

**ARCHAEOLOGICAL MONITORING  
OF THE CONSTRUCTION  
OF THE WESTBOUND  
COMPONENT OF THE  
PROVENCHER PAIRED BRIDGES**

Submitted to

Wardrop Engineering Inc.

Quaternary  
Consultants  
Limited

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## **1.0 INTRODUCTION**

The construction of the new Provencher Bridge to replace the existing structure entailed considerable excavation on both sides of the Red River. The eastbound half of the new twinned bridge is located south of the former bridge with an overlap of the westbound half of the new bridge into the area occupied by part of the original bridge (Figure 1). The cultural resource management procedures and recovered artifacts from areas of impact for the eastbound component are reported in a previous report (Quaternary 2002). The westbound portion of the new bridge is anchored at Provencher Boulevard on the east side and the new abutment on the west side (Figure 1).

This project was initiated by City of Winnipeg Public Works Department and was managed by Wardrop Engineering Inc. who retained Quaternary Consultants Ltd. to provide heritage resource management services for the entire project. The archaeological monitoring of the construction of the westbound portion was conducted by Quaternary Consultants Ltd. under the terms of Heritage Permit #A55-02 (Appendix A), issued by Manitoba Culture, Heritage and Tourism, Historic Resources Branch.

### ***1.1 Location and Scope of the Project***

As depicted on Figure 1, the project occurs on both sides of the Red River to the south of the former Provencher Bridge in downtown Winnipeg. The construction of the east abutment for the westbound portion of the bridge required the demolition of the existing bridge. The construction of the new east abutment consisted of clearing the original abutment and drilling of caissons prior to pouring the concrete structure. Once the original abutment and bridge spans were removed, the continuation of the bank stabilization component could proceed where the original bridge had prevented the operation during the previous phase of the project (Quaternary 2002:4). Three rows of rock caissons were drilled parallel to the river edge, using an eight foot diameter auger.

The west abutment had already been constructed as part of the initial construction phase (Quaternary 2002) as it lies entirely south of the original bridge. Construction on the west side of the river entailed demolition of the original abutment and pier with minimal excavation. The surface modifications consisted primarily of grading an access route to the river edge through minor excavation and some infill.

A small amount of road reconstruction on Provencher Boulevard occurred as a portion of this project. The construction of the north lanes extended 300 metres east of the Tache Avenue intersection.

The construction component of the project began in the fall of 2002 with the excavation for the east abutment followed by the drilling of rock caissons on the east bank of the Red River. This component was completed in January of 2003. Removal of the west abutment occurred in the spring of 2003. As there were only minor surface modifications for landscaping projected during the last phases of the project, archaeological monitoring was not necessary on the west bank.



## ***1.2 Study Team***

The entire archaeological resources management program was directed by Sid Kroker (Senior Archaeologist). The monitoring of construction excavations was conducted by Sid Kroker. Laboratory operations, resulting from artifact recovery, were supervised by Pam Goundry (Research Archaeologist). Primary artifact preparation was undertaken by Sid Kroker and Pam Goundry. Computer cataloguing was completed by Pam Goundry. Artifact analysis, documentation, and report preparation has been undertaken by Sid Kroker and Pam Goundry.

## ***1.3 Excavation Monitoring Methodology***

The deepest excavations occurred on the east bank of the Red River. Mechanized excavation around the former location of the east abutment was briefly observed but, as all undisturbed sediments consisted of Glacial Lake Agassiz lacustrine clays, monitoring was not deemed necessary. The caissons for abutment support were also not monitored as the drilling surface was within lacustrine clays.

The rock caissons were situated west of the abutment in three rows paralleling the river bank. These caissons continued the sequences that had been initiated during the first phase of the construction (Quaternary 2002:10-12). Largely, the caissons completed the gap in the parallel rows which could not have been drilled due to the presence of the original bridge. They were drilled using an eight foot diameter auger. The extracted soil was visually observed on the auger bit as it was removed from the hole. Soil stratigraphy was recorded and diagnostic historic artifacts were hand-retrieved.

