



**Application for Ohio EPA Individual  
Section 401 Water Quality Certification  
U.S. Army Corps of Engineers Individual  
Section 404 Permit**

MRF and MPMG Ranges

Camp Ravenna Joint Military Training Center

Paris and Windham Townships, Portage County, Ohio

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## Project Overview

Camp Ravenna Joint Military Training Center (Camp Ravenna) has been an Ohio Army National Guard (OHARNG) military training site since 1999 when a large portion of the former Ravenna Army Ammunition Plant was transferred to National Guard Bureau (NGB) and licensed to the OHARNG to manage and use for military training. Camp Ravenna consists of approximately 21,683 acres of federal property. In relation to most other military training sites, Camp Ravenna is brand new, and over the past 14 years OHARNG has been planning, programming, and implementing the development of the property as well as hosting military training activities within the capability of existing infrastructure, training venues, and facilities. One of the fundamental requirements needed to make Camp Ravenna a viable training site and enable the OHARNG to meet doctrinal training requirements is the development of military training ranges.

The range needs for Camp Ravenna are identified in the *Training Year 2008 Range Development Plan (RDP)* and subsequent annual reviews and updates. The entire range development complex is within an area of approximately 4,000 acres located in the center of Camp Ravenna (Appendix A). This 4,000-acre area was selected for range development because it contained a large disturbed area previously used as a munitions burning site, and its central location minimizes off-site noise and allows for efficient layout of the ranges with minimal impacts on other training venues and facilities.

The projects under consideration for a wetland fill permit are a Modified Record Fire (MRF) Range and a Multipurpose Machinegun (MPMG) Range. These are 2 of 13 ranges identified in the RDP. These ranges were sited within this 4,000-acre area based on three main criteria including: (1) ensuring firing points are outside of the Surface Danger Zones (SDZs) from all other ranges (allows simultaneous use of several ranges); (2) minimizing impacts to wetlands, environmentally sensitive areas, and cultural resources; and (3) avoiding impacts (SDZ overlap) to other Camp Ravenna facilities and off-site properties.

These two projects will help to upgrade current firing range capability within the property limits of Camp Ravenna. The MRF Range project area is located in Windham Township, south of Smalley Road and east of the former Group 1 munitions storage area; the second project will expand the current Mark 19 (MK-19) Range, which is located northeast of the intersection of Newton Falls Road (the original Newton Falls Road within Camp Ravenna and not the current Newton Falls Road outside of Camp Ravenna) and Greenleaf Road in Paris and Windham Townships, Portage County, Ohio. Both projects are located within one mile of each other within the property limits of Camp Ravenna as shown on the map included in Appendix B.

The MRF Range has a 102.5-acre study area where a 40-acre range footprint could be sited. Site selections were influenced mostly by SDZs and environmental resources. Siting of this range footprint took into account avoidance of a large Category 3 wetland present within the study area. Construction of the MRF Range will include clearing and grading of 39.32 acres of land to construct thirty-two 20-meter-wide by 300-meter-long firing lanes, associated parking, and a range operation and control area (ROCA). Electronically controlled target lifters will be installed at various distances from the firing points in each lane. These target lifters will be located behind earthen berms to protect them from bullets. The target lifters will be hard-wired to electric service via buried electric and communication lines. The targets will be controlled by computer from the range tower and will pop-up for the soldiers to engage during range fire. Vegetation will be maintained through mowing to allow for unobstructed target views. A 10-foot by 30-foot earthen berm will be constructed at the edge of the range with material excavated from the earthwork completed on the site. Infrastructure associated with the range includes range operation facilities, parking, and access roads. Based on the minimal degradation alternative, approximately 2.83 acres of wetlands will be impacted through filling, and 235 linear feet of stream will be impacted by grading or culverts in order to construct the range and associated infrastructure.

The MPMG Range construction requires expanding an existing four-lane MK-19 Range into a full MPMG Range. The MK-19 range was originally constructed in 2005/2006 on a former munitions burning area. An MK-19 Range is a component of an MPMG Range specific for firing a 40mm machinegun. The MPMG Range project will add additional targets and will enable soldiers to qualify during training using several different weapons and machine guns that fire ball ammunition. The proposed MPMG Range 196-acre project area was chosen based on SDZs, current firing lane positioning, and concern for environmental resources. Within this project area, lanes were designed smaller to avoid impacting the Sand Creek floodplain and Category 3 wetlands. Construction of the MPMG Range will include reconfiguring target locations on 180 acres of existing open MK-19 Range land and clearing of an additional 31.8 acres of land to construct 9 firing lanes (seven 800-meter-wide and two 1,500-meter-wide). Much of the area is already maintained through mowing of vegetation and this will continue with the MPMG Range. Infrastructure associated with the range includes expanding current range operation facilities, parking, access roads, towers, firing points, and bleachers. Target lifters will be constructed similar to what is previously described and will be connected to the range tower computers via buried electric and communication cables installed within access trails throughout the range. Based on the minimal degradation alternative, approximately 4.93 acres of wetlands will be impacted through filling or grading, and 261 linear feet of stream will be placed in culverts to construct the range and associated infrastructure.

The MRF Range project was initially planned to be a partnership between the OHARNG and U.S. Army Reserves. The OHARNG was to provide the training site for development with the U.S. Army Reserves providing the funding for construction through a fiscal year 2014 (FY14) U.S. Army Reserve military construction (MILCON) project. The FY14 MILCON funding was cancelled and the project is now entirely a FY16 OHARNG MILCON project with no US Army Reserve involvement. The MPMG Range is an FY15 OHARNG MILCON project.

### *Purpose and Need*

It has been determined by the U.S. Army Reserve and Army National Guard that there is very limited small arms capability in the eastern Ohio and western Pennsylvania regions. This proposed range development is necessary to ensure that OHARNG provides a complete training facility for its units to ensure attainment and maintenance of a full readiness posture and to meet mission training objectives with sufficient land area as defined in Army TC 25-1. With the limited training facilities presently available, local units are forced to travel greater than 25% of available Inactive Duty Training weekend time to conduct much of the required training. This travel time frequently violates Department of Defense Instruction (DODI) 1215.18, Reserve Component Member and Participation, which establishes a reasonable travel distance as 100 miles or 3 hours for the unit. The closest sites currently for local forces include Camp Atterbury, Indiana; Fort Knox, Kentucky; or the National Guard Training Center in Fort Indiantown Gap, Pennsylvania. These sites are all at greater distances than the DODI allowance.

