



**Master Summary Report:  
Surficial Soil Assessments  
Completed as Part of Floodway  
Expansion Project (2006-2011)**

**FINAL REPORT**

Prepared for:

Manitoba Floodway and East Side  
Road Authority  
200 – 155 Carlton Street  
Winnipeg, MB R3C 3H8

Prepared by:

Stantec Consulting Ltd.  
603-386 Broadway  
Winnipeg, MB R3C 3R6  
[www.stantec.com](http://www.stantec.com)

May 2012

Project: 111400113

## Executive Summary

---

Construction of the Red River Floodway Expansion Project (the Project) began in the fall of 2005. The Manitoba Floodway Authority (now the Manitoba Floodway East Side Road Authority; MFESRA) was the Crown Agency undertaking all the necessary engineering design, environmental assessment, public consultation and other related activities for the construction of the Project.

Project construction at the Inlet Control Structure, Outlet Control Structure, and along the length of the Floodway Main Channel and West Dyke was undertaken through a series of contracts. In compliance with the Project's *Environment Act* licence (Licence No. 2691 issued July 8, 2005), and to provide proactive environmental stewardship, the MFESRA developed Construction Phase Environmental Protection Plans (CPEPPs) for these construction contracts. The CPEPPs provided for Environmental Site Assessments (ESAs), by an independent third-party specialist consultant, of the material handling and storage areas and any spill sites associated with the construction contracts.

Between 2006 and 2011, Stantec conducted 51 environmental site assessments for the MFESRA at designated Contractor sites. The goal of these assessments was to determine the presence of petroleum hydrocarbon impacts resulting from Contractor activities (e.g., fuel storage, vehicle parking, equipment maintenance, etc.) during Project construction. The scope of work and assessment methods employed for each assessment was identical. Field testing (soil headspace readings) was used as the primary tool for determining the presence of impacts in collected soil samples. For each site, professional judgment, guided by field observations and testing results, was used to select soil samples for submission to an accredited laboratory for petroleum-hydrocarbon (BTEX and F1-F4) analysis. The lab results were used as a means of validating the field testing results and, together with the other observations/measurements, determining the need for any remedial actions.

At 12 of the 51 sites, soil hydrocarbon concentrations were found to exceed regulatory guidelines and remediation at these sites proceeded. Successful remediation was confirmed at each of these locations through post-remediation soil sample laboratory analysis.

Stantec therefore concludes that, to the extent that the samples obtained were representative of each site, none of the 51 sites contain any apparent significant residual petroleum-hydrocarbon impacts. No further environmental work is known to remain outstanding or considered warranted.

## **Table of Contents**

EXECUTIVE SUMMARY	E.1
<hr/>	
<b>1.0 INTRODUCTION</b> .....	<b>1</b>
<b>2.0 STANTEC SCOPE OF WORK</b> .....	<b>2</b>
<b>3.0 METHODS</b> .....	<b>2</b>
3.1 VISUAL INSPECTION & SAMPLE COLLECTION .....	2
3.2 HEADSPACE ANALYSIS .....	3
3.2.1 Headspace-Reading Quality Assurance/Quality Control .....	3
3.2.2 Laboratory Analysis Calibration of Soil-Headspace Readings.....	3
3.3 QUALITY ASSURANCE & QUALITY CONTROL (QA/QC).....	4
3.4 LABORATORY ANALYTICAL RESULTS & REGULATORY FRAMEWORK.....	5
3.5 REMEDIATION ACTIVITIES .....	5
3.6 REPORTING.....	6
<hr/>	
<b>4.0 SUMMARY OF ASSESSED SITES &amp; CONCLUSION</b> .....	<b>6</b>
<b>5.0 LIMITATIONS</b> .....	<b>6</b>
<b>6.0 STANTEC QUALITY MANAGEMENT PROGRAM</b> .....	<b>8</b>
<b>ATTACHMENT A: TABLE SUMMARIZING ASSESSED SITES</b>	

## **1.0 INTRODUCTION**

---

Construction of the Red River Floodway Expansion Project (the Project) began in the fall of 2005. The Manitoba Floodway Authority (now the Manitoba Floodway East Side Road Authority; MFESRA) was the Crown Agency undertaking all the necessary engineering design, environmental assessment, public consultation and other related activities for the construction of the Project.

