Other Restoration Actions

During

Other Restoration Actions

APPENDIX E

Summary - Monitoring Trip No.1

SUMMARY - KALAMAZOO RIVER BANK EROSION MONITORING TRIP NO.1

1.0 Introduction

From November 18 to 20, 2010, the first bank erosion monitoring trip of the Kalamazoo River was completed. The following persons were in attendance: Jamie Matus (AECOM), Jaren Hiller (AECOM), Stu Kogge (JFNew), Brian Majka (JFNew), and Michelle DeLong (MDNRE). From November 18 to 19, all were in attendance from MP 2.0 to MP 27.0. Mr. Barry Stuedemann (Cardno ENTRIX) was also present for a portion of the monitoring trip on November 18 and 19, 2010. On November 20, Matus, Hiller, and Kogge monitored from MP 27 to 37.75.

Visual observations of the erosion areas previously identified in the "Kalamazoo River Bank Erosion Assessment and Action Plan" were completed. Based on visual observations, the priority ratings, as described in the "Kalamazoo River Bank Erosion Assessment and Action Plan", were reevaluated. New ratings were assigned, either remaining the same, being upgraded (i.e. given a higher numeric priority rating), or being downgraded. In addition, if new erosion areas were observed, they were added to the erosion area list, and assigned a priority rating.

2.0 Summary of Observations

Appendix A presents the table of the observed erosion areas, including specific ratings, pertinent information for each area. In summary, since the completion of the Kalamazoo River Bank Erosion Assessment and Action Plan" (10/28/10):

- 10 Sites were restored. They now receive a rating of "1",
- 45 Sites are unchanged,
- 11 Sites were downgraded:
    - Eight sites were downgraded from a rating of "4" to "3",
    - Two sites were downgraded from a rating of "4" to "2",
    - One site was downgraded from a rating of "3" to "2",
- 10 Sites were upgraded:
    - Three sites were upgraded from a rating of "3" to "4",
    - One site was upgraded from a rating of "3" to "5",
    - Six sites were upgraded from a rating of "4" to "5",
- 6 Sites were added:
    - Three with a rating of "3",
    - One with a rating of "4",
    - Two with a rating of "5".

During the monitoring trip many of the sites, especially those with a base of vegetation and/or root mass, were observed to be naturally stabilizing. In particular, all previously indentified erosion sites downstream of the confluence with the Battle Creek River have either remained in the same category or were downgraded indicating that within this reach of river, were response activities have significantly decreased, the river banks have stabilized. Areas with little vegetation and root mass, especially those particularly exposed to wave

action from boats (e.g. islands) are continuing to degrade. Additional erosion sites were also added within these areas due to apparent wave action from boats. Boat activity on the river has significantly been reduced in recent weeks. If and when boat activity increases, its impact on bank erosion will be re-evaluated, and additional measures may be taken.

Reference Reach Areas

The reference reach of the Kalamazoo River (from 17 Mile Road to Marshall Avenue in the City of Marshall) was monitored on 11/24/10 by AECOM (Craig Simon). Based on the visual observations, it appears that the reference reach has been relatively unchanged since the original visit.

As previously described, photographic and video recordings of each of the 78 original sites and any new sites were obtained during the monitoring trip. The photo log of monitoring trip 1 is included in the following pages.

3.0 Summary of Actions

As a result of monitoring trip No.1, there were nine category 5 priority areas. Design plans for these areas have been developed (Appendix F). The stabilization method of choice for eight of the nine areas is natural woody material. The deep water depths make the use of coir logs less effective and large woody material can be placed in a wider range of water depths. Large woody debris can also provide terrestrial and aquatic habitat in addition to bank stabilization. In-stream placement of large woody debris could create perches for small mammals, birds and turtles and may allow small pools to form, creating shelter for fish. Algae that grow on the woody debris will provide food for insects and invertebrates, which in turn provide a food source for fish.

The ninth area will require some level of discussion with the Calhoun County Road Commission and additional engineering given its location along the road right of way of Raymond Road.

