Response to EPA Reaffirmed Objection Dated December 4, 2012 to the Proposed MDEQ Permit for the CR 595 Project

Requirements for Minimization and Compensatory Mitigation to Satisfy EPA's Objection

December 27, 2012

1.0 Introduction

In its letter and attachment thereto dated December 4, 2012, EPA removed a previously-stated objection to MDEQ permit issuance based upon the alternatives assessment for the proposed CR 595; however EPA reaffirmed its objection to permit issuance regarding the minimization of impacts and compensatory mitigation. This document addresses the EPA letter point-by-point and is intended to satisfy the reaffirmed objection of EPA for the CR 595 project so that MDEQ can issue the permit on or before the deadline of close-of-business January 3, 2012.

2.0 Mitigation of Direct Impacts

To demonstrate that the proposed stream and wetland mitigation will sufficiently compensate for proposed direct impacts, EPA is requiring that Marquette County Road Commission (MCRC) provide the items described in this section prior to the issuance of a permit by the MDEQ.

2.1 Identification of a Third-Party Land Steward for the Long-Term Management of the Wetland Preservation Site

MCRC is proposing to designate the Michigan Department of Natural Resources (MDNR) as the third-party steward for the proposed Dishno Creek Headwaters Wetland Preservation Area (preservation area). MDNR employs wildlife biologists, fisheries biologists, forest land managers, and park managers that have extensive experience in managing natural areas and conducting ecological site improvements. MDNR owns and manages 4.5 million acres of land and six million acres of mineral rights. The largest state park (at 60,000 acres) is Porcupine Mountains Wilderness State Park located in the Western Upper Peninsula. MDNR also manages portions of other state parks as protected natural areas, including:

- Warren Dunes State Park (Great Lakes sand dunes and climax old-growth beech-maple forest);
- Grand Mere State Park (Great Lakes interdunal wetlands);
- Hartwick Pines State Park (virgin white pine forest);
- Craig Lake State Park (old-growth forest).

MDNR would serve as the third-party steward of the proposed preservation area in perpetuity, as it does with the millions of acres of other lands that it manages and protects for the citizens of the State of Michigan. The only foreseeable exception would

be if the subject preservation land is transferred at some time in the future to the US Forest Service to be added to the McCormick Wilderness, which is adjacent to two sides of the proposed preservation area. Adding lands to the McCormick Wilderness may take several years to accomplish and may involve the need for authorization by Congress.

MDNR would manage the proposed preservation area in strict compliance with the conservation easement and long-term management plan that has been prepared and will be submitted to MDEQ and EPA for approval. Prior to initiation of any permitted activities for the CR 595 project, MDNR will enter into a written agreement for serving as third-party steward, including financial assurances provided by MCRC or its agent for all expenses related to the stewardship of the proposed preservation area.

2.2 Adaptive and Long-Term Management Plans for Stream and Wetland Mitigation

EPA is requiring that, prior to permit issuance, adaptive and long-term management plans for both stream and wetland mitigation, including a monitoring and reporting schedule and funding mechanism, be implemented by the permittee.

40 C.F.R. § 230.97 (c) (Adaptive Management) and (d) (Long-Term Management), as stated below in *italics*, define the measures that must be taken for stream and wetland mitigation projects. It is assumed that reference to the "district engineer" should be replaced with "MDEQ" due to the Corps of Engineers District Engineer not being involved in the permitting of the CR 595 project.

> *Adaptive Management*
>
> *(1) If the compensatory mitigation project cannot be constructed in accordance with the approved mitigation plans, the permittee or sponsor must notify the district engineer. A significant modification of the compensatory mitigation project requires approval from the district engineer.*
>
> *(2) If monitoring or other information indicates that the compensatory mitigation project is not progressing towards meeting its performance standards as anticipated, the responsible party must notify the district engineer as soon as possible. The district engineer will evaluate and pursue measures to address deficiencies in the compensatory mitigation project. The district engineer will consider whether the compensatory mitigation project is providing ecological benefits comparable to the original objectives of the compensatory mitigation project.*
>
> *(3) The district engineer, in consultation with the responsible party (and other federal, tribal, state, and local agencies, as appropriate), will determine the appropriate measures. The measures may include site modifications, design changes, revisions to maintenance requirements, and revised monitoring*

requirements. The measures must be designed to ensure that the modified compensatory mitigation project provides aquatic resource functions comparable to those described in the mitigation plan objectives.

Long-Term Management

(1) The permit conditions or instrument must identify the party responsible for ownership and all long-term management of the compensatory mitigation project. The permit conditions or instrument may contain provisions allowing the permittee or sponsor to transfer the long-term management responsibilities of the compensatory mitigation project site to a land stewardship entity, such as a public agency, non-governmental organization, or private land manager, after review and approval by the district engineer. The land stewardship entity need not be identified in the original permit or instrument, as long as the future transfer of long-term management responsibility is approved by the district engineer.

(2) A long-term management plan should include a description of long-term management needs, annual cost estimates for these needs, and identify the funding mechanism that will be used to meet those needs.

(3) Any provisions necessary for long-term financing must be addressed in the original permit or instrument. The district engineer may require provisions to address inflationary adjustments and other contingencies, as appropriate. Appropriate long-term financing mechanisms include non-wasting endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial instruments. In cases where the long-term management entity is a public authority or government agency, that entity must provide a plan for the long-term financing of the site.

(4) For permittee-responsible mitigation, any long-term financing mechanisms must be approved in advance of the activity causing the authorized impacts.

2.2.1 *Adaptive Management Plan for Wetland Mitigation*

The compensatory wetland mitigation for the CR 595 project is preservation of high quality wetlands and adjacent uplands; no wetland construction or creation is proposed. Construction will be involved in the preservation area for the closure of roads, fencing, signage, and similar activities to prohibit vehicular access, including ATVs. Construction will include removal of stream crossings within the preservation area; seeding and planting disturbed areas; and other measures that would enhance the sanctity of the preservation area. The effectiveness of these construction activities will be evaluated as part of the short- and long-term preservation area monitoring and management.

Failure of measures to prohibit vehicular access or areas of new unauthorized vehicular access will be evaluated and measures implemented to prohibit vehicular access, including coordination with adjacent landowners. These measures may include more aggressive physical barriers; planting larger trees to screen blocked roads/trails; additional signage; and enforcement of trespass with vehicles.

Invasive species will be monitored within the preservation area, especially areas adjacent to blocked roads/trails that are more likely vectors of invasive species introduction, as described in the preservation area management plan. Should invasive species be identified, a proposed management plan will be prepared for MDEQ review with recommendations for prudent actions to reduce the infestation and limit the pathways by which invasive species are introduced.

A description of the corrective actions taken on the preservation area will be reported to MDEQ in the annual preservation area monitoring report.

2.2.2 *Adaptive Management Plan for Stream Mitigation*

The proposed stream mitigation for the CR 595 project involves construction and the adaptive management provisions from § 230.97(c) would apply. Stream crossings on the proposed CR 595 and the reconstruction of the three existing stream crossings on other Marquette County roads that are part of the stream mitigation plan have been engineered based upon data obtained using aspects of the Stream Simulation Methodology. Therefore, substantial changes to the stream mitigation design are not anticipated. However, there will be additional stream data gathered during the preparation of the final construction plans (e.g. stream bottom pebble counts) that will help ensure attainment of performance standards.

The design of each stream crossing has been prepared with safeguards to ensure that each stream crossing will perform as intended for the life of the structure without impairments to the stream habitat or stream flow (i.e. hydraulics). Structures are sized to not only allow the flow of storm events, but to also provide for wildlife movements along the stream banks through the structures.

Stream crossings will be monitored as described in this document. If the monitoring indicates that performance standards for stream mitigation are not being met, corrective actions will be taken to attain the performance standards. Monitoring will continue until such time that performance standards are attained, even if the monitoring extends beyond the time period specified for stream monitoring.

Stream mitigation measures that may be subject to adaptive management are the installed stream substrate, stream banks, erosion and sedimentation control devices, and streamside plantings. Prior to construction, pebble counts will be implemented to determine the appropriate stream bottom substrate for replacement of a natural streambed inside the stream crossing structures and in stream relocations. If monitoring determines that the stream bottom in these areas is scouring or is otherwise not performing like the natural stream bottom (with similar pebble counts, for example), then analysis of the problem and formulating a solution will be accomplished according to the direction provided in § 230.97(c). Reconstruction of the streambed using adequate sized materials will be done if failure of the streambed has occurred.

If the stream bank within the structure does not persist due to erosion, physical displacement, or other changes that require maintenance, the cause for the failure of the stream bank will be determined and corrective action planned accordingly. The corrective action may include reconstruction of the stream bank within the structure.

The fourth component of the stream mitigation plan is the paving of existing gravel road segments over the Yellow Dog River and Big Garlic River for the purpose of reducing sediment introduction into the streams. The adaptive management that may occur on these paving projects is to monitor the runoff from the paved road surface to detect any erosion at stormwater outfalls or in other areas of the road embankment adjacent to the stream. If erosion is occurring, best management practices will be implemented at the erosion site including reconstruction of the stormwater outfall, installation of diversions to direct runoff away from the stream, or other measures to stop the erosion into the stream. Funding for any corrective actions would be provided by the financial assurances posted for this purpose.

2.2.3 *Long-Term Management for Wetland Mitigation*

The long-term management of the proposed wetland preservation area will be implemented by MDNR as the third-party steward in compliance with the Management Plan for the Dishno Creek Headwaters Wetland Preservation Area and conservation easement. The Management Plan is provided in Appendix A.

2.2.3.a. *Long-Term Management Needs for Wetland Mitigation*

The long-term management of the proposed wetland preservation area is anticipated to be limited due to the remote nature of the preservation area and existing high resource quality characteristics of the preservation area. The wetlands in the preservation area have high value due to the natural vegetative character of the wetlands and the relatively undisturbed condition of the wetlands

due to isolation. The most important long-term management goal for the preservation area is to limit threat pathways and to maintain the existing natural character of the wetlands.

2.2.3.b. *Costs of Long-Term Management*

The first five years after the proposed preservation area is established are the most critical in terms of changing existing local use patterns on the property. Those local use patterns include such uses as vehicular access (including ATVs) and firewood cutting. Hunting, fishing, hiking, or gathering will not be prohibited; however, vehicular access restrictions will likely alter recreationists' use of the property. As a result more intensive site management and monitoring is proposed for the first five years.

The cost of the road closures, signage, semi-annual inspections and the annual inspections thereafter are provided in the spreadsheet in Appendix B.

2.2.3.c. *Funding Mechanism for Long-Term Management*

Prior to the initiation of any permitted activities, MCRC will establish an account with funding sufficient to pay for the long-term management needs of the preservation area, as defined in Table 2-1.

2.2.4 *Long-Term Management for Stream Mitigation*

Stream mitigation includes the improvements associated with the 22 stream crossings proposed on CR 595; the East Branch Salmon Trout River restoration project; the Flopper Creek restoration project; the Halfway Creek restoration project; and, the paving of critical portions of CR 510 adjacent to the Big Garlic River and Yellow Dog River to reduce sediment input into those streams.

Achievement of performance standards, as expressed through pre-construction and as-built surveys, will demonstrate that the proposed stream mitigation projects are self-sustaining. The applicant will be responsible for performing monitoring and maintenance activities necessary to maintain the mitigation projects as described in this document.

MDEQ has jurisdiction of the subject streams. Therefore, alteration of these streams requires a permit from MDEQ, effectively protecting these streams from direct impacts and related indirect impacts. As such, long-term management plans for stream mitigation primarily focuses on ensuring that the stream crossings and restoration projects are constructed according to plans; that the design of the stream crossings promotes or restores stream functions; and, that the stream banks and streambed are stable. If monitoring determines that the

stream mitigation performance standards are not being met, corrective actions will be taken as described in the adaptive management section of this document.

