

Environmental Assessment

# Grand Traverse County Proposed Shooting Range Location

Grand Traverse County, Michigan

Prepared for:

Michigan Department of Natural Resources

Finance and Operation Division

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## Preface

The National Environmental Policy Act (NEPA) of 1969 requires that the social, economic, and natural environmental impacts of any proposed action of the federal government be analyzed for decision-making and public information purposes. There are three classes of action. Class I Actions, which are those that may significantly affect the environment, require the preparation of an Environmental Impact Statement (EIS). Class II Actions (categorical exclusions) are those that do not individually or cumulatively have a significant effect on the environment and do not require the preparation of an EIS or an Environmental Assessment (EA). Class III Actions are those for which the significance of impacts is not clearly established. Class III Actions require the preparation of an EA to determine the significance of impacts and the appropriate environmental document to be prepared - either an EIS or a Finding of No Significant Impact (FONSI).

This document is an Environmental Assessment for the proposed construction of a shooting range in Grand Traverse County, Michigan. It describes and analyzes construction alternatives, potential impacts, and the measures taken to minimize harm to the project area. It will be distributed to the public and to various federal, state, and local agencies for review and comment. A formal public hearing on this project will then be held. If review and comment by the public and interested agencies support the determination of “no significant impact”, this EA will be forwarded to the United States Fish and Wildlife Service (USFWS) with a recommendation that a FONSI be issued. If it is determined that either alternative shooting range site location will have significant impacts that cannot be mitigated, the preparation of an EIS will be required.

This document was prepared by the Environmental Service Section of the Michigan Department of Transportation (MDOT), in cooperation with the Michigan Department of Natural Resources (MDNR).

## Chapter 1.0 Project Summary, Purpose and Need

### 1.1 Background

The Federal Aid in Wildlife Restoration Act of 1937, also known as the Pittman-Robertson Act, originally created an excise tax that provided funds to each state (through the Department of the Interior) to manage wildlife and their habitats. Amendments in the 1970's created a tax on handguns, ammunition, accessories and archery equipment, with a portion of the money to be used for education and training of hunters through safety classes and construction and operation of public shooting ranges.

The Michigan Department of Natural Resources (MDNR) owns the Traverse City State Forest Area, which is the site of the existing Hoosier Valley shooting range. The proposed sites under review for the new shooting range are also located in the Traverse City State Forest Area, owned by the MDNR. The Hoosier Valley Range is located in Blair Township, Grand Traverse County, Michigan (T26N, R10W, Section 15). This existing range has become an area of concern due to numerous noise complaints by local residents and complaints of range users parking on Hoosier Valley Road. The MDNR established additional rules for the Hoosier Valley Range in an attempt to address the complaints of the local residents. Restrictions were placed on range operating hours, magazine size of firearms allowed at the range and only permitting the use of paper targets. Since the range is not staffed, range users do not always follow these rules. The types of firearms allowed, the hours of operation, and the types of targets allowed, are still major concerns of the local residents. The MDNR would now like to relocate this shooting range due to environmental issues, safety and noise concerns.

Three potential shooting range relocation sites were identified. All are located in Grand Traverse County, Michigan. Site 1 is in White Water Township (T27N, R09W, Section 33). Site 2 is in Union Township (T26N, R09W, Sections 11-14). Site 3 is in Fife Lake Township (T25N, R09W, Section 27).

### 1.2 Project Summary

The proposed project involves constructing a new shooting range on either of the three alternative sites with the primary goal of addressing safety and conflict issues. The constructed shooting range will be referred to as a "micro range" and consists of the following components:

- 10-25 yard pistol or handgun range, 4 stations
- 50 yard rifle range, 4 stations
- 100 yard rifle range, 4 stations
- No skeet or trap area

- 10 acres of maximum disturbance with site grading and proper drainage
- Vegetative plantings or other sound mitigating measures
- Gravel entrance drive and parking area, 20-25 cars
- 2 concrete ADA parking spaces, sidewalks and pedestrian circulation for retrieving targets
- Concrete vault toilet, benches, and trash receptacles
- Educational and interpretive signage
- Rear and side berms, but not berms separating the individual ranges
- Unstaffed

### 1.3 Purpose

The purpose of this project is to secure a grant that will fund the construction of a shooting range in Grand Traverse County Michigan. The existing shooting area, known as Hoosier Valley, is becoming an area of concern due to safety, environmental issues, and noise concerns. The Hoosier Valley Shooting range is located on state land and has been an unofficial shooting range for decades. Traverse City has grown out into the once rural area surrounding the shooting range creating incompatible adjacent land uses.

### 1.4 Need

The Hoosier Valley site has been a shooting range location since the 1960's. As the population within Grand Traverse County has grown, specifically the Traverse City area, urbanization and development has been allowed to develop around Hoosier Valley. This location is not staffed and while the Department has implemented land use orders to control the activities and types of shooting at Hoosier Valley, it is not identified as a designated range. An internal work group that the MDNR had assembled to evaluate shooting ranges statewide, found that addressing the safety and conflict issues at Hoosier Valley and finding an alternative site was the top priority of 2014.

Michigan has approximately 747,116 licensed hunters and the need to practice their archery and firearm shooting in this region of the state is important considering that the majority of the Department's staffed and designated ranges are in the southern part of the state. The designated and staffed ranges are intended to provide safe and controlled settings for the general public to develop skills and proficiency in firearm use in support of hunting sports.

Over 70 undesignated ranges have been developed on MDNR lands over time and they can be viewed as opportunities that identify historic use and where user demands currently exist. Because they have not been formally developed, they do not adequately address safety and operational concerns.

## 1.5 Decisions that Need to be Made

Following completion of this Environmental Assessment and initial range design, the assessment and initial design will be posted online and an opportunity for public comment will be offered in the project area, so the department personnel assigned to this project may hear the opinion and comments of local residents, shooting range users, and other interested parties. Minor changes or adjustments may be made to the alternatives in response to these comments. The MDNR will consider these comments along with cost, operational characteristics, environmental impacts and other relevant factors in range design and construction at the recommended range site (Site #2 – Union Township). All design work at the recommended range site will require grant approval by the United States Fish and Wildlife Service before the project begins.

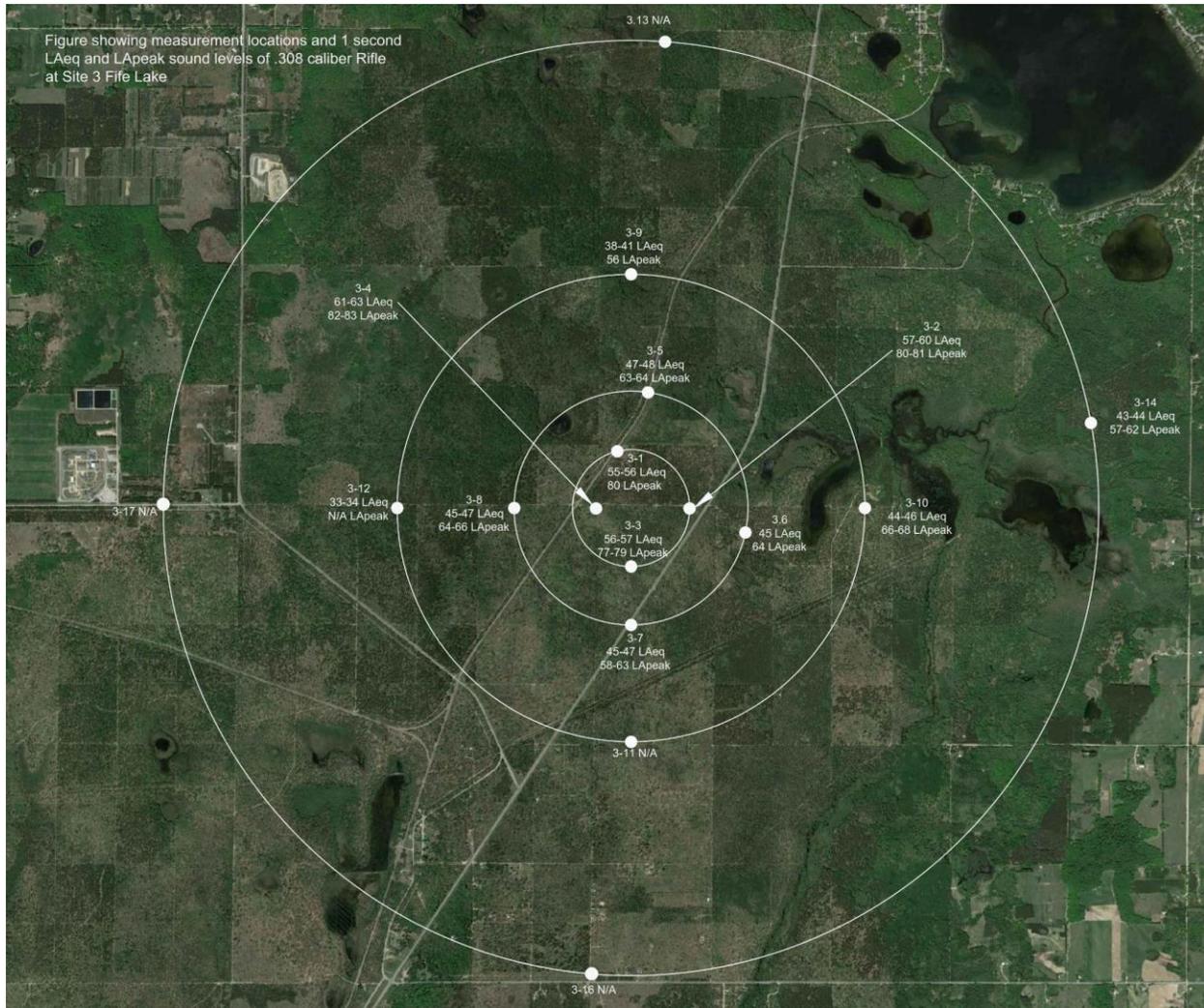
## 2.0 Project Alternatives

### 2.1 Alternatives Not Considered for Detailed Analysis

An acoustic assessment of all three proposed shooting range sites was conducted in September 2015, by Siebein Associates Inc. The proposed Fife Lake Township shooting range location (site 3) had acoustic measurements taken with the shooters facing southwest using three different caliber of firearms. The firearms were discharged and noise measurements were taken at ¼ mile, ½ mile, 1 mile, and 2 mile distances in all directions (Figure 1). The noise measurements were analyzed using a computer model that took into effect different site designs, building materials, and weather conditions. The Environmental Acoustic Assessment document goes into further detail of the noise analysis. The acoustic assessment found that the dense population living around Fife Lake was in close enough proximity to site 3 that the noise from the firearm use would be a concern to local residents.

The Fife Lake Township site has been eliminated as a potential shooting range location based on several factors including the proximity to the residential Fife Lake community, the distance from the Traverse City population, and the numerous established shooting ranges that already exist in the Fife Lake area. The Fife Lake Township site is the farthest site from the Traverse City urbanized area. A major goal of the shooting range relocation is to keep the new site close to and easily accessible to the people of Traverse City. The Fife Lake location is over 22 miles from the city limits of Traverse City. The Fife Lake area also has several private shooting ranges, creating little need for another range.

Figure 1. Aerial photograph showing measured LA eq and LA peak sound levels produced by a 0.308 rifle measured at distances of approximately ¼ mile, ½ mile, 1 mile and 2 miles from proposed range Site 3: Fife Lake, with the shooter firing towards the southwest.



Source- Siebein Associates

## 2.2 Alternatives Carried Forward for Detailed Analysis

### 2.2.1 Alternative A (No Build)

Under this alternative, a new shooting range would not be constructed and the existing Hoosier Valley Shooting Range would continue to operate as it is today. The people of Traverse City would continue to have a free shooting range that is open to the public and close to the majority of the population. The range would also continue to not meet ADA requirements. The range rules put in place by MDNR would remain and the Hoosier Valley site would continue to be unstaffed. Proper use of the range would be the responsibility of the range users in a self-policing

format that has failed to work in the past. Complaints from local residents would remain the same or possibly continue their current trend of increasing frequency. The site would also remain difficult to patrol for the limited number of conservation enforcement officers assigned to the area. The range is located on a connecting road that provides multiple ways in and out of the shooting area, thus allowing people that are improperly using the range an easy way to avoid law enforcement as they exit. Under this alternative, the Hoosier Valley Shooting Range would continue to operate in an unsafe manor, Complaints from local residents would continue to be reported and require the attention of a small conservation enforcement staff, and the purpose and need of the proposed project would fail to be accomplished.

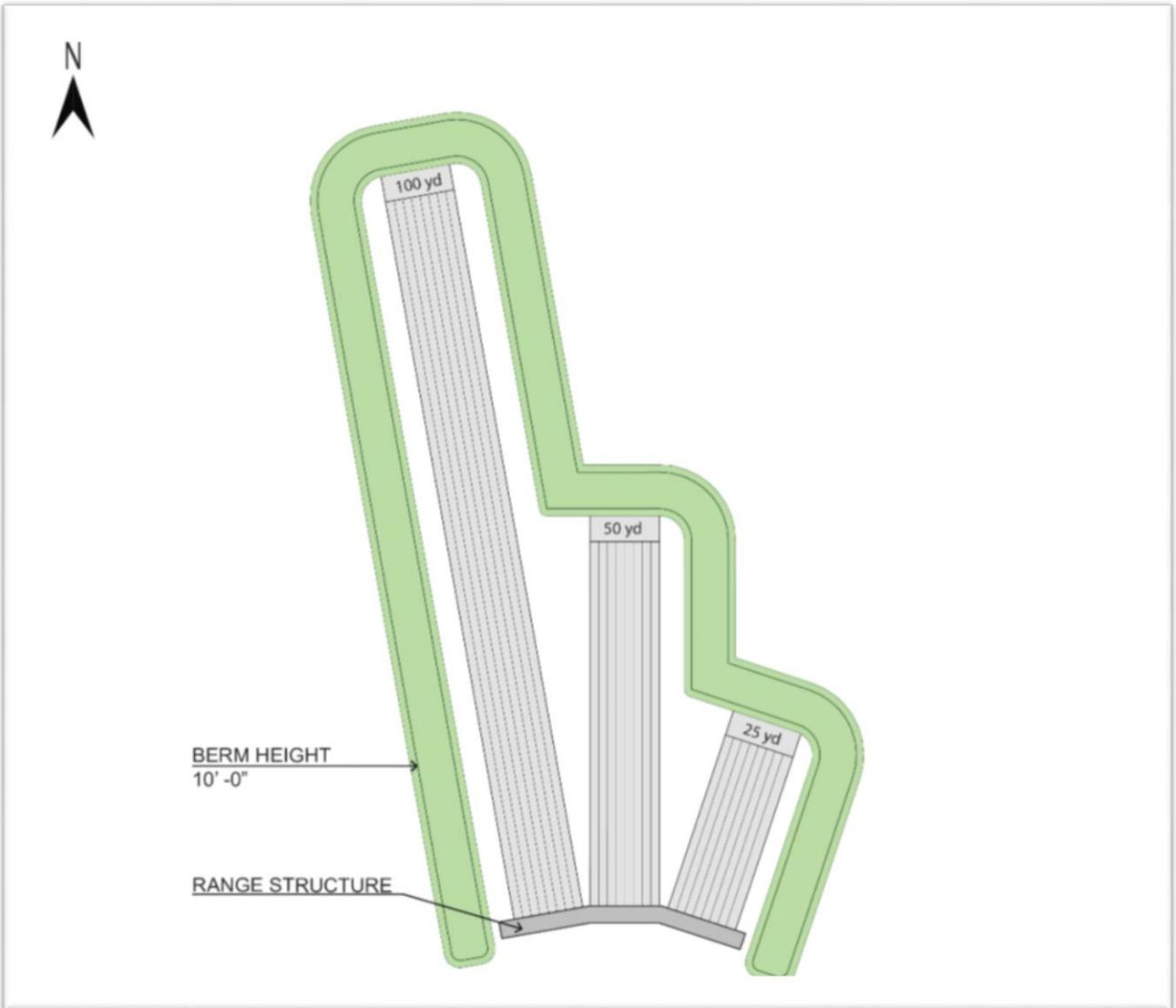
### 2.2.2 Alternative B (Site #1, Whitewater Township)

The constructed shooting range will be referred to by MDNR as a “micro range” and consists of the following components:

- 10-25 yard pistol or handgun range, 4 stations
- 50 yard rifle range, 4 stations
- 100 yard rifle range, 4 stations
- No skeet or trap area
- 10 acres of maximum disturbance with site grading and proper drainage
- Vegetative plantings or other sound mitigating measures
- Gravel entrance drive and parking area, 20-25 cars
- 2 concrete ADA parking spaces, sidewalks and pedestrian circulation for retrieving targets
- Concrete vault toilet, benches, and trash receptacles
- Educational and interpretive signage
- Rear and side berms, but not berms separating the individual ranges
- Unstaffed

The Range location has been provided as an alternative by the Michigan Department of Natural Resources due to its distance from private property and its accessibility by the people of the Traverse City area. Figure 2 provides a diagram of the range that was used in the Environmental Acoustic Assessment.