During the excavations and drilling, the monitoring archaeologist watched for buried soil horizons and changes in soil texture which could provide information about riverine sedimentation regimes, flood episodes, and possible cultural occupation of former ground surfaces. The indicators watched for were charcoal layers, ash lenses, and/or reddish stained soil. The colour change is usually indicative of oxidation of the iron particles in Red River silt by heat—the more intense the heat, the redder the soil. These features can indicate either a natural event such as a brush or prairie fire or a cultural event such as a campfire. If evidence of fire had been observed, the layer would have been investigated to ascertain if the cause was natural or cultural. The presence of food remains, particularly mammal or fish bones, resting upon a buried soil would be a positive indicator of an archaeological occupation horizon. Other positive indicators would be the presence of fragments of earthenware containers and/or lithic tools or flakes resulting from tool manufacture. If artifacts had been observed, they would have been collected from the soil column.

The primary focus for recoveries from the historic fill horizons was diagnostic artifacts, i.e., those which could provide evidence of time period, company of manufacture, and/or function. Accordingly, glass and ceramic containers which often have diagnostic markings were curated. Also, metallic objects which could be identified to function were recovered, while non-diagnostic structural items, such as generic bricks, lumber, iron pipes, wire-cut nails, etc., are not generally curated.

## ***1.4 Archaeological Site Designation***

Every artifact is assigned a Borden designation as part of its catalogue number. The Borden designation, consisting of a four-letter prefix and a numerical suffix, is a Canada-wide system of identifying archaeological sites based upon latitude and longitude (Borden 1954). The portion of the project on the east side of the Red River is within the area which had been designated as DILg-56 during the Tourist Hotel Project (Quaternary 1988) and the eastbound component of this project (Quaternary 2002:6). As there had been previous operations at this location, the year designator was appended to the basic Borden number, yielding the archaeological designation of DILg-56:02.

The portion of the project on the west side of the Red River falls within the boundaries of DILg-33. This site has been defined as: lying south of Water Avenue, west of the Red River, and east of the CNR Main Line Embankment. However, no artifacts were recovered from this portion of the project.

## ***1.5 Laboratory Procedures***

During this phase of the project, a total of 12 artifacts were recovered from the east side of the Red River, DILg-56:02. The artifacts were brought to Quaternary laboratory facilities where they were washed and sorted by material class and identified by the lab personnel.

Each artifact received a catalogue number consisting of the Borden designation for the site and a sequential number for permanent identification, i.e., DILg-56:02/####. All pertinent data associated with the artifact was entered into the computer cataloguing system which is based upon the Canadian Heritage Inventory Network (CHIN) system (Manitoba Museum of Man and Nature 1986; Kroker and Goundry 1993:Appendix B). The computer cataloguing program is derived from **DBASE3®** and generates individual artifact catalogue cards.

Processed artifacts were prepared for storage by inserting the specimens and the catalogue cards into standard plastic storage bags, then stapling the bags closed. At the end of the project, all recovered artifacts will be delivered to the Manitoba Museum which is the repository designated by the City of Winnipeg for artifacts recovered during development projects in the downtown area.

## **2.0 STRATIGRAPHY**

The stratigraphy of fill deposits and natural sediments was recorded for all areas of excavation. Detailed profiles covering a more extensive area were provided in the earlier report (Quaternary 2002) where mechanized excavation for the southern portion of the east abutment had occurred. The stratigraphy at the upper terrace on the east side of the Red River was similar to that which had been observed in 2002. The stratigraphy of the rock caisson holes was similar to that which had occurred in the north section of the former operations.

### ***2.1 Abutment Excavations***

The excavation area for the east abutment was almost totally within the original impact zone for the east abutment of the 1912 Provencher Bridge. Very little original sediments were observed due to the prior impact. The undisturbed sediments were unmodified riverine silty clays overlying lacustrine clays and occurred at the northern edge of the excavation. These replicated the general stratigraphy reported in the previous report (Quaternary 2002:Figure 4). Most of the excavated material was fill (silt, gravel, sand) around the original abutment. The construction area was excavated to provide a level drilling platform for drilling the abutment caissons and was deep enough to lie entirely within the lacustrine clays.

### ***2.2 Rock Caissons***

The rock caissons were drilled in three parallel rows aligned with the east bank of the Red River. The rock caissons on the north side of the new eastbound bridge demonstrated a sequence of fill deposition, bank slumpage, fill deposition, and bank slumpage extending back the better part of a century (Figure 2). This was a continuation of the pattern observed in the earlier phase of the bank stabilization component.

