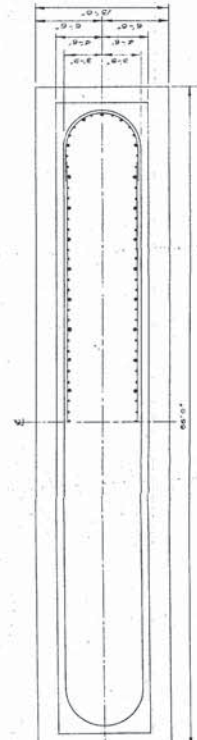
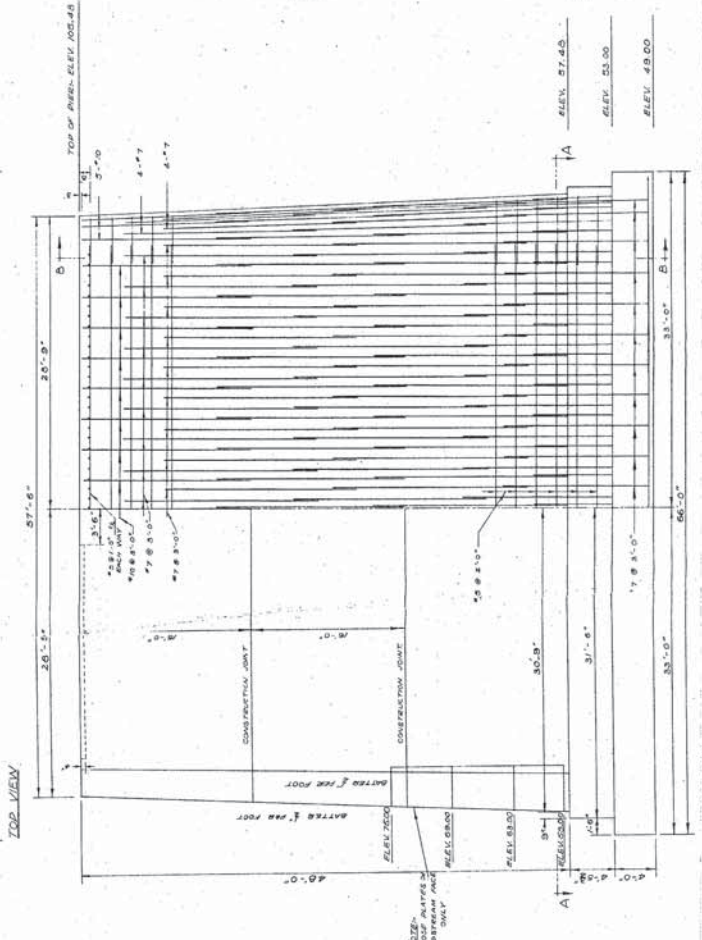
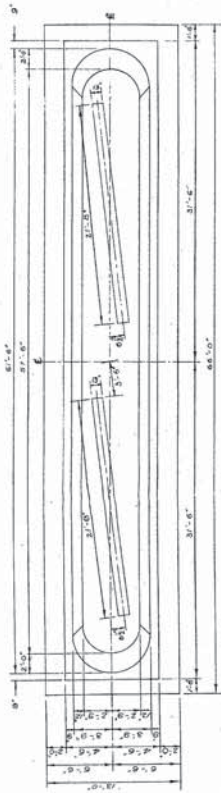
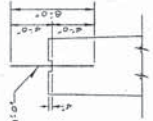




APR 19 2005

ROD SIZE ALTERNATE  
SEE DRAWING 1077 P



ESTIMATED QUANTITIES

PIER 3 FOR CONCRETE STRUCTURE	
CONCRETE	3300' CLASS 2 837 CU YD
CONCRETE	3000' CLASS 2 810 CU YD
REINFORCING STEEL	26600 LBS
MISCELLANEOUS IRON	7248 LBS
NET COMMON EXCAVATION	433 CU YD
BACKFILL	775 CU YD

WEST END BRIDGE  
EDMONTON  
PIER 3

GRD 551 508



GOVERNMENT OF THE PROVINCE OF ALBERTA  
DEPARTMENT OF HIGHWAYS  
BRIDGE BRANCH, EDMONTON

7455 141 ST. N.E.  
EDMONTON, ALBERTA T6C 2G1  
PHONE: 780-492-2400  
FAX: 780-492-2401

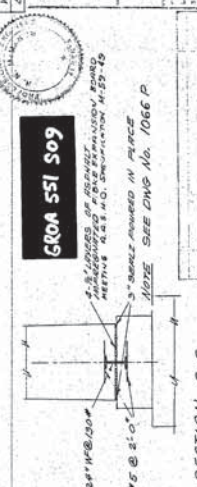
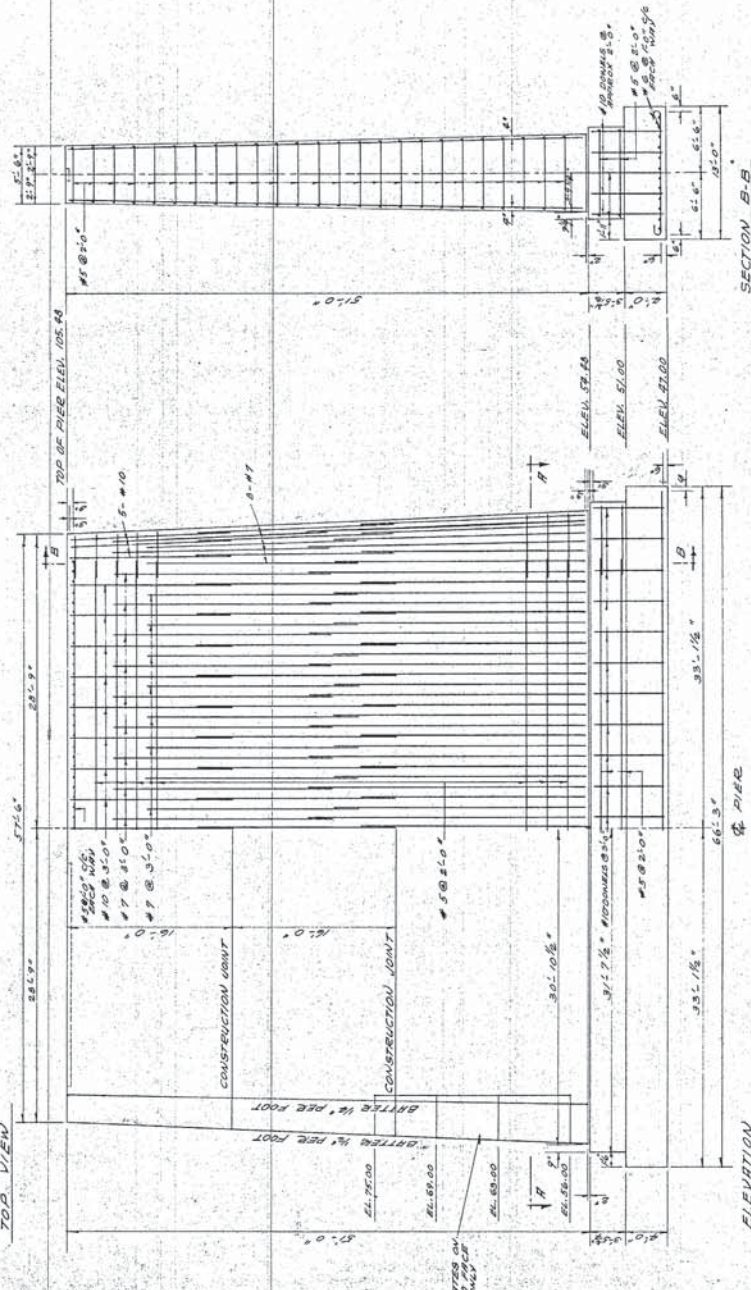
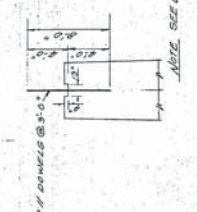
STRUCTURAL ENGINEERING SERVICES LTD.  
100, 10th St. S.E. Calgary, Alberta T2G 1G9  
PHONE: 403-243-8888  
FAX: 403-243-8889

**FOR STEEL ALTERNATE**

**NOTE**

- 1) TOP OF PIER ELEV TO BE 104.98
- 2) PIER TO BE RIGID AT BASE, DELETE ALL FOOTING AND SHAFT AS DETAIL FOR PIERS 1, 3, 4 & 5
- 3) DELETE ROCKER WELLS AND CHANNELS AT TOP OF PIER AND FINISH BEARING SECTIONS IN ACCORDANCE WITH CONCRETE WORKING SPECIFICATIONS
- 4) TOP OF PIERSTEEL ELEV. TO BE 93.92
- 5) SPALL AND SQUAND

NOTE: SEE DETAILING No. 1066 P  
 NOTE: SEE DETAILING OF FOOTING TO DETERMIN SPALL AND SQUAND



**ESTIMATED QUANTITIES**

PIER 4 FOR STEEL STRUCTURE	
CONCRETE 2500 CLASS 8	89 CU YD
CONCRETE 3000 CLASS A	7.0 CU YD
REINFORCING STEEL	39970 LBS
WELLS AND WELLS EXCAVATION	383 LBS
BASEFILL	188 CU YD
PIER 4 FOR CONCRETE STRUCTURE	
CONCRETE 2500 CLASS 8	89 CU YD
CONCRETE 3000 CLASS A	7.0 CU YD
REINFORCING STEEL	39970 LBS
WELLS AND WELLS EXCAVATION	383 LBS
BASEFILL	188 CU YD

**WEST END BRIDGE**  
 EDMONTON  
 PIER 4

GOVERNMENT OF THE PROVINCE OF ALBERTA  
 BRIDGE DIVISION, EDMONTON

DATE: 21-04-2005  
 DRAWN BY: S. J. [Signature]  
 CHECKED BY: [Signature]  
 PROJECT NO. 1066 P

**680A 551 509**

ADDRESS OF DESIGN: [Blank]  
 ADDRESS OF CONTRACTOR: [Blank]  
 ADDRESS OF CLIENT: [Blank]

DATE: 21-04-2005  
 DRAWN BY: S. J. [Signature]  
 CHECKED BY: [Signature]  
 PROJECT NO. 1066 P

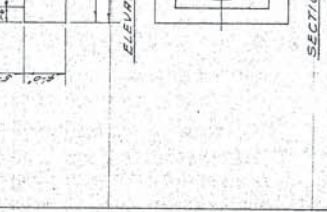
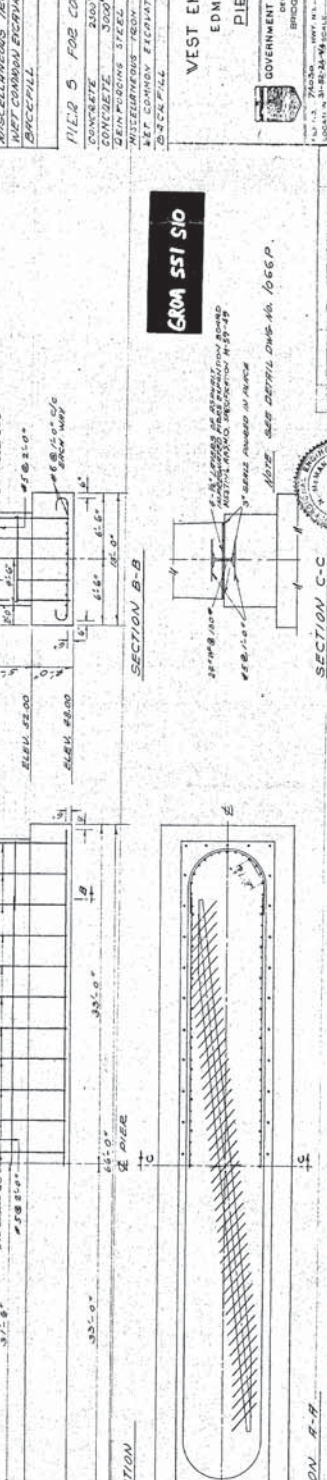
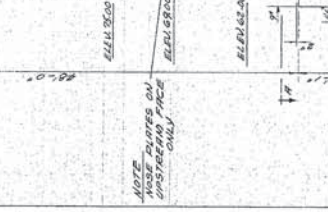
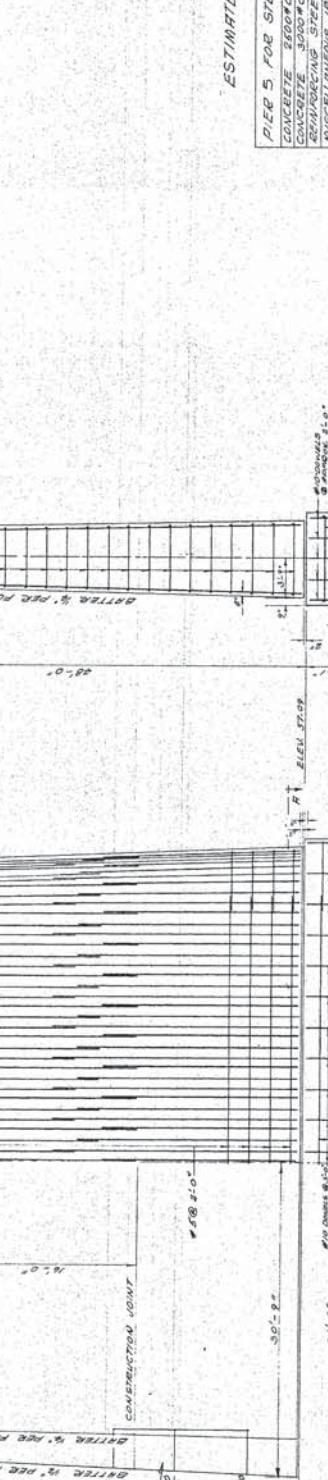
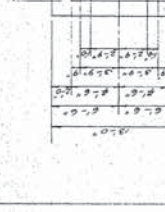
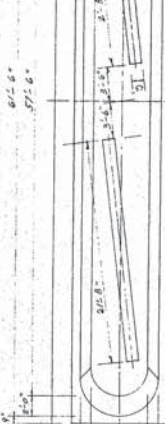
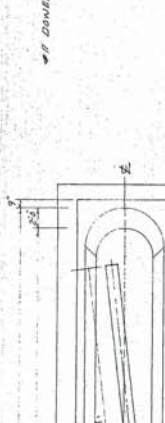
STRUCTURAL ENGINEERING SERVICES LTD.  
 CALGARY, ALBERTA, CANADA

APR 19 2005

**FOR STEEL ALTERNATE**

**NOTE**

- 1) TOP OF PIER ELEV TO BE 104.63
- 2) PIER AND DECK TO BE 104.63 AT BASE. ALL STEEL TO BE 360 LBS PER LINEAL FOOT. PIER AND DECK TO BE 360 LBS PER LINEAL FOOT.
- 3) ALL STEEL TO BE 360 LBS PER LINEAL FOOT. PIER AND DECK TO BE 360 LBS PER LINEAL FOOT.
- 4) TOP OF PIER ELEV TO BE 104.63
- 5) ELEVATION AND BOTTOM OF FOOTING TO BE 104.63



