UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JAN 24 2013

REPLY TO THE ATTENTION OF:

WW-16J

Warren C. Swartz, Jr.
Tribal President
Keweenaw Bay Indian Community
16429 Beartown Road
Baraga, Michigan 49908

RE: Government-to-Government Consultation Regarding Decision to Reaffirm, Modify or Withdraw the Agency's Objection to a Proposed CWA Section 404 Permit Related to Construction of Marquette County Road 595

Dear President Swartz:

I appreciate that you, Secretary LaFernier, and your staff took time to meet on August 28, 2012, to discuss issues related to the proposed construction of Marquette County Road 595. The information that was presented during the meeting was helpful to our understanding of the Keweenaw Bay Indian Community (KBIC) perspective on the proposed project. The purpose of this letter is to outline the issues and concerns that we heard during our discussion. As you may know, on January 3, 2013, the Michigan Department of Environmental Quality (MDEQ) wrote to EPA indicating it would not be issuing a permit for County Road 595 (copy of letter enclosed). While the specific concerns you raised regarding the proposed project are no longer before the Agency, we are responding because a number of the issues you raised present more general questions.

1. KBIC requested that EPA reaffirm its objection to the proposed state permit to fill wetlands for the construction of County Road 595.

During our meeting we discussed the particular reasons behind the EPA's initial determination that the proposed project did not comply with Clean Water Act (CWA) Section 404 Guidelines. In addition, we indicated that the applicant had continued to submit new material intended to address issues raised in the EPA objection. This information, along with input submitted during the public hearing and comment process and consultation with federally-recognized tribes was considered by the Agency in coming to a final decision on whether to reaffirm, modify, or withdraw its objection.

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In a December 4, 2012 letter to MDEQ, EPA withdrew its objection related to the applicant's alternatives analysis, and reaffirmed its objection related to minimization and mitigation. This letter, with attachment, and EPA's response to public comments are enclosed.

2. KBIC believes there are Treaty resources in the proposed project impact area that are still in use by tribal members. During the public hearing process KBIC submitted information regarding resources that may be affected and the impacts this would have on Treaty rights. We note that KBIC has raised concerns about the potential impact of the proposed project to resources the tribe may utilize in the McCormick Wilderness area, which is located near the proposed project.

EPA considered this information in making its December 4, 2012 decision. The potential loss of wetlands, including those within which traditional medicinal plants may be gathered, the potential loss of plant habitat to invasive species, and fragmentation of habitat were concerns to EPA. In the attachment to its December 4, 2012 letter to MDEQ, EPA described the necessary requirements for an acceptable mitigation plan.

3. You noted that EPA's authorization of federal environmental programs to state agencies has historically not included references to protection of treaty rights and resources in ceded territories and that unlike the federal government, the state has no consultation obligations with federally-recognized tribes. The delegation of the federal authorities to state agencies overlooked these Treaty rights and resources.

EPA's "Consultation and Coordination with Indian Tribes," policy (May 4, 2011), sets out EPA's intent to consult with federally recognized tribes where agency decisions have the potential to impact tribal interests. The Agency will continue to invite consultation with federally-recognized tribes when EPA actions or decisions may affect tribal interests, and encourage states and tribes to develop mechanisms to coordinate on environmental issues of mutual interest. EPA notes that in August 2012, Michigan's Governor Rick Snyder issued an Executive Directive, "Tribal-State Relations," which commits the state to consult with tribes:

> *When formulating or implementing laws, rules, or policies that have tribal implications, state executive branch departments, agencies, and officials shall be cognizant of tribal sovereignty and the state's unique legal relationship with federally recognized tribes and shall consult with the tribes on matters it has reason to know will affect the tribes. (Michigan Exec. Dir. No. 2012-2 (2012)).*

When a tribe raises a question of whether a federally approved state program is protective of an off-reservation treaty-protected resource, EPA will look at the question on a case-by-case basis. Michigan's CWA 404 program was authorized in 1984. In 2011, EPA and Michigan renegotiated the memorandum of agreement for implementation of the state's CWA 404 program. EPA invited tribal consultation on the renegotiation of the MOA. As a result of the consultation, EPA recommitted to encouraging the state and tribes to coordinate on environmental issues, including off-reservation projects which may affect tribal interests.

4. KBIC believes that the purpose of the project stated in the application is not accurately portrayed. KBIC state that the proposed project should be understood as a haul road between Kennecott Eagle Mine and the Humboldt Mill. KBIC asserted that a public entity applying for a permit on behalf of a private company establishes a dangerous precedent.

As we discussed during the meeting, EPA did not raise objection with the project purpose stated in the CWA Section 404 application. We note that KBIC's concern was raised by other commenters as part of the public hearing process. EPA addressed these concerns in the enclosed Responsiveness Summary (See Project Purpose).

We also discussed the question of whether issues such as this one, which were not part of the EPA's initial objection, could be reviewed as part of the public hearing process. In response, we note that EPA considered and addressed all concerns received during the public hearing process, regardless of whether or not they were part of EPA's initial objection.

5. KBIC asserted that construction of the proposed project would open up the area to further development and lead to fragmentation of the habitat.

This concern was also raised in other comments the EPA received as part of the public hearing process. EPA addressed this matter in the enclosed Responsiveness Summary (See Environmental Impacts/Benefits, and Compensatory Mitigation).

6. KBIC noted that the actual composition of the material to be hauled on the road is not entirely known, and, as such, the possible impacts to the surrounding area cannot be accurately evaluated and regulated.

This concern does not relate directly to the discharge of fill material to Waters of the U.S. as regulated under CWA Section 404. However EPA took this into account as a potential indirect impact in its December 4, 2012 decision. The issue was also addressed in the enclosed Responsiveness Summary (See Environmental Impacts/Benefits: Comments Regarding Operational Impacts). Based on internal discussions since our meeting we do not believe that other EPA programs have authorities to regulate the hauling of ore material. You had asked whether EPA could access any information on the ore being hauled, either from the company or the state. EPA does not believe that we have a basis on which to request this type of information, but we are willing to discuss the matter further, should it arise in the context of future projects.

7. KBIC is concerned about the viability of the treated water infiltration system at the Kennecott Eagle Mine and whether it should be regulated as a discharge under the CWA.

As we outlined during the meeting, the Agency determined that the treated water infiltration system was not regulated under the CWA due to the extended time that is likely to pass between discharge and the ground water reaching the surface. Given the Tribe's concerns about possible impacts to ground and surface water, monitoring wells have been placed between the water treatment system and the identified ground water seeps to assess the ground water. The monitoring data will be submitted to the state and is a matter of public record under the permit.

8. KBIC asked for clarification on how EPA defines consultation with tribes.

The "EPA Policy on Consultation and Coordination with Indian Tribes" (May 4, 2011) defines consultation as "a process of meaningful communication and coordination between EPA and tribal officials prior to EPA taking actions or implementing decisions that may affect tribes." As explained in the Consultation Policy, this includes four phases: (a) identifying the issues that may be appropriate for consultation with potentially affected tribes; (b) notifying tribes early in the process to allow for meaningful input; (c) obtaining tribal input; and (d) providing feedback to tribes to explain how their input was considered.

9. In your written comments (September 4, 2012) submitted during the public comment period, you stated that the permitting of CR 595 would be inconsistent with the goals of ecological values, goals and objectives for the Great Lakes ecosystem, and referenced a number of efforts aimed at preservation and restoration of the Great Lakes ecosystem. Particular concerns referenced include: habitat fragmentation, addition of pollutants to the ecosystem and water contamination, invasive species introduction and habitat destruction.

EPA agrees that a number of the impacts cited, such as habitat fragmentation, addition of pollutants such as chloride and sediment and invasive species introduction, might be expected to accompany the construction of CR 595. EPA's views are discussed in the sections of the enclosed Responsiveness Summary (See Environmental Impacts/Benefits and Compensatory Mitigation).

Thank you again for sharing your thoughts and concerns about the proposed project. If you have any questions or concerns, please feel free to contact me at (312) 353-2147.

Sincerely,

for Tinka G. Hyde
Director, Water Division

Enclosures

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

January 3, 2013

VIA E-MAIL and U.S. MAIL

Dr. Susan Hedman, Regional Administrator
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard (R-19J)
Chicago, Illinois 60604-3507

Dear Dr. Hedman:

On December 4, 2012, the Michigan Department of Environmental Quality (MDEQ) was notified by you of the United States Environmental Protection Agency's (USEPA) decision to not withdraw its objection regarding minimization of impacts and compensatory mitigation for the construction of proposed Marquette County Road 595. As noted in your letter, under Section 404 of the federal Clean Water Act, the MDEQ had 30 days from the date of receipt of that letter to issue a permit that satisfies the USEPA's reaffirmed objection or the authority to process the permit application under Section 404 transfers to the United States Army Corps of Engineers (USACE).

The applicant has been working with the MDEQ since the date of your letter to address the concerns raised by the USEPA's reaffirmed objection. As we have discussed previously, I believe that there are reasons to support the approval of this project. However, this letter serves as formal notification that due to the short time frame allowed by statute and the complexity of the issues remaining, the MDEQ is not issuing a permit for Marquette County Road 595. We have enclosed the applicant's December 27, 2012, response to the USEPA's reaffirmed objection, except for the additional information we understand was submitted directly to the USEPA by Mr. Ronald E. Greenlee. We understand that authority to process the permit application for this project under Section 404 of the Clean Water Act is now transferred to the USACE.

We value our partnership with the USEPA on Michigan's administration of the Section 404 Program and look forward to working with you in the future. If you need further information or assistance, please contact Mr. William Creal, Chief, Water Resources Division, at 517-335-4176; crealw@michigan.gov; or MDEQ, P.O. Box 30458, Lansing, Michigan 48909-7958; or you may contact me.

Sincerely,

Dan Wyant

Dan Wyant
Director
517-373-7917

Enclosure

Responsiveness Summary
EPA Objection to the issuance of a Clean Water Act Section 404 permit to construct County Road 595

December 3, 2012

Section I: Introduction

Background

In a January 23, 2012 public notice, the Michigan Department of Environmental Quality (MDEQ) requested comments on whether or not to issue a Wetlands and Inland Lakes and Streams Permit pursuant to Sections 301 and 303 of the Michigan Natural Resources and Environmental Protection Act and Section 404 of the federal Clean Water Act (CWA) to the Marquette County Road Commission for the wetlands fill and stream impacts associated with constructing Marquette County Road 595 (CR 595). As initially proposed, construction of CR 595 would entail the filling of 25.8 acres of wetlands and construction of 22 stream crossings.

The permit applicant's stated project purpose was:

> *"...to construct a new north-south road that (1) connects and improves emergency, commercial and recreational access to a somewhat isolated but key industrial, commercial, and recreational area in northwest Marquette County to US-41, and (2) reduces truck travel from this area through the County's population centers."*

On April 23, 2012, the U.S. Environmental Protection Agency sent a letter to the MDEQ objecting to the issuance of a 404 permit for the CR 595 project. EPA's letter included comments from the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service. Specifically, EPA found that the application failed to comply with CWA Section 404(b)(1) Guidelines because:

- Practicable alternatives existed with fewer impacts to wetlands;
- The applicant had not avoided and minimized wetland impacts;
- The proposed project would have a significant adverse impact on wetland and stream resources; and
- The proposed wetland and stream mitigation would not fully compensate for the proposed impacts.

A copy of EPA's April 23, 2012 objection letter is attached.

Public Hearing

On July 11, 2012, the MDEQ requested that EPA hold a public hearing on the federal objection to the issuance of a 404 permit for the CR 595 project. On July 27, 2012, the EPA provided public notice that it would hold a public hearing, and solicited public comments on its objection. On August 28, 2012, EPA held a public hearing on its objection in Marquette, Michigan. The purpose of the hearing was to gather information from the public before EPA makes a final decision to reaffirm, modify or withdraw the federal objection to the issuance of a 404 permit.

In addition to taking oral comments at the hearing, EPA also received written comments through September 5, 2012.

Response to Comments

The purpose of this document is to provide responses to comments received, and to explain how EPA considered the comments received in making a final decision to reaffirm, modify or withdraw the federal objection to the issuance of a permit.

Because of the number of comments received, EPA has not attempted to respond to all comments individually. Instead EPA has grouped comments into general comment areas and responded to these areas of interest. (Section II of this document.)

Michigan's administration of the federal Clean Water Act Section 404 permit program

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into wetlands and other waters of the United States without a valid permit. Such 404 permits typically are issued by the U.S. Army Corps of Engineers. However, under the Clean Water Act, a state may be authorized by EPA to administer a Section 404 permitting program within its jurisdiction if EPA determines that the state's regulatory program for discharges of dredged and fill material into waters of the United States is substantially equivalent to Section 404 of the Clean Water Act and associated requirements set forth in the Section 404(b)(1) Guidelines.

In 1984, EPA approved Michigan's wetlands protection programs and authorized the state environmental protection agency to administer a permitting program under Section 404 of the Clean Water Act in most areas of the state. Michigan and New Jersey are the only states that have been authorized to administer CWA Section 404 permitting programs to date.