Project construction at the Inlet Control Structure, Outlet Control Structure, and along the length of the Floodway Main Channel and West Dyke was undertaken through a series of contracts. The MFESRA developed Construction Phase Environmental Protection Plans (CPEPPs) for these construction contracts as required by the Project's *Environment Act* licence (Licence No. 2691 issued July 8, 2005) and MFESRA environmental policy. The CPEPPs called for Environmental Site Assessments (ESAs), by an independent third-party specialist consultant, of the material handling and storage areas and any spill sites associated with the construction contracts. Material handling and storage areas included locations used for the purposes of laydown and staging, waste storage, fuel storage and refueling, equipment servicing and staff parking.

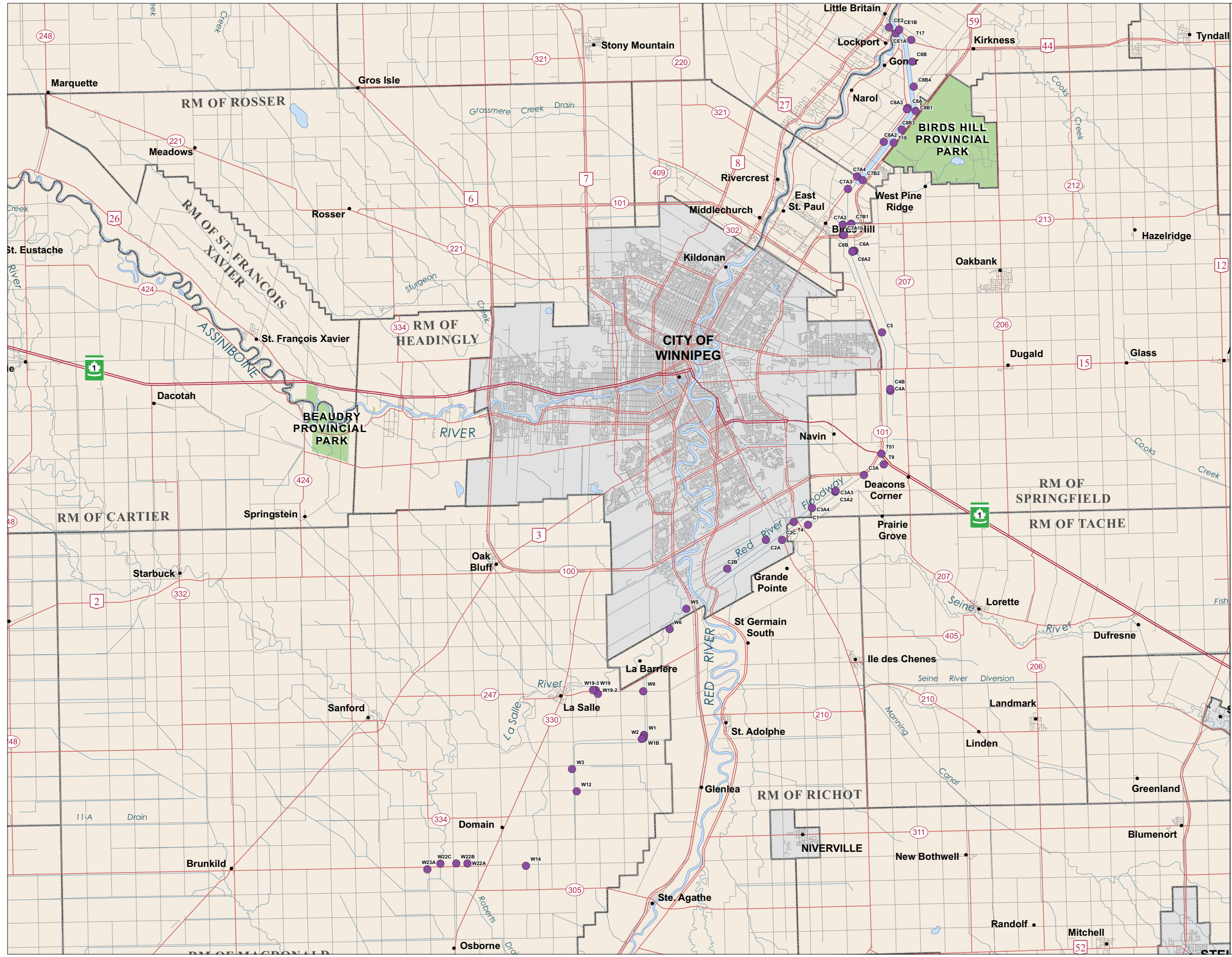
The contractors were required to maintain on-site records regarding materials handling, spills, leaks and releases and to report any spills to the Contract Administrator.