**ESTIMATED QUANTITIES**

PIER 5 FOR STEEL STRUCTURE	
CONCRETE 2000# CLASS	339 CU YD
CONCRETE 3000# CLASS	670 CU YD
REINFORCING STEEL	38,590 LBS.
MISCELLANEOUS IRON	3,595 LBS.
NET COMMON EXPERTISE	6 1/2 CU YD
BRICKFILL	285 CU YD

PIER 5 FOR CONCRETE STRUCTURE	
CONCRETE 2000# CLASS	234 CU YD
CONCRETE 3000# CLASS	468 CU YD
REINFORCING STEEL	27,116 LBS.
MISCELLANEOUS IRON	10,995 LBS.
NET COMMON EXPERTISE	6 1/2 CU YD
BRICK FILL	285 CU YD

**VEST END BRIDGE**  
EDMONTON  
PIER 5

GOVERNMENT OF THE PROVINCE OF ALBERTA  
BRIDGE BRANCH EDMONTON

STRUCTURAL ENGINEERING SERVICES LTD.  
CALGARY CONSULTING ENGINEERS EDMONTON

DATE: \_\_\_\_\_  
BY: \_\_\_\_\_

REVISIONS

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## APPENDIX E

Slope Stability Plot - Figure E1

**Figure E1**

**Westbound Victoria Road to Northbound Groat Road Ramp  
Back Slope Stability  
3H:1V Cut Slope**

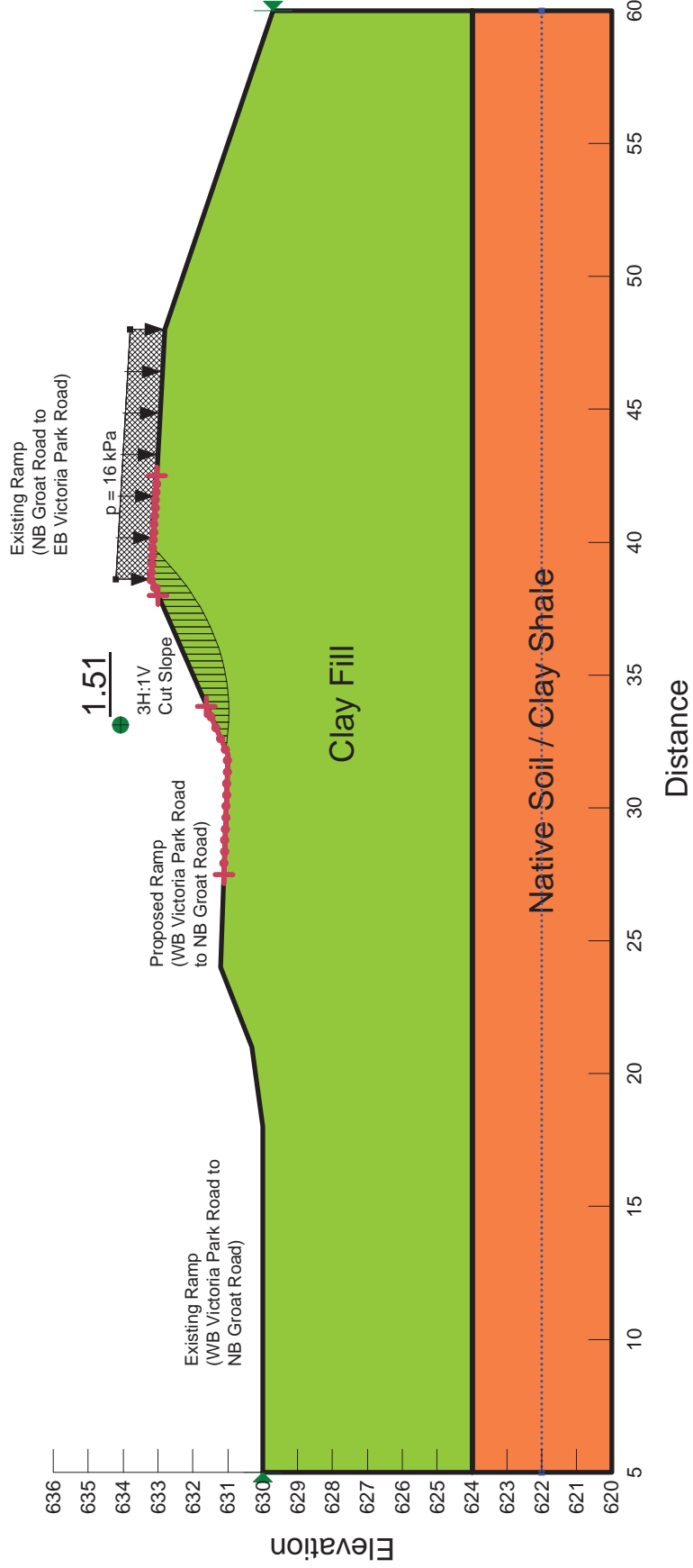
Directory: H:\10000\10298 Groat Road River Bridge Rehabilitation & Associated Road Work\Calculations\SlopeW1  
 File Name: Victoria Park Road Ramp\_Long Term\_3H-1V\_HER.gsz  
 Date: 7/4/2016  
 Method: Morgenstern-Price

Name: Clay Fill  
 Model: Mohr-Coulomb  
 Unit Weight: 19 kN/m<sup>3</sup>  
 Cohesion: 2 kPa  
 Phi: 22 °  
 Ru: 0.1

Name: Native Soil / Clay Shale  
 Model: Bedrock (Impenetrable)

North

South



**Appendix D. Phase 1 Environmental Site Assessment: Groat  
Road Bridges Rehabilitation Project, Edmonton, Alberta  
(Thurber Engineering Ltd. 2016)**



**THURBER** ENGINEERING LTD.

**PHASE I ENVIRONMENTAL SITE ASSESSMENT  
GROAT ROAD BRIDGES  
REHABILITATION PROJECT  
EDMONTON, ALBERTA**

**Report  
to  
Dialog**

Jackie Maxwell, B.Sc., RT (Ag)  
Environmental Scientist

<p><b>PERMIT TO PRACTICE</b> THURBER ENGINEERING LTD.</p> <p>Signature <u></u></p> <p>Date <u>May 26, 2016</u></p> <p><b>PERMIT NUMBER: P 5186</b></p> <p>The Association of Professional Engineers, Geologists and Geophysicists of Alberta</p>
--

Date: May 25, 2016  
File: 10298



Craig Campbell, P.Eng., M.Eng.  
Review Principal



## EXECUTIVE SUMMARY

Thurber Engineering Ltd. (Thurber) was retained by Dialog to conduct a Phase I Environmental Site Assessment (ESA) in general accordance to Canadian Standards Association (CSA) Standard Z768-01 for the proposed work areas (the “Site”) associated with the proposed rehabilitation project for the Groat Road Bridges. The project includes rehabilitation of three bridge structures, the Groat Road Bridge over the North Saskatchewan River (NSR), Groat Road Bridge over Victoria Park Road and Emily Murphy Park Road Bridge over Groat Road, and realignment of the approaches.

For the purposes of the Phase I ESA, the Site includes portions of the municipal road allowance, parkland and landscaped areas on the north bank of the NSR (Parcel 1), and a portion of the road allowance around the Emily Murphy Park Bridge (Parcel 2) as shown on Drawing 10298-1B. Parcel 1 includes portions of the road allowance for Groat Road, River Valley Road and Victoria Park Road, as well as the adjacent parkland areas which includes undeveloped treed land (north edge), Victoria Golf Course (east edge) and Government House Park (west edge). Parcel 1 was occupied by a golf course with some structures present along the north edge of prior to the 1960s when it was developed for road allowances and associated landscaped and parkland areas. Parcel 2 was undeveloped with the exception of a small road prior to construction of the current roadways in the 1960s.

Based on the inspections, assessments, and information reviewed and cited in this report, this Phase I ESA did not encounter any historical or visible evidence indicating that the Site had been impacted by contaminants above the generally accepted levels associated with sites of this nature. However, it is possible that fill materials may have been used to construct the bridge approaches at both parcels. It is not known whether the approaches were constructed with material sourced at the Site, or from imported fill from another location. Sampling and analysis of the fill material was outside the scope of work for the Phase I ESA. If fill materials are identified during the planned excavation and/or regrading activities, it is recommended that these materials be sampled as part of the project.

Use of this report is subject to the Statement of Limitations and Conditions that is included at the end of the text of this report. The reader’s attention is specifically drawn to these conditions as it is considered essential that they be followed for the proper use and interpretation of this report.



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- Alberta Land Titles



## 1. INTRODUCTION

Thurber Engineering Ltd. (Thurber) was retained by Dialog to conduct a Phase I Environmental Site Assessment (ESA) in general accordance to Canadian Standards Association (CSA) Standard Z768-01 for the proposed work areas (the “Site”) associated with the proposed rehabilitation project for the Groat Road Bridges. The project includes rehabilitation of three bridge structures, the Groat Road Bridge over the North Saskatchewan River (NSR), Groat Road Bridge over Victoria Park Road and Emily Murphy Park Road Bridge over Groat Road, and realignment of the approaches. For the purposes of the Phase I ESA, the Site includes portions of the municipal road allowance, parkland and landscaped areas on the north bank of the North Saskatchewan River, and a portion of the road allowance around the Emily Murphy Park Bridge.

The Site primarily consists of municipal road allowances, which are owned by the City of Edmonton; however, Alberta Land Titles does not maintain individual land titles for these road allowances. The parkland properties located at the north, east and west edges of the northern portion of the Site are titled and owned by the City of Edmonton.

The purpose of a Phase I ESA is to identify potential and actual contamination of the Site through a publically accessible record review and a visual site inspection. A Phase I ESA is completed without the benefit of sampling (air, groundwater, or soil), analytical testing, or measurement. As a result, a Phase I ESA should not be considered as a certificate of compliance. The primary objective of the assessor is to document evidence for potential or actual contamination rather than to judge the acceptability of risks associated with such contamination.

It is a condition of this report that Thurber’s performance of its professional services is subject to the attached Statement of Limitations and Conditions. The readers’ attention is specifically drawn to these conditions which are necessary to the use of this report.

## 2. SCOPE OF WORK

The Phase I ESA scope of work generally consists of:

- Review of site history
- Site reconnaissance
- Report preparation & evaluation.



Further details on the scope of work are outlined in Thurber's December 2, 2015 proposal included in Appendix A. Authorization to proceed with the Phase I ESA was provided by Mr. Neil Robson, P.Eng., of Dialog.

### **3. SITE DESCRIPTION**

#### **3.1 Site**

For the purposes of the Phase I ESA, the Site includes portions of the municipal road allowance, parkland and landscaped areas on the north bank of the NSR (Parcel 1), and a portion of the road allowance around the Emily Murphy Park Bridge (Parcel 2) as shown on Drawing 10298-1B. Parcel 1 includes portions of the road allowance for Groat Road, River Valley Road and Victoria Park Road, as well as the adjacent parkland areas which includes undeveloped treed land (north edge), Victoria Golf Course (east edge) and Government House Park (west edge). Parcel 1 and the surrounding area generally slopes south towards the NSR, while Parcel 2 slopes north towards the NSR.

#### **3.2 Surrounding Areas**

Site is located north and south of the NSR between approximately 124 and 126 Streets and 100 Avenue and Emily Murphy Park Road. Parcel 1 is surrounded by parkland to the north, east and west with the North Saskatchewan River to the south. Parcel 2 is surrounded by parkland and road allowances.

#### **3.3 Geological Setting**

According to Kathol and McPherson (1975), surficial geology in the area of Site is river terrace gravel consisting of alluvial gravel, sand and silt; and gully and creek valley scarp consisting of thin colluvial cover on valley slopes and thin alluvial materials along streams with mixed glacial and bedrock material in slump areas. These surficial deposits are between 0 m and 25 m thick; underlain by glaciolacustrine deposits (fine sand and silt) and glacial till (unsorted, unstratified clay, silt, sand, pebbles and boulders). These surficial deposits are underlain by the bedrock of the Edmonton Formation composed of interbedded bentonite shales and sandstones with numerous coal seams.



### **3.4 Hydrogeological Setting**

Research by Bibby (1974) indicates regional groundwater flow in the area surrounding the Site is towards the North Saskatchewan River that is immediately south of Parcel 1 and approximately 300 m north of Parcel 2.

## **4. SITE HISTORY**

Information on historical conditions and land use of the Site was obtained from a review of historical aerial photographs and from the following sources:

- Alberta Land Titles
- Petroleum Tank Management Association of Alberta (PTMAA)
- Alberta Energy Regulator (AER)
- Alberta Environment and Parks (AEP formerly Alberta Environment and Sustainable Resource Development (ESRD), Freedom of Information and Protection of Privacy (FOIP) Office, FOIP Records and Information Management (FRIM) Office and the Environmental Site Assessment Repository (ESAR)
- City of Edmonton (COE)
- Henderson Directories
- Alberta Health Services (AHS).

A copy of the received regulatory responses is included in Appendix C.

### **4.1 Aerial Photographs**

Historical air photos were reviewed from 1950, 1952, 1962, 1967, 1977, 1982, 1986, 1990, 2001, 2005 and 2008 at AEP Air Photo Distribution Centre. An air photo from 2014 (most recent) was obtained from the COE Department of Transportation and Streets Mapping. The 2014 air photo was used as the base for Drawing 10298-1B. The reviewed historical air photographs are included in Appendix D.

The 1950 and 1952 air photos show the majority of Parcel 1 to be used as golf course fairways, extending from the current Victoria Golf Course to the east of the Site. A roadway (former Hillside



Avenue) is visible in the northern portion of Parcel 1, with several residential or agricultural buildings on the north side of Parcel 1. Surrounding areas are mostly undeveloped; a residential area is visible further north of Parcel 1 within the City of Edmonton. Parcel 2 is partially forested, with a roadway running southwest to northeast through the area. The Mayfair Golf Course is visible to the west of Parcel 2, and residential development is present to the southeast.

In the 1962 air photo Groat Road, River Valley Road and Victoria Park Road have been constructed on Parcel 1 and appear similar to present day configuration. The roadways have been regraded to accommodate the bridge elevations, and possible fill material may be present in the approaches. Buildings are no longer visible on the north side of Parcel 1. Groat Road is also visible on Parcel 2. The Groat Road Bridge over the NSR is visible.

The 1967 air photo shows the Emily Murphy Park bridge and Groat Road interchange being constructed on Parcel 2. The road allowance surrounding Parcel 2 has also been further developed.

In the 1977, 1982, 1986, 1990, 2001, 2005 and 2008 air photos the Site has been fully developed with the current roadways. Parkland areas on Site are vegetated.

#### **4.2 Alberta Land Titles**

Alberta Land Titles did not find records for the road allowance portions of the Site. The small portions of parkland on the edges of Parcel 1 are owned by the COE. The north portion of parkland on Parcel 1 is divided between two unique land titles: the northwest side has been owned by COE since 1929 and the northeast side has been owned by the COE since 1955. The east and west parkland areas on Parcel 1 have the same land title and have been owned by the COE since 1942.

