

Project Summary

MEEWASIN BEAVER CREEK PEDESTRIAN BRIDGE REPAIR (South Bridge)

Meewasin Valley Authority
March 8, 2022

1.0 INTRODUCTION

The project site is located 13 km South of Saskatoon, Off HWY #219, at NW 06-35-05-3 Ext 3. The overall property is owned by the City of Saskatoon and Meewasin, each owning individual parcels. The work being planned is on property owned by the City of Saskatoon. The site includes an interpretive centre building, parking lot, road, pedestrian trails, stairs, amenities, and three pedestrian bridges (located west, south and east of the building). The site is operated as a public amenity (with specific hours of operation), with interpretive programs in place for elementary grade school groups.

2.0 BACKGROUND AND PROJECT DESCRIPTION

Meewasin has the primary role in the operation and maintenance of the Beaver Creek site and facility. The City of Saskatoon provides some support with trail maintenance, including minor repairs. The creek riparian zone is subject to ongoing natural erosion and slumping primarily due to groundwater (springs), creek flow and seasonal fluctuations, and beaver dams and activity. The soil type on site is predominantly sandy.

The trail system includes three pedestrian bridge crossings of Beaver Creek. All of the bridges were installed at the same time, all simple steel truss construction with wood decking. The original installations included concrete abutments on each bank to provide structural support.

An access route was in place for equipment to reach all of the bridges during construction and for many subsequent years. Over time, vegetation has filled in the access routes. For the south bridge, the route has remained clear of vegetation, however adjacent erosion has rendered it unusable/unsafe.

Changes to the creek bed have impacted bridge and trail systems in the past and led to trail and bridge closures, and alternate trail alignments as the river and banks evolve. Eleven years ago, the east bridge required foundation modifications and lengthening in order to address undercutting on the east shoreline. The original concrete abutment was replaced with two deep piles.

In more recent years the east bridge (east) bank was subject to further undercutting due primarily to a beaver dam affecting creek flow. This exposed some of the bridges two piles, and posed a hazard to the trail connection with directly adjacent slumping. This led to a closure of the east bridge and connecting trails. Upon a visual inspection of all three bridges, some erosion and undercutting was also noticed at the south bridge (north abutment). Based on these two issues, a structural engineer was commissioned to provide a review of all bridges to provide recommendations to address the issues noted.

Based on the structural review the following was determined:

- The west bridge was functioning with no concerns.
- The south bridge required some remediation of the north abutment in order to maintain structural integrity.
- The east bridge, although some of the pile was exposed due to recent erosion, remained structurally sound. It could be re-opened with new decking and railings installed at the east end, along with some work in the channel to redirect flow away from the east bank.

The scope of this project relates to the work at the south bridge only. Minor works necessary at the east bridge are underway and plan to be completed before closure of the south bridge. This will ensure at least two bridges and associated trails remain open for public use at all times. A photo with notes showing the south bridge and abutment is attached for reference.

The scope of this project includes:

1. Provision of a new access route for equipment to access the south bridge. Vegetation removal is planned based on a site review and route determined with Meewasin Resource Management and Development staff. The intent is to remove vegetation early in the spring to meet migratory bird regulatory requirements.
2. Installation of two new screw piles to replace the existing bridge abutment, which has been undercut by erosion.
3. Extension of the existing bridge structural trusses to reach the new screw piles.
4. The addition of bridge wood decking at the extension.
5. Removal and replacement of the existing wooden stairs, to tie in with the bridge deck.
6. Restoration of disturbed areas adjacent to the work. This will involve a combination of plug planting and seeding, as needed.

3.0 PROCESS AND SCHEDULE

Detailed structural and site drawings are underway and funding is planned as part of Meewasin's upcoming budget (to be approved April 1, 2022).

The access route will be completed by Meewasin crews as soon as possible. Stair removal will also be done by Meewasin crews.

The east bridge minor works will be completed prior to closure of the south bridge.

The structural work at the bridge is planned to be tendered for summer 2022 construction.

Trail and bridge closures will be necessary in order to undertake the repairs of the south bridge. Site signage and barricades will be in place, and site staff will alert trail users regarding detours and closures.

Site restoration will be started once repairs are completed and will involve several years work to establish new plantings.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Alan Otterbein', with a stylized flourish at the end.

Alan Otterbein
Manager of Design and Development



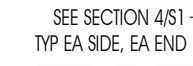
Existing Stairs

Existing Bridge

Existing Abutment

Erosion
Area

Beaver Creek – Water Level Fluctuates



1 ELE 1:50



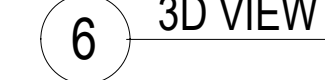
2 — PLA
1 : 50



3 — COM
1 : 20

4 SEC
1:20

5 DE I
1 : 10



SEQUENCE OF CONSTRUCTION:

1. INSTALL PILES
2. WELD BRIDGE EXTENSION TO EXISTING BRIDGE AND TO NEW PILES.
3. GRIND OFF BOLTS FROM ORIGINAL FOUNDATION.
4. ABANDON EXISTING CONCRETE FOUNDATION.
(WALL AND FOOTING WILL EVENTUALLY FALL INTO CREEK AND CAN BE REMOVED DURING WINTER FREEZE-UP, NOT IN CONTRACT.)

1. Do not scale drawings.
2. All dimensions and datum are to be checked by the Contractor. Report any discrepancies to the Consultant before proceeding.
3. This drawing is an instrument of Service and is the property of the Consultant and may be reproduced only with their written permission. Information shown is for use on this project only. Copyright protected.