As set forth in Section 404 of the Clean Water Act and federal regulations at 40 C.F.R. §233.50, EPA exercises oversight of Michigan's Section 404 permitting program to ensure the state is administering its program in a manner consistent with the Clean Water Act and the Section 404(b)(1) Guidelines. The statute and regulations provide that the state may not issue a 404 permit for a particular project if EPA timely objects to its issuance. If the state does not satisfy

EPA's objections or deny the permit within timeframes specified in federal regulation, the authority to process the permit application transfers to the U.S. Army Corps of Engineers.

Clean Water Act Section 404(b)(1) Guidelines

Pursuant to Section 404(b)(1) of the CWA, the 404(b)(1) Guidelines were developed by EPA to establish minimum requirements for the issuance of Section 404 permits. The Guidelines are published in the Code of Federal Regulations at 40 CFR Part 230. The purpose of the Guidelines is to restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of fill material into waters of the U.S. MDEQ incorporated the Guidelines into its regulatory framework pursuant to Michigan's assumption of the federal Clean Water Act Section 404 permitting program.

The Section 404(b)(1) Guidelines state that no discharge of fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the nation's waters would be significantly degraded. The 404(b)(1) guidelines require permit applicants to demonstrate that proposed projects represent the least environmentally damaging practicable alternative (LEDPA) meeting the project purpose.

The analysis includes the following sequence:

- Direct impacts to wetlands and streams must be avoided wherever possible (e.g., through construction in uplands rather than within wetlands):

- Where wetlands and streams must be impacted, these impacts must be minimized as much as possible (e.g. through a reduced construction footprint); and

- Compensatory mitigation must be provided for any unavoidable impacts (e.g., through wetland or stream restoration, creation or preservation).

The CWA § 404(b)(1) Guidelines require an applicant to demonstrate that practicable alternatives do not exist which are less damaging to the aquatic environment. The alternatives analysis should demonstrate that an applicant's preferred alternative meets the criteria for being the LEDPA to meet the project purpose. Once the LEDPA is selected, the applicant must demonstrate that it has avoided and minimized impacts to the maximum extent possible and compensated for any unavoidable impacts.

EPA's role in reviewing 404 permit applications and proposed permits is to assure that all federal requirements are met, and, in particular, to assure that projects conform to the CWA Section 404(b)(1) Guidelines. To comply with the Guidelines, a project must not result in significant degradation of waters of the United States. The Guidelines require an applicant to take all practicable and appropriate steps to avoid and minimize adverse impacts. Compensatory mitigation is required to ensure that unavoidable impacts will be mitigated and will not result in significant degradation of affected waters.

When assessing compliance with the Guidelines, the EPA determines:

- Whether the least environmentally damaging practicable alternative (LEDPA) has been identified, and wetland and stream impacts have been avoided and minimized to the greatest extent practicable; and

- Whether proposed mitigation is sufficient to compensate for remaining unavoidable impacts. In some cases, EPA may find that a project will result in significant adverse impact to wetlands and streams that cannot be mitigated.

  (Note: Mitigation plans cannot be finalized until the LEDPA is selected and impacts are avoided and minimized. Nevertheless, for the sake of efficiency, EPA will review a permit applicant's mitigation proposals concurrent with those considerations.)

If a proposed project does not comply with the Section 404(b)(1) Guidelines, EPA may object to the issuance of a permit for the project.

<u>EPA's objection to the issuance of a 404 permit for County Road 595</u>

In its review of CR 595, EPA objected to MDEQ issuing a permit because the project failed to conform to the Section 404(b)(1) Guidelines. The objection was based on the following concerns:

- The materials included in the application and accompanying analysis did not demonstrate that the applicant's preferred route is the LEDPA, and therefore, it was not possible at that time to provide the conditions necessary for issuance of a permit.

- The project would lead to the significant degradation of aquatic resources (wetlands and streams). Approximately 75% of the proposed wetland impacts from this proposed project would be forested wetland types which are difficult to replace resources. Although the application outlined measures to minimize likely impacts to aquatic resources, EPA was concerned that the magnitude of the proposed impacts to high quality aquatic resources along the route would be significant and the applicant failed to adequately compensate for those impacts.

- Proposed mitigation would not fully compensate for the loss of aquatic function and value. In particular the applicant's proposed mitigation initially relied heavily on wetland creation sites which EPA believed had a low probability for success.

- Qualifiers placed by the applicant stipulating that the road be within a defined four-mile corridor and that it be west of the Silver Lake Basin unnecessarily eliminated alternatives which meet the stated project purpose, and could not be used to limit the range of practicable alternatives considered.

- The project would create indirect impacts, including sediment impacts to wetlands, disturbances and changes to wetland flow patterns, and the spreading invasive species along the proposed route.

- The applicant needed to analyze the effects of the proposed project in causing wetlands fragmentation.

- The project would lead to the loss of stream functions due to the lengths of bridges and culverts and due to changes in hydrology and water quality.

- The project could cause wildlife impacts, including impacts to migratory birds, their nests, eggs, and young.

- The project could increase amphibian and reptile (turtle) mortality

- The project could cause impacts to Kirtland's warbler (*Setophaga kirtlandii*) and Canada lynx (*Lynx candaensis*) which are protected under the Endangered Species Act and which have the potential to be present within the proposed CR 595 corridor.

Michigan's 404 permitting process

As noted, MDEQ is authorized to administer the Clean Water Act Section 404 permitting program in the state. MDEQ decides whether or not to issue a 404 permit for any proposed project, and a permit issued by the MDEQ authorizes 404 activities under CWA Section 404. EPA does not issue 404 permits. However, EPA reviews certain permit applications and proposed permits under its oversight authority and can object to MDEQ's issuance of a permit.

Under Section 404(j) of the Clean Water Act, and 40 C.F.R. 233.50, if EPA withdraws its objection in a timely manner, MDEQ may issue the permit. However, the MDEQ may not issue a permit over EPA's objection. Under the Statute and regulations, if, following a public hearing EPA reaffirms its objection, the MDEQ has 30 days within which to either issue a permit that satisfies EPA's objections or notify EPA that it will deny the permit. If the MDEQ does not do so, authority to process the permit application transfers to the U.S. Army Corps of Engineers.

Section II: Summary of comments received and EPA's responses

EPA received approximately 400 comments from members of the public, a tribe, two tribal organizations and a number of elected officials. These included oral comments recorded at the public hearing, and comments received via letter, telephone and email prior to and following the public hearing. Due to the large number of comments, EPA is not responding to individual comments. Instead, EPA has grouped these comments into the following topic areas for response:

1. *Project Purpose*
2. *Alternatives Analysis*
3. *Environmental Impacts/Benefits*
4. *Transportation Considerations*
5. *Economic Considerations*
6. *Traffic and Safety*
7. *Impacts of Kennecott Eagle Mine*
8. *Tribal concerns*
9. *Mitigation*
10. *Hearing Process*

The following is a summary of the comments received in each of these categories, followed by EPA's response.

1. Project Purpose

Comments:

A significant number of commenters raised concerns about the stated project purpose. Commenters stated that the true purpose of the road was to serve as a private haul road for Rio Tinto's Eagle Mine to carry ore to the company's processing facility. Some comments referenced 'Woodland Road,' a project previously proposed by Rio Tinto to serve as a haul road for Eagle Mine to transport ore to a processing facility called the Humboldt Mill. These commenters believed that CR 595 constituted the same project under a different name. Some stated that there was no plan or need for CR 595 aside from serving as a mine haul road. Others questioned why Marquette County rather than Rio Tinto applied for the Section 404 permit. One

commenter said that allowing the County to apply for a permit on behalf of a private entity set a dangerous precedent. One commenter referred to a fraudulent permit for CR 595.

One commenter stated that the Marquette County Road Commission applied for the State 404 permit for CR 595 in order to avoid Michigan Part 632 requirements and to limit the range of alternatives considered. Another stated that the status of the Marquette County Road Commission as a public agency was being used to justify the need for the road even though it will primarily be a private haul road for Eagle Mine. One commenter said that the County was being pressured by the mine to apply for the 404 permit. Other commenters stated that the mine project was being piecemealed because the mine, mill and road were permitted separately to allow for easier approval.

In contrast, other commenters cited non-mine related purposes the road would serve, such as improved transportation and emergency access, economic growth, and reduced traffic in populated areas. These comments are taken up in subsequent sections. (See sections entitled Transportation Considerations and Economic Considerations.)

Some commenters believed that the project purpose could be served by existing roads. A commenter noted that the Eagle Mine represents a short term need for the road, and stated that it would make more sense to improve existing infrastructure. Another stated that the purpose for the road is not well demonstrated because timber harvesting, recreation, and the Eagle Mine currently use existing roads. One commenter stated that there is access to Northwest Marquette County through the community of L'Anse, and around the North side of the McCormick Wilderness by the Peshekee Grade. The commenter also stated that in severe weather, it is likely that CR 595 would be impacted by the same weather that would impact County Road AAA, and therefore would not benefit emergency access. One commenter said that CR 595 would be "a road to nowhere," stating that it would cut off the Big Bay community. This commenter said that Big Bay has an alternate emergency route with the construction of a new bridge on 510.

Response:

The County's stated purpose for the CR 595 project was:

> *"...to construct a new north-south road that (1) connects and improves emergency, commercial and recreational access to a somewhat isolated but key industrial, commercial, and recreational area in northwest Marquette County to US-41, and (2) reduces truck travel from this area through the County's population centers."*

While federal regulations require applicants to define the purpose for each project as part of the Section 404 permit application process, the Section 404(b)(1) Guidelines and federal regulations do not directly address the concerns raised by commenters regarding how the project purpose should be defined. Generally speaking, EPA provides deference to applicants in how the purpose for any particular project is defined, and to the State in how it interprets state requirements regarding project purpose. An important caveat is that a project purpose should not be defined so narrowly that it precludes a meaningful analysis of alternatives. As discussed in

the introduction to this document, in all states with the exception of Michigan and New Jersey, the U.S. Army Corps of Engineers (ACOE) is the CWA Section 404 permitting authority. The ACOE's Standard Operating Procedures for the Regulatory Program state:

> *"The overall project purpose is used for evaluating practicable alternatives under the Section 404(b)(1) Guidelines. The overall project purpose must be specific enough to define the applicant's needs, but not so restrictive as to preclude all discussion of alternatives."*[1]

The EPA follows the ACOE guidance on this matter in overseeing the Michigan 404 permitting program. In the present case, EPA did not dispute the project purpose as stated in the permit application for CR 595. EPA did raise objection, however, when the applicant interpreted its project purpose to allow only for routes falling within a specific 4-mile wide corridor. In its April 23, 2012 objection letter, EPA stated:

> *"Because the project purpose affects the range of alternatives, it should not be too narrowly defined so as to limit alternatives. Qualifiers placed by the applicant ... include the stipulations that the road be within a defined four-mile corridor and that it be west of the Silver Lake Basin to provide access in the event of a "catastrophic flood event, such as occurred in 2003." ... These restrictions unnecessarily eliminate alternatives which meet the stated project purpose, and may not be used to limit the range of practicable alternatives considered. We believe other alternatives will meet the project purpose and that MDEQ should ensure these are appropriately analyzed."*

EPA continues to believe that routes outside of this 4-mile corridor would satisfy the stated project purpose.

EPA is aware that Woodland Road, LLC previously applied for a 22 mile road primarily for use by Eagle Mine ore haul trucks and lumber trucks. Woodland Road impacts would have included 26 acres of primarily high quality forested wetland and 23 stream crossings. EPA, the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service objected to the project, and it was subsequently withdrawn by the applicant.

EPA recognizes that the proposed County Road 595 largely follows the same route as the proposed "Woodland Road." While EPA objected both to the proposed Woodland Road and the proposed CR 595, these objections did not call into question the project purpose in either case.

EPA continues to focus on concerns regarding the alternatives analysis, avoidance and minimization of impacts and compensatory mitigation, rather than the project purpose.

2. **Alternatives Analysis**

<u>Comments</u>:

[1] U.S. Army Corps of Engineers, July 1, 2009

A number of commenters stated that there were available alternatives other than the construction of CR 595 that would meet the project purpose. Some commenters requested that a thorough analysis of additional alternatives be completed. The alternatives suggested by commenters focused on the need to haul ore and included upgrading and using CR 550, using CR 550 with an extension of CR HQ Target Road northwest of Wright Street to keep truck traffic out of Marquette, or using CR 550 to Forestville Road and U.S. 41. Some stated that upgrading existing roads would be less environmentally damaging than constructing a new road. One commenter stated that cost should not be an issue in choosing the least damaging practicable alternative.

Other comments reference alternative approaches to hauling ore, such as via rail lines in combination with existing roads. A number noted that this was an alternative considered during discussion on the Woodland Road proposal and questioned why it is no longer under consideration.

