

The City pursues leading-edge flood protection management. In addition to the Dyke Breach Modelling study, the City has also participated in a Quantitative Flood Risk Analysis pilot study by BGC Engineering. The study is the first step in exploring a potential new approach to flood management in BC, one that offers a more comprehensive assessment of flood risk by quantifying flood-related consequences. Results of that study are outlined in the Rationale/Project Benefits section of this Business Plan.







	0 100 200 300 400 500 Scale	Figure 3: East Dyke Upgrades (Orchard Slough to McDonald Road) January 2011
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CERTIFIED RESOLUTION OF COUNCIL:

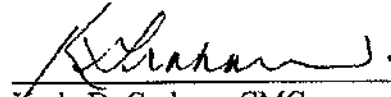
I hereby certify that this is a true copy of a resolution passed by the Council of the City of Chilliwack at its closed meeting of July 19, 2010:

"Atrill) That Council approve the submission of applications to the "2010-14
Clark) Provincial/Federal Flood Protection Program" for the following projects:

- Priority 1: East Dyke Upgrades (Young Road from Cartmell Road to Hope River Road)
- Priority 2: East Dyke – Final Grading and Riverside Plug
- Priority 3: Town Dyke – City-owned portions
- Priority 4: Collinson Pump Station

Carried unanimously"

Dated at Chilliwack, B.C. this
13th day of January, 2011



Karla D. Graham, CMC
City Clerk

**Detailed Cost Estimate
East Dyke Upgrades - 2011/14**

Construction Costs:

Material	Unit	Unit Cost	Quantity	Cost	Comments
Earth Fill	\$/m ³	\$40.00	35,000	\$1,400,000.00	Includes Placement
Paving	m ²	\$19.00	10,000	\$200,000.00	Includes Placement
Miscellaneous	LS			\$125,000.00	Fencing, Gates, Relief Pits
Construction Total				<u>\$1,725,000.00</u>	

*Class C Estimate

Engineering Costs:

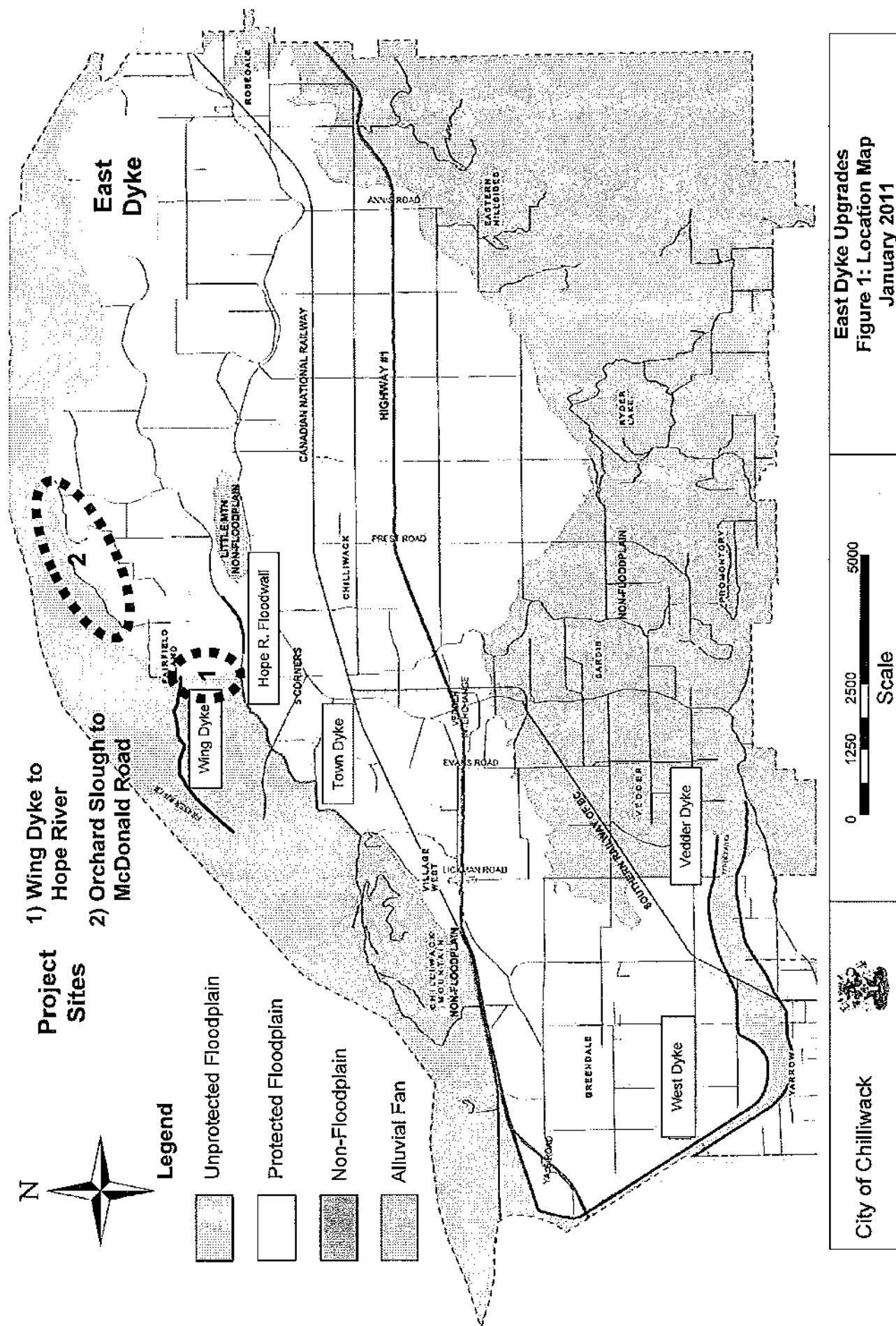
Environmental Assessment and Monitoring	\$60,000.00
Detailed Design	\$175,000.00
Engineering Supervision and Testing	\$115,000.00
As-Built Documents	\$25,000.00
Engineering Total	<u>\$375,000.00</u>

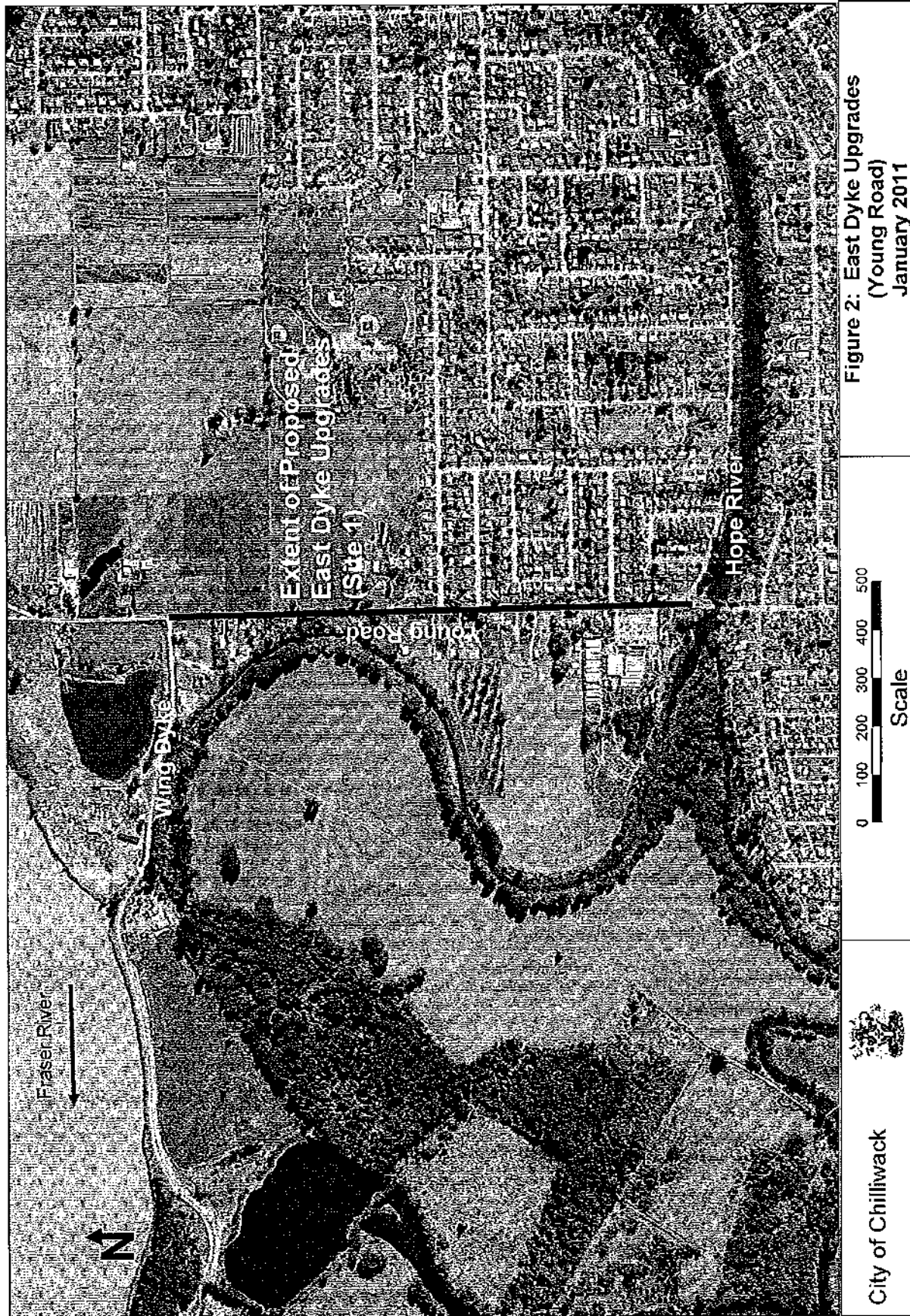
SUBTOTAL	\$2,100,000.00
CONTINGENCY	\$200,000.00
TOTAL PROJECT COSTS, BEFORE TAX	<u>\$2,300,000.00</u>

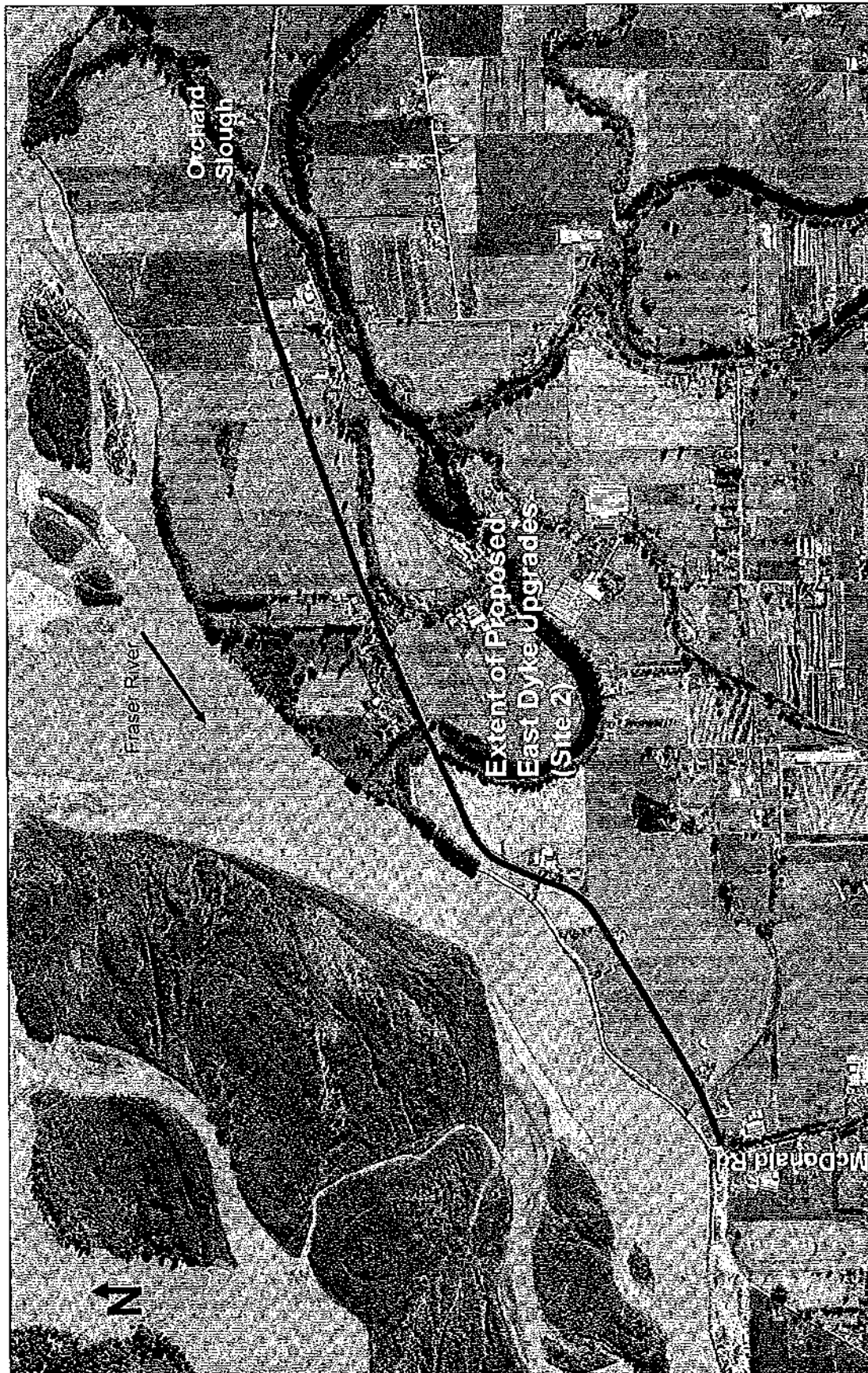
HST (12%)	\$276,000.00
HST Rebate (75% of 7% and 100% of 5%)	-\$235,750.00

NET ELIGIBLE PROJECT COST	\$2,340,250.00
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One-Third Cost-Share	\$780,083.33
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City of Chilliwack

Figure 3: East Dyke Upgrades
(Orchard Slough to McDonald Road)
January 2011

**CITY OF CHILLIWACK
BC MINISTRY OF ENVIRONMENT
BC MINISTRY OF TRANSPORTATION
KINDER MORGAN PIPELINES
TERASEN GAS
SEABIRD ISLAND BAND**

**QUANTITATIVE FLOOD RISK ANALYSIS
CITY OF CHILLIWACK**

FINAL

PROJECT NO: 0511-001
DATE: January 31, 2009

DISTRIBUTION LIST:
Stakeholders 6 COPIES
BGC 2 COPIES

EXECUTIVE SUMMARY

Floods are the most widespread and most important geohazard on Earth in terms of economic cost and loss of life. The impact of floods can be dramatic during the event and causes tremendous grievance and stress, both in quantifiable terms such as economic loss and material damage, and less tangible effects such as individual or societal stress.

The risk of flooding is a human concern that requires both a hazard (the probability of a damaging event) and potential consequence such as loss of life, infrastructure, services and other resources. Canadian practice has been to estimate the discharge of a 200-year flood and designing protection to defend against the associated flood stage. For some rivers, the flood of record was used when it exceeded the 200-year flood estimate. This hazard-based method, while based on sound assumptions, does not account for densification of urban or industrial development, increase in infrastructure or other assets, and thus cannot account for changes in risk. The result is a gradual increase in risk and the requirement to develop modern strategies for flood risk management.

This report provides a preliminary quantitative flood risk assessment for the City of Chilliwack, including the assessment of damage and loss for three potential dike breach scenarios that are regarded as the most likely flood defence failure locations, should a failure occur. This study also forms a pilot project to develop methodology for regional flood risk and consequence assessments in the Fraser Valley.

Flood discharges used for risk assessment were estimated values for the 1894 flood of record, applied to three dike breach scenarios previously analysed by Water Management Consultants. BGC understands that selection of these dike breach locations was based on engineering judgement of relatively more likely breach locations during a major flood. The dike breaches were modelled using MIKE FLOOD, a two-dimensional flood routing software that provides information on area inundated, flow velocity and flow depth at various time steps. The dike breaches were also modelled using estimated 1948 flood discharge values.

A flood frequency analysis was conducted by UBC for the section of the Fraser River adjacent to Chilliwack that included the 93 year flow record at Hope augmented by water stage heights from Mission back to 1876. Generalized extreme value statistics were used to compute a frequency-magnitude relationship for return periods up to 1000 years. According to these analyses, discharge values for the 1948 and 1894 Fraser River floods fall within the 100 - 200 year and 200 - 1000 year ranges, respectively.

Direct consequence measures provided in this report include a detailed summary of estimated direct damage losses for buildings (organized by building type); identification of loss-of-use zones for critical facilities; damage potential maps for roads; agriculture and oil and gas distribution; and identification of zones of relatively higher human vulnerability.

Consequence assessment methodology was developed as a portable database and GIS template that can be applied elsewhere in the Fraser Valley.

Detailed development data were used in combination with depth-damage curves developed by the U.S. Federal Emergency Management Agency (FEMA) to compute total direct losses, based on combined maximum flood values (maximum extent and depth) for the three dike breach scenarios. Combined maximum flood values were used as a conservative measure because the likelihood of breaches, either singly or in combination, is not known. Approximately 10,000 buildings are located in non-Reserve areas inundated by the combined breaches for a 200 year and 500 year return period flood, corresponding to 43% of about 23,000 buildings within the study area (73% of about 13,700 buildings located in non-Reserve areas on the floodplain). Of these, about 7,000 buildings are subject to maximum flood depths > 1 m above the estimated top floor elevation (which is the same as the first floor elevation for single story houses). Of these, 136 buildings have maximum flood depths exceeding minimum rooftop height, estimated as 3 m above the top floor. Estimated total building structure damage amounted to approximately \$ 450 million, not including contents or inventory. These costs were based on 2006 BC Assessment building values; actual market replacement values would likely be higher.

Ten Indian Reserves are located within the study area. Development within these areas was considered separately from non-Reserve lands because available data is scarce and does not contain assessed building values or building locations. Based on 2006 Census data, a total of 491 private residential buildings are located on the Indian Reserves. Estimated total building damage costs amounted to approximately \$26 million, based on building values estimated as the average Chilliwack residential building value, and flood depths averaged across a given reserve. This estimate contains higher uncertainty than outside Indian Reserves and does not include all buildings on the Reserves.

BC Stats were retained to determine business losses for Chilliwack and the B.C. economies respectively. Daily losses amount to approximately \$ 26 million. Business interruptions, however, will likely exceed the flood duration by many weeks or months due to repairs and other recovery efforts. In addition, significant losses can be expected in the agricultural sector that was not quantified herein.

Considering all costs, BGC estimates that damage and loss figures would exceed \$ 1 billion for the flood scenarios examined. Personal grief, stress and environmental factors (such as cleanup of contaminated materials, cleanup of contaminated surface and ground water, deterioration of aquatic and terrestrial habitat) have not been included in this assessment because they are either impossible to quantify or very difficult to predict.

BGC reviewed of methodologies to quantify risk to life. In all methods, uncertainties are significant and depend on factors such as human behaviour in emergencies, the level of warning and evacuation (e.g. unexpected dike breach versus forecasted overtopping), and

the vulnerability of residents due to age or health. Consequently, rather than make very approximate estimates of expected life loss, BGC delineated zones expected to have relatively higher human vulnerabilities to floods, based on simple, transparent criteria. It is hoped that these maps will be useful for emergency planning.

The study concludes with recommendations listing studies that would lead to a risk-based decision making framework on which future flood mitigation can be based.

****Full Report Available Upon Request****

BC Building Canada Fund - Communities Component

DISASTER MITIGATION / FLOOD PROTECTION - TECHNICAL ASSESSMENT

SECTION 1: BASIC PROJECT INFORMATION

Applicant Name	Chilliwack, City of	Project #2010-2-005	41722
Project Title	East Dike Upgrades		
Project Location (City)	Chilliwack	EDR	Mainland / Southwest

SECTION 2: PROJECT COSTS

Original Costs - Estimated by the Applicant		Revised Costs - After Analysis	
Total project costs	\$2,300,000	Total project costs	\$2,576,000.00
Total eligible costs	\$2,300,000	Total eligible costs	2340,000
Total ineligible costs		Total ineligible costs	236,000
Requested fed share	\$766,667	Requested fed share	780,000
Requested prov share	\$766,667	Requested prov share	780,000
Total requested funding	\$1,533,333	Total requested funding	\$1,560,000
Applicant's share	\$766,667	Applicant's share	780,000

Notes:

- Source of funding for the applicant's share: Operational Budget
- Non-capital asset (amt and desc.): Contingency (12%) \$200,000
- Professional Fees (amt and desc.): Engineering and Site Supervision (\$350,000)
- Communication Costs (amt and desc.):
- Ineligible costs (amt and desc.): HST Rebate (\$235,750)

SECTION 3: TECHNICAL SCORE CARD

	Maximum Points Available	Points Awarded	Comments on Score
Program Objectives			
Program Priority (section 6)	35	23	
Environmental Contribution (section 7)	20	20	
Economic Growth and Community Development (section 8)	20	8	
Feasibility (section 9)	25	19	
Total Technical Score	100	70	

SECTION 4: REVIEW APPROVAL

If Technical Review must be updated with changes, please re-sign with new date, and indicate in comment box in this section. Update SIMSI.

Prepared by	NAIRN ALBRECHT	Date	2010/11/03
Reviewed by Manager		Date	Jan 31/11
Updated in SIMSI by		Date	
Presented to Joint Secretariat		Date	

SECTION 5: PROJECT DESCRIPTION

Describe the physical works of the project and the objectives it will achieve.

The project will upgrade 1,200 metres of the East Dike by raising the dike by up to 1 metre from Wing Dike to Hope River to meet the current provincial standard based on the 2008 hydraulic model. The project will include minor upgrades on approximately 3,300 metres sections of the East Dike from Orchard Slough to McDonald Road. The dike upgrades will reduce flood risk by increasing flood protection to the more than 40,000 people residing in the floodplain, as well as critical infrastructure such as rail lines, TransCanada Highway, oil and gas infrastructure, utilities, hospital and care facilities, and wastewater treatment plant.