As with the caissons drilled in 2001 (Quaternary 2002), the most pronounced evidence occurred in the northern holes, lying west of the former parking lot of the Tourist Hotel (Quaternary 1988). The presence of the abutment and the first pier would have resulted in less subsidence and therefore less slumpage within the footprint of the original bridge. This was borne out by the presence of lacustrine clays as shallow as 3 metres below surface. Towards the north, artifact bearing layers of fill were encountered at depths close to 7 metres. A considerable number of vertical and oblique piles were encountered, possibly representing original bank stabilization procedures during the construction of the 1912 bridge. These piles often were truncated at the lowest fill layer which often contained structural debris as well as the occasional artifact.

The fill layers, containing several different strata of clay or silty clay, sloped to the north and reached thicknesses of seven metres at the north end. These could be distinguished by different colours and or different structural debris mixed with the clay. Generally, the upper layers contained brick and structural steel while the lower layers contained lumber fragments. Two temporally diagnostic artifacts were recovered from the basal lumber layer.

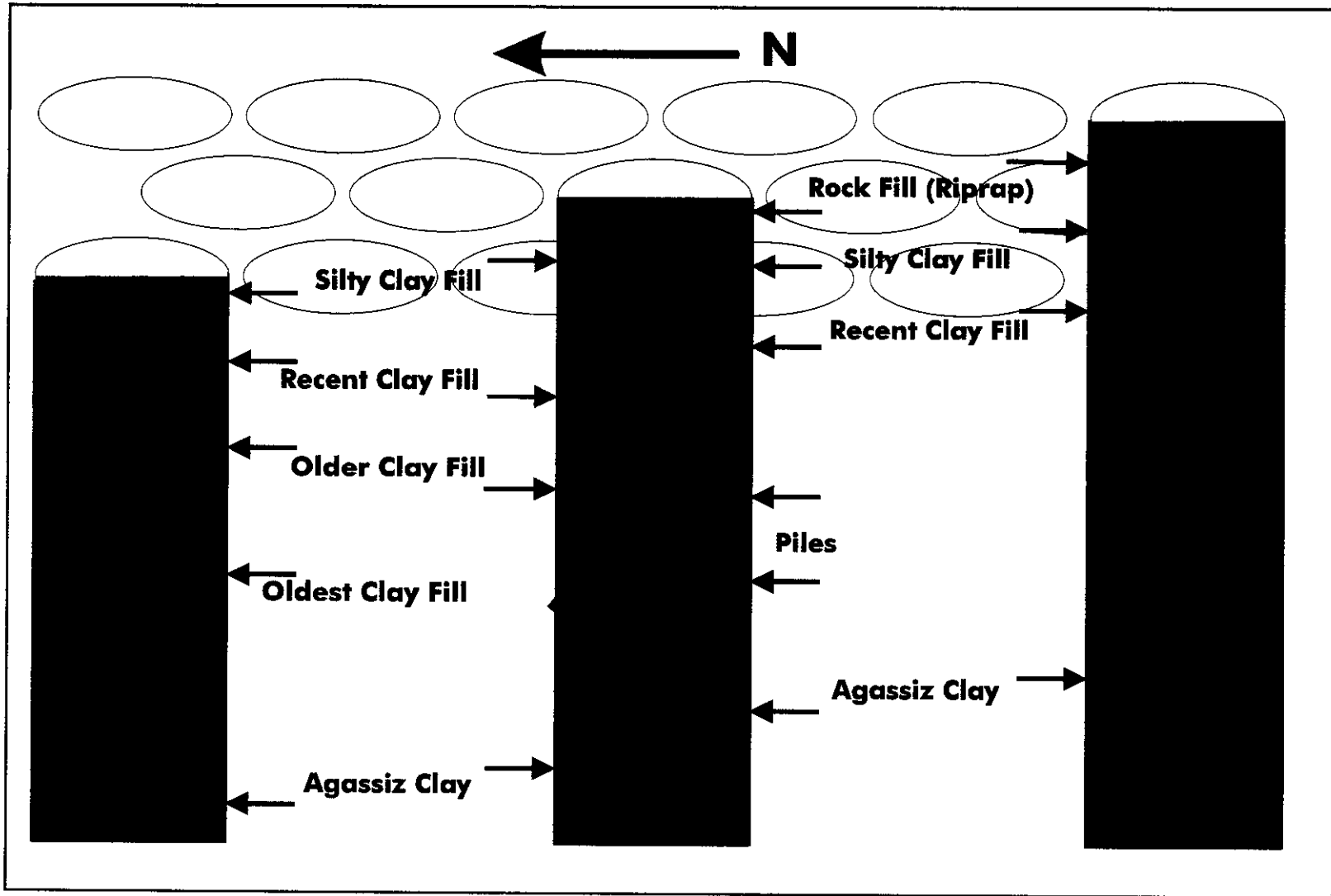


Figure 2: Generalized Stratigraphic Profile of Rock Caisson Holes



### 2.3 Provencher Boulevard Road Reconstruction

The north lanes of Provencher Boulevard were rebuilt as part of this project (Figure 1). The stratigraphy was relatively uniform from the Tache Avenue intersection to the end of construction (circa 300 metres east). Generally, the profile (Table 1) consisted of evidence of various versions of the road overlying gravel (5 cms) overlying mixed clay fill to depths approximating 65 to 70 cms. The underlying original sediments consisted of an intermittent B Horizon which was a dark brown silty clay with an average depth of 15 cms. In some locations, portions of the original A Horizon were present and in other locations both the A and B Horizon had been eradicated during the earlier road construction. Underlying the modified sediment, a tan to grey-tan silty clay was present with grey clays beginning at 120 cms. These grey clays are lacustrine in origin and pre-date any potential occupation. Throughout the road bed, areas of earlier impact were observed. These consisted of old trenches, former power poles, light standards, etc. Most of this disturbance occurred in the curb lane. No artifacts were recovered during this component of the construction.

Tache Avenue Intersection	200 Metres East of Intersection	Stratum
0 - 20	0 - 20	Concrete
	20 - 28	Old concrete
20 - 28		Cobbles
	28 - 32	Gravel