Several commenters stated that CR 595 was the best alternative if cost and topography of the area were considered. Others stated that CR 595 was the only reasonable alternative other than to route trucks through Marquette.

Response:

Many comments related to the various alternatives were focused on specific benefits, such as environmental, economic, transportation, traffic and safety benefits. EPA has summarized and responded to these specific comments in other sections of this document, and is not repeating them here.

The Section 404(b)(1) Guidelines require an applicant to demonstrate that practicable alternatives do not exist which are less damaging to the aquatic environment. The alternatives analysis should demonstrate that an applicant's preferred alternative meets the criteria for being the least environmentally damaging practicable alternative (LEDPA) to meet the project purpose.

EPA evaluated alternatives based on the Section 404(b)(1) Guidelines to determine whether the applicant had demonstrated that CR 595 represents the LEDPA. In carrying out its review of the 404 permit application for CR 595, EPA evaluated a number of alternatives. The application described nine alternative routes:

1. Dishno Route
2. Mulligan Plains East Route
3. Mulligan Plains West Route
4. Peshekee Route

5. Red Road - Sleepy Hollow Route

6. CR 510 Route

7. CR 550 Route

8. CR 595 (applicants preferred alternative)

9. Sleepy Hollow Route

A map illustrating these routes is included as Attachment 2 to this document.

In its application, Marquette County contended that of these alternatives only CR 595 was viable.

Based on its review, EPA determined that:

- The impacts of the **Dishno** and **Peshekee Routes** included 47 and 68 acres of direct wetland impacts and 29 and 25 stream crossings, respectively. Because of the quantity of aquatic resource impacts associated with these two alternatives, EPA agreed that the Dishno and Peshekee Routes could be considered "no build alternatives."

- **CR 550** and portions of **CR 510** are existing primary all-season county roads. EPA stated that they would not meet the stated project purpose because they would not reduce truck traffic through Marquette population centers. Therefore EPA agreed that these could be eliminated from consideration.

- Although the applicant did not provide estimated impacts of the **Mulligan Plains West Route** in its Alternatives Analysis, it was clear to EPA during pre-application discussions that direct aquatic resource impacts were lower for this alternative than those for the County's preferred alternative. EPA understood that this alternative was not pursued because the Nature Conservancy holds a conservation easement bisecting the route. Because of this easement, EPA ultimately agreed that this route could be eliminated from consideration.

- The estimated impacts of the **Mulligan Plains East Route** include 25.2 acres of wetlands impact and 12 stream crossings. The application eliminated this alternative primarily because of "an extremely difficult crossing of the Yellow Dog River." Although a bridge would clearly add cost to any new road, it was not clear to EPA that the additional cost would make the project infeasible. EPA's review of available information indicated that the aquatic resource impacts may have been overestimated for this alternative, and indirect impacts of this alternative may be fewer than for the County's preferred alternative. EPA recommended that the applicant quantify the bridge cost and reassess aquatic resource impacts.

- EPA believed that the **Red Road-Sleepy Hollow** alternative was not given due consideration within the alternatives analysis, largely because of the additional length compared to CR 595, which would increase construction costs. Despite the additional distance between the Kennecott Mine and Humboldt Mill, EPA stated that this alternative met the stated project purpose and may be practicable. Estimated impacts include 13.04 acres of direct wetland impacts and 35 stream crossings. Because this alternative would include improving existing CR 510 for the northern 12 miles of the route, indirect impacts to aquatic resources would be fewer than would be expected with new road construction. EPA stated that the applicant needed to provide a more comprehensive evaluation of this alternative.

- In addition to the alternatives shown in Attachment 2 (Figure 4-2), two additional alternatives - CR 510/Red Road/Gold Mine Lake Road and CR 510/Red Road/Callahan Road - were eliminated from consideration during the Woodland Road alternatives discussion based on a comparison of wetlands within a 300 foot corridor along the proposed route. EPA agreed that these alternatives did not warrant further consideration as part of the CR 595 alternatives analysis.

EPA stated that the applicant should also consider the indirect and cumulative impacts before eliminating alternatives. The marginal increase of aquatic impacts from expanding an existing road may be preferable to impacts to relatively undisturbed aquatic systems. (For example, the Red Road/Sleepy Hollow alternative contains more stream crossings than the County's preferred alternative, but indirect and cumulative stream impacts may be fewer than those for CR 595 because the majority of these stream crossings already exist.)

In reviewing the application, EPA deferred to MDEQ, as primary regulatory authority, to evaluate the applicant's stated project purpose. EPA did not raise objection to the applicant's project purpose as defined. The County's stated purpose for CR 595 was:

> *"...to construct a new north-south road that (1) connects and improves emergency, commercial and recreational access to a somewhat isolated but key industrial, commercial, and recreational area in northwest Marquette County to US-41, and (2) reduces truck travel from this area through the County's population centers."*

EPA did raise concerns when the applicant interpreted its stated project purpose so as to narrow the scope of alternatives to a specifically defined geographic corridor. This is discussed further in the section of this document entitled "Project Purpose."

In its initial review of the alternatives analysis EPA focused on practicable alternatives to CR 595 (the County's preferred alternative) that would meet the project purpose. EPA determined that these include Mulligan Plains East and Red Road/Sleepy Hollow. EPA noted that these routes would have fewer impacts to aquatic resources. Based on its review, EPA stated that the

materials included in the application did not demonstrate that the County's preferred route is the least environmentally damaging practicable alternative (LEDPA).

Since its April 23, 2012 letter, the MDEQ and EPA have received additional information from the applicant regarding the three alternatives of interest. The following table describes the applicant's final analysis of the remaining three alternatives and includes information on aquatic resource impacts, construction costs, total route length and length of new road.

Alternative	Total Wetlands Filled	Replacement & New Stream Crossings	Miles of New Road	Length	Construction Cost
CR 595	24.3 Acres	19/7	16.7	20.9 mi	$82 million
Mulligan Plains East	15.7	11/16	20.7	25.9 mi	$126 million
Red Road/ Sleepy Hollow	18.3	26/6	9	39.9 mi	$107 million

It is important to emphasize that EPA's review focused on those alternatives deemed to meet the project purpose. Some commenters noted comparisons between CR 595, Mulligan Plains East and Red Road/Sleepy Hollow. One commenter noted, for example, that CR 595 would have the most environmental impacts of the three. However, a large number of comments that EPA received regarding the benefits or impacts of the project compared the building of CR 595 to other options (such as the use of CR 550) which do not meet the project purpose.

For example, many commenters compared the benefits and impacts of constructing CR 595 to reliance on existing routes such as CR 550 and CR 510. EPA acknowledges that these routes would meet some of the purposes implicit in the stated project purpose for CR 595, such as the transport of ore from the Kennecott Eagle mine to its Humboldt Mill processing facility. While EPA agrees that CR 550 and CR 510 may meet this objective (CR 550 is the state's designated haul road for Eagle Mine), EPA recognizes that these routes do not meet other project purposes such as reducing truck traffic through population centers.

Explicit or implicit in many comments received was an assumption that CR 595 is the only alternative available to meet the County's goal of building a new road. One elected official stated its perception that CR 595 was the only available option because funding for an alternative route is not available.

A letter from the Marquette County Board of Commissioners to EPA dated July 5, 2012 stated that "...if EPA did not remove its objection to the project an opportunity for a private entity, Kennicott Eagle Mine Company (KEMC) to pay the cost for a critically needed public road will be lost. Marquette County cannot afford to build this road; that is one of the reasons why it has never been built. KEMC will not pay for the CR 510/Red Road/Sleepy Hollow alternative route due to an unfavorable cost analysis, and Marquette County Board considers the CR 510/Red Road Sleepy Hollow route a "no-build" alternative..."

As discussed elsewhere in this response, EPA is responsible for assuring that the LEDPA is selected. While cost can be a factor in this analysis, it is not the only factor, nor the primary factor. A LEDPA decision should not be made based on a cost benefit analysis. An applicant's preference of one alternative to the exclusion of all others is not appropriate or consistent with the Section 404(b)(1) Guidelines, because this would too narrowly restrict the range of options. EPA rejects the premise that it is appropriate to eliminate an alternative as not viable simply because a third party does not choose to pay for it. Such an approach is not consistent with the Section 404(b)(1) Guidelines, and serves to inappropriately narrow the range of alternatives under consideration. Nevertheless, given that the expected cost differentials related to construction of the three alternatives, EPA believes it is appropriate to reconsider its LEDPA decision in light of these costs.

Following EPA's objection letter, the applicant submitted additional information related to the costs of the three alternatives. Based on this information the cost to construct Red Road/Sleepy Hollow route is estimated to be $25 million (30%) greater than to construct CR 595. The cost to construct Mulligan Plains East is estimated to be 44 million (54%) greater than the cost to construct CR 595. EPA notes that there are no established criteria for determining whether or not such cost differentials make these alternatives impracticable. Rather, such decisions must be made on a case-by-case basis. In a September 17, 2012 letter to EPA, MDEQ indicated that it considers CR 595 to be the least environmentally damaging practicable alternative which meets the project purpose. In this particular case, based on EPA's review of the cost estimates for these alternatives, EPA is deferring to MDEQ's determination that CR 595 is the LEDPA, because other alternatives are not practicable.

Several commenters made reference to alternatives that were not part of Marquette County's application, and therefore, were not evaluated by EPA. Some questioned why these alternatives were not included in the original alternatives analysis. Certain of these alternatives would allow heavy truck traffic to bypass populated areas, while primarily using and improving existing County Roads. EPA agrees that upgrading existing roads would have fewer wetland and stream impacts than constructing a new road. As a general matter however, EPA views these alternatives as not fully meeting the project purpose. For example, EPA received suggestions that the CR 550 route could be used with the addition of a bypass around the city of Marquette. EPA agrees that this option would meet part of the project purpose in that it would reduce truck traffic through this population center. This option would not address other aspects of the project purpose such as improving access to isolated areas in Northwest Marquette County (since it relies on existing infrastructure). While these options could be considered in the context of a

new or different project purpose, EPA is withholding any opinion on them at this time in the context of reviewing the CR 595 project.

Similarly, some commenters mentioned the alternative of transporting mine ore using rail rather than trucks. Again, while this option would fulfill part of the purpose for CR 595, it would not fulfill many other aspects of the project purpose. For this reason, the EPA is taking no position on this option in the context of its decision on CR 595.

One commenter noted that some alternatives have been eliminated from consideration by the applicant because of cost. As noted above and elsewhere in this document EPA believes that cost is one aspect of determining whether an alternative is practicable.

3. Environmental Impacts/Benefits

EPA received a significant number of comments regarding the impacts of building, or not building, CR 595. These have been segregated into specific areas of concern below:

Comments on Impacts of Road Construction

A number of commenters generally objected to the construction of County Road 595 because it would have a significant adverse impact to aquatic resources (streams and wetlands), including approximately 25 acres of wetlands impacts. These specific concerns also included indirect impacts such as an increased risk of invasive species due to the construction and operation of CR 595. Some comments spoke more generally of the importance of clean water, the environment, and natural features to the community. Many emphasized that protecting these resources is more important than constructing a new road. A number of commenters encouraged EPA to reaffirm its objection to CR 595. Some agreed with EPA that the relative impacts to wetlands would be less for other build options under consideration.

Others felt that the number of acres of wetland that would be impacted is small compared to the total wetlands in the area, and there is no need for more wetlands in Marquette County. Others felt that these impacts should not be weighted as highly as other concerns such as safety.

A particular concern expressed was that that CR 595 would negatively impact wildlife, such as moose, by destroying wetland habitat and fragmenting both wetland and upland habitat. A comment from the Michigan Department of Natural Resources, Department of Transportation, and Department of Agriculture and Rural Development noted that "the applicant has agreed to work with the Department of Natural Resources concerning their wildlife concerns by jointly developing a plan that addresses the need for both habitat replacement and wildlife travel corridor specifics." One commenter stated that wetlands are not a valuable habitat unless they are open water such as cattail marshes, and that since CR595 would not impact cattail marshes, no beneficial wildlife habitat would be impacted.

Specific comments were received regarding how the road was designed within the proposed road

corridor. Some stated that Marquette County Road Commission had done a good job designing the road to minimize adverse impacts, and with the proper environmental safeguards such as properly designed stream crossings, there will be no adverse impact on wetlands and streams. Another thought that the new crossings would even be an improvement over existing degraded stream crossings. Others believed that impacts could be minimized further. For example, one comment noted that a slower speed mine haul road that could have more curves would allow it to avoid more wetlands and reduce some of the environmental destruction associated with the high speed road proposed.

Response:

In its April 23, 2012 objection letter, EPA stated that the construction of CR 595 would lead to the significant degradation of aquatic resources, including the direct impact associated with filling high quality wetlands and construction of stream crossings, and the indirect impacts to wetlands, streams and wildlife habitat.

