

March 1, 2018

Southeastern Anglers Association Inc.

POBox 1133
4584 Route 134
Cocagne, NB
E4R 1N6

Subject: Mill Creek – 2017 Summary of Instream Work Completed by Southeastern Anglers Association

1 INTRODUCTION

The Southeastern Anglers Association (SAA) requested Matrix Solutions Inc. (Matrix) provide this letter report to assist with documenting the instream restoration work completed by SAA on Mill Creek in 2017.

2 BACKGROUND

In 2016 Matrix conducted a detailed geomorphic assessment and topographic survey on 1.3km of Mill Creek, downstream from McNairn Road Crossing. The results of the assessment provided a better understanding of the fluvial geomorphic processes within the system and allowed for the development of appropriate restoration recommendations specific to the conditions of Mill Creek. The assessment identified several instream structures that were causing degradation of aquatic habitat and creating instability within the system. In general, these structures were causing excessive bank erosion and bed degradation and resulting in loss of floodplain function. The high-priority structures were removed by SAA and Matrix in September 2016. Details of the work completed in 2016 are described in the report titled "Mill Creek: Summary of Instream work 2016".

In 2017 the Southeastern Anglers Association (SAA) installed approximately 35m of brush mattress to stabilize a section of eroding bank and to promote the natural redevelopment of floodplain habitat. The bank was identified as high-priority for stabilization due to its location within the system and floodplain/riparian value. The goal of the brush-matting treatment was to prevent further widening of the channel and to collect sediment at the project site. The brush-matting treatment was selected because it is relatively easy to install, inexpensive, effective at capturing sediment, and can be installed without heavy equipment. Matrix provided guidance to SAA by selecting the treatment site and providing instructions for installation. The restoration work was completed in compliance with the Permit for Watercourse Alteration (WAWA) 42550'17.

3 SITE DESCRIPTION

Mill Creek is located near the community of Sainte-Marie-de-Kent in eastern New Brunswick, UTM Zone 20T 359347E 5146071N. The project site is located approximately 470m downstream from the McNairn Road culvert crossing. The treatment site is located on the inside bend of a meander along an over-widened section of channel and eroded floodplain habitat.

A digger-log, located approximately 10m upstream of the site, caused bank erosion and significant widening of the channel and erosion of floodplain habitat. This digger-log was removed during the September 2016 restoration work. The brush mattress was installed by SAA to prevent further erosion and channel widening from occurring.

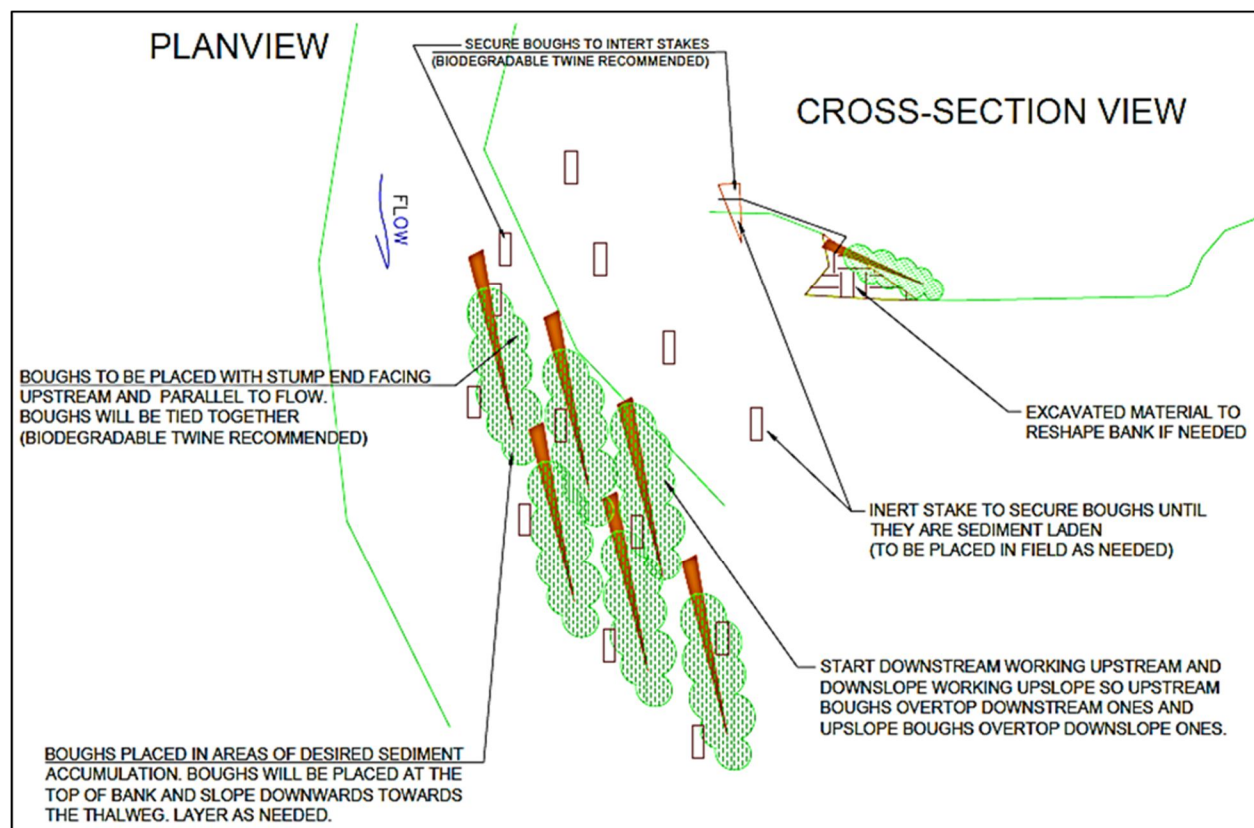
Figure 1 Location of Brush-Matting treatment along Mill Creek, UTM Zone 20T E 359499 N 5145620.