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PRELIMINARY
NOT FOR CONSTRUCTION
THESE DRAWINGS ARE INTENDED TO
CONVEY DESIGN INTENT ONLY.
09/22/21 (DD.MM.YYYY)

ROBB ■ KULLMAN
ENGINEERING LLP
STRUCTURAL CONSULTANTS

3022 LOUISE STREET
SASKATOON, SASKATCHEWAN S7J 3L8
T: 306.477.0655 F: 306.477.1995
E: rk-eng@robb-kullman.com

CONSULTANT

PROJECT
BEAVER CREEK BRIDGE
REPAIR

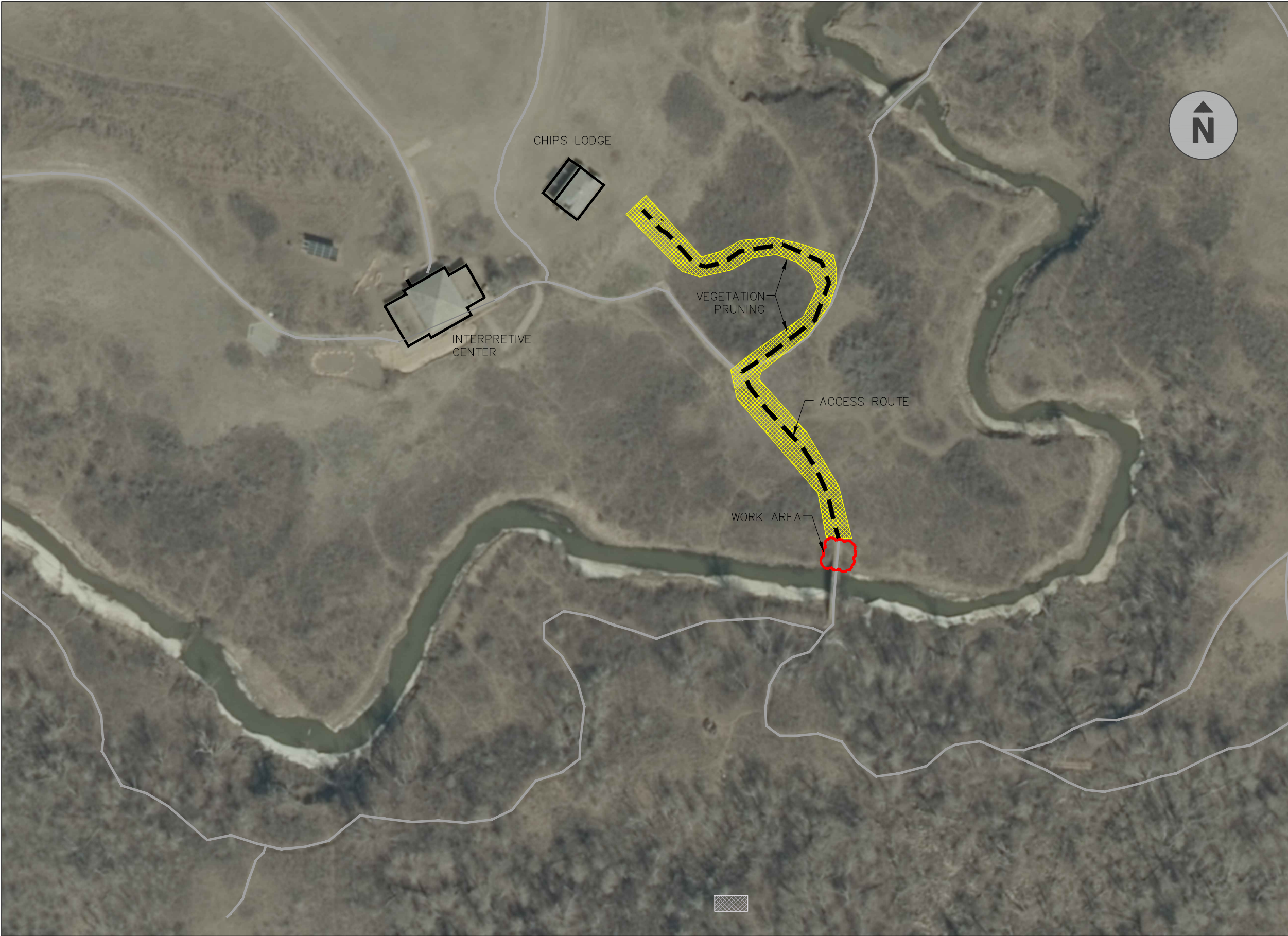
BEAVER CREEK, SASKATCHEWAN

DRAWING NAME
EXISTING BRIDGE





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|---------|-----------------|-----------|
| DRAWN | K. FEHR-KLASSEN | DRAWING |
| DATE | 2021-09-23 | S1 |
| FILE | 21-705 | |
| CHECKED | D.H. | |
| | | Project |

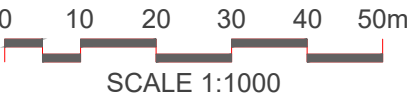
S1

Project Status_____



LEGEND

-  VEGETATION PRUNING
-  WORK AREA
-  ACCESS ROUTE
-  EXISTING TRAIL



Meewasin

Meewasin Valley Authority
402 Third Avenue South
Saskatoon, SK S7K 3G5
Tel 306-665-6887
Fax 306-665-6117

LEGEND

NOTES

PRELIMINARY
SUBJECT TO CHANGE

PERMIT / SEAL

CLIENT / PROJECT

BRIDGE REPAIRS
(BEAVER CREEK)
Project 102.02

TITLE

SITE PLAN

SCALE

1:1000

REVISION

SHEET SIZE

DRAWING NO.

11x17

L-1