The construction of CR595 would result in approximately 25 acres of wetland being filled. EPA notes that wetlands and streams in four different watersheds would be impacted by the proposed road. The wetland community types that would be filled include Hardwood-conifer Swamp, Rich Conifer Swamp, Northern Shrub Thicket, Northern Wet Meadow, Northern Hardwood Swamp and Poor Fen and Muskeg. Three of the wetland types that would be filled during road construction have been listed by the Michigan Natural Features Inventory as vulnerable to extirpation (elimination) in Michigan. These communities include Hardwood Conifer Swamp, Rich Conifer Swamp and Northern Hardwood Swamps. These particular types of forested wetland communities provide habitat for a unique suite of wildlife species (bobcat, wolf, fisher, marten, and a number of migratory birds including the state threatened Cerulean Warbler) and are difficult, if not impossible, to create or replace. In contrast, the emergent or cattail marsh type of wetland community typically provides habitat for ducks, muskrats and other fairly common wildlife species, and are relatively easy to restore or replace. For these reasons, EPA disagrees with the comment that cattail marshes are the only wetlands that are high quality, and that the wetlands that would be impacted by CR 595 are of little or no value as habitat.

As stated by one commenter, Marquette County still has the majority of the wetlands that were present before the 1900's. However, in a 1996 study of Michigan wetlands, Patrick Comer (Wetland Trends in Michigan since 1800: A Preliminary Assessment, 1996) found that in Marquette County there has been a significant shift in wetland type due to the conversion of mixed Conifer Swamp to other wetland types. The majority of the wetlands that would be filled to construct CR 595 would be the same wetland types that have been lost in the past. The permit application for CR 595 indicates that mixed conifer swamp wetland types range from abundant to moderately abundant along the proposed road corridor. Not only is the loss of additional areas of rare wetland types a concern to EPA, but forested conifer and hardwood wetlands are difficult, if not impossible, to replace or re-create. Northern Forested Swamps are among the most diverse plant communities in the upper Midwest. Forested wetlands provide habitat for more than 25% of northern Michigan's wildlife species. They provide habitat for a number of threatened or endangered species.

The filling of 25 acres of wetland would also result in the loss and degradation of habitat for wildlife species. The clearing of trees from the 21 mile long road corridor will fragment a significant portion of the wildlife habitat that exists along the road alignment. The fragmentation would be a significant physical barrier to wildlife movement and would likely increase wildlife mortality. Moose is one of the wildlife species likely to be adversely impacted by construction of CR 595. The proposed CR 595 alignment cuts through habitat that is frequently used by moose. CR 595 would be a significant physical barrier to movement for moose and is likely to result in an increase in moose mortality due to vehicle-moose collisions. Habitat fragmentation will also lower habitat quality for bird species that are dependent on large blocks of undisturbed forest for nesting habitat. The construction of a new road along the CR 595 alignment will also provide a corridor for the spread of invasive plant species which would contribute to the degradation of high quality wetland plant communities found along the road corridor as well as degrading wildlife habitat.

EPA notes that other alternatives under consideration (Mulligan Plains East and Red Road Sleepy Hollow) would have fewer environmental impacts than would constructing CR 595, because these would rely more upon existing roadways than would CR 595. In terms of absolute numbers of wetland acres that would be filled, CR 595 has the greatest impact, and Mulligan Plains East has the least.

The number of acres which would be impacted under the three alternatives is summarized as follows:

Alternative	Total Wetlands Filled
CR 595	24.3 Acres
Mulligan Plains East	15.7
Red Road/ Sleepy Hollow	18.3

In addition to the size of wetland impact, EPA also considered the relative quality of wetlands to be impacted. The CR 595 corridor contains the highest percentage of high quality forested wetlands (75%), followed by the Mulligan Plains East corridor (60%), with the Red Road Sleepy Hollow corridor containing the lowest percentage of high quality forested wetlands (50%). Therefore CR 595 would not only impact the greatest amount of wetland, but the impacted wetlands would be of the highest quality, and vulnerable to extirpation in Michigan.

An August 27, 2012 letter from the Michigan Department of Natural Resources notes that the applicant has agreed to work with the MDNR to address their concerns regarding the need to replace wildlife habitat and to address wildlife travel corridor concerns. The application includes an invasive species monitoring and management plan. EPA views these as positive approaches to minimizing impacts related to new construction; however as discussed in the section entitled Mitigation, the applicant's mitigation plan is incomplete.

EPA acknowledges that some of the existing crossings in the area are impaired. Many of these are logging roads that have not been properly constructed or maintained. EPA recognizes there is benefit associated with repairing these crossings which would accompany the construction of CR 595. In the absence of this, it is the responsibility of the land owners to ensure the proper construction and maintenance of stream crossings on their property.

Comments Regarding Secondary Development

A number of comments relayed a general concern about the loss of pristine wilderness areas that would accompany increased development following the construction of CR 595. Others disagreed, stating that the CR 595 area is not a pristine wilderness and has undergone more than a century of logging, and has many existing seasonal and recreational roads.

One commenter outlined concerns that the construction of CR 595 would lead to additional impacts (from large staging areas and gravel pits), and the development of power lines and more camps, roads, and stream crossings. EPA also received a comment stating that the Michigan Department of Natural Resources had requested that the applicant limit the building or connection of secondary roads in critical habitat areas, and this would be done through the placement of conservation easements, deed restrictions, or purchasing land.

Response

The Section 404 (b)(1) Guidelines require secondary impacts to be considered as part of the overall assessment of adverse impacts to the aquatic ecosystem. EPA acknowledges that the construction of CR 595 may allow access to previously undeveloped areas. Secondary development of areas along the road corridor could adversely impact wildlife habitats, and result in adverse impacts to additional wetlands and streams. Secondary impacts could include further fragmentation of wildlife habitat including wildlife travel corridors, degradation of wetland high quality wetland communities and degradation of stream habitat. New road construction or additional development along the CR 595 corridor is likely to cause additional disruption to wildlife travel corridors. Secondary development may contribute to the degradation of wetlands due to habitat fragmentation, introduction of invasive species and disruption of wetland hydrology through alteration of surface flow patterns within the impacted watersheds or within wetlands. In addition, the construction of new secondary roads and new development has the potential to adversely impact stream habitat and water quality due to the addition of pollutants such as sediments and road salt to streams, the degradation or loss of stream buffer areas and may also have an adverse impact on stream channel stability.

EPA has considered the potential for construction of CR 595 to have adverse secondary impacts on the aquatic ecosystem and finds that to ensure that there is not significant degradation of aquatic ecosystems, the construction of secondary roads and development should be limited in areas with high quality wetland or stream resources. EPA notes that the Michigan Department of Natural Resources has requested that the applicant limit development and the construction of secondary roads to CR 595 in critical habitat areas. EPA fully supports this approach to minimizing adverse secondary impacts to aquatic ecosystems and critical wildlife habitat.

Comments Regarding Operational Impacts

EPA received several comments generally objecting to County Road 595 because there were concerns that runoff of road salt, sediment, vehicle oil and pollutants will contaminate the land, streams, and wetlands along the proposed route. Comments noted concerns that CR 595 will introduce road salt to stream crossings that have not previously been subject to salt, and these new stream crossings will likely become stream degradation points. A commenter stated that road salt impacts would be expected up to 650 feet from roadway on each side (2000 acres of damage) and sand impacts to drainage ditches. A commenter noted that trees along US 41 had been damaged and predicted the same would happen along CR 595. EPA also received a comment outlining concerns that because the road would be used to haul ore, and ore dust is highly reactive, especially in an aquatic environment, the spillage and tracking of ore dust would have negative effects on the environment along the corridor.

Response

The applicant has proposed using a number of Best Management Practices (BMPs) to protect water quality and disturb surface water flows a little as possible. Some of the BMPs include using equalizer culverts and porous material for road bed construction in wetland areas. These BMPs are intended to allow for the movement of groundwater through the road bed. The applicant has also proposed to route surface water runoff from the road away from streams in order to allow sediment and other pollutants to settle out of the water before it is returned to wetlands or streams along the corridor. However, even with these BMPs, the construction of CR 595 would likely result in a number of wetlands and streams being newly exposed to salt and other pollutants. Exposure to road salt and other pollutants associated with road runoff has been shown to result in the degradation of both wetland and stream quality. Furthermore, maintenance of BMPs is vital for them to function properly. The majority of the riparian wetlands within the road corridor were found to be high-functioning based the Michigan Rapid Assessment Method. The construction of CR 595 is likely to have an adverse effect on flood storage functions of the wetlands in the road corridor, especially during spring thaws in years with heavy snow accumulation. Stream habitat quality may degrade due to changes in channel configuration at road crossings and exposure to salt and other pollutants.

Regarding the concern about fugitive ore dust from the hauling of sulfide ore along CR 595, EPA notes the transport of materials is not regulated by Section 404 of the Clean Water Act.

EPA recognizes this is a concern, and although ore transport is not part of this federal review, we note that the MDEQ requires the proposed Mine Plan to include a description of ore management and transport as part of the Michigan Part 632 permit process. The applicant is also required to include provisions to prevent release of contaminants to the environment from ore or waste rock during transportation. The public may wish to contact MDEQ for more information on the Michigan Part 632 permit's requirements.

Impacts of Carbon Emissions

Several commenters stated that the construction of CR 595 would significantly reduce the number of miles that ore trucks would have to drive from the Eagle Mine to the processing mill. Therefore, carbon emissions would be reduced resulting in an environmental benefit. EPA agrees that reducing the number of miles that ore trucks will have to travel should lower carbon emissions; however, there are other factors to consider that may reduce or eliminate these savings in carbon emissions.

The life of Eagle Mine is expected to be about eight years. Therefore the environmental benefits from reduced carbon emissions from ore trucks traveling from the mine to the processing facility will be limited to that time frame. Also, it has been documented that trees take up and store carbon as part of the photosynthesis cycle. The permanent loss of trees within a road corridor will result in the permanent long term loss of carbon uptake by those trees. Finally, the construction traffic that would result from the construction of CR 595 itself will contribute a short term increase in carbon emissions during road construction. There would also be an expected increase in long term emissions due to the need to maintain 21miles of a new all season road.

EPA believes that there are potentially conflicting influences on carbon emissions related to the construction of CR 595 versus other alternatives. These conflicting influences are not quantified. If they were to be quantified it would be important to do so, not just for the short term when the Eagle Mine is active, but over a longer timeframe. Due to the many uncertainties involved, EPA does not believe that an assessment of relative carbon emissions can be used as a factor in determining which route is the least environmentally damaging practicable alternative.

Comments Regarding Air Quality:

Some commenters stated that because of its shorter distance, the CR 595 alternative would result in better air quality, and that EPA should consider this in addition to water quality.

Response:

EPA agrees that the shorter route for CR 595 can be expected to lead to fewer emissions and potentially better air quality than longer routes. EPA also agrees that this factor should be considered in EPA's decision, although in the context of the 404 decision, primary consideration must be focused on wetland and stream impacts.

The applicant submitted information regarding expected impacts to air quality for various routes, including CR 595, Red Road/Sleepy Hollow and CR 550. Pollutants included criteria pollutants (PM10, PM 2.5, NOx SOx, CO, VOC) and greenhouse gases (CO2, CH4). This information concluded that the ratio of aggregated emissions for CR 550 would be 2.3 times that of CR 595, and the aggregate emissions for Red Road Sleepy Hollow would be 1.6 times that for CR 595.

Marquette County, Michigan is currently attainment for all National Ambient Air Quality Standards (NAAQS). While there are no specific transportation related requirements for attainment areas, the applicant prepared an assessment of mobile source emissions. The mobile source inventory was developed using 2005 MDOT emission factors for VOC and NOx, and from the EMFAC 2007 (v2.3) BURDEN model for the remaining NAAQS pollutants. EPA notes that the Motor Vehicle Emissions Simulator model (MOVES2010) is EPA's official on-road mobile source emission factor model for use outside of California. To accurately capture mobile source impacts from this project the MOVES model should have been used. Nevertheless, while it is clear that a longer route would result in more air pollutant emissions, this area is in attainment for all NAAQS, therefore higher emissions should not be the primary criteria for choosing one road over another.[2]

4. Transportation Considerations

Many comments highlighted the transportation benefits that CR 595 would bring to the area. Some comments emphasized the improved response times for emergency vehicles. Other comments discussed the benefits that would be provided through better access to remote parts of the area, resulting in easier access to local camps, hunting and recreation. Others disagreed, saying that construction of CR 595 would compromise current recreational opportunities.

Some commenters specifically noted that response times would be improved for fire suppression in the Yellow Dog Plains and for emergency and law enforcement access in northwestern Marquette County. Improved year-round access to both private and public lands for recreational purposes and to Powell Township was also noted.

Some commenters noted that flooding had occurred in the past, and that CR 595 would provide emergency access in the event of future flooding events. Others viewed this as a faulty rationale, stating that the flooding referred to was due to dam failure, and that safeguards have since been put in place to prevent a recurrence of such an incident.

Another commenter noted that CR 595 would reduce travel times for Eagle Mine employees. Another stated the opinion that if CR 595 were not built, no new roads will ever be built in the area.