The stream mitigation performance standards discussed in Section 2.3 below provide the basis for long-term monitoring of stream segments involved in the stream mitigation.

2.3 Measurable Performance Standards for Stream Mitigation

EPA is requiring that measurable performance standards for stream mitigation must be specified prior to permit issuance.

Stream mitigation projects involving culvert replacement are proposed as part of the CR 595 project to re-establish hydraulic, geomorphology and biology functions through the construction of bankfull channels within the replacement stream crossings and to re-habilitate biological functions for fish community passage and landscape connectivity for riparian corridor wildlife movement. The design standards for these stream crossing structures were intended to ensure the construction of bankfull channel and bankfull channel shelves inside the structures.

Stream mitigation projects involving road improvements or road relocations are proposed to rehabilitate physicochemical and biological functions through the reduction of sediment caused by vehicular disturbance and surface water runoff. The performance standards for these stream mitigation projects include the installation of road improvements to minimize sediment runoff from roads, diverting stormwater runoff away from streams, securing abandoned (as a result of CR 595 construction) road segments from use, and stabilization of disturbed ground.

Baseline stream surveys have been conducted for most of the streams on the proposed CR 595 project (i.e. some very small streams were not surveyed). Surveys on the streams that have not been surveyed to establish baseline conditions will be conducted in 2013, prior to the start of any construction in the vicinity of those streams.

2.3.1. Stream Performance Standards.

The performance standards for stream mitigation are as follows:

- Constructed bankfull channels within the stream enclosures and reconstructed stream channels will be stable with no aggradation of the stream bottom or other morphological changes that would negatively affect stream depth or functions;

- Bank erosion will be minimal and will not alter the horizontal alignment of the stream channel;

- Stream substrate will remain consistent with the stream bed material installed during construction;

- Stream flows during high-flow events (i.e. snow melt, heavy precipitation events) will pass through the stream crossing structures without causing deleterious effects on stream habitat (e.g. scour or deposition of sediment);

- Stream functions will be maintained or improved for aquatic organisms and other wildlife species.

2.3.2 Stream Measurement Metrics to Determine Compliance with Stream Mitigation Performance Standards.

The following methods will be implemented to determine whether the performance standards for stream mitigation are being met.

Data will be obtained on the streams to determine the stability of the stream as designed using the criteria of Stream Simulation; i.e. to determine the effectiveness of the stream crossings utilizing the Stream Simulation methodology. Surveys will be conducted to determine the following:

- Slope of the stream through the new structures;

- Head-cutting in the stream;

- Stream channel integrity within the box culvert or bridges;

- Condition of the bankfull channel shelves in the stream crossing structure in regard to providing wildlife passage;

- Changes in stream channel depths or stream bank configuration;

- Stream substrate composition by conducting pebble counts within the stream crossing structures after construction; and,

- Sediment bedload downstream of the structure is similar to upstream reaches of the stream.

Habitat characteristics and water quality of the stream mitigation sites will be monitored using the following methods:

- MDEQ Procedure 51 Protocol to gather data on pH, water temperature, conductivity, and dissolved oxygen;

- Evaluation of 10 metrics to characterize stream habitat to determine changes in sediment bedload, woody debris, and substrate types;

- Collecting and classifying aquatic macroinvertebrates as an indicator of the stream habitat quality; and,

- Electrofishing surveys to determine the assemblage of fish species present and determine any changes in fish communities.

The stream mitigation sites will be monitored biannually by MCRC or its agents or contractors as described above for a period of ten years. A report will be prepared and submitted to MDEQ for each monitoring year by January 31 of the following year. Any corrective actions that may be necessary will be coordinated with MDEQ and necessary permits obtained.

2.4 Signed Stewardship Agreement

Prior to initiation of any permitted activities MCRC shall provide a signed agreement with MDNR to serve as third-party steward of the proposed preservation area. The draft agreement is provided in Appendix C.

2.5 Demonstration that Financial Assurances are in Place

Prior to initiation of any permitted activities, MCRC will provide documentation to MDEQ that financial assurances are in place to ensure construction compliance and fund the long-term management of the proposed preservation area and stream mitigation projects. The amount of the financial assurances will be determined in coordination with MDEQ and MDNR. Proposed amounts are provided in a spreadsheet in Appendix B.

2.6 Demonstration that Mineral Rights have been Secured

Attorney opinions, title insurance commitment, and abstracts have been prepared by counsel and submitted to MDEQ and EPA under separate cover dated December 26, 2012.

3.0 Minimization and Compensation for Indirect and Secondary Impacts

To minimize indirect and secondary impacts to aquatic resources from the CR 595 project and to fully demonstrate compliance with 404(b)(1) Guidelines, the items described in this section are required prior to permit issuance by MDEQ.

3.1 Description of Critical Habitat and Mechanisms for Protection

Prior to permit issuance a detailed proposal describing the mechanism and locations of protected critical habitat shall be provided to MDEQ.

In order to facilitate the evaluation of potential indirect and secondary impacts to "critical habitats" on the CR 595 corridor, the following definition of "critical habitat" was prepared:

a) Critical habitat is an area that is inhabited by threatened or endangered species or provides habitat for a critical life process for a threatened or endangered species (e.g. nesting, winter cover, etc.);

b) Critical habitat is a habitat type that is ranked by the Michigan Natural Features Inventory as "global or state imperiled" (i.e. G2/S2).

The critical habitats that have been identified to-date on the proposed CR 595 corridor are areas inhabited by narrow-leaved gentian, a State of Michigan-threatened plant species that is typically found in wetlands (i.e. aquatic resources). No federal-listed threatened or endangered species have been documented in the CR 595 corridor.

One concentration of narrow-leaved gentian is present on the proposed CR 595 corridor and is located in the Wildcat Canyon Creek area extending from Station 1422 to Station 1425 and mostly east of the CR 595 right-of-way. Another concentration of narrow-leaved gentian is upstream of the proposed crossing of the Yellow Dog River and not within the CR 595 corridor. A third concentration of narrow-leaved gentian is located at the existing crossing of the Trail 5 snowmobile trail over Mulligan Creek, which will be abandoned as part of the CR 595 project, affording more protection for this concentration of narrow-leaved gentian. The proposed CR 595 crossing of Mulligan Creek is located several hundred feet upstream of the existing crossing and narrow-leaved gentian have not been found at that location.

Permits from the State of Michigan would be required for impacts to narrow-leaved gentian or any other State-listed species under Part 365 (Endangered and Threatened Species). If proposed impacts involve wetlands or stream crossings, permits from MDEQ are required under Part 303 (Wetlands Protection), and Part 301 (Inland Lakes and Streams). These regulations will serve to add additional protection to critical habitats.

There have been no global- or state-imperiled habitats identified on or adjacent to the CR 595 corridor.

Indirect or secondary impacts caused by the CR 595 project to critical habitats may have deleterious impacts on important natural resources found within or near these critical habitats. Implementation of measures to protect critical habitats is necessary to protect these natural resources from indirect or secondary impacts. Therefore, monitoring will be conducted to identify any impacts that may be caused by CR 595 and a management plan has been prepared to describe corrective or mitigation actions that may be taken if such impacts are identified. The management plan is included in section 3.1.4.

As part of the assessment completed to determine the areas of critical habitat on the CR 595 project and assess the potential for activities that may cause indirect or secondary impacts to these resources, the following have been evaluated in an attempt to quantify the scope of this issue:

- Existing road connections;
- Restrictions for new driveway/road connections to CR 595; and,
- Potential for other development associated with CR 595 that may cause indirect or secondary impacts on critical habitats.

3.1.1 Existing Road Connections Proposed to Connect to CR 595.

Existing roads within the CR 595 corridor are providing service primarily for logging access on lands owned by timber companies (e.g. Plum Creek). Some existing roads are utilized to access camps, primarily on the portion of the proposed CR 595 corridor south of Brocky Lake. Since these existing roads serve the needs of landowners, new roads in these locations are unlikely to be needed or built. As explained in more detail in a later section of this document, MCRC will control all new road/driveway connections to CR 595 via a permit process, as they do with all Marquette County roads.

The proposed CR 595 corridor was divided into two segments for the purposes of evaluating the existing roads/trails that are proposed to be connected to CR 595. The first is from US-41 to Dishno Road south of Brocky Lake, a segment about 6.5 miles in length. The second segment is from Dishno Road to Triple A Road and is about 15.4 miles in length.

The segment from US-41 to Dishno Road at Station 472+00 (Plan Sheet 13) is mostly on the existing Wolf Lake Road and has more existing development adjacent to the road than the north segment. Thus, the south segment is not as

likely to have substantial indirect or secondary impacts caused by CR 595, as compared to the less-developed north segment.

The existing roads that are shown on the plan and profile drawings that would connect to CR 595 were counted on these two road segments to determine the number and location of proposed secondary road/trail connections to CR 595 based on existing uses. This information is helpful to determine the level of existing access to CR 595, and to make an assessment as to whether new access roads are likely in any given area.

The south segment from US-41 to Dishno Road has a total of 10 connections designed to join or cross CR 595 in this 6.5 miles of proposed roadway, which is an average of 0.7 road/trail connections/mile.

A total of 55 roads/trails have connections designed to join or cross CR 595 in the 15.4- mile north segment of proposed roadway, which is an average of 3.6 road/trail connections/mile. Table 3-1 provides a listing of the existing roads/trails proposed to be connected to CR 595 for these two segments.

In summary, the relatively large number of existing roads/trails connected to CR 595, especially in the north segment, would seem to substantially minimize the need for future road connections to CR 595.

Table 3-1. Existing Roads/Trails Proposed to be Connected to CR 595.

Plan & Profile Drawing Sheet Number	Road/Trail Connections to CR 595	Road/Trail Crossing CR 595
South Segment		
1	1	
7	2	
8	1	
9	1	
10	3	1
11	1	
12	1	1
Total for South Segment	**10**	**2**
North Segment		
14	1	1
15	3	
16	2	1
17	4	
19	3	
20	4	
21	2	1
22	2	1
23	3	
24	2	1
25	3	1
26	1	
27	2	
28	2	
29	3	
30	3	1
31	2	
33	2	2
34	3	3
36	2	
37	2	1
38	2	1
39	2	
Total for North Segment	**55**	**14**
Grand Total	**65**	**16**

3.1.2 Potential for Secondary Road Construction Connections to CR 595.

MCRC has authority by Michigan law (i.e. Act 200 of Public Acts of 1969) to regulate, in part, connection of driveways to highways under the jurisdiction of MCRC. MCRC has a policy for its implementation of Act 200 of 1969 in the

Marquette County Road Commission Driveway and Driveway Culvert Replacement Policy. That MCRC policy is provided in Appendix D.

MCRC recognizes the right of access by landowners to county roads, in this case CR 595. In the north segment described previously, land ownership is in large parcels by few landowners, primarily timber companies. MCRC is not required to provide road connections to CR 595 for every parcel of property if reasonable access is already provided for that landowner on another parcel within a reasonable distance.

MCRC is committed to placing the following restrictions for connecting roads to CR 595 for the purpose of limiting indirect or secondary impacts to aquatic resources:

1. MCRC will not permit new roads that are proposed to connect to CR 595 in critical habitats, including wetlands. Each property owner will be so notified by MCRC in writing within six months of MDEQ issuance of Permit No. 11-52-0075-P;

2. MCRC will not permit new roads that are proposed to be connected to CR 595 that are within a reasonable distance of an existing road on the same property owner's property;

3. MCRC will develop a site-specific policy that describes how new roads that are proposed to be connected to CR 595 in or near (dependent on site-specific criteria) areas of narrow-leaved gentian will not be permitted by MCRC;

4. MCRC will not permit any other new road connection to CR 595 that may be proposed that is likely to cause indirect or secondary impacts to aquatic resources as a result of the connection to CR 595 unless no feasible or prudent alternative access is available; and,

5. MCRC will not permit new road connections in areas of steep slopes or limited sight distances due to public safety concerns. Steep slopes and limited sight distances are common on the north segment of CR 595 and will also serve to limit new road connections to CR 595.

