March 22, 2013

Ms. Robyn Schmidt  
MDEQ-WRD  
120 West Chapin Street  
Cadillac, Michigan 49601

SUBJECT: Phase II Reclamation Response Downstream of Brown Bridge Dam  
Brown Bridge Dam Removal and Restoration Project – Order to Restore  
Complaint File Number: 12-28-035-V  
Property Location: Brown Bridge Dam  
Grand Traverse County, East Bay Township, T25N, R10W, Sections 14/15  
AMEC Project Number: 3310120014

Dear Ms. Schmidt:

AMEC Environment & Infrastructure, Inc. (AMEC) is requesting approval from the Michigan Department of Environmental Quality (MDEQ) on behalf of the City of Traverse City (City) and the Boardman River Dams Settlement Agreement Implementation Team (IT) to reclaim sand that has deposited immediately downstream of Garfield Road bridge, as well as other restoration activities as outlined in this letter, as a result of an abrupt release of water that occurred in the area of the temporary dewatering structure (TDS) and Brown Bridge Dam on October 6, 2012.

Based on our site visit on February 6, 2013 along portions of the Boardman River, it was recommended that the City provide a scope of work describing the proposed sediment removal activities. Individuals that participated in the site visit included Sandra Sroonian and Joe Caryl (AMEC), Susan Conradson and yourself (MDEQ), Frank Dituri and Brett Fessell (IT), Steve Largent (Grand Traverse Conservation District [GTCD]), Al MacDonald (Molon Excavating, Inc.), and Ken Gregory (City). The following is a summary of the three proposed activities.

Excavation of In-Stream Sediment (Sand) Immediately Downstream of the Garfield Road Bridge

AMEC conducted a preliminary assessment to evaluate downstream sediment deposition between the Brown Bridge Dam and the Boardman Pond between October 8 and 11, 2012. The assessment identified sediment deposition immediately downstream of the Garfield Road bridge. The City is recommending the removal of approximately 170 cubic yards of sediment from the north bank of the river that deposited in this area as a result of the incident (refer to Figure 1 Proposed Limits of Excavation of In-Stream Sand Deposition Downstream of Garfield Bridge and Photo No. 1). The scope of work will consist of the following:

- Sediment will be accessed from the north bridge abutment at the end of the guardrail with a track-mounted long reach excavator. This will require a Garfield Road lane closure permit. Minimal clearing of brush will be necessary to access the river from the north.
- Approximately 170 cubic yards of sediment will be removed from the north bank. Work will start at the western end and work eastward, stockpiling the material on the existing sand bar adjacent to the northwest bridge abutment. These quantities were estimated based on depth of refusal measurements conducted in the field by AMEC on March 6, 2013.
• The material will then be live-loaded, with the excavator stationed on the bridge, into trucks. This activity is expected to take one day and would require a lane closure permit.
• Excavated soils will be transported to the Brown Bridge Quiet Area and placed in one of the existing spoil areas previously approved by the MDEQ under the dam removal and restoration permit, per written approval from the MDEQ-Water Resources Division.
• The scope also includes cutting down several white pines (quantity assumed is three) that appear unstable on the south side of the embankment where previous erosion has been documented by the GTCD (Photo No. 2). Tree stumps will remain in place for slope stabilization. The trees will be removed as part of this restoration phase. Removal of the white pine trees is part of the permitted activities under MDEQ Permit Number 12-28-0042-P by the current property owner, Mr. William Springstead. The trees will be anchored in the streambed/floodplain to provide habitat and bank stabilization.
• Prior to demobilizing from the work area, the disturbed areas will be graded accordingly, including the restoration of the Springstead property. Any disturbed vegetation will remain on-site, above the high water mark.
• It is assumed that AMEC or its subcontractor will be required to obtain a Right-of-Way Permit from the Grand Traverse County Road Commission (e.g., lane closure, Michigan Department of Transportation flagging sequence) in order to perform these activities. It is assumed the work can be completed in a two-day period.
• Access to the work area requires approval by the adjacent property owner, Mr. William Springstead. It is assumed that the MDEQ will coordinate access to the work area with the property owner.

Removal of Concrete Abutment from Former Garfield Road Bridge
• The scope includes the removal of the existing concrete abutment observed in the river, adjacent to the northern river embankment (refer to Photo No. 3). The concrete abutment will be removed and transported off-site. The north embankment will be graded/shaped in the general area to a 3:1 slope, covered with topsoil, and seeded (refer to Photo No.4).
• Access to the work area requires approval by the adjacent property owners, Mr. Charlie Way and Mr. William Springstead. It is assumed that the MDEQ will coordinate access to the work area with both property owners.
• Due to the use of heavy equipment, the scope of work includes restoration of the existing driveway owned by Mr. Way (e.g., 4 inches of gravel) as well as restoration of areas disturbed due to river access.
• Portable construction mats will be used in sensitive areas to avoid impacts from heavy construction equipment. No filling of wetlands will be performed.

Placement of Large Woody Debris
The MDEQ has suggested the addition of large woody debris from the location of the former dam to the Brown Bridge Road crossing, which may have been impacted as a result of the October 6 incident. It is our opinion that there was not a loss of large woody debris in this section of the river as a result of the incident since woody debris was not removed from the culverts at the Brown Bridge Road crossing during or after the incident. However, AMEC will, under the direction of the GTCD, cut down several trees along this section of the river for placement in the river. Trees located on property not owned by the City will require approval of the designated property owner(s)

If you have any questions, please do not hesitate to contact Sandra Sroonian at either (231) 922-9050, extension 201 or (773) 230-6057 (cellular phone), on behalf of the City.
Sincerely,

AMEC Environment & Infrastructure, Inc.

[Signature]
Joseph Caryl
Principal Construction Manager

[Signature]
Sandra L. Sroonian
Senior Project Manager

Attachments:
Figure 1: Proposed Limits of Excavation of In-Stream Sand Deposition Downstream of Garfield Road
Photographs of Proposed Reclamation Area

Cc: Ben Bifoss, City Manager; City of Traverse City
Mario Fusco; MDEQ-WRD, Lansing
Brian Jankowski; MDEQ-WRD, Cadillac
Jim Pawloski; MDEQ, Gaylord
Brian Bury, Natural Rivers Administrator; MDNR-Fisheries Division, Gaylord
Gwen Zagore;, Grand Traverse County Soil and Erosion Control
LEGEND
- SAND DEPOSIT TO BE REMOVED (APPROXIMATE 170 CU YDS)
- EXPOSED BAR
- EDGE OF BANK
- APPROXIMATE EXTENT OF SAND DEPOSIT
- EDGE OF WATER
- CONTOURS

FIGURE 1
PROPOSED LIMITS OF EXCAVATION OF IN-STREAM SAND DEPOSIT DOWNSTREAM OF GARFIELD BRIDGE
SITE PHOTO LOG
Phase II Reclamation Response
Downstream of Brown Bridge Dam
Photos taken March 6, 2013
AMEC Project No. 3310120014

Photo 1: Point bar deposited below Garfield Road. Looking west.

Photo 2: Erosion features along meader, Garfield Road. Looking south-southwest.

Photo 3: Collapsed portion of concrete abutment, note rebar in "pillar".
Photo 4: Bank at abutment collapse, no downstream wingwall. Looking west.