28 - 71		Concrete/railroad ties
	32 - 60	Mixed clay fill
71 - 85		Disturbed top soil
	60 - 88	B Horizon
85 - 110	88 - 105	Grey-tan clayey silt
110 - 125	105 - 128	Tan clay

Table 1: Stratigraphic Profile along Provencher Boulevard

## 3.0 HISTORIC ARTIFACTS

The historic artifacts, recovered during the westbound portion of the new Provencher Bridge project, have been analysed within functional categories based on the Canadian Heritage Inventory Network (CHIN) cataloguing format. A total of 12 historic artifacts were recovered (Appendix B).

### 3.1 *Architectural Objects*

Artifacts used in the construction, the maintenance, and the furnishing of structures are catalogued in this category. However, due to corrosion and fragmentation, many metal, glass, or wood architectural objects cannot be assigned to a manufacturer or a time period. One artifact in the sub-category of Furniture was curated.

DILg-56:02/12 is a large curved piece of wood which has been carved and drilled. The curvature and general shape resembles the upright arms of a washstand or dresser dating to the turn of the century. The front, back, and outer curve are flat with a bevel on the interior of the curve. The wood is 57.3 mm wide near the broken (axe cut? or excavation trauma?) base and 51.7 mm wide at the top. The overall length of this piece is approximately 383 mm. The top of the artifact turns outward from the curve and has a hole drilled through it. The base has a rectangular hole, oriented longitudinally, carved in the middle of the shaft. Along the inner edge, a series of nails, some with leather washers, is present.

Interestingly, these nails represent two different manufacturing techniques. Some are sheet-cut brads with minuscule or non-existent heads, while others, especially those with the leather washers, are wire-cut shingle nails. Generally, sheet-cut nails were developed about 1790 (Nelson 1968:8) and were mass produced by rolling sheets of iron or steel to a uniform thickness, then cutting the sheets into nails which taper from top to bottom. The thickness of the nail remains constant from head to point, while the width tapers. T-shaped or L-shaped heads were often added to each individual shank. Sheet-cut nails were produced in Montreal in the early part of the 19<sup>th</sup> century, but only became common in the Winnipeg area after 1860 when river steamboats transported quantities of American goods into this region (Kroker *et al.* 1991:105; McLeod 1983:148). Wire-cut nails were produced about 1850, became prevalent about 1900, and are the common variety found today (Nelson 1968:10). Steel is extruded to form a wire which is then cut to the appropriate length and the flat circular head is added by another machine operation.