Camp Ravenna is the only military facility within the area large enough to contain the SDZs of the needed ranges within the property boundaries. Constructing a range complex on Camp Ravenna meets the need for ranges within this geographic area without the federal government having to purchase additional land. Camp Ravenna is located within a reasonable driving distance and is capable of providing varied ranges and enhanced training capability for military and civilian law enforcement personnel.

## Site Background

The MRF and MPMG Ranges are part of the Camp Ravenna Range Development Plan. National Environmental Policy Act (NEPA) analysis was conducted on the RDP and is documented in the *April 2009 Supplemental Environmental Assessment for Proposed Range Development at the Ravenna Training and Logistics Site*. A Finding of No Significant Impact (FNSI) was issued for this project in 2009. The FNSI requires mitigation measures to obtain wetland fill permits and requires compensatory wetland mitigation for unavoidable wetland impacts in accordance with the Clean Water Act and State of Ohio regulations. A copy of the FNSI is located in Appendix C.

A wetlands delineation was completed in June 2010 for the MRF Range project area and in September 2012 for the MPMG Range project area. Appendix D lists all wetlands and streams identified within these two project areas. Site visits with U.S. Army Corps of Engineers (USACE) were held on September 1, 2010, October 22, 2010, March 18–19, 2013, and April 18, 2013, to determine the jurisdictional status of the wetlands and verify the wetlands boundaries. Ms. Nicole Marisavljevic from USACE and Ed Wilk from Ohio Environmental Protection Agency (Ohio EPA) were present at the site visits. A Jurisdictional Determination (JD) confirming the MRF Range wetland boundaries and the MPMG Range wetland boundaries was issued on March 3, 2011, and July 26, 2013, (Appendix E) respectively.

Ohio Rapid Assessment for Wetlands (ORAM) forms for each area were completed and verified by Ohio EPA. Datasheets for the impacted wetlands are located in Appendix F. Headwater Habitat Evaluation Index (HHEI) and Qualitative Habitat Evaluation Index (QHEI) forms were also completed for the streams on both sites. Datasheets for the impacted streams are provided in Appendix G. Both ORAM and HHEI/QHEI scores have been reviewed and confirmed by Ohio EPA. Additional coordination with state and federal agencies, such as United States Fish and Wildlife Service (USFWS), Ohio Department of Natural Resources (ODNR), and Ohio Historic Preservation Office (OHPO), was completed as part of the NEPA process, and that correspondence is included in Appendix H.

## Site Plan Development

The OHARNG seeks to obtain an *Individual Section 401 Water Quality Certification* from Ohio EPA to impact waters of the state associated with the proposed site developments. As required by Ohio EPA, a preferred design, minimal degradation alternative, and a non-degradation alternative plan has been prepared for both sites; these site plans are provided in Appendices I, J, and K, respectively.

Camp Ravenna is the only military property in the State of Ohio that has the capability to support these ranges. To meet the needs of the soldiers in this geographic area, constructing a range complex on Camp Ravenna fits the purpose and need as it is located within a reasonable driving distance and provides varied ranges and enhanced training capability.

Through a large-scale planning process that includes NEPA analysis, the final RDP for Camp Ravenna meets the needs of the soldiers and OHARNG while minimizing tree clearing, avoiding high-quality wetlands, avoiding mature forest areas, utilizing existing contaminated/disturbed land as much as possible, and minimizing new ground disturbance by co-locating the planned ranges with overlapping SDZs. Co-locating the ranges within close proximity of each other helps minimize new disturbance and environmental impacts and saves on construction and operation costs by allowing some of the range support facilities to be shared. Each range has a large SDZ surrounding it. The SDZ includes the direct distance a round can travel down range along with the surrounding area necessary to contain all projectile fragments and ricochets. Some SDZs are extremely large; it is possible that a 20-acre range may actually require several thousand acres of

land area to accommodate the SDZ. The area of a range SDZ can be used for training and other limited activities when the range is inactive but may not be occupied when a range is operational. In developing the Camp Ravenna RDP, every effort was made to overlap SDZs into a common range impact area to minimize the range complex footprint. By overlapping the SDZs, training area and range use conflicts were reduced and environmental impacts were minimized to the greatest extent practicable. The MRF and MPMG Ranges are 2 of 13 ranges in the Range Development Complex for Camp Ravenna, which has been configured in a way to provide an adequate training area for the soldiers while minimizing impacts to high-quality wetlands, environmental features, and cultural resources. In addition, the MPMG Range utilizes most of the footprint of an existing MK-19 Range. Transforming the MK-19 Range into an MPMG Range actually removes a currently maintained firing lane allowing for this area to be restored and used as on-site wetland and stream mitigation.

Through the completion of the environmental assessment (EA), all viable layouts and alternative sites for these ranges in respect to the entire range complex were considered. Section 3 of the EA describes the alternatives considered when developing the RDP and the screening criteria used in the evaluation to locate the range layouts (Appendix L). The size and configuration of the MRF and MPMG Ranges is determined by range guidance doctrine Army TC 25-1, which provides minimum standards required to serve the needs of soldier training. All practicable range layouts within the confines of Camp Ravenna were evaluated using the screening criteria. Impacts to wetlands and other natural resources were avoided and minimized as much as possible.

Due to the fact that these projects are military weapons firing ranges, this activity cannot be placed outside the confines of the military base. Camp Perry in Port Clinton also has a MRF Range and other small arms ranges; however, these ranges are shared with a government mandated civilian marksmanship program during the summer months. The Camp Perry ranges are, therefore, only available for use by OHANRG soldiers an estimated one to two months out of the year. Most OHARNG training is done on weekends, so Camp Perry has limited ability to support the weapons qualification needed for the more than 10,000 OHARNG soldiers. Camp Perry is also outside of the 100-mile maximum travel radius needed for OHARNG and other military personnel in northeast Ohio and western Pennsylvania. The alternative for weapons qualification dictates that a large numbers of soldiers continue to travel long distances to use out-of-state ranges, which is an inefficient and very costly alternative.