ENBRIDGE LINE 6B INCIDENT
KALAMAZOO RIVER BANK EROSION ASSESSMENT AND ACTION PLAN

Photo Log
Monitoring Trip No.1
11/18/10 to 11/20/10

Site 1

Site 2 Photo A

Site 2 Photo B

Site 3

Site 4

Site 104

Site 5

Site 6

Site 7

Site 8

Site 9

Site 10

Site 11 Photo A

Site 11 Photo B

Site 12

Site 13

Site 113

Site 14

Site 15

Site 16

Site 17

Site 18

Site 19

Site 20

Site 21

Site 22

Site 23

Site 24 Photo A

Site 24 Photo B

Site 25

Site 26

Site 27 Photo A

Site 27 Photo B

Site 28 Photo A

Site 28 Photo B

Site 29

Site 30 Photo A

Site 30 Photo B

Site 31

Site 32 Photo A

Site 32 Photo B

Site 32 Photo C

Site 32 Photo D

Site 33

Site 34

Site 35 Photo A

Site 35 Photo B

Site 36

Site 37

Site 38

Site 39

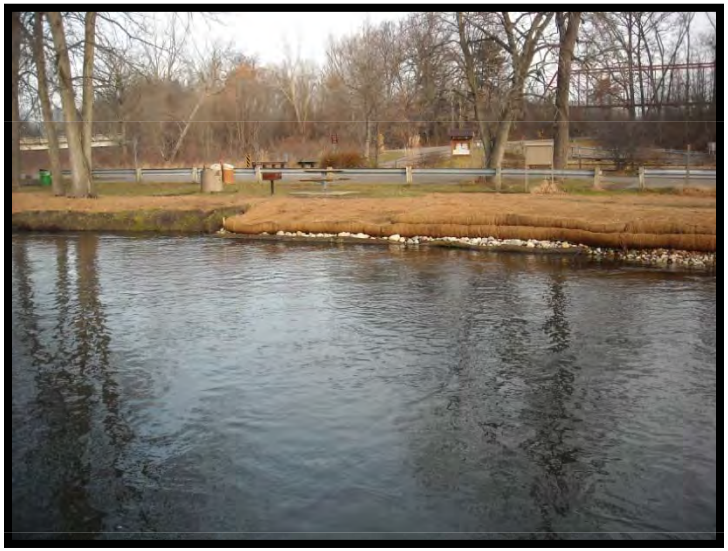
Site 40 Photo A

Site 40 Photo B

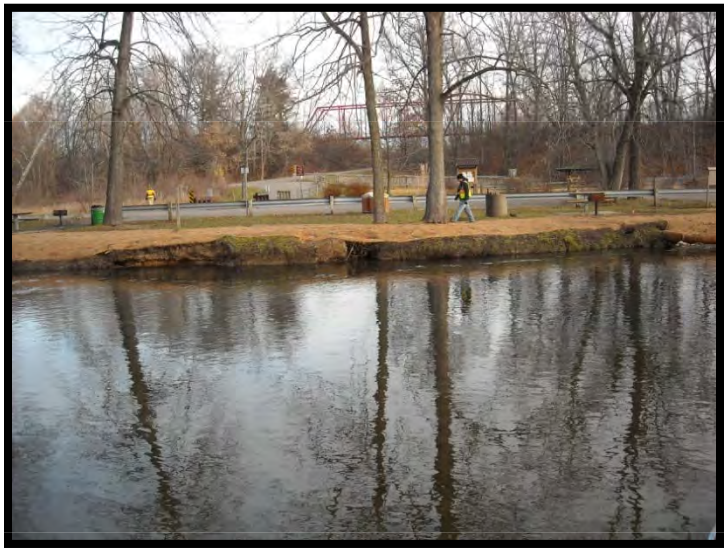
Site 41

Site 42 Photo A

Site 42 Photo B



Site 42 Photo C



Site 42 Photo D

Site 42 Photo E

Site 42 Photo F

Site 43L

Site 43R

Site 44 Photo A

Site 44 Photo B

Site 44 Photo C

Site 44 Photo D

Site 44 Photo E

Site 45 Photo A

Site 45 Photo B

Site 145 Photo A

Site 145 Photo B

Site 46 Photo A

Site 46 Photo B

Site 47 Photo A

Site 47 Photo B

Site 48

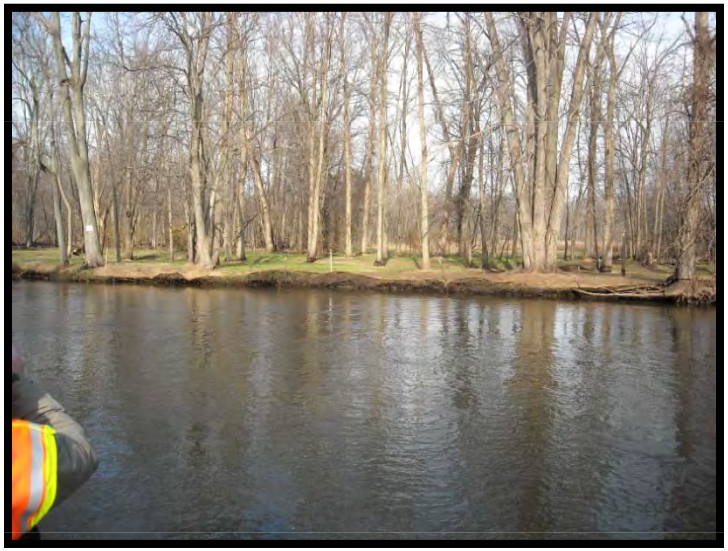
Site 49

Site 50

Site 51

Site 152

Site 52



Site 53

Site 54

Site 55

Site 156

Site 56 Photo A

Site 56 Photo B

Site 56 Photo C

Site 56 Photo D

Site 57

Site 58 Photo A

Site 58 Photo B

Site 59 Photo A

Site 59 Photo B

Site 160

Site 60

Site 61

Site 161

Site 261 Photo A

Site 261 Photo B

Site 62

Site 63

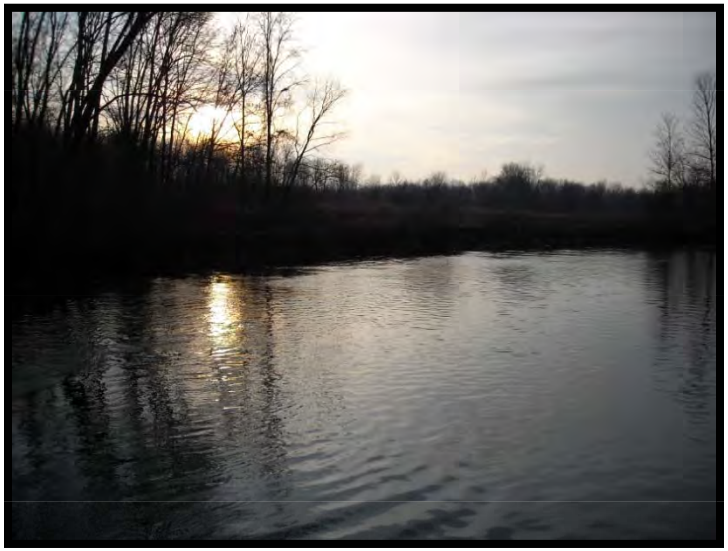
Site 164