3.1.3 Protection of Other Aquatic Resources from Indirect or Secondary Impacts

Protection of aquatic resources on the CR 595 corridor from indirect or secondary impacts begins with comprehensive monitoring protocols as described in this document. State and federal laws regulate proposed impacts to wetlands and streams for new proposed activities, but the monitoring of the aquatic

resources on the CR 595 corridor is necessary to determine whether any indirect or secondary impacts are manifested in future years after construction of CR 595. If indirect or secondary impacts are discovered, a management plan and corrective actions as described in this document will be taken to address the impacts, in consultation with MDEQ.

3.1.4 Critical Habitat Monitoring and Management Plan

The following elements will be implemented to monitor and manage the critical habitats on the CR 595 corridor:

1. Critical habitats as identified in the CR 595 corridor will be monitored on an annual basis during the CR 595 corridor wetland monitoring. Reference areas of narrow-leaved gentian that are isolated from any potential indirect or secondary impacts from CR 595 will be used in monitoring the prevalence of narrow-leaved gentian for the purpose of identification of overall population abundance in any given year as a result of climatic conditions or other perturbations that are not attributed to indirect or secondary impacts from CR 595;

2. Proposed road connections to CR 595 that would affect critical habitats will not be allowed by MCRC. Alternative routes would be required to avoid critical habitats in the CR 595 corridor;

3. If new areas of narrow-leaved gentian are found, MCRC will not allow new road connections to CR 595 in those areas;

4. If global- or state-imperiled habitats are found in the CR 595 corridor that had not previously been identified, or if rankings are revised to add an area that was not previously ranked as a global- or state-imperiled habitats, then MCRC will not allow any connections of roads to CR 595 that would affect those critical habitats;

5. If other critical habitats are identified by MDNR or MDEQ in the future, MCRC will not allow new road connections to CR 595 in those areas.

3.1.5 Protection of Other Aquatic Resources from Indirect or Secondary Impacts

Protection of aquatic resources on the CR 595 corridor from indirect or secondary impacts begins with comprehensive monitoring protocols as described in this document. State and federal laws regulate proposed impacts to wetlands and streams for new activities, but the monitoring of the aquatic resources on the CR 595 corridor is necessary to determine whether any indirect or secondary impacts are manifested in future years after construction of CR 595.

Indirect or secondary impacts to aquatic resources on the CR 595 corridor may include but not be limited to the following changes in streams or wetlands:

1. Alteration of surface water or groundwater flow or levels that negatively impact functions provided by the stream or wetland and are likely to alter the habitat provided by those aquatic resources;

2. Changes in vegetation communities that reduce diversity or shift to less-desirable species of vegetation.

If indirect or secondary impacts are discovered during the wetland and stream monitoring of the CR 595 corridor, the following management plan and corrective action will be implemented:

1. A description of the indirect or secondary impact will be provided to MDEQ, including a proposed plan for corrective action to alleviate or eliminate the impact;

2. Upon concurrence by MDEQ, and issuance of any permit that may be required for the proposed corrective action, MCRC will implement the corrective action.

3.2 Monitoring and Adaptive Management Plan for Wetlands on the CR 595 Project Corridor.

Plans for monitoring and managing wetlands along the CR 595 corridor for a minimum of 10 years are described below. These plans include methods to assess, manage, and mitigate for indirect impacts to aquatic resources resulting from the addition of pollutants, fragmentation, invasive species, alteration of hydrology, and changes in overall wetland functions.

The proposed CR 595 project will directly impact 122 wetland complexes. These wetlands have been delineated using the US Army Corps of Engineers wetland delineation method, evaluated using the Michigan Rapid Assessment Method for Wetlands (MiRAM) and characterized using Michigan Natural Features Inventory (MNFI) habitat definitions. These wetland assessment tools provide an extensive amount of baseline information relative to the location, functional value, vegetative community and hydrologic regime existing in each of the wetlands within the CR 595 project corridor.

3.2.1 CR 595 Corridor Wetland Monitoring Plan

MCRC proposes to monitor and manage the existing wetlands along the CR 595 corridor for a period of 10 years following initiation of construction. This wetland

monitoring and management plan will assess, manage, and mitigate indirect impacts resulting from hydrologic alteration, addition of pollutants, fragmentation, invasive species and changes in overall wetland functions.

Extensive ecological assessments and surveys have been completed along the CR 595 corridor within the past several years. The findings of these ecological assessments and surveys are reported in the MCRC application for permit and are considered the basis for this wetland monitoring plan. In 2010 the Michigan Rapid Assessment Method (MiRAM) for wetlands was utilized to rate the functional value of all wetlands along the CR 595 route. During 2012 ecological community identification was conducted within all wetlands along the route. The wetland community classifications, in addition to data that was collected for all wetlands during wetland delineation and MiRAM studies, provide valuable baseline data on wetlands in the CR 595 corridor. All of the information gathered during the permit application process for CR 595 will be compiled to form the baseline assessment of the wetlands in the road corridor which will be submitted to MDEQ prior to January 16, 2013. This forthcoming baseline assessment will include topographic information, wetland delineation survey data, GIS land use mapping, hydrologic data, MiRAM wetland functional value data, wildlife survey data, and ecological community/habitat characterization data.

For annual wetland monitoring, beginning in 2013, wetland sample plots will be established within each wetland within the CR 595 corridor that is impacted by the proposed road. A minimum of one sample plot per wetland will be established within 150 feet of the CR595 centerline. All wetlands that were rated as “high quality” during the MiRAM evaluation, S3 wetlands, wetlands containing protected plant species, and large wetlands will have multiple sample plot locations. The sample plots will be located in wetlands that are most likely to exhibit changes as a result of permitted impacts and/or changes to wetland functions. It is anticipated that sample plot locations would be biased toward proposed stormwater outfalls, riparian corridors and areas of significant grade changes.

Where a wetland is bisected by CR 595, wetland sample plots will be established on both sides of the road. The following will be obtained in each wetland sample plot:

- Botanical, hydrologic and wildlife community data;
- Global positioning system (GPS) latitude/longitude coordinates;
- Plot data identifying all plant species and absolute percent cover for each species within each plant stratum (i.e., woody vine, herbaceous, sapling/shrub, tree). Within a plot, the herbaceous layer (i.e., all non-

woody plants and woody plants less than 3.28 feet in height) will be sampled using a 3.28-foot by 3.28-foot quadrat. The shrub layer will be sampled using a 15-foot radius circular limit. The tree layer will be sampled using a 30-foot radius circular limit;

- A list of all living plant species encountered and also an estimate of absolute percent cover in five percent intervals for each species, bare soil areas, and open water areas relative to the total area of the plot;

- In wetlands where an observation well has not been installed, an 18-inch deep, temporary hydrological bore hole will be dug so that depth to soil saturation and depth to water table (if applicable) can be recorded. The temporary hydrological monitoring hole will be outside the limits of each quadrat location, so as not to influence future herbaceous vegetation sampling;

- One observation well will be installed within each S3 wetland as well as in all wetland complexes that were rated as “high quality” during the MiRAM evaluation. The near-surface groundwater elevation will be measured and recorded three times during the growing season in these observation wells. The same field monitoring periods will be used each year so that long-term comparisons will be feasible. The observation well sampling periods will be mid-May, mid-July, and mid-September. Data loggers may be installed to measure near-surface ground water on a more frequent basis within high quality wetlands and within hydrologically vulnerable wetlands. If semi-permanent or permanent standing water areas dominate a significant portion of a wetland, a staff gage will be installed;

- GPS latitude/longitude coordinates will be recorded at each observation well and staff gauge;

- Reporting will include all strata data collected for each plot, including dominance hierarchy of each species based upon application of the “50/20 Rule” (U.S. Army Corps of Engineers 2012);

- Hydrologic trends may be determined by plotting soil saturation data, depth-to-water data, and percentage results of the vegetation 50/20 Rule over time;

- Each plot will also be a four-way photo station. Each photo station will be centered upon a botanical plot and the four photos will view the four cardinal directions. Directional photography, coupled with the other

sample plot data will be an efficient way to determine changes (if any) that may occur over the short-term or long-term;

- The plot data will be collected two times per year for a 10-year period; and,

- Wildlife observations will be documented at each wetland along one north-south and one east-west transect established within each wetland. All sightings and evidence of wildlife species, including direct observation, tracks, scat, and songs/calls or other vocalizations within close proximity of the wetland sample plot will be documented.

A report of the findings of the CR 595 corridor wetland monitoring will be submitted to MDEQ by January 31 of the year following the monitoring. Monitoring reports will include identification of threats to the functional value of the wetlands and will include recommendations as necessary regarding actions to be taken to mitigate identified threats.

3.2.2 CR 595 Corridor Management Plan for Wetlands

If any portion of the proposed road cannot be constructed in accordance with the approved plans, MCRC will notify MDEQ and submit modified plans for review and approval.

Prior to commencement of construction, MCRC will designate an Environmental Compliance Manager (ECM). The ECM will be an environmental consulting firm with the staff and expertise to monitor, manage, and advise the general contractor in an effort to ensure compliance with all permit conditions. A weekly construction meeting schedule will be established by MCRC and the ECM with the general contractor to review site safety, permit conditions and requirements, construction methods, and compliance issues. Meeting minutes will be taken by the ECM and provided to MDEQ.

The CR 595 corridor wetlands adaptive management strategy will rely heavily on the results of annual monitoring. Monitoring data will be analyzed and an analysis of multi-year trends will be reported in each monitoring report. If the character of any CR 595 corridor wetland appears to be changing over time, an assessment of the potential causes of the change will be conducted and mitigation recommendations will be made. For example, if a three-year post-construction trend shows a significant change within a wetland's sample plot data that appears to be independent of recent meteorological events or short-term climatic shifts, then a report explaining these findings will be made to MDEQ with recommendations to manage and mitigate identified impairments to wetland functions. A site restoration plan will be developed with MDEQ and will be implemented as soon as practicable.

Annual reports will describe any adaptive management activities taken on the CR 595 corridor wetlands and will be submitted to MDEQ by January 31 of the following year.

3.3 Long-Term Monitoring and Maintenance Plan for the Proposed Porous Rock Road Design and Wetland Equalization Culverts

Prior to the initiation of any permitted activities, long-term monitoring and maintenance plans for the proposed porous rock road design (i.e. groundwater drainage layers) and equalization culverts shall be completed to ensure that these structures perform as desired in the future. The draft plans are presented in the following sub-sections.

3.3.1 Groundwater Drainage Layer Long-Term Monitoring

There are 13 groundwater drainage layers proposed in wetlands on the CR 595 project. The sites are listed on a schedule on Detail Sheet K dated August 13, 2012 and are shown on the CR 595 project Plan & Profile Drawings. The groundwater drainage layers are designed to pass groundwater under the roadway to minimize indirect impacts to wetlands that are being crossed by the road. The groundwater drainage layers are intended to keep groundwater levels the same as pre-construction.

In order to monitor the groundwater levels on the up-gradient and down-gradient sides of CR 595, water level data loggers will be installed. The data loggers record the water table elevation at specified intervals (i.e., daily, hourly, etc.) and a graphic presentation of the water table will be downloaded periodically. The data loggers will be installed in two-inch wells with screens in the water table zone. The wells will be set back from the road and will be protected by a treated post. The top of the well will be secured with a lock.

The data loggers will enable comparison of water tables on each side of the road and will show whether there is any elevation of water table that could be attributed to the roadway. The wells and data loggers will be installed prior to road construction in order to determine baseline water table elevations.