By fully evaluating these options, the MRF and MPMG Range footprints were minimized to the extent practicable given the other on-site training needs. These project areas were also chosen for range placement because they reduced environmental impacts to the greatest extent compared to all viable alternatives investigated. Additional range configurations were evaluated; however, some of the potential areas not only contained wetlands but also infringed on former industrial sites undergoing remediation (Areas of Concern and/or Munitions Response Sites) that were not conducive for range development, or contained areas with potential topographical issues including more wetland and stream impacts. The alternatives did not allow for development of all 13 ranges sharing a common SDZ overlap area, which facilitates a reduced overall range complex footprint, minimizes environmental impacts, and enables maximum simultaneous use of limited training land. Thus, these sites were rejected as alternative site locations because they would potentially lead to greater environmental impacts and less training capability than the current project sites.

The minimal degradation alternative for each project, proposed as the plan of record, was developed to minimize impacts to wetlands and streams on the project sites while still maintaining viable projects. For example, the MRF Range minimal degradation alternative has reduced firing lane width to a less-than-ideal range (15-meter width instead of 20 meters) but is still providing a useable facility. The MPMG Range has also been reduced from its original scale, which includes fewer 1,500 meter lanes. This, along with utilizing existing infrastructure, shifting some targets and roads, and narrowing some firing lanes to restrict forest clearing, has reduced the overall wetlands impacts for this alternative and successfully avoiding 92% of on-site wetlands.

Any further reduction in the size or scale of the MRF or MPMG Ranges beyond what is proposed in the minimal degradation alternatives would result in a facility insufficient to serve the OHARNG training needs and would not meet the stated purpose and need.

## Alternatives Analysis for Ohio EPA Section 401 Water Quality Certification

- 10a) **Provide a detailed description of any construction work, fill, or other structures to occur or to be placed in or near the surface water. Identify all substances to be discharged, including the cubic yardage of dredged or fill material to be discharged to the surface water. (OAC 3745-1-54)**

### Preferred Design for MRF Range

There are a total of 40 wetlands identified on the site totaling 11.670 acres. There are a total of eight streams on the project site totaling 4,519 linear feet. Tables detailing all wetlands and streams identified on the site are located in Appendix D. A site map illustrating the preferred design for the MRF Range is in Appendix I-1. Tables 1 and 2 identify the total impacts proposed in the preferred design, the structures to be placed in surface waters, and the types and cubic yardage of fill materials.

Table 1. Preferred Design Wetland Impacts for MRF Range

Waterbody	Total (acres) <sup>1</sup>	Impacts (acres)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Wetland D*	0.055	0.055	266	parking	clean earthen fill
Wetland P	0.203	0.203	982	parking	clean earthen fill
Wetland Q North	4.987	3.207	15,522	grading for firing lanes and stormwater basin	clean earthen fill
Wetland R	0.073	0.073	353	grading for firing lanes	clean earthen fill
Wetland S	0.114	0.114	552	grading for firing lanes	clean earthen fill
Wetland T	0.555	0.555	2,686	grading for firing lanes	clean earthen fill
Wetland U	0.018	0.018	87	grading for firing lanes	clean earthen fill
Wetland V	0.364	0.364	1,762	parking	clean earthen fill
Wetland W	0.180	0.180	871	parking	clean earthen fill
Wetland X	0.019	0.019	92	grading	clean earthen fill
Wetland Y	0.110	0.038	184	grading	clean earthen fill
Wetland BB	0.250	0.250	1,210	grading for firing lanes	clean earthen fill
Total Jurisdictional Wetlands Impacted		5.021 ac	24,301 cy		
Total Isolated Wetlands Impacted		0.055 ac	266 cy		

<sup>1</sup>These totals include the acres of wetland within the footprint of the specific alternative.

\* Isolated wetland

Table 2. Preferred Design Stream Impacts for MRF Range

Waterbody	Total (linear feet)	Impacts (linear feet)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Stream 4	336	253	101	culvert	concrete/poly
Stream 5	1,347	866	664	culvert	concrete/poly
Stream 6	153	153	56	grading	clean earthen fill
Stream 7	539	292	97	culvert	concrete/poly
Total Stream Impacts		1,564 lf	918 cy		

### *Minimal Degradation Alternative for MRF Range*

Stream and wetland impacts proposed in the minimal degradation alternative have been minimized to the maximum extent practicable. This plan still meets the purpose and need of the project to construct the MRF Range on the site and the associated infrastructure that accompanies the MRF Range, including associated support buildings, range towers, parking, and stormwater facilities.

A site map illustrating the minimal degradation alternative for the MRF Range is located in Appendix J-1. Tables 3 and 4 identify the total impacts proposed in the minimal degradation alternative, the structures to be placed in surface waters, and the types and cubic yardage of fill materials.

A total of 2.83 acres of impacts will occur to on-site wetlands. There is a total of 11.67 acres of wetlands in the project area. Therefore, the minimal degradation alternative will avoid impacts to approximately 76% of the wetlands identified in the project area.

Table 3. Minimal Degradation Alternative Wetland Impacts for MRF Range

Waterbody	Total (acres) <sup>1</sup>	Impacts (acres)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Wetland P	0.019	0.019	92	parking	clean earthen fill
Wetland Q North	4.987	2.097	10,149	grading for firing lanes and stormwater basin	clean earthen fill
Wetland R	0.026	0.026	126	grading for firing lanes	clean earthen fill
Wetland S	0.114	0.114	552	grading for firing lanes	clean earthen fill
Wetland T	0.555	0.555	2,686	grading for firing lanes	clean earthen fill
Wetland U	0.018	0.018	87	grading for firing lanes	clean earthen fill
Total Wetlands Impacts		2.829 ac	13,692 cy		

<sup>1</sup> These totals include the acres of wetland within the footprint of the specific alternative.