#### **4.3 Fire Insurance Maps**

According to Fire Insurance Maps obtained online from Library and Archives Canada, a Canadian Northern Railway line was present approximately 80 m north of Parcel 1, between 100 Avenue and 101 Avenue.

#### **4.4 Henderson Directories**

Henderson Directories were reviewed and information pertaining to the Site was not available as the majority of Site does not have a COE municipal address and other portions of Site did not have one in the years the records were published up until the late 1980s.



#### **4.5 Petroleum Tank Management Association of Alberta**

The PTMAA responded that they do not have records of active or abandoned petroleum storage tanks on the Site.

#### **4.6 Alberta Energy Regulator**

Information held by the AER was accessed via the Abacus Datagraphics Ltd. AbaData database (current to March 31, 2016) and indicates they do not have records of oil and gas activity (wells, leases, battery sites, directional drilling or pipelines) on or within 100 m of Site. There are records for three oil wells greater than 100 m from the Site.

The AbaData database also includes information from the AEP Groundwater Information Centre (GIC). There are records of 9 groundwater wells (4 investigation, 2 irrigation, 1 industrial, 1 domestic and 1 stock) present within one kilometre of the Site. There is one groundwater well indicated to be present on Site drilled in 1953 for industrial use. Above ground evidence of this well was not observed during the Site reconnaissance.

#### **4.7 Alberta Environment & Parks**

A search by AEP FOIP and FRIM offices did not identify records related to the Site. A search of the AEP ESAR database showed a record of environmental assessment approximately 80 m north of Parcel 1. This record indicated the condition of this property was investigated through Phase I and II ESAs. The Phase I ESA indicated potential concerns of former railway activity (approximately 100 m north of Parcel 1, up-gradient) and former fuel stations (also up-gradient) in the area north of the assessed property. The analytical results from the Phase II ESA met the guidelines applied in that report.

#### **4.8 City of Edmonton**

The COE has limited information on road allowances which comprise most of Site. The COE Fire Rescue Services, Fire Prevention Branch did not have records for road allowances and did not find information using an Alberta Township System (ATS) quarter section description. The COE Current Planning Service Centre was not able to effectively search their files using an ATS description.

The COE Waste Management Branch carried out a search of their files and did not find records indicating a landfill or dump on or within 500 m of the Site.



#### **4.9 Alberta Health Services**

Alberta Health Services (AHS) have not yet been contacted as they cannot search their records using an ATS or similar description.

### **5. ASSESSMENT**

The assessment was based on researched history of the site, documentation from various regulatory agencies and site reconnaissance carried out on April 7, 2016 by Ms. Jackie Maxwell, B.Sc., RT (Ag), of Thurber.

#### **5.1 Past / Present Operations – Site**

Parcel 1 was occupied by a golf course with some structures present along the north edge of prior to the 1960s when it was developed for road allowances and associated landscaped and parkland areas. During Site reconnaissance a sign fixed into the ground indicated Parcel 1 had been treated on August 17, 2015 with 2,4-D and aminopyralid herbicides which are used for selective control of broadleaf weeds. Parcel 2 was undeveloped with the exception of a small road prior construction of the current roadways in the 1960s.

#### **5.2 Past / Present Operations – Adjacent Properties**

Immediately surrounding properties have remained parkland. North of Parcel 1 is an undeveloped, treed hill; at the top of the hill are residential properties. East of Parcel 1 is parkland and the Victoria Golf Course and south of Parcel 1 is the North Saskatchewan River. West of Parcel 1 is Government House Park. Surrounding Parcel 2 is Groat Road to the north and south; Emily Murphy Park Road to the east and service roads to the Mayfair Golf and Country Club to the west. The surrounding road allowances have associated landscaped areas.

#### **5.3 Fill Material**

Possible fill material was observed in the 1962 air photo on Parcel 1; it is possible that fill material was used in the construction of roadways across Site.

#### **5.4 Railway Activities**

A rail spur line was present approximately 100 m north of Parcel 1 according to previous environmental reports obtained from the ESAR database.



## **5.5 Waste Management, Chemicals and Materials Handling**

Small amounts of debris (plastic bags) were observed on Site. Parcel 1 was treated with herbicides on August 17, 2015.

## **6. CONCLUSIONS**

Based on the inspections, assessments, and information reviewed and cited in this report, this Phase I ESA did not encounter any historical or visible evidence indicating that the Site had been impacted by contaminants above the generally accepted levels associated with sites of this nature. However, it is possible that fill materials may have been used to construct the bridge approaches at both parcels. It is not known whether the approaches were constructed with material sourced at the Site, or from imported fill from another location. Sampling and analysis of the fill material was outside the scope of work for the Phase I ESA. If fill materials are identified during the planned excavation and/or regrading activities, it is recommended that these materials be sampled as part of the project.

## **7. REFERENCES**

Kathol, C.P. and McPherson, R.A. 1975. "Urban Geology of Edmonton." Bulletin 32. Alberta Research Council. Edmonton, Alberta.

Bibby, R. 1974. "Hydrogeology of the Edmonton Area (Northwest Segment) Alberta." Report 74-10. Alberta Research. Edmonton, Alberta.



## STATEMENT OF LIMITATIONS AND CONDITIONS

### 1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

### 2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

### 3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

### 4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT THURBER'S WRITTEN CONSENT AND SUCH USE SHALL BE ON SUCH TERMS AND CONDITIONS AS THURBER MAY EXPRESSLY APPROVE. Ownership in and copyright for the contents of the Report belong to Thurber. Any use which a third party makes of the Report, is the sole responsibility of such third party. Thurber accepts no responsibility whatsoever for damages suffered by any third party resulting from use of the Report without Thurber's express written permission.

### 5. INTERPRETATION OF THE REPORT

- a) Nature and Exactness of Soil and Contaminant Description: Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other persons making use of such documents or records with our express written consent should be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) Reliance on Provided Information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) Design Services: The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber should be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design detailed in the contract documents should be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) Construction Services: During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions in order to confirm and document that the site conditions do not materially differ from those interpreted conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

### 6. RELEASE OF POLLUTANTS OR HAZARDOUS SUBSTANCES

Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

### 7. INDEPENDENT JUDGEMENTS OF CLIENT

The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes but is not limited to decisions made to develop, purchase or sell land.



## APPENDIX A

Proposal



**THURBER** ENGINEERING LTD.

December 2, 2015

File: 10298

Dialog  
100, 10237 – 104 Street  
Edmonton, AB, T5J 1B1

Attention: Mr. Neil Robson, P.Eng.

**REHABILITATION OF Groat Road River Bridge  
PROPOSAL FOR GEOTECHNICAL ENGINEERING  
AND ENVIRONMENTAL ASSESSMENT**

Dear Sir:

Further to your request, Thurber Engineering Ltd. (Thurber) is pleased to submit this proposal for the provision of geotechnical engineering and environmental assessment services for the proposed rehabilitation of the Groat Road Bridge over the North Saskatchewan River (B059) and associated road works in Edmonton, Alberta. The scope of services presented in this proposal is based on a review of the Non-Contract Request for Proposal (NRFP) document No. 928888 issued by the City of Edmonton (the City), Addendums 1 through 3, and subsequent discussions with Mr. Neil Robson, P.Eng. of Dialog.

It is a condition of this proposal that Thurber's performance of its professional services will be subject to the attached Statement of Limitations and Conditions.

**1. THURBER CORPORATE PROFILE**

**1.1 Legal Name**

The legal name is: Thurber Engineering Ltd.

**1.2 Company Overview**

Thurber is a private Canadian consulting company wholly-owned by the senior practicing professionals. Thurber was established in 1957 and presently has a staff of about 300, operating out of nine permanent offices in Edmonton, Calgary, Fort McMurray, Saskatoon, Toronto, Ottawa, Vancouver, Squamish, Kamloops and Victoria. The company has a wide base of professional experience in geotechnical and geological engineering; hydrogeological and environmental sciences, pavement design, concrete and asphalt technologies and construction monitoring and testing. Thurber's teams of professionals are well supported by advanced laboratory facilities, specialized field-testing equipment, and innovative field instrumentation capabilities. More detailed information about our company can be found on our website at [www.thurber.ca](http://www.thurber.ca).



Thurber has a well-established strong base of operation in Edmonton with over 100 staff members consisting of engineers, scientists, hydrogeologists and technologists. The Edmonton office also houses an extensive laboratory testing facility with advanced testing capabilities. Over the past 40 years, Thurber's Edmonton operation has served a wide range of clients including provincial government agencies, municipalities, commercial businesses, mining and industrial companies, and prime consultants.

### **1.3 Company Mission and Values**

Thurber's Mission and Values are guided simply by our strong desire to help our clients meet their objectives by providing quality professional services within our areas of technical expertise. As a result, our staff members are led by a core group of senior principals, specialists, and practicing professionals who have many years of practical experience in a variety of technical specialties. They are supported by project engineers and professional staff, as well as by a sizeable team of technologists and scientists. All personnel are thoroughly trained to respond to the clients' needs. Thurber's structure is deliberately set such that principals and senior specialists assigned to a project maintain a significant involvement at every level and stage of the project.

Thurber is committed to striving for the following operating principles on all projects:

- Technical excellence
- Senior level involvement on projects
- Strong technical leadership
- Practical solutions
- Effective communications
- Flexibility and responsiveness
- Single point of project management
- Safety implementation.

## **2. PROJECT UNDERSTANDING**

Following a review of the NRFP document, it is our understanding that the project comprises the following key components:

- The rehabilitation of the Groat Road Bridge over the North Saskatchewan River (B059). This 290 m long, 7 span, concrete girder bridge was built in 1955 and has subsequently undergone some rehabilitation in 1990. The key objectives of the proposed rehabilitation works are to strengthen the bridge structure such that its service life is extended by 75 years, and to replace the bridge deck with a slightly wider HPC deck.



- The rehabilitation of the Groat Road Bridge over Victoria Park Road (B060). This 33 m long, 3 span, concrete girder bridge was built in 1954. The scope of proposed rehabilitation works is limited and aims at extending the service life of the bridge by 50 years.
- The rehabilitation of the Emily Murphy Park Road Bridge over Groat Road (B099). This 59 m long, 3 span, post-tensioned concrete bridge was built in 1963. Only minimal structural repair works are planned for this bridge with the intent of preserving the remaining service life of the bridge.
- Limited reconfigurations of roadways on the north riverbank, including the realignment of the Victoria Park Road westbound to Groat Road northbound merge.

As per the terms of the NRFP, the project scope includes preliminary design, detailed design, pre-construction services, resident engineering and post-construction services.

Further to our discussion, we understand that the proposed upgrades to the river bridge (B059) could result in additional loading on the abutment bridge foundations, but not on the pier foundations. The proposed rehabilitation works for the Victoria Park Road bridge (B060) and the Emily Murphy Park Road bridge (B099) will not exert any additional loading on the bridge foundations and will not require any geotechnical assessments.

The proposed realignment of the westbound Victoria Park Road to northbound Groat Road will require the construction of retaining walls and embankment fills and up to about 2 m high in some locations. As per our discussion, the retaining walls will likely comprise reinforced concrete, cantilever structures. Some of the proposed embankment fills will be placed on the north slope of the North Saskatchewan River valley, which experienced slope instabilities in the past. These instabilities affected, primarily, the valley slope uphill (north) of the Victoria Park Road. The remainder road modifications will involve limited grading works on the river terrace at the bottom of the valley slope. We understand that the design of pavement structures will be carried out by the City.

### **3. KEY CONSIDERATIONS AND METHODOLOGY**

Based on our discussion, we understand that Thurber's scope of work will comprise geotechnical engineering services for the river bridge and road works, and some limited environmental assessments. Brief discussions of key considerations and elements of our scope of work are presented below.

In 2005, Thurber conducted a geotechnical review to assess the feasibility of exerting additional loading onto the existing pier foundations of the Groat Road River bridge. The assessment was based on information from test holes advanced in 1953 during bridge design. The available information was very limited and of poor quality. It indicated that the bridge piers were supported on spread footings resting on the top surface of the bedrock at some 3 to 4 m below riverbed, and that the abutments were founded on pile foundations. As the design of the rehabilitation works progresses, it is important that better quality geotechnical data is gathered to support a detailed evaluation of the capacity of the existing foundations. Assuming that the increase in



foundation loading is very limited, we recommend that one deep test hole be advanced at each abutment to better characterize the bedrock condition. A discussion of the proposed geotechnical investigation program is provided in Section 4.1. The prime consultant should also consider undertaking underwater visual inspection of the pier footings and scour conditions.

The proposed fills for the realignment of the westbound Victoria Park Road are generally limited (up to about 2 m in height) and will be located further back from the crest of the valley slope. Hence, they may have only a limited impact on the stability of the valley slope. A due diligence desktop review of existing information and a limited scope slope assessment will be carried out to evaluate the risk of slope instabilities as a result of loading induced by the proposed fills. Two 18 m deep test holes will be advanced along Victoria Park Road to support the slope assessment and the design of retaining wall foundations. For the remainder road works, shallow test holes will be advanced to characterize the subgrade conditions for roadway and pavement designs. A description of the scope of the proposed geotechnical investigations is presented in Section 4.1.

As per the NRFP requirements, a Phase I environmental site assessment (ESA) for the three bridges will be carried out, as discussed in Section 4.2.

#### **4. WORK PLAN**

As per our discussion, Thurber's scope of work will comprise geotechnical investigation, and environmental assessment. A brief description of the proposed scope of work is presented in the following subsections.

##### **4.1 Geotechnical Investigation**

###### **4.1.1 Review of Existing Information and Site Reconnaissance**

A brief review of available existing information (e.g. previous geotechnical investigations in the area, published geologic maps, topographic data, aerial photos, City of Edmonton records of previous instabilities of the north river valley slope, etc.) will be undertaken at the early stages of the project. The review will help us develop a better understanding of the geotechnical and geologic conditions at the site, assess the stability condition of the valley slopes near Victoria Park Road, and plan the site investigation program.

A site reconnaissance will subsequently be carried out by the project engineer to assess the site and ground conditions and to confirm the key findings of the desktop review. Test hole locations will be selected during the site reconnaissance based on access conditions.



#### 4.1.2 Field Investigations

A drilling program consisting of the following test holes will be undertaken to characterize the subsurface conditions at the project site.

PROJECT COMPONENT	NUMBER OF TEST HOLES	TEST HOLE DEPTH (m)
Groat Road River Bridge (Auger/Coring)	2	25
Westbound Victoria Park Road Reconfiguration (Auger)	2	18
Other Roadway Modifications (Auger)	4	3

The drilling program for the bridge will comprise two test holes; one test hole at the location of each existing abutment. We propose to drill these test holes with a combination of auger and wet rotary coring methods. The test hole will be advanced to the bedrock elevation using auger methods. Disturbed soil samples will be obtained for routine laboratory testing, and Standard Penetration Tests (SPT's) will be performed at selected depths. Shelby tube samples will be obtained at selected depths for advanced laboratory testing. At the bedrock level, wet rotary and coring methods will be used to obtain continuous core samples of the bedrock. The Rock Quality Designation (RQD) and core recovery values will be recorded in the field to assess the quality of the rock mass. The core samples will be transferred to our Edmonton laboratory for detailed logging and laboratory testing. The test holes will be advanced to the specified depth of 25 m below existing ground.