4 DESIGN DETAILS

Brush mattresses are a bank treatment which promotes sediment accumulation on point bars and help to narrow the channel by capturing sediment during high flows. These are most appropriate to use in smaller streams where banks are threatened by high flows. A brush matt is composed of evergreen tree branches (boughs) at least 1m in length, placed in areas where sediment accumulation is desired. The boughs are installed parallel to the flow with the stump facing upstream. The boughs are laid on top of one another working from downstream to upstream and tied together. Typically, stakes are inserted at the top of bank and the boughs are secured with a biodegradable twine.

Figure 2 Typical design drawing for Brush Mattress



5 INSTALLATION

On September 28, 2017 the SAA installed 35m of brush mattress along an eroded bank located on the inside bend of Mill Creek. A failed digger log, located upstream from the site, resulted in bank erosion, loss of floodplain habitat, and an over-widened channel. The installation of the brush mattress was completed with use of hand-tools and manual labor only, no machinery was used. No disturbance to the streambed or bank occurred during installation. Brush material was sourced approximately 100m away from top of bank. When possible, damaged or dead trees/branches were used and were collected from multiple areas to minimize the concentration of disturbance. Brush materials were anchored to existing stumps/trees with biodegradable twine. The brush mattress treatment covered an area of approximately 140m² (35m length x 4m width). Brush mattress was installed at UTM Zone 20T E 359499 N 5145620.

Figure 3 showing SAA field staff installing the brush mattress, viewing upstream.



Figure 4 Showing completed brush mattress located on inside bend of meander, viewing downstream.



6 CLOSURE

We trust that this letter report suits your present requirements. If you have any questions or comments, please call either of the undersigned at 506.472.8440.

Yours truly,

MATRIX SOLUTIONS INC.

Reviewed by



Nigel Tilson, P.Biol., CPESC.
Environmental Scientist



Ron Jenkins, ASCT, EP
Senior Consultant

DISCLAIMER

We certify that this letter report is accurate and complete and accords with the information available during the site investigation. Information obtained during the site investigation or provided by third parties is believed to be accurate but is not guaranteed. We have exercised reasonable skill, care, and diligence in assessing the information obtained during the preparation of this letter report.

This letter report was prepared for Southeastern Anglers Association. The letter report may not be relied upon by any other person or entity without our written consent and that of Southeastern Anglers Association. Any uses of this letter report by a third party, or any reliance on decisions made based on it, are the responsibility of that party. We are not responsible for damages or injuries incurred by any third party, as a result of decisions made or actions taken based on this letter report.