Stantec Consulting Ltd. (formerly TetrES Consultants Inc.) was originally retained to conduct the first required site assessments under contract with the MFESRA (WA-278 account). A total of 14 site assessments were conducted.

Stantec entered into a new contractual agreement with the MFESRA to perform periodic environmental site assessments of up to 30 additional designated sites effective November 1, 2007. Stantec assessed an additional 37 sites under this agreement for a total of 51 sites assessed between 2006 - 2011 (Figure 1).

All assessments were conducted using the same scope of work and methods summarized in Section 2.0. Individual assessment reports for each of these sites were compiled and submitted to the MFESRA in accordance with the requirements of the agreement. A summary description of the work undertaken at each of the 51 sites is presented in Attachment A.

**Figure 1:  
Locations of the  
51 designated sites  
that were assessed**



- Legend**
- Site Assessment Points
  - Community
  - City / Town
  - Rural Municipality
  - National/Provincial Park
  - Roads
  - Watercourse
  - Waterbody

1:120,000

Coordinate System: UTM Zone 14 N, NAD 83  
Data Source: Stantec, ProvMB, NRCCAN  
Date Created: December 15, 2011



**Stantec**

Drawn:  
AC

Checked:  
WC

Approved:  
KM



## **2.0 STANTEC SCOPE OF WORK**

---

The objective of the assignment was to conduct follow-up site assessments of designated areas (following Contractor decommissioning) to minimize unexpected remediation requirements and future liability issues associated with construction activities.

The scope of work was identical for each site assessment conducted and included the following:

- Visual inspection of the site and field analysis of site-surface soils.
- Submission of at least one soil sample to the laboratory to confirm/calibrate field analysis.
- Comparison of received analytical results with stipulated regulatory guidelines/standards.
- Guidance and/or oversight for any required remediation activities.
- Verbal conveyance of assessment findings to the MFESRA immediately following the field assessment and/or receipt of laboratory analytical results.
- Documentation of site activities in a written report on each site submitted to the MFESRA in triplicate and accompanied by 2 electronic (pdf) copies on CD, within 30 days of the assessment.

## **3.0 METHODS**

---

### **3.1 VISUAL INSPECTION & SAMPLE COLLECTION**

During the visual inspection, site photographs were taken and visual observations were recorded (specifically the presence of any discolouration or staining that may be indicative of the presence of spilled contaminants). The MFESRA and the Contractor (if available) were also questioned to ascertain specific site-use details (e.g. locations of fuel storage, occurrence of spills).