Figure 2. Concept diagram of the base range design.



Source: Siebein Associates Inc.

### 2.2.3 Alternative C - Recommended Site (Site #2, Union Township)

This alternative has the same components and design as listed above for Site #1.

## 2.3 Summary of Alternatives

**Table 1**  
**Alternative Characteristics**

Characteristic	Alternative A No Build Keep Hoosier Valley Open	Alternative B Site 1 Whitewater Township	Alternative C Site 2 Union Township
Accessible to Public?	Yes	Yes	Yes
Site Development Required?	No	Yes	Yes
Addresses ADA Issues?	No	Yes	Yes
Addresses Hunter Education Needs / Outdoor Skill Training	Yes	Yes	Yes
Addresses Purpose and Need?	No	Yes	Yes
Provide a Safe Place to Shoot?	No	Yes	Yes
Eliminate Local Resident Noise Complaints?	No	Yes	Yes

## 3.0 Affected Environment

### 3.1 Physical Characteristics

The existing Hoosier Valley unofficial shooting range and the two proposed sites for a new shooting range, are located south of the city of Traverse City in the Traverse City State Forest Area. This state forest includes public lands in Benzie, Grand Traverse, Kalkaska, Leelanau, and Manistee Counties. The Traverse City State Forest Area is divided by the MDNR into smaller management areas. The Boardman Plains Management Area is the management area that contains both of the proposed shooting range sites and the existing Hoosier Valley shooting range.

The Boardman Plains Management Area is located in Grand Traverse and Kalkaska Counties and contains 71,296 acres of state forest. Figure 3 on page 15 shows the Boardman Plains Management Area. The primary attributes which identify the Boardman Plains management area include:

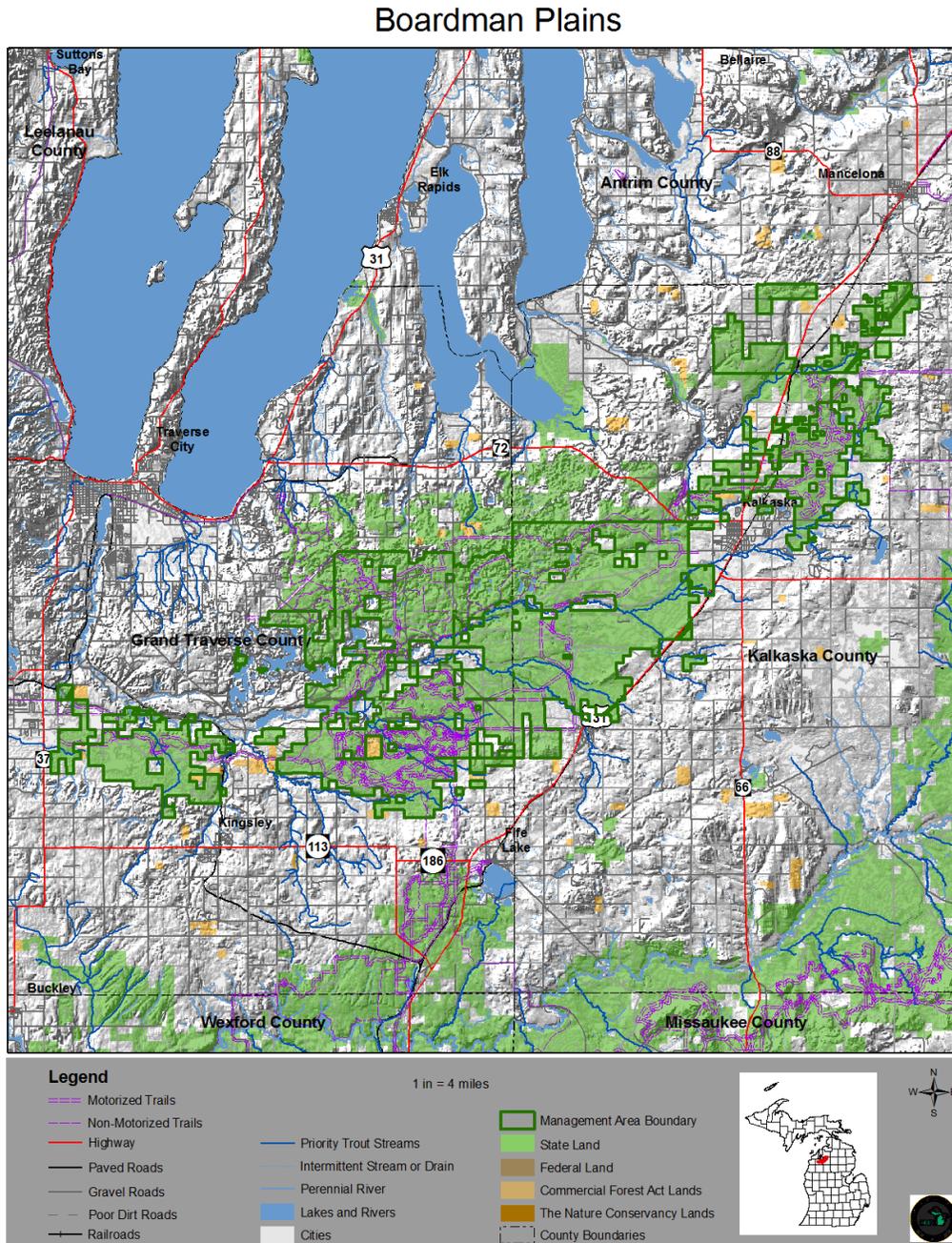
- The glacial outwash plain landform (96% of the management area).
- A history of large fires which resulted in the cover types of oak, red pine, jack pine with pockets of aspen and upland hardwoods.
- Proximity of this management area to Traverse City, Kalkaska and other population areas, and forest resources that contribute to the social and economic values of the area.
- Location within the Grayling Outwash Plain sub-region of the northern Lower Peninsula.
- Location of the approximately 3,000 acre Sand Lakes Quiet Area in the management area, which is a dedicated management area and high conservation value area.
- Includes the Boardman River and its tributaries in the management area, which is a designated natural river.
- Includes portions of the North Country Trail, Vasa cross country ski trail and single track bike trail, Muncie Lakes Pathway, Michigan Coast-to-Coast Cycle Trail, snowmobile trails and Shore-to-Shore Horse Trail in the management area.
- Includes two northern fen environmental reference areas (Root Lake and Sand Lake) and two oak pine barren ecological reference areas (North and South Carpenter Creek).
- Numerous active and abandoned oil or gas wells associated with the Niagaran and Antrim Shale formations and future oil/gas storage facilities which may be located here.

Vegetation management in the Boardman Plains Management Area of the Northern Lower Peninsula Regional State Forest Plan provides forest products; maintains or enhances wildlife habitat; protects areas of unique character including the Boardman River (a designated natural river) and the Sand Lakes Quiet area (a designated high conservation value area), threatened, endangered and special concern species; and provides for forest-based recreational uses. Timber management objectives for the current planning period started in 2012, include improving the age-class structure of aspen; increasing regeneration of oak; working toward balancing the red pine age-class structure; continuing emphasis on managing the northern hardwood resource for

stand quality, age, and species diversity; wildlife values; and continued production of wood products.

Wildlife habitat management objectives include perpetuating early-successional communities for species adapted to young forests for hunting and other wildlife-related recreation opportunity. Expected trends within the current planning period starting in 2012 are: increased recreational pressure, especially on the Muncie Lakes pathway, North Country and other established trails; increased oil and gas development; an increased wildland/urban interface; a need to restore oak/pine barrens communities; invasive plant control; and the conversion of poor oaks sites to mixed pine/oak sites.

Figure 3. Map of the Boardman Plains Management Area.



### 3.2 Land Use

The immediate land surrounding the two potential shooting range sites, is comprised of State Forest land which is managed by the MDNR. The use is public recreation and there are numerous recreational trails (snowmobile, ORV and hiking) within these lands. Site 1 is located in Whitewater Township and Site 2 is located in Union Township. The nearest bodies of water are

the Twin Lakes, which are located approximately one-half mile west of the proposed Site 1. The closest residences are approximately 1 mile from Site 1 and just under a mile away from Site 2. There is also Woodland School that is approximately 1.25 miles from Site 1.

### 3.3 Biological Environment (Habitat/Vegetation)

#### Site 1:

A 2005 record for Hill's Thistle (*Cirsium hillii*) State Special Concern exists 1 mile southeast of the proposed Site 1 in T27N, R9W, Section 35. Found primarily in pine barrens in northern Lower Michigan, but also occurring in other savanna and prairie types, openings within coniferous and oak forests, and on limestone pavement. Surveys for Hill's Thistle should take place from June 1st to August 31st.

This species is listed as State Special Concern in Michigan and is not protected under the Endangered Species Act. However based on reviews of aerial maps of this location, there is suitable habitat for this species at this site. There is also contiguous habitat to this proposed site from the existing known locations. If this site is selected, a field surveys should be performed to determine if the species is present. If Hills Thistle is present then the plants could be moved under permit to assist in their protection and help avoid them from becoming listed in the future.

#### Site 2

A 1996 record for Hill's Thistle (*Cirsium hillii*) State Special Concern exists 2 miles southeast of the proposed Site 2 in T26N, R9W, Section 24. Found primarily in pine barrens in northern Lower Michigan, but also occurring in other savanna and prairie types, openings within coniferous and oak forests, and on limestone pavement. If this site is selected, a survey for Hill's Thistle should take place from June 1st to August 31st.

A record (first observed 1996 last observed 2004) for Hill's Thistle (*Cirsium hillii*) State Special Concern exists 1.25 miles southwest of the proposed Site 2 in T26N, R9W, Section 15. Found primarily in pine barrens in northern Lower Michigan, but also occurring in other savanna and prairie types, openings within coniferous and oak forests, and on limestone pavement. If this site is selected, a survey for Hill's Thistle should take place from June 1st to August 31st.

This species is listed as State Special Concern in Michigan and is not protected under the Endangered Species Act. However based on reviews of aerial maps of this location, there is suitable habitat for this species at this site. There is also contiguous habitat from the existing known locations to this proposed site. If possible, field surveys should be performed to determine if the species is present. If Hills Thistle is present then the plants could be moved under permit to assist in their protection and help avoid them from becoming listed in the future.

### 3.4 Threatened/Endangered and Candidate Species, Other Wildlife Species

This review is based on Michigan Natural Features Inventory (MNFI) records found near the two sites.

#### Site 1

No records for listed species occur within 2 miles of Site 1. Considering only potential impacts to endangered wildlife based on known MNFI records, Site 1 would be preferred to Site 2. No seasonal restrictions on tree cutting to protect federally listed bats would be expected at this site under the final 4(d) rule. However, there is still a potential for impacting listed bats, and impacts to listed bats could be minimized by clearing trees between October 1 - March 31 when bats are not nesting in trees.

#### Site 2

Site 2, the MDNR's recommended range site, is not within the State of Michigan's managed Kirtland's Warbler habitat boundaries and MDNR Wildlife Habitat Biologists have reviewed the site for potential impacts and are in support of developing the range in this location. In addition, the recommended site is currently partially disturbed and no breeding pairs have been found during seasonal surveys.

Site 2 has nearby known occurrences of the federally and state listed Kirtland's Warbler (*Dendroica kirtlandii*) from 2004 to 2008. Kirtland's Warblers have been detected .18 miles northwest of the project, .25 miles north of intersection of Fife Lake Rd. and Jackpine Rd. T26N, R9W, Section 11. These observations are recent and close enough to merit further review and coordination with the Fish and Wildlife Service. Young Jack pine stands are the preferred habitat of Kirtland's Warbler with nesting occurring from May 15th to August 15th. Surveys of the Warbler should occur from May 15th to June 30th. However, it should be noted that populations of Kirtland's Warbler have rebounded enough that it is being considered for removal from the Endangered Species list. Recent news indicates that this could happen as early as 2017. Coordination should be initiated with the U.S. Fish and Wildlife to ensure any obligations under the federal ESA are met if Site 2 is selected. Kirtland Warbler conservation measures are located in Appendix B.

A 2009 record for Dusted Skipper (*Atrytonopsis hianna*) State Special Concern exists 1.96 miles southwest of the project, Supply Road to Fife Lake Road then S to Mayfield Road then W 1 mile to Carpenter Creek Road, then NW on Carpenter Creek Road ~ 1 mile to site. T26N, R9W, Section 22. Dry open fields, Oak-pine barrens, prairies, rights-of-way in sandy areas, and roadsides are the preferred habitat of the Dusted Skipper. Eggs are laid on bluestem grasses and adults feed on these grasses. Adults also nectar on blackberry, cinquefoil, lupine, puccoon, vetch and yarrow. Surveys for the Dusted Skipper should occur between May 25<sup>th</sup> and June 25<sup>th</sup>.

Like Site 1 above, no seasonal restrictions on tree cutting to protect federally listed bats would be expected at this site under the final 4(d) rule. However, impacts to listed bats could be minimized by clearing trees between October 1 and March 31.

#### Both Sites

In addition to the records above, project documentation from DNR indicates the possible occurrence of Eastern Massasauga Rattlesnake near both of the sites. This documentation is located in Appendix A. The Eastern Massasauga Rattlesnake is currently being considered for federal listing. Initiating coordination with the U.S. Fish and Wildlife Service is advisable to ensure obligations under the ESA are met if the species is listed.

### 3.5 Wetland Resources

#### **Wetlands**

No impact. The proposed activities will not impact any wetlands and a MDEQ Part 303 permit will not be required. There are no regulated wetlands in close proximity to either of the project locations. Appendix C has maps showing the regulated features at the two alternative locations. If work is added in any wetland then a MDEQ Part 303 permit will be required.

#### **Water Quality**

There are no surface waters in the vicinity of either site.

#### **Streams**

No impact. The proposed activities will not impact streams, lakes or drains and a MDEQ Part 301 permit will not be required. There are no streams/drains in close proximity to either of the proposed project locations.

Site 1 has Twin Lakes about 2800 feet west.