It is proposed that the groundwater drainage layer long-term monitoring be for a period of 10 years after construction of the road base. This monitoring period is expected to be sufficient to:

- Determine whether the groundwater drainage layers are functioning as intended (i.e. groundwater flow is not impeded by the road);

- Provide documentation of the potential cause of any noticeable impacts on the wetland plant community (as determined by the long-term

monitoring of wetlands on the CR 595 corridor as discussed in Section 3.2), and;

- Determine whether the groundwater drainage layer is maintaining consistent effectiveness or whether any loss of function is evident (i.e. whether any maintenance or other corrective action is required).

3.3.2 Groundwater Drainage Layer Maintenance Plan

The groundwater drainage layers are designed to be permanent features in the base of the proposed road. Heavy geotextile fabric is used to wrap the rock to prevent the interstitial spaces of the rock from being filled with soil and the three-foot thickness of the rock layer should provide adequate cross-sectional area for the passage of groundwater through the road embankment. Detail Sheet K provides construction specifications for these groundwater drainage layers.

The performance standard that is proposed for the groundwater drainage layers is: *groundwater levels will not be raised above or depleted below the baseline average water table elevations in the wetland to the extent that a change in the wetland vegetation is evident*. If such a change in wetland vegetation is noted during the wetland monitoring being conducted for wetlands on the CR 595 corridor, an analysis will be conducted to determine if the change in vegetation can be attributed to alteration of the groundwater table elevation.

Potential issues with the groundwater drainage layers that could affect the ability to pass groundwater through the road embankment could include subsidence of the road grade; plugging of the up-gradient side of the geotextile fabric with soil or roots; or filling of the interstitial spaces in the rock layer with soil.

In the event that the monitoring of groundwater tables indicate that a groundwater drainage layer is not functioning as intended, MCRC will evaluate the impacts on wetlands and prepare a report to be submitted to MDEQ that describes the problem, the implications on the wetlands, and propose a solution to the situation.

Corrective actions may include placing equalization culvert(s) to provide for additional flow of water through the road embankment; reconstructing the groundwater drainage layer; or other corrective actions as may be required by MDEQ. If wetlands will be impacted by any corrective actions, a permit will first be obtained from MDEQ.

3.3.3 Equalization Culverts Long-Term Monitoring

There are 62 proposed wetland equalization culverts proposed under CR 595. These culverts were upsized based on recommendations received from MDEQ during the review of the application for permit from 18-inch diameter to 24-inch diameter reinforced concrete pipe. Detail Sheet K1 provides the design requirements of these wetland equalization culverts.

The purpose of each equalization culvert is to pass surface water under CR 595 in order to reduce the possibility of CR 595 impacts to wetlands as a result of alteration of wetland hydrology. Any change in wetland plant communities or wetland hydrology will be identified during the long-term monitoring of the wetlands on the CR 595 project as explained in part 3.2 above. If ponding of water is present and can be attributed to a non-functioning equalization culvert that is having an adverse effect on the wetland functions, then an analysis will be conducted to determine what maintenance or other corrective actions may be necessary.

3.3.4 Equalization Culverts Maintenance Plan

The purpose of using reinforced concrete pipe instead of steel culverts and larger-sized culverts was to enhance the long-term functioning of the culverts. Maintenance of the wetland equalization culverts will be as typically performed under MCRC road maintenance procedures, which may include cleaning out accumulated sediment in culverts; replacing crushed or damaged culverts; or providing proper drainage to equalization culverts to ensure no abnormal ponding of water on the upstream side of the culverts. Any issues with alteration of hydrology or change in wetland vegetation would also be identified during the annual wetland monitoring on the CR 595 corridor and corrective measures formulated as previously explained.

3.4 Recording of Conservation Easements or Deed Restrictions to Ensure Protection of Critical Habitat Areas.

Prior to the initiation of any permitted activities, real estate instrument(s) such as conservation easements, or deed restrictions shall be recorded to ensure the protection of critical habitat areas, including aquatic resources, from increased secondary development.

Section 3.1 described the mechanisms that are in place to ensure the protection of critical habitats. In the future if additional protection for critical habitats is necessary, then conservation easements or other protective measures may be implemented.

3.5 Verification of Funding Mechanisms for Long-Term Monitoring and Management of Indirect Impacts.

Prior to the initiation of any permitted activities, funding mechanisms shall be in place for long-term monitoring and management of indirect impacts. MCRC proposes to establish two funding mechanisms for the CR 595 project to ensure that monitoring and management of the proposed mitigation measures are carried out as required by the MDEQ permit.

3.5.1 Long-term Management Endowment

A $650,000.00 endowment will be established by MCRC with MDNR to fund, in perpetuity, the monitoring and management of the preservation area according to the long-term management plan, conservation easement, and MDEQ permit requirements. This endowment is intended to provide over $18,000 per year at an estimated 3% annual return and will be kept in a dedicated account by MDNR.

3.5.2 Monitoring and Management Financial Assurance for CR 595 Corridor

A $5.7 million surety bond or letter of credit will be provided by MCRC to ensure that the required monitoring, management, and reporting activities required by the MDEQ permit are carried out. MCRC will fund the monitoring, management and reporting activities on an on-going basis. The surety bond or letter of credit will only be accessed by MDEQ if MCRC fails to meet the conditions of the MDEQ permit.

3.6 Plan for Location and Design of Wildlife Crossings.

Prior to permit issuance, MCRC is required to include the construction of wildlife crossings in its road design.

As a component of the design of the 22 proposed stream crossings on the CR 595 project, the proposed stream crossing structures were upsized not only to provide for improved hydraulics and to maintain stream integrity, but also to accommodate wildlife travel. MCRC has included additional width and height in stream crossings as part of its road design in order to facilitate wildlife crossings.

MCRC has coordinated with MDNR and U.S. Fish & Wildlife Service (F&WS) to obtain input on the provision of wildlife crossings on the CR 595 project. MDNR has conducted preliminary field work to identify additional areas for potential wildlife crossing locations and has evaluated the crossings that are proposed in the CR 595 plans. As of the preparation date of this document, MDNR has not identified the need for larger structures or additional wildlife crossings. MDNR has advised MCRC consultants of its preference that this issue be studied and monitored after CR 595 is constructed and that

funds be set aside for mitigation measures as issues become identified and then can be appropriately addressed.

MCRC consultants have coordinated with F&WS regarding the need for wildlife crossings on CR 595. Although conversations have taken place and materials provided to F&WS staff, no recent official comments regarding wildlife crossings have been received from F&WS as of the date of this response. The focus of these discussions is to explore the potential of increasing the height of currently proposed bridges or culverts to allow passage of large mammals. MCRC will continue to coordinate with F&WS and MDNR in regard to mitigating measures for wildlife crossings on the CR 595 project.

Crossings designed specifically for larger species of wildlife such as moose and black bear are very difficult to locate in areas that are likely to be utilized by those species due to their travel habits; therefore if such crossing structures are deemed appropriate by MDNR it would be important to locate them in locations where these wildlife species would most likely use the crossings. If moose or bear were to develop travel corridors over time, those travel patterns would likely vary in response to habitat perturbations, especially logging, and the time of year. Some stream corridors that are unlikely to be logged due to lack of timber or other reasons may be used by wildlife species more consistently over the long-term. Therefore, planning of locations for wildlife crossings must recognize the long-term and annual changes that may affect wildlife movements.

As a component of the design of the 22 proposed stream crossings on the CR 595 project, the proposed stream crossing structures were upsized not only to provide for improved hydraulics and to maintain stream integrity, but also to accommodate wildlife movements by smaller species, including fur bearers and amphibians. However, larger wildlife species prone to predation may not use some of the structures due to the smaller sizes or lengths of the structures. One bridge over a tributary to Kipple Creek has been substantially redesigned to provide a potential crossing for moose (plan sheet 14, station 491+00). The 120-foot span box beam bridge with a clearance of about 14 feet proposed at that location would provide for free movement of moose in that stream corridor wetland. The crossing design at that location also serves to reduce wetland impacts.

Other than the stream crossing referenced above that would provide an opportunity for a large mammal crossing of CR 595, MDNR has not determined other locations where large mammal crossings should be provided. The preference of MDNR is to continue to study/evaluate the locations where large mammals are likely to be crossing CR 595 and to coordinate with MCRC with regard to those studies. If additional crossings are deemed necessary by MDNR or other mitigating measures are suggested by MDNR, MCRC will work with MDNR using the financial instrument established to fund such measures.

Appendix A
Dishno Creek Headwaters Wetland Preservation Area Management Plan

CR 595 Management Plan for
Dishno Creek Headwaters Wetland Preservation Area
MDEQ File No. 11-52-0075-P
December 26, 2012

BASELINE ECOLOGICAL ASSESSMENT

King & MacGregor Environmental Inc. (KME) conducted a Baseline Ecological Assessment of the approximately 1,576-acre Dishno Creek Headwaters Wetland Preservation Area (DCHWPA) on behalf of Marquette County Road Commission (MCRC) during September 2012. This Baseline Ecological Assessment included gathering the following available resources: National Wetlands Inventory mapping data, Marquette County soil survey data, color infrared (CIR) aerial photography, standard aerial photography, and Marquette County's current timber/cover mapping data. GIS maps for the DCHWPA were prepared from available resources prior to substantial fieldwork being conducted. Those GIS maps included layers depicting existing roadways, surface hydrology, section lines, topographic contours, hydric soils, National Wetlands Inventory data, and proposed preservation area boundaries overlaying recent aerial photos. The GIS mapping was used by KME staff during site-specific field evaluations to assess and confirm the characterization of habitat types within the proposed preservation areas. A draft Baseline Ecological Report of the Conservation Easement Area was submitted to MDEQ for review on October 31, 2012. While labeled as a draft on October 31, this Baseline Ecological Assessment should now be considered final.

SITE PROTECTION INSTRUMENT

MCRC proposes to cause a Conservation Easement to be executed over all of the DCHWPA in a form identical to the Conservation Easement model on MDEQ's website. The original executed Conservation Easement and associated exhibits will be sent to MDEQ for review and recording prior to commencement of any permitted work or within 60 days of the issuance of this permit, whichever occurs first. The Conservation Easement documents will be sent to the Conservation Easement Coordinator, MDEQ, Water Resources Division, P.O. Box 30458, Lansing, Michigan, 48909, with a copy of the executed easement mailed to the MDEQ UP District Office.

SITE STEWARDSHIP

The Michigan Department of Natural Resources (MDNR) has indicated it is willing to act as steward of the DCHWPA and is willing to consider ownership in the future. A Draft Cooperative Stewardship Agreement (Appendix D) has been prepared outlining the roles of MCRC (Permittee), Rio Tinto (Grantor), MDNR (Steward) and MDEQ (Grantee). The Cooperative Stewardship Agreement establishes the duties and responsibilities for the parties and a long-term funding source for the monitoring and management of the DCHWPA by MDNR.

MANAGEMENT PLAN AND REPORTING

This Management Plan outlines goals, methods, and measures to document actions that will be taken to enhance the site and minimize or eliminate identified threats to the DCHWPA. This Management Plan addresses necessary on-going site maintenance activities such as invasive species control measures so that long-term sustainability of the DCHWPA is ensured. The primary goal of the Management Plan is to ensure that the DCHWPA is managed to maintain its existing ecological qualities. The placement of a conservation easement over the DCHWPA, along with implementation of the Management Plan, will help to ensure the permanent protection of these high-quality wetlands and upland buffers that might otherwise become degraded within the preservation area.

Short-Term Management and Monitoring Activities

To achieve long-term management goals, it will be necessary to implement initial activities which reduce or eliminate identified site-specific threats to the functions and values of the DCHWPA. All of these proposed Short-Term Management activities will be completed by the Permittee or its agents/consultants in conjunction with MDNR (and MDEQ to the extent MDEQ requests involvement) within the five-year MDEQ permit term. The Short-Term Management goals include the following:

- Implement management activities described below to prevent degradation of uplands, wetlands, or surface waters and to prevent current and potential threats to the integrity of the DCHWPA;

- Continue to monitor the ecologic site conditions within the DCHWPA to document the effectiveness of the short-term management activities and gather additional baseline data.