Site 64

Site 165

Site 65

Site 66 Photo A



Site 66 Photo B

Site 67

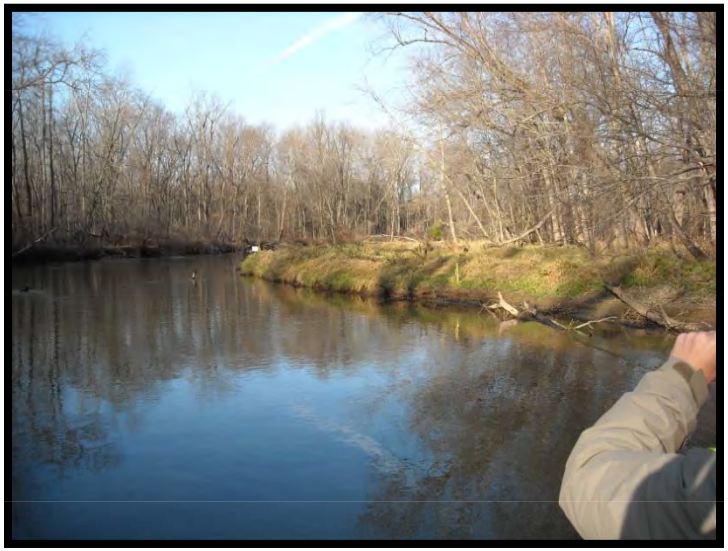
Site 68 Photo A

Site 68 Photo B

Site 68 Photo C

Site 68 Photo D

Site 169



Site 69 Photo A

Site 69 Photo B

Site 170 Photo A

Site 170 Photo B

Site 70 Photo A

Site 70 Photo B

Site 71

APPENDIX F

Stabilization Design Plans – Addendum No.1

ENBRIDGE LINE 6B INCIDENT
KALAMAZOO RIVER BANK STABILIZATION DESIGN
PRIORITY AREAS
ADDENDUM NO.1

DECEMBER 8, 2010

FIGURE #	SITE ID	APPROXIMATE MILE POST
1	12	4.0
2	29	6.8
3	30	7.1
4	145	10.0
5	52 & 54	11.2
6	156	11.65
7	57	11.8

DETAIL ID	DESCRIPTION
E	BRUSH WATTLES AND WOODY MATERIAL
F	BANK RECLAMATION

NOTES:

1 IN THE 11/20/10 MONITORING TRIP, SITE #59 WAS ELEVATED TO A PRIORITY 5 SITE. HOWEVER, IT IS DIRECTLY ADJACENT TO RAYMOND ROAD (A CALHOUN COUNTY ROADWAY). THE BANK EROSION AT THIS LOCATION COULD BE THE RESULT OF STEEP ROADWAY EMBANKMENT SLOPES, AND MAY REQUIRE MORE INTENSIVE STABILIZATION TECHNIQUES. COORDINATION WITH THE CRC WILL BE REQUIRED TO FURTHER ADDRESS THIS SITE.

2) WHERE LOGS HAVE REPOSITIONED THEMSELVES IN THE RIVER AND ARE NOW CAUSING BANK EROSION, OR HAVE THE HIGH POTENTIAL TO CAUSE EROSION, J.F. NEW FIELD CONSTRUCTION CREWS WILL RELOCATE LOGS TO PREVENT FUTURE EROSION.

ALL APPLICABLE STATE / LOCAL PERMITS, AND LAND OWNER PERMISSION MUST BE OBTAINED PRIOR TO COMMENCING WORK

REVISION DATE

AECOM

60162778 12/08/10

N

Feet
0 25 50

ALL APPLICABLE STATE / LOCAL PERMITS, AND LAND OWNER PERMISSION MUST BE OBTAINED PRIOR TO COMMENCING WORK

FIGURE 1
SITE #12
BANK EROSION STABILIZATION DESIGN
ADDENDUM NO.1

AECOM

60162778

12/08/10