Site 2 has Carpenter Creek about 2500 feet south of the project location.

Maps showing the regulated features at the two alternative locations are available in Appendix C. If work is added that will impact any stream, lake or drain then a MDEQ Part 301 permit will be required.

#### **Floodplains**

No impact. The proposed activities will not impact 100 year floodplain areas or water bodies with greater than 2 square miles of drainage area and a MDEQ Part 31 permit will not be required. There are no floodplain areas in the vicinity of the project limits at either Site. Maps showing the

regulated features at the two alternative locations are available in Appendix C. If work is added in any floodplain area then a MDEQ Part 31 permit will be required.

### 3.6 Contamination

No Significant Impact. A general Michigan Department of Environmental Quality (MDEQ) database search was conducted to identify any known contamination sources at either of the two sites. No known contaminated sites within or adjacent to the proposed project area. Preliminary Site Investigation (PSI) is recommended to determine the concentration of contaminants in the soil and groundwater, address potential worker safety issues, and provide direction for any mitigation of contamination during construction. More importantly this will establish a base line for future testing to compare against. All contaminated media must be handled and disposed of appropriately in accordance with state and federal regulations. Lead from shot and bullets will be deposited on or in the soil at the shotgun and rifle ranges. Dissolved lead can migrate through soils to groundwater. The amount of lead that may be dissolved into ground water is determined by different factors. These factors include but are not limited to: pH of rain and surface water, precipitation, contact time, soil chemistry and soil type, soil vegetation and cover, ground water table depth. These factors, including the above mentioned items are documented in *Best Management Practices for Lead at Outdoor Shooting Range*; by The United States Environmental Protection Agency (EPA) and *Environmental Aspects of Construction and Management of Outdoor Shooting Ranges, Facility Development Series Number 2*; by the National Shooting Sports Foundation, Newtown, CT.

The close proximity of Site 1 and Site 2 effectively nullify any differences between many of the influencing factors. Both sites would be comparable in precipitation and pH of rainfall events. But when the sites were compared to the ground water data from Remote Sensing & GIS Research and Outreach Services, Michigan State University a clear difference could be seen.

#### Site 1

Site 1 has a ground water depth of greater than 31 feet

#### Site 2

Site two has a ground water depth between 11-20 feet

A map showing the ground water depth for the area around both sites, can be found in Appendix D. Based on the deeper ground water depth of Site 1 this would be the preferred site location for this factor. Best Management Practices should be implemented during design, construction and post construction to minimize the potential for lead migration into water and/or other locations. The EPA document *Best Management Practices for Lead at Outdoor Shooting Range* is a great resource for lead mitigation.

### 3.7 Cultural Resources

There are no known archaeological sites within a mile of either Site 1 or Site 2. Analysis of environmental factors, historic maps, and other documents demonstrate that the two proposed sites are not located in areas where archaeological sites might be expected. The archaeological staff of the State Historic Preservation Office (SHPO) concurs with this assessment. See Appendix E for a copy of the letter from SHIPO.

There are no buildings and therefore no above-ground historic properties within a mile radius of either proposed location. SHPO has concurred with the no historic properties affected determination. See Appendix E for a copy of the letter from SHIPO.

### 3.8 Tribal Consultation

The DNR reached out to tribal contacts as part of the Environmental Assessment requirements for a federal grant for shooting range development in Grand Traverse County. The MDNR tribal coordinator recommended that a letter be sent to all recognized tribes.

That letter was sent via email as well as USPS on 5/10/16 and provided a copy of the maps for the proposed range sites and some background information. An opportunity for comment was offered through May 31, 2016.

One email and one phone message related to the correspondence was received. The email documented no concerns from the Little Traverse Bay Bands of Odawa Indians. The message was from President Swartz of the Keweenaw Bay Indian Community in the western part of the Upper Peninsula. His message indicated that if the MDNR needed a section 106 review of a proposed range in "Indian Country" there would be a review process and money needs to change hands. Repeated return calls to Mr. Swartz have not been successful.

No other tribes returned comments or concerns, including the other tribes local to Grand Traverse County.

### 3.9 Agricultural

#### Farmland Protection Policy Act (FPPA)

No impact. No purchase, grade permit, consent to grade, and/or easements or property acquisition will be required for the construction of this project. Therefore, no Farmland Conversion Impact Rating form (AD-1006/CPA106) will be required to be submitted to the United

States Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS) for review under FPPA. There is no prime farmland adjacent to the project limits. If property acquisition is added and the total is greater than one (1) acre of Agriculture or Forestry zoned property then the project will require reevaluation and the form AD-1006/CPA106 will be required to be submitted to the USDA/NRCS.

#### Farmland Development Rights Agreement (PA116)

No impact. No purchase, grade permit, consent to grade, and/or easement or property acquisition is expected to be required for the construction of this project. A Michigan Department of Agriculture (MDA) PA116 database inquiry was conducted and no PA116 enrolled parcels have been identified in the listed Town, Range, Sections. If the project expands outside of the listed Town, Range, Sections, then this project will require reevaluation.

### 3.10 Construction

No significant impact. Standard soil erosion and sedimentation control measures will be set up and implemented for this project. A National Pollutant Discharge and Elimination System (NPDES) construction site storm water permit will be required due to the 5 to 10 acres of land that will be disturbed for range construction. MDNR will apply to Michigan Department of Environmental Quality (MDEQ) for the permit when specific design details have been decided upon.

### 3.11 Tree Removal

Both sites are outside of the Indian Bat range and not within a Northern Long Eared Bat regulated county. Therefore, tree removals could occur during any season but are recommended to take place between October 1 and March 31 to minimize impacts to listed bats.

### 3.12 Air Quality

No impacts. The area is in attainment for all criteria pollutants.

### 3.13 Local Socio-economic Conditions

The proposed project is located on State Forest land in Grand Traverse County, Michigan. With one site located in Union Township and the other in Whitewater Township. Based on the information in the table below the proposed project would not cause any disproportionate impacts to minority or poverty populations. Any of the proposed sites for the shooting range would be unstaffed and would not charge a fee for use.

**Table 2**  
**Census Data**

	<b>State of Michigan</b>	<b>Grand Traverse Co.</b>	<b>Union Twp.</b>	<b>Whitewater Twp.</b>
<b>Total Population</b>	9,883,640	88,981	405	2,597
<b>% Minority</b>	20.8	5.3	2.6	7.0
<b>% Below Poverty</b>	16.9	11.7	9.9	5.5
<b>% LEP</b>	3.2	1.2	0.0	0.8

Source: 2010 U.S. Census and the 2014 American Community Survey data

### 3.14 Economic Issues

The existing Hoosier Valley Shooting Range and the two proposed sites are located in northern Michigan, an area known for tourism and outdoor recreation activities. Based on the size Traverse City State Forest, neither of the proposed shooting range sites should negatively affect the tourism and outdoor recreation of the area. The creation of an official shooting range will provide a safe place for the residents and visitors of the area to shoot and conduct hunter safety programs. Residents will need to buy firearms, targets, and ammunition for use at the range, and visitors to the area will need to do the same along with lodging, fuel, and food. The area will be attractive to hunters to have a place to site in their gun close to where they hunt. According to a 2011 report done by the National Shooting Sports Foundation, hunting and target shooting activities in Michigan combined to produce \$2,766,826,125 in total sales, resulting in 41,626 jobs, and generating \$346,535,889 in state and local tax revenue.

### 3.15 Noise

The existing and proposed range sites are located within the Traverse City State Forest Management Unit boundaries. The existing range site is within a 1000 feet distance from the nearest residential properties. Peak noise levels can readily reach the range of the upper 60s to lower 80s dBA at the residential properties, depending on the firearm, based on the modeling results completed for the proposed sites. The proposed sites are in isolated locations well away from residences or area of frequent human use. No noise issues are anticipated at the proposed locations. See the *Environmental Acoustic Assessment for the Proposed Shooting Ranges Sites* for details.

### 3.16 Cumulative Impacts

The impacts of the proposed action are evaluated for cumulative impacts based on impacts resulting from other past, present and reasonably foreseeable actions. The proposed project does not conflict with any local, state or federal plans for the area. The adjacent land is managed by the MDNR and no additional development or expansion of the proposed range is expected in the foreseeable future. Both Site 1 and Site 2 would likely require road improvements and maintenance if the potential range is to be open all year. The Grand Traverse County Road Commission has posted signs stating that they will not improve or snowplow the seasonal roads that lead to both potential sites. Site 2 is located just off of a County Road that is maintained year round by the Grand Traverse County Road Commission. Maintenance of the access drive into the range would be completed by the MDNR. This is one of the factors that influenced the MDNR's decision in selecting Site 2 as the recommended location. There is potential for lead contamination if the new site is not cleaned on a regular basis; however a lead reclamation plan will be in place for the new range if developed. Overall, the new site would create a better situation for range users and local residents. An improved range would be safer for its users and it would remove existing conflicts by being further away from residences.

## 4.0 Environmental Consequences

This section addresses the various impacts associated with the alternatives considered for project completion, including the No Build Alternative, Site One Alternative, and Site Two Alternative.

### 4.1 Impacts Specific to all Alternatives Considered

#### 4.1.1 Alternative A (No Build)

With the No Build alternative, a new shooting range would not be constructed and the existing Hoosier Valley Shooting Range would continue to operate as it is today. Complaints from local residents would remain the same or possibly continue their current trend of increasing frequency. The site would also remain difficult to patrol for the limited number of conservation enforcement officers assigned to the area. The range rules put in place by MDNR would remain and the Hoosier Valley site would continue to be unstaffed. Proper use of the range would be the responsibility of the range users in a self-policing format that has drawn complaints from local residents over the past few years. See Table 3 for a comparison of the three alternatives and their environmental consequences.

#### 4.1.2 Alternative B, Site 1, White Water Township

This proposed alternative would result in a new shooting range being constructed in White Water Township (Site 1). With the construction of a new range, there will be various impacts to natural resources, and there will also be environmental consequences. These environmental consequences are summarized below by area of concern. See Table 3 for a comparison of the three alternatives and their environmental consequences. This is the recommended location.

#### 4.1.3 Alternative C, Site 2, Union Township

This proposed alternative would result in a new shooting range being constructed in Union Township (Site 2). With the construction of a new range, there will be various impacts to natural resources, and there will also be environmental consequences. These environmental consequences are summarized below by area of concern. See Table 3 for a comparison of the three alternatives and their environmental consequences.

### 4.2 Summary Comparison of Environmental Consequences by Alternative

Both Action Alternatives (Alternative B and C) would result in a new shooting range that is more compatible with its adjacent land uses and farther away from permanent residents that may

complain about the noise from the range usage. Both Action Alternatives should also have a field survey performed to look for Hill's Thistle. The two Action Alternative sites differ when it comes to potentially impacting federal and state listed fauna, and the water table depth which is the only varying factor regarding the possibility of lead migrating through the soil and entering the ground water. Site 1 has only the Eastern Massasauga Rattlesnake as a listed species that has potential to be affected. Site 1 also has the deeper water table, making it more difficult for lead to enter the ground water. Site 2 has three listed species (Kirtland's Warbler, Dusted Skipper, and Eastern Massasauga Rattlesnake) that could be affected by the site development. Site 2 also has a water table closer to the surface making it more susceptible to ground water contamination. See Table 3 for a comparison of the three alternatives and their environmental consequences.

**Table 3**  
**Summary of Environmental Consequences**  
**for All Alternatives**  
**No Build, Existing Hoosier Valley Range**  
**Site 1, Whitewater Township**  
**Site 2, Union Township**

<b>Site Location</b>	<b>Impacts</b>	<b>Comments</b>
<b>Land Use</b>		
No Build	No	No change in land use would take place with the continued use and operation of the existing range. The site is not staffed and has become littered with trash. Additionally, homes have been built near the site within recent years and are complaining about the noise created by the range.
Site 1	No	The surrounding land uses are suitable for the proposed range being located at this site. Improvements to the local roads leading to the site would likely be necessary due to their poor existing conditions and will not occur at the county's expense. If the site is open during winter months, snow removal would be needed, as well. This site is about one mile from the nearest private resident dwelling.
Site 2	No	The surrounding land uses are suitable for the proposed range being located at this site. Improvements to the local roads leading to the site would likely be necessary due to their poor existing conditions and will not occur at the county's expense. If the site is open during winter months, snow removal would be needed, as well. This site is slightly closer to residences than Site 1.
<b>Biological Environment (Habitat/Vegetation)</b>		
No Build	No	No change in biological environment. The terrestrial habitats/vegetation will remain the same.
Site 1	Potential	Hill's Thistle ( <i>Cirsium hillii</i> ), State Special Concern Species was spotted 1 mile from this site in 2005. A field survey should be performed to determine if the species is present. If found, the plants could be moved under permit to assist in their protection.
Site 2	Potential	Hill's Thistle ( <i>Cirsium hillii</i> ), State Special Concern Species was spotted 2 miles from this site in 1996. Hill's Thistle was also spotted 1.25 miles from this site between 1996 and 2004. A field survey should be performed to determine if the species is present. If found, the plants could be moved under permit to assist in their protection.

Site Location	Impacts	Comments
<b>Threatened/Endangered and other Wildlife Species</b>		
No Build	Potential	The metals entering the soil from the existing shooting range have potential to enter the environment, including wildlife.
Site 1	Potential	No record for listed species occur within 2 miles of this site. Eastern Massasauga Rattlesnake, federally listed, has the possibility to live at this site. Coordination with USFWS is advised.
Site 2	Potential	Kirtland's Warbler ( <i>Dendroica kirtlandii</i> ), state and federally listed, was spotted .18 miles away and .25 miles away between 2004 and 2008. These observances are recent and close enough to merit further review and coordination with USFWS. Dusted Skipper ( <i>Atrytonopsis hianna</i> ), State Special Concern Species, was spotted 1.96 miles from this site in 2009. Eastern Massasauga Rattlesnake, federally listed, has the possibility to live at this site. Coordination with USFWS is advised.
<b>Wetland Resources</b>		
No Build	Potential	The metals entering the soil from the existing shooting range have potential to enter the environment. Beitner Creek is less than a mile from the range and the Boardman River is one mile from the range.
Site 1	No	Turning either site into a shooting range will not affect any water quality, wetlands, streams, lakes, drains, or 100 year flood plains. The closest wetland resource to Site 1 is Twin Lakes at 2,800 feet to the west. The closest wetland resource to Site 2 is Carpenter Creek at 2,500 feet to the south.
Site 2	No	
<b>Contamination</b>		
No Build	Potential	The metals entering the soil from the existing shooting range have potential to enter the environment.
Site 1	Potential	There is no known contamination at this site. However, a Preliminary Site Investigation is recommended to be certain the sites have no contamination and also to set a base line that future contamination of the sites can be measured against. Lead shot from the bullets will be deposited in the soil and has the potential to migrate through the soil and into the groundwater. The factors used to determine the amount of lead that will reach the groundwater are the same for both potential sites, except for the depth of the water table. Site 1 has a groundwater depth of greater than 31 feet, which is over 10 feet deeper than the groundwater depth of Site 2, which is at a depth of 11-20 feet.
Site 2	Potential	