The remainder of the test hole drilling program (as specified in the above table) will be undertaken using a track mounted drill rig equipped with solid and hollow stem augers. The test holes will be advanced to the specified depths, or to auger refusal, whichever occurs first. Disturbed soil samples will be collected at regular depth intervals and SPT's will be performed at selected depths. Shelby tube samples will also be obtained at selected locations.

Groundwater levels in the test holes will be monitored during drilling and upon drilling completion. Slotted 25 mm diameter PVC standpipe piezometers will be installed in all test holes for future monitoring of groundwater levels. Groundwater levels will be monitored two weeks after the completion of borehole drilling, and once again two weeks later.

Thurber will contact Alberta One-Call prior to the start of the field drilling program for clearance of underground utilities, and will obtain required work permits from the City (e.g. ULA and OSCAM permits) to commence the geotechnical investigation. Thurber will also prepare and an Initial Project Review (IPR) for drilling test holes within the North Saskatchewan River Valley, as dictated by City Bylaws.

Where lane closure is required, Thurber will arrange with the City's Traffic Operations department for the installation of traffic signage and barricades.



#### 4.1.3 Laboratory Testing

Following the completion of test hole drilling, a laboratory testing program will be undertaken for the classification and evaluation of the engineering properties of the encountered soils and bedrock. The laboratory program will comprise visual descriptions of all soil and bedrock samples/cores, moisture content tests, grain size analyses, Atterberg Limits, unconfined compressive strength tests, uniaxial compressive strength tests of rock core samples, and water soluble sulphate tests.

#### 4.1.4 Engineering Assessment and Reporting

The findings of the geotechnical investigation will be presented in a geotechnical report that will summarize the field and laboratory testing methodologies, test results, and descriptions of encountered subsurface soil, bedrock and groundwater conditions. The report will also present geotechnical engineering assessments and recommendations that will address the following issues:

- Adequacy of existing abutment pile foundations of the river bridge to resist additional structural loads associated with the proposed repair/upgrade works. As requested, this assessment will not address the adequacy of the pier footings.
- General assessment of the stability condition of the river valley slope near the proposed fills of the westbound Victoria Park Road to northbound Groat Road.
- Geotechnical design recommendations for reinforced concrete retaining walls.
- Design and construction recommendations for the proposed roadway modifications.

#### 4.2 Phase I Environmental Site Assessment (ESA)

As per your request, Thurber's environmental scope of work will be limited to conducting a single Phase I Environmental Site Assessment covering the three areas identified in the Project Location Plan, as provided in the NRFP.

The Phase I ESA reports will be conducted in general accordance with the Canadian Standards Association (CSA) Standard Z768-01. The Phase I ESA will include the following:

- Review of site history
- Site reconnaissance
- Assessment and report preparation.

Thurber will require a signed Release form from the City prior to the commencement of the Phase I ESA. This Release is necessary in order for Thurber to access information held by municipal and provincial agencies as well as documents held by third parties.



#### 4.2.1 Review of Site History

The purpose of the historical reviews is, ultimately, to assist with the site reconnaissance of the land parcels at and around the bridge sites. The site history will include:

- i) Obtain and compare air photographs taken over a period of years to check prior usage, and adjacent land use.
- ii) Perform a land titles search to identify past owners of each parcel.
- iii) Contact government and local municipalities (i.e. environmental, planning and development, and taxation) regarding records of compliance to laws and local bylaws.
- iv) Review relevant reports and any other information related to the parcels provided to Thurber by the prime consultant and/or the City.

#### 4.2.2 Site Reconnaissance

A site reconnaissance of the land will be undertaken to reflect the environmental site conditions on the parcels at the time of the assessment and will include an interview with personnel, if available, who are familiar with the parcels. Through the interview and reconnaissance process, Thurber will endeavour to achieve a good understanding of current and past site activities to identify locations of potentially contaminated areas on each parcel (if any).

Collection of soil, groundwater or air samples for laboratory chemical analyses will not be performed during this phase of the investigation.

It is assumed that the necessary authorization to access the parcels will be provided by the prime consultant or the City.

#### 4.2.3 Environmental Reporting

The results of the Phase I ESA will be presented in a stand-alone report. Thurber follows the following format for Phase I ESA reports:

- i) Executive Summary
- ii) Introduction
- iii) Site Description
- iv) Site History
- v) Assessment
- vi) Conclusions.



## 5. PROJECT TEAM

On the geotechnical side, the key personnel of our project team are Mr. Robin Tweedie, Dr. Hassan El-Ramly, and Mr. Stephen Coulter. All of the three nominated individuals have worked extensively in the Edmonton area and have significant expertise in transportation and bridge projects, as well as landslide mitigation and slope assessments. On the environmental side, our key personnel are Messrs. Neal Fernuik and Michael Halliwell.

Resumes of our key team members are attached to this letter. Brief descriptions of their experiences are provided in the following text.

**Mr. Robin Tweedie, P.Eng.**, is our nominated corporate sponsor for the project. He will provide expert advice and conduct geotechnical engineering reviews on an as needed basis.

Mr. Tweedie has over 35 years of experience in geotechnical engineering involving numerous highway and bridge projects. He conducted the preliminary geotechnical assessment of the existing foundations of the Groat Road river bridge and is familiar with the geotechnical and geologic conditions in the general project area. He had also conducted detailed geotechnical evaluations for several bridge crossings of the North Saskatchewan River in the Edmonton area, including the Cloverbar Bridge, the Fort Edmonton Foot Bridge, the Dudley Menzies LRT Bridge and the Buena Vista Pedestrian Bridge. In addition, he conducted slope assessments and setback studies for several areas along the banks of the North Saskatchewan River.

**Dr. Hassan El-Ramly, P.Eng.**, is our nominated review engineer for the project. Dr. El-Ramly will carry out senior level engineering reviews and will participate in meetings with the prime consultant and the City of Edmonton.

Dr. El-Ramly has over 26 years of experience in infrastructure and transportation projects. He undertook the detailed geotechnical evaluations for the replacement Waltherdale Bridge and the preliminary assessments for the proposed LRT Valley Line river bridge. Dr. El-Ramly has been our lead review engineer for the Northwest and Northeast legs of the Anthony Henday Drive, and the Anthony Henday Drive Interchanges at Stony Plain/100<sup>th</sup> Avenue, Callingwood Road, and Lessard Road. He also provided significant geotechnical support to the prime consultants during construction of the Fort Edmonton Foot Bridge and the 23<sup>rd</sup> Avenue and Calgary Trail/Gateway Boulevard Interchange. Dr. El-Ramly also conducted the geotechnical studies for the Red Deer River Bridge of the North Highway Connector Project in Red Deer.

**Mr. Stephen Coulter, P.Eng., P.E.**, is our nominated senior geotechnical engineer for the project. Mr. Coulter will coordinate the site investigation programs and will lead the analytical work and engineering assessments, assisted by other Thurber geotechnical staff as required.

Mr. Coulter has over 13 years of geotechnical engineering experience. Recently he has been involved with numerous City of Edmonton bridge and infrastructure projects, including the Mechanized River Valley Access Project, the Terwillegar Park Footbridge, and the 50 Street/Sherwood Park Overpass Rehabilitation.



**Mr. Neal Fernuik, P.Biol., P.Eng.** is our nominated environmental review for this project. Mr. Fernuik will provide oversight to the environmental aspects of Thurber's work and a review of the environmental reports.

Mr. Fernuik is a Professional Biologist (P.Biol.) and Professional Engineer (P.Eng.) with over 30 years of environmental experience. Mr. Fernuik has been with Thurber since 1988 and during that time has progressed to become a Principal of the firm. Mr. Fernuik has extensive experience in environmental assessments in the Edmonton area including for Terwillegar Park, Sir Wilfred Laurier Park, Beuna Vista Park, the 23 Avenue / Calgary Trail / Gateway Boulevard Interchange, MacEwan University City Centre Campus development and numerous bridge rehabilitations.

**Mr. Michael Halliwell, CESA, EP, P.Eng** is our nominated environmental engineer for this project. Mr. Halliwell is a Professional Engineer (P.Eng.) with over 15 years of environmental site assessment experience. Since joining Thurber in 2000, Mr. Halliwell has completed more than 150 Phase I ESA's as well as numerous Phase II and III ESAs and remediations. Mr. Halliwell also carries out HBMS work for Thurber and has had his asbestos exposed worker certification since 2003.

## 6. ASSUMPTIONS

In developing the scope of work described in Section 4 and the associated cost estimate (presented in a separate letter), the following assumptions were made.

- Thurber will have no involvement in post design stages (i.e. tender preparation, construction, etc.), except for QA materials testing on a per-request basis.
- Thurber's participation in value engineering, risk management, constructability, and partnering sessions is not required.
- Borehole drilling will be undertaken in the winter/spring of 2016 using track-mounted drill rigs.
- Survey information including coordinates and ground elevations at borehole locations, plan/profile drawings of the bridge and approach roads, and contour plan of river valley slopes will be provided by the prime consultant for our use in preparing the geotechnical report.
- Any required permissions and approvals to access borehole locations will be acquired by others.
- Prior to borehole drilling, Thurber will arrange for required utility clearances and work permits, including ULA and OSCAM permits, and will prepare an Initial Project Review (IPR) to the City's requirements.
- At the completion of drilling, Thurber will arrange for all drill cuttings to be removed off-site.



- No assessment of the bridge pier footings will be undertaken as part of this investigation.

## **7. CORPORATE EXPERIENCE**

Thurber has extensive experience working on large transportation projects both in Alberta and across Canada, including many bridge crossings of major rivers. Thurber has also collaborated and enjoyed a constructive working relationship with the City of Edmonton on numerous projects over the past four decades. A brief list of selected recent projects is presented in the following subsections.

Of special note, Thurber previously carried out the geotechnical investigation for the widening of three kilometres of the Whitemud Drive from 53 Avenue to 149 Street. The project included upgrading the existing Whitemud Drive from a divided four lane arterial to a divided six lane arterial, widening of the existing Quesnell Bridge, and constructing a new Fox Drive Overpass Bridge to accommodate the additional lanes.

### **7.1 Projects Involving Major River Crossings**

- Dudley Menzies LRT Bridge over the North Saskatchewan River, Edmonton
- Highway 16 crossing of the North Saskatchewan River (Cloverbar Bridge) Edmonton
- Fort Edmonton Foot Bridge across the North Saskatchewan River, Edmonton
- Buena Vista Pedestrian Bridge across the North Saskatchewan River, Edmonton
- Highway 22 crossing of the North Saskatchewan River, southwest of Drayton Valley, Alberta
- Highway 43 Twinning through Whitecourt including, new bridges over McLeod River and Athabasca River
- Highway 63 improvements through Fort McMurray including a new bridge over the Athabasca River
- Highway 40:30 crossing of the Athabasca River, northwest of Hinton
- Bridge crossing of North Highway Connector Project over the Red Deer River, City of Red Deer
- Deh Cho Bridge Crossing of the McKenzie River near Yellowknife, NWT.

### **7.2 Projects Completed for the City of Edmonton**

- Whitemud Drive and Quesnell Bridge Widening Project



- 23 Avenue and Gateway Boulevard / Calgary Trail Interchange
- Edmonton SLRT Phase 1 Central Station to Corona Station tunnels
- Edmonton SLRT Phase 2 South Portal to University Station, including LRT tunnels, portals, river valley structures, and University Station.
- Edmonton SLRT Phase 3 preliminary geotechnical investigation for twin tunnels and Health Sciences Station.
- West Edmonton Sanitary Sewer Stage W12 River Crossing
- 23rd Avenue Interchange Drainage Tunnel
- Interchange at Highway 14 and Whitemud Drive
- Whitemud Drive extension from 34 Street to 17 Street
- Terwillegar Park Footbridge and Trails
- Mechanized River Valley Access Project.

## 8. ESTIMATED COST

The estimated cost (excluding GST) to complete the scope of work described in Section 4 is presented in the accompanying letter titled "Groat Road Bridge Rehabilitations – Cost Estimate for Geotechnical Engineering and Environmental Assessment".

## 9. CLOSURE

We look forward to working with you on this project. Please do not hesitate to contact us if you require further information.

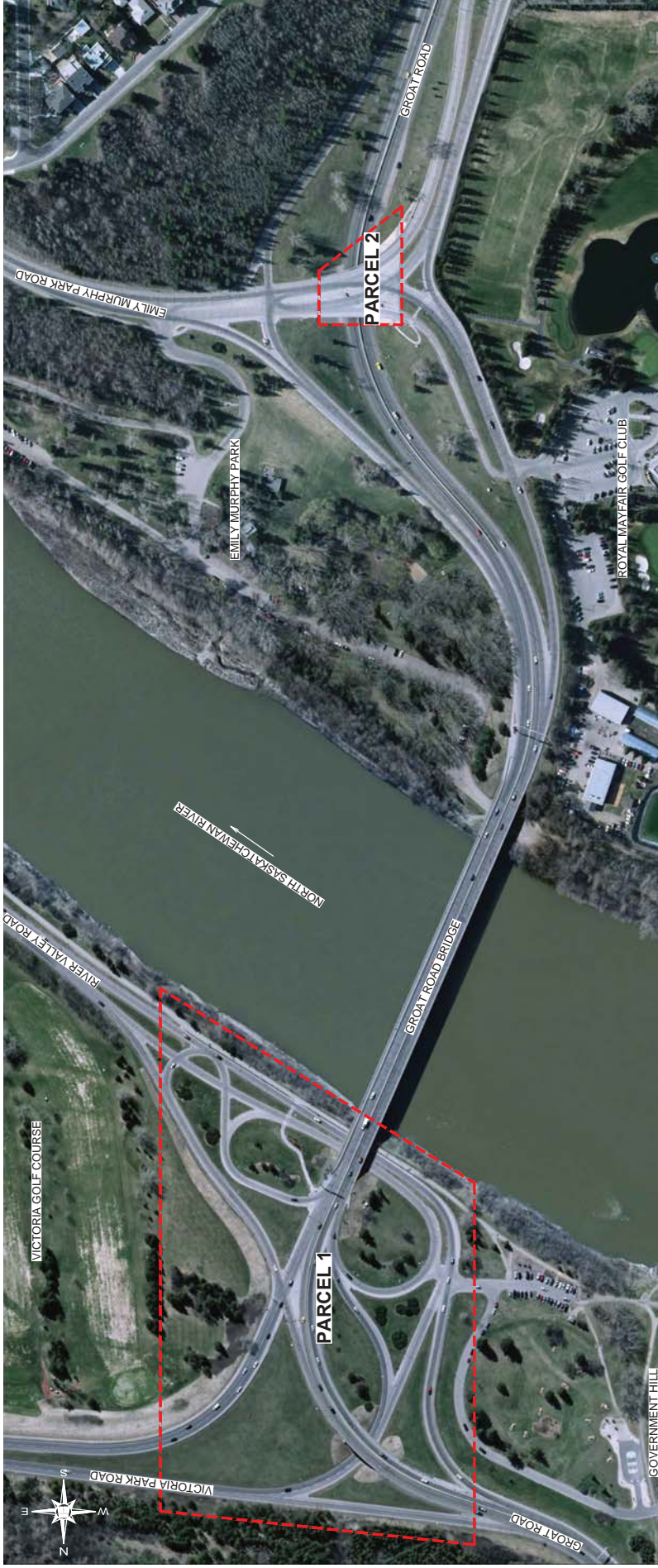
Yours very truly,  
Thurber Engineering Ltd.  
Hassan El-Ramly, Ph.D., P.Eng. HER  
Review Principal

Stephen Coulter, P.Eng., P.E.  
Project Engineer  
/lg



## APPENDIX B

Drawing



LEGEND  
 --- APPROXIMATE SITE BOUNDARIES



BASE PLAN PROVIDED BY CITY OF EDMONTON TRANSPORTATION DEPARTMENT



GROAT ROAD BRIDGE REHABILITATION  
 PHASE I ENVIRONMENTAL SITE ASSESSMENT

PROJECT LOCATION PLAN

DWG No. 10298-1B

DRAWN BY	KLW
DESIGNED BY	JLM
APPROVED BY	CAC
SCALE	1:3000
DATE	APRIL 2016
FILE No.	10298



THURBER ENGINEERING LTD.