Table 4. Minimal Degradation Alternative Stream Impacts for MRF Range

Waterbody	Total (linear feet)	Impacts (linear feet)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Stream 4	336	67	27	culvert	concrete/poly
Stream 5	1,347	96	74	culvert	concrete/poly
Stream 6	153	72	26	grading	clean earthen fill
Total Stream Impacts		235 lf	127 cy		

### *Non-degradation Alternative for MRF Range*

No dredging or filling of jurisdictional waters would occur for the non-degradation alternative. A site plan for this alternative is provided in Appendix K. It should be noted that the non-degradation alternative does not meet the purpose and need of the project and, therefore, it is neither a viable nor feasible option to support the OHARNG mission.

### *Preferred Design for MPMG Range*

There are a total of 121 wetlands identified on the site totaling 63.028 acres. There are a total of 17 streams on the project site totaling 26,354 linear feet. Tables detailing all wetlands and streams identified on the site are located in Appendix D. A site map illustrating the preferred design is in Appendix I-2. Tables 5 and 6 identify the total impacts proposed in the preferred design, the structures to be placed in surface waters, and the types and cubic yardage of fill materials. A total of 8.101 acres of wetlands and 300 linear feet of stream will be impacted.

Table 5. Preferred Design Wetland Impacts for MPMG Range

Waterbody	Total (acres)	Impacts (acres)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Wetland 37	0.068	0.068	329	grading	clean earthen fill
Wetland 38*	0.121	0.121	586	grading	clean earthen fill
Wetland 39*	0.046	0.046	223	grading	clean earthen fill
Wetland 40	0.264	0.264	1,278	grading	clean earthen fill
Wetland 41	0.134	0.134	649	grading	clean earthen fill
Wetland 42	0.123	0.032	155	grading	clean earthen fill
Wetland 43	0.101	0.101	489	grading	clean earthen fill
Wetland 47	0.039	0.039	189	grading	clean earthen fill
Wetland 48*	0.024	0.024	116	grading	clean earthen fill
Wetland 49	4.430	0.232	1,123	grading	clean earthen fill
Wetland 68	10.848	0.176	852	grading	clean earthen fill
Wetland 72	0.341	0.003	15	grading	clean earthen fill
Wetland 78*	0.054	0.016	77	grading	clean earthen fill
Wetland 80	0.049	0.012	58	grading	clean earthen fill
Wetland 82	0.206	0.009	44	grading	clean earthen fill
Wetland 83	0.453	0.013	63	grading	clean earthen fill
Wetland 85	0.152	0.033	160	grading	clean earthen fill
Wetland 86	0.032	0.021	102	grading	clean earthen fill
Wetland 91	0.157	0.157	760	grading	clean earthen fill
Wetland 92	0.239	0.175	847	grading	clean earthen fill
Wetland 93*	0.091	0.066	319	grading	clean earthen fill
Wetland 95	6.632	6.632	32,100	grading	clean earthen fill
Wetland 96*	0.057	0.057	276	grading	clean earthen fill
Total Jurisdictional Wetlands Impacts		8.101 ac	39,213 cy		
Total Isolated Wetlands Impacts		0.330 ac	1,597 cy		

\* Isolated wetland

Table 6. Preferred Design Stream Impacts for MPMG Range

Waterbody	Total (linear feet)	Impacts (linear feet)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Stream 10	3,745	200	56	culvert	concrete
Stream 12	3,474	100	56	culvert	concrete
Total Stream Impacts		300 lf	112 cy		

## Minimal Degradation Alternative for MPMG Range

Stream and wetland impacts proposed in the minimal degradation alternative have been minimized to the maximum extent practicable. This plan still meets the purpose and need of the project to construct the MPMG Range on the site and the associated infrastructure that accompanies the MPMG Range, including associated support buildings, range towers, parking, and stormwater facilities.

A site map illustrating the minimal degradation alternative is in Appendix J-2. Tables 7 and 8 identify the total impacts proposed in the minimal degradation alternative, the structures to be placed in surface waters, and the types and cubic yardage of fill materials.

A total of 4.935 acres of impacts will occur to on-site wetlands. There are a total of 63.028 acres of wetlands in the project area. Therefore, the minimal degradation alternative will avoid impacts to approximately 92% of the wetlands identified in the project area.

Table 7. Minimal Degradation Alternative Wetland Impacts for MPMG Range

Waterbody	Total (acres)	Impacts (acres)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Wetland 38*	0.121	0.121	586	grading	clean earthen fill
Wetland 39*	0.046	0.046	223	grading	clean earthen fill
Wetland 40	0.264	0.187	205	grading	clean earthen fill
Wetland 41	0.134	0.134	649	grading	clean earthen fill
Wetland 42	0.123	0.032	155	grading	clean earthen fill
Wetland 47	0.039	0.039	189	grading	clean earthen fill
Wetland 48*	0.024	0.024	116	grading	clean earthen fill
Wetland 49	4.430	0.232	1,123	grading	clean earthen fill
Wetland 83	0.453	0.013	48	grading	clean earthen fill
Wetland 86	0.032	0.021	101	grading	clean earthen fill
Wetland 91	0.157	0.157	780	grading	clean earthen fill
Wetland 92	0.239	0.175	847	grading	clean earthen fill
Wetland 93*	0.091	0.066	319	grading	clean earthen fill
Wetland 95	6.632	3.631	17,574	grading	clean earthen fill
Wetland 96*	0.057	0.057	276	grading	clean earthen fill
Total Jurisdictional Wetlands Impacts		4.621 ac	21,671 cy		
Total Isolated Wetlands Impacts		0.314 ac	1,520 cy		

\* Isolated wetland

Table 8. Minimal Degradation Alternative Stream Impacts for MPMG Range

Waterbody	Total (linear feet)	Impacts (linear feet)	Quantity of Fill (cubic yards)	Impact Type	Impact Materials
Stream 10	3,745	261	72	culvert	concrete
Total Stream Impacts		261 lf	72 cy		

## Non-degradation Alternative for MPMG Range

No dredging or filling of jurisdictional waters would occur for the non-degradation alternative. If this alternative is chosen the site would continue to operate as a MK-19 Range. A MPMG Range would not be constructed as it would not provide the standard lanes necessary to qualify it as that particular range type. Therefore, the non-degradation alternative does not meet the purpose and need of the project, and it is neither a viable nor feasible option to support the OHARNG mission.