SECTION 6: PROGRAM PRIORITY

6.1 COMMON PROGRAM CRITERIA - ALL PROJECT TYPES

ALL PROJECTS TYPES	YES/NO /NA	Comments
The project is a federal priority (eligible project category for this intake).	Yes	
The project costs estimates are detailed and appear reasonable (Section 9.1 Cost Estimates)	Yes	
The project would not proceed without program funding (Section 9.3 Incremental Impact).	Yes	
The project is supported by a comprehensive, credible and feasible business case that outlines the costs and benefits of the project.	Yes	
Project is consistent with applicable provincial, regional or municipal plans (e.g., land-use, integrated watershed management plan, municipal official plans, Integrated Community Sustainability Plans).	Yes	
The project will meet all applicable legislative or regulatory requirements, including the requirement for a federal Environmental Assessment process that meets the requirements of the Canadian Environmental Assessment Act, which may include specific requirements for aboriginal consultation.	Yes	
The contract award process will be competitive, fair and transparent (e.g., no sole-source contracts, no union-only processes).	Yes	Local Govt bound by TILMA
Major risks related to extreme natural events and/or climate change risks with a potential impact on the project during construction or once completed have been considered, and, where applicable, a mitigation plan developed.	Yes	
Infrastructure intended for use by the public ensures appropriate access for persons with disabilities, if applicable.	n/a	Does not apply to flood projects
Opportunities regarding a regional service area or other cooperative arrangements, particularly with First Nations communities, have been considered, as appropriate, in respect of the project.	n/a	this

Incremental impact of funding: This is scored according to the incremental effect that the program funding will have on the project's scope or timing. It represents a measure of the applicant's need for funding. Does the applicant have a bonafide need for the funding?	Yes	
Does the project address a flood or erosion risk to a community?	Yes	
Is the application from a legitimate applicant?	Yes	
6.1 Common Program Criteria	Score	Comments
(0) Mandatory criteria are not met (ineligible for CC funding) (10) Meets mandatory criteria	10	
6.2 DISASTER MITIGATION PROJECT SPECIFIC CRITERIA		
The project must achieve one or more of the following outcomes: • Reduce the social, physical and/or economic risks associated with an extreme natural event and/or adverse effects related to climate change; • Safeguard the public and improve the resiliency of public infrastructure to extreme natural events and/or adverse effects related to climate change • Increased sustainability of Local Government development and encouragement of more efficient land use.		
DISASTER MITIGATION CRITERIA	YES/NO /NA	Comments
The project proponent must have conducted a risk assessment that supports the proposed mitigation project. The risk assessment shall include: the likelihood of a hazard, or combination of hazards occurring and the potential impact (including social, economic and environmental impacts).	Yes	
Where appropriate, the proponent must implement, or commit to implementing within two years of project completion, non-structural disaster mitigation measures that support the risk assessment. Elements may include: Local Government zoning by-laws, planning and building codes that reduce disaster risk, and public awareness and education; support objectives for Land Use planning; support objectives for Emergency Management (such as evacuation planning)	Yes	
Projects must be consistent with the goals and principles of the National Disaster Mitigation Strategy, (once developed). Is the project "strategic" or "tactical"? (i.e., Flood protection projects are aligned with or meet the objectives of one or more strategies will be considered more relevant than projects that are responsive to events (i.e. tactical). Strategies to consider include, but are not limited to, the FPP strategy, Community-based strategies, Economic Action Plan.	Yes	
Will the newly constructed or materially rehabilitated buildings exceed the energy efficiency requirements of the Model National Energy Code for Buildings	n/a	

Will the newly constructed buildings meet the requirements of the Canadian Standards Association Technical Standard Accessible Design for the Built Environment (CAN/CSA B651-04)?	1/1	
6.2 Project Specific Criteria	Score	Comments
(0) Does not meet any of the applicable criteria (5) Meets some of the applicable criteria (10) Meets all of the applicable criteria	10	
6.3 Joint Application Or P3 Partnership		
Is the application a joint application or as a result of a P3 partnership?		
6.3 JOINT APPLICATION OR P3 PARTNERSHIP	Score	Comments
(0) No joint application or P3 partnership (3) Joint application (both parties contributing to the capital and operating funds) (5) Formal P3 partnership	0	no P3
6.4 Orphan Flood Protection Works		
Orphan flood protection works are remnant structures built in response to a past flooding event. They now provide protection to an existing community but have no responsible authority responsible for them. Where an applicant deems that upgrading the orphan works is a priority, it also means the works will have an authority that would take responsibility for the life-span of the project.		
6.4 Orphan Flood Protection Works	Score	Comments
(0) The project does not involve an orphan flood protection structure (5) the project involves an orphan flood protection structure	0	not an orphan works
6.5 Public Safety Infrastructure being protected by project		
Projects under this category provide benefits to people, buildings and infrastructure. This is usually described as population being protected, or number of residents, critical infrastructure, and commercial buildings being protected.		
6.5 Project Benefits:	Score	Comments
(0) No measurable benefits provided. (3) Projection of benefits provide quantitative measures supported by internal documentation. (5) Projection of benefits provide quantitative measures supported by independent professional studies.	3	

SECTION 7: ENVIRONMENTAL CONTRIBUTION

7.1 Environmental Contribution

The project is evaluated on how well it demonstrates the enhancement and protection of environmental health by:

- The use of innovative technologies and practices that increase energy efficiency, or other mitigation strategies;
- Cost-effectively minimizing GHG emissions in both construction and operation.
- Use of environmentally friendly designs and materials (e.g. fish friendly pump etc.)

Category A: Increase energy efficiency

- Install energy efficient equipment/appliances/fixtures
- Install water saving devices and energy efficient equipment (i.e. low flow fixtures, energy efficient pump)
- Indoor air quality and other environmental management issues addressed during construction
- Reduce water, storm water, and wastewater
- Other

Category B: Cost-effectively minimizing GHG emissions

- Install automated control systems for HVAC, lighting and other systems
- Sustainable materials used (salvaged materials, recycle/reuse/reduce materials)
- Use renewable energy sources including solar, wind, hydroelectric, bio-energy, earth and geothermal
- Include environmental design consideration in the overall building design
- Design approaches consider climate change issues (modeling as a design tool, site selection and planning, building orientation, site impacts, passive solar design)
- Consideration to appropriate sized equipment and planning towards reducing GHG in construction, i.e., anti-idling policies
- Other

Category C: Environmentally friendly designs and materials

- Newly constructed or materially rehabilitated buildings exceed the energy efficiency requirements of the Model National Energy Code for Buildings
- Newly constructed buildings meet the requirements of the Canadian Standards Association Technical Standard
- Accessible Design for the Built Environment (CAN/CSA B651-04)
- ✓ Construction management (site protection, construction waste management) strategies implemented
- Use of environmentally friendly designs and materials (e.g., fish friendly pump)
- Consideration for fish and fish habitat; impact to Species at Risk Act objectives; Migratory Birds.
- Design incorporates environmental considerations for fish passage; project location to minimize the footprint on riparian or sensitive areas.

The project will contribute to increasing environmental values through...

Section 7 Environmental Contribution	Score	Comments
(0) No environmental contribution (5) will contribute to the environment by achieving at least 1 item under category A or B (10) will contribute to the environment by achieving at least 4 items under category A or 2 items under category B or a combination thereof (15) will contribute to the environment by achieving 7 items under category A or 4 items under category B or a combination thereof (20) will contribute to the environment by achieving 1 or more items under Category C	20	Construction Management

SECTION 8: ECONOMIC GROWTH AND COMMUNITY DEVELOPMENT

8.1 Creates Employment

This refers to the number of full-time equivalent jobs directly created during the term of the project including construction, design, project management, etc. The number must not include the applicant's own employees. Calculation of the short-term employment figure is as follows:

6 workers for
8 months

$$\frac{\text{the number of person hours}}{2,080} = \text{person years}$$

$$\frac{7680}{2080} = 3.69 \text{ Person Years}$$

8.1 Creates Employment

Score

Calculation

- (0) 0 short-term jobs
- (3) 1 - 5 person years
- (6) 5 - 10 person years
- (10) more than 10 person years

3

6 workers x 8 months =
7680 person hours

8.2 Contributes To The Economic And Community Development

This refers to contributing to the economic and community development of an area. The project is evaluated on how well it will enhance a community's economic opportunities, diversification & competitiveness, and/or how it will enhance the community's liveability.

For example:

- ✓ creates new full-time/part time employment
- enhances resident and visitor safety in a community (addition of sidewalks/bike lanes, improvements to roads benefiting emergency vehicles etc)
- improves access to existing tourism/sports/cultural facilities, public institutions, etc.
- supports sustainable modes of transportation
- reduces the cost to residents and to industry
- diversifies the community's or regional economy
- increases revenue sources for the community
- creates an economic impact on businesses
- reduces congestion which will increase transportation of goods
- increases the number of visitors to the community/region
- increases the length of stay of visitors to the community/region
- improves the social environment of a community through the addition of cultural/sport amenities
- improves the economic environment by attracting and retaining more industry and people
- ✓ improves public safety
- ✓ increases community resilience
- ✓ decreases risk of flooding and erosion
- ✓ decreases response and recovery costs
- other = specify

8.2 Economic And Community Development

Score

Comments

- (0) No contribution to the economic and community development of an area.
- (5) Will contribute to the economic and community development of an area by achieving 1-5 of the above items.
- (10) Will contribute to the economic and community development of an area by achieving 6+ of the above items.

5

SECTION 9: FEASIBILITY

9.1 Cost Estimates

Reasonable cost assumptions are those that are supported by detailed cost estimates, quotes from suppliers, or a positive response to cost analysis performed during application review, and is within the respective range for a similar facility. To what level of effort has the applicant invested in the project already? Are the plans well developed? Is the engineering well thought-out; project readiness? Is this a phase in a multi-phase project? Is the costing based on recent analysis? What is the contingency allowance?

9.1 Cost Estimates	Score	Comments
(0) Cost assumptions are not supported or detailed. (1) Cost assumptions are based on a class D estimate (3) Cost assumptions are based on a class C estimate (5) Cost assumptions are based on a class B estimate	3	Class C

9.2 Proponent Financial Obligations

This is scored on the proponent's risk of failing to meet debt or other financial obligations.

9.2 Applicant's Source of Funding	Score	Comments
(1) The applicant has no secured funding in place. The project will be financed through a financial institution or where a local government is the applicant, a public referendum will be held to approve borrowing through the Municipal Financing Authority (MFA), as they have exceeded their liability servicing limit. (3) The applicant has provided necessary documentation (e.g. letters of commitment from funding partners, contribution agreements from other provincial/federal programs, etc.) verifying that their share of the project's funding will be in place with a condition that the project is approved for funding or where a local government is the applicant, they must issue a borrowing by-law as their borrowing capacity through the MFA is within their liability servicing limit. (5) The applicant has provided necessary documentation confirming that their share of the project's funding is in place or where a local government is the applicant, their borrowing capacity through the MFA is below their liability servicing limit.	5	

9.3 INCREMENTAL IMPACT OF FUNDING

This is scored according to the incremental impact of funding will have on the project's scope or timing. It represents the applicant's need for funding. (e.g.: should BCF-CC funding not forthcoming, would the project be reduced, delayed (months/years) or not proceed.

9.3 Incremental Impact of Funding	Score	Comments
(0) There is no incremental impact; project would proceed as detailed and scheduled if the funding was not approved. (3) There is an incremental impact; project will proceed and be implemented (scope and scale) a head of what would have been done by the proponent alone. (5) There is a significant incremental impact; project will proceed and be implemented (scope and scale) with significant advancements a head of what would have been done by the proponent alone.	3	

9.4 Land Tenure

Land tenure often impacts a proponent's ability to complete the project. Depending on the strength and planning to resolved issues related to land tenures, will coincide with the proponent's ability to implement the project.

9.4 Land Tenure**Score****Comments**

(0) There are land tenure issues and no plan to resolve them.
 (3) Land tenure issues are identified and there is a plan to resolve them.
 (5) There are no land tenure issues; ie the proponent owns the land or has right of ways in place covering the footprint of the project.

5

Right of ways
in place

9.5 Ongoing Responsibility

Does the applicant have a plan to fund the operation and maintenance of the asset over its lifecycle?

Ongoing Responsibility**Score****Comments**

(0) No demonstrated plan in place.
 (3) Operation & maintenance plan in place.
 (5) Full Life Cycle Asset Management Plan in place.

3

SECTION 10: REVIEWERS NOTES

This section will be used for the briefing book (SIMSI) and will contain no more than 2 paragraphs of why the project is needed (problem or opportunity it addresses) and the project outcomes.

Other applications under BCF-CC, land purchase, approval list, F/P regional staff comments, etc.

Construction Timeline

What is the proposed starting date for construction?

2012-01-01

What is the proposed completion date for construction?

2013-12-31

Are the project timelines feasible for Tiers 1, 2 and 3 specifications?

Tier 2

Other Comments

Project involves raising Road, which is also a dike, paving costs included.

Albrecht, Nairn JAG:EX

From: Preece, Tim JAG:EX
Sent: Monday, December 10, 2012 1:01 PM
To: Albrecht, Nairn JAG:EX
Subject: FW: East Dyke Application

Tim Preece

BC Flood Protection Program Manager

BC Flood Protection Program
Emergency Management BC
Ministry of Justice
2nd Floor, 525 Fort Street, Victoria BC
phone: 250.953.4003
Facsimile: 250.953.4081
tim.preece@gov.bc.ca



Emergency
Management BC

From: Friesen, Tara [mailto:tfriesen@chilliwack.com]
Sent: Thursday, August 16, 2012 4:39 PM
To: Preece, Tim JAG:EX
Subject: RE: East Dyke Application

Hi Tim,

Ultimately we will need to install a floodbox and pump station on the Hope River. We plan to do it in phases (floodbox first, then pump station) because the total cost is about \$13M.

We have a list of required flood protection works that totals about \$30M. The Hope River floodbox is near the top of the list, following upgrades to the East Dyke and Town Dyke (City-owned sections).

We will be submitting a funding application for the floodbox once we have our local share available. We have money budgeted annually to put toward the local share for the various flood protection projects. The City's policy is to not borrow funds so we will delay construction until we have the local funds available. We hope to have the floodbox installed in less than 10 years, but that timing will depend on senior government funding as well.

Regards,
Tara

From: Preece, Tim JAG:EX [mailto:Tim.Preece@gov.bc.ca]
Sent: Wednesday, August 15, 2012 4:46 PM
To: Friesen, Tara
Subject: RE: East Dyke Application

Hi Tara

Thank you for getting back to me with all the information I requested. I had a chat with Neil Peter's about your project and he likes the proposed work but had a question about the long term strategy for the remaining work along the Hope

River. The benefits from the East Dyke work will only be fully realised once the later phases for Hope River are also completed. Are these works programmed in to be built in the future?

I will give you a call tomorrow to discuss if you are available.

Thanks

Tim

Tim Preece

BC Flood Protection Program Manager

BC Flood Protection Program
Emergency Management BC
Ministry of Justice
2nd Floor, 525 Fort Street, Victoria BC
phone: 250.953.4003
Facsimile: 250.953.4081
tim.preece@gov.bc.ca



Emergency
Management BC

From: Friesen, Tara [<mailto:tfriesen@chilliwack.com>]

Sent: Tuesday, August 14, 2012 11:39 AM

To: Preece, Tim JAG:EX

Subject: RE: East Dyke Application

Hi Tim,

The East Dyke protects approximately 10,000 residential properties (not including vacant properties).

Regards,

Tara

From: Preece, Tim JAG:EX [<mailto:Tim.Preece@gov.bc.ca>]

Sent: Tuesday, August 14, 2012 8:38 AM

To: Friesen, Tara

Subject: RE: East Dyke Application

Thank you Tara

I will be in touch.

Kind regards

Tim

Tim Preece

BC Flood Protection Program Manager

BC Flood Protection Program
Emergency Management BC
Ministry of Justice
2nd Floor, 525 Fort Street, Victoria BC

phone: 250.953.4003
Facsimile: 250.953.4081
tim.preece@gov.bc.ca



Emergency
Management BC

From: Friesen, Tara [<mailto:tfriesen@chilliwack.com>]
Sent: Monday, August 13, 2012 4:48 PM
To: Preece, Tim JAG:EX
Subject: East Dyke Application

Hi Tim,

The answers to most of your questions are included below. I'm just waiting for the residential property figure from our GIS department. I'll forward that as soon as I get it.

Regards,



CITY OF
CHILLIWACK

Tara Friesen, P.Eng. | Manager of Flood Protection Infrastructure | Engineering - Environmental Services
P: 604.793.2701 | C: 604.703.4399 | F: 604.793.2997 | E: tfriesen@chilliwack.com
City of Chilliwack | 8550 Young Road, Chilliwack, BC, Canada V2P 8A4 | www.chilliwack.com

From: Preece, Tim JAG:EX [<mailto:Tim.Preece@gov.bc.ca>]
Sent: Thursday, August 09, 2012 9:53 AM
To: Friesen, Tara
Subject:

Hi Tara

Due to the project at Prince George no longer going ahead, I am reviewing those projects that were initially unsuccessful, one of which was your submission, East Dike. I had a few of questions about your project submission which I was hoping you could help me with.

1. Do you have an idea as to how many residential properties would benefit from the works once they are completed?
2. Do you have any records of flooding in the area and how frequently does this occur? The East Dyke hasn't been breached or overtopped since it was constructed in the late 1800's. There was significant flooding in the area during the 1894 flood of record. The proposed upgrades would provide protection against the 1894 flood (estimated to be a 1:500 year event).
3. If awarded funding for the project, do you think it could still be completed this fiscal year, i.e. before the 31 March 2013? In the original application, we indicated that the project would be complete by March 2014. That timeline can still be met, but it is not possible to complete the work a year earlier, by March 2013. The dyke material is fine-grained and therefore must be placed and compacted during the 2013 summer construction window when we have favourable weather conditions. There is also paving required for a large section of the dyke proposed for upgrades.
4. Would you be able to secure the local government funding towards the project of \$780k? Yes, the local contribution would be available.

I appreciate there are quite a few questions here, but it will help me to compare your project with other similar projects that are also competing for funding.

If you have any questions, please do not hesitate to contact me on the number below.

Many thanks

Tim

Tim Preece

BC Flood Protection Program Manager

BC Flood Protection Program
Emergency Management BC
Ministry of Justice
2nd Floor, 525 Fort Street, Victoria BC
phone: 250.953.4003
Facsimile: 250.953.4081
tim.preece@gov.bc.ca



Emergency
Management BC

The project will upgrade approximately 4,500 metres of the East Dike. Work will include (1) upgrading 1,200 metres of the East Dike by raising the dike by up to 1 metre from Wing Dike to Hope River to meet the current provincial standard based on the 2008 hydraulic model; and (2) conducting minor upgrades on approximately 3,300 metres sections of the East Dike from Orchard Slough to McDonald Road. The dike upgrades will reduce flood risk by increasing flood protection to the more than 40,000 people residing in the floodplain, as well as critical infrastructure such as rail lines, the TransCanada Highway, oil and gas infrastructure, utilities, hospital and care facilities, and a wastewater treatment plant.

GPS 19	092H011	Condition	No FNI land in vicinity of
	092H012	Red	project
East Dike Rosedale to Young Road	092H021	(Not OK)	

Qualitative Dike Assessment (2008)

"Young Road Dike"

Complete Dike: Dike Crest

below design level

Is this a good project?

Yes

Project is well scoped, costs are acceptable,
Flood benefits are well described.



May 3, 2013

Her Worship Sharon Gaetz
Mayor of the City of Chilliwack
8550 Young Road
Chilliwack, BC V2P 8A4

Dear Mayor Gaetz:

**Re: Building Canada Plan - Base Funding Agreement and Flood Protection
Program Project #2010-2-005 - East Dike Upgrades Project**

Please accept this letter as confirmation that your application for the above project has been approved for funding under the Building Canada Plan (BCP) - Base Fund Agreement (BFA) and Flood Protection Program. The total federal/provincial funding approved for the project is up to \$1,560,000 and costs incurred from April 1st, 2013 are eligible for recovery.

This funding approval is conditional pursuant to the general fund parameters as described in the Flood Protection Program 2010 Funding Application Guidelines dated June 18, 2010 and upon the municipality and the Province entering into a written Transfer Under Agreement (the Agreement) document.

Please have both copies of the attached Agreement signed and returned to our office. Upon receipt of the two signed copies from you, we will review, counter sign, and provide a copy of the Agreement to you for your records.

It is the City of Chilliwack's responsibility to obtain and comply with all necessary authorizations and/or permits as an ongoing condition of funding. These authorizations and/or permits from regulatory agencies may identify the need for an environmental assessment.

.../2

Ministry of Justice

Office of the Assistant Deputy Minister/
Fire and Emergency Management
Commissioner
Emergency Management BC

Mailing Address:
PO Box 9201 STN PROV GOVT
Victoria BC V8W 9J1
Telephone: 250 952-5063

Location:
Block A, Suite 200
2261 Keating Cross Road,
Saanichton BC
Facsimile: 250 387-4872

Please ensure that all public information material, including requests for proposals or tenders related to this project clearly indicate that funding is provided from the Building Canada Plan – Base Funding Agreement and Flood Protection Program. Any public event associated with the project must follow the established Building Canada Plan - Base Funding Agreement communication protocols as referenced in section 2.04 of Schedule A in the Agreement. Provincial representatives may conduct site inspections to review the projects progression. If a decision is made that your project will not proceed, please notify the undersigned in writing as soon as possible.

It is recommended that detailed accounting be established and maintained for all project expenditures. This aspect is extremely important as all Flood Protection Program claims:

- require complete accounting for all costs; and
- are subject to audit by provincial or federal auditors.

As part of the ongoing monitoring requirements, the City of Chilliwack will need to submit a monthly project update (template provided) which includes an updated summary of the budget, schedule, and progress. Additionally, there is a requirement to notify Emergency Management BC of the construction tender results prior to awarding the contract. Upon final completion of the project, submission of a Project Completion Report is required to close-out the project.

If you have any questions regarding the above, please contact Carol Loski, Director, Flood Protection Program, Emergency Management BC at 250-952-5063 or by e-mail at Carol.Loski@gov.bc.ca.

We wish you every success with your flood protection project.

Sincerely,

Rebecca F. Denlinger
Assistant Deputy Minister
Fire and Emergency Management Commissioner



August 2, 2013

Tara Friesen
City of Chilliwack
Manager of Flood Protection Infrastructure
8550 Young Road
Chilliwack BC V2P 8A4

Dear Tara:

**Re: Building Canada Plan - Base Funding Agreement and Flood Protection
Program Project #2010-2-005 - East Dike Upgrades Project**

Please find attached an original signed copy of the Transfer under Agreement for the above named project.

If you have any questions or concerns, please do not hesitate to contact the Flood Protection Program at 250 952-5065 or by e-mail at EMBCFloodProtection@gov.bc.ca.

I wish you success with your project.