While this piece does resemble a dresser/washstand arm, the nails on the interior curve and the orientation of the holes suggest a different function. The artifact is too incomplete for a definitive identification.

### 3.2 *Manufacturing Equipment*

This category refers to tools and/or implements used to manufacture other artifacts. DILg-56:02/11 was catalogued in this category. It is a complete, very rusty, iron head from a single bitted axe. The shape resembles those illustrated as the Michigan Pattern in the 1909 Ashdown Hardware Company Catalogue (Ashdown 1909:2-3). A portion of the wooden handle is still present in the eye of this axe head.

### 3.3 Clothing

Two pieces of leather were recovered. DILg-56:02/5 is the sole from a shoe. It consists of the toe and instep portion with the heel missing. This is a fairly small size shoe from a narrow foot, possibly from a woman's dress shoe.

DILg-56:02/6 is a strap-like piece of leather that has been folded over and sewn. It was then sewn to another object, probably the ball and toe portion of the sole of a shoe.

### 3.4 Faunal Remains

Three faunal artifacts, all butchering remains, were recovered (Table 2). The specimens were identified using some of the standard references: Gilbert (1973), Olsen (1960, 1964, 1971), and Schmid (1972). They were examined and identified as specifically as possible: body part, age of individual, and species. Any evidence of butchering techniques, such as cutting or sawing, was recorded as was the condition of the specimens, i.e., charred, broken, chewed, or gnawed.

All of the elements could be identified as cow (*Bos taurus*), with a total weight of 740.0 gms. One of the specimens derives from a sub-adult animal with the other two being adult. Two of them show evidence of butchering activities—sawing and cutting at the joints. DILg-56:02/8, a section of the femur, would likely have been a hip roast.

ELEMENT	CAT.#	QTY	WT	COMMENTS
tibia	9	1	510.3	juvenile
femur	8	1	189.2	sawn
rib	7	1	40.5	sawn, cut marks
TOTAL		3	740.0	

Table 2: *Bos taurus* (cow) Remains

### 3.5 Containers

This category includes all artifacts, or portions of artifacts, which are used to contain products. It tends to cross-cut other functional divisions, with assignment to the category based upon form, as much as function. The category contains several sub-categories (Manitoba Museum of Man and Nature 1986), two of which are applicable to the recovered artifacts:

- a. Storage - the purpose of the container is to hold material, e.g., bottles, jars, tin cans; and
- b. Dinnerware - the artifact is used in the serving or eating of food.

### 3.5.1 Storage

Storage containers include most of the commonly used artifacts in today's material culture. Many products are sold, transported, carried, or stored in a container of some type: bag, box, barrel, jar, sealer, can, bottle, pail. Containers come in a variety of material types such as metal, plastic, paper, ceramic, and glass. Metal and glass artifacts were recovered from this project.

#### 3.5.1.1 Metal Containers

DILg-56:02/10 is a complete, circular iron lid. It measures approximately 165 mm in diameter and has an upturned rim, part of which is missing on half of the lid. This rim measures 12.9 mm in height and the lid would have fit tightly down into the can, possibly a lard can. A complete, wide (25.5 mm), D-shaped handle runs from one side of the lid to the other. The lid is corroded and rusty and has a whitish stain on part of the upper surface and most of the under surface. This could be a paint stain, where the can may have had a secondary use as a paint container.

#### 3.5.1.2 Glass Containers

One complete specimen and two sherds, all from beverage bottles, were recovered. Indications of the method of manufacture, which provide information about time period and technology, are often present on these artifacts.

Breweries bottled both soft drinks and beer and often used the same type of bottle for both products. Without paper labels, it is usually impossible to ascribe a specific product to an archaeologically recovered bottle. Thus, the bottles are assigned to the generalized Beverage class. Depending upon the data embossed on the artifact, it may be possible to identify the producer of the contents, the manufacturer of the container, both, or neither.