## **APPENDIX C**

Historical Air Photos




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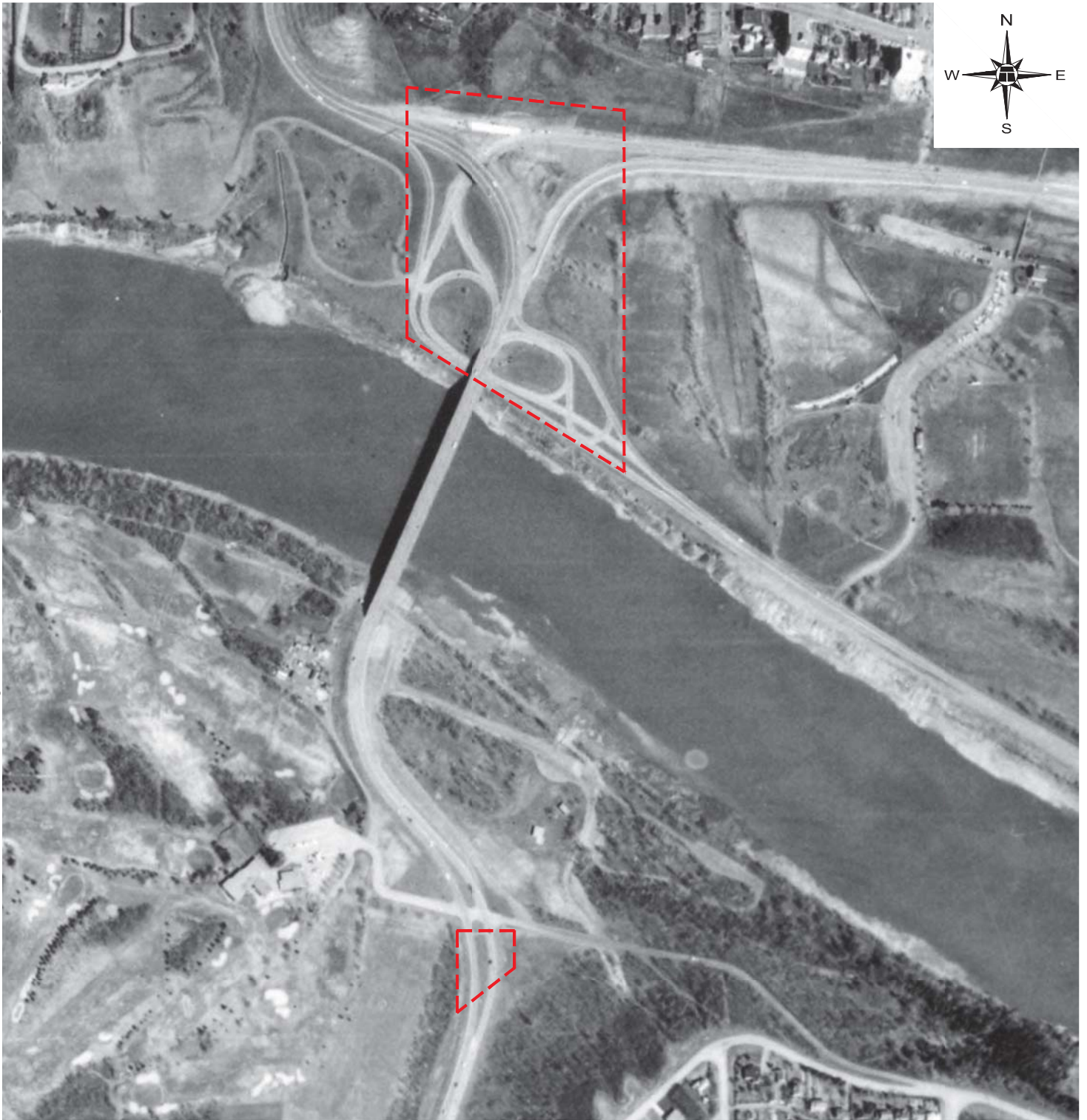