Following visual inspection a linear grid (comprising 'x' rows and 'y' columns) was defined and samples were collected across the site. Surficial soil was collected from a depth of approximately 30 cm, or once moist soil was reached, at the grid intersections using a small hand trowel or other equipment (e.g., shovel, drill rig auger; dependent on soil moisture). The samples were collected in sealable plastic bags. Disposable nitrile gloves were worn during

sample collection (a new pair/sample) and sampling equipment was cleaned between each sampling location.

All sampling locations were recorded using a GPS immediately after collection. Samples were allowed to warm for a specific period of time in preparation for headspace analysis.

### **3.2 HEADSPACE ANALYSIS**

Once the samples had warmed, the headspace in each sample bag was measured using a Photo-Ionization Detector (PID) following industry-standard protocol (*i.e.* 2 minutes/sample with the instrument “zeroed” between samples). Samples were tested in the order collected and the variables recorded included peak levels in ppm, % Lower Explosive Limit [LEL] and the % Volume Oxygen. Olfactory observations were also made and recorded following the headspace readings prior to discarding the samples on site.

#### **3.2.1 Headspace-Reading Quality Assurance/Quality Control**

The sealable plastic bags used for sample collection emit volatile organic compounds that are detectable by the PID. The error associated with this was limited by (a) using the same brand of bag in the collection of samples at each respective site and (b) using three sample blanks (*i.e.* empty bags filled with air) collected upon arrival at each site. The blank headspace readings were conducted and recorded prior, during, and after soil-headspace analysis had been completed.

Headspace readings of these blanks provided a range of “deadband-response values” (*i.e.* reading attributable to the bag) which were then compared with the soil-headspace readings, allowing the identification of the actual presence, if any, of site impacts.

#### **3.2.2 Laboratory Analysis Calibration of Soil-Headspace Readings**

PIDs measure only the volatile organic vapours released from the sample (*i.e.* not the total quantity of hydrocarbons in the soil or water). For this reason the past use of PIDs by Stantec during unrelated site assessments found that PIDs often have an uncertain predictive accuracy when compared to parallel testing by analytical labs. For example, field vapour readings of 9,000 ppm at one site resulted in <0.05 ppm of purgeable hydrocarbons as determined in the laboratory (a significant over-prediction). In contrast, another field vapour reading of 120 ppm from the same site was later determined in the laboratory to contain 17,820 ppm of total petroleum hydrocarbons (a significant under-prediction). There are presently no published standards or guidelines for PID peak levels (% LEL or ppm) which can be used to indicate a level of contamination that poses a demonstrable risk to human or other biotic health in the field. Certain PID units (such as the one used in the MFESRA assessments) have factory-set alarms which sound at the 10% LEL (~1,250 ppm) level and this is generally used to indicate the presence of impacts above regulatory guidelines stipulated by the Canadian Council of

Ministers of the Environment (CCME). A more conservative approach adopted by some considers any reading above 2% LEL (>300 ppm) to be indicative of impacts.

Guidance received from Manitoba Conservation (E. Yee, *pers. comm.* 1999) and elsewhere regarding the use of PIDs for soil samples indicated that every soil type in every environment is different, which will affect PID choice and use. For example, lower petroleum-hydrocarbon concentrations will usually be detected by the PID in clay layers in comparison to silt layers, due to those soils' differing densities. Clay layers tend to be texturally more stiff and therefore do not release the organic vapours as readily, yielding lower PID concentration readings. Additionally, if the clay layer has silt or sand lenses, it will act differently than a clay layer without silt or sand lenses. According to Manitoba Conservation, laboratory results are therefore usually a more reliable indicator of actual contamination.

Therefore to validate the headspace readings and determine the presence of petroleum-hydrocarbon impacts at each site, soil samples were submitted to the ALS Laboratory Group in Winnipeg, Manitoba (a CAEAL-accredited laboratory) for petroleum-hydrocarbon analysis (specifically BTEX [benzene, toluene, ethylbenzene and total xylenes] and CCME F1-F4 hydrocarbons). The samples selected for lab analysis were chosen based on professional judgment, field observations and testing results. Generally speaking these were the samples with the highest headspace reading, odour and/or visual staining.