**10b) Describe the magnitude of the proposed lowering of water quality. Include the anticipated impact of the proposed lowering of water quality on aquatic life and wildlife, including threatened and endangered species (include written comments from Ohio Department of Natural Resources and U.S. Fish and Wildlife Service), important commercial or recreational sport fish species, other individual species, and the overall aquatic community structure and function. Include a Corps of Engineers approved wetland delineation. (OAC 3745-1-05(C)(6)(a,b) and OAC 3745-1-54)**

## Site Overview

The MRF Range site contains successional woods, upland old fields and shrub thickets, wet meadows, scrub/shrub wetlands, and lowland woods. The majority of the proposed MRF Range is a young red maple successional woods. The far eastern and western portions of the site contain old access roads and former ordnance storage bunkers. These areas contain mostly old field and shrub vegetation.

The MPMG Range site consists mostly of grassland (>75%) with small areas of young red maple forest and also a more mature treed riparian area along Sand Creek. Since grassland is prevalent, many of the wetlands identified on the MPMG site are emergent. The majority of the site (existing MK-19 Range) is grassland maintained by annual fall mowing. This portion of the site contains gravel access roads, old gravel burning pads, three earth-covered magazines, MK-19 Range target emplacements, and range signage. The south-central portion of the site is a successional red maple woods and has been undisturbed in recent years. The southeastern portion of the current MK-19 Range, which is being abandoned as part of the MPMG Range project, contains a small and medium sawtimber mixed hardwood forest and a bottomland forest in the Sand Creek floodplain.

Several small intermittent and ephemeral streams are found on both sites. Sand Creek is adjacent to and just south of the proposed MPMG Range site. Both sites drain into Sand Creek, which empties into South Fork Eagle Creek and then into Eagle Creek, a tributary to the Mahoning River. The Mahoning River has a watershed area of 1,140 square miles and enters the Beaver River in Pennsylvania.

Photographs of all mapped wetlands and streams, descriptions of each, and a map of the plant communities can be found in the *Wetlands Delineation Reports* for the two projects.

## Wetlands

Davey Resource Group delineated all on-site wetlands and streams using a differential global positioning system (GPS) to accurately survey boundaries. Tables listing all wetlands identified on the MRF Range and MPMG Range project sites are located in Appendix D. A total of 11.670 acres of wetlands were identified within the MRF Range 102.5-acre study area, and 63.028 acres of wetlands were identified within the MPMG Range 509-acre study area. The JD letters verifying the boundaries of these identified wetlands are located in Appendix E.

In addition, ORAM forms were completed for all wetlands on both the MRF and MPMG Range project sites. A summary of ORAM data for impacted wetlands is provided in Appendix F. Tables 9 and 10 provide a summary of the types and category assignments for both the MRF Range and the MPMG Range wetlands and compares the impacts of the preferred designs and the minimal degradation

alternatives.

For the MRF Range, Wetland Q is the largest wetland complex on the site, approximately 7 acres. This wetland has been split into Wetland Q North and Wetland Q South. During ORAM verification, Ohio EPA determined that justification existed to separate this wetland based on different hydrologic sources. Therefore, Wetland Q North is driven hydrologically by surface water, classifying it as a Category 2. Wetland Q South is mainly groundwater influenced, classifying it as a Category 3 wetland. The remaining wetlands score as Category 1, Modified 2, or Category 2.

A total of 16 of the wetlands identified in the MRF Range project area and 39 in the MPMG Range project area are considered isolated.

Table 9. Summary Table of Wetlands Impacts for MRF Range Alternatives

Wetland	Type of Wetland	Jurisdictional Status	ORAM Score <sup>1</sup>	Category	Total Wetlands (acres)	Preferred Design Impacts		Minimal Degradation Impacts	
						Acres	% Avoided	Acres	% Avoided
D	wet meadow	isolated	31.5	2	0.055	0.055	0	0	100
P	scrub/shrub	non-isolated	54	2	0.203	0.203	0	0.019	90
Q North	lowland woods and scrub/shrub	non-isolated	59	2	4.987	3.207	36	2.097	58
R	scrub/shrub	non-isolated	47.5	2	0.073	0.073	0	0.026	64
S	lowland woods	non-isolated	49	2	0.114	0.114	0	0.114	0
T	lowland woods	non-isolated	58	2	0.555	0.555	0	0.555	0
U	lowland woods	non-isolated	39	Modified 2	0.018	0.018	0	0.018	0
V	scrub/shrub and wet meadow	non-isolated	32	2	0.364	0.364	0	0	100
W	wet meadow	non-isolated	24	1	0.180	0.180	0	0	100
X	wet meadow	non-isolated	23	1	0.019	0.019	0	0	100
Y	wet meadow	non-isolated	24	1	0.110	0.038	65	0	100
BB	lowland woods	non-isolated	54	2	0.250	0.250	0	0	100
Total On-Site Wetlands Impacts					11.670 ac*	5.076 ac	56%	2.829 ac	76%

<sup>1</sup>Based on *Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0* (Mack 2011).

\* Total avoided wetlands on site are based on the total wetland acreage within the study area, 11.670 acres. Therefore, total percent avoided for the preferred design and for the minimal degradation alternative is based on total wetland acreage in the study area as provided in Appendix D.