<b>Site Location</b>	<b>Impacts</b>	<b>Comments</b>
<b>Cultural Resources</b>		
No Build	No	The existing range is not disturbing any Archeological, Historical, or Tribal resources.
Site 1	No	There are no known archaeological sites within a mile of either site. There are no known above ground historic properties within a mile of either site.
Site 2	No	
<b>Tribal Resources</b>		
No Build	No	Contact was made with all recognized tribes within the State of Michigan. No tribes returned any comments or concerns.
Site 1	Potential	Contact was made with all recognized tribes within the State of Michigan. The Little Traverse Bay Band of Odawa Indians replied that they had no concerns with either site being used as a shooting range. The Keweenaw Bay Indian Community responded by asking for funds to further investigate both sites. MDNR has replied to the Keweenaw Bay Indian Community with unsuccessful phone calls. The other tribes did not returned any comments or concerns.
Site 2	Potential	
<b>Agricultural</b>		
No Build	No	The existing range does not impact agricultural land.
Site 1	No	No purchase, grade permit, and/or property acquisition will be required for this site. No farmland Conservation Impact Rating will be required. There is no prime farmland adjacent to the project limits. No PA116 enrolled parcels have been identified in the Town, Range, Sections of this project.
Site 2	No	
<b>Construction</b>		
No Build	No	No permit is needed for the existing range.
Site 1	No	A NPDES permit will be required from the MDEQ when specific construction details have been finalized.
Site 2	No	
<b>Tree Removal</b>		
No Build	No	No trees will be removed at the existing range.
Site 1	No	This site is outside of the Indian Bat range and not within a Northern Long Eared Bat regulated county. Therefore, tree removals could occur during any season but are recommended to take place between October 1 and March 31 to minimize impacts to listed bats.
Site 2	No	

<b>Site Location</b>	<b>Impacts</b>	<b>Comments</b>
<b>Air Quality</b>		
No Build	No	All areas are in attainment for all criteria pollutants.
Site 1	No	
Site 2	No	
<b>Local Socio-Economic Conditions</b>		
No Build	No	The continued use of the existing range would not cause an economic impact to the local community and users of the site. It should be noted that with no modifications to the existing site it would remain inaccessible to those with disabilities.
Site 1	No	The impacts are minimal and mostly positive overall in terms of the socio-economic conditions. Neither site would not charge to use the shooting range and the new facility would be ADA compliant, making it more accessible to the public. It will also have a vault toilet.
Site 2	No	
<b>Economic Issues</b>		
No Build	No	The continued use of the existing range will help the ammunition, target, and firearm sales to local residents. This existing range is an unofficial range and therefore it is not advertised or used by the many visitors to the area.
Site 1	No	An official shooting range would be safer and used more by visitors to the area. The existing Hoosier Valley Shooting Range is only known to local residents.
Site 2	No	
<b>Noise</b>		
No Build	Yes	Residences will continued to be affected by the noise from the existing range.
Site 1	No	During construction, there will be increased truck and equipment noise for construction of the earth berms and range structures. No noise issues are anticipated due to the isolated location of either proposed range.
Site 2	No	

Site Location	Impacts	Comments
<b>Cumulative Impacts</b>		
No Build	No	No work would occur, therefore no cumulative impacts would result. There is a possibility of the lead from the spend ammunition becoming leachate since no closure and reclamation is proposed or scheduled at this time.
Site 1	No	Currently, there are no known plans to develop the immediate project area that would create any cumulative impacts as a result. There is potential for lead contamination if the new site is not cleaned on a regular basis. Overall, the new site would create a better situation and remove existing hazards by being further away from residences.
Site 2	No	

## 5.0 List of Preparers

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## 6.0 Coordination with Public and Others

In addition to multiple public hearings, as discussed in Section 7 – Public Comment Section, the Department has invested time cultivating relationships with neighboring property owners, local units of government and other interested parties. Local DNR staff from our Law Enforcement and Forest Resources Division have had numerous conversations with local residents regarding their concerns over conflicts at the existing unofficial shooting area known as Hoosier Valley. Staff have documented those concerns (sound, safety, trash) and measures will be taken at the new shooting range to alleviate these concerns. The Department has also reached out to multiple, local sportsmen’s clubs who have offered their support for the project and indicated a willingness to assist in regular clean-up of the new location. The Department has a volunteer agreement in place with the local Boy Scout Troop for trash pick-up at the Hoosier Valley area and they have indicated a willingness to continue their assistance at the new location. Lastly, department Shooting Range Analyst met with the Union Township Board in May of this year to discuss further details regarding potential range development and ensure that the local unit of government would support the development of a range in their area. The Union Township board considers their township the “backyard” to the City of Traverse City residents and encourage recreational activities and improvement to recreational opportunities from quiet sports like hiking and kayaking to motorized recreation like snowmobiling and ORV-ing. They were supportive of the Department developing a range and requested we ensure trash is managed properly, that the range have a buffer (tree plantings or other) from the road. Further discussions with the Union Township Board will occur once the grant is approved and design is completed. Northern Michigan is strongly supported by tourism to the area. Tourism to Grand Traverse County is varied, including visitors for boating, camping, kayaking, hunting, shooting, etc. The Department has been approached by local businesses, lodging and resorts who are looking forward to an improved range that they can refer their customers to for recreational shooting opportunities.

## 7.0 Public Comment

There have been three public meetings involving the Hoosier Valley Shooting Range complaints and the decision to look for a new shooting range location. On June 6, 2013, a public meeting was held to address the initial complaints of the Hoosier Valley Shooting Range. This meeting was attended by over 100 members of the public. On June 24, 2014, a public meeting was held at the Traverse City Civic Center

On March 10, 2016, a public meeting was held at the East Bay Township Hall to present the findings of the noise study done on the three proposed shooting range sites. The meeting was well attended by over 80 people and public comments were taken. Numerous concerns were raised with most concerns related to sound impacts and garbage left behind by range users. The majority of the public was supportive of the development of a range, but many requested that it not be located in Whitewater Township. Public comments revealed during the comment period assisted the Department of Natural Resources in selecting the Union Township site for development of a shooting range, pending the successful grant award. Of the 24 written comments received: 20 pertained to the two shooting range sites examined in this EA. Some of the comments were written in a manner that expressed more than one point of view and are summarized as following. The actual written comments can be found in Appendix F.

- 13 comments wanted no new range to be built. These comments focused on the age of the existing Hoosier Valley range and that it has been in use since before the houses around it were built. Most of these comments came from people claiming to live near the proposed sites, and they claimed that the problems associated with the Hoosier Valley range will only move to another location or complaints will double because the Hoosier Valley range will not be closed.
- 2 comments were in favor of a new range to be built at Site 1. Both of these comments were also in favor in a new range at site 2, so they could also be considered comments in favor of a new range in general.
- 11 comments were in favor of a new range being built on Site 2. These people generally like the idea of a new range and prefer the Site 2 location over Site 1.

This EA will be made available as a draft document for public review and comment in order to identify any controversy associated with the project. Any comments received and a description of agency responses will be forwarded to USFWS as part of the final EA. The USFWS will make a final determination on whether a Finding of No Significant Impact (FONSI) is appropriate for the project or if an Environmental Impact Statement (EIS) will be required.

## APPENDIX A

### Eastern Massasauga Rattlesnake Conservation Measures



# Eastern Massasauga Rattlesnake Candidate Conservation Agreement with Assurances Draft Conservation Measures

## Conservation Measures

### Management Strategies for Managed Lands

These habitat management guidelines were developed to provide land managers with a framework to protect EMR populations while creating and/or restoring suitable habitat needed to sustain EMR populations on enrolled lands. These guidelines reflect current knowledge of researchers and resource managers in Michigan. However, we also recognize that our understanding of the factors, including management actions, influencing EMR population dynamics are limited. There is varying degrees of support for the efficacy for the conservation measures currently available for EMR (e.g., informed judgment of experienced land managers, well-documented research across multiple types of sites, etc.). Therefore, as resources allow, an adaptive management approach that targets key assumptions and uncertainties related to management actions is critical to meeting the CCAA standard over the life of this agreement (Section 10). These guidelines will be followed on enrolled lands identified as ‘Managed Land’.

When deviations from these guidelines are necessary, a written request to the Service must be submitted as described in “Modifications of the CCAA” on page 25 of the CCAA. If a Participating Landowner is requesting the modification, the DNR must be notified as well. In cases where a quick review is necessary (i.e., short burn windows in the spring, urgent situations), approval must be obtained from the Service. In emergency human health and safety situations (to be decided by the land manager) when pre-approval to deviate from these guidelines is impractical, descriptions of the actions taken will be carefully documented and provided to the DNR and the Service after the fact. Development activities, such as new buildings, parking lots or transportation infrastructure, in enrolled lands designated as managed habitat will require modifications to the CCAA. Development activities in Unmanaged Land will not require modifications; however, they will be subject to Section 7 reviews if a federal nexus exists.

### Wetland Protection

The primary threat to the EMR is habitat loss, in particular the effects of past, widespread wetland loss. While the DNR lands may have been intended for recreation, forestry, game species, or other purposes they have nonetheless played an important role in conserving EMR by providing places where wetlands have been conserved. The effectiveness of DNR lands as part of conservation landscape for the EMR is demonstrated by the number of remaining EMR populations they support. Conserving wetlands is one of the most significant EMR conservation measures provided by the DNR lands.

### Prescribed Fire

Fire is a natural process that occurs in many natural communities, including fens and other vegetation types occupied by EMR (Spieles et al. 1999). Fire in fens serves to keep the vegetation open, reduce shrub and tree cover, reduce surface cover and encourage germination and reproduction of many plant species.

Prescribed fire will be allowed in managed habitat even though it has the potential to kill individual snakes. At some managed sites, prescribed fire may be the preferred or only effective management treatment for invasive species or discouraging woody growth for the purpose of maintaining important habitat. The following guidelines will allow managers to enhance or increase suitability of EMR habitat while minimizing the potential loss of individual snakes. Heat from prescribed fire does not reach far into the soil. Therefore, burning during the inactive season is not expected to harm hibernating EMR.

Smith et al. (2001) observed that snakes exposed to low intensity fire were more likely to survive than those exposed to high intensity fires. Mortality from prescribed fire is possible, even when steps are taken to reduce that mortality (Durbian 2006, Cross 2009), but the impacts of fires likely vary with other threats, snake population size, fire intensity, and fire frequency. Snakes and other reptiles may move from the burn unit, but in order to provide them more time and potential refuges these guidelines include recommendations to decrease rate of spread and intensity. Rattlesnakes have been known to seek subterranean refuges and may survive less intense fires (Smith et al. 2001).

Prescribed fire promotes dynamic changes in the landscape that set back succession, improve EMR habitat, and may be beneficial to EMR populations in the long run. The impacts from prescribed fire on EMR populations are uncertain and, therefore, will be evaluated for its positive and negative effects to EMR populations and habitat (see Section 10). The following precautions will be observed when using prescribed fire to increase habitat suitability for rattlesnakes.

1. Burning in managed EMR habitat when snakes are inactive or not emergent is unrestricted except when current conditions could possibly result in snake emergence. If available, use a Snake Emergence Prediction Model (SEPM). If the model predicts that snakes may be emergent, burning will be conducted according to the protocols described below. If the model predicts snakes are not active, then burning is unrestricted.
2. Land managers will leave unburned areas adjacent to prescribed burns to serve as snake refugia whenever possible.
3. Prescribed burn plans will use 'back burning' as the primary ignition strategy. This approach will minimize entrapping snakes between flame fronts. However, the burn manager may make the judgment, during a burn treatment, that encirclement ignition or strip firing is necessary to protect human safety or property.
4. A scientific fire behavior model, such as the United States burn model, the Canadian burn model or equivalent will be used to formulate a burn prescription for a maximum rate of spread no faster than 16 chains per hour (17.6 feet per minute) with an average targeted rate of 10 chains per hour or less (11 feet per minute), except in known hibernacula areas. A slower rate of spread may allow snakes within the burn unit adequate time to find refugia.
5. Where hibernacula are known to be dense (greater than 5 hibernacula per acre), no burning is allowed from March 15 to May 15, unless the Snake Emergence Prediction model predict snakes to be inactive and not yet emerged. Where hibernacula are known to be diffuse (less than 5 hibernacula per acre) across the landscape, burns between March 15 and May 15 can move at no faster than 8 chains per hour (8.8 feet per minute).
6. Fire breaks will be established following existing fuel breaks (roads, rivers, trails...) to the greatest extent possible. Cultivation (disking or roto-tilling) of burn breaks will be minimized to the extent that human health and safety are not jeopardized. Cultivation and mowing fire breaks will be established during the inactive season to the extent possible (See 7.1.2 & 7.1.3).

#### Mowing and Hydro-axing

In Michigan, mowing has been used to set back succession, control invasive species or establish fire breaks. Mowing is also used to maintain dikes, trails, and other areas designated for human use. While mechanical treatments are an important wildlife management tool, they have been identified to cause direct snake mortality. Mechanical treatments are intensive management techniques that may threaten the long-term survival of localized EMR populations.

The following precautions will be observed when mechanical treatments are used in managed habitat to increase habitat suitability for rattlesnakes and minimize mortalities:

1. Set mower deck heights to maintain turf grass at <15 cm (6 inches) at all times.
2. In areas with known hibernacula, mowing and hydro-axing are not allowed at any time of year.
3. Management will follow the most recent rutting guidelines for the DNR.

4. Mowing or hydro-axing of grasses over 6 inches will occur only during the inactive season, except to control non-native vegetation in degraded habitats.

After snakes have emerged, mowing and hydro-axing will only be allowed when land managers are trying to improve EMR habitat in highly degraded sites (>90% canopy closure or >75% nonnative invasive species). For example, a land manager may want to control invasive species or convert agricultural fields to native grasslands.

#### Cultivation

In Michigan, cultivation has been used to establish new habitat plantings, set back succession, and establish fire breaks. Cultivation is strongly discouraged in managed habitat regardless of snake activity.

However, the following cultivation practices will be considered acceptable in managed habitat:

1. Areas that are to be treated with mechanical soil disturbance will be mowed during the inactive season to less than 15 cm (6 in) in height so that they are unattractive to snakes the following spring.
2. Areas may be continuously maintained as row-cropped agriculture.
3. Narrow strips of land may be cultivated for the establishment of fire breaks, as outlined in the prescribed fire guidelines.
4. Cultivation may be used when necessary to protect human or natural resource health and safety (e.g., wildfire suppression).

#### Water Level Manipulation

Maintaining the natural hydrology is critical for maintaining viable populations of amphibians and reptiles. In some wetland complexes, the natural fluctuations in water levels help maintain open landscapes. The groundwater or saturated soils protect hibernating snakes from freezing during winter. Draining removes the heat sink capabilities of the water and weakens the thermal link to warmer areas farther underground. Therefore, alterations to wetland hydrology may have negative impacts on amphibian and reptile populations. EMR, like other wetland snakes, have been shown to tolerate submersion for short periods (about 2 weeks) of time when water temperatures are near freezing. They then rely on cutaneous gas exchange. Individuals will be able to respond to flooding during the active season by moving. Flooding will not kill the snakes during the active season, but may force them out of suitable habitat. Extended flooding may destroy elements of the habitat. Beavers promote dynamic changes in the landscape, and may be beneficial to the snake population in the long run. Beaver activity should be evaluated for its positive and negative effects on EMR habitat and also on human interests.

The following precautions will be observed when manipulating water levels in managed habitat:

1. Water levels in managed habitat will not be drawn down during the inactive season, except for human health and safety reasons.
2. Water levels may not be raised for more than two continuous weeks during a single inactive season, except for health and safety concerns.
3. Permanent flooding or drainage that results in loss of EMR habitat is prohibited.
4. Water levels may be raised during the active season.
5. This agreement does not obligate the DNR to manage beaver to maintain water levels.
6. Temporary flooding to mimic the restorative effects of beaver activity for one to five years will need written pre-approval from the Service.