The samples for laboratory analysis were collected following standard industry protocol using laboratory-issued sterile glass jars that were placed in a cooler containing ice, and maintained on ice until delivery to the laboratory on that same day.

### **3.3 QUALITY ASSURANCE & QUALITY CONTROL (QA/QC)**

The follow-up environmental site assessments for the MFESRA were designed to include a number of QA/QC measures to ensure consistency across the different sites. These measures included, but were not limited to, the following:

- Field technician consistency - each floodway site assessment was conducted by at least one technician that had previously conducted at least two floodway follow-up site assessments as well as site assessments for other public and private-sector clients.
- Standardization of all assessment methods.
- Collection and submission of duplicate surficial soil samples and/or review of laboratory provided QA/QC reporting to verify analytical results.



### **3.4 LABORATORY ANALYTICAL RESULTS & REGULATORY FRAMEWORK**

The laboratory results were compared with the most applicable regulatory standards/guidelines.

The regulatory framework that provided guidance in all assessments in the determination of the need for site-specific remediation consisted of the following:

- Canadian Council of Ministers of the Environment. 2001. Canada-Wide Standard for Petroleum Hydrocarbons (“PHC”) in Soil. Endorsed by CCME Council of Ministers April 30 – May 1, 2001, Winnipeg. (Revised in January 2008).
- Canadian Council of Ministers of the Environment. 1999. Canadian Environmental Quality Guidelines for the Protection of Environmental and Human Health. Report ISBN 1-896997-34-1. Publication No. 1299. Winnipeg, Manitoba. (updates current to the time of the assessment).

The results were reviewed and the likelihood of impacts requiring remediation were assessed on the basis of:

- Reported spills of petroleum-hydrocarbon chemicals or reported use of the site for activities such as vehicle maintenance.
- Detected petroleum-hydrocarbon contamination sensory indicators (*e.g.* visible staining, detectable odours) and recorded headspace results in comparison with site-specific deadband-response values and the laboratory results.
- The risk posed by any potential contamination considering the substrate (*e.g.* medium to heavy clay site-soil composition tends to preclude rapid vertical contaminant migration).

### **3.5 REMEDIATION ACTIVITIES**

If the laboratory results indicated soil concentrations of BTEX or F1-F4 fractions exceeded the respective CCME guidelines the site was deemed impacted and remediation was considered to be required prior to any further site rehabilitation (*e.g.* tilling and reseeded). The laboratory results were utilized to identify all hotspots requiring remediation based on comparison of the headspace readings for the soil with corresponding analytical results and all other site headspace readings.

Remediation activities were conducted by the respective site Contractor under the direction/supervision of Stantec, who identified the extent of the area(s) to be remediated based on GPS locations or prior staking. The impacted soil was excavated and removed from the site for proper off-site disposal in all cases where soil remediation was conducted. Following soil

excavation activities, soil samples were collected and submitted to ALS Labs to confirm hydrocarbon impacts were below the respective regulatory guidelines.

### **3.6 REPORTING**

The assessment results were verbally reported to the MFESRA so that it could advise the site Contractor of either the ability to proceed with site rehabilitation (e.g. tilling and/or reseeding) or the need for site remediation.

A standard report for each assessed site was drafted and provided to the MFESRA after the completion of each assessment including remediation where required. Each report documented the activities conducted, the assessment findings, any information regarding the follow-up work, any remediation guidance provided to the Contractor and any results of post-remediation testing.

Each report was provided in paper format and electronically.

## **4.0 SUMMARY OF ASSESSED SITES & CONCLUSION**

---

A summary of the sites assessed by Stantec between 2006 and 2011 is provided in Attachment A. As shown, of the 51 sites assessed, only 12 sites were found to have BTEX and/or F1-F4 fraction concentrations that exceeded CCME guidelines/standards and therefore required remediation and in all cases successful remediation was confirmed.