Sincerely,

Tim Preece
Program Manager

Ministry of Justice

Office of the Assistant Deputy Minister/
Fire and Emergency Management
Commissioner
Emergency Management BC

Mailing Address:
PO Box 9201 STN PROV GOVT
Victoria BC V8W 9J1
Telephone: 250 952-5063

Location:
Block A, Suite 200
2261 Keating Cross Road,
Saanichton BC
Facsimile: 250 387-4872

**FLOOD PROTECTION PROGRAM
Transfer Under Agreement**

THIS AGREEMENT dated for reference April 25, 2013.

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH
COLUMBIA, represented by the Minister of Justice

Emergency Management BC
Flood Protection Program
Block A – Suite 200, 2261 Keating Cross Road
Saanichton, British Columbia V8M 2A5

(the "Province")

AND:

City of Chilliwack
8550 Young Road
Chilliwack, British Columbia V2P 8A4

(the "Recipient")

WHEREAS:

- A. The Province has developed a Flood Protection Program ("FPP") to assist communities and diking authorities in addressing flood hazards within the Province;
- B. The Province and the Government of Canada have partnered through the FPP and the Building Canada Plan and wishes to fund certain projects to alleviate flood hazards in the Province;
- C. The parties to this Agreement agree as follows:

DEFINITIONS

- 1.01** In this Agreement and any Schedules attached hereto, the following definitions apply:
- (a) "Business Plan" means a document submitted by the Recipient as part of its FPP Project Application that sets out the timelines, phases, milestones, activities, deliverables and the costs associated with those timelines, phases, milestones and deliverables and attached to this Agreement as Appendix 1 to Schedule A;
 - (b) "Contract Price" means the total amount of funds payable by the Province to the Recipient as set out in Schedule B;
 - (c) "Diking Authority" means the "diking authority" as defined in the *Dike Maintenance Act*, [RSBC 1996] chapter 95;
 - (d) "Eligible Costs" means the "eligible costs" as outlined in the Flood Protection Program Guidelines;

- (e) "Fiscal Year" means the period beginning April 1 of a year and ending March 31 of the following year;
- (f) "Incorporated Material" means any accounting records, findings, software, data, specifications, drawings, working papers, reports, surveys, spread sheets, evaluations, documents, databases and other material, (both printed and electronic, including, but not limited to, hard disk or diskettes), whether complete or not that is incorporated or embedded in the Produced material by the Recipient or a subcontractor;
- (g) "Material" includes Produced Material and Received Material;
- (h) "Produced Material" means any accounting records, findings, software, data, specifications, drawings, working papers, reports, surveys, spread sheets, evaluations, documents, databases and other material, (both printed and electronic, including, but not limited to, hard disk or diskettes), whether complete or not and produced, received or otherwise acquired by the Recipient or a subcontractor and includes any material in existence prior to the start of the Term or developed independently of this Agreement;
- (i) "Project" means the Project as more fully described in Schedule A, attached to this Agreement;
- (j) "Received Material" means any accounting records, findings, software, data, specifications, drawings, working papers, reports, surveys, spread sheets, evaluations, documents, databases and other material, (both printed and electronic, including, but not limited to, hard disk or diskettes), whether complete or not and received by the Recipient or a subcontractor from the Province or any other person as a result of this Agreement;
- (k) "Refund" means any refund, remission or rebate of federal or provincial tax or duty available with respect to any items that the Province has paid for or agreed to pay for under this Agreement; and
- (l) "Substantial Completion" means the Project or a substantial part thereof is ready for use or is being used for the purposes intended.

APPOINTMENT AND TERM

2.01 The Recipient must manage and implement the Project described in Schedule A in accordance with this Agreement. The Recipient must manage and implement the Project during the Term regardless of the date of execution and delivery of this Agreement.

2.02 Notwithstanding the date of execution and delivery of this Agreement, the Term of this Agreement, commences on April 1, 2013 and ends on February 28, 2015, unless terminated earlier in accordance with the terms of this Agreement.

PAYMENT OF CONTRACT PRICE

3.01 Subject to the provisions of this Agreement, the Province will pay the Recipient, on account of Eligible Costs, and in the amount and manner, and at the times set out in Schedule B attached to this Agreement.

- 3.02** Notwithstanding any other provision of this Agreement the payment of the Contract Price by the Province to the Recipient pursuant to this Agreement is subject to:
- (a) there being sufficient monies available in an appropriation, as defined in the *Financial Administration Act* ("FAA"), to enable the Province, in any Fiscal Year when any payment of money by the Province to the Recipient falls due pursuant to this Agreement, to make that payment; and
 - (b) Treasury Board, as defined in the FAA, not having controlled or limited, pursuant to the FAA, expenditure under any appropriation referred to in subparagraph (a) of this paragraph.
- 3.03** The Recipient must:
- (a) apply for any Refund or remission of federal or provincial tax or duty available with respect to any items that the Province has paid for or agreed to pay for under this Agreement; and
 - (b) on receipt of the Refund, comply with the requirement concerning the use, application or remittance of the Refund set out in Schedule B to this Agreement.

REPRESENTATIONS AND WARRANTIES

- 4.01** The Recipient represents and warrants to the Province with the intent that the Province will rely thereon in entering into this Agreement that:
- (a) all information, statements, documents and reports furnished or submitted by it to the Province in connection with this Agreement are true and correct;
 - (b) it has no knowledge of any fact that materially adversely affects, or so far as it can foresee, might materially adversely affect, its properties, assets, condition (financial or otherwise), business or operations or its ability to fulfill its obligations under this Agreement;
 - (c) all contracts for the supply of services or materials relating to the Project will be awarded and managed in accordance with the Province's relevant policies and procedures, and in a way that is fair, transparent, competitive, open and consistent with value for money principles.
 - (d) if the Project involves the construction of hazard mitigation works, the works must be designed and constructed under the supervision of a suitably qualified Professional Engineer or Geoscientist licensed in the Province of British Columbia; and
 - (e) it is not in breach of, or in default under, any law, statute or regulation of Canada or of the Province of British Columbia applicable to or binding on it or its operations.
- 4.02** All statements contained in any certificate, application, proposal or other document delivered by or on behalf of the Recipient to the Province under this Agreement or in connection with any of the transactions contemplated hereby will be deemed to be representations and warranties by the Recipient under this Agreement.
- 4.03** All representations, warranties, agreements and all other documents delivered by or on behalf of the Recipient to the Province are material and will have been relied upon by

the Province and will continue in full force and effect during the continuation of this Agreement.

RELATIONSHIP

- 5.01 No partnership, joint venture, agency or other legal entity will be created by or will be deemed to be created by this Agreement or any actions of the parties pursuant to this Agreement.
- 5.02 The Recipient is independent and not the servant, employee or agent of the Province.
- 5.03 The Recipient will not in any manner whatsoever commit or purport to commit the Province to the payment of money to any person, firm or corporation.
- 5.04 The Province may, from time to time, give instructions to the Recipient in relation to the carrying out the Project, and the Recipient will comply with those instructions but will not be subject to the control of the Province regarding the manner in which those instructions are carried out except as specified in this Agreement.

RECIPIENT'S OBLIGATIONS

- 6.01 The Recipient will:
 - (a) manage and implement the Project to a commercially reasonable standard of care, skill and diligence, including:
 - (i) if the Project is regulated by the *Dike Maintenance Act*, being or becoming, the Diking Authority, or being in possession of written permission from the Diking Authority to manage, execute and implement the Project;
 - (ii) obtaining all necessary regulatory approvals, including any permits, rights of way or easements required to complete the Project;
 - (b) carry out and complete the Project in accordance with the terms of this Agreement during the Term;
 - (c) comply with all applicable laws;
 - (d) retain only persons qualified and properly trained, instructed and holding current professional certifications as necessary to manage and implement the Project;
 - (e) without limiting the provisions of subparagraph (c) of paragraph 6.01, carry out criminal record checks as required by the *Criminal Records Review Act*, in accordance with Schedule C to this Agreement;
 - (f) unless otherwise agreed to by the parties, supply, at its own cost, all labour, materials, facilities and approvals necessary or advisable to carrying out the Project;
 - (g) subject to obtaining the prior written approval of the Province concerning form, content and location, the Recipient may post signs acknowledging the Province's participation, and where applicable, the federal participation, in the Project; and
 - (f) if requested, return to the Province any funds advanced in accordance with section 11.03 and/or Schedule B if the actual Eligible Costs incurred for the Project at the time of Substantial Completion are less than the total payment made in accordance with Schedule B.

RECORDS

7.01 The Recipient will:

- (a) establish and maintain accounting and administrative records in form and content satisfactory to the Province;
- (b) establish and maintain books of account, invoices, receipts and vouchers for all expenses incurred in form and content satisfactory to the Province; and
- (c) permit the Province, for contract monitoring and audit purposes, at all reasonable times, upon reasonable notice, to enter any premises used by the Recipient to manage and implement the Project or keep any documents or records pertaining to the Project, in order for the Province to inspect, audit, examine, review and copy any Material pertaining to the Project.

7.02 The Parties agree that the Province does not have control, for the purpose of the *Freedom of Information and Protection of Privacy Act*, of the records held by the Recipient.

CONFLICT OF INTEREST

8.01 The Recipient will not, during the Term of this Agreement, perform a service for or provide advice to any person, or entity where the performance of such service or the provision of the advice may, in the reasonable opinion of the Province, give rise to a conflict of interest between the obligations of the Recipient to the Province under this Agreement and the obligations of the Recipient to such other person, or entity.

CONFIDENTIALITY

9.01 The Recipient must treat as confidential all information in the Material and must not, without the prior written consent of the Province, except as required by applicable law, permit its disclosure except to the extent that such disclosure is necessary to enable the Recipient to fulfill its obligations under this Agreement.

9.02 The Recipient must comply with the provisions contained in the attached Privacy Protection Schedule E.

DEFAULT

10.01 Any of the following events will constitute an Event of Default, namely:

- (a) the Recipient fails to comply with any provision of this Agreement;
- (b) any representation or warranty made by the Recipient in entering and accepting this Agreement is untrue or incorrect;
- (c) any information, statement, certificate, report or other document furnished or submitted by or on behalf of the Recipient pursuant to or as a result of this Agreement is untrue or incorrect;
- (d) the Recipient ceases, in the opinion of the Province, to operate;

- (e) a change occurs with respect to any one or more, of the properties, assets, condition (financial or otherwise), business or operations of the Recipient which, in the opinion of the Province, materially adversely affects the ability of the Recipient to fulfill its obligations under this Agreement;
- (f) an order is made or a resolution is passed or a petition is filed for the liquidation or winding up of the Recipient;
- (g) the Recipient becomes insolvent or commits an act of bankruptcy or makes an assignment for the benefit of its creditors or otherwise acknowledges its insolvency;
- (h) a bankruptcy petition is filed or presented against, or a proposal under the *Bankruptcy and Insolvency Act (Canada)* is made by the Recipient;
- (i) a receiver or receiver-manager of any property of the Recipient is appointed; or
- (j) the Recipient permits any sum which is not disputed to be due by it to remain unpaid after legal proceedings have been commenced to enforce payment thereof.

TERMINATION

11.01 Upon the occurrence of any Event of Default and at any time thereafter the Province may, notwithstanding any other provision of this Agreement, at its option, elect to do any one or more of the following:

- (a) terminate this Agreement, and discharge the Province of all liability to the Recipient under this Agreement;
- (b) require the Event of Default be remedied within a time period specified by the Province;
- (c) suspend any instalment of the Contract Price or any amount that is due to the Recipient while the Event of Default continues;
- (d) waive the Event of Default;
- (e) pursue any other remedy available at law or in equity; and
- (f) seek to recover any funds advanced in accordance with Schedule B if the actual Eligible Costs incurred for the Project at the time of termination are less than the total payment made in accordance with Schedule B.

11.02 The Province may also, at its option, either:

- (a) terminate this Agreement on at least 20 days written notice; or
- (b) terminate this Agreement immediately if the Province determines that the Recipient's failure to comply with any term of this Agreement places the health or safety of any person receiving the Services at immediate risk, and in either case, discharge the Province of all liability to the Recipient under this Agreement.

11.03 Where this Agreement is terminated before 100% completion of the Project, the Province may pay to the Recipient that portion of the Contract Price which is equal to that portion of the works completed to the satisfaction of the Province prior to termination, provided that those works completed could reasonably be used in similar flood protection works that could be undertaken in the future.

- 11.04** Where this Agreement is terminated before 100% completion of the Project, the Recipient will, if requested, repay to the Province any funds advanced in accordance with Schedule B if the actual Eligible Costs incurred for the Project at the time of termination are less than the total payment made in accordance with section 11.03 and/or Schedule B.

DISPUTE RESOLUTION

- 12.01** All disputes arising out of or in connection with this Agreement will be referred to and finally resolved by arbitration pursuant to the *Commercial Arbitration Act*.

INSURANCE AND INDEMNITY

- 13.01** During the Term of this Agreement, the Recipient will provide, maintain and pay for insurance as specified in Schedule D, which may be amended from time to time at the sole discretion of the Province.
- 13.02** Without limiting the provisions of subsection (c) of section 6.01, the Recipient will comply with the Workers' Compensation Legislation for the Province of British Columbia.
- 13.03** The Recipient will indemnify and save harmless the Province, its employees and agents, from and against any and all losses, claims, damages, actions, causes of action, costs and expenses that the Province may sustain, incur, suffer or be put to at any time either before or after the expiration or termination of this Agreement, where the same or any of them are based upon, arise out of or occur, directly or indirectly, by reason of any act or omission of the Recipient, or of any agent, employee, officer, director or sub-Recipient of the Recipient pursuant to this Agreement, excepting always liability arising out of the independent negligent acts of the Province.

ASSIGNMENT AND SUB-CONTRACTING

- 14.01** The Recipient will not, without the prior, written consent of the Province:
- (a) assign, either directly or indirectly, this Agreement or any right of the Recipient under this Agreement; or
 - (b) sub-contract any obligation of the Recipient under this Agreement.
- 14.02** No sub-contract entered into by the Recipient will relieve the Recipient from any of its obligations under this Agreement or impose upon the Province any obligation or liability arising from any such sub-contract.
- 14.03** This Agreement will be binding upon the Province and its assigns and the Recipient, the Recipient's successors and permitted assigns.
- 14.03** The Recipient agrees that all contracts for the supply of services or materials shall be awarded and managed in accordance with Province's relevant policies and procedures, and in a way that is fair, transparent, competitive and consistent with value for money principles.

OWNERSHIP OF PHYSICAL AND INTELLECTUAL PROPERTY

15.01 Any equipment, machinery or other physical property, provided by the Province to the Recipient as a result of this Agreement will:

- (a) be the exclusive property of the Province; and
- (b) forthwith be delivered by the Recipient to the Province on written notice to the Recipient requesting delivery of the same, whether such a notice is given before, upon, or after the expiration or sooner termination of this Agreement.

15.02 The Province exclusively owns all intellectual property rights, including copyright, in the Received Material that you receive from us.

15.03 The Recipient grants to the Province a non-exclusive, perpetual, irrevocable, royalty-free world wide license to use, reproduce, modify and distribute the Produced Material.

15.04 Upon any Incorporated Material being embedded or incorporated in the Produced Material the Recipient grants to the Province a non-exclusive, perpetual, irrevocable, royalty-free world wide license to use, reproduce, modify and distribute that Incorporated Material to the extent it remains embedded or incorporated in the Produced Material.

OTHER FUNDING

16.01 If the Recipient receives funding for or in respect of the Project from any person, firm, corporation or other government or governmental body, then the Recipient will immediately provide the Province with full and complete details thereof.

NOTICES

17.01 Any written communication from the Recipient to the Province must be mailed, personally delivered, faxed, or electronically transmitted to the following address:

Carol Loski
Flood Protection Program
PO BOX 9201 Stn Prov Govt
Victoria, British Columbia V8W 9J1
Fax: (250) 952-4871
Email: EMBCFloodProtection@gov.bc.ca

17.02 Any written communication from the Province to the Recipient must be mailed, personally delivered, faxed or electronically transmitted to the following address:

Tara Friesen
City of Chilliwack
8550 Young Road
Chilliwack, British Columbia V2P8A4
Fax: (604) 793-2701
Email: tfriesen@chilliwack.com

- 17.03** Any written communication from either party will be deemed to have been received by the other party on the fifth business day after mailing in British Columbia; on the date of personal delivery if personally delivered; or on the date of transmission if faxed or electronically transmitted.
- 17.04** Either party may, from time to time, notify the other party in writing of a change of address and, following the receipt of such notice, the new address will, for the purposes of paragraph 17.01 or 17.02 of this Agreement, be deemed to be the mailing address of the party giving notice.

NON-WAIVER

- 18.01** No term or condition of this Agreement and no breach by the Recipient of any such term or condition will be deemed to have been waived unless such waiver is in writing signed by the Province and the Recipient.
- 18.02** The written waiver by the Province or any breach by the Recipient of any term or condition of this Agreement will not be deemed to be a waiver of any other provision of any subsequent breach of the same or any other provision of this Agreement.

ENTIRE AGREEMENT

- 19.01** This Agreement including the Schedules and any Appendices constitutes the entire Agreement between the parties with respect to the subject matter of this Agreement.

SURVIVAL OF PROVISIONS

- 20.01** All of the provisions of this Agreement in favour of the Province including, without limitation, paragraphs 3.02, 3.03, 5.03, 7.01, 7.02, 9.01, 9.02, 10.01, 13.03, 14.03, 16.01, 17.01 to 17.04 and all of the rights and remedies of the Province, either at law or in equity, will survive any expiration or sooner termination of this Agreement.

OWNERSHIP OF WORKS

- 21.01** The Recipient will retain title to, and ownership of any constructed infrastructure resulting from the Project for at least ten years after Project completion.

21.02 In the event that, at any time within ten (10) years from Project completion, the Recipient sells, leases, encumbers or otherwise disposes of, directly or indirectly, any asset constructed, rehabilitated or improved, in whole or in part, with funds contributed by Canada or the Province under this Agreement, other than to Canada, the Province, a local government, or a Crown corporation of British Columbia that is the latter's agent for the purpose of implementing this Agreement, the Recipient hereby undertakes to repay the Province and Canada, on demand, a proportionate amount of the funds contributed by the Province and Canada, as follows:

Where Project asset is sold, leased, encumbered or disposed:	Repayment of contribution (in current dollars):
Within 2 years after Project completion	100%
Between 2 and 5 years after Project completion	55%
Between 5 and 10 years after Project completion	10%
10 years after Project completion	0%

At any time during the ten (10) years following the Project completion, each party agrees to notify the other party in writing as soon as practicable, of any transaction triggering the above-mentioned repayment of which the party becomes aware.

MISCELLANEOUS

22.01 This Agreement will be governed by and construed in accordance with the laws of the Province of British Columbia.

22.02 The Schedules and Appendices to this Agreement are an integral part of this Agreement as if set out at length in the body of this Agreement.

22.03 No amendment or modification to this Agreement will be effective unless it is in writing and duly executed by the parties.

22.04 Time is of the essence of this Agreement.

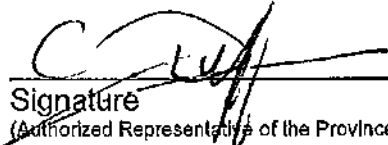
22.05 If any provision of this Agreement or the application to any person or circumstance is invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provision to any other person or circumstance will not be affected or impaired thereby and will be enforceable to the extent permitted by law.

- 22.06** Nothing in this Agreement operates as a consent, permit, approval or authorization by the Province to or for anything related to the Project that by statute, the Recipient is required to obtain unless it is expressly stated herein to be such a consent, permit, approval or authorization.
- 22.07** Where the Recipient is a corporation, the Recipient warrants that the signatory has been duly authorized by the Recipient to execute this Agreement without corporate seal on behalf of the Recipient.
- 22.08** This Agreement may be executed by the parties in separate counterparts each of which when so executed and delivered shall be an original, and all such counterparts may be delivered by facsimile transmission and such transmission shall be considered an original.
- 22.09** For the purpose of paragraphs 22.10 and 22.11, an "Event of Force Majeure" includes, but is not limited to, acts of God, changes in the laws of Canada, governmental restrictions or control on imports, exports or foreign exchange, wars (declared or undeclared), fires, floods, storms, strikes (including illegal work stoppages or slowdowns), lockouts, labour shortages, freight embargoes and power failures or other cause beyond the reasonable control of a Party, provided always that lack of money, financing or credit will not be and will not be deemed to be an "Event of Force Majeure".
- 22.10** Neither party will be liable to the other for any delay, interruption or failure in the performance of their respective obligations if caused by an Event of Force Majeure, in which case the time period for the performance or completion of any such obligation will be automatically extended for the duration of the Event of Force Majeure.
- 22.11** If an Event of Force Majeure occurs or is likely to occur, then the party directly affected will notify the other Party forthwith, and will use its reasonable efforts to remove, curtail or contain the cause of the delay, interruption or failure and to resume with the least possible delay compliance with its obligations under this Agreement.

The parties hereto have executed this Agreement the day and year as set out below.

SIGNED AND DELIVERED

on the 1 day of August, 2013
on behalf of the Province by its duly
authorized representative



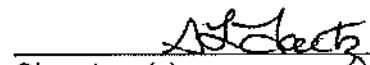
Signature
(Authorized Representative of the Province)

Chris Duffy

Print Name

SIGNED AND DELIVERED

on the 18 day of June, 2013
by or on behalf of the Recipient (or by its
authorized signatory or signatories if the
Recipient is a corporation)



Signature(s) **SHARON GAETZ**
(Recipient or Authorized Representative of the Recipient)

Delcy Wells

Print Name (s) **DELCY J WELLS,**
CITY CLERK

Schedule A – PROJECT

PROJECT (DELIVERABLES)

1. Project

1.01 The Project will be referred to as: East Dike Upgrades (FPP 2010-2-005)

The general description of the Project is:

The Project will upgrade approximately 4,500 metres of the East Dike in Chilliwack, BC. Work will include: (1) upgrading approximately 1,200 metres of the East Dike from Wing Dike to Hope River by raising the dike by up to 1 metre to meet the current provincial standard based on the 2008 hydraulic model or a more recent hydraulic model; and (2) conducting minor upgrades within a 3,300 metre section of the East Dike from Orchard Slough to McDonald Road to meet the current provincial standard based on the 2008 hydraulic model or a more recent hydraulic model; as outlined in Schedule A - Appendix 1, or any approved amendments.

1.02 The Recipient agrees to:

- (a) carry out the Project in a diligent and professional manner; and
- (b) commence carrying out the Project within three (3) months of the date of execution of this Agreement by both parties.

2. Reporting Requirements

2.01 The Recipient is required to provide notice to the Agreement section 17.01 provincial contact, or designate, of intent to award the construction tender, including site preparation works and at the commencement of construction.