The primary threats to the preservation area include potential motor vehicle use, unauthorized logging, and invasive species introduction and establishment. The proposed Short-Term Management activities include annual monitoring, vehicular access prevention, signage, planting and seeding, bridge and culvert removal, and invasive species management. All of the proposed Short-Term Management activities will be completed by KME and MCRC (or its designated contractor), and oversight will be provided by KME, in conjunction with MDNR. All consultant/contractor and stewardship short-term management activities will be funded by MCRC.

Short-Term Monitoring

Short-Term Monitoring will be conducted annually within the growing season for the first five years after permit issuance. During the first year of monitoring the extent of site threats and threat pathways will be identified and located within the DCHWPA. Examples of site threats include illegal ATV/ORV trails or logging roads penetrating the DCHWPA perimeter, and any

other significant perimeter disturbance that may have an impact on the ecological integrity of the DCHWPA. On-site evaluations by KME staff identified nine areas of proposed restoration areas to stabilize existing bare soil from logging, ten locations to block trails or logging roads and three stream crossing structures to be removed to further limit vehicular access to the DCHWPA.

Monitoring of the DCHWPA will continue during the initial five-year monitoring period to more thoroughly document current conditions and trends. The first annual monitoring event will add supplemental information to the existing Baseline Ecological Assessment conducted in 2012. This supplemental botanical community data will be collected within each habitat type utilizing random meander transects throughout each wetland habitat type until the species area curve for that habitat type has become nearly level. Depending on a habitat type size and complexity, one or more vegetation sampling plots will be set up at random locations within the habitat type. Global positioning system (GPS) latitude/longitude coordinates will be recorded at each sample plot. Plot data will identify all plant species and absolute percent cover for each species within each plant stratum (i.e., woody vine, herb, sapling/shrub, tree). Within a plot the herbaceous layer (i.e., all non-woody plants and woody plants less than 3.28 feet in height) will be sampled using a 3.28-foot by 3.28-foot quadrat. The shrub layer will be sampled using a 15-foot radius circular limit. The tree layer will be sampled using a 30-foot radius circular limit. The data recorded for each sample plot stratum will include a list of all living plant species encountered, and also an estimate of absolute percent cover in five percent intervals for each species, bare soil areas, and open water areas relative to the total area of the plot. Observations of animal use of the DCHWPA will be documented.

Each plot will also be a four-way photo station. Each photo station will be centered upon a botanical plot and the four photos will view the four cardinal directions. Directional photography, coupled with botanical sample plot strata data will be an efficient way to determine changes (if any) that may occur within the DCHWPA over the short-term or long-term. The plant community data will be collected once between May 15 and June 15 and once between August 15 and September 15 of each of the first five years.

Data reported will include lists of all plant species identified in plot strata and otherwise observed during monitoring. Data for each plant species will include common name, scientific name, wetland indicator category code, physiognomic classification (i.e., typical growth form), and whether the species is considered native according to the Michigan Floristic Quality Assessment (MDNR 2001). Nomenclature shall follow Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (http://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. The location of each sample plot will be identified in every monitoring report on a plan view showing the location of wetland habitat types. Sample plots will be permanently and visibly staked, and GPS position coordinates will be recorded so that transects and sample plots can be efficiently located repeatedly in the field.

Four-way (i.e., north, south, east, west) directional photographic documentation will be collected from permanent photo stations located at sample plots within each wetland habitat type and at potential and historical points of ingress (including upland areas). Photo locations will be shown on a site map and each photo will be labeled with the location (i.e., GPS coordinates), date photographed, and direction of view.

Annual monitoring conducted during the initial five-year monitoring period will utilize the assessment methods employed in year one.

Vehicular Access Prevention

Motor vehicle usage could seriously degrade the DCHWPA by causing erosion, soil compaction, groundcover disturbance, and direct distribution of invasive plant seed and rhizome fragments. Therefore, all logging road and off-road vehicle trail head access points will be securely blocked prior to October 31, 2013. This will be accomplished by removing existing culverts and bridges (including within the interior of the DCHWPA), installing permanent boulder barriers, posting signs, and planting trees within existing trails and old logging roads near points of access prior to October 1, 2013. Existing non-vegetated roads and trails will be disked and seeded with native herbaceous species prior to October 31, 2013. Barrier effectiveness will be evaluated during every monitoring event. Reinforcement of barriers and blocking of bypasses will be accomplished through adaptive management during every monitoring year.

Signage

Signage will be posted at existing points of ingress and around the perimeter of the DCHWPA at adequate frequency, visibility, and proper height for viewing. Signage will be of suitable material to withstand climatic conditions, and will be replaced as needed. The proposed signs will include the following bolded language:

WETLAND CONSERVATION EASEMENT
NO CONSTRUCTION OR PLACEMENT OF STRUCTURES ALLOWED.
NO MOWING, CUTTING, FILLING, DREDGING OR
APPLICATION OF CHEMICALS ALLOWED.
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
NO MOTOR VEHICLES

Invasive Species Management

A detailed evaluation of the status of invasive species within the DCHWPA will be conducted during all scheduled monitoring efforts. On-site evaluations by KME and MDEQ to-date have determined that there are very few areas where invasive species have been noted. However, because invasive species typically gain access to native habitats through human activities or habitat modification, the proposed invasive species monitoring protocol will focus on potential pathways of introduction. These include areas in proximity to roadways/trails or other existing disturbances that may represent potential introduction pathways.

The following protocol will be implemented to remove or limit the distribution of invasive species:

- The area(s) of infestation, severity of infestation, and the potential infestation pathways will be defined to the extent possible and reported to MDEQ;

- An Invasive Species Management Plan will be developed for MDEQ to review and approve appropriate methods to limit or remove both the invasive species and the introduction pathway from the DCHWPA. The plan may include a combination of physical removal, herbicide application, seeding/planting native vegetation, introduction of species that prey on the invasive species, passive trapping, removal of trails, additional blockage of trails or ingress points with boulders, and/or installation of additional signs to inform the public or limit access;

- If a threat is discovered, the Invasive Species Management Plan will be implemented as soon as practicable depending on such factors as the invasive species' life cycle, current stage of the invasion (e.g., a species has recently appeared or the colony is well-established), site access, and regulatory agency approvals as necessary.

In cooperation with the MDNR, the results of the Invasive Species Management Plan implementation will be provided in a report to MDEQ with recommendations for further control measures. The Baseline Ecological Survey conducted during September 2012 identified European swamp thistle (*Cirsium palustre*) as the only wetland invasive wetland plant species confirmed within the DCHWPA. European swamp thistle is currently found throughout the site in low densities. In addition, spotted knapweed (*Centaurea maculosa*) is the only invasive *upland* plant species confirmed within the DCHWPA. Spotted knapweed is currently found in nine areas of surface disturbance along logging roads and landing areas which are proposed to be treated and restored. Population spread of both plant species depends primarily on the distribution of airborne seeds upon recently-disturbed substrate. Both species may be widely distributed in relatively low frequency throughout the DCHWPA, as they are within natural plant communities over much of the Upper Peninsula. Reed canarygrass (*Phalaris arundinacea*) was not documented during the July 2012 botanical survey, but occurs near the periphery of the preservation area. Reed canary grass can spread by seed, but typically spreads more quickly when rhizomes are fragmented and transported during earth-moving activities. It may also be transported by contaminated machinery or ORVs.

Preliminary observations indicate that existing populations of invasive plant species within or near the DCHWPA do not appear to be exhibiting aggressive invasive tendencies. Therefore, as of the writing of this report existing invasive species populations within and adjacent to the preservation area are minimal and will likely not significantly affect native vegetation within the foreseeable future.

Monitoring efforts will identify any new locations of invasive species, or significant changes of the status quo. If outbreaks of invasive species are identified during monitoring efforts, the threat will be eliminated by using appropriate methods (e.g., herbicide application, etc.).

An annual summary (monitoring report) of all identified invasive species and their specific locations, as well as measures taken to eradicate or diminish them, will be provided to MDEQ prior to January 31 of the following year after the monitoring has been conducted. This annual monitoring report will summarize all of the data collected and discuss any identified problem areas and potential additional corrective measures to address problems.

Long-Term Management Plan

The Long-Term Management Plan will adaptively guide on-going management, monitoring, and maintenance by MDNR with assistance from MCRC or its contractors and agents to ensure long-term sustainability (e.g., invasive species control, easement enforcement, etc.) of the DCHWPA in perpetuity. The proposed long-term management activities include monitoring, every-other-year (biennial) vehicular access prevention methodologies, placement of additional signage as necessary, and invasive species management. All of these long-term management activities will be completed by MDNR and funded by an endowment provided to MDNR by MCRC or its agents.

This Long-Term Management Plan includes monitoring, additional placement and maintenance of signs and fencing, periodic inspection of the DCHWPA, removal of trash and debris, control of invasive species, additional blockage of illegal trails, reporting to MDEQ, and any other site-specific management practices.

- The Long-Term Management Plan involves a management strategy to maintain overall conservation resource values and purposes of the Conservation Easement, including minimizing any continued threats to the DCHWPA that could have a negative effect on the long-term viability and integrity of the DCHWPA. This includes an adaptive vegetation management strategy for controlling non-native, invasive species;

- The plan may be used as an adaptive schedule detailing periodic long-term monitoring and reporting. The first five events of the long-term monitoring will be conducted and reported on a biennial basis (after the short-term monitoring and management period is complete), with efforts focusing primarily on perimeter integrity of the DCHWPA. If it is found that significant new issues exist at the periphery of the DCHWPA during the initial phase (first five years) of monitoring, then careful inspection of the Conservation Easement Area interior will be performed and all issues documented. Conceivable perimeter disturbance issues that might be discovered during any monitoring event that would represent threats or threat pathways within the DCHWPA would be such evidence as ATV/ORV tracks or trails, logging roads, vandalism of signage or barriers, or significant population levels of an invasive species occurring near (but outside of) the

easement boundary. A process will be initiated by MCRC, its agents or contractors and/or MDNR for corrective action to be implemented in an effort to stop any ongoing disturbance threats. This process will include identification and assessment, development of a management action plan, review and approval of the management action plan by MDEQ and implementation of the management actions by MDNR. Measures will be taken by MCRC its agents or contractors and/or MDNR to deter future threats by improving blockage at potential access points and other means as necessary.

- An on-going comprehensive ecological assessment will be conducted throughout the DCHWPA every four years after the commencement of the long-term monitoring period. This comprehensive ecological assessment will more thoroughly document and report current conditions and trends and will be compared to the Baseline Ecological Assessment. Methods utilized during this every-fourth-year monitoring event would be similar to those utilized during the first year of the short-term monitoring period.

Biennial Monitoring

Long-Term monitoring will be conducted during the growing season on a biennial basis. This duration cycle is short enough to efficiently detect (and react to) any occurrences of vandalism, ATV/ORV penetration, dumping, building of structures, illegal logging, or any other identified threats to the integrity of the DCHWPA. This monitoring effort will focus on the perimeter of the DCHWPA to determine whether any new trails or logging roads have recently appeared, significant vandalism of signage or barriers has occurred, or any other significant perimeter disturbance has occurred that may have an impact on the ecological integrity of the DCHWPA.

During a biennial monitoring event, if it is found that a significant disturbance has occurred at the perimeter, then the event will be thoroughly investigated at the perimeter breach area and within the DCHWPA (if applicable) and documented fully. A management activity plan will be prepared by MDNR to manage and limit the identified threat and threat pathway. The management activity plan will be submitted to MDEQ for review and approval. Corrective measures (e.g., installation of immoveable boulders, etc.) will be implemented by MCRC or its agents or contractors and/or MDNR. The success of the management activity will be monitored during the following monitoring period.