Table 10. Summary Table of Wetlands Impacts for MPMG Range Alternatives

Wetland	Type of Wetland	Jurisdictional Status	ORAM Score <sup>1</sup>	Category	Total Wetlands (acres)	Preferred Design Impacts		Minimal Degradation Impacts	
						Acres	% Avoided	Acres	% Avoided
37	emergent	non-isolated	30	Modified 2	0.068	0.068	79	0	100
38	emergent	isolated	25.5	1	0.121	0.121	0	0.121	0
39	emergent	isolated	33	Modified 2	0.046	0.046	0	0.046	0
40	lowland woods and emergent	non-isolated	33	Modified 2	0.264	0.264	0	0.187	29
41	emergent	non-isolated	35	Modified 2	0.134	0.134	0	0.134	0
42	emergent	non-isolated	34	Modified 2	0.123	0.032	74	0.032	74
43	emergent	non-isolated	33.5	Modified 2	0.101	0.101	0	0	100
47	emergent	non-isolated	33.5	Modified 2	0.039	0.039	61	0.039	0
48	emergent	isolated	33.5	Modified 2	0.024	0.024	0	0.024	0
49	scrub/shrub, emergent	non-isolated	40	Modified 2	4.430	0.232	0	0.232	0
68	lowland woods, scrub/shrub, emergent	non-isolated	59	2	10.848	0.176	99	0	100
72	emergent	non-isolated	33.5	Modified 2	0.341	0.003	99	0	100
78	emergent	isolated	31	Modified 2	0.054	0.016	70	0	100
80	emergent	non-isolated	31	Modified 2	0.049	0.012	75	0	100
82	emergent	non-isolated	33.5	Modified 2	0.206	0.009	96	0	100
83	emergent	non-isolated	32.5	Modified 2	0.453	0.013	97	0.013	100
85	emergent	non-isolated	33.5	Modified 2	0.152	0.033	78	0	100
86	lowland woods, scrub/shrub	non-isolated	36	Modified 2	0.032	0.021	34	0.021	34
91	lowland woods	non-isolated	40.5	Modified 2	0.157	0.157	0	0.157	0
92	lowland woods	non-isolated	58.5	2	0.239	0.175	35	0.175	35
93	lowland woods	isolated	53	2	0.091	0.066	50	0.066	50
95	lowland woods	non-isolated	58.5	2	6.632	6.632	0	3.631	47
96	lowland woods	isolated	49	2	0.057	0.057	52	0.057	52
Total On-Site Wetlands Impacts					63.028 ac*	8.431 ac	87%*	4.935 ac	92%*

<sup>1</sup> Based on *Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0* (Mack 2011).

\* Total avoided wetlands on site are based on the total wetland acreage within the study area, 63.028 acres. Therefore, total percent avoided for the preferred design and for the minimal degradation alternative is based on total wetland acreage in the study area as provided in Appendix D.

## Streams

Davey Resource Group identified all on-site streams; 8 streams are located on the MRF Range project area and 16 are located in the MPMG Range project area. On the MRF Range, three streams are classified as perennial; one is intermittent; and four are ephemeral. HHEI forms were completed for all identified streams on the MRF Range. In addition, HHEI and QHEI forms were completed for streams that might be impacted either by culverts or by mitigation activities on the proposed MPMG Range. Sand Creek, the perennial stream located adjacent to and just south of the MPMG Range site, has two QHEI scores, one for the degraded section and one for the non-impacted section of the stream. The degraded section, which is located in a current MK-19 Range firing lane that will be abandoned as part of the MPMG Range project, has no riparian buffer and shows signs of erosion on the streambanks. This portion of Sand Creek scored a 68. In comparison, the other portions of Sand Creek, which have a good riparian buffer, scored an 88.

The completed HHEI/QHEI forms for the impacted streams on the two ranges are included in Appendix G. Tables 11 and 12 provide a summary of the stream lengths and stream class assignments for the MRF Range and MPMG Range, respectively, and also compares the impacts of the minimal degradation alternative and the preferred design. No perennial streams will be impacted by these projects; impacts will occur to four ephemeral and one intermittent stream on the MRF Range site and two intermittent streams on the MPMG Range site. All of the streams to be impacted rate within the Class I and II range.

Table 11. Summary Table of Streams, Class Assignment, and Impacts for MRF Range Preferred Design and Minimal Degradation Alternative

Stream	Type of Stream	HHEI Score <sup>1</sup>	HHEI Class	Total Length (linear feet)	Preferred Design Impacts		Minimal Degradation Impacts	
					Linear Feet	% Avoided	Linear Feet	% Avoided
4	ephemeral	42	Modified II	336	253	25	67	80
5	intermittent	58	II	1,347	866	35	96	93
6	ephemeral	23	I	153	153	0	72	53
7	ephemeral	23	I	539	292	45	0	100
Total On-Site Stream Impacts				4,514 lf*	1,564 lf	65%*	235 lf	95%*

<sup>1</sup> Based on *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams* (Ohio EPA 2012).

\* Total avoided streams on site are based on the total stream linear footage within the study area, 4,514 linear feet. Therefore, total percent avoided for the preferred design and for the minimal degradation alternative is based on total stream linear footage in the study area as provided in Appendix D.

Table 12. Summary Table of Streams, Class Assignment, and Impacts for MPMG Range Preferred Design and Minimal Degradation Alternative

Stream	Type of Stream	HHEI Score <sup>1</sup>	HHEI Class	Total Length (linear feet)	Preferred Design Impacts		Minimal Degradation Impacts	
					Linear Feet	% Avoided	Linear Feet	% Avoided
10	intermittent	43	Modified II	3,745	200	95	261	93
12	intermittent	53	Modified II	3,474	100	97	0	100
Total On-Site Stream Impacts				26,354 lf*	300 lf	*99%	261 lf	*99%

<sup>1</sup> Based on *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams* (Ohio EPA 2012).

\* Total avoided streams on site are based on the total stream linear footage within the study area, 26,354 linear feet. Therefore, total percent avoided for the preferred design and for the minimal degradation alternative is based on total stream linear footage in the study area as provided in Appendix D.

### Rare, Threatened, and Endangered Species

Camp Ravenna is required to manage natural resources in accordance with an Integrated Natural Resources Management Plan (INRMP). The Camp Ravenna INRMP was first developed in 2001 in cooperation with the USFWS and ODNR. Both agencies have provided signatory concurrence to the INRMP and participate in annual review and implementation meetings and INRMP updates every five years. The natural resources are actively managed at Camp Ravenna in cooperation with the USFWS and ODNR. Part of INRMP implementation included conducting flora and fauna surveys, in part to determine the presence or absence of rare species. Camp Ravenna has been intensively surveyed for biological resources and surveys are updated in accordance with the frequency agreed upon in the INRMP. Because Camp Ravenna is so large and the natural resources are managed on a base-wide basis, species surveys are not conducted on a project-by-project basis but rather as part of an overall natural resources management program. Currently all breeding bird surveys are conducted annually. Species considered environmentally sensitive, such as amphibians, are surveyed every five years. Other species and vegetation are surveyed every 10 years. Surveys began in 1993 before OHARNG controlled the property, and a wealth of data exists.