2.02 The Recipient is required to provide regular status updates on the Project; at a minimum reports must be submitted every 30 days in an email or letter format.

2.03 Each update must demonstrate progression against the Project and Business Plan, as outlined in Schedule A - Appendix 1, or any approved amendments. The update must include:

- tasks underway or completed, including major milestones;
- any issues that may impact the Recipient's ability to complete the Project defined scope on time and on budget;
- anticipated next steps;
- summarized financial expenditures; and
- also to be included are copies of any regulatory approvals that were obtained as part of the Project.

- 2.04 The Recipient must not make any public announcement with respect to the Project or a Project milestone specified in this Agreement without first consulting and receiving consent from Emergency Management BC at least 15 working days prior to the planned announcement.
- 2.05 Signage related to the Project must adhere to the BC Provincial Standards and the Federal Identity Program.

Schedule B – FEES AND EXPENSES

1. Maximum Amount Payable

- 1.01 Subject to compliance with the terms and conditions of this Agreement, the Province will provide two-thirds of the funding to the Recipient for Project-related actual costs (Eligible Costs) up to a maximum amount of \$1,560,000.00.
- 1.02 Payments will be provided from the Province to the Recipient on the following schedule and in accordance with section 2 and 3:

Quarterly progress payment schedule until final completion of the Project:

March 15th
June 15th
September 15th
December 15th

In the event the 15th of any month is on a weekend or holiday, the claim will be due on the next business day.

The final claim will be paid out in accordance with Project completion as detailed in Section 3 of this Schedule.

The progress payment schedule may be revised pending written confirmation from the Director, Flood Protection Program, Emergency Management BC.

- 1.03 Upon completion of the construction tender, the Recipient will provide a summary of the tender results, revised budget and schedule (quarterly funding forecast).

In the event the accepted construction tender bid as detailed in Schedule A - Appendix 1, represents savings of 15 percent or greater, the Contract Price will be reduced to reflect the savings in excess of the 15 percent. For example, the accepted construction tender bid is 20 percent less than the original amount thus the Contract Price will be reduced by 5 percent.

Payments for future Fiscal Years will be based on the spending plans included in Schedule A - Appendix 1 and in accordance with section 3.02 of the Transfer Under Agreement.

2. Eligible and Ineligible Costs and the Types or Classes of Expenditures Eligible for Contribution

- 2.01 Costs that can be claimed are those costs which are directly associated with the planning, designing and implementing of the Project, that are reasonable and are required to implement the Project ("Eligible Costs"). Only those elements of the Project and costs approved by the Project Approval Committee will be funded. Costs

expended by the Recipient prior to the Project approval on April 1, 2013 will not be reimbursed.

Eligible Costs may include:

- a. purchased materials;
- b. contractor costs;
- c. equipment rental costs (note they must not exceed the most recent Equipment Rental Rate Guide (The Blue Book);
- d. construction and legal survey costs;
- e. costs of any permits, licenses, approvals, consents and authorities;
- f. engineering survey, design, supervisory and inspection costs;
- g. environmental monitoring and mitigation costs; and
- h. preparation of as constructed drawings, GPS surveying to Provincial standards, and operation and maintenance manuals.

Ineligible costs include, but are not limited to all costs related to the following items:

- a. costs expended by the Recipient prior to the Project approval on April 1, 2013 will not be reimbursed;
- b. land acquisition and rights-of-way acquisition, real estate fees and related costs, financing charges and loan interest payments (including those related to easements, e.g. surveying);
- c. leasing land, buildings, equipment and other facilities;
- d. paving (when not replacing existing), landscaping and beautification works;
- e. any goods and services cost which are received through donations or in kind;
- f. employee wages and benefits, use of equipment and materials of the Recipient, overhead costs as well as other direct or indirect operating, maintenance, general repairs and administrative costs incurred by the recipient;
- g. provincial sales tax and Goods and Services Tax and/or Harmonized Sales Tax, for which the recipient is eligible for a rebate, and any other costs eligible for rebates; and
- h. legal fees incurred during the Agreement or in relation to the Project after completion.

3. Conditions to be met upon completion of the Project

3.01 The Recipient will commence the Project and pay all costs associated with the Project. Upon completion of the Project, the Recipient must submit the following to Emergency Management BC:

- a. Declaration of Substantial Completion. The Recipient must submit a "Declaration of Substantial Completion". The Declaration, signed by an official related to the Project, must:
 - i. assert that the work is substantially complete of an identified date and the construction conforms with the Business Plan and all applicable environmental legislation;
 - ii. identify if there are outstanding adverse environmental effects in respect of which the Recipient intends to carry out additional remedial measures.

- b. A Project Completion Report. The Project Completion Report must include a summary of the Project, photographs, details around where deviations were made to the original Business Plan, why deviations were necessary and how they were resolved. The report will also include, as appropriate, as-built drawings and copies of all regulatory permits, approvals and licenses.
- c. A Claim for Reimbursement which includes an invoice from the Recipient, an original summary of procured goods and services, and a copy of all the supporting documentation of Eligible Costs associated with the Project and clearly identify date, supplier, costs, taxes, and any pertinent comments. The summary must also indicate the cost sharing details imposed on the Project.

3.02 Emergency Management BC will only pay the Recipient and not accept any third party billing.

3.03 The Project's construction must be completed by December 31, 2014 and documents, as set out in section 3.01 of this Schedule, received in the Emergency Management BC office by February 15, 2015.

3.04 In the event a claim for Eligible Costs submitted by a Recipient in a Fiscal Year is less than the amount set out in the cash flow forecasting timetable in the recipient's most current monthly progress report for that Fiscal Year, the Province is not obligated to pay the unclaimed amount to the Recipient. The Province may, at its sole discretion, choose to manage the unclaimed amount in the next Fiscal Year, in accordance with Section 3.02(b), Transfer Under Agreement, in which case the cash flow timetable is deemed to be amended to reflect the change.

4.0 Scope Change

4.01 Any proposed significant change in respect of the location, scope or timing of a project must be submitted by the Recipient for approval by the Flood Protection Program, Emergency Management BC. The request must be made in writing, and include at minimum the rationale, changes to the originally approved cost estimates and any impacts on the schedule for the Project / works.

Schedule C – SUBCONTRACTORS(S)

Not Applicable

Schedule D – INSURANCE

1. You must, without limiting your obligation or liabilities and at your own expense, purchase and maintain throughout the term of this agreement the following insurances with insurers licensed in Canada:
 - (a) Commercial General Liability in an amount not less than \$2,000,000.00 inclusive per occurrence against bodily injury, personal injury and property damage and including liability assumed under this Agreement and this insurance must:
 - i. include the Province as an additional insured;
 - ii. be endorsed to provide the Province with 30 days advance written notice of cancellation or material change; and
 - iii. include a cross liability clause.
2. All insurance described in Section 1 of this Schedule must:
 - (a) be primary; and
 - (b) not require the sharing of any loss by any insurer of the Province.
3. You must provide to us:
 - (a) prior to commencement of the Services and from time to time when requested by us, evidence in the form of a completed Province of British Columbia Certificate of Insurance of all required insurance; and
 - (b) if requested by us, certified copies of required policies.

Schedule E – PRIVACY PROTECTION

This Schedule forms part of the agreement between her majesty the Queen in right of the Province of British Columbia represented by the Minister of Justice (the "Province") and the City of Chilliwack (the "Recipient") respecting Contract # JAGTUA14157072005 (the "Agreement").

Definitions

1. In this Schedule,
 - (a) "access" means disclosure by the provision of access;
 - (b) "Act" means the *Freedom of Information and Protection of Privacy Act* (British Columbia);
 - (c) "contact information" means information to enable an individual at a place of business to be contacted and includes the name, position name or title, business telephone number, business address, business email or business fax number of the individual;
 - (d) "personal information" means recorded information about an identifiable individual, other than contact information, collected or created by the Recipient as a result of the Agreement or any previous agreement between the Province and the Recipient dealing with the same subject matter as the Agreement but excluding any such information that, if this Schedule did not apply to it, would not be under the "control of a public body" within the meaning of the Act.

Purpose

2. The purpose of this Schedule is to:
 - (a) enable the Province to comply with the Province's statutory obligations under the Act with respect to personal information; and
 - (b) ensure that, as a service provider, the Recipient is aware of and complies with the Recipient's statutory obligations under the Act with respect to personal information.

Collection of personal information

3. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Recipient may only collect or create personal information that is necessary for the performance of the Recipient's obligations, or the exercise of the Recipient's rights, under the Agreement.
4. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Recipient must collect personal information directly from the individual the information is about.
5. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Recipient must tell an individual from whom the Recipient collects personal information:
 - (a) the purpose for collecting it;
 - (b) the legal authority for collecting it; and

- (c) the title, business address and business telephone number of the person designated by the Province to answer questions about the Recipient's collection of personal information.

Accuracy of personal information

- 6. The Recipient must make every reasonable effort to ensure the accuracy and completeness of any personal information to be used by the Recipient or the Province to make a decision that directly affects the individual the information is about.

Requests for access to personal information

- 7. If the Recipient receives a request for access to personal information from a person other than the Province, the Recipient must promptly advise the person to make the request to the Province unless the Agreement expressly requires the Recipient to provide such access and, if the Province has advised the Recipient of the name or title and contact information of an official of the Province to whom such requests are to be made, the Recipient must also promptly provide that official's name or title and contact information to the person making the request.

Correction of personal information

- 8. Within 5 Business Days of receiving a written direction from the Province to correct or annotate any personal information, the Recipient must correct or annotate the information in accordance with the direction.
- 9. When issuing a written direction under section 8, the Province must advise the Recipient of the date the correction request to which the direction relates was received by the Province in order that the Recipient may comply with section 10.
- 10. Within 5 business days of correcting or annotating any personal information under section 8, the Recipient must provide the corrected or annotated information to any party to whom, within one year prior to the date the correction request was made to the Province, the Recipient disclosed the information being corrected or annotated.
- 11. If the Recipient receives a request for correction of personal information from a person other than the Province, the Recipient must promptly advise the person to make the request to the Province and, if the Province has advised the Recipient of the name or title and contact information of an official of the Province to whom such requests are to be made, the Recipient must also promptly provide that official's name or title and contact information to the person making the request.

Protection of personal information

- 12. The Recipient must protect personal information by making reasonable security arrangements against such risks as unauthorized access, collection, use, disclosure or disposal, including any expressly set out in the Agreement.

Storage and access to personal information

- 13. Unless the Province otherwise directs in writing, the Recipient must not store personal information outside Canada or permit access to personal information from outside Canada.

Retention of personal information

14. Unless the Agreement otherwise specifies, the Recipient must retain personal information until directed by the Province in writing to dispose of it or deliver it as specified in the direction.

Use of personal information

15. Unless the Province otherwise directs in writing, the Recipient may only use personal information if that use is for the performance of the Recipient's obligations, or the exercise of the Recipient's rights, under the Agreement.

Disclosure of personal information

16. Unless the Province otherwise directs in writing, the Recipient may only disclose personal information inside Canada to any person other than the Province if the disclosure is for the performance of the Recipient's obligations, or the exercise of the Recipient's rights, under the Agreement.
17. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Recipient must not disclose personal information outside Canada.

Notice of foreign demands for disclosure

18. In addition to any obligation the Recipient may have to provide the notification contemplated by section 30.2 of the Act, if in relation to personal information in the custody or under the control of the Recipient, the Recipient:
 - (a) receives a foreign demand for disclosure;
 - (b) receives a request to disclose, produce or provide access that the Recipient knows or has reason to suspect is for the purpose of responding to a foreign demand for disclosure; or
 - (c) has reason to suspect that an unauthorized disclosure of personal information has occurred in response to a foreign demand for disclosure

the Recipient must immediately notify the Province and, in so doing, provide the information described in section 30.2(3) of the Act. In this section, the phrases "foreign demand for disclosure" and "unauthorized disclosure of personal information" will bear the same meanings as in section 30.2 of the Act.

Notice of unauthorized disclosure

19. In addition to any obligation the Recipient may have to provide the notification contemplated by section 30.5 of the Act, if the Recipient knows that there has been an unauthorized disclosure of personal information in the custody or under the control of the Recipient, the Recipient must immediately notify the Province. In this section, the phrase "unauthorized disclosure of personal information" will bear the same meaning as in section 30.5 of the Act.

Inspection of personal information

20. In addition to any other rights of inspection the Province may have under the Agreement or under statute, the Province may, at any reasonable time and on reasonable notice to the Recipient, enter on the Recipient's premises to inspect any personal information in the

possession of the Recipient or any of the Recipient's information management policies or practices relevant to the Recipient's management of personal information or the Recipient's compliance with this Schedule, and the Recipient must permit and provide reasonable assistance to any such inspection.

Compliance with the Act and directions

21. The Recipient must in relation to personal information comply with:
- (a) the requirements of the Act applicable to the Recipient as a service provider, including any applicable order of the commissioner under the Act; and
 - (b) any direction given by the Province under this Schedule.
22. The Recipient acknowledges that it is familiar with the requirements of the Act governing personal information that are applicable to it as a service provider.

Notice of non-compliance

23. If for any reason the Recipient does not comply, or anticipates that it will be unable to comply, with a provision in this Schedule in any respect, the Recipient must promptly notify the Province of the particulars of the non-compliance or anticipated non-compliance and what steps it proposes to take to address, or prevent recurrence of, the non-compliance or anticipated non-compliance.

Termination of Agreement

24. In addition to any other rights of termination which the Province may have under the Agreement or otherwise at law, the Province may, subject to any provisions in the Agreement establishing mandatory cure periods for defaults by the Recipient, terminate the Agreement by giving written notice of such termination to the Recipient, upon any failure of the Recipient to comply with this Schedule in a material respect.

Interpretation

25. In this Schedule, references to sections by number are to sections of this Schedule unless otherwise specified in this Schedule.
26. Any reference to the "Recipient" in this Schedule includes any subRecipient or agent retained by the Recipient to perform obligations under the Agreement and the Recipient must ensure that any such subRecipients and agents comply with this Schedule.
27. The obligations of the Recipient in this Schedule will survive the termination of the Agreement.
28. If a provision of the Agreement (including any direction given by the Province under this Schedule) conflicts with a requirement of the Act or an applicable order of the commissioner under the Act, the conflicting provision of the Agreement (or direction) will be inoperative to the extent of the conflict.
29. The Recipient must comply with the provisions of this Schedule despite any conflicting provision of this Agreement or, subject to section 30, the law of any jurisdiction outside Canada.
30. Nothing in this Schedule requires the Recipient to contravene the law of any jurisdiction outside Canada unless such contravention is required to comply with the Act.

Schedule F – ADDITIONAL TERMS

Not Applicable

Schedule G – SECURITY

Not Applicable

Schedule A - Appendix 1

1) Revised Project Schedule

From: Friesen, Tara [<mailto:tfriesen@chilliwack.com>]
Sent: Friday, April 5, 2013 9:06 AM
To: Albrecht, Naim JAG:EX
Cc: Preece, Tim JAG:EX
Subject: RE: Chilliwack Flood Protection Project - East Dike Upgrades

Hi Naim,
Here are some approximate timelines:

Preliminary Design (for Young Road Section): February – July 2013
Procurement Process for Final Design and Construction: August 2013 – January 2014
Final Design: February – April 2014
Construction: May – December 2014
*Construction staging will be adjusted according to freshet conditions

Once the preliminary design is complete, we'll have more detailed cost estimates and timelines available. At this point, we haven't decided if we will proceed using the design-build method or traditional design-bid-build.

Regards,



Tara Friesen, P.Eng. | Manager of Flood Protection Infrastructure | Engineering - Environmental Services
P: 604.793.2701 | F: 604.793.2756 | E: tfriesen@chilliwack.com
City of Chilliwack | 8550 Young Road, Chilliwack, BC, Canada V2P 8A4 | www.chilliwack.com

2) Project Business Plan

EAST DYKE UPGRADES 2011-2014
BUSINESS PLAN



**2011/14 FLOOD PROTECTION PROGRAM
FUNDING APPLICATION**



City of Chilliwack

EAST DYKE UPGRADES BUSINESS PLAN

Problem Statement

The BC Ministry of Environment has commissioned several hydraulic modelling studies on the Fraser River over the past decade. The hydraulic modelling completed in 2001 (UMA Engineering Ltd.) and 2006/2008 (Northwest Hydraulic Consultants (NHC)) resulted in higher design flood water level estimates than previously estimated under the Fraser River Flood Control Program of the 1960's through 1990's.

Extensive upgrades were carried out on sections of the East Dyke from 2002 to 2010 with local, provincial and federal funding. There is one remaining 1,200 metre section of dyke on Young Road from the Wing Dyke to Hope River (refer to Figures 1 and 2) that has yet to be raised, which will form the majority of this project. This dyke section requires raising by approximately 1 metre. Work on this section of dyke had been deferred pending a review of flood protection options for the Hope River, which is subject to backwater flood risk during the Fraser River freshet.

Associated Engineering Ltd. (Associated) has been retained to evaluate flood protection options for the Hope River in light of the increased Fraser River flood profile and erosion risk along the Wing Dyke. Under the Fraser River Flood Control Program, a decision was made to protect the Hope River area from backwater effects by constructing a Wing Dyke that reduces the elevation of water backing up from Fraser River into the Hope River during a flood event. Unfortunately, given the increased flood profile (NHC 2008), the Wing Dyke is no longer able to adequately control the water elevation during a design flood event. Further complicating the matter is the flow pattern change in the Fraser River adjacent to the Wing Dyke, which has resulted in aggressive bank erosion. The presence of a scour hole over 20 metres deep made bank protection impractical so the downstream portion of the Wing Dyke remains at risk of erosion.

The draft report from Associated identifies a new flood box and pump station on the Hope River as the superior solution, taking into account economic, environmental and social costs and benefits. By constructing a flood box and pump station on the Hope River, the Wing Dyke would no longer be required. Along with the flood box and pump station, upgrades to the East Dyke and Town Dyke are required. The City will not have the required one-third funding for the flood box and pump station during the 2011-14 time horizon for this Flood Protection Program. It is therefore proposed that the dyke upgrades be undertaken at this time and the flood box and pump station construction will take place in the future, once additional funds are available.

It is recognized that the East Dyke will not offer the full level of protection until the Hope River flood box and pump station are constructed; however, it is important to raise the dyke to minimize the amount of emergency dyke upgrade work that may be required during a flood on the Fraser River. The City has an Emergency Dyke Upgrades Plan, which documents the work to be undertaken to minimize flood risk. The document includes details on how to block the Hope River between the Town and East Dykes, should that course of action need to be taken. The City intends to update the Emergency Dyke Upgrades Plan in 2011.

There is also some additional dyke raising required on a 3,300 metre section of the East Dyke (Orchard Slough to McDonald Road, Figure 3) that was previously raised, in order to meet the 2008 design criteria. The previous dyke raising was based on 2006 hydraulic model results, and the most recent hydraulic model update (NHC, 2008), resulted in an increase in the estimated water level. This section requires raising by as much as 0.3 metres to meet the current provincial standard based on the 2008 NHC hydraulic model. Currently, the substandard section poses a flood risk to the community, since it does not have the full freeboard allowance of 0.6 metres for the design flood event.

Rationale for Chosen Option

The dyke requires raising to meet the flood protection standard set by the Province of British Columbia. The upgrades to the East Dyke were selected as the top priority because the section of dyke protects a majority of the floodplain in Chilliwack and therefore the project offers the most significant risk reduction benefits to the community. Further details are provided in the Rationale/Expected Benefits section below.

The work involves raising an earth dyke, and is subject to provincial approval under the Dyke Maintenance Act. To ensure conformance with provincial requirements, the dyke upgrades will be designed in accordance with the provincial Dyke Design and Construction Guide.

Project Objective

The objective of the project is to raise two substandard sections of East Dyke to meet the provincial standard based on the 2008 Fraser River Hydraulic Model. Once the work is complete, the East Dyke will offer increased flood protection to the community.

Description of Activities

Once funding has been confirmed, the design and construction of the project will be carried out through a competitive, fair and transparent public Request for Proposals/Tender process that is consistent with the Agreement on Internal Trade and Canada's international trade obligations.

The successful consultant will produce the detailed design for the project, which will be submitted to the Ministry of Environment to secure provincial Dyke Maintenance Act (DMA) approval. Once the DMA approval has been received, construction will commence. The work will involve placing and compacting dyke fill material to raise the earth dyke to meet the provincial standard. The section of dyke on Young Road will also have a paved surface. The consultant will then prepare the as-built drawings and construction completion report. The City will administer the contract and prepare a final claim submission after all work has been completed.

Timelines and Milestones

** Adjusted one year for start date*

The project will commence upon notice of funding approval and proceed according to the proposed schedule below, with project completion by the specified deadline of February 28th, 2014.

Task Group or Item	2011		2012		2013		2014
	January March	April December	January March	April December	January March	April December	January March
Engineering – Design *Possible Design/Bulld		◀────────▶					
Engineering – Tender and Contract Preparation		◀────────▶					
Engineering – QA/QC Inspection – Wing Dyke to Hope River			◀────────▶				
Engineering – QA/QC Inspection – Orchard Slough to McDonald Rd					◀────────▶		
Engineering – Record Drawings – Wing Dyke to Hope River				◀────────▶			
Engineering – Record Drawings – Orchard Slough to McDonald Rd						◀────────▶	
Construction – Wing Dyke to Hope River			◀────────▶				
Construction – Orchard Slough to McDonald Rd					◀────────▶		
Total Project		◀────────▶					

Rationale/Expected Benefits

The dyke upgrades will provide significant flood reduction benefits to the highly developed floodplain area. The low sections of dyke lie on the upstream portion of Chilliwack's dyke system and therefore pose a significant flood risk to the community. In some sections, the dyke not only lacks sufficient freeboard, but has a dyke crest below the new design flood water level, which creates an increased hazard of overtopping and potential dyke failure.

Potential consequences of flooding are substantial. The East Dyke protects over 40,000 people living in the floodplain, as well as 286,000 square metres of commercial and 172,300 square metres of industrial building floor space. Because the dyke protects large agricultural operations, utilities (hydro, gas, telecommunications, water and sewer), Highway 1 and two major rail lines, flood impacts would extend far beyond the local community.