Four-way (i.e., north, south, east, and west) directional photo stations will be permanently set up at any new disturbance areas, so that restoration and recovery can be efficiently documented over time. These photo locations will be shown on a site map and each photo will be labeled with the GPS location, date photographed, and direction of view.

Periodic Comprehensive Monitoring

Comprehensive ecological assessment will be conducted every fourth year in order to, for example, identify any new locations of invasive species or significant changes of the status quo. If outbreaks of invasive species are identified during monitoring efforts, the threat will be

eliminated by using appropriate methods (e.g., herbicide application, etc.) specified within the Invasive Species Management Plan.

Vehicular Access Prevention

Motor vehicle usage could seriously degrade the DCHWPA by causing erosion, soil compaction, groundcover disturbance, and direct distribution of invasive plant seed and rhizome fragments. All new trails and off-road vehicle trail head access points will be securely blocked when found during any monitoring event. This will be accomplished by installing additional heavy boulder barriers or other similarly effective devices where necessary.

Signage

Additional signage will be posted at the perimeter of the DCHWPA where determined to be necessary. Potential reasons for additional sign posting include vandalism, or that original postings were at an inadequate density to properly inform the public. In those instances additional signage will be placed at adequate frequency, visibility, and proper height for viewing. Signage will be of suitable material to withstand climatic conditions, and will be replaced as needed. Signs will explain recreational usage limitations and will include the following bolded language:

WETLAND CONSERVATION EASEMENT
NO CONSTRUCTION OR PLACEMENT OF STRUCTURES ALLOWED.
NO MOWING, CUTTING, FILLING, DREDGING OR
APPLICATION OF CHEMICALS ALLOWED.
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
NO MOTOR VEHICLES

Invasive Species Management

A detailed evaluation of the status of invasive species within the DCHWPA will be conducted during all scheduled monitoring efforts. Because invasive species typically gain access to native habitats through human activities or habitat modification, the proposed invasive species monitoring protocol will focus on potential pathways of introduction. These include areas in proximity to roadways/trails or other existing disturbances that may represent potential introduction pathways.

Black ash is abundant within the northwest portion of the DCHWPA, where it is typically a co-dominant component within several relatively small Northern Hardwood Swamp and Hardwood-Conifer Swamp complexes. Evidence of the presence of the emerald ash borer (*Agrilus planipennis*) was not observed during the Baseline Ecological Assessment. It is unknown what impact emerald ash borer may ultimately have on black ash within the region. It is not practical to mitigate potential black ash losses within the DCHWPA. If and when losses occur, other tree species will gradually replace dead ash trees.

The following protocol will be implemented by MCRC or its agents or contractors and/or MDNR to remove or limit the distribution of invasive species:

- The area(s) of infestation, severity of infestation, and the potential infestation pathways will be defined to the extent possible and reported to MDEQ;

- The approved Invasive Species Management Plan will utilize the latest in species control techniques. Methodologies will be implemented to limit or remove both the invasive species and the introduction pathway from the DCHWPA. The appropriate restorative action may include a combination of physical removal, herbicide application, seeding/planting native vegetation, introduction of species that prey on the invasive species, passive trapping, removal of trails, additional blockage of trails or ingress points with boulders, and/or installation of additional signs to inform the public or limit access;

- If a threat is discovered, the Invasive Species Management Plan will be implemented as soon as practicable depending on such things as the invasive species' life cycle, current stage of the invasion (e.g., a species has recently appeared or the colony is well-established), site access and regulatory agency approval.

- Approval will be sought from MDEQ before implementation of any activities not described in the approved Invasive Species Management Plan.

- Control efforts will be implemented until control of the invasive species is deemed no longer necessary by MDEQ. The results of the Invasive Species Management Plan implementation will be provided in a report to MDEQ with recommendations for further control measures.

An annual summary (monitoring report) will be provided to MDEQ prior to January 31 of each monitoring year for the previous year. This report will summarize and discuss all of the data collected and discuss any conditions observed, trends/changes, problem areas, and corrective measures taken or recommended.

Short and Long-Term Management Financial Assurance

The estimated cost of implementing short-term management activities is approximately $147,000 which includes baseline assessment field work, preparation of baseline assessment report and long-term management plan and the activities required to close vehicular access and post signs around the DCHWPA. The cost of short-term management activities would be the responsibility of MCRC.

Long-term management activities, including site security monitoring and reporting, comprehensive monitoring and reporting, invasive species management (as needed), and maintenance activities for sign replacement and to address site disturbance, were estimated at approximately $16,250 per year, which includes a 25 percent allocation for MDNR administration of the long-term management activities. MCRC will be responsible for the establishment of an endowment to fund these activities in perpetuity. Given an endowment

returning three percent per year on investment, the estimated amount for this endowment is approximately $542,000.

Ownership of the property in the proposed DCHWPA would require annual payment of taxes estimated at approximately $40,000 per year. An endowment fund will be established for property tax payments and is estimated at $1,300,000 at a three percent annual return. MCRC would be responsible for payment of taxes until such a time as the DCHWPA is conveyed into MDNR ownership.

Appendix B
Cost Spreadsheet for Mitigation and Management Activities for CR 595

CR 595 CORRIDOR WETLAND AND STREAM MONITORING AND MANAGEMENT COSTS

December 27, 2012 King & MacGregor Environmental, Inc.

Mitigation Activity	Year One	Years 2-5 Per Year	Years 2-5 Total	Years 6-10 Per Year	Years 6-10 Total	Subtotal
Wetland Preservation Area Short-term Management Activities DCHWPA						
Baseline Ecological Assessment Field Work	$68,000					$68,000
Preparation of Baseline Ecological Assessment Report	$12,000					$12,000
Preparation of Long-term Management Plan	$12,000	(DNR Long-Term Management)				$12,000
Access Closures (Road blocks, Culvert/Bridge Removal, Plantings)	$45,000					$45,000
Conservaton Area Boundary Signs Installation	$10,000					$10,000
Subtotal	**$147,000**	**$0**	**$0**	**$0**	**$0**	**$147,000**
Long-term Management and Monitoring of Stream Mitigation						
Baseline stream surveys (P51, pebble counts, 27 streams)	$50,000	$45,000	$180,000	$45,000	$225,000	$455,000
Prepare data (macoinvert id, data table preparation)	$35,000	$25,000	$100,000	$35,000	$175,000	$310,000
As-built stream surveys	$65,000	$10,000	$40,000	$10,000	$50,000	$155,000
Subtotal	**$150,000**	**$80,000**	**$320,000**	**$90,000**	**$450,000**	**$920,000**
Monitoring and Management of Wetlands Impacted by CR 595						
Baseline ecological assessment (two monitoring events 200 plots)	$130,000	$0	$0	$0	$0	$130,000
Installation of observation wells, staff gages (approx, 200)	$55,000	$2,000	$8,000	$2,000	$10,000	$73,000
Survey top-of-casing of observation wells	$34,000	$2,000	$8,000	$3,000	$15,000	$57,000
Deploy water table data loggers (approx.20)	$5,000	$0	$0	$7,000	$35,000	$40,000
Installation of staff gages (approx. 12)	$5,000	$0	$0	$5,000	$25,000	$30,000
Wetland vegetation monitoring (twice per growing season)	$0	$60,000	$240,000	$75,000	$375,000	$615,000
Preparation of annual monitoring report	$0	$60,000	$240,000	$75,000	$375,000	$615,000
Subtotal	**$229,000**	**$124,000**	**$496,000**	**$167,000**	**$835,000**	**$1,560,000**
Invasive Species Monitoring CR 595 Corridor						
Pre-construction removal/treatment of invasive species	$35,000	$0	$0	$0	$0	$35,000
Post-construction monitoring	$0	$5,000	$20,000	$7,000	$35,000	$55,000
Preparation of Invasive Species Management Plan	$10,000	$2,000	$8,000	$3,000	$15,000	$33,000
Removal/treatment of invasive species		$20,000	$80,000	$25,000	$125,000	$205,000
Subtotal	**$45,000**	**$27,000**	**$108,000**	**$35,000**	**$175,000**	**$328,000**
Monitoring and Maintenance of Groundwater Drainage Layer Installations						
Installation of observation wells (26)	$20,000	$5,000	$20,000	$7,000	$35,000	$75,000
Deploy 26 data loggers (5 years)	$39,000	$0	$0	$39,000	$0	$39,000
Survey top-of-casing of wells	$5,000	$2,000	$8,000	$2,000	$8,000	$21,000
Preparation of annual report (5 years)	$5,000	$5,000	$20,000	$5,000	$20,000	$45,000
Subtotal	**$69,000**	**$12,000**	**$48,000**	**$53,000**	**$63,000**	**$180,000**
Mitigation & Monitoring of Direct & Indirect Wildlife Impacts CR 595 Corridor						
Erect signs in wildlife crossing areas/replace, increase as needed	$15,000	$5,000	$20,000	$3,000	$15,000	$50,000
Design wildlife crossings	$0	$25,000	$100,000	$10,000	$50,000	$150,000
Construct wildlife crossings	$0	$300,000	$1,200,000	$100,000	$500,000	$1,700,000
Implementation of Wildlife-Vehicle Mortality Monitoring	$10,000	$10,000	$40,000	$12,000	$60,000	$110,000
Daily inspection of CR 595 for Road-Kill and Data Evaluation	$25,000	$25,000	$100,000	$25,000	$125,000	$250,000
Monitor use of wildlife crossings	$30,000	$25,000	$100,000	$25,000	$125,000	$255,000
Preparation of annual report	$12,000	$12,000	$48,000	$15,000	$75,000	$135,000
Subtotal	**$92,000**	**$402,000**	**$1,608,000**	**$190,000**	**$950,000**	**$2,650,000**
TOTALS	**$732,000**		**$2,580,000**		**$2,473,000**	**$5,785,000**

Appendix C
Draft Cooperative Stewardship Agreement

COOPERATIVE STEWARDSHIP AGREEMENT FOR CONSERVATION EASEMENT
DRAFT
December 27, 2012

This Cooperative Stewardship Agreement for Conservation Easement (Agreement) is made effective and entered into as of this _____ day of _____, 20___, by and among:

The PERMITTEE, MARQUETTE COUNTY ROAD COMMISSION (MCRC), a Marquette County Governmental Entity, whose address is: 1610 N. Second Street Ishpeming, Michigan 49849;

The GRANTOR of the EASEMENT, RIO TINTO EAGLE (RTE), a Michigan corporation, whose address is 4547 County Road 601, Champion, Michigan 49814; and,

The STEWARD, MICHIGAN DEPARTMENT OF NATURAL RESOURCES, a state governmental agency, whose address is: P.O. Box 30028, Lansing, MI 48909; and ,

The GRANTEE, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ) whose address is P.O. Box 30458, Lansing, Michigan 48909-7958 or Constitution Hall, 1st Floor South, 525 West Allegan Street, Lansing, Michigan 48933.

Preamble:

The MDEQ may in certain circumstances accept preservation of existing wetlands as mitigation for permitted wetland impacts, if MDEQ determines that all of the following conditions are met:

A. The wetlands to be preserved perform exceptional physical or biological functions that are essential to the preservation of the natural resources of the state or the preserved wetlands are an ecological type that is rare or endangered;
B. The wetlands to be preserved are under a demonstrable threat of loss or substantial degradation due to human activities that are not under the control of the applicant and that are not otherwise restricted by state law; and,
C. The preservation of the wetlands as mitigation will ensure the permanent protection of the wetlands that would be otherwise lost or substantially degraded.

Recitals:

WHEREAS, the Grantor, as a condition of MDEQ Permit 11-52-0075-P, (Exhibit A) granted a Conservation Easement (Exhibit B) to the Grantee over approximately 1,576 acres of Property (Conservation Easement Area).

WHEREAS, MDEQ, the Grantee, pursuant to Permit conditions, requires long-term sustainable stewardship to minimize threats of loss or degradation to the wetlands and their integral habitat present within Conservation Easement Area.