Based on the extracted information from the recovered specimens (Table 3), all are attributable to a local Winnipeg bottling firm. The Drewry company began in 1877 when E.L. Drewry leased the Redwood Brewery and produced beverages labeled with his name. In 1904, the company name was changed to E.L. Drewry Limited and, in 1921, it became Drewrys Limited. As well as the Redwood location, Drewry purchased the premises of the Empire Brewing Company at Mulvey Avenue East in 1892. Those facilities were sold to Blackwood Brothers shortly after the turn of the century (Peterson and Sweeney 1998:27).

Three different types of Drewry bottles were recovered and identified using Chopping (1978). Drewry products are extremely useful as temporal markers in that the date of manufacture is embossed on the base of the bottles. DILg-56:02/4 and DILg-56:02/2 represent the years 1902 and 1909 respectively. The third bottle, DILg-56:02/3, is missing the base and cannot be assigned to a Chopping number. Its characteristics, i.e., blown-in-mold and the ownership clause, apply to a series of Chopping numbers between BG9 and BG20. The later version of the Winnipeg-specific ownership clause, "THIS BOTTLE IS OUR PROPERTY ANY CHARGE MADE THEREFOR SIMPLY COVERS ITS USE WHILE CONTAINING GOODS BOTTLED BY US AND MUST BE RETURNED WHEN EMPTY", is

embossed on the body of all specimens. The company name and Winnipeg are embossed in various locations—most often on the shoulder and the base.

COMPANY	CAT. #	QTY	COLOUR	PORTION	CHOPPING NO.
Drewry	2	1	clear	complete	MWIN BG24
	3	1	aqua	lip,neck,body	MWIN BG?
	4	1	clear	body,base	MWIN BG9
TOTAL		3			

Table 3: Drewry Beverage Bottles

### 3.5.2 Dinnerware

Dinnerware comes in a variety of material types, but only one ceramic artifact was recovered. Ceramic dinnerware includes place settings—plates, small bowls, cups and saucers—and serving pieces—platters, large bowls, creamers, etc. Archaeological recoveries are often too fragmented to allow exact identification and this is reflected in the use of object types such as bowl?, plate?/saucer?, and bowl?/cup?. Because dinnerware is usually manufactured in sets of the same pattern, the decorative features of a set cross-cut the types of objects.

DILg-56:02/1 is the body,base portion of a large, oval-shaped bowl, probably a serving dish. It is white, but may have had other colours either painted or transfer printed on the missing lip and neck portion. The base has a black maker's mark which consists of the Royal Arms logo with "ROYAL STONE CHINA" printed above it and "WEDGWOOD & CO." and "ENGLAND" printed below it.

Although this mark could not be located in the available references, it is most probable that this piece was manufactured by Wedgwood & Co. of Tunstall, Staffordshire, England which has been in business since 1860 (Godden 1964:655). It is also likely that it was made prior to 1900 as, after that time, the word Ltd. was added to the company name. The body of this bowl has thick walls, 5.3 mm, which may indicate age as earlier products were often thicker or, more likely, represents the distinction between coarse utilitarian everyday ware versus the finer, more expensive special occasion china.

## 4.0 DISCUSSION

The archival history of the east bank of the Red River in the vicinity of this project was extensively detailed in *Archaeological Monitoring of the Construction of the Eastbound Component of the Provencher Paired Bridges* (Quaternary 2002:125-128). The current construction activities have added little to this information. The presence of numerous fill layers, observed during the drilling of the rock caisson holes, indicates that there had been sequential dumping of material on the riverbank which then subsided, entailing another round of dumping (Figure 2).

Based upon the date of the earliest recovered Drewry bottle (1902), this sequence began prior to the construction of the original Provencher Bridge in 1912, and appears to have started at some point after the construction of the Broadway Bridge in 1881. The presence of the Quebec Hotel (later known as the Tourist Hotel), circa 1905, may have initiated this dump and slump sequence with the aim of increasing or maintaining the dimensions of the upper terrace immediately west of the hotel and its adjacent stable.

No significant excavation requiring archaeological monitoring occurred on the west bank of the Red River. Construction consisted of demolition of piers and the original abutment with some minor slope modification.