A Quantitative Flood Risk Analysis was completed by BGC Engineering, which arrived at the following preliminary damage and loss estimates for a failure of the East Dyke:

- Damage to over 10,000 buildings, totalling \$483 million (not including contents and inventory)
- Flood hazards to oil and gas pipelines, hydro-substations and communications infrastructure
- Extensive impacts to Chilliwack's intensive agriculture industry
- Inundation of 13 kilometres of the TransCanada Highway
- Significant reduction to Chilliwack's \$6.4 million/day economic output
- A \$20 million/day impact to the BC economy due to severed transportation links
- Total damages and losses exceeding \$1 billion

The proposed dyke upgrades will substantially reduce flood risk in Chilliwack, mitigating the above economic risks and offering increased protection to the people residing in the floodplain protected by the East Dyke.

The project will also generate economic benefits during construction. The construction will be carried out by a private contractor, and will provide employment opportunities for approximately 20 weeks.

In addition to the economic benefits, the project also offers social benefits by reducing flood risk. During a flood emergency, the residents would be subjected to extensive stress and hardship. Dyke overtopping or breach could result in as much as half of Chilliwack's population being displaced, and recovery could take months. Even residents living outside the floodplain would be affected, for example due to work or service interruptions. There would be health care interruptions since Chilliwack General Hospital is situated in the floodplain, as well as numerous other community care facilities.

From an environmental perspective, the impacts would also be substantial. The floodwaters would become contaminated after coming into contact with manure, fertilizers, hydrocarbons and other contaminants. The contaminated water would flow overland and into groundwater and surface water resources, creating environmental and health concerns. There would also be a considerable amount of waste generated during the recovery phase.

Overall, the proposed dyke upgrades will contribute to the sustainability of the community by offering significant environmental, social and economic benefits through with flood risk reduction. The benefits also extend beyond the local area. Because the dyke will offer increased flood protection to major infrastructure such as the TransCanada Highway, two rail lines, and utilities (oil, gas, telecommunications), the benefits extend beyond the region to the national level.

Performance and Progress Measures

The quality of the work will be monitored on a daily basis by the consultants, to ensure the work is constructed according to project specifications. The City will monitor progress on a regular basis by comparing to the project schedule. As required under the funding agreement, the City will prepare and submit monthly updates to the Province.

Project Risks

The main project risk is the geotechnical aspect. The successful engineering firm will be required to carry out a detailed geotechnical investigation of the East Dyke section from the Wing Dyke to Hope River and make recommendations for dyke upgrades. Less extensive geotechnical analyses will be required for the remaining section of East Dyke to be upgraded, since a comprehensive geotechnical assessment has been carried out on that section of dyke previously.

The City may procure the work using the design-build approach, which would allow the City to transfer more risk to the contractor and consultant than the traditional tendering process.

Depending on the outcome of the geotechnical assessment, changes may need to be made to the design (eg. seepage control measures, seismic mitigation measures), which may affect the total length of dyke that can be raised within the project budget. The City is committed to raising the maximum length of dyke achievable with the funds available, with the priority being the section of dyke from the Wing Dyke to Hope River.

The detailed dyke design will include extensive geotechnical considerations to ensure the raised dyke will be stable and potential seepage risks will be mitigated. A geotechnical consultant will provide material testing throughout the project to ensure appropriate materials are used and compaction targets are met.

The City recognizes that weather conditions may affect progress, but there is sufficient time allocated for the project to allow construction during favourable work windows.

Budget

The project budget is itemized below (costs do not include HST):

Task Group or Item	2011		2012		2013		2014	Totals
	January - March	April - December	January - March	April - December	January - March	April - December	January - March	
Engineering and Site Supervision	\$ -	\$ 50,000	\$150,000	\$ 60,000	\$35,000	\$ 40,000	\$15,000	\$ 350,000
Environmental	\$ -	\$ 20,000	\$ 5,000	\$ 15,000	\$ 5,000	\$ 15,000	\$ -	\$ 60,000
Construction	\$ -		\$100,000	\$1,365,000	\$50,000	\$375,000	\$ -	\$1,890,000
Totals	\$ -	\$ 70,000	\$255,000	\$1,440,000	\$90,000	\$ 430,000	\$15,000	\$2,300,000

*Note: Above costs include an overall \$200,000 contingency for the project.

Non-structural mitigation measures

Given the significant floodplain area in Chilliwack, the City recognizes that a comprehensive flood management program is required that comprises structural and non-structural aspects to minimize risk and promote community resilience. Accordingly, the City's dyke system is supplemented by a variety of non-structural measures that support risk assessment and mitigation.

The City requires floodproofing and watercourse setbacks through a Floodplain Regulation Bylaw, to minimize potential flood-related infrastructure damage. The bylaw was developed taking into consideration the Flood Hazard Area Land Use Management Guidelines developed by the Province of British Columbia. The Bylaw also includes a provision to register Restrictive Covenants on properties in the floodplain, which helps increase awareness of flood risk.

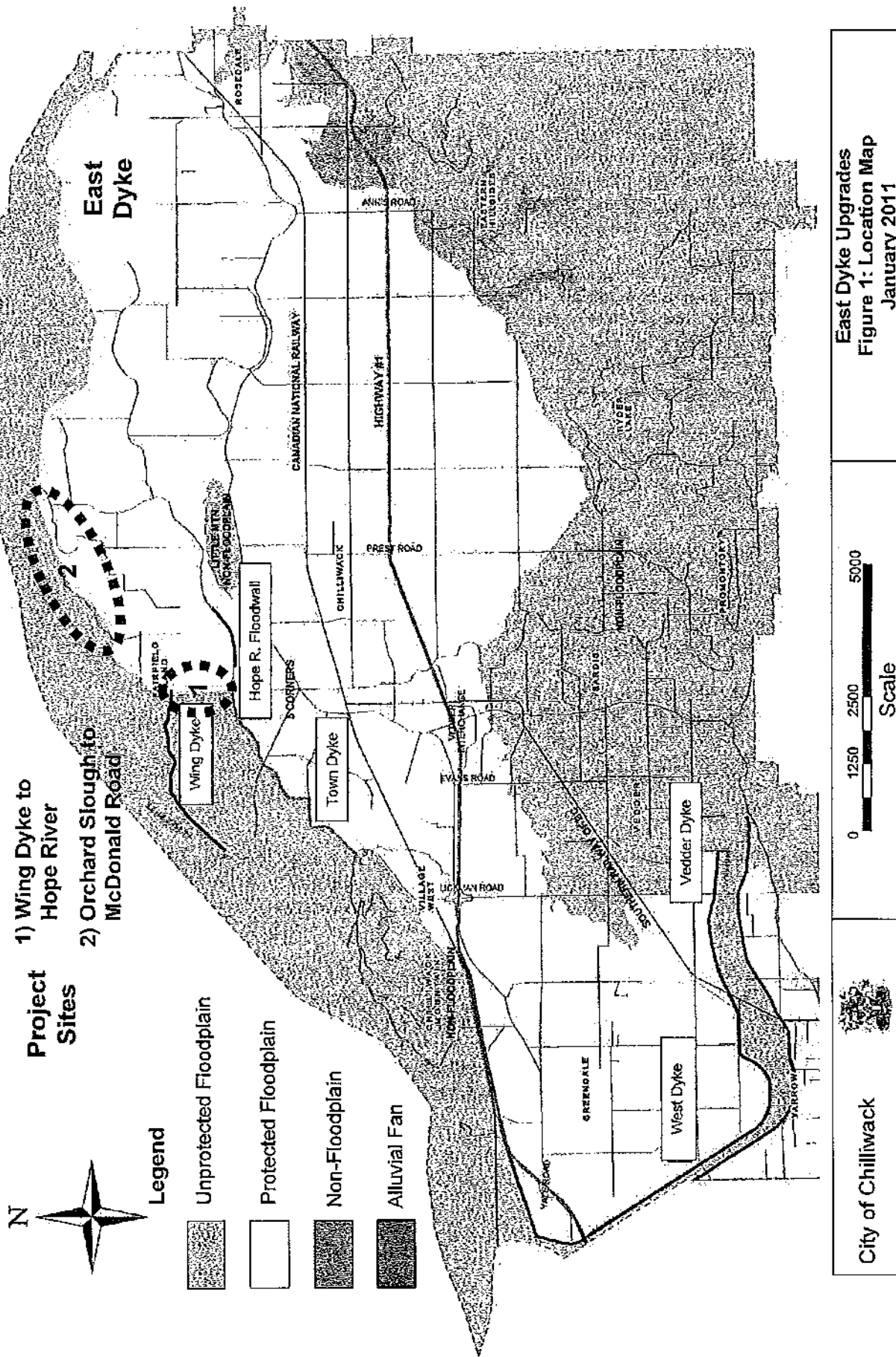
The City also has a comprehensive flood protection website that provides extensive information on flood risk and emergency preparedness. The website includes floodplain maps, links to the provincial River Forecast Centre, Fraser River water level information and a summary of flood response activities based on water levels.

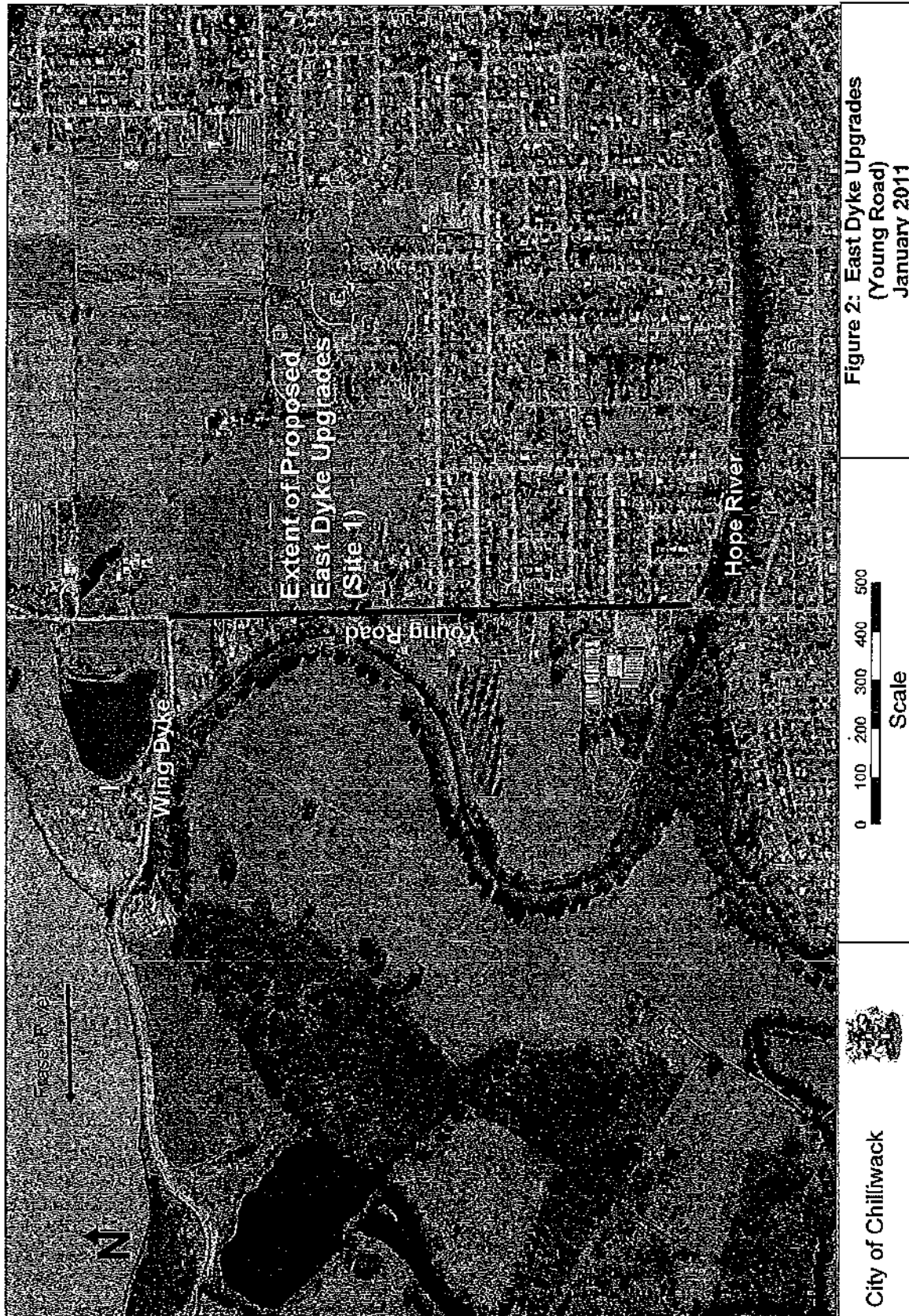
Another non-structural measure is the City's Flood Response Plan, which outlines key actions to be taken during a flood emergency to protect lives and property. The Response Plan is linked to Fraser River water levels, and specifies increasing levels of activity according to flood risk. Response activities range from dyke patrols to coordination of emergency organizations, public notifications, evacuations and clean up.

The Response Plan was supplemented by Dyke Breach Modelling work carried out in 2007, which provided critical information on water flow paths, depths and velocities that may occur in the event of a dyke breach in Chilliwack. The modelling assists with emergency preparedness by providing estimates on how long it would take water to reach critical areas of Chilliwack, such as the urban core and major roads including TransCanada Highway.

The Response Plan is used in conjunction with the City's Emergency Dyke Upgrades Plan, which specifies equipment and material requirements should the City need to upgrade dykes on an emergency basis. Also included in the Response Plan is a list of local equipment and material sources.

The City pursues leading-edge flood protection management. In addition to the Dyke Breach Modelling study, the City has also participated in a Quantitative Flood Risk Analysis pilot study by BGC Engineering. The study is the first step in exploring a potential new approach to flood management in BC, one that offers a more comprehensive assessment of flood risk by quantifying flood-related consequences. Results of that study are outlined in the Rationale/Project Benefits section of this Business Plan.





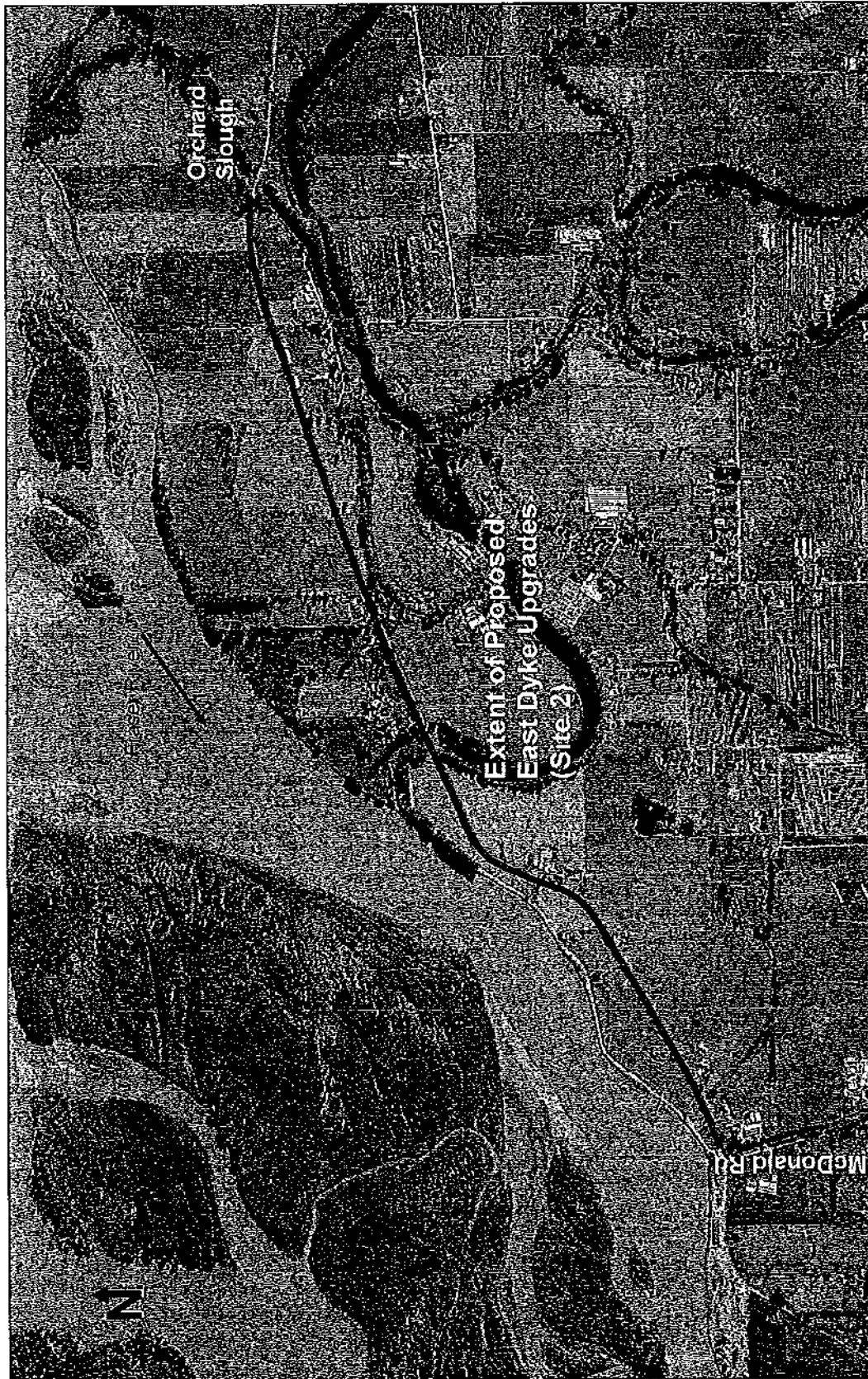


Figure 3: East Dyke Upgrades
(Orchard Slough to McDonald Road)
January 2011

0 100 200 300 400 500
Scale



City of Chilliwack

**Detailed Cost Estimate
East Dyke Upgrades - 2011/14**

Construction Costs:

Material	Unit	Unit Cost	Quantity	Cost	Comments
Earth Fill	\$/m ³	\$40.00	35,000	\$1,400,000.00	Includes Placement
Paving	m ²	\$19.00	10,000	\$200,000.00	Includes Placement
Miscellaneous	LS			\$125,000.00	Fencing, Gates, Relief Pits
Construction Total				<u>\$1,725,000.00</u>	

*Class C Estimate

Engineering Costs:

Environmental Assessment and Monitoring	\$60,000.00
Detailed Design	\$175,000.00
Engineering Supervision and Testing	\$115,000.00
As-Built Documents	<u>\$25,000.00</u>
Engineering Total	<u>\$375,000.00</u>

SUBTOTAL	\$2,100,000.00
CONTINGENCY	<u>\$200,000.00</u>
TOTAL PROJECT COSTS, BEFORE TAX	<u>\$2,300,000.00</u>

HST (12%)	\$276,000.00
HST Rebate (75% of 7% and 100% of 5%)	-235,750.00

NET ELIGIBLE PROJECT COST	\$2,340,250.00
----------------------------------	-----------------------

One-Third Cost-Share	\$780,083.33
----------------------	--------------



Modification Agreement # 2

THIS MODIFICATION AGREEMENT dated for reference March 2, 2015

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA, represented by the Minister of Justice

Emergency Management BC
Flood Protection Program
Block A – Suite 200, 2261 Keating Cross Road
Saanichton, British Columbia V8M 2A5

(the "Province")

AND:

City of Chilliwack
8550 Young Road
Chilliwack, British Columbia V2P 8A4

(the "Recipient")

BACKGROUND

A. The Parties (defined as the Province and the Recipient) entered into an Agreement dated for reference May 5, 2014, (the "Agreement") for the purposes of constructing the East Dike Upgrades (2010-2-005).

B. The parties wish to amend the Agreement as set out in this Modification Agreement.

AGREEMENT

In consideration of the sum of One Dollar and other valuable consideration, the receipt and sufficiency of which is acknowledged by each Party, the Parties agree as follows:

1. The following section, entitled, "Accelerated Payment and Reporting" is added to *Schedule B – Fees and Expenses*:

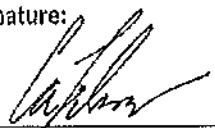
"5.01 Despite paragraph 1.02, on or before April 1, 2015 the Province will advance \$600,000.00 (the "Accelerated Payment"), as a portion of the Funding Amount, in order for the Recipient to complete and deliver the:

- (a) "Requests for Proposals/Tender" phase of the Project as described in Schedule A – Appendix 1, 2) Business Case Plan, page 2 of the City of Chilliwack's Business Case, and more particularly to advance the design and construction of the project; and
- (b) to proceed with the works to be done by "successful consultant" as described on page 2 of the City of Chilliwack's Business Case;

- 5.02 Prior to making a claim for Eligible Costs under section 2 "Eligible and Ineligible Costs and the Types or Classes of Expenditures Eligible for Contribution" the Recipient must exhaust the Accelerated Payment as provided for in paragraph 5.01 above. In all other respects, reporting and Invoicing of Project Eligible Costs remain the same;
- 5.04 Notwithstanding section 11.04 of the Agreement, the Recipient of the Accelerated Payment will be required to refund the Accelerated Payment, or any portion thereof to the Province if the Project is terminated or deemed incomplete, or if the Agreement is terminated.
- 5.05 The Accelerated Payment is not an increase to the maximum amount payable under this paragraph 1.01, and in no way can be construed as a change of scope to the Project as detailed in Schedule A."
2. Time will remain of the essence of the Agreement.

3. This Modification Agreement may be entered into by each Party signing a separate copy of this Agreement (including a photocopy or faxed copy) and delivering it to the other Party by email or fax.

4. In all other respects, the Agreement is confirmed.

SIGNED AND DELIVERED on the <i>13</i> day of <i>MAR</i>, 20<i>15</i> on behalf of the Province by its duly authorized representative	SIGNED AND DELIVERED on the <i>11</i> day of <i>MAR</i>, 20<i>15</i> by or on behalf of the Recipient (or by its authorized signatory or signatories if the Recipient is a corporation)
Signature: 	Signature(s): <i>[Signature]</i> SHARON GAETZ, MAYOR
Print name: <i>Cam Filmer</i>	Print name(s): DELCY J. WELLS CITY CLERK <i>Delcy Wells</i>

Schedule A - Appendix 1

1) Revised Project Schedule

From: Friesen, Tara [<mailto:tfriesen@chilliwack.com>]
Sent: Friday, April 5, 2013 9:06 AM
To: Albrecht, Naim JAG:EX
Cc: Preece, Tim JAG:EX
Subject: RE: Chilliwack Flood Protection Project - East Dike Upgrades

Hi Naim,
Here are some approximate timelines:

Preliminary Design (for Young Road Section): February – July 2013
Procurement Process for Final Design and Construction: August 2013 – January 2014
Final Design: February – April 2014
Construction: May – December 2014
*Construction staging will be adjusted according to freshet conditions

Once the preliminary design is complete, we'll have more detailed cost estimates and timelines available. At this point, we haven't decided if we will proceed using the design-build method or traditional design-bid-build.