APPROXIMATE SITE BOUNDARY



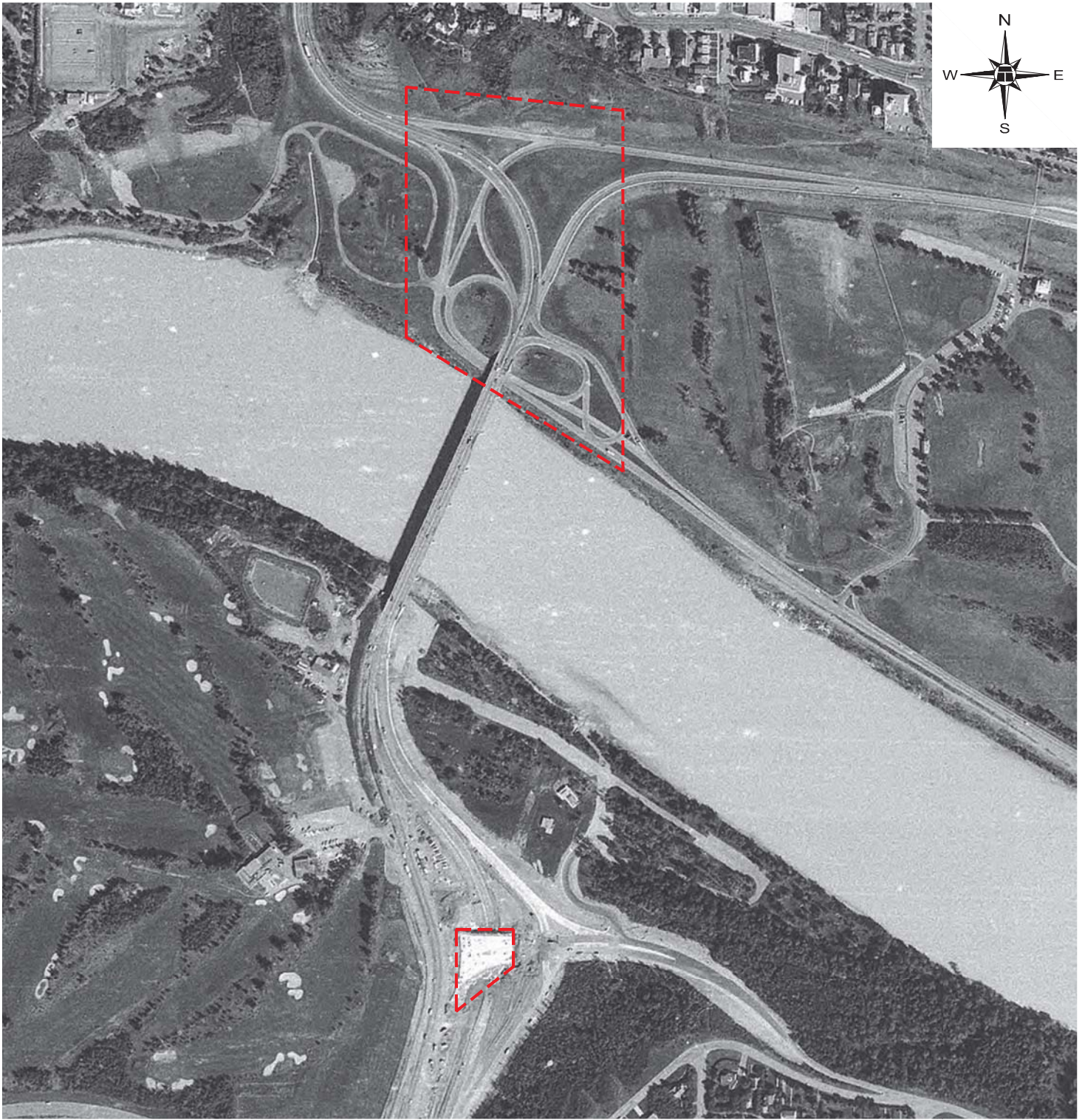
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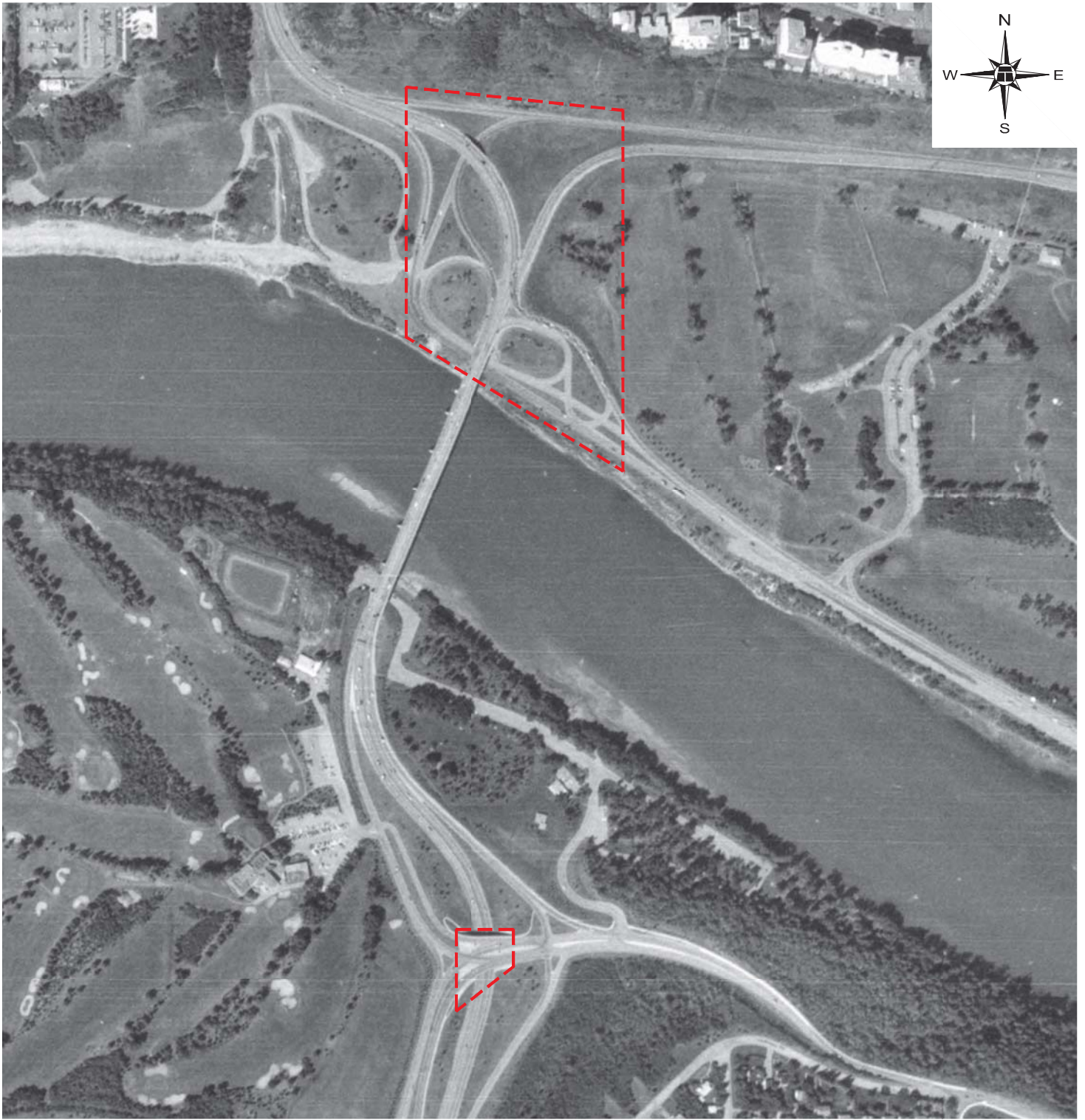
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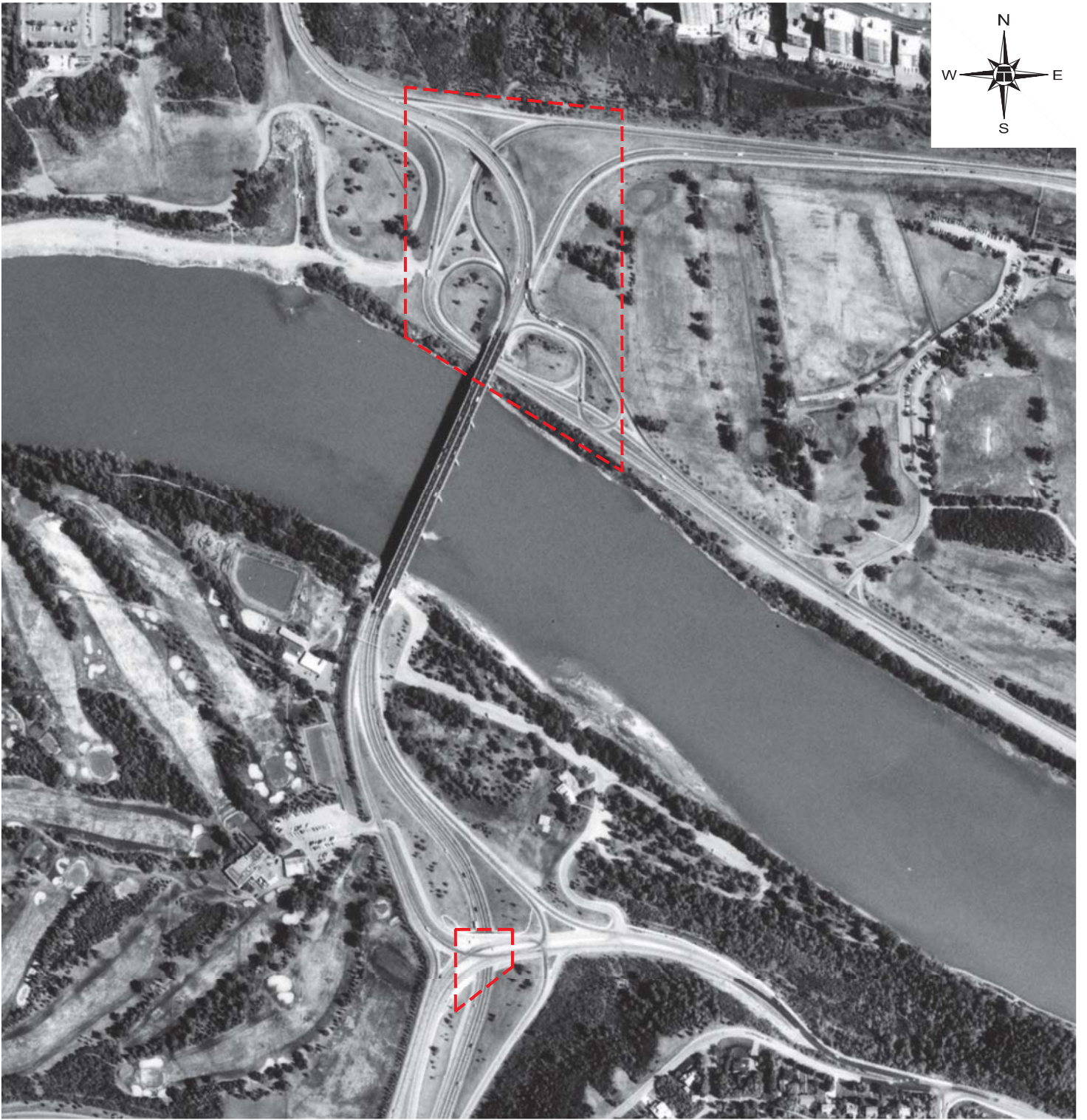
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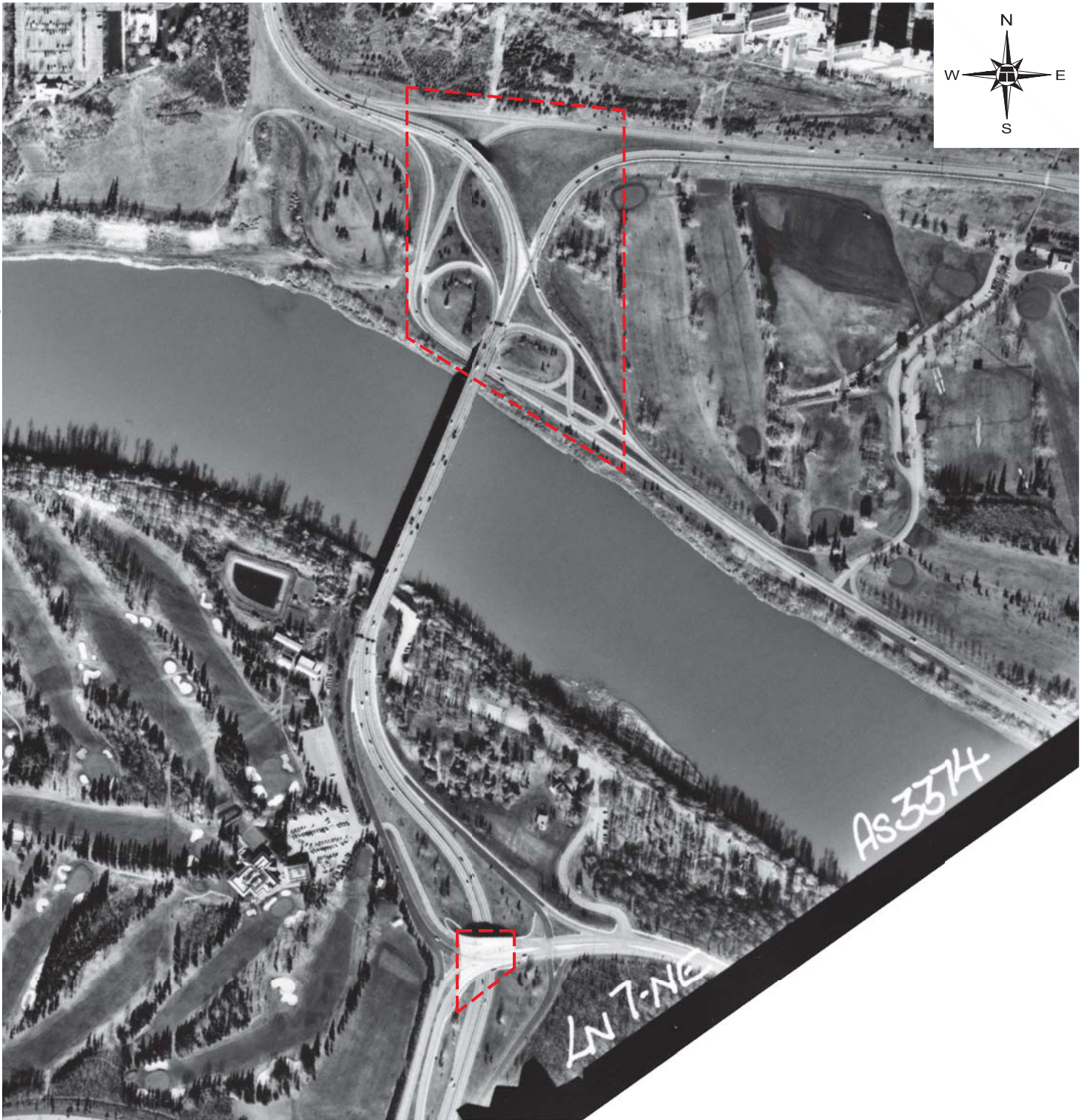
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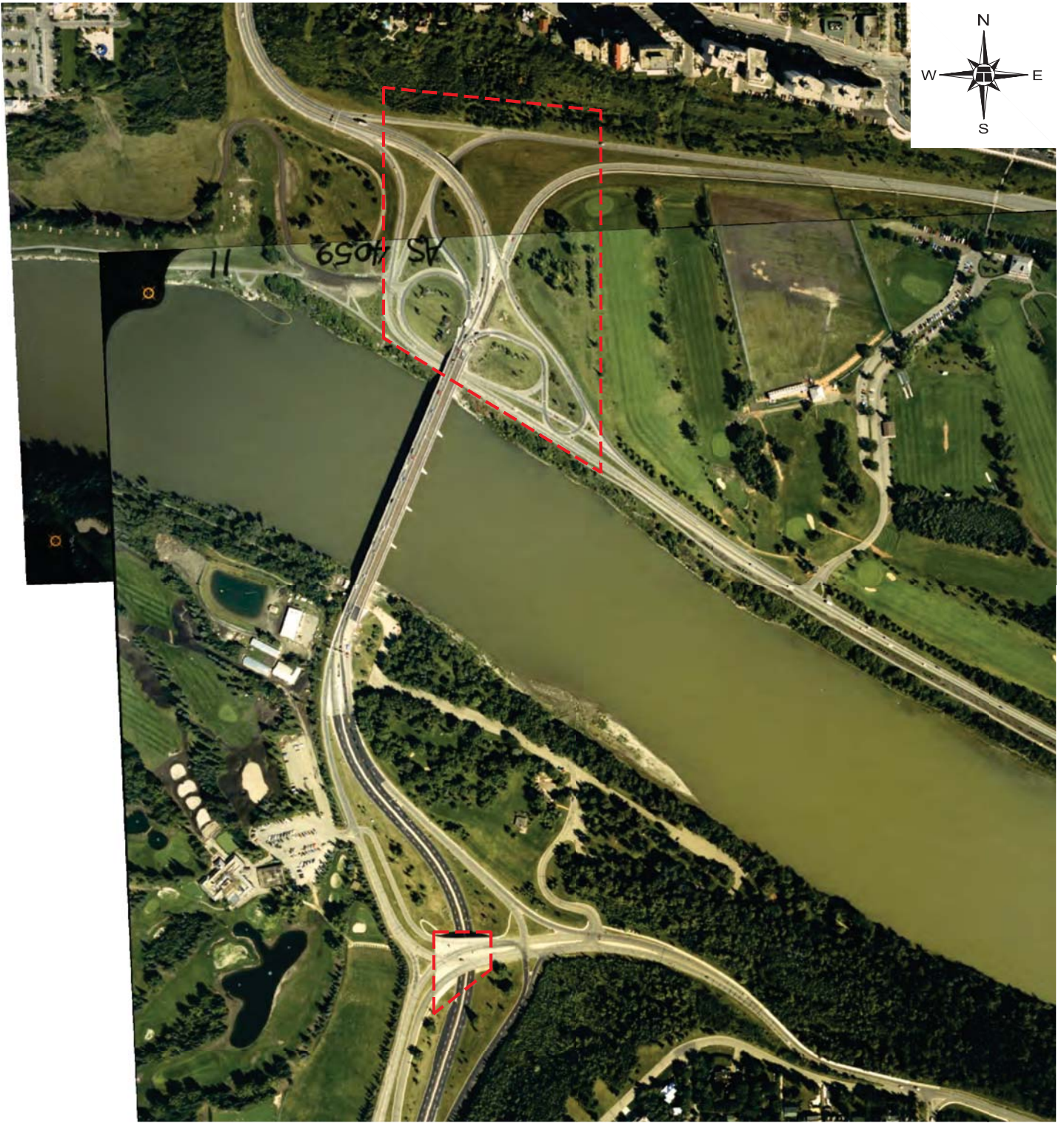
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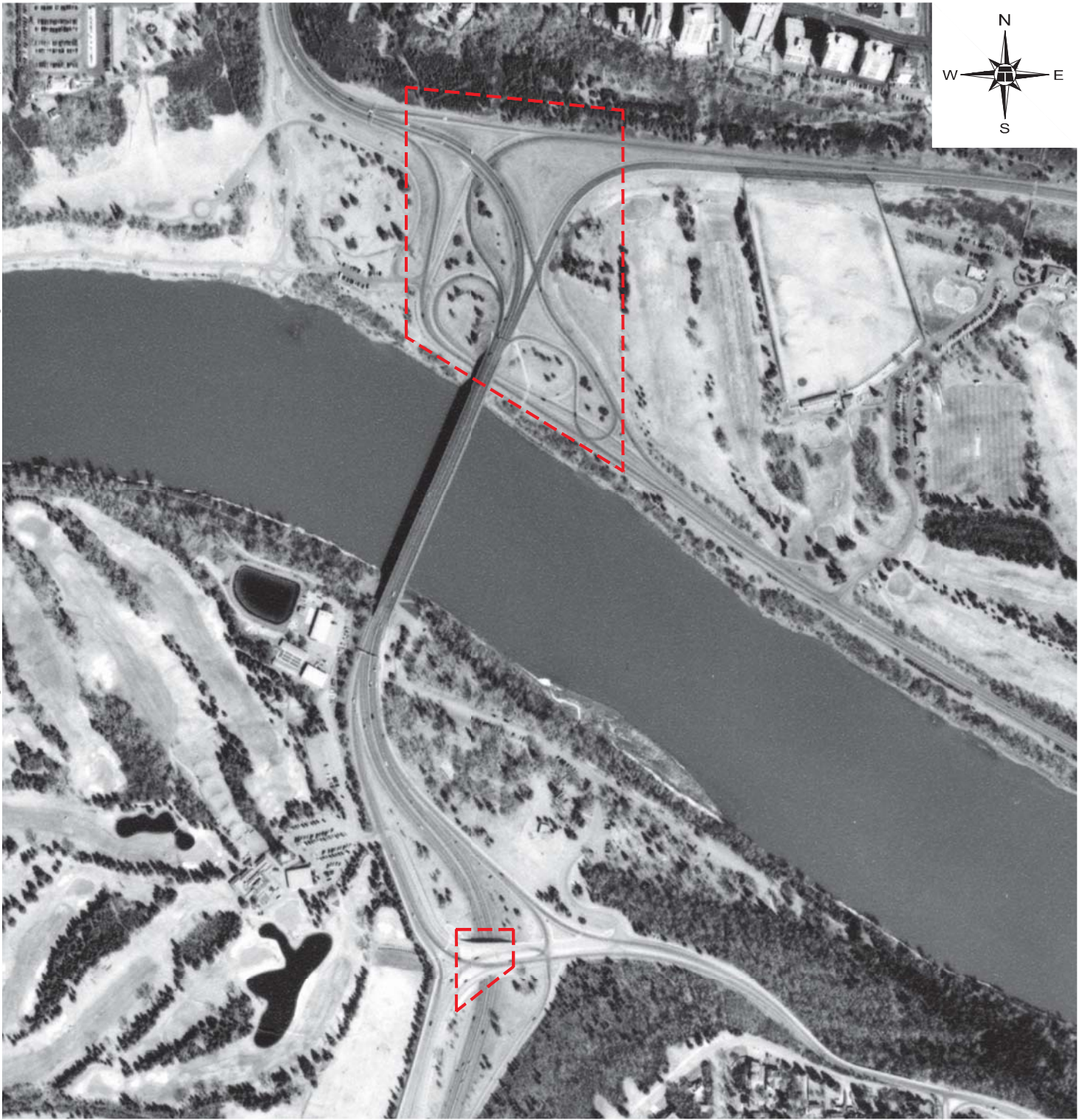
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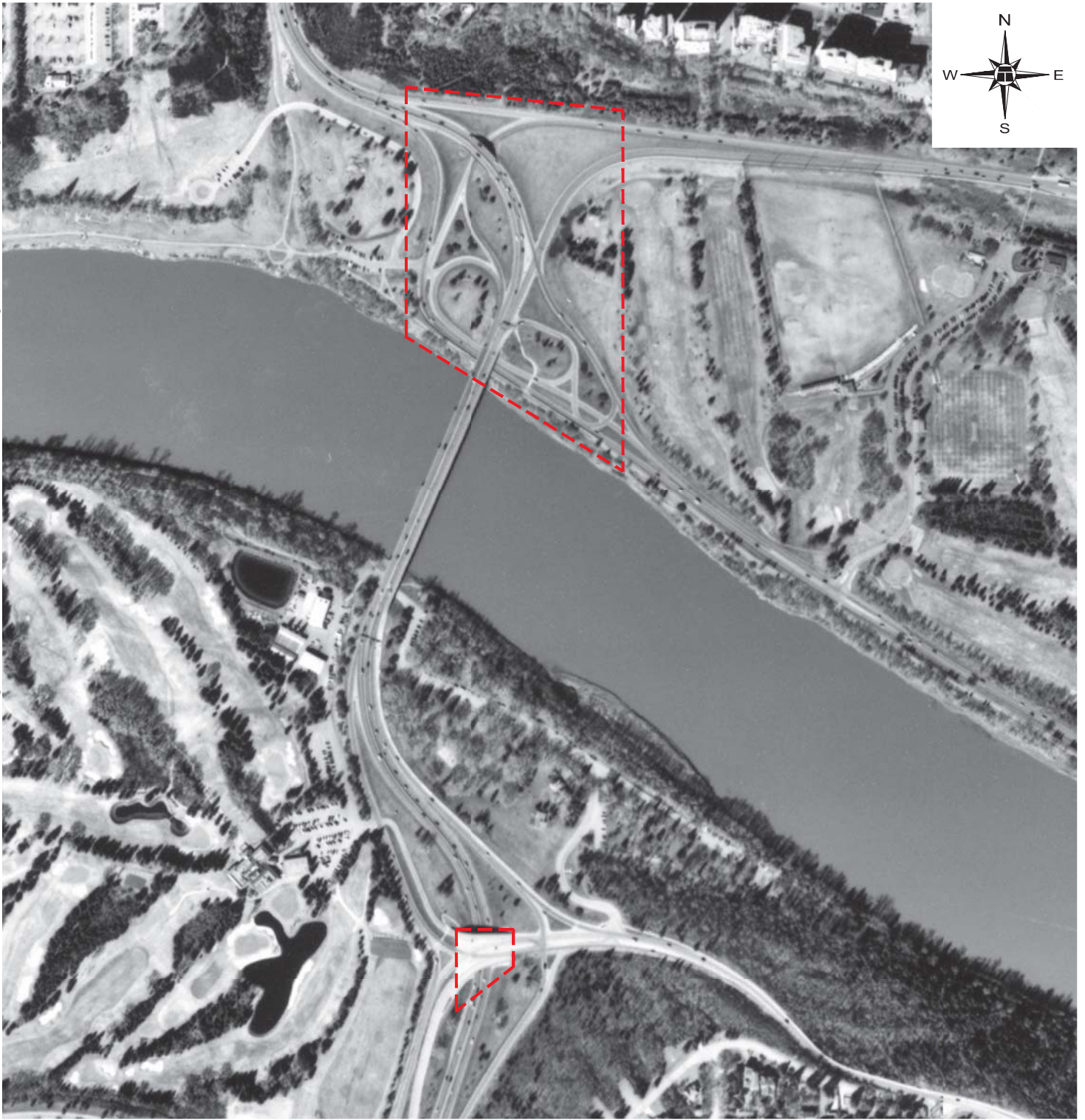