#### Forest Management

Most forestry activities that are conducted in accordance with sustainable forest management principles are not expected to negatively impact EMR populations. In most cases forest management practices will benefit EMR, especially when the following guidelines are observed on Managed Lands.

1. Conduct timber harvesting operations when substrate is firm and dry in mid to late summer or when the ground is adequately frozen so that rutting and compaction is minimized.
2. Reforest stands through natural regeneration or tree planting (including appropriate site preparation, such as trenching and scarification). Planting densities should be at levels that assure a similar cover type pattern, or retain or mimic more open forest communities (e.g., pine barren or savanna). Savanna and pine barren restorations are encouraged.
3. Consider increasing fine and coarse woody debris retention, creating brush piles and favoring other habitat elements. Slash burning will occur only during the inactive season.

#### Chemical Control

Chemicals have been used by many natural resource professionals to achieve specific habitat management goals and objectives. Currently, many land managers use herbicides because of their effectiveness, ease of use and because herbicides can be relatively inexpensive. Although herbicide use may be an effective habitat management tool, a paucity of research exists on the effects of chemicals on reptiles and, specifically, to EMR. Therefore, it is strongly recommended that land managers consider specific biological factors and utilize a cautious approach when choosing an herbicide, application method, application rate, time of application, and time between applications.

Due to the unknown impacts of herbicides to EMR, broadcast applications in Managed Land is prohibited except when land managers are re-establishing suitable habitat at highly degraded sites (e.g., converting row crops to native grasslands or to control monocultures of invasive species). Land managers may use other herbicide treatments such as spot spraying or wicking to control invasive plant species in Managed Land.

#### Collection, Release, Relocation and Persecution

Collection of EMR for personal pets and commercial trade is an ongoing problem. Poachers have posed as researchers or collaborators of researchers to obtain information on where to find EMR. Pet EMR held in captivity will not be released into the wild because the potential for introducing diseases into an area is significant. Mixing stocks could also have undesirable genetic effects.

The following guidelines will be observed to minimize the potential negative impacts from the collection, release, relocation and persecution of rattlesnakes:

1. Details on specific locations of snakes or hibernacula will be treated with the same sensitivity as location of state or federally listed species. Collection or killing at hibernacula could devastate a population.
2. EMR legally maintained in captivity will not be released back into the wild. Those snakes that have been held temporarily for research purposes may be released where they were captured if they are in good health and have been held in isolation from other reptiles.
3. EMR will only be moved to protect the snake or people. EMR that must be moved should be moved less than 500 m and into the same wetland system but not across barriers (e.g., roads). If a snake is moved across property lines, permission will be obtained from the landowner. EMR lacking knowledge of their surroundings have elevated levels of mortality.
4. Staff will be routinely educated about EMR because they are in an excellent position to provide public education.
5. Priority will be given to placing snakes that cannot be released or are confiscated into the EMR Species Survival Plan population maintained by the Association of Zoos and Aquariums where they may have both an education benefit and contribute to the captive population and possible future assurance breeding.

#### Trails and Pathways

DNR owned and managed trails and pathways currently exist within Managed Land and Unmanaged Land. Trails and pathways are an important component of managing DNR owned land. For human safety, use and enjoyment of trails and pathways, it is necessary to perform maintenance on the trails,

including grading, tree-trimming and other activities.

The following precautions will be observed when performing trail and pathway maintenance:

1. Set mower deck heights to maintain turf grass at <15 cm (6 inches) at all times.
2. In areas with known hibernacula, mowing and hydro-axing are not allowed at any time of year.
3. Management will follow the most recent rutting guidelines for the DNR.
4. Mowing or hydro-axing of grasses over 6 inches will occur only during the inactive season, except to control non-native vegetation in degraded habitats.
5. Development of new trails/pathways or substantive changes to existing trails/pathways within Managed Land must include consultation with the DNR Endangered Species Coordinator prior to initiation of construction and construction will be complete during the inactive season.

### **Management Strategies for Unmanaged Lands**

On Unmanaged Lands other goals and mandates require that the management strategies outlined in Section 7.1 will not apply. The DNR will use the following guidelines on Unmanaged Land:

1. Possession of EMR will continue to be prohibited. This will be accomplished by maintaining the Director's Order (No. DFI-166.98, Regulations on the Take of Reptiles and Amphibians; Act 165 of the Public Acts of 1929, as amended, Sec. 302.1c(1) and 302.1c(2) of the Michigan Compiled Laws) which prohibits take of "special concern" reptiles and amphibians without a permit from the DNR.
2. Upon documentation of more than one individual, evidence of reproduction, and availability of suitable habitat on enrolled lands previously designated as Unmanaged Land, signatories may re-classify enrolled areas as Managed Land, but are not required to do so. Consideration will be given to whether the EMRs found are associated with a known and viable population nearby.
3. Management of Unmanaged Land where EMR are unwelcome will focus on management techniques that discourage EMR use. For example, grassy areas around buildings or campsites will be frequently mowed because tall vegetation could attract EMR.
4. To the extent possible do not restrict dispersal on between Managed Lands that are separated by less than 1 km on the Unmanaged Land. Activities that may limit dispersal may include paved roads or motorized vehicle trails. These activities will be reviewed by the MDNR Wildlife Division and USFWS prior to implementation to ensure they are consistent with the CCAA standard.

### **Management Strategies for Oil, Gas and Mineral Development**

Should the EMR be listed as threatened or endangered under the ESA, authorization for incidental take under the Section 10(a)(1)(A) Enhancement of Survival Permit will be applicable when it is determined that the measures proposed for the lease collectively meet the CCAA standards. Oil, gas and mineral development activities within EMR managed areas may be authorized as a form of incidental take if the DNR determines that the activities proposed for that lease will result in a clear conservation benefit for the EMR.

The goal for an oil, gas, or mineral Certificate of Inclusion is for leaseholders to avoid and minimize negative impacts to EMR and to voluntarily contribute funding or in-kind actions to benefit the EMR. The intent is to provide options that would insure measurable benefits to EMR conservation consistent with the purposes of the CCAA standard (i.e., preclusion or removal of the need to list). This will include compensating for any of the potential biological impacts associated with habitat loss or fragmentation for EMR as well as costs for EMR management in a more complex landscape (e.g., reduced ability to use prescribed fire or increased law enforcement costs).

Conservation measures will be site specific, but fall into general categories of habitat enhancement or avoidance of negative habitat impacts, implementing conservation measures, and addressing critical research needs. These activities will be assessed through leasing or the land use permitting processes and

will consider well density, well location, access road surface, length and width, voluntary contributions to EMR conservation, and ongoing and future reclamation activities. It is the responsibility of the oil, gas, and mineral developer to contact the DNR and develop a plan for DNR review, and to sign a Certificate of Inclusion for incidental take coverage authorized under the CCAA when the proposed plan is determined to meet the CCAA standard. Without a signed Certificate of Inclusion the CCAA does not cover oil, gas, and mineral development activities on 'managed' lands.

### **Education and Outreach**

Education and outreach efforts are needed to raise awareness and understanding about the species for all stakeholders, reduce persecution or indiscriminate killing and promote conservation of species. A general approach is to conduct research to identify appropriate content and delivery of education and outreach efforts, learn from other efforts, model after successful efforts such as the Ontario program, identify and recruit partners and target audiences, develop and distribute materials/provide resources, evaluate effectiveness of efforts, develop a volunteer network and ultimately, develop and maintain local, long-term presence/outreach effort in communities around the state within the species' range.

## APPENDIX B

### Kirtland's Warbler Conservation Measures



## Kirtland's Warbler Management in Michigan

The Kirtland's Warbler is North America's rarest songbird and it nests almost exclusively in northern Michigan jack pine forests and is protected by the Endangered Species Act (ESA). It was one of the first species protected under the ESA.

Over 90 percent of the potential habitat in the Northern Lower Peninsula is on State or National Forest Land. The Department of Natural Resources, in cooperation with the United States Forest Service and the United States Fish and Wildlife Service, has been instrumental in the efforts to restore Kirtland's Warbler population. The development of breeding habitat through timber management, reforestation and prescribed burning, and the removal of the brown-headed cowbird has led to the recovery of the warbler.

The Kirtland's warbler numbers have rebounded and the current population (2000 breeding pairs) is estimated to be twice as large as the recovery goal. Additional information related to the conservation efforts and strategies of the Department can be found in the 2014 Kirtland's Warbler Breeding Range Conservation Plan at [http://www.michigan.gov/documents/dnr/Kirtlands\\_Warbler\\_CP\\_457727\\_7.pdf](http://www.michigan.gov/documents/dnr/Kirtlands_Warbler_CP_457727_7.pdf)

The Department continues to manage certain portions of the State Forest for Kirtland's warbler habitat. The Department has committed to continuing cooperation, through the Kirtland's Warbler Initiative, to ensure the habitat for the warbler. Currently there are 150,000 acres of jack pine forest managed in rotation to provide 38,000 acres of nesting habitat, which also contributes to the local and State economy through the use of harvested jack pine in forest products.

Impacts to nesting warblers is limited by placing restrictions on our timber harvest contracts. Restrictions may either confine harvesting operations between August 15 and May 1 or they may provide the time restriction and a buffer zone of 500 feet adjacent to a young jack pine stand that could be used by the warbler.



## Kirtland's Warbler

### *Setophaga kirtlandii*

The first Kirtland's warbler in North America was identified in 1851 from a specimen collected on Dr. Jared Kirtland's farm near Cleveland, Ohio. Biologists did not learn where it nested until 1903 when they found a warbler nest in northern lower Michigan. Today, Kirtland's warblers face two significant threats: lack of crucial young jack pine (*Pinus banksiana*) forest habitat and the parasitic brown-headed cowbird (*Molothrus ater*).

A pair of Kirtland's warblers requires at least eight acres of dense young jack pine forest to nest, but often 30 to 40 acres is needed to raise their young. Their exacting requirements for nesting, as well as cowbird parasitism, caused a drastic decline in numbers and led the U.S. Fish and Wildlife Service to list the Kirtland's warbler as an endangered species in 1967.

*Endangered* means a species is in danger of extinction throughout all or a portion of its range, while the less dire *threatened* designation means a species is likely to become endangered within the foreseeable future.

Until 1995 Kirtland's warblers had only been known to nest in the northern part of Michigan's Lower Peninsula. Today, they also nest in the Upper Peninsula, and since 2007, have nested in Wisconsin and Canada. They migrate from their nesting grounds to the southeastern coast of the United States on their way to wintering grounds in the Bahamas.

Kirtland's warblers have bluish-gray backs with black streaks, yellow breasts, black side streaks and split white eye rings. They measure about six inches in length. Females are not as brightly colored as males.

Primarily insect eaters, Kirtland's warblers forage for insects and larvae near the ground and in lower parts of pines and oaks. They also eat blueberries.



Photo by USFWS; Joel Trick

*Forest fires, once thought to harm the environment, are crucial to the survival of the Kirtland's warbler. Without fire, jack pine cones do not completely release their seeds and the natural establishment of new jack pine stands is prevented.*

Kirtland's warblers nest only on the ground near the lower branches and in large stands of young jack pines that are 5 to 20 feet tall and 6 to 22 years old. The tree's age is crucial, although biologists are not sure why. It is possible that the birds need low branches near the ground to help conceal their nests. Before the trees are six years old, the lower branches are not large enough to hide the nest. After 15 years, these lower branches begin to die.

Concealed by branches, overhanging grass and low shrubs, the warbler's cup-shaped nest is made of grasses. While being fed by their mates, females incubate four to five eggs for about 14 days. After hatching, the chicks remain in the nest for another nine or ten days before *fledging*, or leaving the nest.

Once it was believed that forest fires harmed the environment. However, we now

know that fires play an important role in forest ecosystems. For example, without fire, jack pine cones do not completely release their seeds. Suppressing forest fires prevented the natural establishment of new jack pine stands. Since Kirtland's warblers will only nest in stands of young jack pines, the population dwindled dramatically before scientists realized that there is a role for fire in forest ecology — and in the Kirtland's warbler life history.

The second greatest threat to Kirtland's warbler survival is the brown-headed cowbird. Cowbirds lay eggs in other bird's nests, leaving the unsuspecting *hosts* to incubate and care for the young cowbirds. This is called nest parasitism. When a female cowbird lays its egg in a nest, it often removes one of the host's eggs. The cowbird egg hatches a day before the others, getting a head start on growth. The young



Photo by Ron Austing

*Kirtland's warbler populations have rebounded thanks to protection under the Endangered Species Act and conservation measures by the U.S. Fish and Wildlife Service, U.S. Forest Service and the Michigan Department of Natural Resources and Environment. Biologists counted 1,773 singing male Kirtland's warblers in 2010.*

cowbird is bigger and able to claim more food than other nestlings, and may crowd or push the other baby birds out of the nest.

Some species have developed ways to combat cowbird nest parasitism. They may abandon their nest and lay eggs elsewhere or build another nest on top of the cowbird egg. However, Kirtland's warblers have not developed such defenses. Because of cowbird nest parasitism and Kirtland's warblers' inability to protect their nest and young, less than a third of their nests produced young in 1971.

The U.S. Fish and Wildlife Service, in cooperation with the Michigan Department of Natural Resources, the U.S. Forest Service and the Michigan Audubon Society, initiated an aggressive cowbird removal program in 1972 that has continued to this day. As a result, Kirtland's warblers now have very good nesting success and enough young are being produced to increase the population.

Biologists, naturalists, and bird watchers began to recognize the dire plight of the Kirtland's warbler in the 1950s. To keep track of the dwindling numbers of Kirtland's warblers, birders counted the

number of singing males every 10 years starting in 1951. Females do not sing and therefore are almost impossible to count accurately, but studies indicate there is approximately one female for each male. In 1961, the total population of males and females was more than 1,000. By 1971 the population had plummeted to about 400 birds. At that time, biologists began counting singing male warblers every year.

In 1973, the U.S. Fish and Wildlife Service (Service) appointed the Kirtland's Warbler Recovery Team, the first endangered species recovery team established by the Service. This team included representatives from the Michigan Department of Natural Resources, the Service, U.S. Geological Survey, U.S. Forest Service and interested citizens. The team's job was to determine how to save the warbler from extinction. They identified and prioritized conservation actions.

Today, warbler conservation measures are working. About 190,000 acres of public lands have been set aside by the Michigan Department of Natural Resources, the U.S. Forest Service and the Service specifically for Kirtland's warbler management. From record lows of 167 in

1974 and 1987, the number of singing males increased to a record high of 1,828 in 2011.

The recovery team has recommended that 38,000 acres of warbler nesting habitat always be available—enough to reach the recovery goal. Since the trees continuously grow older and warblers cannot nest in forests older than about 22 years, land managers must create new habitat every year. About four thousand acres of forest are clearcut and 2-year-old jack pine seedlings planted each year. The cut trees are chopped and used for fuel or particle board—nothing is wasted. Over ninety-five percent of the warblers counted during recent censuses were on these managed land areas.

A portion of the Michigan Department of Natural Resources annual habitat management is funded through State Wildlife Grant money from the U.S. Fish and Wildlife Service. In recent years, the amount of these grants has decreased, along with other funding for similar work by the U.S. Forest Service and the State of Michigan.

Due to many dedicated people, the Kirtland's warbler has met the recovery population goal. However, as a conservation-reliant species, the continued success of Kirtland's warbler is dependent on annual habitat management and cowbird control. It is hoped that soon, provisions can be made to ensure that these management activities are continued into the future, allowing Kirtland's warblers to be removed from the list of threatened and endangered species. Once these commitments are in place, we can be assured that Kirtland's warbler will continue to search out young jack pine forests each spring for generations to come.