Regards,



Tara Friesen, P.Eng. | Manager of Flood Protection Infrastructure | Engineering - Environmental Services
P: 604.793.2701 | F: 604.793.2756 | E: tfriesen@chilliwack.com
City of Chilliwack | 8550 Young Road, Chilliwack, BC, Canada V2P 8A4 | www.chilliwack.com

2) Project Business Plan

EAST DYKE UPGRADES 2011-2014

BUSINESS PLAN



2011/14 FLOOD PROTECTION PROGRAM FUNDING APPLICATION



City of Chilliwack

EAST DYKE UPGRADES BUSINESS PLAN

Problem Statement

The BC Ministry of Environment has commissioned several hydraulic modelling studies on the Fraser River over the past decade. The hydraulic modelling completed in 2001 (UMA Engineering Ltd.) and 2006/2008 (Northwest Hydraulic Consultants (NHC)) resulted in higher design flood water level estimates than previously estimated under the Fraser River Flood Control Program of the 1960's through 1990's.

Extensive upgrades were carried out on sections of the East Dyke from 2002 to 2010 with local, provincial and federal funding. There is one remaining 1,200 metre section of dyke on Young Road from the Wing Dyke to Hope River (refer to Figures 1 and 2) that has yet to be raised, which will form the majority of this project. This dyke section requires raising by approximately 1 metre. Work on this section of dyke had been deferred pending a review of flood protection options for the Hope River, which is subject to backwater flood risk during the Fraser River freshet.

Associated Engineering Ltd. (Associated) has been retained to evaluate flood protection options for the Hope River in light of the increased Fraser River flood profile and erosion risk along the Wing Dyke. Under the Fraser River Flood Control Program, a decision was made to protect the Hope River area from backwater effects by constructing a Wing Dyke that reduces the elevation of water backing up from Fraser River into the Hope River during a flood event. Unfortunately, given the increased flood profile (NHC 2008), the Wing Dyke is no longer able to adequately control the water elevation during a design flood event. Further complicating the matter is the flow pattern change in the Fraser River adjacent to the Wing Dyke, which has resulted in aggressive bank erosion. The presence of a scour hole over 20 metres deep made bank protection impractical so the downstream portion of the Wing Dyke remains at risk of erosion.

The draft report from Associated identifies a new flood box and pump station on the Hope River as the superior solution, taking into account economic, environmental and social costs and benefits. By constructing a flood box and pump station on the Hope River, the Wing Dyke would no longer be required. Along with the flood box and pump station, upgrades to the East Dyke and Town Dyke are required. The City will not have the required one-third funding for the flood box and pump station during the 2011-14 time horizon for this Flood Protection Program. It is therefore proposed that the dyke upgrades be undertaken at this time and the flood box and pump station construction will take place in the future, once additional funds are available.

It is recognized that the East Dyke will not offer the full level of protection until the Hope River flood box and pump station are constructed; however, it is important to raise the dyke to minimize the amount of emergency dyke upgrade work that may be required during a flood on the Fraser River. The City has an Emergency Dyke Upgrades Plan, which documents the work to be undertaken to minimize flood risk. The document includes details on how to block the Hope River between the Town and East Dykes, should that course of action need to be taken. The City intends to update the Emergency Dyke Upgrades Plan in 2011.

There is also some additional dyke raising required on a 3,300 metre section of the East Dyke (Orchard Slough to McDonald Road, Figure 3) that was previously raised, in order to meet the 2008 design criteria. The previous dyke raising was based on 2006 hydraulic model results, and the most recent hydraulic model update (NHC, 2008), resulted in an increase in the estimated water level. This section requires raising by as much as 0.3 metres to meet the current provincial standard based on the 2008 NHC hydraulic model. Currently, the substandard section poses a flood risk to the community, since it does not have the full freeboard allowance of 0.6 metres for the design flood event.

Rationale for Chosen Option

The dyke requires raising to meet the flood protection standard set by the Province of British Columbia. The upgrades to the East Dyke were selected as the top priority because the section of dyke protects a majority of the floodplain in Chilliwack and therefore the project offers the most significant risk reduction benefits to the community. Further details are provided in the Rationale/Expected Benefits section below.

The work involves raising an earth dyke, and is subject to provincial approval under the Dyke Maintenance Act. To ensure conformance with provincial requirements, the dyke upgrades will be designed in accordance with the provincial Dyke Design and Construction Guide.

Project Objective

The objective of the project is to raise two substandard sections of East Dyke to meet the provincial standard based on the 2008 Fraser River Hydraulic Model. Once the work is complete, the East Dyke will offer increased flood protection to the community.

Description of Activities

Once funding has been confirmed, the design and construction of the project will be carried out through a competitive, fair and transparent public Request for Proposals/Tender process that is consistent with the Agreement on Internal Trade and Canada's international trade obligations.

The successful consultant will produce the detailed design for the project, which will be submitted to the Ministry of Environment to secure provincial Dyke Maintenance Act (DMA) approval. Once the DMA approval has been received, construction will commence. The work will involve placing and compacting dyke fill material to raise the earth dyke to meet the provincial standard. The section of dyke on Young Road will also have a paved surface. The consultant will then prepare the as-built drawings and construction completion report. The City will administer the contract and prepare a final claim submission after all work has been completed.

Timelines and Milestones

The project will commence upon notice of funding approval and proceed according to the proposed schedule below, with project completion by the specified deadline of February 28th, 2014.

	2011		2012		2013		2014
Task Group or Item	January - March	April - December	January - March	April - December	January - March	April - December	January - March
Engineering – Design *Possible Design/Build		◀────────▶					
Engineering - Tender and Contract Preparation		◀────────▶					
Engineering - QA/QC Inspection - Wing Dyke to Hope River			◀────────▶				
Engineering - QA/QC Inspection - Orchard Slough to McDonald Rd					◀────────▶		
Engineering - Record Drawings - Wing Dyke to Hope River				◀────────▶			
Engineering - Record Drawings - Orchard Slough to McDonald Rd						◀────────▶	
Construction - Wing Dyke to Hope River			◀────────▶				
Construction - Orchard Slough to McDonald Rd					◀────────▶		
Total Project		◀──▶					

Rationale/Expected Benefits

The dyke upgrades will provide significant flood reduction benefits to the highly developed floodplain area. The low sections of dyke lie on the upstream portion of Chilliwack's dyke system and therefore pose a significant flood risk to the community. In some sections, the dyke not only lacks sufficient freeboard, but has a dyke crest below the new design flood water level, which creates an increased hazard of overtopping and potential dyke failure.

Potential consequences of flooding are substantial. The East Dyke protects over 40,000 people living in the floodplain, as well as 286,000 square metres of commercial and 172,300 square metres of industrial building floor space. Because the dyke protects large agricultural operations, utilities (hydro, gas, telecommunications, water and sewer), Highway 1 and two major rail lines, flood impacts would extend far beyond the local community.

A Quantitative Flood Risk Analysis was completed by BGC Engineering, which arrived at the following preliminary damage and loss estimates for a failure of the East Dyke:

- Damage to over 10,000 buildings, totalling \$483 million (not including contents and inventory)
- Flood hazards to oil and gas pipelines, hydro-substations and communications infrastructure
- Extensive impacts to Chilliwack's intensive agriculture industry
- Inundation of 13 kilometres of the TransCanada Highway
- Significant reduction to Chilliwack's \$6.4 million/day economic output
- A \$20 million/day impact to the BC economy due to severed transportation links
- Total damages and losses exceeding \$1 billion

The proposed dyke upgrades will substantially reduce flood risk in Chilliwack, mitigating the above economic risks and offering increased protection to the people residing in the floodplain protected by the East Dyke.

The project will also generate economic benefits during construction. The construction will be carried out by a private contractor, and will provide employment opportunities for approximately 20 weeks.

In addition to the economic benefits, the project also offers social benefits by reducing flood risk. During a flood emergency, the residents would be subjected to extensive stress and hardship. Dyke overtopping or breach could result in as much as half of Chilliwack's population being displaced, and recovery could take months. Even residents living outside the floodplain would be affected, for example due to work or service interruptions. There would be health care interruptions since Chilliwack General Hospital is situated in the floodplain, as well as numerous other community care facilities.

From an environmental perspective, the impacts would also be substantial. The floodwaters would become contaminated after coming into contact with manure, fertilizers, hydrocarbons and other contaminants. The contaminated water would flow overland and into groundwater and surface water resources, creating environmental and health concerns. There would also be a considerable amount of waste generated during the recovery phase.

Overall, the proposed dyke upgrades will contribute to the sustainability of the community by offering significant environmental, social and economic benefits through with flood risk reduction. The benefits also extend beyond the local area. Because the dyke will offer increased flood protection to major infrastructure such as the TransCanada Highway, two rail lines, and utilities (oil, gas, telecommunications), the benefits extend beyond the region to the national level.

Performance and Progress Measures

The quality of the work will be monitored on a daily basis by the consultants, to ensure the work is constructed according to project specifications. The City will monitor progress on a regular basis by comparing to the project schedule. As required under the funding agreement, the City will prepare and submit monthly updates to the Province.

Project Risks

The main project risk is the geotechnical aspect. The successful engineering firm will be required to carry out a detailed geotechnical investigation of the East Dyke section from the Wing Dyke to Hope River and make recommendations for dyke upgrades. Less extensive geotechnical analyses will be required for the remaining section of East Dyke to be upgraded, since a comprehensive geotechnical assessment has been carried out on that section of dyke previously.

The City may procure the work using the design-build approach, which would allow the City to transfer more risk to the contractor and consultant than the traditional tendering process.

Depending on the outcome of the geotechnical assessment, changes may need to be made to the design (eg. seepage control measures, seismic mitigation measures), which may affect the total length of dyke that can be raised within the project budget. The City is committed to raising the maximum length of dyke achievable with the funds available, with the priority being the section of dyke from the Wing Dyke to Hope River.

The detailed dyke design will include extensive geotechnical considerations to ensure the raised dyke will be stable and potential seepage risks will be mitigated. A geotechnical consultant will provide material testing throughout the project to ensure appropriate materials are used and compaction targets are met.

The City recognizes that weather conditions may affect progress, but there is sufficient time allocated for the project to allow construction during favourable work windows.

Budget

The project budget is itemized below (costs do not include HST):

Task Group or Item	2011		2012		2013		2014	Totals
	January - March	April - December	January - March	April - December	January - March	April - December	January - March	
Engineering and Site Supervision	\$ -	\$ 50,000	\$150,000	\$ 60,000	\$35,000	\$ 40,000	\$15,000	\$ 350,000
Environmental	\$ -	\$ 20,000	\$ 5,000	\$ 15,000	\$ 5,000	\$ 15,000	\$ -	\$ 60,000
Construction	\$ -		\$100,000	\$1,365,000	\$50,000	\$375,000	\$ -	\$1,890,000
Totals	\$ -	\$ 70,000	\$255,000	\$1,440,000	\$90,000	\$ 430,000	\$15,000	\$2,300,000

*Note: Above costs include an overall \$200,000 contingency for the project.

Non-structural mitigation measures

Given the significant floodplain area in Chilliwack, the City recognizes that a comprehensive flood management program is required that comprises structural and non-structural aspects to minimize risk and promote community resilience. Accordingly, the City's dyke system is supplemented by a variety of non-structural measures that support risk assessment and mitigation.

The City requires floodproofing and watercourse setbacks through a Floodplain Regulation Bylaw, to minimize potential flood-related infrastructure damage. The bylaw was developed taking into consideration the Flood Hazard Area Land Use Management Guidelines developed by the Province of British Columbia. The Bylaw also includes a provision to register Restrictive Covenants on properties in the floodplain, which helps increase awareness of flood risk.

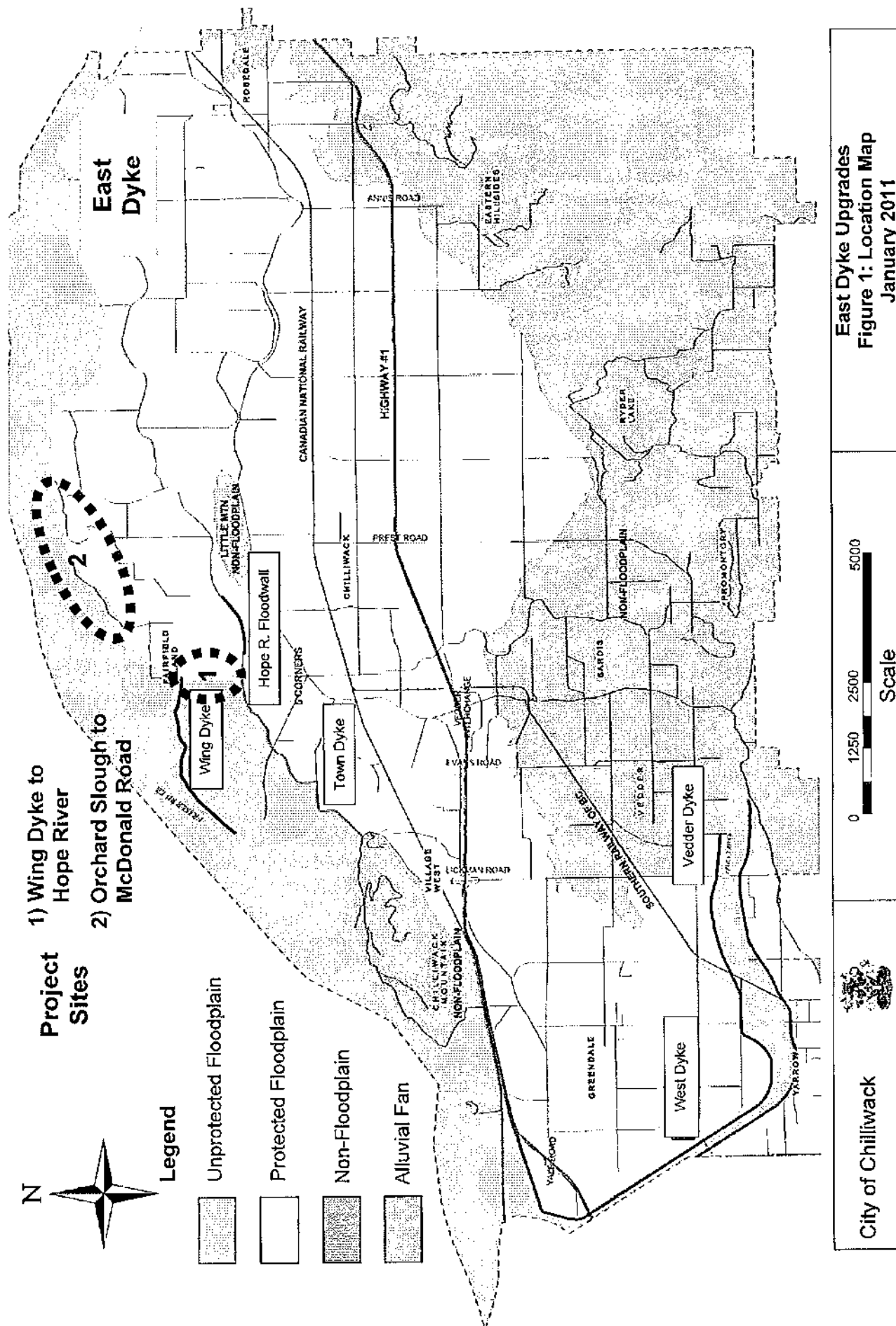
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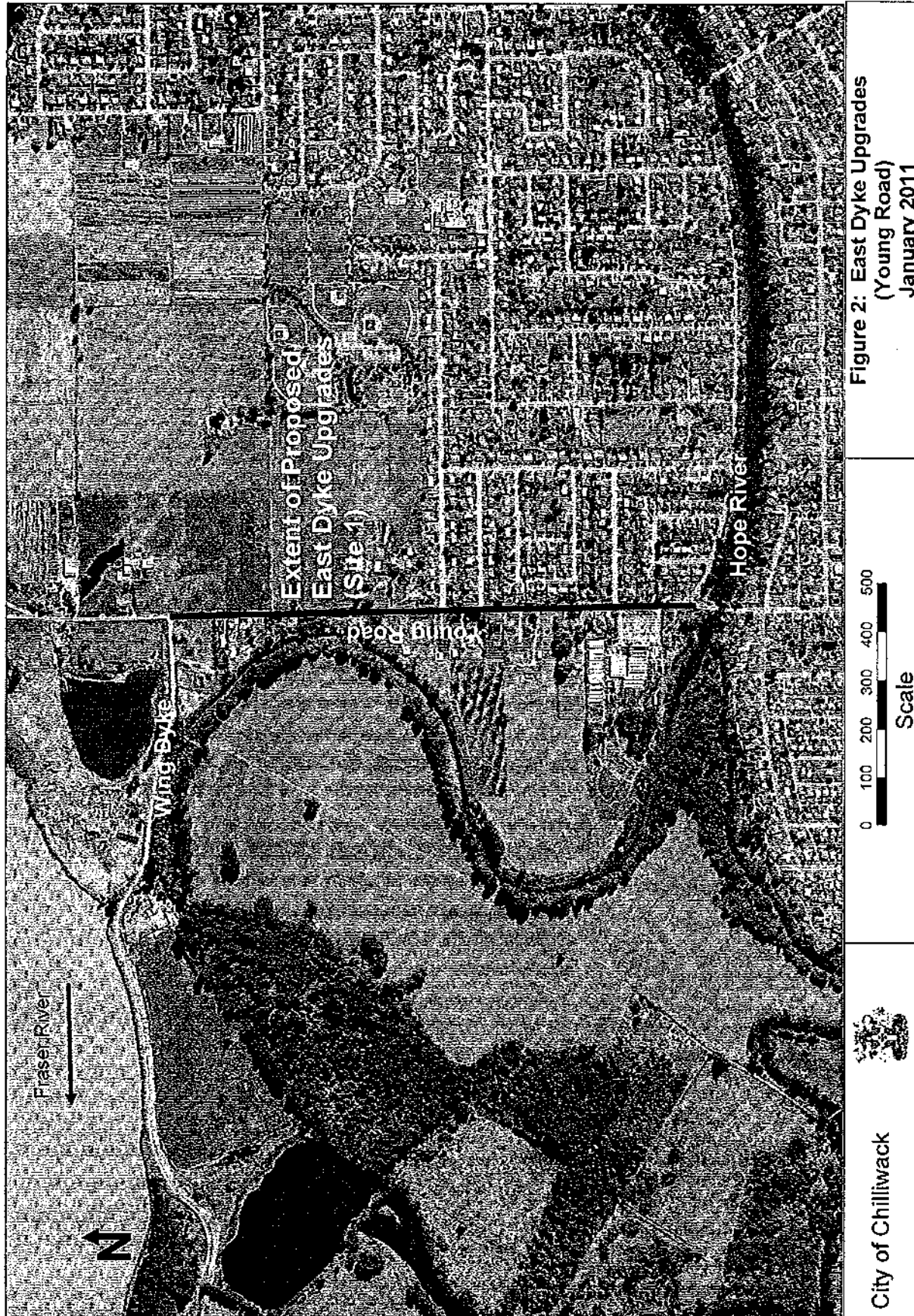
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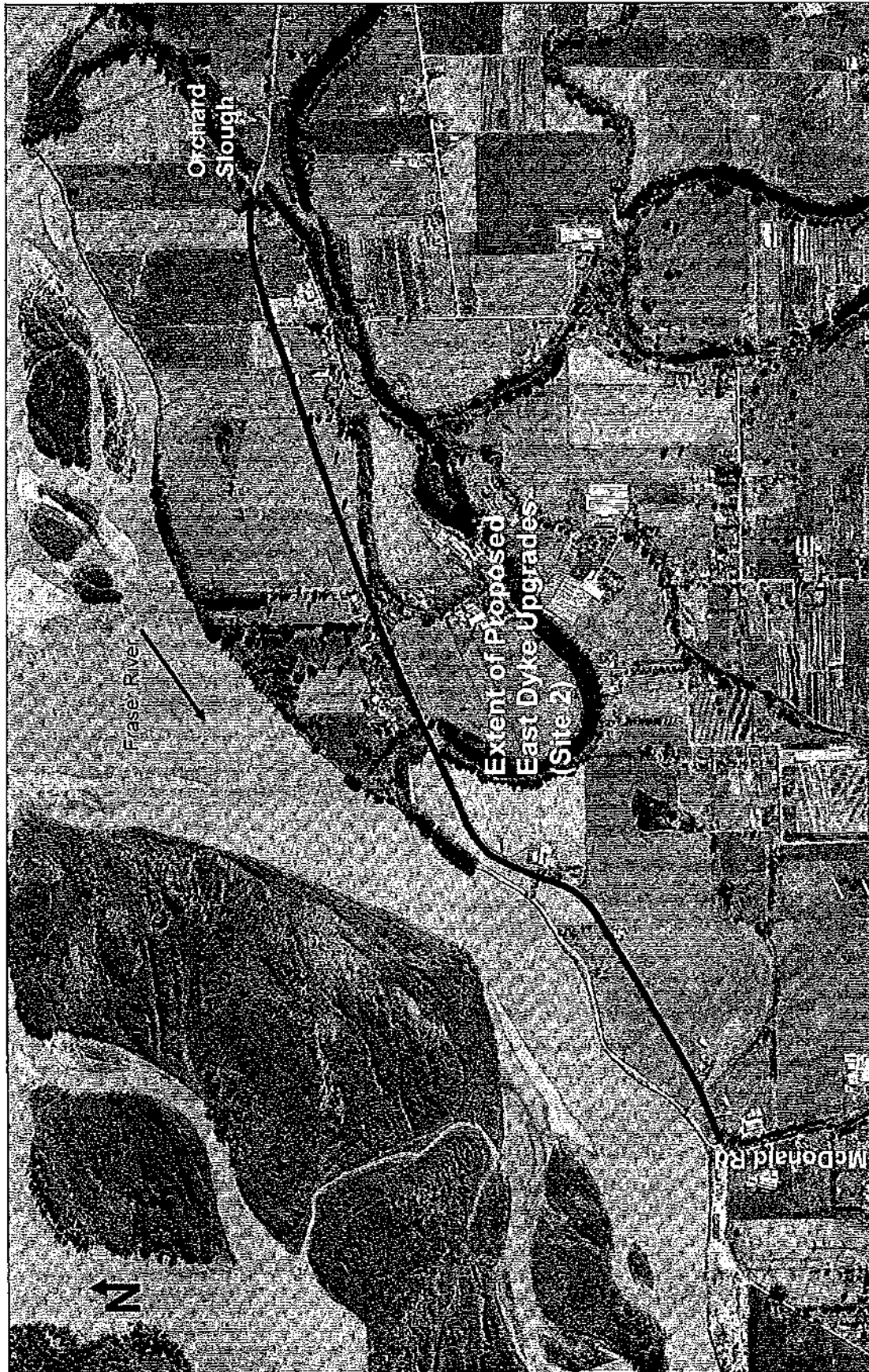
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The Response Plan is used in conjunction with the City's Emergency Dyke Upgrades Plan, which specifies equipment and material requirements should the City need to upgrade dykes on an emergency basis. Also included in the Response Plan is a list of local equipment and material sources.