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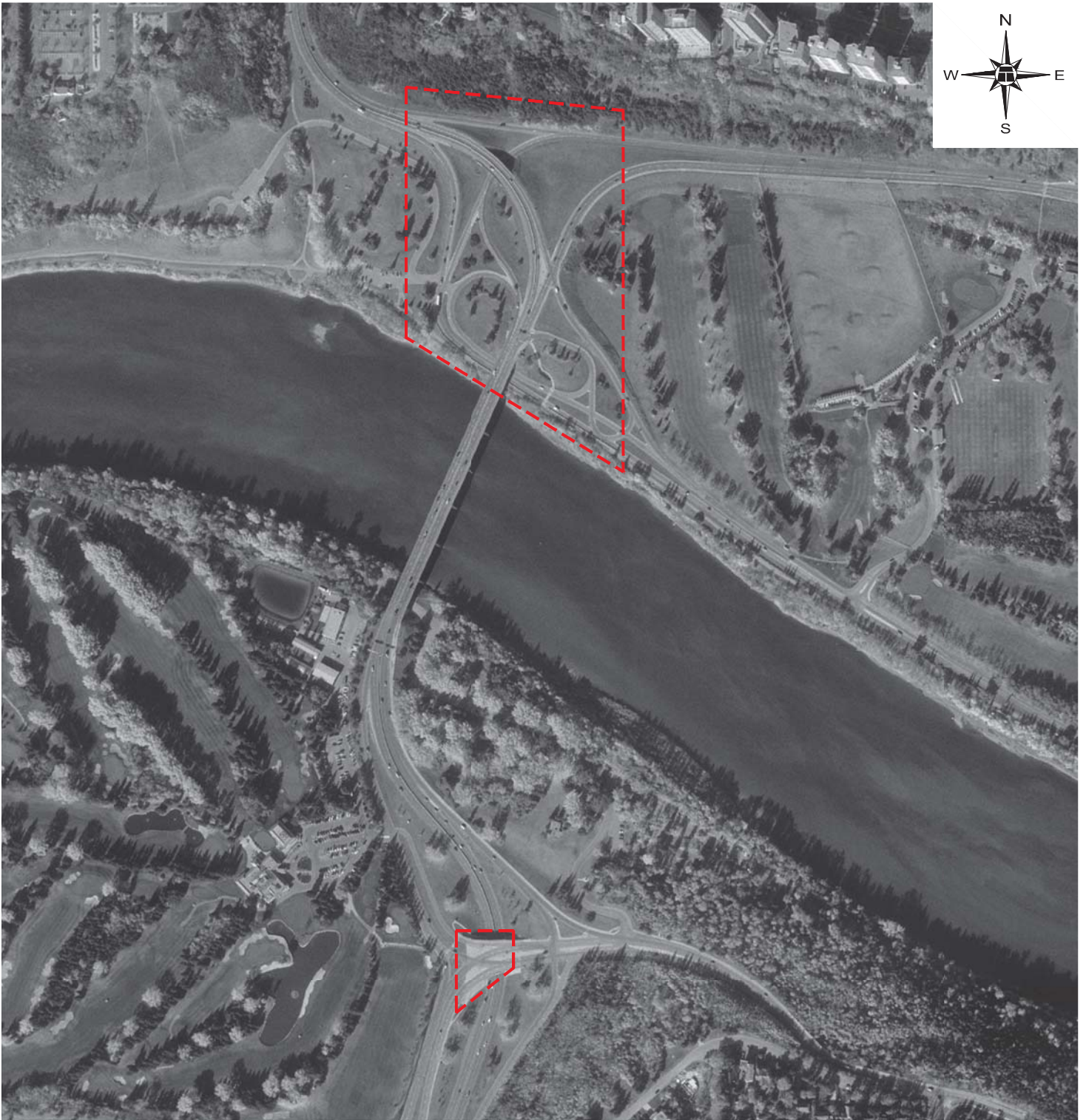
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APPROXIMATE SITE BOUNDARY



## **APPENDIX D**

Agency Responses



## Petroleum Tank Management Association of Alberta

Suite 980, 10303 Jasper Avenue  
Edmonton, Alberta T5J 3N6  
PH: (780)425-8265 or 1-866-222-8265  
FAX: (780)425-4722

March 17, 2016

Jackie Maxwell  
Thurber Engineering Ltd.  
4127 Roper Road  
Edmonton, AB  
T6B 3S5

Dear Jackie Maxwell:

As per your request, the PTMAA has checked the registration of active tank sites and inventory of abandoned tank sites and there are no records for the properties with the legal land description:

NW & SW 31-052-24-W4, Edmonton  
Plan RN22C, Block 35, Lots 4-11, Edmonton

Please note that both databases are not complete. The main limitation of these databases is that they only include information reported through registration or a survey of abandoned sites completed in 1992 and should not be considered as a comprehensive inventory of all past or present storage tank sites. The PTMAA cannot guarantee that tanks do not or have not existed at this location. Information in the databases is based on information supplied by the owner and the PTMAA cannot guarantee its accuracy. Information on storage tanks or on past or present contaminant investigations may be filed with the local Fire Department or Alberta Environment.

Yours truly,

*Tonnie Jacobsen*  
PTMAA



## Petroleum Tank Management Association of Alberta

Suite 980, 10303 Jasper Avenue  
Edmonton, Alberta T5J 3N6  
PH: (780)425-8265 or 1-866-222-8265  
FAX: (780)425-4722

March 17, 2016

Jackie Maxwell  
Thurber Engineering Ltd.  
4127 Roper Road  
Edmonton, AB  
T6B 3S5

Dear Jackie Maxwell:

As per your request, the PTMAA has checked the registration of active tank sites and inventory of abandoned tank sites and there are no records for the properties with the legal land description:

Plan RN22C, Block 38, Lots 1-7, Edmonton  
Plan Edmonto, Lot 2, Edmonton

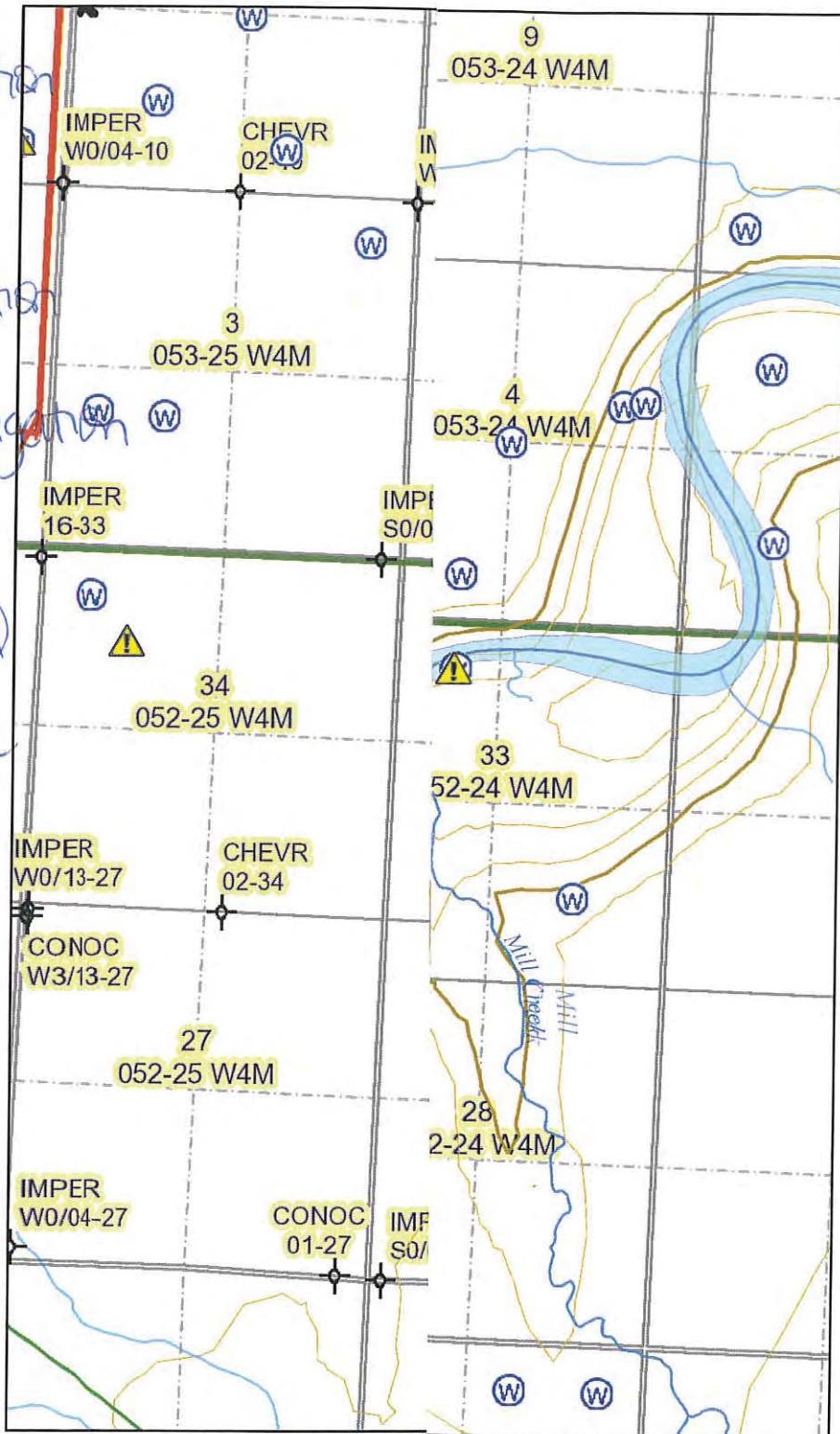
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Yours truly,

*Tonnie Jacobsen*  
PTMAA

# GROAT ROAD BWITHIN 1 KM

- 75108 - Investigation
- 75109 - "
- 75110 - "
- 293366 - Irrigation
- 367 - "
- 79271 - Investigation
- 81615 - Stock
- 79270 - Industrial
- 75061 - Domestic



Thursday, March 17, 2016

79272 - Industrial (1953)



# Water Well Information

## WATER WELL # 79272

<b>Location:</b>	13-31-052-24 W4M	<b>Location Obtained By:</b>	Not Verified
<b>Latitude / Longitude:</b>	53.539353 -113.537990	<b>GPS Obtained By:</b>	Not Verified
<b>Elevation:</b>	2288.00 ft	<b>Elevation Obtained By:</b>	Estimated
<b>Distance:</b>	1200.00 ft From North Boundary		
<b>Lot / Block / Plan #:</b>			
<b>Additional Information:</b>			
<b>Comments:</b>			
<b>Method of Drilling:</b>	Drilled	<b>Type of Work:</b>	Structure Test Hole
<b>Depth Drilled:</b>	1145.00 ft	<b>Finished Depth:</b>	
<b>Date Work Started:</b>	August 19, 1953	<b>Date Work Completed:</b>	August 19, 1953
<b>Proposed Use:</b>	Industrial	<b>Date Received:</b>	
<b>Top of Casing to Ground:</b>		<b>Chemistries on Record:</b>	0
<b>Artesian Well?</b>	No	<b>Artesian Flow Rate:</b>	
<b>Flow Control Installed?</b>	No		
<b>Recommended Pump Rate:</b>		<b>Recommended Intake Depth:</b>	
<b>Pump Installed?</b>	No	<b>Pump Depth:</b>	
<b>Saline Water Encountered?</b>	No	<b>Saline Water Depth:</b>	
<b>Well Disinfected?</b>	No	<b>Potability Sampled/Sent?</b>	No / No
<b>Gas Encountered?</b>	No	<b>Gas Depth:</b>	
<b>Gamma Log Taken/Sent?</b>	No / No	<b>Electric Log Taken/Sent?</b>	Yes / Yes



FINANCIAL SERVICES  
AND UTILITIES

OFFICE OF THE CHIEF FINANCIAL  
OFFICER & TREASURER  
5TH FLOOR, CHANCERY HALL  
3 SIR WINSTON CHURCHILL SQUARE  
EDMONTON, ALBERTA  
T5J 3A3

April 8, 2016

File No.: 71-020-008-001  
Search ID: 3753

Jackie Maxwell  
Thurber Engineering Ltd.  
4127 Roper Road  
Edmonton, Alberta  
T6B 3S5

Dear Sir/Madam:

ADDRESS  
SUBJECT: Groat Road Bridge

LEGAL  
Portion of N.W. 1/4 31-52-24-4

In response to your recent inquiry, our limited records do not identify a former landfill or dump site on or within a 500 metre radius of the subject property. Please note that this information is provided without prejudice and the onus is on the developer/owner to verify by site tests the suitability of the property for their intended use of it. The search area is restricted to sites within the City of Edmonton's boundaries.

Sincerely,

Mark Demers  
Supervisor of GIS Mapping  
Utility Services

Enclosure



FINANCIAL SERVICES  
AND UTILITIES

OFFICE OF THE CHIEF FINANCIAL  
OFFICER & TREASURER  
5TH FLOOR, CHANCERY HALL  
3 SIR WINSTON CHURCHILL SQUARE  
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Sincerely,

A handwritten signature in black ink, appearing to read "Mark Demers".

Mark Demers  
Supervisor of GIS Mapping  
Utility Services

Enclosure

April 5, 2016

Ms. Jackie Maxwell  
Thurber Engineering Ltd.  
4127 Roper Road NW  
Edmonton Alberta T6B 3S5



Fax: (780) 437-7125

Your File #: 10298

Access Request: E16-G-0488

Dear Ms. Maxwell,

**Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at W Sec 31 Twp 52 Rge 24 W4M, Edmonton, AB.**

The following is in response to your request of March 17, 2016 for access under the *Freedom of Information and Protection of Privacy Act* to the subject records.