Stantec therefore concludes that, to the extent that the samples obtained were representative of each site, none of the 51 sites contain any apparent significant residual petroleum-hydrocarbon impacts. No further environmental work is known to remain outstanding or considered warranted.

## **5.0 LIMITATIONS**

---

In conducting the work described in this report, Stantec confirms that it had access to the experience and capability which was necessary to perform the work described in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no

assurance that this assessment has uncovered all potential liabilities associated with the identified property.

This report provides an evaluation of environmental conditions associated with the identified property at the time the assessments were conducted and are based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the condition of the identified property at the time the assessments and/or investigations were conducted. Activities at the property subsequent to Stantec's assessment may have significantly altered the property's condition. Conclusions made within this report are a professional opinion at the time of the writing of this report and are not a certification of the property's environmental condition. This report is not a legal opinion regarding compliance with applicable laws.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

This work documented in this report was limited by the following:

- Each assessment was limited to investigating the presence of petroleum hydrocarbons. No representations can be made regarding parameters for which tests were not performed.
- Each assessment was based on the soil sampling locations selected and conditions may vary between selected locations.
- Stantec's reporting pertains only to the condition of the sites at the time of assessment and within the areas sampled.
- Stantec can only make findings or draw conclusions regarding the analysis completed on those soil samples that were analyzed.

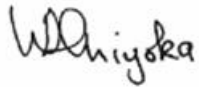
## **6.0 STANTEC QUALITY MANAGEMENT PROGRAM**

---

This report, entitled **Master Summary Report: Surficial Soil Assessments Completed as Part of Floodway Expansion Project (2006-2011)**, prepared for the Manitoba Floodway and East Side Road Authority, May 2012, was produced by Stantec Consulting Ltd.

This report was written by the following individual:

Waraidzo Chiyoka, M.Sc., EPt  
Soil Scientist



---

Signature

This report was reviewed by the following individual:

Karen Mathers, M.Sc., P.Geo.  
Associate, Project Manager



---

Signature

Approval to transmit to client:

Summer Hull, B.Env.Sc.  
Environmental Scientist



---

Signature

**Stantec**

**MASTER SUMMARY REPORT: SURFICIAL SOIL ASSESSMENTS COMPLETED AS PART OF FLOODWAY EXPANSION PROJECT (2006-2011)**

**Attachment A: Table Summarizing Assessed Sites**

---



**MASTER SUMMARY REPORT: SURFICIAL SOIL ASSESSMENTS COMPLETED AS PART OF FLOODWAY EXPANSION PROJECT (2006-2011)**

Attachment A: Table Summarizing Assessed Sites  
May 2012

**Table Summarizing Assessed Sites (2006-2011)**

SITE LOCATION		STANTEC SITE REF. NO.	DATE OF ASSESSMENT	IMPACTS OBSERVED	REMEDIATION UNDERTAKEN	DATE OF REPORT
1	Off Highway 59, on north side of Prairie Grove Rd	C1 Site	June 9, 2006	No	N/A	July 10, 2006
2	Immediately north of the Floodway, between St. Mary's and St. Anne's roads	C2-A Site	July 11, 2006	No	N/A	August 8, 2006
3		C2-B Site	July 18, 2006	No	N/A	
4	Immediately south of the Floodway, just off Hallama Drive South	C2-C Site	September 27, 2006	No	N/A	October 16, 2006
5	North side of the Floodway, near intersection of the TransCanada Hwy and Murdock Rd	C3-A Site	May 10, 2007	Yes	Yes	May 28, 2007
6	North side of the Floodway, off Symington Rd	C3-A2 Site	August 1, 2007	No	N/A	August 31, 2007
7		C3-A3 Site	November 7, 2007	No	N/A	November 30, 2007
8	Southern limit of Plessis Rd, north side of the Floodway	C3-A4 Site	June 25, 2008	No	N/A	July 28, 2008
9	Off Southwyn Rd 59 S, on east side of the Floodway	C4-A Site	May 10, 2007	No	N/A	May 28, 2007
10		C4-B Site	October 3, 2007	No	N/A	October 19, 2007
11	Off Provincial Rd 207, on east side of the Floodway	C5 Site	August 3, 2007	No	N/A	August 31, 2007
12	Off Oasis Rd, east of the Floodway	C6-A Site	May 9, 2008	Yes	Yes	July 8, 2008 and November 28, 2008
13	South of Hwy 59, east of the Floodway and west of Oasis Rd	C6-A2 Site	July 28, 2010	Yes	Yes	September 17, 2010
14	Off Oasis Rd (near Springhill), on east side of the Floodway	C6-B Site	November 12, 2007	No	N/A	November 30, 2007
15	Near the intersection of Hall Rd and Camsell Ave, to the west of the Floodway	C7-A1 Site	May 7, 2008	No	N/A	June 13, 2008

**MASTER SUMMARY REPORT: SURFICIAL SOIL ASSESSMENTS COMPLETED AS PART OF FLOODWAY EXPANSION PROJECT (2006-2011)**

Attachment A: Table Summarizing Assessed Sites

May 2012

	<b>SITE LOCATION</b>	<b>STANTEC SITE REF. NO.</b>	<b>DATE OF ASSESSMENT</b>	<b>IMPACTS OBSERVED</b>	<b>REMEDIATION UNDERTAKEN</b>	<b>DATE OF REPORT</b>
16	Near intersection of Hall Rd and Garven Rd, west of the Floodway	C7-A2 Site	May 8, 2008	Yes	Yes, by way of a trench dug through site	July 8, 2008
17	Off Hwy 59, at the intersection of Bray Rd and Birds Hill Rd, west of the Floodway	C7-A3 Site	June 24, 2008	No	N/A	July 27, 2008
18	Off PR202, adjacent to the intersection with Coronation Rd, on west side of the Floodway	C7-A4 Site	October 27, 2008	No	N/A	November 27, 2008
19	At the west end of Garven Rd, on east side of the Floodway	C7-B1 Site	May 14, 2008	No	N/A	June 12, 2008
20	Off Hwy 59 at Coronation Rd, on east side of the Floodway	C7-B2 Site	May 15 and May 20, 2008	Yes	Yes	July 7, 2008
21	Off PR 202, near Dunning Crossing, on west side of the Floodway	C8-A1 Site	August 21, 2007	No	N/A	August 31, 2007
22		C8-A2 Site	October 18, 2007	No	N/A	November 8, 2007
23	At the intersection of Hwy 202 and Church Rd South, on east side of the Floodway	C8-A3 Site	May 20, 2008	Yes	Yes	July 9, 2008
24	Off Floodway Drive South, on east side of the Floodway	C8-B Site	October 18, 2007	No	N/A	November 8, 2007
25	Off Hwy 59, several km north of Dunning Crossing, on east side of the Floodway	C8-B2 Site	October 27, 2008	No	N/A	November 27, 2008
26	South of Lockport and west of Hwy 59, about 6 km south of Kirkness Overpass on Hwy 59	C8-B3 Site	June 4, 2009	No	N/A	July 10, 2009
27	Off Hwy 59, southeast of Lockport on the road to Gonor Station, about 2 km south of the Hwy 44/Hwy 59 junction	C8-B4 Site	June 17, 2009	No	N/A	July 15, 2009
28	West of Lockport and the Lockport bridge, and north of Hwy 44 at the outflow gate of the Floodway	CE-1A Site	June 4, 2009	No	N/A	July 10, 2009