One commenter stated that CR 595 is consistent with the objectives of the Marquette Township's road facilities plan and will have minimal impact on other jurisdictions. One commenter noted that there is no federal or state funding for bypass routes to mitigate impacts on the City of

[2] Michael Leslie, EPA. Personal communication.

Marquette should CR 595 not be built. Other commenters made references to plans under consideration for local bypass routes.

Some comments identified benefits to Powell Township that would result from CR 595. However one commenter stressed that CR 595 would take resources away from Powell Township and cause serious economic harm. One comment called CR 595 'a road to nowhere' which would cut off the Big Bay community.

One comment noted that CR 595 would have a negative impact on the culture of the area, saying that the inconvenience that comes with living in rural areas is part of the culture.

In contrast to the comments that CR 595 will improve emergency response to the area, one comment stated that Big Bay has an alternate emergency route with the construction of a new bridge on 510 and does not need CR 595.

Response:

EPA recognizes that new roads typically provide access to areas that were previously less accessible. EPA acknowledges that individuals will have varying views on whether this increased access represents a positive or negative change. For the purpose of its review of the 404 permitting process, EPA is limiting itself to the question of whether the increased access is consistent with the stated project purpose for the project. EPA generally believes that the transportation benefits promoted by those commenters who support the construction of CR 595 are, in fact, consistent with the stated project purpose.

For example, EPA agrees that CR 595 would "connect and improve emergency, commercial and recreational access to a somewhat isolated but key industrial, commercial, and recreational area in northwest Marquette County to US-41" as stated in the applicant's project purpose.

EPA also notes however that most comments received on the topic of transportation benefits appear to compare the benefits associated with CR 595 to reliance on the existing transportation routes. As discussed elsewhere in this document, for the purpose of the 404 process, such comparisons should be made between those alternatives that meet the project purpose. In addition to CR 595, the Mulligan Plains East and Red Road/Sleepy Hollow alternatives would meet the project purpose. EPA believes that constructing these alternative routes would necessarily provide for the same types of transportation benefits as would CR 595. EPA assumes that, because the routes differ in their location and access points, there will be trade-offs in terms of the relative benefits of the three roads, and that these benefits may depend on the perspective of the individual traveler.

In summary EPA has not attempted to determine which route is best from the standpoint of transportation and access. Instead EPA has simply concluded that these alternatives would meet the project purpose of improving transportation and access.

5. Economic Considerations

Comments:

A number of commenters discussed what they believed to be the economic benefits of constructing CR 595. Some commenters stated that there is a need to create jobs in Marquette County, and that constructing CR 595 would create jobs and promote economic growth. One commenter noted that it is unprecedented to receive 60 to 100 million dollars of private investment in public infrastructure. Another stated that EPA should not stand in the way of private investment and jobs. Another stated that CR 595 would serve the entire future mining district and not just one mine. Some emphasized that CR 595 would benefit the logging industry through savings in time and fuel costs. Another said that CR 595 would benefit the aggregate industry. Another stated that building CR 595 will prevent taxpayers from paying for damage done to existing public roads.

Other commenters stated that building CR 595 would have negative economic consequences. One commenter felt it would damage the local tourist economy. One stated that more jobs would be created by improving existing roads instead of building CR 595, and without the destruction of one of the special undeveloped wild areas of the Upper Peninsula of Michigan. One commenter said that investment in road and bridge repair creates 9 percent more jobs than does new construction. One commenter stated that CR 595 would take resources away from the Big Bay/Powell Township Community, and bring serious economic harm to Powell Township. Other commenters expressed concerns that the public will need to maintain CR 595 long-term, and that there is no money in the County budget to maintain the road. One stated that taxpayers should not have to pay for long term maintenance, and that the county cannot afford to maintain roads it already has.

Response:

EPA recognizes that there is wide diversity of opinion regarding the economic impact of the proposed CR 595 project. Questions of economic benefit are generally outside of EPA's purview when making a decision on whether to reaffirm, modify or withdraw an objection to the issuance of a 404 permit.

As discussed in the introductory section of this document, EPA must consider whether the project complies with the Section 404(b)(1) guidelines. This includes assuring that there are no practicable alternatives which are less environmentally damaging. As discussed in the section of this Responsiveness Summary entitled Alternatives Analysis, when determining whether an alternative is practicable, one factor that can be considered is cost, including capital, operational and maintenance costs.

In response to commenters who asserted that the County does not have sufficient funding to maintain CR 595, should it be built, EPA notes that, regardless of the financial impact on the county that may accompany the additional maintenance responsibilities for CR 595, good maintenance would be an expectation. Failure to provide such maintenance can result in adverse

environmental impacts. Because any permit issued by MDEQ would include operation and maintenance provisions, EPA assumes that the required maintenance will be performed, or that MDEQ will take corrective action if it is not.

Most of the comments related to the economic impacts of building CR 595 were framed in comparison to a reliance on existing infrastructure. As discussed elsewhere in this document, EPA's primary concern in review of the 404 permit application is to identify the least environmentally damaging practicable alternative (LEPDA) consistent with the project purpose. EPA considers CR 595, Mulligan Plains East and Red Road/Sleepy Hollow all to be alternatives which are consistent with the project purpose. Reliance on existing CR 550 or CR 510, which may be a viable option for local consideration, was not a consideration for EPA because these options are not consistent with the applicant's project purpose.

EPA believes that many of the factors raised by commenters with respect to the economic impacts of CR 595 are also likely to be factors in the construction of Mulligan Plains East of Red Road Sleepy Hollow alternatives, although the degree to which these factors apply may vary depending on the alternative selected. For example, some commenters stated that construction of CR 595 will lead to the creation of new jobs. It was generally not explained how the construction of CR 595 would lead to new jobs, however some comments referenced the creation of construction jobs for building CR 595. If constructing CR 595 will lead to the creation of new jobs then it is logical to assume that constructing one of the other two alternative routes would also lead to the creation of new jobs, although the extent of this impact may be different in the three cases.

As a general matter the question of economic impact is of secondary consideration under the Section 404(b)(1) Guidelines, and EPA is not drawing conclusions about the relative merits of the alternatives from an economic standpoint. However, in one respect economics does play a role in EPA's decision. When determining the least environmentally damaging practicable alternative, it is appropriate to consider the costs of various alternatives. While practicability certainly includes consideration of technical feasibility and other non-monetary factors, practicability can also take into account cost.

Following EPA's objection, Marquette County provided additional information on construction costs for the three alternatives under consideration.

CR 595:	$82 million
Mulligan Plaines East:	$126 million
Red Road/Sleepy Hollow:	$107 million

Several caveats are worth mentioning. First, these figures were provided by Marquette County and have not been verified by EPA. Nevertheless, EPA has relied on this information in its deliberations. Second, these costs are for construction and do not include maintenance costs. Third, the costs do not include costs for wetland and stream mitigation. As discussed under the section of this document entitled Alternatives Analysis, EPA is deferring to MDEQ's determination that CR 595 is the LEDPA, because other alternatives are not practicable.

In a final note related to economics, the state of Michigan has provisions under its state rules for determining whether proposed projects are in the public interest, and Michigan takes economic impacts into consideration in undertaking its public interest review.

6. Traffic and Safety

Comments:

Many comments stated that the CR 595 should be built to prevent ore haul trucks from passing through residential areas. In particular, commenters stated that the CR 595 should be built to prevent ore haul trucks from going through the City of Marquette on Wright Street because Wright Street has many residences and businesses on it. One commenter stated that the current narrow roads through the City of Marquette and passing Northern Michigan University are not suitable for heavy truck traffic, and CR 595 is needed to ease traffic congestion in those areas. Some commenters noted that over 900 people had petitioned to not have a haul road going through the City of Marquette.

Other comments noted that there are schools and children on both sides of US-41 in Negaunee and Ishpeming and school buses cross it; therefore, there is concern that adding trucks to that corridor will impact the safety of the children. One commenter noted concerns with winter driving on US 41.

Others disagreed with these concerns. Some commenters who live on CR 550 or would be affected by truck traffic there, nevertheless stated a willingness to accept truck traffic in lieu of building CR 595. Some commenters stated that the City of Marquette already has State highways running through it, and that increased truck traffic through Marquette using CR 550 would not be a significant traffic problem. One estimated the traffic increase at 0.1 percent.

Some commenters raised concerns about noise and safety along the CR 595 corridor, if the County road were to be constructed. A commenter stated that the narrow design of 595 has little to no shoulder and would pose a safety hazard to anyone needing to stop along the road.

Some commenters raised particular concerns of residents of County Road FX (aka Wolf Lake Rd) stating that County Road FY should be used instead of CR FX to protect residents of Wolf Lake Road. An elected official of Humboldt Township noted that the Humboldt Township Board designated County Road FY as the only truck route connecting CR 595 with Highway 41 in Humboldt Township, and had adopted a ten ton weight limit ordinance for County Road FX, and an unrestricted weight limit for County Road FY.

Response:

There is a considerable range of opinions with regard to the impact that building CR 595 would have on public safety. However, most commenters focused on comparing the construction of CR 595 with reliance on existing routes. EPA received little input on the relative merit of CR 595, Mulligan Plains East and Red Road Sleepy Hollow relative to traffic and safety.

As important as the questions of traffic and safety are to the public in determining the relative merit of CR 595 and other project alternatives, these questions are not central to EPA's decisions on whether to reaffirm, modify or withdraw an objection to the issuance of a 404 permit. As discussed in the introductory section and elsewhere in this document, EPA's responsibility is to consider whether the project complies with the Section 404(b)(1) guidelines. This includes assuring that there are no practicable alternatives to meet the project purpose which are less environmentally damaging. In certain circumstances traffic and safety can be secondary considerations in its decision-making process. If it were brought to EPA's attention by traffic and safety experts that a particular alternative were unsafe, EPA would defer to a decision to eliminate that alternative from consideration. However in this case, no information has been provided to suggest that an alternative is inherently unsafe.

In response to those who have raised concerns about the impact of public safety related to ore haul traffic traveling through the city of Marquette, EPA would like to clarify that the option of routing ore traffic through Marquette is not one of the alternatives that EPA considered in its review of the CR 595 404 permit application. As discussed more fully under the section entitled Alternatives Analysis, EPA's review of the project application ultimately focused on three alternatives which satisfied the applicant's stated project purpose. These were, in addition to CR 595, the alternatives referred to as Mulligan Plains East, and Red Road/Sleepy Hollow. All three of these alternatives would avoid routing traffic through Marquette. Therefore, EPA assumes that those concerned with traffic and safety in Marquette would not raise these concerns with these two alternatives to CR 595. EPA responds similarly to those who raised concerns with the traffic and safety in Ishpeming and Naugaunee. The two key alternatives to CR 595 would also reduce traffic near these cities.

EPA takes no position in response to those who believe that, if CR 595 were not built, the increased traffic through Marquette, would not be significant compared to existing traffic. Determinations on what is an acceptable level of traffic are necessarily subjective. More importantly, EPA's review focused on options which would not bring new traffic into Marquette, in order to answer the question of whether or not CR 595 was the least environmentally damaging practicable alternative to meet the project purpose.

One comment area that is directly relevant to CR 595 and the two alternatives that were the focus of EPA's review relates to the residents of County Road FX, aka Wolf Lake Road. Decisions related to this area will be required under the CR 595 option, the Mulligan Plains East/Sleepy Hollow Road alternative, or Red Road/Sleepy Hollow Road alternative, since all through routes share a common path at their southern end. The commenters argue that the southern end of the new route should follow the County Road FY alignment which runs parallel to County Road FX,

rather than following County Road FX. The commenter noted that constructing/improving County Road FY would involve a small additional impact to existing wetlands when compared to improving County Road FX. In response, EPA notes that the applicant proposed the use of County Road FX, and the State determined that this route was practicable. Use of County Road FY has not been proposed. EPA would consider the use of County Road FY were it to be proposed.

In response to concerns about CR 595 having a narrow design with no shoulder, EPA notes that decisions related to detailed roadway design for CR 595 or any other alternative are outside of its scope of review. EPA acknowledges that other agencies, such as the State Department of Transportation and the Marquette County Road Commission have criteria to address public safety concerns as they relate to highway design.

As a final comment on the subject of traffic and safety, EPA notes that, in addition to its requirements regarding administration of the CWA Section 404 permitting program, Michigan has provisions under its state rules for determining whether proposed projects are in the public interest, and Michigan takes traffic and safety into consideration in undertaking its public interest review.

7. Impacts of Kennecott Eagle Mine

Comments:

Many commenters noted concerns with, or support for, the Eagle Mine, owned by Rio Tinto.

Some of those opposed to the mine cited concerns about other Rio Tinto projects, both domestic and international. One commenter gave examples of past Rio Tinto and other operations that polluted the environment in the past as evidence that the Eagle Mine should not move forward.

Many of those who commented on the mine stated the belief that CR 595 was meant to serve as a haul road for Eagle Mine. Some said the County was being pressured to apply for a 404 permit on behalf of mine.