*U.S. Fish & Wildlife Service*  
<http://www.fws.gov/midwest/endangered>

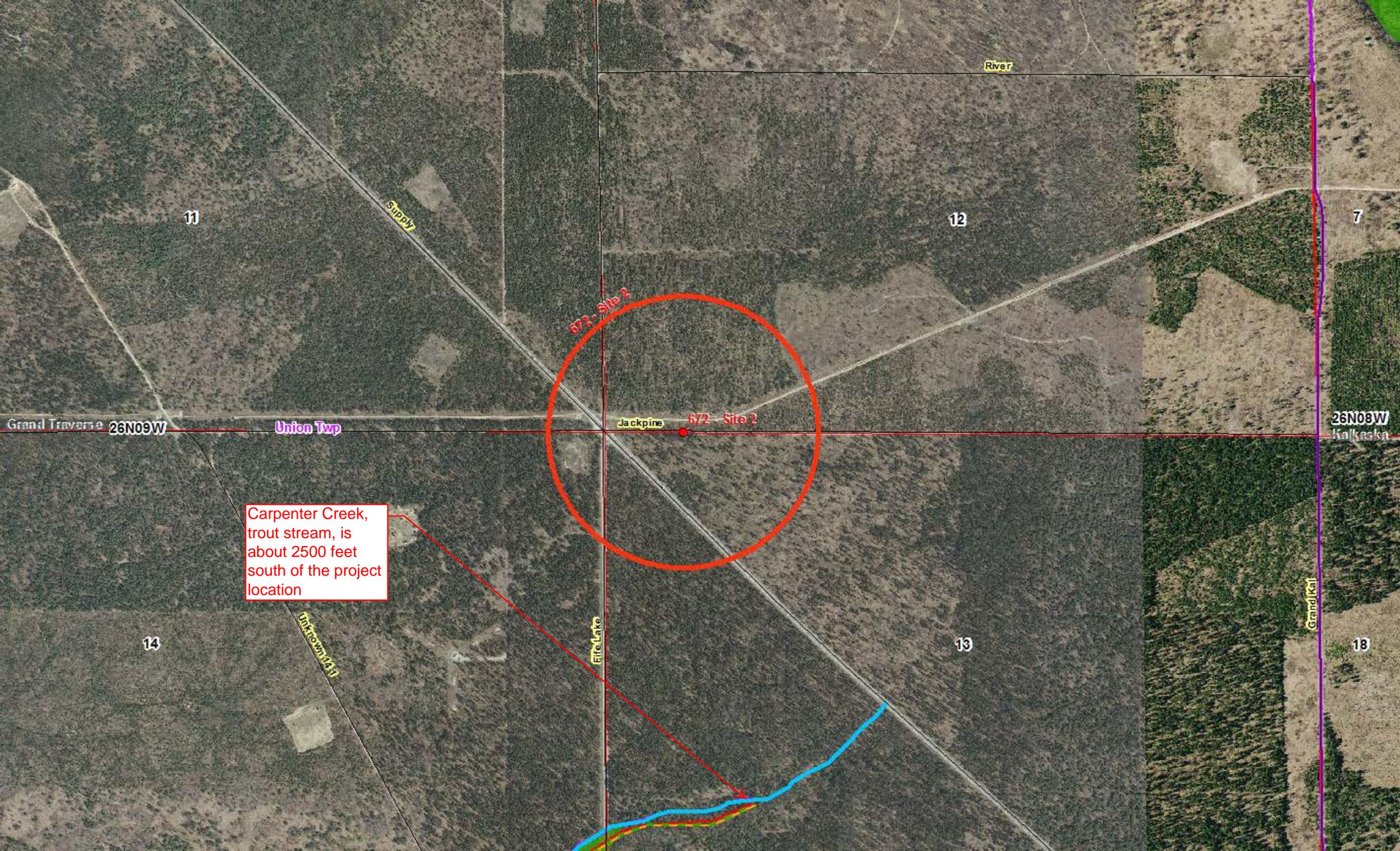
*Revised January 2012*



## APPENDIX C

### Map of Regulated Wetland Proximity to Site 1 and 2





River

11

Supply

12

7

672 - Site 2

Jackpine

672 - Site 2

26N08W  
Kalkaska

Grand Travers 26N09W

Union Twp

Carpenter Creek,  
trout stream, is  
about 2500 feet  
south of the project  
location

Grand/Kal

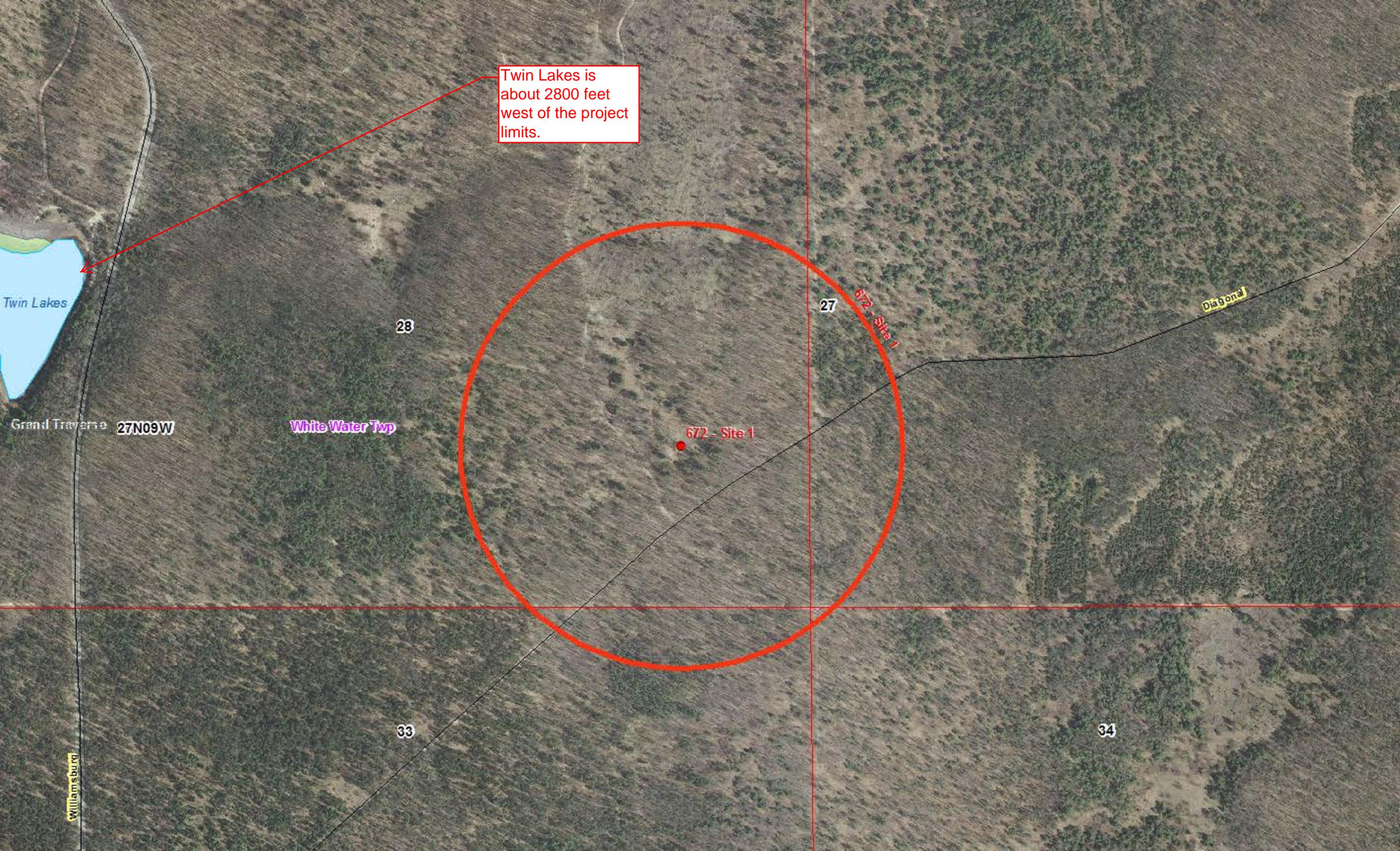
14

Unknown 141

Fire Lake

13

18



Twin Lakes is about 2800 feet west of the project limits.

Twin Lakes

28

27

Diagonal

672 - Site 1

Grand Traverses 27N09W

White Water Twp

672 - Site 1

33

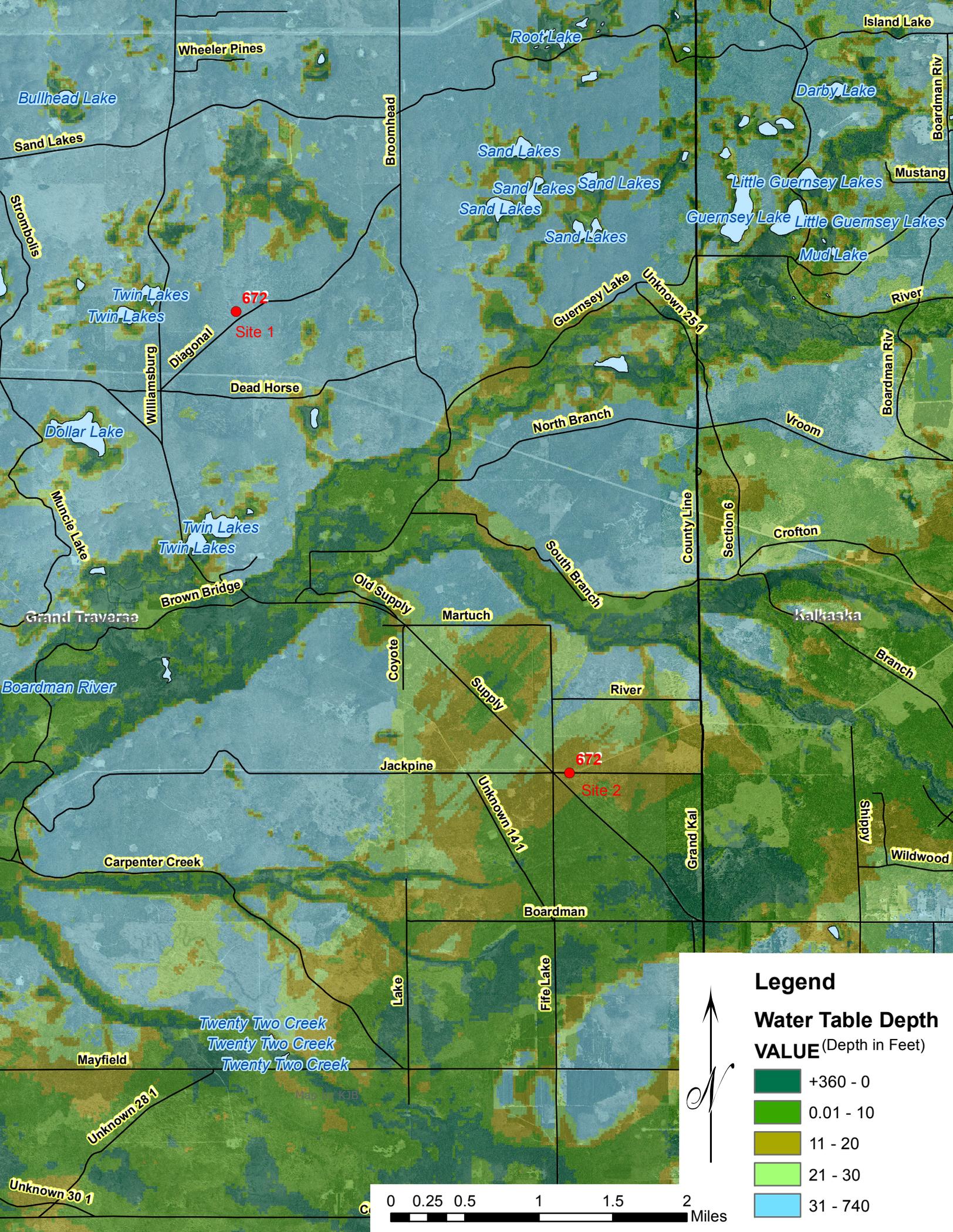
34

Williamsburg

## APPENDIX D

### Map of Groundwater Depth for Site 1 and 2



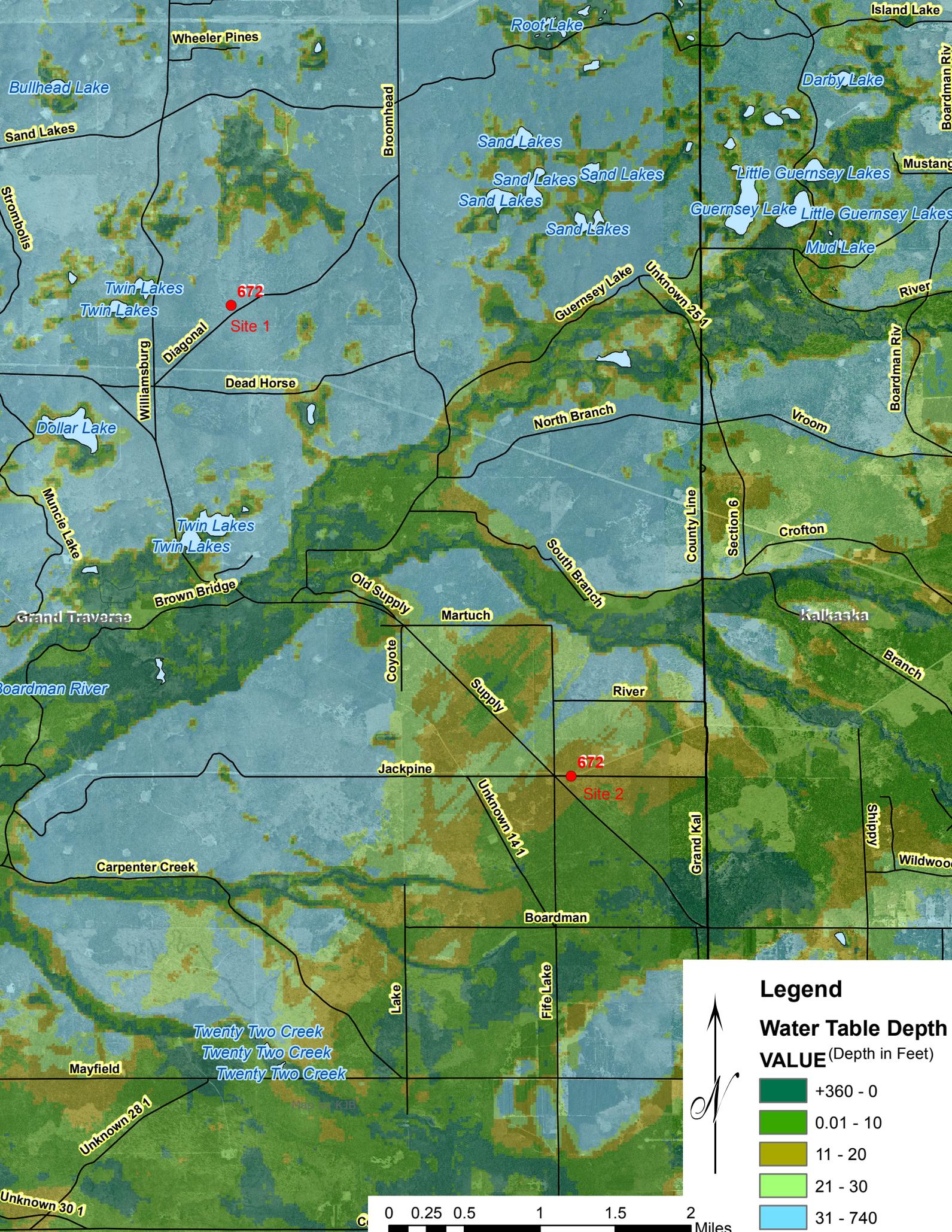


### Legend

#### Water Table Depth

VALUE (Depth in Feet)

Dark Green	+360 - 0
Green	0.01 - 10
Olive Green	11 - 20
Light Green	21 - 30
Light Blue	31 - 740





## APPENDIX E

### State Historic Preservation Office Letter of Concurrence



## Robertson, James (MDOT)

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**From:** Tchorzynski, Stacy (MSHDA)  
**Sent:** Wednesday, January 27, 2016 2:52 PM  
**To:** Robertson, James (MDOT)  
**Cc:** Anderson, Dean (MSHDA); Bergland, Sigrid (MDOT)  
**Subject:** RE: Inter-Agency EA Re: DNR Gun Ranges

We concur.