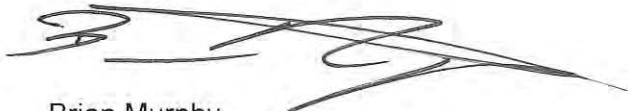
A search of Alberta Environment and Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your request, please write to the above address or call me at **(780) 638-3799**, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, you have the right to ask the Information and Privacy Commissioner to conduct a review under section 65 of the Act. You have 60 days from the receipt of this notice to request a review by writing to:

Information and Privacy Commissioner  
410, 9925 - 109 Street  
Edmonton, Alberta, T5K 2J8  
Telephone (780) 422-6860  
Fax (780) 422-5682

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

Sincerely,



Brian Murphy,  
Access & Privacy Advisor



April 5, 2016

Ms. Jackie Maxwell  
Thurber Engineering Ltd.  
4127 Roper Road NW  
Edmonton Alberta T6B 3S5

Fax: (780) 437-7125

Your File # 10298

Dear Ms. Maxwell,

**Re: Routine Disclosure Request 0287-RD-16 for information routinely available under the Environmental Protection and Enhancement (EPEA) Legislation.**

Our office received your request dated March 17, 2016 for the following subject records.

**Location: W Sec 31 Twp 52 Rge 24 W4M, Edmonton**

**Name(s): City of Edmonton**

**Time Frame: 1900 to March 17, 2016**

**Records: Scientific/technical information which may include reports documenting the nature and extent of soil, ground and surface water contamination; remedial measures taken to clean-up the site or status of the site; and external correspondence between the submitter and the Department of Environment and Parks pertaining to the reports.**

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at (780) 638-3799.

Yours truly,

A handwritten signature in black ink, appearing to be "Brian Murphy".

Brian Murphy,  
Access & Privacy Advisor

Search Form Map Search

A designated location identifies a site where Alberta Environment has received scientific or technical information for that site and does not imply anything regarding the condition of the site. Please refer to the studies and reports in the database view of the site.

ATS  
PBL

Plan: RN22C  
Block: [ ]  
Lot: [ ]

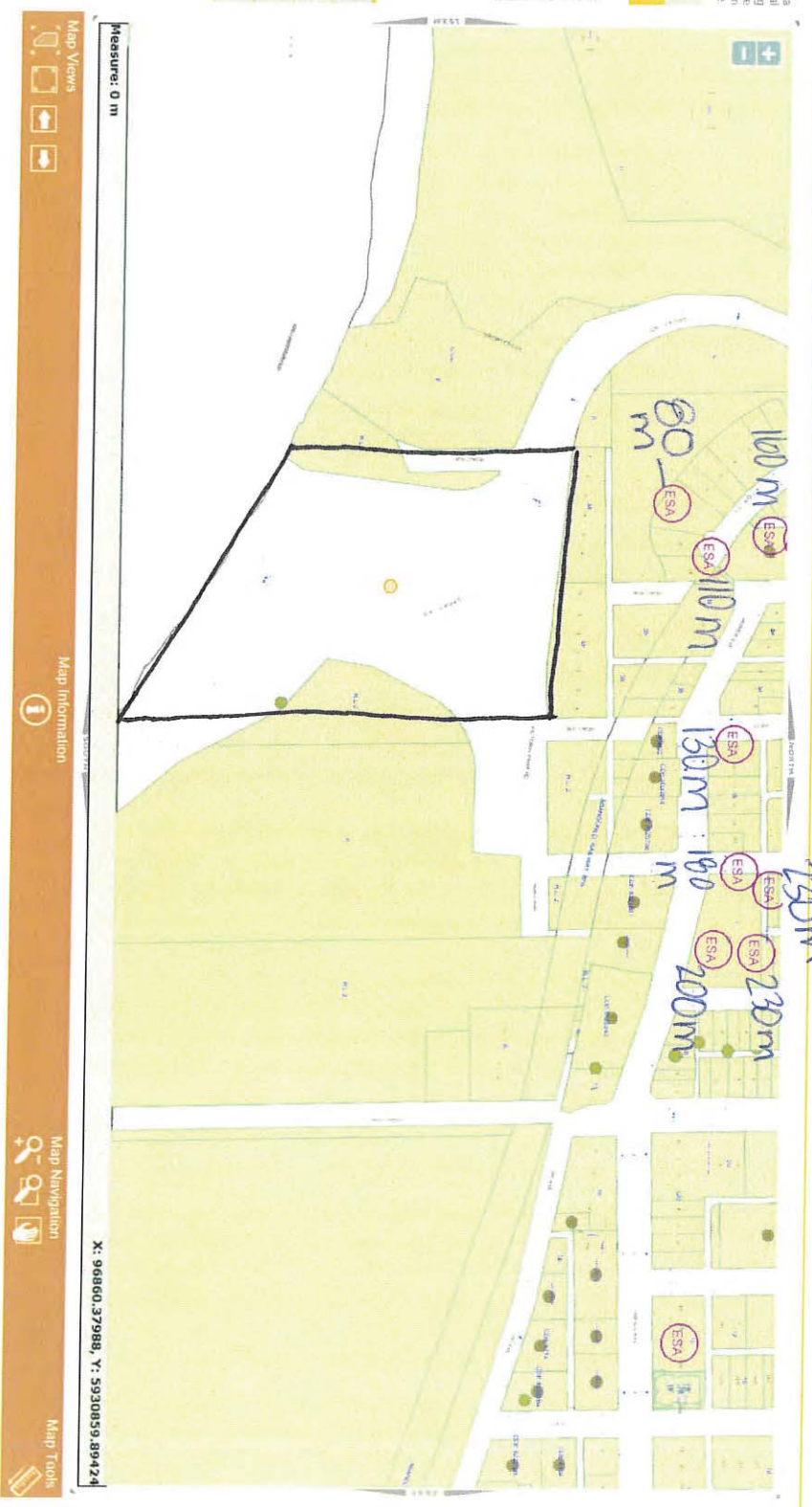
Search

RN22CE  
RN22C38L17  
RN22C39L11  
RN22CX

Address: [ ]  
Place Name: [ ]  
Coordinate: [ ]  
Help with Map

The ESA marker represents an approximate location of a site where the Government of Alberta has received scientific and/or technical information. The marker is an arbitrary .40 meter diameter circle centered on the property for which this information is attached. For locations or other site information, see the document results table.

Spatial Search provided by the Alberta Land Title SPIN 2 System



ESAR MAP

- SITE  
80m north -> Shelby Eng Phase 1 & 11 ESAs

A designated location identifies a site where Alberta Environment has received scientific or technical information for that site and does not imply anything regarding the nature or condition of the site. Please refer to the studies and reports to determine the nature of the site.

ATS  
PBL

Plan  
Block  
Lot

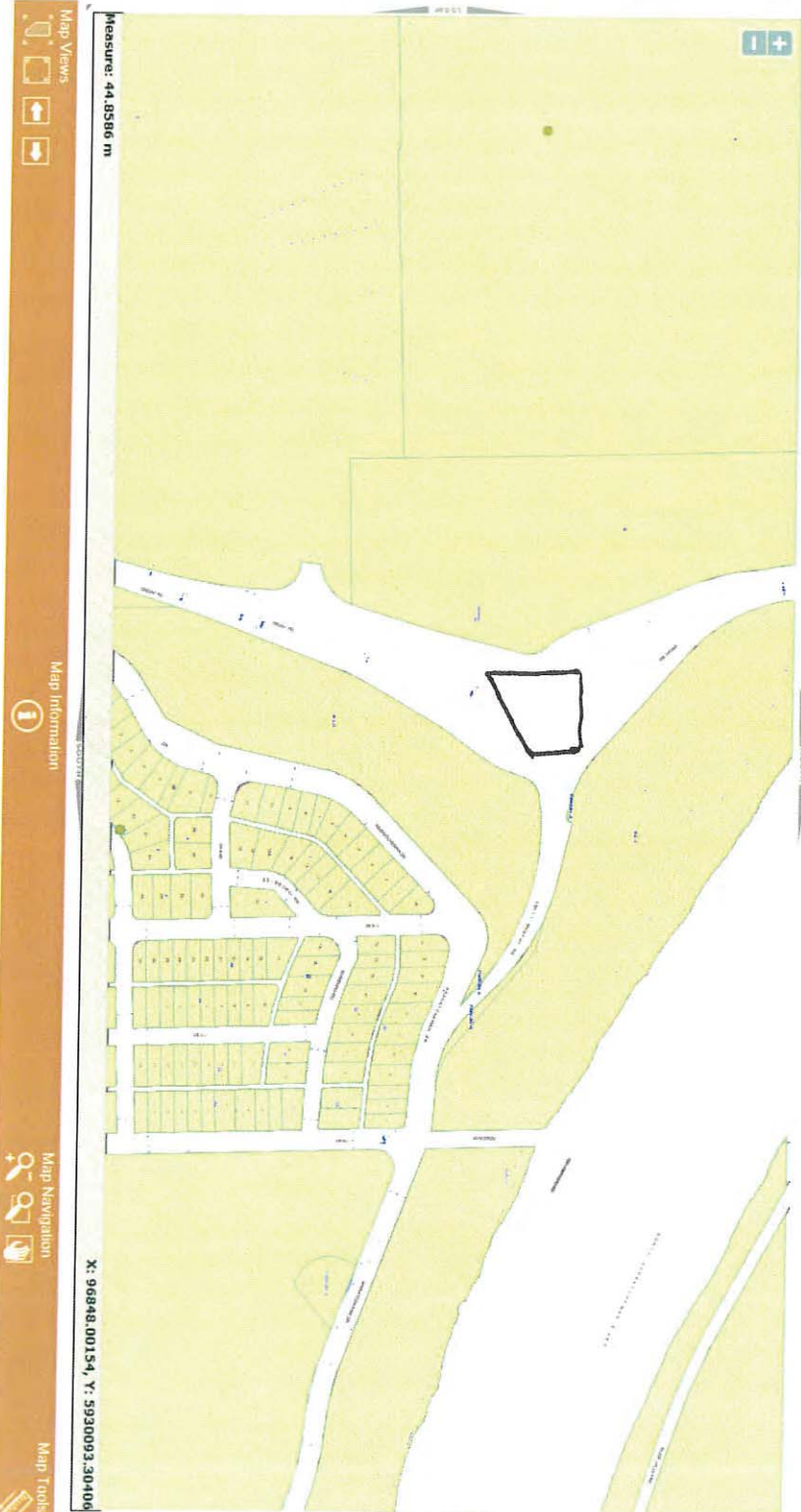
Search

RN22C  
RN22C38.1-7  
RN22C39.4-11  
RN22C3

Address  
Place Name  
Coordinate  
Help with Map

The ESA marker represents an approximate location of a site where the Government of Alberta has received scientific and/or technical information. The marker is an arbitrary 40 meter diameter circle centered on the property for which this information is attached. For locations or other site information, see the document results table.

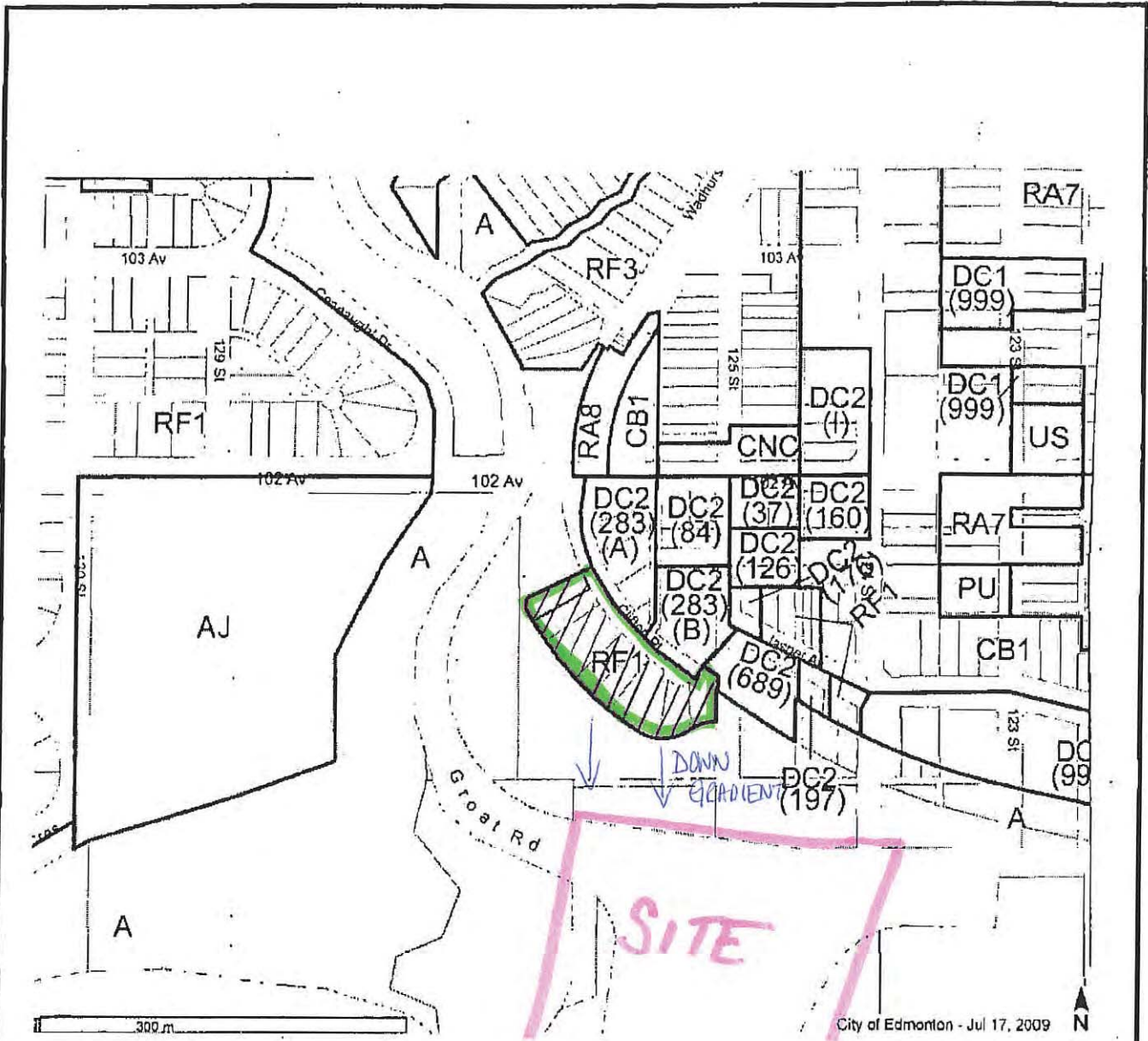
Spatial Search provided by the Alberta Land Files SPIN 2 System



SITE

NO ESA WITHIN 100m

ESAR MAP



**Subject Site**

*ESAR Reports  
 Shelby Phase 1 & II ESR  
 Correspondence Letters*

**City of Edmonton  
 2009 Zoning Map**

Courtesy City of Edmonton Website - Zoning map



**SHELBY  
 ENGINEERING  
 LTD**