The City pursues leading-edge flood protection management. In addition to the Dyke Breach Modelling study, the City has also participated in a Quantitative Flood Risk Analysis pilot study by BGC Engineering. The study is the first step in exploring a potential new approach to flood management in BC, one that offers a more comprehensive assessment of flood risk by quantifying flood-related consequences. Results of that study are outlined in the Rationale/Project Benefits section of this Business Plan.







City of Chilliwack

Figure 3: East Dyke Upgrades
(Orchard Slough to McDonald Road)
January 2011

**Detailed Cost Estimate
East Dyke Upgrades - 2011/14**

Construction Costs:

Material	Unit	Unit Cost	Quantity	Cost	Comments
Earth Fill	\$/m ³	\$40.00	35,000	\$1,400,000.00	Includes Placement
Paving	m ²	\$19.00	10,000	\$200,000.00	Includes Placement
Miscellaneous	LS			\$125,000.00	Fencing, Gates, Relief Pits
Construction Total				<u>\$1,725,000.00</u>	

*Class C Estimate

Engineering Costs:

Environmental Assessment and Monitoring	\$60,000.00
Detailed Design	\$175,000.00
Engineering Supervision and Testing	\$115,000.00
As-Built Documents	\$25,000.00
Engineering Total	<u>\$375,000.00</u>

SUBTOTAL	\$2,100,000.00
CONTINGENCY	\$200,000.00
TOTAL PROJECT COSTS, BEFORE TAX	<u>\$2,300,000.00</u>

HST (12%)	\$276,000.00
HST Rebate (75% of 7% and 100% of 5%)	-\$235,750.00

NET ELIGIBLE PROJECT COST	\$2,340,250.00
----------------------------------	-----------------------

One-Third Cost-Share	\$780,083.33
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Modification Agreement # 1

THIS MODIFICATION AGREEMENT dated for reference June 27, 2014

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA, represented by the Minister of Justice

Emergency Management BC
Flood Protection Program
Block A – Suite 200
2261 Keating Cross Road
Saanichton, British Columbia V8M 2A5

(the "Province")

AND:

City of Chilliwack
8550 Young Road
Chilliwack, British Columbia V2P 8A4

(the "Recipient")

BACKGROUND

A. The Parties (defined as the Province and the Recipient) entered into an Agreement dated for reference May 3, 2013 (the "Agreement") for the purposes of constructing the East Dike Upgrades (FPP 2010-2-005).

B. The parties wish to amend the Agreement as set out in this Modification Agreement.

AGREEMENT

In consideration of the sum of One Dollar and other valuable consideration, the receipt and sufficiency of which is acknowledged by each Party, the Parties agree as follows:

1. Purpose of the Modification Agreement is to grant additional time to complete the project. This extension was granted due to requiring additional time to resolve land tenure issues.

2. Section 2.02 - *Appointment and Term* is replaced by the following:

"2.02 Notwithstanding the date of execution and delivery of this Agreement, the Term of this Agreement, commences on October 7, 2011 and ends on February 28, 2016 unless terminated earlier in accordance with the terms of this Agreement."

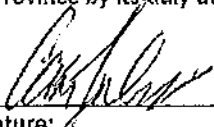
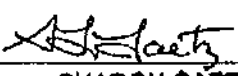
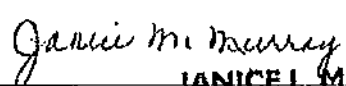
3. Section 3.03 of *Schedule B – Fees and Expenses* is amended as follows:

"3.03 The Project's construction must be completed by December 31, 2015 and documents, as set out in section 3.01 of this Schedule, received in the Emergency Management BC office by January 31, 2016."

4. Time will remain of the essence of the Agreement.

5. This Modification Agreement may be entered into by each Party signing a separate copy of this Agreement (including a photocopy or faxed copy) and delivering it to the other Party by email or fax.

6. In all other respects, the Agreement is confirmed.

SIGNED AND DELIVERED on the 11 th day of July, 2014 on behalf of the Province by its duly authorized representative 	SIGNED AND DELIVERED on the 3 rd day of July, 2014 by or on behalf of the Recipient (or by its authorized signatory or signatories if the Recipient is a corporation) 
Signature: 	Signature(s): SHARON GAETZ, MAYOR
Print name:	 Print name(s): JANICE L. McMURRAY Deputy City Clerk



Modification Agreement # 2

THIS MODIFICATION AGREEMENT dated for reference March 2, 2015

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA, represented by the Minister of Justice

Emergency Management BC
Flood Protection Program
Block A – Suite 200, 2261 Keating Cross Road
Saanichton, British Columbia V8M 2A5

(the "Province")

AND:

City of Chilliwack
8550 Young Road
Chilliwack, British Columbia V2P 8A4

(the "Recipient")

BACKGROUND

A. The Parties (defined as the Province and the Recipient) entered into an Agreement dated for reference May 5, 2014, (the "Agreement") for the purposes of constructing the East Dike Upgrades (2010-2-005).

B. The parties wish to amend the Agreement as set out in this Modification Agreement.

AGREEMENT

In consideration of the sum of One Dollar and other valuable consideration, the receipt and sufficiency of which is acknowledged by each Party, the Parties agree as follows:

1. The following section, entitled, "Accelerated Payment and Reporting" is added to *Schedule B – Fees and Expenses*:

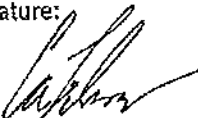
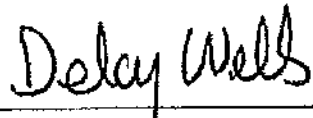
"5.01 Despite paragraph 1.02, on or before April 1, 2015 the Province will advance \$600,000.00 (the "Accelerated Payment"), as a portion of the Funding Amount, in order for the Recipient to complete and deliver the:

- (a) "Requests for Proposals/Tender" phase of the Project as described in Schedule A – Appendix 1, 2) Business Case Plan, page 2 of the City of Chilliwack's Business Case, and more particularly to advance the design and construction of the project; and
- (b) to proceed with the works to be done by "successful consultant" as described on page 2 of the City of Chilliwack's Business Case;

- 5.02 Prior to making a claim for Eligible Costs under section 2 "Eligible and Ineligible Costs and the Types or Classes of Expenditures Eligible for Contribution" the Recipient must exhaust the Accelerated Payment as provided for in paragraph 5.01 above. In all other respects, reporting and invoicing of Project Eligible Costs remain the same;
- 5.04 Notwithstanding section 11.04 of the Agreement, the Recipient of the Accelerated Payment will be required to refund the Accelerated Payment, or any portion thereof to the Province if the Project is terminated or deemed incomplete, or if the Agreement is terminated,
- 5.05 The Accelerated Payment is not an increase to the maximum amount payable under this paragraph 1.01, and in no way can be construed as a change of scope to the Project as detailed in Schedule A."
2. Time will remain of the essence of the Agreement.

3. This Modification Agreement may be entered into by each Party signing a separate copy of this Agreement (including a photocopy or faxed copy) and delivering it to the other Party by email or fax.

4. In all other respects, the Agreement is confirmed.

SIGNED AND DELIVERED on the <u>13</u> day of <u>MAR</u>, 20<u>15</u> on behalf of the Province by its duly authorized representative	SIGNED AND DELIVERED on the <u>11</u> day of <u>MAR</u>, 20<u>15</u> by or on behalf of the Recipient (or by its authorized signatory or signatories if the Recipient is a corporation)
Signature: 	Signature(s):  SHARON GAETZ, MAYOR
Print name: 	Print name(s): DELGY J. WELLS CITY CLERK 



Emergency
Management BC

Flood Protection Program *Intake 2010*

Monthly Project Update

To:	Flood Protection Program Emergency Management BC PO Box 9223 Stn Prov Govt Victoria, BC V8W 9J1
Date:	September 26, 2013
From:	Tara Friesen, City of Chilliwack
Flood Protection Fund File Number:	2010-2-005
SIMSI Project Number:	41722

Project Name:	<i>East Dike Upgrade</i>
Monthly Progress Update: #	<i>4</i>
Date:	<i>August 1 to 31, 2013</i>

1. Project Summary

- The project is still in its early stages. The preliminary design is underway.

1.1. Environmental Assessment and Permitting

- An environmental assessment will be completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is 65% complete, target date for completion has been adjusted to November 2013. A revised draft comparison of options has been submitted by Urban Systems for City staff review.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored.

1.3. Procurement

- Urban Systems and Thurber Engineering were selected as the preliminary design engineering team through a competitive Request for Proposals process. Eight Expressions of Interest were received and the top three were invited to submit proposals.
- Final design and construction procurement through a competitive bid process will commence in the fall of 2013. The Request for Expressions of Interest is currently being drafted and will be released prior to the completion of the preliminary design.
- Issues: None

1.4. Construction

- Percentage of physical construction completed: 0%
- Construction completed: not applicable at this time (planned for 2014)
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 2013	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	—
Environmental Assessment End	July 31, 2013	November 30, 2013		15%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	—
Preliminary Design Completed	August 30, 2013	November 30, 2013		65%
Detailed Engineering Design Awarded / Started (Anticipate using Design-Build)	December 17, 2013	January 20, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013	October 9, 2013		
Design Build RFEI Closes	September 25, 2013	October 30, 2013		
Design-Build Request for Proposals (RFP) Released	October 16, 2013	November 27, 2013		
Design-Build RFP Closes	November 13, 2013	January 2, 2014		
Design-Build Contract Award Date	December 17, 2013	January 20, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014			
Construction End (Substantial Completion)	December 31, 2014			0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

Monthly Project Update

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a – b)
Environmental Assessment	\$20,000	\$0	\$0	\$5,000	\$20,000
Design / Engineering	\$500,000	\$2,900	\$75,200	\$140,000	\$424,800
Construction / Materials	\$1,820,000	\$0	\$0	\$0	\$1,820,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$2,900	\$75,200	\$145,000	\$2,264,800

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Continue Preliminary Design work

5. Additional Information

- None at this time



Emergency
Management BC

Flood Protection Program Intake 2010

Monthly Project Update

To:	Flood Protection Program Emergency Management BC PO Box 9223 Stn Prov Govt Victoria, BC V8W 9J1
Date:	October 15, 2013
From:	Tara Friesen, City of Chilliwack
Flood Protection Fund File Number:	2010-2-005
SIMSI Project Number:	41722

Project Name:	East Dike Upgrade
Monthly Progress Update: #	5
Date:	September 1 to 30, 2013

1. Project Summary

- The project is still in its early stages. The preliminary design is underway.

1.1. Environmental Assessment and Permitting

- An environmental assessment will be completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is 70% complete, target date for completion has been adjusted to November 2013. A revised draft comparison of options has been submitted by Urban Systems for City staff review.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored.

1.3. Procurement

- Urban Systems and Thurber Engineering were selected as the preliminary design engineering team through a competitive Request for Proposals process. Eight Expressions of Interest were received and the top three were invited to submit proposals.
- Final design and construction procurement through a competitive bid process will commence in the fall of 2013. The Request for Expressions of Interest is currently being drafted and will be released prior to the completion of the preliminary design.
- Issues: None

1.4. Construction

- Percentage of physical construction completed: 0%
- Construction completed: not applicable at this time (planned for 2014)
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 2013	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	—
Environmental Assessment End	July 31, 2013	November 30, 2013		15%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	—
Preliminary Design Completed	August 30, 2013	November 30, 2013		65%
Detailed Engineering Design Awarded / Started (Anticipate using Design-Build)	December 17, 2013	January 20, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013	November 13, 2013		
Design Build RFEI Closes	September 25, 2013	December 4, 2013		
Design-Build Request for Proposals (RFP) Released	October 16, 2013	December 18, 2013		
Design-Build RFP Closes	November 13, 2013	January 22, 2014		
Design-Build Contract Award Date	December 17, 2013	February 4, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014			
Construction End (Substantial Completion)	December 31, 2014			0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

Monthly Project Update

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$0	\$0	\$5,000	\$20,000
Design / Engineering	\$500,000	\$0	\$52,000	\$140,000	\$448,000
Construction / Materials	\$1,820,000	\$0	\$0	\$0	\$1,820,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$0	\$52,000	\$145,000	\$2,288,000

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Continue Preliminary Design work

5. Additional Information

- None at this time



Emergency
ManagementBC

Flood Protection Program

Intake 2010

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: November 15, 2013
From: Tara Friesen, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005
SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*
Monthly Progress Update: # 6
Date: *October 1 to 31, 2013*

1. Project Summary

- The project is still in its early stages. The preliminary design is underway.

1.1. Environmental Assessment and Permitting

- An environmental assessment will be completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is 70% complete, target date for completion has been adjusted to December 2013. A revised draft comparison of options has been submitted by Urban Systems for City staff review.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored.

1.3. Procurement

- Urban Systems and Thurber Engineering were selected as the preliminary design engineering team through a competitive Request for Proposals process. Eight Expressions of Interest were received and the top three were invited to submit proposals.
- Final design and construction procurement through a competitive bid process will commence in the fall of 2013. The Request for Expressions of Interest is currently being drafted and will be released prior to the completion of the preliminary design.
- Issues: None

1.4. Construction

- Percentage of physical construction completed: 0%
- Construction completed: not applicable at this time (planned for 2014)
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 2013	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	—
Environmental Assessment End	July 31, 2013	November 30, 2013		15%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	—
Preliminary Design Completed	August 30, 2013	November 30, 2013		65%
Detailed Engineering Design Awarded / Started (Anticipate using Design-Build)	December 17, 2013	January 20, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013	December 4, 2013		
Design Build RFEI Closes	September 25, 2013	January 2, 2013		
Design-Build Request for Proposals (RFP) Released	October 16, 2013	January 22, 2013		
Design-Build RFP Closes	November 13, 2013	February 19, 2014		
Design-Build Contract Award Date	December 17, 2013	March 4, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014			
Construction End (Substantial Completion)	December 31, 2014			0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

Monthly Project Update

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$0	\$0	\$5,000	\$20,000
Design / Engineering	\$500,000	\$10,900	\$62,900	\$140,000	\$437,100
Construction / Materials	\$1,820,000	\$0	\$0	\$0	\$1,820,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$10,900	\$62,900	\$145,000	\$2,277,100

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Continue Preliminary Design work

5. Additional Information

- None at this time



Emergency
Management BC

Flood Protection Program

Intake 2010

Monthly Project Update

To:	Flood Protection Program Emergency Management BC PO Box 9223 Stn Prov Govt Victoria, BC V8W 9J1
Date:	December 14, 2013
From:	Frank Van Nynatten, City of Chilliwack
Flood Protection Fund File Number:	2010-2-005
SIMS Project Number:	41722

Project Name:	<i>East Dike Upgrade</i>
Monthly Progress Update: #	<i>7</i>
Date:	<i>November 1 to 30, 2013</i>

1. Project Summary

- The project is still in its early stages with preliminary design continuing.

1.1. Environmental Assessment and Permitting

- An environmental assessment will be completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is 85% complete; target date for completion of preliminary design has been adjusted to mid Jan 2014. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners has been set for Dec 11, 2013.

1.3. Procurement

- Urban Systems and Thurber Engineering were selected as the preliminary design engineering team through a competitive Request for Proposals process. Eight Expressions of Interest were received and the top three were invited to submit proposals.
- Final design and construction procurement through a competitive bid process will commence in the fall of 2013. The Design-Build, Request for Expressions of Interest has been released with a closing date of Dec 18, 2013. The City will select up to three (3) proponents to submit comprehensive proposals for review and will select the preferred proponent to enter into a design-build contract agreement for final design and construction.
- Issues: None

Monthly Project Update

1.4. Construction

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Construction completed: not applicable at this time (planned for 2014)
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 2013	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	—
Environmental Assessment End	July 31, 2013	January 4, 2014		90%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	—
Preliminary Design Completed	August 30, 2013	January 22, 2014		85%
Detailed Engineering Design Awarded / Started (Anticipate using Design-Build)	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013	December 4, 2013		
Design Build RFEI Closes	September 25, 2013	December 18, 2013		
Design-Build Request for Proposals (RFP) Released	October 16, 2013	January 22, 2013		
Design-Build RFP Closes	November 13, 2013	February 19, 2014		
Design-Build Contract Award Date	December 17, 2013	March 19, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014			
Construction End (Substantial Completion)	December 31, 2014			0%

Monthly Project Update

Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$0	\$0	\$5,000	\$20,000
Design / Engineering	\$500,000	\$0	\$62,900	\$140,000	\$437,100
Construction / Materials	\$1,820,000	\$4,000	\$4,000	\$0	\$1,816,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$4,000	\$66,900	\$145,000	\$2,273,100

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Continue Preliminary Design work
- Public Meeting scheduled for Dec 11, 2013

5. Additional Information

- None at this time



Emergency
ManagementBC

Flood Protection Program *Intake 2010*

Monthly Project Update

To:	Flood Protection Program Emergency Management BC PO Box 9223 Stn Prov Govt Victoria, BC V8W 9J1
Date:	January 15, 2014
From:	Frank Van Nynatten, City of Chilliwack
Flood Protection Fund File Number:	2010-2-005
SIMSI Project Number:	41722

Project Name:	<i>East Dike Upgrade</i>
Monthly Progress Update: #	8
Date:	<i>December 1 to 31, 2013</i>

1. Project Summary

- The project is still in its early stages with preliminary design nearing completion.

1.1. Environmental Assessment and Permitting

- An environmental assessment will be completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is 90% complete; target date for completion of preliminary design has been adjusted to end of Jan 2014. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Urban Systems and Thurber Engineering were selected as the preliminary design engineering team through a competitive Request for Proposals process. Eight Expressions of Interest were received and the top three were invited to submit proposals.
- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals is scheduled for Jan 21, 2014 regular City Council meeting. Proposals will be reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract agreement for final design and construction.
- Issues: None

Monthly Project Update

1.4. Construction

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Construction completed: not applicable at this time (planned for 2014)
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 2013	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	—
Environmental Assessment End	July 31, 2013	January 20, 2014		95%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	—
Preliminary Design Completed	August 30, 2013	January 22, 2014		90%
Detailed Engineering Design Awarded / Started (Anticipate using Design-Build)	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013	December 4, 2013		
Design Build RFEI Closes	September 25, 2013	December 18, 2013		
Design-Build Request for Proposals (RFP) Released	October 16, 2013	January 22, 2013		
Design-Build RFP Closes	November 13, 2013	February 19, 2014		
Design-Build Contract Award Date	December 17, 2013	March 19, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014			
Construction End (Substantial Completion)	December 31, 2014			0%

Monthly Project Update

Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$0	\$0	\$5,000	\$20,000
Design / Engineering	\$356,136	\$0	\$51,974	\$140,000	\$304,162
Construction / Materials	\$1,963,864	\$3,864	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$4,000	\$66,900	\$145,000	\$2,284,162

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Continue Preliminary Design work
- RFEI acceptance at regular Council meeting of January 21, 2014
- Design-Build RFP release January 22, 2014 with closing Feb 19, 2014

5. Additional Information

- None at this time



Emergency
Management BC

Flood Protection Program *Intake 2010*

Monthly Project Update

To:	Flood Protection Program Emergency Management BC PO Box 9223 Stn Prov Govt Victoria, BC V8W 9J1
Date:	February 14, 2014
From:	Frank Van Nynatten, City of Chilliwack
Flood Protection Fund File Number:	2010-2-005
SIMSI Project Number:	41722

Project Name:	<i>East Dike Upgrade</i>
Monthly Progress Update: #	9
Date:	<i>January 1 to 31, 2014</i>

1. Project Summary

- The project is still in its early stages with preliminary design complete.

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Urban Systems and Thurber Engineering were selected as the preliminary design engineering team through a competitive Request for Proposals process. Eight Expressions of Interest were received and the top three were invited to submit proposals.
- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams will be reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract agreement for final design and construction.
- Issues: None

Monthly Project Update

1.4. Construction

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Construction completed: not applicable at this time (planned for 2014)
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 2013	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Awarded / Started (Anticipate using Design-Build)	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2013	
Design-Build RFP Closes	November 13, 2013	February 26, 2014		
Design-Build Contract Award Date	December 17, 2013	March 19, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014			
Construction End (Substantial Completion)	December 31, 2014			0%

Monthly Project Update

Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$0	\$0	\$5,000	\$20,000
Design / Engineering	\$356,136	\$0	\$51,974	\$140,000	\$304,162
Construction / Materials	\$1,963,864	\$3,864	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$4,000	\$66,900	\$145,000	\$2,284,162

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Design-Build RFP release January 22, 2014 with closing Feb 26, 2014
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- None at this time



Emergency
ManagementBC

Flood Protection Program
Intake 2010

Monthly Project Update

To:	Flood Protection Program Emergency Management BC PO Box 9223 Stn Prov Govt Victoria, BC V8W 9J1
Date:	April 14, 2014
From:	Frank Van Nynatten, City of Chilliwack
Flood Protection Fund File Number:	2010-2-005
SIMSI Project Number:	41722

Project Name:	<i>East Dike Upgrade</i>
Monthly Progress Update: #	11
Date:	<i>March 1 to 31, 2014</i>

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Discussion with lead proponent to begin in May to discuss entering into contract.

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

1.4. Construction

- Percentage of physical construction completed: 0%

Monthly Project Update

- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

Monthly Project Update

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

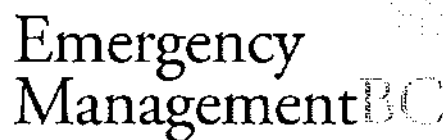
4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Flood Protection Program

Intake 2010

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: June 12, 2014

From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005

SIMS Project Number: 41722

Project Name: *East Dike Upgrade*

Monthly Progress Update: # 13

Date: *May 1 to 31, 2014*

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Currently reviewing alternate alignments on adjacent First Nation land.