**MASTER SUMMARY REPORT: SURFICIAL SOIL ASSESSMENTS COMPLETED AS PART OF FLOODWAY EXPANSION PROJECT (2006-2011)**

Attachment A: Table Summarizing Assessed Sites

May 2012

	<b>SITE LOCATION</b>	<b>STANTEC SITE REF. NO.</b>	<b>DATE OF ASSESSMENT</b>	<b>IMPACTS OBSERVED</b>	<b>REMEDIATION UNDERTAKEN</b>	<b>DATE OF REPORT</b>
29	Off Hwy 59, southeast of Lockport, about 2 km south of the Hwy 44-Hwy 59 junction	CE-1B Site	June 17, 2009	Yes	Yes	July 27, 2009 and November 30, 2009
30	Off River Rd (PR 238 in Lockport, about 500 m north of the Lockport Bridge and on the east side of the Red River	CE-2 Site	June 4, 2009	No	N/A	July 10, 2009
31	Off Ramblewood Rd, near where Hwy 59S crosses the Floodway	T4 Site	October 23, 2007	No	N/A	November 9, 2007
32	West side of the Floodway adjacent to the Hwy No. 1 exit ramp onto Hwy No. 101	T5 Site	May 11, 2007	No	N/A	May 28, 2007
33	Sprague Bridge Site, located off Hwy No. 1	T9 Site	July 21, 2006	Yes	Yes, handled by the MFA	August 9, 2006
34	Along the Floodway West Dyke	W1 Site	August 28, 2006	No	N/A	September 20, 2006
35		W1-B Site	October 10, 2006	No	N/A	October 16, 2006
36		W2 Site	September 27, 2006	Yes	Yes, but confirmatory samples not taken	October 16, 2006
37		W3 Site	October 16, 2006	No	N/A	October 17, 2006
38		W5 Site	November 15, 2007	No	N/A	November 29, 2007
39		W6 Site	November 15, 2007	No	N/A	November 29, 2007
40		W9 Site	November 15, 2007	No	N/A	November 29, 2007
41	Near La Salle, west of the Floodway	W12 Site	May 6, 2008	No	N/A	June 12, 2008
42	Along the Floodway West Dyke	W14 Site	November 21, 2007	No	N/A	November 29, 2007
43	About 4 km east of La Salle at the intersection of Murphy Rd and PR 247	W19 Site	November 9, 2009	No	N/A	November 30, 2009

**MASTER SUMMARY REPORT: SURFICIAL SOIL ASSESSMENTS COMPLETED AS PART OF FLOODWAY EXPANSION PROJECT (2006-2011)**

Attachment A: Table Summarizing Assessed Sites  
 May 2012

SITE LOCATION		STANTEC SITE REF. NO.	DATE OF ASSESSMENT	IMPACTS OBSERVED	REMEDIATION UNDERTAKEN	DATE OF REPORT
44	About 4 km east of La Salle at the intersection of Murphy Rd and PR 247	W19-2 Site	May 28, 2010	No	N/A	June 21, 2010
45		W19-3 Site	July 28, 2010	Yes	Yes	September 15, 2010
46	Along the West Dyke, to the southwest of Domain and adjacent to PR305	W22-A Site	June 16, 2009	No	N/A	July 13, 2009
47		W22-B Site	June 16, 2009	No	N/A	July 13, 2009
48	Southwest of Domain, 2.5 km west on PR305	W22-C Site	September 4, 2009	Yes	Yes	November 30, 2009
49	Southwest of Domain, at the intersection of PR 305 and PR334	W23-A site	June 16, 2009	No	N/A	July 23, 2009
50	South of Hwy 44, near the Hwy 44-Hwy 204 junction	T17 Site	September 14, 2011	No	N/A	October 18, 2011
51	Along Hwy 59, about 400 m north of the Bird's Hill Provincial Park entrance at South Drive	T19 Site	September 15, 2011	Yes	Yes	November 18, 2011