**Stacy Tchorzynski, Archaeologist**  
State Historic Preservation Office (MSHDA) & Michigan Historical Center (DNR)  
702 W. Kalamazoo, P.O. Box 30740 Lansing, MI 48909-8240  
517-373-6358 [tchorzynskis@michigan.gov](mailto:tchorzynskis@michigan.gov) [www.michigan.gov/archaeology](http://www.michigan.gov/archaeology)

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**From:** Robertson, James (MDOT)  
**Sent:** Wednesday, January 27, 2016 12:06 PM  
**To:** Tchorzynski, Stacy (MSHDA) <[TchorzynskiS@michigan.gov](mailto:TchorzynskiS@michigan.gov)>  
**Cc:** Anderson, Dean (MSHDA) <[AndersonD15@michigan.gov](mailto:AndersonD15@michigan.gov)>; Bergland, Sigrid (MDOT) <[BerglandS@michigan.gov](mailto:BerglandS@michigan.gov)>  
**Subject:** Inter-Agency EA Re: DNR Gun Ranges

Hi Stacy: Seems as though we're doing the environmental document (Environmental Assessment) for DNR. I've attached information and maps for possible archaeological impacts. Checked site files and plats. I see nothing of concern. Please concur or object as we will need a SHPO concurrence letter in the EA and I would like your input before formally requesting No historic properties (Sigrid say no above-ground concerns either). Thanks

Jim



James A. Robertson  
Staff Archaeologist  
Environmental Section  
Bureau of Highway Development  
Michigan Department of Transportation  
425 West Ottawa  
P.O. Box 30050  
Lansing, MI 48909  
Phone: 517-335-2637  
Fax: 517-335-5696  
E-Mail: [RobertsonJ3@Michigan.gov](mailto:RobertsonJ3@Michigan.gov)

"Take nothing on its looks; take everything on evidence. There's no better rule." Charles Dickens, "Great Expectations" (1860/1861)



## APPENDIX F

### Written Public Comments

## Defibaugh, Rita (DNR)

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**From:** Kristen Roell <kroell@jzeci.com>  
**Sent:** Thursday, March 17, 2016 4:10 PM  
**To:** Burford, Lori (DNR)  
**Subject:** Grand Traverse County Possible Shooting Range Locations

Hi Lori-

My name is Kristen Roell and I am writing to you in regards to the proposed Shooting Range locations in Grand Traverse County, in particular the locations in Whitewater and Union townships. My parents, grandparents and many friends reside on Broomhead Rd. I was born and raised there and have a deep connection to the area and all of its natural beauty.

Between the **Sand Lakes Quiet Area**, the **South Branch Nature Preserve**, the numerous private properties that have forever been preserved by the Grand Traverse Regional Land Conservancy via conservation easement, much has been done over the years by both the State as well as other organizations to ensure the natural resources, wildlife habitat and peacefulness of this area is preserved. It's a very unique area where people can come to escape into nature and enjoy some peace and quiet. I am deeply concerned that by relocating the shooting range to either of the proposed locations in Whitewater and Union townships, the noise pollution will have a very negative impact on this area. Having lived here for most of my life, I can tell you that sound echoes a long ways through the river valleys and the noise from the range at either location will travel a long ways.

The shooting range has been in Hoosier Valley for many years and although I can understand and sympathize with the complaints of the folks who reside nearby, they knew there was a shooting range nearby when they made the decision to move to that area. By relocating it, the burden is now transferred to those who live in this area, as well as the countless folks that come here to experience nature, particularly the Sand Lakes **Quiet Area** (which seems to me the last place you'd want to have a shooting range nearby?). Additionally, there will still be folks that continue to use the Hoosier Valley location to shoot, even after its relocated. Its State land and people can still legally shoot guns there. So by relocating it, you're essentially doubling the problem.

I must also make the point that the issue of trash/garbage that they have experienced at the Hoosier Valley location would inevitably become a problem to wherever the range is relocated. We work hard to keep this area clean by picking up trash on Broomhead road every spring and I would hate to see an increase in litter.

I realize this is not an easy position for the DNR to be in, but moving the range to either of the proposed locations in Whitewater or Union townships is not the best solution.

Thank you for the opportunity to comment on the issue and **thanks for all you do for our great State of Michigan!** I trust the Department will make the best decision to protect and preserve the natural resources this area has to offer.

Kristen Roell  
Project Scientist/GIS Specialist  
906-869-7390  
[kroell@jzeci.com](mailto:kroell@jzeci.com)

JZ Environmental Consultants, Inc.

## Defibaugh, Rita (DNR)

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**From:** Bruce Davignon <19bruce52@gmail.com>  
**Sent:** Wednesday, March 16, 2016 3:59 PM  
**To:** Burford, Lori (DNR)  
**Subject:** Grand Traverse County Shooting Range

My vote is for Site # 2

There is a paved road access.  
There is also room for expansion.

Site # 1

Has a very poorly maintained county gravel road which would get even worse.  
You are also taking very huntable land in the area and making huntable land even smaller for the constant increase of hunters in the area.

Site # 3

No real opinion.  
Seems kind of an odd place thou.

## Defibaugh, Rita (DNR)

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**From:** Suzanne E. Brownell <brownellse@frontier.com>  
**Sent:** Wednesday, March 16, 2016 9:08 PM  
**To:** Burford, Lori (DNR)  
**Subject:** Grand Traverse County Proposed Firing Ranges

Please be advised that I am in total opposition to the Grand Traverse County Proposed Firing Ranges Site 1 (in Whitewater Township) and Site 2 (in Union Township). It does not make sense to construct a firing range in and near the Sand Lakes Quiet Area as dedicated in 1973 by the DNR as a refuge from the noise of the world!

For many years I have owned a home approximately  $\frac{1}{2}$  -  $\frac{3}{4}$  mile from the Site 1 and Site 2 proposed firing range sites and the sound of a 0.40 caliber handgun, a 12 gauge shotgun or a 0.308 rifle from either of these proposed sites will be heard (sound ranges 76dBA – 86dBA) at existing residences as a nuisance. The sound will also detract from the peacefulness of the Boardman Valley, will disturb a great area to observe wildlife and no doubt our land values will also plummet.

The nearby VASA Pathway is used year around with special events as is the Sand Lakes Quiet Area that prohibits motorized vehicles or equipment from entering this area.

I request that an alternative location be chosen or continue to use the long established Hoosier Valley Road Site as a firing range.

Please do not hesitate to contact me by email or telephone at (517) 626-6938.

Respectfully,

Suzanne E. Brownell

## **Defibaugh, Rita (DNR)**

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**From:** Bak, Mark <bakma@tcaps.net>  
**Sent:** Friday, March 18, 2016 12:17 PM  
**To:** Burford, Lori (DNR)  
**Subject:** Whitewater PROPOSED Shooting Range

Lori and others,

Please take a few minutes to seriously reflect on how myself and my neighbors feel towards the range.

We moved to this area for the PEACE and QUIET. Thus the Sand Lakes QUIET area. Please do not destroy our home values by putting in the range.

**PLEASE!** – Think about how it would be if YOU moved out here with your life savings...

### **Facts to SERIOUSLY Consider...**

**This entire area out here is and has been, historically dedicated to “QUIET SPORTS” for YEARS and YEARS! WHY would you change that?**

**Please... actually go to the quiet area and take in all its peaceful beauty...Then think about how gunfire all day long would be in that area? Please go there and do this...REALLY ...DO THIS!**

The sound study did NOT include sound levels of LOUDER guns ie. 50 Cal, .460 mag, etc.

Hikers at risk. (Noise, Stray bullets and ricochets.)

Cross country Skiers (Noise, Stray bullets and ricochets.)

Horse riders at risk. (Noise, Stray bullets and ricochets.)

Iceman mountain bike race risk. (Noise, Stray bullets and ricochets.)

Shore to Shore trail users at risk. (Noise, Stray bullets and ricochets.)

Bird Watchers. (Noise, Stray bullets and ricochets.)

**Documented Kirtland Warbler nesting area.**

Campers. (Noise, Stray bullets and ricochets.)

ATV riders. (Noise, Stray bullets and ricochets.)

Ground water at risk for LEAD, ...sandy soil and high water table. (Such as in Elk Rapids, Sportsman’s Club Gun Range.)  
All residents get ALL of their water from the ground.

Property values DECREASED due to Gun Range.

Noise pollution. (Especially in the summertime when outside for what should be a quiet evening on the deck.)

More tax money will need to be used to plow and maintain the SEASONAL road to the “RANGE”.

In addition, NO rules of the range were ever discussed? How come? Why didn't the rules of the other successful ranges in the State get discussed at the meeting?

**Bottom Line: PLEASE DO NOT PLACE THE RANGE IN WHITEWATER TOWNSHIP.**

Thank you for your time.

Mark Bak  
4211 Broomhead Road

## Defibaugh, Rita (DNR)

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**From:** Noren, Carrie <norenc@tcaps.net>  
**Sent:** Friday, March 18, 2016 11:38 AM  
**To:** Burford, Lori (DNR)  
**Subject:** gun range

Lori,  
I am a resident of Grand Traverse County living in White Water township and very concerned with the purposed gun range in my township.  
As a responsible gun owner I enjoy the right to carry and target practice. I welcome the idea of a closely monitored strategically placed gun range. My concern is that the Sand Lakes Quiet area is approximately one mile of the purposed gun range. This multiuse acreage is a destination for many hikers, campers, bird watchers and mountain bikers. I am concerned about the potential noise nuisance and the disruption of the recreational use to the families that have enjoyed this property for many years. The Mill Creek elementary school is also in the nearby vicinity, the noise could cause some undue anxiety for the children during the day. The gun range will also pose the potential for lead contamination from the fired rounds into the ground and perhaps the watershed in wetlands in the future. Also the cleanup of the lead contaminates would be at the expense of the tax payers.  
I am asking that you take a good look at the area of the purposed gun range, think long term. Please consider what makes White Water Township what it is today and why the people who live there have chosen this community to live and raise a family.  
Thanks for your time,  
Betty Send

## Defibaugh, Rita (DNR)

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**From:** David Knop <drknop@sbcglobal.net>  
**Sent:** Wednesday, April 06, 2016 4:15 PM  
**To:** Burford, Lori (DNR)  
**Subject:** gun range

Dear Ms. Burford:

I live on Island View Drive and the Island View area is within your 2 mile sound test range is residential, with a school, memorial forests, a quiet area, hiking trails, riding trails, and Kirtland's Warbler, and eagles nest on the island of Island Lake this is definitely not an area to install, construct and operate a gun range, to relocate the public nuisance that exists in Hoosier Valley.

If you feel that you must, in spite of overwhelming public comment against it, bring a gun range north, make it indoor, manned, and locate it by M113 and US 131

David Knop  
Mobile Media & TC Loyalty Rewards  
161 E. Front St. # 209  
Traverse City, Mi 49684

[www.rewardsapp.net](http://www.rewardsapp.net)  
[www.mobilefix.info](http://www.mobilefix.info)  
[www.tcloyaltyrewards.com](http://www.tcloyaltyrewards.com)

231-883-2522

## Defibaugh, Rita (DNR)

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**From:** Mike Schaeffer <mk.schaeffer@yahoo.com>  
**Sent:** Thursday, March 17, 2016 2:25 PM  
**To:** Burford, Lori (DNR)  
**Subject:** DNR Shooting Range Locations  
**Attachments:** Proposed DNR Shooting Range Distances to Trails.xls; Proposed DNR Shooting Range Locations with respect to NCT.doc

Dear Ms. Burford:

I appreciate the opportunity to comment on the proposed DNR shooting range sites that are under consideration.

I am a member of the Grand Traverse Hiking Club, a chapter of the North Country Trail Association (NCTA). The NCTA oversees the construction and maintenance of the North Country Trail (NCT). The NCT, the longest of the eleven National Scenic Trails, runs for more than 4000 miles from North Dakota to New York. I am also a long time outdoor recreationalists who frequently uses the NCT, Vasa Ski Trail, Vasa Singletrack, Muncie Lakes Trail, and Sand Lakes Trail. When I heard that one of the possible shooting range sites was located on the large chunk of state land near many of my favorite trails, I decided to take a closer look at the sites. I wanted to see how the site might impact my outdoor interests. I located Site 1 from the Acoustics Report prepared for the three potential sites. This site is located in the middle of many of the trails enjoyed by myself and many other outdoor enthusiasts. I checked the distances from the shooting range sites to the nearest point on each of the nearby trails. Attached are two files that summarize what I found, including:

“Proposed DNR Shooting Range Distances to Trails,” showing the distance from each site to the nearest point on each of the trails  
“Proposed DNR Shooting Range Locations with respect to NCT,” showing each site superimposed on the Interactive Map from the NCT web site. Please note that the scales for each site are different due to the need to zoom in to the point where the site and the NCT are visible in the same view.

I have determined that Site 1 is located within 0.7 miles of the NCT and within two miles of points on all the other trails. Site 2 is located more than two miles from all of the trails.

The Acoustics Report indicates that Site 1 would present minimal increases in noise level in the surrounding area. This is likely the case since on parts of most of the trails we now experience background noise from road traffic and snowmobiles. The most notable aspects of noise from the shooting range would be from the continuous noise that would be experienced during times of peak range operations. Due to the close proximity of Site 1 to several trails, I would urge that the DNR select Site 2. We believe that Site 2 would represent the lowest impact to forest recreational users like myself. If Site 1 were to be selected over our objections, we would hope that a number of the mitigating measures mentioned in the report would be implemented.

Thank you for the opportunity to speak out on this matter. Please take our concerns into consideration when making the final site selection. Sincerely,  
Mike Schaeffer

## Defibaugh, Rita (DNR)

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**From:** Rashid Kysia <rkysia@gmail.com>  
**Sent:** Wednesday, April 06, 2016 11:49 AM  
**To:** Burford, Lori (DNR)  
**Subject:** proposed gun range

I'd like to express my concern for a proposed gun range site in Whitewater township. My residence is within 2 miles of this proposed site. There is a school within this radius as well as quiet areas, nature hiking trails and important local habit (bald eagle nest on our island on Island Lake). For me, this noise nuisance would be ruin the very reason I keep a residence in Grand Traverse. I believe the vast majority of residences around the lake share this concern, as do parents of the children at the Woodland School.