Rare, threatened, and endangered species have been well documented on the entire Camp Ravenna facility, including those species that could be found on or near the site. Numerous studies have been completed to document the potential presence of listed species on the facility. No federally listed species have been documented and no federally designated critical habitat exists in Camp Ravenna. The northern long-eared bat (*Myotis septentrionalis*), proposed for listing as a federally endangered species by the USFWS, is known to exist at Camp Ravenna.

Four federally listed and one proposed endangered species have ranges that include Portage County—the federally endangered Indiana bat (*Myotis sodalis*), the federally endangered Mitchell's satyr butterfly (*Neonympha mitchellii*), the federally threatened *Aconitum noveboracense* (northern monkshood), the federal candidate species eastern massasauga (*Sistrurus catenatus*), and the proposed endangered Northern long-eared bat (*Myotis septentrionalis*). The Northern long-eared bat is included in this application because it is expected to be listed as federally endangered by the time that the proposed ranges are constructed.

State listed species that might be in the vicinity of the facility include:

- Indiana bat (*Myotis sodalis*) (endangered, bat); finding of may affect, but is not likely to adversely affect the Indiana bat; see description below
- Pointed sallow (*Epiglaea apiata*) (endangered, moth); finding of not likely to impact
- Mitchell's satyr (*Neonympha mitchellii*) (endangered, butterfly); finding of not likely to impact; see description below
- Eastern massasauga (*Sistrurus catenatus*) (endangered, snake); finding of not likely to impact; see description below
- Iowa darter (*Etheostoma exile*) (endangered, fish); see description below
- Eastern pondmussel (*Ligumia nasuta*) (endangered, mussel); not impacting perennial streams, therefore, not likely to impact
- American emerald (*Cordulia shurtleffi*) (endangered dragonfly); finding of not likely to impact
- Frosted whiteface (*Leucorrhinia frigida*) (endangered dragonfly); finding of not likely to impact
- Brush-tipped emerald (*Somatochlora walshii*) (endangered dragonfly); finding of not likely to impact
- Chalk-fronted corporal (*Ladona julia*) (endangered, dragonfly); finding of not likely to impact
- Black bear (*Ursus americanus*) (endangered, bear); finding of not likely to impact
- Cerulean warbler (species of concern); finding of not likely to impact; see description below

### **Indiana Bat**

In accordance with the Camp Ravenna INRMP and USFWS protocol, an installation-wide survey for the Indiana bat is conducted approximately every five years. Four Indiana bat surveys have been conducted at Camp Ravenna (Tawse 1999; Davey Resource Group 2002; Duffey & Brack 2005; Tragus 2010). Survey efforts to date have provided no evidence of Indiana bats at Camp Ravenna. Potential habitat for the Indiana bat is evaluated and managed as part of the ongoing sustainable forest management program at Camp Ravenna. Discussions have been held with the USFWS concerning the difficulty of conducting effective Indiana bat surveys at Camp Ravenna within the limits of specific project or timber sale boundaries. It was agreed that installation-wide bat surveys every five years would be sufficient for determining the presence of the Indiana bat at Camp Ravenna. Per the INRMP, if negative survey results have been recorded, Camp Ravenna is allowed to remove trees without the need for further individual surveys. No Indiana bats have been identified within the installation.

Camp Ravenna will conduct an Endangered Species Act Section 7 evaluation prior to initiating the MFR and MPMG Range construction. Based on the lack of Indiana bats at Camp Ravenna, the evaluation will culminate in a determination of “may affect, but is not likely to adversely affect the Indiana bat” and the project will proceed without restrictions on tree removal. If new survey data identify the Indiana bat on site, the determination will most likely be the same, but a restriction on the timing of tree removal will be implemented. Based on the known presence of the northern long-eared bat, the Indiana bat determination will be a moot point. Camp Ravenna will follow the tree removal restrictions designated by the USFWS for the Northern long-eared bat.

### **Northern Long-Eared Bat**

The northern long-eared bat is known to exist at Camp Ravenna. The bat has been captured regularly during bat surveys. There are no known winter hibernacula on or within three miles of Camp Ravenna. There have not been specific captures of the bat within either project area, but both locations do have potential forest habitat that will be cleared. Camp Ravenna has been in contact with the USFWS and has begun informal Endangered Species Act Section 7 consultation ahead of species listing. Our intention is to evaluate all training site operations, training, and management activities and determine potential impacts to the bat. We will determine which activities have “no affect”, “may affect, not likely to adversely affect”, and “may affect, likely to adversely affect” the bat. In our discussions with the USFWS (January 22, 2014) it was indicated that at this time a *take*, as defined by the Endangered Species Act, is not possible since the bat is not yet listed. Nothing can be done to jeopardize the bat’s existence while it is proposed for listing and there is nothing that could be done at Camp Ravenna to jeopardize the bat’s existence. The USFWS indicated that as long as Camp Ravenna can clear the trees between 1 October and 31 March, a determination of “may affect, not likely to adversely affect” will most likely be applicable for the range projects. As written, Endangered Species Act Section 7 coordination is not currently required but will be required if/when the bat is listed.

### **Mitchell’s Satyr Butterfly**

Four Lepidoptera surveys have been conducted at Camp Ravenna (Rings & Downer 1993; Rings 1994; Gilligan 1999; BHE Environmental 2006). The preferred habitat for this species is sedge dominated fens with low shrubs and tamaracks. There is some limited sedge dominated fens/wetland habitat with low shrubs at Camp Ravenna but none with tamaracks and none within the project areas. The only tamaracks at Camp Ravenna are associated with an old home site. This type of habitat will not be disturbed by the proposed range development. Camp Ravenna does have potential habitat for the Mitchell's satyr butterfly but since the habitat will not be disturbed and since, even with extensive survey effort, the butterfly has not been identified on the training site, it is the conclusion of OHARNG that the proposed range development will not have an adverse effect on the Mitchell's satyr butterfly.