WHEREAS,MDNR, the Steward, agrees to enter into a cooperative stewardship arrangement, whereby, in consideration for receipt of payment from the Permittee as an endowment (as defined below), the Steward agrees to act as a third party in the management of the Conservation Easement Area pursuant to an approved Management Plan.

WHEREAS, the Permittee, Steward, Grantor and Grantee, all have mutual goals with respect to the permanent protection of the functions and values of the wetlands within the Conservation Easement Area.

Conservation Values:

The Property possesses ecological values of prominent importance to the public. These values are referred to as the "Conservation Values" in this Agreement.

WILDLIFE VALUES:

- The Conservation Easement Area contains significant natural habitat in which fish, wildlife, and plants thrive in a natural state.
- The Conservation Easement Area contains large tracts of sustainable habitat for many plants, birds, fish, and terrestrial animal species.
- A diversity of plant and animal life are found on the Conservation Easement Area in an unusually broad range of habitats.
- The Conservation Easement Area contains habitat for rare, endangered, or threatened species of animals, fish, plants, or fungi, including: *narrow leaved gentian, a State Threatened plant species.*
- The Conservation Easement Area contains natural wetland areas that provide habitat for aquatic invertebrates, reptiles, amphibians, and aquatic and emergent vegetation.

ECOLOGICAL HABITAT:

- The Conservation Easement Area contains ecologically vulnerable wetland ecosystems such as *Poor Fen, Muskeg, Rich Conifer Swamp, Hardwood Conifer Swamp and Hardwood Swamp*, as described in Wetlands Protection, Part 303, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), MCL 324.30301 et seq. that are present on the Property. These wetlands provide valuable public benefits such as flood control by hydrologic absorption and storage capacity, wildlife habitat, threatened species habitat, pollution treatment, erosion control, and sources of nutrients for water food cycles and nursery grounds and sanctuary for fish.
- The Conservation Easement Area provides an upland buffer zone that is critical to the protection of the values of the wetland habitat.
- The Conservation Easement Area provides valued native forest land, which includes diverse native species, trees of many age classes and structural diversity, including a multi-story canopy, standing dead trees, and downed logs.

WATERSHED PROTECTION:

- The Conservation Easement Area provides important natural land primarily within the Dishno Creek watershed. Protection of the Property in its natural and open space condition helps to ensure the quality and quantity of water resources for this area.

- The Conservation Easement Area includes approximately 22,000 feet of frontage on Dishno Creek and its tributaries.

- Sections of the Conservation Easement Area are situated on hillsides with slopes greater than 20% that are adjacent to or in close proximity to Dishno Creek. The vegetated slopes would be highly susceptible to erosion damage and accelerated stormwater runoff that could adversely affect water quality of Dishno Creek if the trees or other plants were removed.

ADJACENT TO PROTECTED LANDS:

- The Conservation Easement Area is adjacent to and shares 3.5 miles of common boundary with the McCormick Wilderness.

- This Easement protects natural areas that support the ecological viability of a national wilderness area, the McCormick Wilderness.

THREATS

- The Conservation Easement Area is currently threatened by non-native invasive plant species, including spotted knapweed and European swamp thistle. While not identified on-site to-date, Phragmites and purple loosestrife also pose potential threats.

- The Conservation Easement Area requires on-going maintenance activities, removal of roads and limiting vehicle use of the property to preserve the unique characteristics of the site.

- The Conservation Easement Area has been subject to commercial logging prior to placement into the Conservation Easement and is adjacent to land under commercial logging uses that may otherwise expand into the wetland and upland areas.

NOW, THEREFORE, in consideration of the mutual promises, agreements, and undertakings of the parties set forth in this Agreement, the parties agree as follows:

Terms and Conditions of the Stewardship Agreement:

The Stewardship Agreement

The purpose of this Agreement is to provide long-term stewardship of the Conservation Easement Area to ensure that the site will be managed and maintained to preserve the long-term functions and values of the wetlands.

The Agreement shall be framed on the unique aspects of the property described in the Baseline Ecological Report and addresses the threats and uses associated with the property that require long-term stewardship as described in the Long-Term Management Plan (Exhibit E).

A. Permittee/Steward Responsibilities under this Agreement:

1. Permittee shall employ King & MacGregor Environmental, Inc. to prepare a Baseline Ecological Report that documents the current ecological conditions of the Conservation Easement Area in

accordance with the MDEQ Permit 11-52-0075-P. The Baseline Ecological Report shall be prepared and submitted to the parties by November 1, 2013. All parties shall have the opportunity to review and comment on the Baseline Ecological Report, which shall be approved by MDEQ.

2. The Baseline Ecological Report shall include:
   a. A description of the physical condition of the Conservation Easement Area as of the date of the initial inspection for the purpose of establishing a baseline against which to compare any future changes to the Conservation Easement Area;
   b. Maps of the site, a depiction of all existing human-made modifications, a description of significant plant communities (with plant and animal species lists), land use history, distinct natural features, and photographs; and,
   c. An assessment of existing uses within and surrounding the Conservation Easement Area and an identification of those uses that may affect the ecology of the Conservation Easement Area.

3. After the Baseline Ecological Report has been approved, the Permittee and its consultant King & MacGregor Environmental, Inc. shall prepare a final Long-Term Management Plan. This plan shall not be used to acquire prior DEQ approval for future plans or activities that may take place in or around the site that may compromise the Conservation Easement Area. The Long-Term Management Plan shall include the following details:
   a. A management strategy to maintain conservation resource values and purposes of the Conservation Easement;
   b. A vegetation management strategy for controlling non-native invasive plant species;
   c. Overall site management required to minimize any threats to the Conservation Easement Area that could have a negative effect on the long-term viability of the Conservation Easement;
   d. An assessment of existing uses and the maintenance issues associated with existing pathways, trails, structures, and the like; and,
   e. A reporting schedule.

4. The Permittee shall provide and place signs, fences, or other suitable markings along the boundary of the Conservation Easement Area to clearly demarcate the boundary of the Conservation Easement Area in accordance with the Permit and this Agreement.

5. The Permittee shall pay to the Steward the amount of $650,000.00 as an Endowment toward the Steward's costs for replacing and maintaining signs, monitoring and managing the Conservation Easement Area, and for all activities of the Steward under this Agreement. The Steward shall place the Endowment in a restricted fund to be used only for the costs of monitoring and stewardship of the Conservation Easement Area as described within this Agreement.

B. <u>Steward – Responsibilities under this Agreement</u>

The Steward shall have the following rights, responsibilities and obligations with respect to the Conservation Easement and the Conservation Easement Area.

1. The Steward and its designated representative shall have the right to enter the Conservation Easement Area at reasonable times on reasonable notice to the Grantor to monitor the Conservation Easement Area and perform other functions allowed or required by this Agreement (Exhibit D). The Steward may not, however, interfere with Grantor's use and quiet enjoyment of the Property, and the Steward shall not interfere with Grantor's business operations while exercising its rights under this Agreement.

2. The Permittee shall create a Long-Term Management Plan that details the Steward's goals and actions necessary to manage the Conservation Easement Area. The Long-Term Management Plan shall not impose any obligations or restrictions upon Grantor in excess of, or inconsistent with, those required in the Permit and Conservation Easement. The Long-Term Management Plan shall be approved in writing by Grantor and MDEQ.

3. The Steward shall have the obligation to inspect the Conservation Easement Area one time per year for the first three years, then one time every two years for 10 years, and then one time every three years to document the condition of the Conservation Easement Area as compared to the Baseline Ecological Report. The Steward shall conduct the inspections on a date and at a time acceptable to both MDEQ and Grantor and shall provide Grantor and MDEQ with written notice no less than fifteen (15) days prior to the proposed inspection date. Grantor and MDEQ shall have the right to participate in such inspection. The Steward shall prepare and provide a copy of the annual monitoring report to Grantor and MDEQ.

4. The Steward shall be responsible for maintaining and replacing signs or other suitable markings along the boundary of the Conservation Easement Area in accordance with the Permit and this Agreement.

5. The Steward shall perform the ecosystem management of the Conservation Easement Area in accordance with the Long-Term Management Plan, this Agreement and the Conservation Easement.

6. The Steward shall not initiate work in the Conservation Easement Area except as authorized under the Permit, the Conservation Easement, the approved Long-Term Management Plan, or this Agreement, and only with the consent of the Grantor and MDEQ.

7. The Steward shall, as part of its duties, work cooperatively with adjacent property owners to resolve any general compliance issues. Those issues that cannot be resolved informally or involving more than minor violations of the Conservation Easement, or that may be beyond Grantor's or Permittee's control, but are affecting the Conservation Easement, shall be referred to MDEQ.

8. The Steward shall report significant complaints and any actual or threatened violations of the Conservation Easement to MDEQ. MDEQ will exercise its enforcement authority under the Conservation Easement to prevent or correct such violations. The Steward shall have no authority to enforce any of the provisions of the Conservation Easement.

9. Should the Steward fail to meet its obligations under this Agreement, MDEQ shall provide a written Notice of Termination for Default to the Steward identifying all appropriate and necessary corrective actions and shall allow 30 days from the date of the Default Notification, or a mutually agreed-upon schedule, for the Steward to comply with the terms and obligations of this Agreement. Failure of the Steward to comply with this Agreement or any Notice of Termination for Default from MDEQ will result in the stewardship funds and any accrued interest being forfeited to MDEQ.

C. MDEQ Responsibilities

1. MDEQ shall review and approve the Baseline Ecological Report and the Long-Term Management Plan. MDEQ retains final approval of these documents.

2. MDEQ shall exercise its enforcement authority under the Conservation Easement to prevent or correct violations that may compromise the Conservation Easement Area.

3. MDEQ shall review monitoring reports prepared by the Steward to ensure that the Steward's goals and implementation actions in managing the ecosystems of the Conservation Easement Area are met.

4. MDEQ shall oversee Steward's obligations to ensure that the goals and objectives of this Agreement are met.

5. MDEQ shall record this Agreement with the Conservation Easement.

D. General Terms

1. This Agreement does not grant or convey to the Permittee, Steward, MDEQ or any other person or entity any right to possession or use of the Conservation Easement Area except as expressly provided herein.

2. This Agreement is binding upon, and inures to the benefit of the parties and their successors and assigns. If and when the Conservation Easement Area is transferred to a Future Owner, the Steward shall continue to have the right to enter the Conservation Easement Area at reasonable time on reasonable notice to monitor the Conservation Easement Area and perform other functions allowed or required by this Agreement. Notwithstanding the foregoing to the contrary, in the event that the Conservation Easement is extinguished or terminated, then this Agreement shall also terminate and be of no further force and effect without any further action by any party to this Agreement. In this case the Steward shall transfer all remaining funds in the endowment for this site to the property owner

3. This Agreement, the Conservation Easement, and MDEQ permit set forth the entire agreement of the parties with respect to the subject matter hereof, and supersede all prior or contemporaneous discussions, understandings and agreements related thereto. No amendment, alteration or modification of this Agreement shall be valid and binding unless in writing and signed by all parties hereto.

4. This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

5. To the extent there is any conflict or inconsistency between this Agreement (including any plans and reports prepared hereunder) and the Conservation Easement or the Permit, the terms and conditions of the Conservation Easement or Permit shall control and be binding on the parties, and shall supersede any conflicting or inconsistent terms in this Agreement.