Some commenters believed the Michigan Part 632 Permit process for the mine had not been properly followed. Some believed the CR 595 application to be a fraudulent application.

Others outlined concerns with faulty engineering, environmental, and safety standards. Some raised concerns regarding the release and tracking and tracking of ore dust.

Others expressed support for the mine. Some noted economic benefits of the mine. One commenter positively noted the company's environmental ethic. One person stated the opinion that the company favored CR 595 not because it was the cheapest alternative but because it was the safest. EPA received other comments outlining reasons why EPA should not stop the Eagle Mine because of its benefits to the economy and jobs in the area.

Response

Some of the comments specifically regarding the mine in relation to CR 595 are addressed in the other sections of this document. However a number of the comments EPA received appear to relate solely to the benefits or negative impacts of the Eagle Mine, Rio Tinto or mining in general. Because these comments do not related directly to the decision at hand regarding CR 595, EPA is not offering responses to these concerns here.

Tribal concerns

Comments:

EPA received comments from an Indian Tribes and two tribal organizations. These commenters raised a number of concerns with the proposed CR 595. Many of these concerns echoed concerns by other commenters, including:

- Concerns about the stated project purpose
- Concerns about the applicant's alternatives analysis
- Concerns about wetlands loss, habitat fragmentation, wildlife impacts, and impacts to stream quality
- Concerns about proposed mitigation

EPA's responses to these concerns are provided in the sections of this document entitled Project Purpose, Alternatives Analysis, Environmental Impacts/Benefits, and Mitigation.

In addition, these commenters raised the following unique concerns:

Comment:

Commenters expressed concern that the CR 595 corridor is within the territory covered by the 1842 Treaty, and that construction of the road would pose a threat to treaty resources used for subsistence, cultural and medicinal purposes. In particular, concerns were expressed about impacts to essential culturally significant plants, which occur in wet areas and wetlands. A tribe stated that rights to access and harvest these resources are protected by treaty within the project area. The Tribe also expressed concern that the applicant had not adequately documented the presence of culturally important plants. Specific impacts that were cited include impacts from invasive species. Of particular concern is the impact to medicinal plants within the McCormick Wilderness. Tribal comments also raised concerns about impacts of the road and its secondary impacts on water quality, and fish and wildlife habitat, thereby impacting tribal members' ability to fulfill treaty rights to hunt fish and gather in traditional ways.

Response:

As part of the public hearing KBIC and two inter-tribal organizations submitted additional comments and information regarding resources that may be affected and the impacts this would have on off-reservation reserved treaty rights. The EPA has fully considered this information in evaluating its decision to reaffirm, modify or withdraw its objection. The potential loss of wetlands areas, including those within which traditional medicinal plants may be gathered, the potential loss of plant habitat to invasive species, and fragmentation of habitat remain concerns to EPA. EPA notes that the applicant must have a mitigation plan to address some of these concerns, such as habitat fragmentation and invasive species. More detail is provided in the section entitled Compensatory Mitigation.

Comment:

A tribe stated that the permitting of CR 595 would be inconsistent with the goals of ecological values, goals and objectives for the Great Lakes ecosystem, and referenced a number of efforts aimed at preservation and restoration of the Great Lakes ecosystem. Particular concerns referenced include: habitat fragmentation, addition of pollutants to the ecosystem and water contamination, invasive species introduction and habitat destruction. The commenter stated, that based on these concern, EPA must maintain its objection to the issuance of a permit to CR. 595.

Response:

EPA agrees that a number of the impacts cited, such as habitat fragmentation, addition of pollutants and invasive species introduction, may be expected to accompany the construction of CR 595. EPA's views are discussed in the sections of this document entitled Environmental Impacts/Benefits and Compensatory Mitigation.

8. Compensatory Mitigation

Comments:

A number of people commented on the proposed mitigation. Some commenters stated that the preservation proposed as mitigation by the Marquette County Road Commission was adequate and would replace the loss of wetlands. Other commenters disagreed, saying that neither creation nor preservation would replace the wetland functions and values that would be adversely impacted by the construction of CR 595. Another commenter stated that the wetland preservation plan was incomplete. One commenter expressed concern regarding whether or not the proposed preservation areas would be open for public use.

Response:

Wetland Mitigation

The applicant initially proposed using wetland creation to mitigate for the wetland impacts that would result from road construction. The mitigation areas were located near the proposed road alignment and in many cases involved trying to create forested wetland communities in areas used for soil borrow, or in areas that would require extensive excavation to try to establish wetland hydrology. EPA did not believe that this mitigation proposal would result in forested wetlands that would replace the functions and values the impacted wetlands were providing. This was based on the fact that forested wetlands have been shown to be very difficult to restore, and almost impossible to create in areas where wetlands did not previously exist. EPA suggested that the applicant consider preserving high quality wetland communities that were of the same wetland type, under some demonstrable threat, preferably in an area where wildlife habitat connectivity would be protected.

In response to EPA's objection, on October 31, 2012, the applicant submitted a revised mitigation proposal which includes the preservation of approximately 1,576 total acres of land adjacent to the McCormick Wilderness in Marquette County. Approximately 647 acres of the proposed mitigation area is wetland. The preservation area also includes 2 lakes and the headwaters of Dishno Creek. The federal mitigation rule requires that in order for preservation to be considered as a viable option for mitigation, the areas proposed for preservation need to be of high ecological value and under demonstrable threat. The applicant has demonstrated that the wetlands in the proposed preservation area are under threat of logging by the current owners, two commercial timber companies. The applicant has provided information that indicates that the wetlands proposed for preservation include most of the same wetland types that would be lost if CR 595 were constructed. A complete wetland quality assessment has not been completed on all of the wetlands proposed for preservation so no detailed information is available regarding the quality and type of all of the wetlands proposed for preservation. The proposed preservation area is adjacent to the McCormick Wilderness area which would assure that land use to the north of the preservation area would be compatible with the goal of maintaining the quality of the preserved wetlands. The applicant has also proposed to preserve upland areas surrounding the wetlands. The preservation of the upland areas would help insure that the preserved wetlands will not be degraded by incompatible land uses such as logging.

As one commenter pointed out, the details of the preservation plan for this area have not been worked out. EPA agrees that components of the wetland mitigation plan are not complete, and would not expect them to be prior to demonstrating that the alternative is the least environmentally damaging practicable alternative, and that impacts have been avoided and minimized. Nevertheless, EPA has identified the following deficiencies:

- There is no long term management plan to ensure the wetlands are managed to maintain them as high quality habitats.
- No long term manager for the site has been identified, and no funding mechanism for long term management has been established.
- The applicant has not secured mineral rights for all preservation areas. If all necessary mineral rights are not included as part of the mitigation plan, some of the preservation

area may be subject to mining or other mineral extraction activities at some point in the future.

All of these issues would have to be resolved before the proposed preservation could be considered as an acceptable mitigation option.

In addition, the proposed mitigation plan does not compensate for the habitat fragmentation that will occur if CR 595 is built. It has been well established that roads and traffic adversely impact wildlife populations (Jaeger et al 2005[3]). New road construction results in a decrease in the quantity of and quality of wildlife habitat, increases wildlife mortality due to vehicle wildlife collisions, prevents wildlife access to resources on the opposite side of the road and, results in segmenting wildlife populations into smaller less genetically diverse sub-populations that are more vulnerable to extinction. Studies have also shown that construction of roads through previously intact forested systems in eastern North America have played a primary role in the decline of forest bird species due to the increase in edge habitat resulting from road construction. The proposed alignment for CR 595 runs through a large area of contiguous forested habitat. If constructed, CR 595 would fragment the existing habitat and resulting in the adverse impacts to wildlife outlined above.

In order to minimize habitat fragmentation impacts associated with construction of CR 595, the applicant must include the construction of wildlife crossings in its road design. These crossings must be large enough to accommodate larger wildlife species such as moose, cougar and bear. The applicant must coordinate placement of the crossings with the MDNR and the U.S. Fish and Wildlife Service to ensure major wildlife travel corridors are accommodated. Wildlife crossings should be placed along major stream crossings. Fencing along the road to guide wildlife to the crossings must be provided. The design will depend on the target wildlife species and the physical characteristics of the road corridor. Both the Federal Highway Administration and the U.S. Forest Service have developed guidelines that can be referenced when designing wildlife crossings.

9. **Hearing Process**

Comment:

One commenter stated that the public was not given adequate time to review revisions to the project or additional information prior to EPA's Public Hearing.

Response:

Federal regulations require that notice be provided thirty days prior to holding a public hearing. EPA issued the public notice for the public hearing on July 27, 2012. The public hearing was

[3] Jaeger, J. A. G.; J. Bowman, J. Brennan, L. Fahrig, D. Bert, J. Bouchard, N. Charbonneau, K. Frank, B. Gruber, K. Tluk von Toschanowitz (2005). *Ecological Modelling* **185**: 329–348.

held on August 28, 2012. EPA therefore met its requirement for providing adequate notice prior to the hearing. EPA also provided an additional week following the hearing for interested persons to provide written comments. This exceeds the minimum federal requirements for public comment.

EPA also took steps to assure that relevant materials were made available to the public. Prior to the public hearing, the Marquette County Road Commission's permit application, amended application and additional documents, were available for review by the public at the Ishpeming Carnegie Public Library on 317 N. Main Street, Ishpeming, MI 49849. These documents were also available for review at the U.S. EPA Region 5's office in Chicago. The public notice provided the website (www. epa.gov/region5/water/cr595) to enable access to project information as well as a toll-free number and an EPA staff contact to obtain information.

EPA believes that adequate time was provided for the public to review the application and additional relevant information.

Comments:

Many commenters expressed appreciation to EPA for holding a hearing in Marquette. Some expressed frustration that elected officials were allowed to speak before any private citizens.

Response:

It is EPA's normal practice for public hearings to allow elected officials to present their views first. This is based on the fact that these officials are elected to represent their constituencies. The EPA also strives to assure that everyone who wishes to speak has an opportunity to do so. Throughout the CR 595 hearing process, EPA attempted to provide opportunities for all interested persons to make comments by accepting verbal and written comments at the hearing in Marquette, and by accepting comments via telephone, email or U.S. mail before and after the hearing.

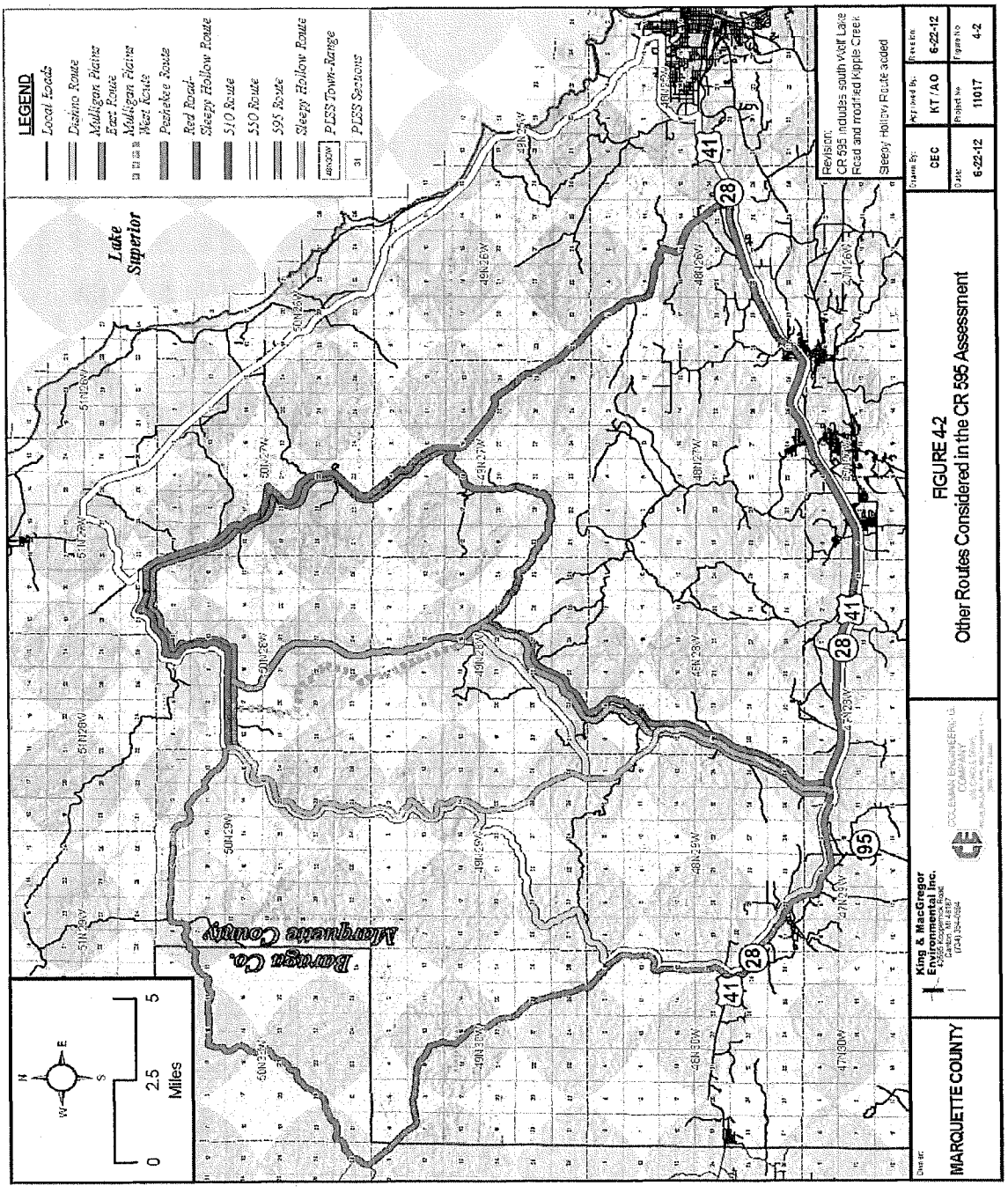
Section III: Attachments:

Attachment 1: **Map of CR 595 and Alternative Routes**

Attachment 2: **Comparison of Alternatives**

Attachment 3: **EPA's April 23, 2012 objection letter**

Attachment 1: Map of CR 595 and Alternative Routes



Attachment 2: Comparison of Alternatives

Alternative	Total Wetlands Filled	Replacement & New Stream Crossings	Miles of New County Road	Length	Construction Cost
CR 595	24.3 Acres	19 and 7	16.7 Miles	20.9 Miles	$82 Million
Mulligan Plains East	15.7 Acres	11 and 6	20.7 Miles	25.9 Miles	$126 Million
Red Road/Sleepy Hollow	18.3 Acres	26 and 6	9 Miles	39.9 Miles	$107 Million

Attachment 3: **EPA's April 23, 2012 objection letter**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 23 2012

REPLY TO THE ATTENTION OF: WW-16J

Ms. Colleen O'Keefe
Land and Water Management Division
Michigan Department of Environmental Quality
P.O. Box 30028
Lansing, Michigan 48909

Re: Public Notice No. 11-52-0075-P, Marquette County Road Commission

Dear Ms. O'Keefe:

This letter is being sent in response to the Michigan Department of Environmental Quality's (MDEQ) above-referenced Public Notice for a Clean Water Act Section 404 permit application dated January 23, 2012, in which the Marquette County Road Commission is proposing to construct a 21.4 mile long north-south primary county road between US-41 and County Road (CR) Triple A. The proposed project is located in Champion, Ely, Humbolt, and Michigamme Townships, Marquette County, Michigan.

As described in the public notice and the application, the direct impacts of the proposed County Road 595 route include 25.81 acres of impacts to wetlands and 22 stream crossings. To mitigate for these impacts, 49.4 acres of wetland creation and 3.53 acres of wetland restoration are proposed. A stream restoration project is also proposed. The U.S. Fish and Wildlife Service (FWS) and the U.S. Army Corps of Engineers (Corps) have provided EPA with their comments on this proposed public notice and permit application pursuant to Section 404(j) of the Clean Water Act, the regulations in 40 C.F.R. § 233, and further prescribed in the Memorandum of Agreement between the State of Michigan and EPA for implementation of the 404 permit program (CWA 404 MOA). The comments that follow represent the combined federal comments of EPA, the FWS, and the Corps.

In sum, the Federal agencies have concluded that the materials included in the application and accompanying analysis do not demonstrate that the County's preferred route is the least environmentally damaging practical alternative (LEDPA), and therefore, it is not possible at this time to provide the conditions necessary for issuance of this permit in accordance with CWA 404(b)(1) Guidelines. In addition, the project would lead to the significant degradation of aquatic resources, and the proposed wetland and stream mitigation would not fully compensate for the loss of aquatic function and value.

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Accordingly, this letter constitutes a Federal objection to the issuance of a permit for this project. Pursuant to CWA § 404(j)(B) and the CWA 404 MOA Section 5(d)-(e), MDEQ may request that EPA hold a public hearing on this objection. If the State does not resubmit a revised permit to meet this objection within 30 days after completion of the hearing or, if no hearing is requested within 90 days after the date of such objection, the Corps may issue the permit in accordance with the requirements of CWA Section 404.

Alternatives Analysis

Because road construction is not a water-dependent activity, the CWA § 404(b)(1) Guidelines[1] require an applicant to demonstrate that practicable alternatives do not exist which are less damaging to the aquatic environment. The alternatives analysis should demonstrate that the County's preferred alternative meets the criteria for being the LEDPA while still meeting the project purpose. Finally, once the LEDPA is selected, the applicant must demonstrate that it has avoided and minimized impacts to the maximum extent possible and compensated for any unavoidable impacts.

Project Purpose

The stated project purpose within the AAPA is "to construct a primary county north-south road that1.) connects and improves emergency, commercial and recreational access to a somewhat isolated but key industrial, commercial and recreational area in northwest Marquette County to US-41; and 2.) reduces truck travel from this area through Marquette population centers." (AAPA, p.1) Because the project purpose affects the range of alternatives, it should not be too narrowly defined so as to limit alternatives. Qualifiers placed by the applicant within the AAPA include the stipulations that the road be within a defined four-mile corridor and that it be west of the Silver Lake Basin to provide access in the event of a "catastrophic flood event, such as occurred in 2003." (AAPA, p. 11). These restrictions unnecessarily eliminate alternatives which meet the stated project purpose, and may not be used to limit the range of practicable alternatives considered. We believe other alternatives will meet the project purpose and that MDEQ should ensure these are appropriately analyzed.

Alternatives Assessment

As described above, the alternatives analysis should demonstrate that the County's preferred alternative is the LEDPA. The application describes nine alternative routes in addition to the County's preferred alternative (Dishno, Peshekee, Mulligan Plains West-Sleepy Hollow, Mulligan Plains East-Sleepy Hollow, CR 550, CR 510, CR 510-Red Road-Sleepy Hollow-Wolf Lake Road, CR 510-Red Road-Gold Mine Lake Road, and CR 510-Red Road-Callahan Road). The federal agencies have the following comments regarding the assessment of these additional alternatives:

[1] 40 C.F.R. Part 230.

- Estimated impacts of the Dishno and Peshekee Routes include 47 and 68 acres of direct wetland impacts and 29 and 25 stream crossings, respectively. Because of the quantity of aquatic resource impacts associated with these two alternatives, we agree that the Dishno and Peshekee Routes may be considered "no build alternatives." (AAPA, p. 41)
- CR 550 and portions of CR 510 are existing primary all-season county roads. They would not fit within the purpose and need as stated because they would not reduce truck traffic through Marquette population centers, which is part of the project purpose.
- Estimated impacts of the Mulligan Plains West-Sleepy Hollow Route are not included within the Alternatives Analysis, but it was clear to EPA during pre-application discussions that direct aquatic resource impacts were lower for this alternative than those for the County's preferred alternative. We understand that this alternative was not pursued because the Nature Conservancy holds a conservation easement bisecting the route.
- Estimated impacts of the Mulligan Plains East-Sleepy Hollow Route include 25.2 acres of wetlands impact and 12 stream crossings. The application eliminates this alternative primarily because of "an extremely difficult crossing of the Yellow Dog River" (AAPA, p.54). Although a bridge would clearly add cost to any new road, it is not clear that this additional cost would make the project infeasible. Also, our review of available information indicates that the aquatic resource impacts may have been overestimated for this alternative, and indirect impacts of this alternative may be fewer than for the County's preferred alternative. The AAPA should address the issues of bridge cost and reassess aquatic resource impacts.
- The CR 510-Red Road-Sleepy Hollow-Wolf Lake Road alternative is not given due consideration within the alternatives analysis, in large part, because of the additional length, which would increase construction and maintenance costs. Despite the additional distance between the Kennecott Mine and Humboldt Mill, this alternative meets the stated project purpose and may be practicable. Estimated impacts include 13.04 acres of direct wetland impacts and 35 stream crossings. Because this alternative would include improving existing CR 510 for northern portion of the route, indirect impacts to aquatic resources would be fewer than would be expected with new road construction. The applicant needs to provide a more comprehensive evaluation of this alternative.
- CR 510-Red Road-Gold Mine Lake Road and CR 510-Red Road-Callahan Road alternatives were eliminated from consideration during the Woodland Road alternatives discussion based on a comparison of wetlands within a 300 foot corridor along the proposed route. This comparison only included the two alternatives described here and CR 510-Red Road-Sleepy Hollow-Wolf Lake Road, and it concluded that, of the three alternatives, CR 510-Red Road-Sleepy Hollow-Wolf Lake Road had the fewest aquatic resource impacts (Appendix E). EPA agrees that these alternatives do not warrant further consideration at this time.

The applicant should also consider the indirect and cumulative impacts before eliminating alternatives. The marginal increase of aquatic impacts from expanding an existing road may be preferable to impacts to relatively undisturbed aquatic systems. For example, CR 510-Red Road-Sleepy Hollow-Wolf Lake Road alternative contains more stream crossings than the County's preferred alternative, but indirect and cumulative stream impacts may be fewer than the preferred alternative.

The alternatives analysis describes practicable alternatives in addition to the County's preferred alternative that would meet the project purpose. These include the Mulligan Plains East-Sleepy Hollow Route and the CR 510-Sleepy Hollow-Red Road-Wolf Lake Road Route, which have fewer impacts to aquatic resources. Based on our review, the materials included in the application do not demonstrate that the County's preferred route is the LEDPA.

Impacts Analysis

Direct Impacts

The County's preferred alternative would directly impact 25.81 acres of wetlands within the Escanaba, Michigamme, Dead, and Yellow Dog River Watersheds. Of the 25.81 acres of wetland impacts proposed, 0.35 acres are due to the associated ATV trail relocation, which would be permitted separately. According to the application, Appendix M, many wetlands along the proposed route are within the Michigan Rapid Assessment Method's highest functional scoring range (33 of 70 wetlands evaluated for this proposed project). Appendix M also describes wetland community types that were assessed. These included Hardwood-Conifer Swamp, Northern Shrub Thicket, Northern Wet Meadow, Hardwood Swamp, Wet Meadow, Rich Conifer Swamp and Northern Hardwood Swamp (black ash swamp). According to Michigan Natural Features Inventory, Hardwood Conifer Swamp, Rich Conifer Swamp, and Northern Hardwood Swamp are listed as S3 (vulnerable to extirpation in Michigan). Approximately 75% of the proposed wetland impacts from this proposed project are to forested wetland types which are difficult to replace resources.

In total, 22 stream crossings are proposed for the Middle Branch of the Escanaba River, Second River, the Trembath Lake Outlet, Kipple Creek and two tributaries, a tributary to Voelkers Creek, the Dead River, Wild Cat Canyon Creek and its tributary, Mulligan Creek and two tributaries, and the Yellow Dog River. These stream crossings include 8 new crossings and 14 replacement crossings.

In its April 5, 2012 letter to Peter Swenson, EPA, FWS notes that a significant amount of clearing, excavation, and fill will be required in the construction of CR 595 as currently proposed. The proposed project would include clearing, excavation, and fill along the entire 21.4 mile route to construct the roadway, shoulder, and ditch, impacting a minimum of 171 acres (21.4 miles long, minimum 66-feet wide) (AAPA, p. 102). Of the proposed 21.4 mile route, 13.0 miles are not within 50 feet of existing vehicle-accessible roads.

Although the application outlines measures to minimize likely impacts to aquatic resources, we remain concerned that the magnitude of the proposed impacts to the relatively un-impacted aquatic resources along the route is significant..

Indirect Impacts

The application describes potential indirect impacts to wetlands such as sedimentation and changes to plant communities. Although the applicant has proposed methods to minimize these indirect impacts, the project will have long-term impacts on hydrology and water quality (e.g. road-salt, sediment, oil inputs) that would degrade habitats adjacent to the proposed road. A particular concern is that disturbances and changes to wetland flow patterns due to floodplain compensating cuts will negatively impact adjacent wetlands (Appendix B). Other changes in flow patterns due to peat excavation and placement of equalization culverts may decrease wetland quality.

The application briefly discusses the possibility of vehicles along CR 595 spreading invasive species along the proposed route. This would significantly impact wetlands adjacent to the proposed road. The AAPA states that post-construction monitoring will be done as warranted. There are no specifics on the monitoring and mitigation for invasive species, and we remain concerned that natural communities adjacent to the road will be disturbed by invasive species. Accordingly, the applicant should provide specific details regarding the monitoring and mitigation invasive species.

A method for assessing fragmented wetlands is discussed on page 76 of the AAPA. The AAPA describes that the creation of any fragment of a wetland smaller than 0.05 acres would be considered a direct impact, and indirect hydrologic impacts would be minimized via wetland equalization culverts, but we are concerned that functions of fragmented wetlands greater than 0.05 acres may still be impacted by the proximity of the road footprint. The applicant should fully analyze the effects of the proposed project on fragmented wetlands.