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**APPENDIX A**  
**HERITAGE PERMIT**



**Heritage Permit No. A55-02**

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Pursuant to Section/Subsection 53 of *The Heritage Resources Act*:

Name: Quaternary Consultants Ltd.  
Address: 130 Fort Street  
Winnipeg MB R3C 1C7

ATTENTION: Mr. Sid Kroker

(hereinafter referred to as "the Permittee"),

is hereby granted permission to:

monitor excavations, including caisson drilling and abutment excavations, relating to construction of the west bound span of the new Provencher Bridge linking St. Boniface with The Forks in the City of Winnipeg, in order to record soil stratigraphy, to recover diagnostic historic artifacts from post-1890 layers, to record the presence/absence of precontact and fur trade cultural horizons, and to mitigate impacts to these if they exist;

during the period:

December 16, 2002 – September 30, 2004.

This permit is issued subject to the following conditions:

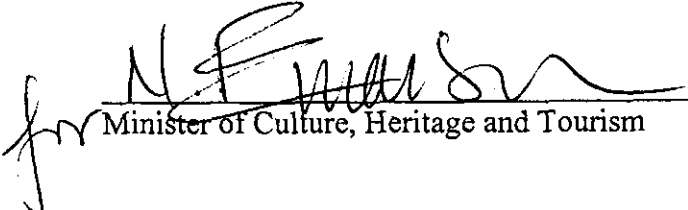
- (1) That the information provided in the application for this permit dated the 11<sup>th</sup> day of December 2002, is true in substance and in fact;
- (2) That the permittee shall comply with all the provisions of *The Heritage Resources Act* and any regulations or orders thereunder; **Please note attachment re custody and ownership of heritage objects.**
- (3) That the Permittee shall provide to the Minister a written report or reports with respect to the Permittee's activities pursuant to this permit, the form and content of which shall be satisfactory to the Minister and which shall be provided on the following dates:  
December 31, 2004;
- (4) That this permit is not transferable;
- (5) This permit may be revoked by the Minister where, in the opinion of the Minister, there has been a breach of any of the terms or conditions herein or of any provision of *The Heritage Resources Act* or any regulations thereunder;



(6) Special Conditions:

- a. All heritage objects are to be deposited with the Manitoba Museum by December 31, 2004, for permanent curation and storage, unless appropriate loan requirements are arranged with the Curator of Archaeology prior to that date;
- b. A complete set of archaeological field records, catalogue sheets, laboratory analysis records, photographs, reports, etc. are to be deposited with the Manitoba Museum of Man and Nature upon completion of the archaeological research, or sooner if required, and any subsequent revisions or additions to these records are to be filed as soon as possible thereafter;
- c. Neither the Government of Manitoba nor the party issuing this permit be liable for any damages resulting from any activities carried out pursuant to this permit, and the Permittee specifically agrees, in consideration for receiving this permit, to indemnify and hold harmless the Minister and the Government of Manitoba, the Minister and any employees and officials of the Government, against any and all action, liens, demands, loss, liability, cost, damage and expense including, without limitation, reasonable legal fees, which the Government, Minister or any employee or official of the Government may suffer or incur by reason of any of the activities pursuant to or related to this permit.

Dated at the City of Winnipeg, in Manitoba, this 13<sup>th</sup> day of December 2002.

*for*   
Minister of Culture, Heritage and Tourism

**APPENDIX B**  
**ARTIFACT CATALOGUE**

## SPECIMEN CATALOGUE RECORD

SITE: DILg-56:02

LOCATION: Provencher Westbound

CULTURAL PHASE: Industrial

CAT. #	QTY	OBJECT	MATERIAL	MANUFACTURER
1	1	sherd/bowl	porcelain	Wedgwood & Co.
2	1	bottle	glass	E.L. Drewry
3	1	sherd/bottle	glass	E.L. Drewry
4	1	sherd/bottle	glass	E.L. Drewry
5	1	sole/shoe	leather	-
6	1	scrap/shoe	leather	-
7	1	rib/ <i>Bos taurus</i>	bone	-
8	1	femur/ <i>Bos taurus</i>	bone	-
9	1	tibia/ <i>Bos taurus</i>	bone	-
10	1	lid/can	iron	-
11	1	axe head	iron;wood	-
12	1	fragment	wood;iron	-
<b>TOTAL</b>	<b>12</b>			