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting.
- Issues: None

1.4. Construction

- Percentage of physical construction completed: 0%

Monthly Project Update

- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

Monthly Project Update

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
ManagementBC

Flood Protection Program

Intake 2010

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: July 11, 2014

From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005

SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*

Monthly Progress Update: # 14

Date: June 1 to 30, 2014

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Currently reviewing alternate alignments on adjacent First Nation land.
- Coordinating with BC Hydro & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

1.4. Construction

Monthly Project Update

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

Monthly Project Update

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
ManagementBC

Flood Protection Program *Intake 2010*

Monthly Project Update

To:	Flood Protection Program Emergency Management BC PO Box 9223 Stn Prov Govt Victoria, BC V8W 9J1
Date:	Aug 13, 2014
From:	Frank Van Nynatten, City of Chilliwack
Flood Protection Fund File Number:	2010-2-005
SIMS Project Number:	41722

Project Name:	East Dike Upgrade
Monthly Progress Update: #	15
Date:	July 1 to 31, 2014

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Currently reviewing alternate alignments on adjacent First Nation land.
- Coordinating with BC Hydro & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

1.4. Construction

Monthly Project Update

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

Monthly Project Update

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
ManagementBC

Flood Protection Program

Intake 2010

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: Sep 3, 2014

From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005

SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*

Monthly Progress Update: # 16

Date: *August 1 to 31, 2014*

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Currently reviewing alternate alignments on adjacent First Nation land.
- Coordinating with BC Hydro & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

1.4. Construction

Monthly Project Update

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

Monthly Project Update

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
ManagementBC

Flood Protection Program

Intake 2010

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: Oct 14, 2014

From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005

SIMS Project Number: 41722

Project Name: *East Dike Upgrade*

Monthly Progress Update: # 17

Date: September 1 to 30, 2014

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Currently reviewing alternate alignments on adjacent First Nation land.
- Coordinating with BC Hydro & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

1.4. Construction

Monthly Project Update

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

Monthly Project Update

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
ManagementBC

Flood Protection Program *Intake 2010*

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: Nov 12, 2014
From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005
SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*
Monthly Progress Update: # 18
Date: October 1 to 31, 2014

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Currently reviewing alternate alignments on adjacent First Nation land.
- Coordinating with BC Hydro & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

1.4. Construction

Monthly Project Update

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

Monthly Project Update

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
Management BC

Flood Protection Program *Intake 2010*

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: Dec 12, 2014
From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005
SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*
Monthly Progress Update: # 19
Date: November 1 to 30, 2014

1. Project Summary

- The project is still in its early stages with preliminary design complete.
- Currently reviewing alternate alignments on adjacent First Nation land.
- Coordinating with BC Hydro & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

1.4. Construction

Monthly Project Update

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	Feb, 2014		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	July 1, 2014		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

Monthly Project Update

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) in May 2014 regarding entering into contract.
- Continued discussions with adjacent property owners to develop site-specific solutions to minimize driveway access impacts.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
Management BC

Flood Protection Program *Intake 2010*

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: Dec 22, 2014
From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005
SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*
Monthly Progress Update: # 19 (rev)
Date: December 1 to 22, 2014

1. Project Summary

- The project is still in its early stages with preliminary design complete and D-B Proposals received.
- Currently reviewing alternate alignments on adjacent First Nation land.
- Coordinating with BC Hydro & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting
- Issues: None

Monthly Project Update

1.4. Construction

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	April 2015		
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	June 2015		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

Monthly Project Update

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

Task/Item	Project Budget ⁵ (a)	Expenditures this Period ⁶	Expenditures to Date ⁷ (b)	Budget Committed ⁸	Budget Remaining ⁹ (c = a - b)
Environmental Assessment	\$20,000	\$5,000	\$5,000	\$0	\$15,000
Design / Engineering	\$356,136	\$31,756	\$83,730	\$35,000	\$272,406
Construction / Materials	\$1,963,864	\$0	\$3,864	\$0	\$1,960,000
Other Eligible Costs (habitat compensation)	\$0	\$0	\$0	\$0	\$0
Totals	\$2,340,000	\$36,756	\$92,594	\$35,000	\$2,247,407

⁵ Project Budget is based on revised spending plan

⁶ Expenditures this Period is the amount spent for this update period

⁷ Expenditures to Date is total amount spent up to this point in time, including this period

⁸ Budget Committed is the roll up of total value of contracts signed

⁹ Budget Remaining is the project budget minus the expenditures to date

4. Anticipated Activities next period

- Discussion with lead proponent (Martens Asphalt) regarding entering into a contract and the cost implication of 2015 vs. 2014 construction.
- Reviewing alternate alignments on adjacent First Nation land.

5. Additional Information

- Results of design-build procurement:

Proponent Name	Base Price	Adjusted Price	Price /55	Technical /45	Total /100
Martens Asphalt	\$ 1,455,120	\$ 1,461,620	55	41	96
Jakes Construction	\$ 1,870,000	\$ 1,885,000	23	37	60
Golder Associates	\$ 2,992,555	\$ 3,017,605	0	34	34



Emergency
ManagementBC

Flood Protection Program *Intake 2010*

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: March 12, 2015
From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005
SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*
Monthly Progress Update: # 22
Date: February 1 to 28, 2015

1. Project Summary

- Reviewing alternate alignments on adjacent First Nation land as per City Council request at April 1, 2014 regular council meeting.
- City Council at their regular meeting of February 3, 2015 accepted the proposal submitted by the lead proponent Martens Asphalt in the amount of \$1,553,581.
- A pre-construction meeting with the design-build team was held March 4, 2015.
- Letters have been sent to adjacent property owners advising them of the project schedule.
- Coordinating with BC Hydro, Telus & Fortis for utility relocation to accommodate dyke widening

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Issues: None

1.2. Design

- Preliminary design is complete. A revised draft comparison of options has been submitted by Urban Systems for review and a preferred option has been selected.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. A public meeting with adjacent property owners took place on Dec 11, 2013.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and

Monthly Project Update

evaluated for selection of the preferred proponent to enter into a design-build contract.
Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting.

- Issues: None

1.4. Construction

- Percentage of physical construction completed: 0%
- A small amount of construction has taken place to accommodate preliminary design.
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		
Detailed Design Completed	March 30, 2014			0%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	—
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	March 2015	February 3, 2015	100%
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	June 2015		
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%
Project Close-out				

Monthly Project Update

Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

3.2. Monthly Spending Plan

- Submit an excel version electronically with the Monthly Status Report to embcfloodprotection@gov.bc.ca.
- See attached updated spending plan as of March 6, 2015

4. Anticipated Activities next period

- The contract document has been provided to the lead proponent (Martens Asphalt) for signature and inclusion of bonds/insurance documents.
- Issue formal notice to proceed to Martens Asphalt upon execution of contract document
- Reviewing alternate alignments on adjacent First Nation land.
- Field meeting with Fortis regarding gas main relocation.

5. Additional Information

- none



Emergency
ManagementBC

Flood Protection Program *Intake 2010*

Monthly Project Update

To: Flood Protection Program
Emergency Management BC
PO Box 9223 Stn Prov Govt
Victoria, BC V8W 9J1

Date: May 12, 2015
From: Frank Van Nynatten, City of Chilliwack

Flood Protection Fund File Number: 2010-2-005
SIMSI Project Number: 41722

Project Name: *East Dike Upgrade*
Monthly Progress Update: # 23
Date: April 1 to 30, 2015

1. Project Summary

- City Council at their regular meeting of February 3, 2015 accepted the proposal submitted by the lead proponent Martens Asphalt in the amount of \$1,553,581.
- A pre-construction meeting with the design-build team was held March 4, 2015.
- Letters have been sent to adjacent property owners advising them of the project schedule.
- Coordinating with BC Hydro, Telus & Fortis for utility relocation to accommodate dyke widening
- Provincial Dyke Maintenance Act application has been submitted April 2, 2015 and approved May 6, 2015.
- Construction began March 17, 2015 with some minor tree/vegetation removal, followed by drainage improvements on the east side of Young Road April 18-31. Road/dyke work to begin May 11, 2015.

1.1. Environmental Assessment and Permitting

- An environmental assessment has been completed as part of the preliminary design.
- Environmental Plan submitted by Martens Asphalt.
- Issues: None

1.2. Design

- 100% design drawings are complete.
- Issues: Driveway impacts present a significant challenge with this project; alternative design concepts are being explored. On-site meetings are being held with adjacent property owners to discuss solutions to provide optimum driveway connection and landscape restoration.

1.3. Procurement

- Final design and construction procurement through a competitive bid process has commenced in the fall of 2013. The Design-Build, Request for Expressions of Interest closed

Monthly Project Update

on Dec 18, 2013 with eight (8) compliant submittals. Recommendation for selection of three (3) proponents to submit comprehensive proposals went to the Jan 21, 2014 regular City Council meeting. Proposals from the three (3) selected teams have been reviewed and evaluated for selection of the preferred proponent to enter into a design-build contract. Martens Asphalt was selected as the lead proponent at the April 1, 2014 Council meeting.

- Issues: None

1.4. Construction

- Percentage of physical construction completed: 5%
- Issues: None

2. Project Schedule

	Original Date ¹	Revised Date ²	Actual Date ³	% Complete
Project Initiation				
Project Approval	April 1, 13	—	—	—
Project Sign Installed (if applicable)				—
Environmental / Design				
Environmental Assessment Start	February 1, 2013		February 1, 2013	100%
Environmental Assessment End	July 31, 2013		January 24, 2014	100%
Preliminary Engineering Design Awarded / Started	January 22, 2013		January 22, 2013	100%
Preliminary Design Completed	August 30, 2013		January 24, 2014	100%
Detailed Engineering Design Started through Design-Build process	December 17, 2013	January 22, 2014		100%
Detailed Design Completed	March 30, 2014		April 13, 2015	100%
Contribution Agreement In Place	April 25, 2013		April 25, 2013	100%
Procurement				
Design-Build Request for Expressions of Interest (RFEI) Posted	September 4, 2013		December 4, 2013	100%
Design Build RFEI Closes	September 25, 2013		December 18, 2013	100%
Design-Build Request for Proposals (RFP) Released	October 16, 2013		January 22, 2014	100%
Design-Build RFP Closes	November 13, 2013		February 26, 2014	100%
Design-Build Contract Award Date	December 17, 2013	March 2015	February 3, 2015	100%
Sod Turning Ceremony (if applicable)				
Construction				
Construction Start	April 1, 2014	June 2015	March 17, 2015	5%
Construction End (Substantial Completion)	December 31, 2014	December 31, 2015		0%

Monthly Project Update

Project Close-out				
Submission of Financial Claim and Project Completion Report	February 15, 2015			
Project Completion Deadline	February 28, 2015			

¹ Original Date is from the revised project schedule

² Revised Date is to be used only if the Original Date changes

³ Actual Date is the date completed

3. Project Budget

- The project is currently on budget

3.1. Financial Summary

Total Approved Project Budget: \$2,340,000.00 (Total Project Cost⁴)

Total Approved Project Funding: \$1,560,000.00 (federal/provincial share)

⁴ Total Project Cost is eligible project costs that are comprised of the federal share, provincial share, and local government/diking authority share

3.2. Monthly Spending Plan

- Submit an excel version electronically with the Monthly Status Report to embcfloodprotection@gov.bc.ca.
- See attached updated spending plan as of March 2, 2015

4. Anticipated Activities next period

- Road/dyke construction to proceed starting May 11, 2015.
- A Purchase Order has been issued to BC Hydro. Expect pole work to begin within two weeks.
- Coordination with Telus for overhead cable relocation.
- Continued site meetings with property owners to discuss driveway access and landscape restoration.

5. Additional Information

- none



May 6, 2015

Our File: 35050-20/DIOD/15CHILCITY02

City of Chilliwack
c/o McElhanney Consulting Services Ltd.
Suite 2300 Central City Tower
13450-102 Avenue
Surrey BC, V3T 5X3

Attention: Paul Deol, P. Eng.

**Re: Application to Upgrade the Chilliwack East Dike (Young Road) – City of Chilliwack
BC - Deputy Inspector of Dikes Review**

1.0 Introduction

This is in regards to an application dated April 2, 2015 submitted to our office on behalf of the City of Chilliwack requesting approval under Section 2 (4) of the *Dike Maintenance Act* (DMA) to upgrade the Chilliwack East Dike at Young Road between Hope River Road and Cartmell Road (dike stations 0+00 and approximately 400+00¹) in Chilliwack BC.

2.0 Reference Materials

We have reviewed your DMA Application, correspondence and the following:

1. A design brief prepared by McElhanney Consulting Services Ltd. entitled "2014 East Dyke (Young Road) Upgrades – Design Brief Report" dated April 2, 2015;
2. A geotechnical report prepared by exp. Services Inc. entitled "East Dyke (Young Road) Upgrades Design-Build Project – Dyke Design Geotechnical Report" dated April 2, 2015;
3. A geotechnical report prepared by Thurber Engineering Ltd. entitled "Preliminary Design – East Dike (Young Road) Upgrade – Chilliwack, BC – Geotechnical Report" dated January 23, 2014;
4. A professional letter of commitment for the dike upgrades prepared by Walt Dengler P. Eng. of exp. Services Inc. dated May 5, 2015.

¹ Refer to the following link to Dike Inventory Map #22 for the City of Chilliwack;
http://www.enr.gov.bc.ca/wsd/public_safety/flood/inaps/chilliwack_22.pdf

5. The following drawings prepared by McElhanney Consulting Services Ltd. entitled "East Dyke (Young Road) Upgrade Project" project number 2111-40056-0, dated April 13, 2015;

Dwg No.	Title	Rev #	Rev. Date
C0-001	Roadworks -- Key Plan and Drawing Index	0	April 13, 2015
C0-101	Roadworks -- Plan/Profile -- Sta. 1+102.31 to Sta. 1+360	0	April 13, 2015
C0-102	Roadworks -- Plan/Profile -- Sta. 1+360 to Sta. 1+700	0	April 13, 2015
C0-103	Roadworks -- Plan/Profile -- Sta. 1+700 to Sta. 2+000	0	April 13, 2015
C0-104	Roadworks -- Plan/Profile -- Sta. 2+000 to Sta. 2+174.36	0	April 13, 2015
C0-105	Roadworks -- Plan/Profile -- Avalon Ave, Larter Ave, Clare Ave	0	April 13, 2015
C0-301	Roadworks -- Typical Sections -- Young Rd, Avalon Ave, Larter Ave, Clare Ave	0	April 13, 2015
C0-401	Roadworks -- Geometrics and Laning -- Sta. 1+102.31 to Sta. 1+700	0	April 13, 2015
C0-402	Roadworks -- Geometrics and Laning -- Sta. 1+700 to Sta. 2+174.36	0	April 13, 2015
C0-501	Roadworks -- Drainage and Utilities -- Sta. 1+102.31 to Sta. 1+360	0	April 13, 2015
C0-502	Roadworks -- Drainage and Utilities -- Sta. 1+360 to Sta. 1+700	0	April 13, 2015
C0-503	Roadworks -- Drainage and Utilities -- Sta. 1+700 to Sta. 2+174.36	0	April 13, 2015
C0-701	Roadworks -- Signing and Pavement Marking -- Sta. 1+102.31 to Sta. 1+700	0	April 13, 2015
C0-702	Roadworks -- Signing and Pavement Marking -- Sta. 1+700 to Sta. 2+174.36	0	April 13, 2015
C0-301G	Geotechnical -- Dyke Typical Sections -- Young Road	1	April 30, 2015

6. A professional letter of commitment for the drainage works on the land side of the proposed upgrades prepared by Walt Dengler P. Eng. of exp. Services Inc. dated April 21, 2015.

7. The following drawings prepared by McElhanney Consulting Services Ltd. project number 2111-40056-0 :

Dwg No.	Title	Rev #	Rev. Date
SK-001	Utility Installation Sketch - Plan	0	April 16, 2015
SK-002	Utility Installation Sketch -- Looking North	0	April 16, 2015

8. A letter addressed to Sharon Gaetz, mayor of the City of Chilliwack from Rebecca F. Denlinger, Assistant Deputy Minister, Fire and Emergency Management Commissioner entitled "Building Canada Plan -- Base Funding Agreement and Flood Protection Program Project #2010-2-005 -- East Dike Upgrades Project" dated May 3, 2013.

9. The following email correspondence :

Sender	Recipient	Subject	Date
Frank Van Nynatten, P. Eng., City of Chilliwack	Lotte Flint-Petersen M.Eng., MBA., P.Eng Ministry of Forests, Lands and Natural Resources	Young Road - storm sewer work	April 13, 2015

Frank Van Nynatten,
P. Eng., City of Chilliwack

Lotte Flint-Petersen
M.Eng., MBA., P.Eng
Ministry of Forests, Lands and
Natural Resources

35050-20/DIOD/15CHILCITY02:
DMA Application East Dike (Young
Road)-Activity Log 127 FW: Young
Road Dyke - FPP Agmt

April 17, 2015

3.0 Project Description

The project consists of the upgrade of sections of the Chilliwack East Dike along Young Road between Hope River Road and Cartmell Road as part of the of the City of Chilliwack flood protection plan. The proposed upgrade consists of raising the dike by approximately 1 m to a crest elevation of 12.7 m to meet the current provincial design standards.

The proposed design is consistent with the previous upgrades to the Chilliwack East Dike constructed as part of the 2007 Urgent Mitigative Flood Works and consists of a 1m layer of well graded engineered fill on the water side of the dike and a "core" of well graded free drainage material. Seepage analyses show that taking into account the extra width of the dike, this design will provide satisfactory flood protection and will mitigate potential internal erosion. The existing asphalt from the current crest of the road will be reclaimed and blended with "core material" to provide a well graded material, similar to the work completed in 2007. Where widening of 1 m or greater occurs on the landside of the dike, a toe filter zone will be installed. This is to provide an additional measure of seepage protection and provides for a level of redundancy to protect from potential internal erosion underneath and internal to the proposed dike upgrade.

This project is part of the present plan by the City of Chilliwack to upgrade the Chilliwack East Dike. The plan includes the installation of a new pump station on Hope River, which will be part of a separate project. This project was partly founded by the Building Canada Plan – Base Funding Agreement and the Flood Protection Program.

The upgrade to the drainage works on the land side of the dike, were identified in this project and formed part of maintenance upgrade works. The drainage upgrade was completed prior this letter being issued and is not part of the current DMA application review and approval. The drainage works were reviewed by this office and we are satisfied that they do not affect the structural integrity of the dike.

4.0 Approval

This letter constitutes approval under the *Dike Maintenance Act* for the remainder of the proposed dike upgrades as presented in the referenced documents. This approval is subject to the terms and conditions set forth below:

Note that this letter does not provide retroactive approval of any works carried out prior to the date of this letter.

General

1. The approval shall remain valid until May 1, 2016.

Design and Construction

2. The design and construction standards for the works should conform, where possible, to the 'Dike Design and Construction Guide -- Best Management Practices for British Columbia July 2003'²
3. The construction shall be done in accordance with the design, drawings, and specifications that were prepared by the Professional Engineer for the works. The work shall be carried out under the supervision and guidance of a Professional Engineer.
4. A site preparation and inspection must be carried out by the Geotechnical Engineer and any design assumptions made previously on the sub-grade needs to be determined to be accurate or revised appropriately in the design and construction.
5. The imported fill gradation and the compaction of structural backfill shall conform to the specifications provided in the drawings referred to above. Inspections and testing carried out during placement and compaction shall be supervised by a Professional Engineer with experience in geotechnical engineering.
6. Construction shall be scheduled to avoid elevated water levels that occur during the annual freshet of the Fraser River (typically May to early July) to ensure public safety is not compromised.

Quality Control and Assurance

7. The quality control and assurance (QA/QC) monitoring of the construction shall be done under the supervision of a Professional Engineer.
8. Any damage to the dike (ancillary or otherwise) caused by the construction shall be restored to equal to or better than its former or original state. The repair of damage that could affect the structural integrity of the dike must be approved under section 2(4) of the Dike Maintenance Act. Provided the P. Eng. confirms that damages do not affect the structural integrity of the dike, then approval of the repairs would not be required.

Completion Report, Record Drawings, Operation and Maintenance Manual and Certification of Completed Works

9. Record Drawings: Within 60 days after project completion, 'Record' drawings of the approved works (one 1/2 size set plus a digital copy in pdf format) sealed by a Professional Engineer shall be provided to the Diking Authority and the Deputy Inspector of Dikes office. The record drawings should include, but not be limited to: at least three cross sections through the dike and road associated with specific dike stations with the design water level elevation and the drainage upgrade work included; the minimal width of the dike required to provide effective flood protection; the extent of the as constructed toe filter zones shown on a plan view.
10. Construction Completion Report: within 60 days after project completion, the Professional Engineer responsible for the geotechnical aspect of the works shall prepare and submit a completion report (one hardcopy and an electronic copy) to the Local Diking Authority and the Deputy Inspector of Dikes

² A downloadable copy is available from the Flood Hazard Management webpage
<http://www.env.gov.bc.ca/vat/flood/structural.html>.

office. The completion report shall include a summary of onsite testing and inspections that were carried out.

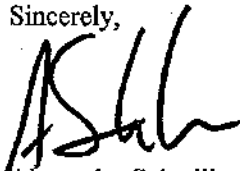
11. Certification of Completed Works: Within 60 days after project completion the Professional Engineer shall submit written certification that the approved works, and any related or effected portion of the dike and components, are safe for the intended use of flood protection.
12. Operation and Maintenance Manual: Within 60 days after project completion, a Professional Engineer shall prepare and submit (one hardcopy and an electronic copy) to the Local Diking Authority and the Deputy Inspector of Dikes office an update to the current O&M manual for Chilliwack East Dike which includes the dike upgrade works as part of this project as well as the drainage upgrade works.

Note: The Inspector of Dikes office shall receive written notification of a proposed schedule to complete the works if the works are not substantially complete by the approval expiry date. The Deputy Inspector of Dikes Office, at its discretion, may grant a time extension and/or may initiate a further review of the project. This may result in amendments to approval requirements or require a new application and approval.

Please note that the above approval pertains only to the Dike Maintenance Act and does not apply to any approvals, licenses or authorizations that may be required by our ministry or other approving agencies.

If you require further information, please contact me at 604.586.5641

Sincerely,



Alexandre Salvaille
Deputy Inspector of Dikes
AS/as

cc: Neil J. Peters, P. Eng., Inspector of Dikes
Frank Van Nynatten, P. Eng., City of Chilliwack (by email)
Walt Dengler, P. Eng., exp. Services Inc. (by email)
Jesse Percy, AScT, PMP, BA Blacktop Ltd. (by email)
Mona Smith, Project Manager, Flood Protection Program, Ministry of Justice (by email)
Email to: EMBCFloodprotection@gov.bc.ca