Regarding streams, we are concerned about the loss of stream functions due to the lengths of bridges and culverts and due to changes in hydrology and water quality. Although "Stream Simulation Methodology" and storm water best management practices (BMPs) are proposed, construction, traffic, and longer sections of stream enclosure will have impacts downstream in addition to the direct stream loss due to the enclosures. Accordingly, the applicant should provide a complete discussion of the loss of stream functionality.

Wildlife Impacts

In their comments to EPA, FWS noted that the completed avian surveys identified a large number of species, which can be attributed to the diversity of habitats along the proposed CR 595 route, and that the large amount of habitat clearing required for the proposed project will have negative impacts on migratory birds. Under the Migratory Bird Treaty

Act of 1918, as amended, it is unlawful to take, capture, kill, or possess migratory birds, their nests, eggs, and young. Prior to any permit issuance for a project within northern Marquette County, MDEQ should coordinate with FWS to address this concern.

Amphibian and reptile (turtle) mortality is also a likely impact of traffic from a new road, such as CR 595. As an example of this, FWS specifically mentions wetland W-B33-1 at station 1496+30 because 25 feet of vertical fill would be required above the current grade. This elevation would create a barrier that is likely to inhibit animal movement. With a design speed of 55 mph, the proposed road is also expected to increase the number of vehicle collisions with other wildlife including white tailed deer, gray wolf, and moose. For any permit issued, the applicant should coordinate with Michigan Department of Natural Resouces to identify any areas with higher relative densities of wildlife and to develop any potential mitigative measures.

Endangered Species Act

FWS has notified us that Kirtland's warbler (*Setophaga kirtlandii*) and Canada lynx (*Lynx candaensis*) are protected under the Endangered Species Act and these species have the potential to be present within the proposed CR 595 corridor.

Kirtland's warber is a Federally-listed endangered species that nests in large stands (>80 acres) of young, dense jack pine (*Pinus banksiana*). FWS has recommended that the applicant conduct additional Kirtland's warbler surveys prior to construction and include habitat surveys along both the proposed route and any alternative route.

Canada lynx is a Federally-listed threatened species that is known to disperse across the Upper Peninsula and has been observed in 2003 and 2010. FWS recommends that the applicant analyze potential impacts of the proposed road to dispersing lynx.

Prior to any permit issuance for a project within northern Marquette County, MDEQ should coordinate with FWS to address any potential impacts to Federally-listed species and should provide FWS with the surveys and analyses requested above.

Compensatory Mitigation

Under the CWA 404(b)(1) Guidelines, our review of a project must follow the sequence of avoidance, minimizing unavoidable impacts, and when the impacts have been avoided and minimized to the maximum extent practicable, EPA may consider compensation for those unavoidable impacts to the aquatic resources. Although the applicant has not demonstrated that the County's preferred alternative is the LEDPA, our preliminary comments regarding the proposed compensatory mitigation are included below.

The proposed compensatory mitigation includes 49.4 acres of wetland creation at five locations and 3.53 acres of wetland restoration at 26 locations along the proposed route. This makes the proposed wetland replacement ratio 2:1 for forested wetlands and 1.5:1

for all other wetland types. Compensatory mitigation for stream impacts includes replacing undersized culverts as part of road construction and a bridge to replace 3 culverts and stream bed reconstruction within the Salmon Trout River.

Wetland creation attempts to establish wetlands in a landscape position that typically would not support fully functioning wetlands. Forested wetlands such as northern hardwood swamps and rich conifer swamps are very difficult to restore, and we believe creation of such wetland has an even smaller chance of success. All of the proposed creation sites would require extensive excavation (from 2 to 32 feet), primarily through sandy soil. In addition, two of the creation sites are located along the proposed CR 595 route, which increases the likelihood that road run-off (i.e. road-salt and other pollutants) will adversely impact these compensation sites. Because the proposed compensatory mitigation relies primarily on forested wetland creation, the probability of success of replacing the lost wetland functions is low.

Also, the applicant must adequately assess and compensate for indirect impacts, such as wetland and habitat fragmentation, sedimentation and pollutant contribution to adjacent aquatic resources, and changes in flow patterns

For example, the AAPA discusses Best Management Practices (BMPs) to minimize but not eliminate negative impacts to stream functions (AAPA, p. 223). The applicant does not adequately address, however, how the loss of stream length due to 22 crossings would be compensated through the proposed replacement of undersized culverts with longer appropriately sized culverts or through the East Branch Salmon Trout River reconstruction project. The federal agencies believe that additional stream mitigation would be needed to compensate for the new and longer replacement stream enclosures.

Therefore, as described above, the proposed compensatory mitigation will not sufficiently compensate for the loss of aquatic resources associated with CR 595. To address these concerns, the applicant would need to provide a significantly revised mitigation package that fully compensates for expected impacts.

Summary

Based on our review of the CR 595 road project, the applicant has not demonstrated that the project is the LEDPA, and therefore, it is not possible at this time to provide the conditions necessary for issuance of this permit in accordance with CWA 404(b)(1) Guidelines. As presently proposed, the project would lead to the significant degradation of aquatic resources, and the proposed wetland and stream mitigation would not fully compensate for the loss of aquatic function and value.

For the reasons outlined above, this project does not meet the 404(b)(1) Guidelines and we object to the issuance of a permit for this project.

Thank you for the opportunity to provide comments on this public notice. If you have any questions regarding these comments, please feel free to contact Melanie Haveman of my staff at 312-886-2255.

Sincerely,

Peter Swenson

for Tinka G. Hyde
Director, Water Division

United States Environmental Protection Agency
Regional Administrator
Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

DEC 04 2012

Dan Wyant, Director
Michigan Department of Environmental Quality
P.O. Box 30473
Lansing, Michigan 48909-7973

Dear Mr. Wyant:

On April 23, 2012, the U.S. Environmental Protection Agency, in consultation with the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service, submitted an objection, under Section 404(j) of the Clean Water Act, 33 U.S.C. § 1344(j), and federal regulations at 40 C.F.R. § 233.50(e), to the issuance of a wetlands fill permit relating to the construction of proposed Marquette County Road 595. On August 28, 2012, at the request of the Michigan Department of Environmental Quality (MDEQ), EPA held a public hearing on the objection in Marquette, Michigan, as required by Section 404(j) of the Act and 40 C.F.R. § 233.50(g).

EPA has reviewed the comments received during the hearing process and has prepared a Responsiveness Summary, which is enclosed. EPA has also reviewed all additional information provided to date by the permit applicant, the Marquette County Road Commission, and by MDEQ. EPA must now notify MDEQ as to whether EPA will reaffirm, modify or withdraw the Agency's objection, pursuant to Section 404(j) of the Act and 40 C.F.R. § 233.50(h).

EPA has decided to withdraw the Agency's objection regarding the permit applicant's Alternatives Assessment for the County Road 595 project. However, construction of County Road 595 would have significant direct and indirect impacts on high quality wetland and stream resources, as well as on wildlife. Clean Water Act Section 404(b)(1) Guidelines require minimization of impacts to the extent practicable and require compensation for any unavoidable impacts. To date, EPA has not received adequate plans to minimize impacts or a comprehensive mitigation plan that would sufficiently compensate for unavoidable impacts. Accordingly, EPA reaffirms the Agency's objection regarding Minimization of Impacts and Compensatory Mitigation. EPA has attached detailed requirements for impact minimization and compensatory mitigation for the County Road 595 project.

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Under Section 404(j) of the Act and 40 C.F.R. § 233.50(h)(2) and (j), MDEQ has thirty days from the date of receipt of this letter to satisfy EPA's reaffirmed objection by issuing a permit that includes minimization and mitigation plans consistent with the requirements set forth in Attachment 2 or to notify EPA that MDEQ intends to deny the permit. Absent such action by MDEQ, authority to process the permit application transfers to the Corps of Engineers.

If you have further questions, please call me at (312) 886-3000, or your staff may contact Peter Swenson, EPA Water Division, at (312) 886-0236.

Sincerely,

Susan Hedman
Regional Administrator

Enclosures

Attachment

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

Following EPA's April 23, 2012, letter to the MDEQ in response to the January 23, 2012, Public Notice file number 11-52-0075-P, EPA has received additional information regarding the quality and quantity of the impacts of the proposed County Road 595 project. On October 31, 2012, EPA received the applicant's proposed alternative wetland mitigation plan. The applicant has not sufficiently minimized adverse effects to aquatic resources and the latest version of the applicant's Compensatory Mitigation Plan is deficient. Detailed requirements to further minimize adverse effects to aquatic ecosystems and to complete a mitigation plan to comply with the 404(b)(1) Guidelines[1] in order to allow MDEQ to issue a permit that satisfies EPA's objection are provided below:

Mitigation of Direct Impacts

The final wetland and stream compensatory mitigation plans must comply with the 2008 Federal Mitigation Rule (Compensatory Mitigation for Losses of Aquatic Resources; Final Rule).[2] To demonstrate that the proposed stream and wetland mitigation will sufficiently compensate for proposed impacts, the applicant shall provide the following, prior to permit issuance:

- Identification of a third-party land steward for long-term management of the wetland preservation site. The steward shall have land management experience managing wetland preservation sites.[3]

- Adaptive and long-term management plans for both stream and wetland mitigation that include a monitoring and reporting schedule and funding mechanism.[3]

- Measurable performance standards for stream mitigation. For example, for the goal of reducing sediment input to a stream, the applicant must specify how sediment input will be measured and provide a baseline with which to compare pre-mitigation and post-mitigation conditions.[4]

In addition, the applicant shall provide the following, prior to initiation of any permitted activities:

- A signed stewardship agreement with the land steward to maintain the proposed preservation area in perpetuity.[2]

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[1] 40 C.F.R. Part 230
[2] 40 C.F.R. Part 230 Subpart J
[3] 40 C.F.R. § 230.97 (c) (Adaptive management) and (d) (Long-term management)
[4] 40 C.F.R. § 230.95 (Ecological performance standards)

- Demonstration that financial assurances are in place for construction and long-term management of both stream and wetland mitigation.[3, 5]

- Demonstration that all necessary mineral rights to ensure that the wetland preservation area will be permanently protected have been secured, as required by the Mitigation Rule[6] and Michigan's Natural Resources and Environmental Protection Act, Part 303, Section 324.30311d(2), which states, in part, "If compensatory wetland mitigation … is required, … [t]he permit applicant shall provide for the permanent protection of the wetland mitigation site." MDEQ guidance describes the type of documentation that would support permanent protection of a mitigation site. *Large Wetland Mitigation Sites* (September 7, 2004). This guidance document cites the subordination of any property interest, including mineral rights, as an important part of securing such protection. A general mineral report outlining mineral interests at a particular point in time is not sufficient to ensure that mineral rights do not threaten a mitigation area.

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 the Section 404(b)(1) Guidelines,[7] the applicant shall provide the following documents prior to permit issuance:

- A detailed proposal describing the mechanism and locations of protected critical habitat areas. For instance, "to limit the building or connection of secondary roads in critical habitat areas, [the applicants shall] utilize the placement of conservation easements [or] deed restriction."[8]

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

In addition, the applicant shall demonstrate the following, prior to the initiation of any permitted activities:

- Long-term monitoring and maintenance plans for the applicant's proposed porous rock road design and wetland equalization culverts shall be completed to ensure that these structures perform as designed in the future.

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[5] 40 C.F.R. § 230.93(n) (Financial assurances)
[6] 40 C.F.R. § 230.97 (a) (Site protection)
[7] 40 C.F.R. Part 230 [404(b)(1) Guidelines]
[8] August 27, 2012, MDOT, MDNR, MDARD letter to Regional Administrator Susan Hedman, U.S. Environmental Protection Agency.

- 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.

- Funding mechanisms shall be in place for long-term monitoring and management of indirect impacts.

In order to minimize aquatic habitat fragmentation impacts associated with the CR 595 project, the applicant shall include the construction of wildlife crossings in its road design. Prior to permit issuance, the applicant shall provide the following:

- A plan that includes the locations and design of wildlife crossings. Given the density of high quality habitat and wildlife in the area, the applicant shall construct an appropriate number of wildlife crossings to address fragmentation along the route, particularly in areas with the highest moose density as indicated on the Moose Survey Plots of Northern Marquette County map[9]. These crossings shall be large enough to accommodate larger wildlife species such as moose, cougar and bear. The applicant shall coordinate placement of the crossings with the MDNR and the U.S. Fish and Wildlife Service to ensure major wildlife travel corridors are accommodated. At a minimum, wildlife crossings shall be placed along major stream crossings. Fencing along the road to guide wildlife to the crossings shall be provided. The design will depend on the target wildlife species and the physical characteristics of the road corridor. Both the Federal Highway Administration and the U.S. Forest Service have developed guidelines that can be referenced when designing wildlife crossings.

[9] Moose Survey Plots, e-mail from MDEQ to EPA (August 31,2012)