Thank you,

Rashid

--

Rashid F. Kysia, M.D., MPH  
Department of Emergency Medicine  
Cook County Hospital  
1900 W. Polk, 10th Floor  
Chicago, IL 60612  
Pager: 312-740-4928  
Mobile: 773-633-8942  
Email: rkysia@cookcountyhhs.org

## Defibaugh, Rita (DNR)

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**From:** Bill Parlin <bill@parlin.com>  
**Sent:** Friday, March 18, 2016 12:43 PM  
**To:** Burford, Lori (DNR)  
**Subject:** Proposed shooting ranges

Good afternoon Lori,

I'm a resident of Whitewater Township in Grand Traverse County. My wife and I are active hunters and shooters, so this subject is of special interest to us. Unfortunately, I wasn't aware that there was a public meeting this week, so we didn't attend.

I see that public comments about the three proposed shooting ranges should be directed to you, and that today is the deadline to submit, so that's what I would like to do here....

In general, we support the idea of creating a public range on one of these three sites. The actual site isn't a big concern to us since they're all relatively close to our home and travel wouldn't be an issue.

I skimmed over the acoustic analysis report and am satisfied that the DNR is trying to make a good decision. So, I'll refrain from making any comments about that- the technical data speaks for itself.

What I would like to comment on, is that the range facility "layout" sketches, in the acoustic report, only show 25/50/100 yard lanes.

What I feel is missing, and is being overlooked, is the need for a short (10 yds max) and variable-distance opportunity for defensive pistol shooters.

As you're probably aware, defensive pistol (aka CPL) license holders are growing in numbers, very rapidly. I'm sure it would be easy for you to get the exact number of permit holders, from the County Clerk of each county. There are a large number in GT County right now, and many new licenses are issued monthly.

The required (state mandated) training distance, which I believe is tied to an NRA protocol, is NO MORE THAN 7 yards.

With the proposed range layout, the range would not be useful to defensive pistol owners, for their practice. 25 yards is far beyond the range of what one would use to defend themselves.

So, if there is no accommodation for defense pistol practice, this segment of shooters will not benefit at all from the new range. They will be left shooting informally, on state land and in back yards, as they do now.

We would not support the construction of a new range unless it accommodates defensive pistol practice.

Thank you for considering our comments and perspective. If you would like to discuss this further, feel free to call or email me.

Thanks again,

Bill Parlin  
5864 Mabel Rd.  
Williamsburg, MI 49690

TEL (231) 267-5390  
FAX (734) 468-0141  
CEL (231) 409-4353

## **Burford, Lori (DNR)**

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**From:** Kathy J. Stratton <Kathy@integra-source.com>  
**Sent:** Saturday, March 12, 2016 11:42 AM  
**To:** Burford, Lori (DNR)  
**Subject:** Proposed Shooting Range

As a resident of Whitewater Township I would like to submit my comments to the proposed shooting range with Whitewater Township being one of the sites under consideration. I also want to inform you that as a gun owner with a CPL I do not oppose a shooting range in general but I do oppose it for any site other than the current site in Hoosier Valley.

My opposition is based on the fact that the shooting range has been there for quite some time. Residents purchased property and homes around the Hoosier Valley site with the full knowledge that a shooting range was there. I just purchased property in Whitewater Township and built a new home near the Sand Lakes Quiet Area specifically because it was near a quiet area. Had I known a shooting range would be in the near vicinity I would have rethought the purchase.

My family has enjoyed the peace and serenity of the Sand Lakes Quiet area since we moved here to Traverse City in 1988. We have cross country skied there. A shooting range a mile or so away will destroy that quiet and peaceful atmosphere. There are so few places left in the area that afford the safety and quiet found in this recreational location. This area is also the habitat of a large deer population which will be disturbed by the addition of the shooting range.

Due to the opposition of each community proposed for the shooting range I question whether we need a shooting range maintained by the DNR and paid for with taxpayer dollars. If a shooting range is a necessity for the State to have and maintain then keep it in its current location and make the needed changes to address the residents' concerns who purchased near the existing range.

As I stated in the beginning of this email, I do not oppose gun ranges on the basis of the discharge of firearms, but rather on the impact on this recreational area that has been maintained for a quiet area in which to enjoy the wildlife and flora of northern Michigan.

Thank you for your consideration of these comments.

Kathy Stratton  
231-642-1604

[kathy@integra-source.com](mailto:kathy@integra-source.com)

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PUBLIC MEETING COMMENT

RE:

(Please Print This Area)

Name <i>JOHN LEAHY</i>	Representing (e.g., organization) <i>G.T. county resident</i>
Address <i>2185 FIELDSTRA DR</i>	City, State, ZIP <i>T.C. MI 4968</i>

Enter Comments

*Your diligent efforts are appreciated and I trust you will make the best possible choice for the range location.*

*John Leahy*  
Signature

*3/10/18*  
Date



### PUBLIC MEETING COMMENT

RE:

(Please Print This Area)

Name <i>GARY WICK</i>	Representing (e.g., organization)
Address <i>853 Rome Lk Rd</i>	City, State, ZIP <i>TU MI 48696</i>

Enter Comments

*A safe range is welcome.*

*I prefer the union prop. location!*

Signature

Date



PUBLIC MEETING COMMENT

RE:

(Please Print This Area)

Name <i>Robert Daniels</i>	Representing (e.g., organization)
Address <i>Fife Lake</i>	City, State, ZIP

Enter Comments

*I attended a Meeting at Fife Lake last fall and a comment was made about conveniences.*

*I wondered since, if the area around the junction of Supply Road and Fife Lake Road had been suggested or even considered? Seems to me the area to the north east would ~~be~~ be very convenient to many in Kalbasko and everyone in E.T. better ~~had~~ roads all around year around*

Signature

Date



PUBLIC MEETING COMMENT

RE:

7Hdsk@qmail.com

(Please Print This Area)

Name Terry Street	Representing (e.g., organization) SELF
Address 8100 Dodge	City, State, ZIP Kingsley, MI. 49649

Enter Comments

1. AGAIN I URGE YOU TO CONTINUE WITH AN ENVIRONMENT IMPACT STUDY THAT (TOTALLY INCLUDES A WILDLIFE BIOLOGIST/SPECIALIST THAT STUDIES THE IMPACT OF LOUD NOISES ON ANIMAL) BEHAVIOR -

2. WE WOULD LIKE TO KNOW MORE ON WHY THESE THREE SITES - ARE THERE STILL OTHER MORE REMOTE SITES WITH LESS HUMAN ACTIVITY.

3. I STILL FEEL YOU NEED TO LOOK AT USING WHAT YOU HAVE IN PLACE (CROSER VALLEY) AND GREATLY IMPROVE ON THAT ALREADY ESTABLISHED AREA!

4. SITE 3 - TOO CLOSE TO 131 & BELL ROAD

Thank you for your time and for all you do!

Terry Street  
Signature

3/10/16  
Date



**PUBLIC MEETING COMMENT**

RE: Fife Lake township Shooting Range

(Please Print This Area)

Name Stephen Batzer	Representing (e.g., organization) —
Address 8383 M 113 E	City, State, ZIP Fife Lake, MI 49633

Enter Comments

I oppose the creation of a new shooting range in Fife Lake Township. This community is already well served by the Kingsley and Cadillac Sportsman's clubs. Thus, there is no regional need for this, whether the Hoosier Valley range is relocated or not.

The creation of a new range in Fife Lake would be expensive and unnecessary. I suggest that the existing range be optimized or closed without opening a new range where it is not wanted by the neighbors. Perhaps the DNR should consider helping the Kingsley and Walton Junction Sportsman's Club improve and then call it a day.

It is a surprise to me that the DNR Staff present to ask the audience if they want a new shooting range.

Signature

Date



PUBLIC MEETING COMMENT

RE:

(Please Print This Area)

Name JUDITH DAUFORD	Representing (e.g., organization)
Address 1139 N. West Silver Lake Rd. Traverse City, MI 49685	City, State, ZIP Whitewater Township Oshtemo

Enter Comments

- ① Restructuring and/or reconfiguring the nature of each of these communities  
*Any of you live in this area??*
- ② Anyone who lives in any of these areas is familiar with the gun shot sounds -  
*single - one at a time or repetitive - repeating firing*
- ③ Weather is uncontrollable  
*like mankind*
- ④ ~~WT~~ Not control behavioral Homic Valley - how do so here?
- ⑤ Great info in the acoustic study -  
*Incomplete - not enough information - maybe not matter - an irritation is an irritation*
- ⑥ WT - Sand Lakes Quiet Area -  
*is Quiet*
- ⑦ Costs - You do not have a completed plan that you've shared w/ the public.

176  
 EA  
 Lead  
 Resolution  
 Battle  
 Clerk

Signature Judith B Dauford Date 5-10-16



PUBLIC MEETING COMMENT

RE:

gun range

(Please Print This Area)

Name Karen L. Ferguson	Representing (e.g., organization) Ferguson Family
Address 686 Island View Dr.	City, State, ZIP Traverse City MI 49696

Enter Comments

I am opposed to having the gun range located in White Water Township. We are within 2 miles of the range site. The nuisance of the gun range should be halted - shut down, not moved to another location. In 1990 we had just purchased our property and had to fight the proposed gun range.

As pointed out the test was with one gun. Not a reasonable test. The abrupt characteristic of a gun shot is much more of a nuisance than steady sound. I receive the NRC minutes and have read over the years all the complaints regarding the Rose Lake Gun Range.

Putting a nuisance use near a school (Woodland) residency including Island Lake and The Sand Lakes quiet area is very unreasonable. My family enjoys Muncie Lake + the trails. I am opposed to having our use of these natural areas adversely impacted by the significant noise from a gun range.

Signature

Date

PRO700 (Rev. 03/20/2015)

over



# PUBLIC MEETING COMMENT

RE:

(Please Print This Area)

Name Craig Freiberg	Representing (e.g., organization) SELF.
Address 1014 Hill St TL	City, State, ZIP 49684

Enter Comments

THE REASON FOR MOVING PRESENT RANGES? WHY PUT IT NEXT TO QUIET AREA?

THE UNION TOWNSHIP PROPOSAL TO ME IS THE BEST - LOW POPULATION

CALL ~~883-3719~~  
883-3719

Signature

Date

**Burford, Lori (DNR)**

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**From:** jerry freels <jfreels@hotmail.com>  
**Sent:** Wednesday, March 16, 2016 8:46 AM  
**To:** Burford, Lori (DNR)  
**Subject:** Shooting range proposals for Grand Traverse County

I am writing to say that I am in favor of the proposed range location in Union Township. This location appears to be the most isolated of the three proposals and would offer the least intrusion into the lives of neighboring residents and users of state forest resources.

Jerry Freels  
Grand Traverse Hiking Club/North Country Trail Association

Sent from my iPad

## Burford, Lori (DNR)

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**From:** Thompson, Steven <thompsonst@stifel.com>  
**Sent:** Friday, March 11, 2016 4:06 PM  
**To:** Burford, Lori (DNR)  
**Subject:** Shooting Range

Hello Lori,

I am writing regarding the DNR shooting range proposal for White Water Township.

Per your previous email I have done extensive review of the three locations : Whitewater, Union, and Fife Lake townships. From a section map I have from BSA Troop campouts I have identified the sections you indicated.

As a Boy Scout Troop Leader I have camped extensively with our troop in the Whitewater Township area that includes both Diagonal and Dead Horse roads - the exact area that is being evaluated as a possible gun range location. We frequent this area for campouts, hikes, cross country skiing, wilderness survival, fishing, etc.... Additionally this is the section that includes the state Horse trail. I see a large population of "quit area" folks in this section and would agree with all of them that this would be a terrible location for a DNR Gun Range. This section is a nice "quiet" area and I would vote to keep it that way.

For the location of the range, I think the Fife Lake location makes the most sense. It can serve a greater number of people. In other words if the State is going to spend money on this – which I question – then put in an area that serves many cities. I think Fife Lake Township is that place.

Sincerely,

*Steven M. Thompson, CFP®*

Senior Vice President / Investments  
(248) 765-2398  
(888)-280-3560

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## Burford, Lori (DNR)

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**From:** Ron Popp <supervisor@whitewatertownship.org>  
**Sent:** Wednesday, March 16, 2016 12:11 PM  
**To:** Burford, Lori (DNR); Lemmien, David (DNR)  
**Subject:** Whitewater Township

Good Morning Friends.

The last couple of days my office has seen a steady stream of comments on the proposed shooting range. MOST are urging additional time be taken so a suitable site (I assume this means none have been proposed) can be located for this recreation opportunity. All have expressed a compatibility concern with existing recreational uses (Sand Lakes Quiet Area) and the construction of a shooting range in Whitewater Township. Most express concern over supervision and long term maintenance of the proposal.

Some are encouraging me to participate in a local radio talk show program to provide factual information to the public about the range and the proposed Whitewater Site.

Two folks felt the site was too small. Range was too short and other shooting activities (sporting clays) were not considered.

I look forward to answering any of your questions. My personal cell number is 231-409-5059.

Ron Popp  
Whitewater Township Supervisor  
5777 Vinton Road, P.O. Box 159  
Williamsburg, Michigan 49690  
231.267.5141 X 23  
[supervisor@whitewatertownship.org](mailto:supervisor@whitewatertownship.org)

**Defibaugh, Rita (DNR)**

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**From:** Mary Jankowski <maryjankowski@gmail.com>  
**Sent:** Wednesday, April 06, 2016 10:56 AM  
**To:** Burford, Lori (DNR)  
**Subject:** Shooting range in Whitewater Twp.??

Hello Lori,

I am emailing regarding the proposed shooting range clearly with in 2 miles as the crow flies, at Williamsburg and Diagonal Rds in Whitewater Twp. There are 80 homes on Island Lake where I live. One resident did a test of just two smaller guns from that location and we were able to hear them. There is Woodland School with grades K--8th even between the site and our homes. Those children would have to listen to gunshots from their classrooms. I do not want our children to have to endure that. It would be so disrupting.

Most of us moved out her to ensure quiet in our lives. Please do not seriously consider this site for an active gun range. I know we would be devastated.

Sincerely,  
Mary and Dave Jankowski  
714 Island View Dr

## Defibaugh, Rita (DNR)

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**From:** Andy Sill <andy.sill@nmrec.com>  
**Sent:** Wednesday, April 06, 2016 10:23 AM  
**To:** Burford, Lori (DNR)  
**Subject:** TC shooting range

Good morning Lori.

I am writing to you regarding the shooting range, as a parent of three children attending Woodland public charter school.

The Whitewater location is obviously located very near the school and the proximity of the Whitewater location is very troubling to me. Not only because of the noise, but a destination that attracts more guns and weapons to the area is unsettling.

Please choose one of the other options that are not within a two mile radius of a public school with over 200 students!  
Thank you!

Andy.

=====  
**Andrew E. Sill, MAI**

NMREC

231-995-8830

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Traverse City, Michigan 49684

231-941-1001 | [www.nmrec.com](http://www.nmrec.com)

## Defibaugh, Rita (DNR)

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**From:** Suzanne Conant <scdesign@charter.net>  
**Sent:** Friday, March 18, 2016 6:19 PM  
**To:** Burford, Lori (DNR)  
**Subject:** Whitewater Township Shooting range

Dear Ms. Burford

I am writing to state that I strongly oppose putting a shooting range in Whitewater Township. I believe it is too close to the Sand Lakes Quite Area. My friends, family and I hike and enjoy the area year round. I'm certain the noise from the range will impact the wildlife in the area. How can we enjoy a "quite" area if it is filled with the sound of gunfire? Please don't put the range in Whitewater Township!

Sincerely  
Suzanne Conant

Sent from my iPhone