6. For purposes of notices or any other writing permitted or required to be given under this Agreement, such notice shall be personally delivered or sent by first class mail, certified mail, or delivery by overnight courier service to the parties at the following addresses, as may be changed from time to time by notice hereunder being provided to the other parties:

If to the Steward:	Michigan Department of Natural Resources PO Box 30028 Lansing, Michigan 48909 Attention: _____
If to Grantor:	Rio Tinto Eagle 4547 County Road 601, Champion, Michigan 49814 Attention: _____
If to Permittee:	Marquette County Road Commission 1610 N. Second Street Ishpeming, Michigan 49849 Attention: _____
If to Grantee:	Michigan Department of Environmental Quality Water Resources Division Constitution Hall, 2nd Floor South P.O. Box 30458 Lansing, Michigan 48909-7958 Attention: Conservation Easement Coordinator
If to MDEQ- District:	Michigan Department of Environmental Quality Water Resources Division 420 Fifth Street Gwinn, MI 49841-3004

LIST OF EXHIBITS

Exhibit A – Permit

Exhibit B – Recorded Conservation Easement

Exhibit C – Baseline Ecological Report

Exhibit D – Legal Access – Conservancies and Agents

Exhibit E – Long-Term Management Plan

In Witness Whereof, the parties have executed this Agreement on the date first above written.

GRANTOR:

Signature: _____

_____

Type/Print Grantor's Name

_____

Title (if signing on behalf of an organization

_____

Organization Name (if signing on behalf of an organization)

STATE OF MICHIGAN }

} ss

COUNTY OF_____}

IF SIGNING ON BEHALF OF AN ORGANIZATION, THIS MUST BE COMPLETED:

The foregoing instrument was acknowledged before me this _____ day of _____, 20__by , (name[s]) the _____, (title) of _____(Organization name) a _____, (state) corporation, partnership, municipality, or limited liability company (circle one), on behalf of the organization.

_____

(Signature of Notary Public)

_____

(Typed or Printed name of Notary Public)

Acting in: _____ County, Michigan

My Commission is in: _____County, Michigan

My Commission Expires: _____

(OR) IF SIGNING AS AN INDIVIDUAL OR MARRIED PERSON, THIS MUST BE COMPLETED:

The foregoing instrument was acknowledged before me this _____ day of _____, 20__ by , (name[s]) _____ (marital status).

_____

(Signature of Notary Public)

_____

(Typed or Printed name of Notary Public)

Acting in: _____ County, Michigan

My Commission is in: _____ County, Michigan

My Commission Expires: _____

PERMITTEE:

Signature: _____

_____

Type/Print Permittee's Name

_____

Title (if signing on behalf of an organization

_____

Organization Name (if signing on behalf of an organization)

STATE OF MICHIGAN }

} ss

COUNTY OF_____}

IF SIGNING ON BEHALF OF AN ORGANIZATION, THIS MUST BE COMPLETED:

The foregoing instrument was acknowledged before me this _____ day of _____, 20__by , (name[s]) the _____, (title) of _____(Organization name) a _____, (state) corporation, partnership, municipality, or limited liability company (circle one), on behalf of the organization.

_____

(Signature of Notary Public)

_____

(Typed or Printed name of Notary Public)

Acting in: _____ County, Michigan

My Commission is in: _____County, Michigan

My Commission Expires: _____

(OR) IF SIGNING AS AN INDIVIDUAL OR MARRIED PERSON, THIS MUST BE COMPLETED:

The foregoing instrument was acknowledged before me this _____ day of _____, 20__ by , (name[s]) _____ (marital status).

_____
(Signature of Notary Public)

_____
(Typed or Printed name of Notary Public)

Acting in: _____ County, Michigan

My Commission is in: _____ County, Michigan

My Commission Expires: _____

STEWARD:

Signature: _____

_____

Type/Print Name

_____

Title

_____

Organization Name

STATE OF MICHIGAN }

} ss

COUNTY OF_____}

IF SIGNING ON BEHALF OF AN ORGANIZATION, THIS MUST BE COMPLETED:

The foregoing instrument was acknowledged before me this _____ day of _____, 20__by , (name[s]) the _____, (title) of _____(Organization name) a _____, (state) corporation, partnership, municipality, or limited liability company (circle one), on behalf of the organization.

_____

(Signature of Notary Public)

_____

(Typed or Printed name of Notary Public)

Acting in: _____ County, Michigan

My Commission is in: _____County, Michigan

My Commission Expires: _____

GRANTEE:

STATE OF MICHIGAN

DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER RESOURCES DIVISION

_____

William Creal, Chief

STATE OF MICHIGAN}

} ss

COUNTY OF INGHAM}

The foregoing instrument was acknowledged before me this _____ day of _____, 20__ by William Creal, Chief, Water Resources Division, State of Michigan, on behalf of the Department of Environmental Quality.

_____

(Signature of Notary Public)

_____

(Typed or Printed name of Notary Public)

Acting in: Ingham County, Michigan

My Commission Expires: _____

AFTER RECORDING RETURN TO:

FORM DRAFTED BY:

Michigan Department of

The Honorable William Schuette,

Environmental Quality

Attorney General

Water Resources Division

Department of Attorney General

Constitution Hall, 2nd Floor South

Environment, Natural Resources, and

Lansing, Michigan 48909-7958

Agriculture Division

P.O. Box 30458

Lansing, Michigan 48909

(March 17, 2011)

Appendix D
Marquette County Road Commission Driveway and Driveway Culvert Replacement Policy

Marquette County Road Commission

Driveway and Driveway Culvert Replacement Policy

Background:

The Marquette County Road Commission adopted the Administrative Rules Regulating Driveway, Banners and Parades On and Over Highways Under the Jurisdiction of the Counties as Illustrated" (Alger, Baraga, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Marquette, Menominee, and Ontonagon) on February 8, 1990.

A summary of why the policy was adopted is included below:

"These rules have been adopted in accordance with the requirements of ACT 200 of Public Acts of 1969 to insure maximum protection for the public through the reasonable control of driveways access, banners, parades, and road closures on county roads.

The Road Commission recognizes that the right of access to county roads, is one of the incidents of ownership of abutting land. A goal of the Road Commission is to grant land owners access for their needs consistent with the Road Commission's right and responsibility to insist on the location and design of driveways that will provide freedom of traffic movement and safety of the highway users."

Two highlights of Act 200 of 1969 are reprinted below:

247.324 Permit; driveways; rules.

Sec. 4.

Permits for driveways shall be granted in conformity with rules promulgated by the highway authority which shall be consistent with the public safety and based upon the traffic volumes, drainage requirements and the character of the use of land adjoining the highway and other requirements in the public interest. Rules shall prescribe reasonable standards for the design and the location of driveways and may require that driveways shall be hard-surfaced. The provisions of this section shall not be deemed to deny reasonable access to a nonlimited access highway.

History: 1969, Act 200, Imd. Eff. Aug. 6, 1969 © 2006 Legislative Council, State of Michigan

247.327 Existing driveways; correction of driveway in violation of rules; notice; failure to correct; reimbursement.

Sec. 7.

This act shall not apply to driveways in existence on August 6, 1969, except that if the use of the land served by the driveway is changed or expanded, and the change or expansion causes the existing driveway to be a safety hazard, the driveway shall be considered a new driveway subject to this act. A driveway which is constructed or reconstructed after the effective date of the rules issued pursuant to this act and which is in violation of the rules shall be corrected by the owner within a period of time, not less than 30 days, specified in the notice of violation sent by certified mail to the owner. If not corrected within the period required by the notice, the highway authority or its agents may perform the necessary correction and the owner shall reimburse the highway authority for the reasonable cost of correction.

History: 1969, Act 200, Imd. Eff. Aug. 6, 1969 ;-- Am. 1978, Act 83, Imd. Eff. Mar. 29, 1978 © 2006 Legislative Council, State of Michigan

Policy:

The Board of Marquette County Road Commissioners reaffirms the adopted rules as stated in Administrative Rules Regulating Driveway, Banners and Parades On and Over Highways Under the Jurisdiction of the Counties as Illustrated" (Alger, Baraga, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Marquette, Menominee, and Ontonagon) on February 8, 1990.

In addition, it reaffirms the DRAINAGE POLICY (DITCH DEPTH/CULVERT INSTALLATION), which states:

"When in the course of processing a driveway permit it is determined that an existing roadside ditch is shallow but functional and the depth is not adequate to provide six inches of cover over the required culvert, it shall be a condition of the permit that the applicant deepen the ditch on the outlet end of the culvert to the point where positive flow is established."
Adopted 3/16/92

Additionally, it reaffirms the DRAINAGE POLICY (CULVERT LENGTH), which states:

"A permit will not be issued for the purpose of enclosing a portion of a ditch for landscaping. Driveway culverts shall be no longer than necessary to accommodate the permitted driveway with slopes not to be steeper than one foot vertical to three feet horizontal (1/3). When the gap between two adjoining driveway culverts, installed as above, would be five feet or less, it will be permissible to eliminate the gap by extending the culverts and banding them together. If, by connecting the two culverts, the total length of the run would be eighty feet or more, the connection shall be made by extending the culverts into a four-foot diameter manhole.

A nonpermitted culvert which has been placed for landscaping purposes, after the effective date of this policy, shall be removed by the person who installed it. Other new, nonpermitted culverts placed contrary to the requirements listed above shall be brought into compliance by the person who installed it. In any case, a permit shall be required to validate the installation should it be allowed to remain and to cover any corrective work necessary to bring the installation into compliance.

A culvert existing prior to the effective date of this policy which has been placed for landscaping purposes or contrary to the requirements listed above will be treated in the following manner:

1. The property owner, in the case of a nonpermitted installation, shall be responsible for obtaining a permit and removing or altering the installation to bring it into compliance with this policy when the installation interferes with the normal flow of the ditch.
2. When in the course of maintenance or construction activities it is necessary to work on a permitted culvert installation which is not compliant with this policy, the Marquette County Road Commission will do what is necessary to bring the installation into compliance.
3. When a contractor is engaged in a permitted activity and that activity involves work on a culvert installation which is permitted but not compliant with this policy, he shall as a condition of obtaining a permit for his work, do what is necessary at his expense to bring the culvert installation into compliance with this policy."

Adopted 3/16/92

Moreover, it passes the following additional rules:

Driveways and all associated items that make up a driveway including but not limited to culverts, fill material, guardrail, curb, gravel and pavement (asphalt or concrete) are the responsibility of the property owner.

The Road Commission will only replace/place driveway items including but not limited to culverts, fill material, guardrail, curb, gravel and pavement (asphalt or concrete) if in the course of constructing a road or performing heavy maintenance to a road that work directly affects the driveway. At all other times, the property owner is solely responsible for operation and maintenance of their driveway and there associated items.

If any portion of a driveway is failing, it is the responsibility of the driveway owner to fix it. If the failure to fix the driveway is causing problems for the Road Commission or adjacent property owners, the Road Commission will take the following steps:

1. The Road Commission will try to contact the driveway-owner through face-to-face meeting or a phone call and request that they address the problem as soon as possible preferably within 30 days or faster. If it is a critical issue, the Road Commission will proceed to step 2 directly. If loss of life and property is emanate the Road Commission will act immediately and the process will go to step 3. If driveway owner takes care of the situation at this step no driveway permit fee will be required.

2. If Road Commission personnel cannot contact the driveway-owner as stated in step 1 above or if the driveway-owner is unresponsive to the initial contact the Road Commission in accordance with Public Act 200 of 1969 will contact the owner through certified mail and give notice to the

driveway-owner that they are in violation and they have not less than 30 days to fix the violation. Driveway owner will be responsible for the driveway permit fee.

3. If not corrected within the period required by the notice, the Road Commission or its agents may perform the necessary correction and the driveway-owner shall reimburse the highway authority for the actual cost of correction. Driveway owner will be responsible for the driveway permit fee.

4. If the driveway-owner does not pay the Road Commission within 90 days the Road Commission will give final notice to the property owner, through certified mail, that they have 30 days to pay or the Road Commission will have the Township or City place the amount owed to the Road Commission on their property tax bill. The Township or City will then collect the money owed to the Road Commission and they may charge additional fees as per their policies, ordinances, federal, state and local laws. Payment arrangements may be made at the Road Commission's discretion.

Adopted: **August 13, 2007**