### **Eastern Massasauga**

Herptile inventories, in accordance with the Camp Ravenna INRMP, are on an approximately five-year cycle. Four surveys have been conducted (Schneider 1993; Pflingsten 2000; BHE Environmental 2006; Pflingsten 2010). Camp Ravenna contains suitable habitat for the massasauga, but this rattlesnake has not been observed at Camp Ravenna to date. Due to the lack of the species presence on Camp Ravenna property, it is the conclusion of OHARNG that the proposed range developments will have no adverse effect on the eastern massasauga.

### **Iowa Darter**

The majority of the streams to be impacted in this project are ephemeral and do not contain flowing water year-round. Therefore, they do not contain the habitat necessary to support this species.

The streams on both sites are ephemeral or intermittent and do not contain adequate habitat to support the Iowa darter. Iowa darters are found in natural lakes and very sluggish streams or marshes with dense aquatic vegetation and clear waters. The intermittent streams on both range sites contain sand and rock substrate with mostly shallow water. This does not represent the preferred habitat of the darter and it is unlikely that in-water work would affect this species.

Surveys for fish were conducted at Camp Ravenna in 1993, 1999, 2003, and 2010 within the streams, ponds, and beaver impoundments. The Iowa darter is not present at Camp Ravenna.

### **Northern Monkshood**

Vascular plant surveys of Camp Ravenna have been conducted by The Nature Conservancy, Ohio DNR in 1993, 1998/99, and 2010 and incidentally by the Camp Ravenna staff. Vascular flora surveys to date have identified 942 species of vascular plants on the training site. No federally listed endangered, threatened, or candidate plant species have been identified at Camp Ravenna. Northern monkshood is found in cool, shaded locations including cliffs and streamside sites. These sites are characterized by cool soil conditions, cold air drainage, and/or cold ground water outflow. Suitable conditions for this species do not occur within or near the project area. In correspondence dated August 25, 2005, the USFWS concurred that Camp Ravenna does not contain suitable habitat for northern monkshood. Therefore, the proposed action is not expected to have an adverse effect on this species.

### **Cerulean Warbler**

This species nests high in the tree canopy adjacent to small openings within large, contiguous stands of mature deciduous forests. Surveys of avian communities at Camp Ravenna have been conducted from 1993 through 2012 (Schneider 1993; Rosche 2005; BHE Environmental 2006; Semroc & Rosche 2009–2012). The diversity and abundance of contiguous habitat at Camp Ravenna has enhanced the diversity and abundance of breeding bird species. A total of 214 species of birds have been identified at Camp Ravenna and approximately 114 species were either confirmed or considered likely to nest on Camp Ravenna properties. The cerulean warbler has consistently been documented at Camp Ravenna within large tracks of timber actively managed by selective timber harvesting. The cerulean warbler has not been documented within either range project area and would not be expected to nest in either area due to the lack of mature forest. The cerulean warbler could forage for insects on the edge of the existing MK-19 Range (MPMG Range project area) but this location is several miles from where the bird has been routinely documented. Neither project is expected to negatively impact the cerulean warbler because its nesting habitat will not be impacted nor will overall forest habitat be significantly reduced. Any tree clearing will be conducted after their nesting season.

### **Bald Eagle**

There is currently an active bald eagle (*Haliaeetus leucocephalus*) nest located in a forest management compartment approximately three miles southwest of the project areas. While the bald eagle has been delisted, it is still legally protected under the federal Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. This species is currently a Federal Species of Concern. Camp Ravenna takes special precautions to avoid disturbing the nest. Neither project will have any impact on the bald eagle or the nest.

## *Preferred Designs for MRF and MPMG Ranges*

The preferred design for the MRF Range will impact 5.076 acres of wet meadows, scrub/shrub wetlands, and lowland woods and 1,564 linear feet of streams on the site. The preferred design for the MPMG Range will impact 8.43 acres of emergent, scrub/shrub wetlands, and lowland woods, and 235 linear feet of streams. The wetlands impacted are Category 1 and 2 and the impacted streams are ephemeral and intermittent, Class I, Modified Class II, and Class II. While impacts to these waters could potentially lower the water quality on the sites, the use of on-site best management practices implemented both during and post-construction will minimize the impacts to water quality. The Category 3 wetland located on the MRF Range site will not only be avoided but will have a berm placed at its boundary, directing stormwater to detention basins prior to releasing it into the wetland. In addition, all perennial streams on both sites have been avoided. To minimize the resulting impacts to aquatic life, wildlife, wetlands, and streams, upland buffers surrounding avoided wetlands areas will be maintained on the site.

## *Minimal Degradation Alternatives for MRF and MPMG Ranges*

The minimal degradation alternatives demonstrate a significant increase in avoidance and minimization measures on both ranges. On the MRF Range, this alternative impacts only 2.829 acres of wetlands and 235 linear feet of stream. This represents avoidance of 76% of on-site wetlands and 95% of on-site streams. On the MPMG Range this alternative impacts only 4.935 acres of wetlands and 261 linear feet of stream, demonstrating a 92% and 99% avoidance of wetlands and streams, respectively.

The significant decrease in impacted wetlands and their associated upland buffers minimizes the impacts to the overall structure and functions of the aquatic community and, therefore, decreases to the maximum extent practicable the impacts on aquatic life and wildlife. Moreover, the impacts on water quality and wildlife will be significantly less in the minimal degradation alternatives than those associated with the preferred design.

## *Non-degradation Alternative*

Although the non-degradation alternative would not directly impact the on-site streams and wetlands via filling as proposed in the preferred design and minimal degradation alternatives, a development of this nature could indirectly impact these streams and wetlands.

As stated above, however, a non-degradation design would significantly change the character of the project. By eliminating all direct impacts to waters of the state, large portions of the site become restricted from use for the MRF and MPMG Range projects. This alternative does not meet the project's stated purpose and need, which is to construct a complete training facility for its units to ensure attainment and maintenance of a full readiness posture and to meet mission training objectives with sufficient land area as defined in Army TC 25-1. Although this alternative provides a firing range, it would not be able to support the amount of training necessary to balance the cost of constructing and maintaining such a facility, making it a non-practicable and non-feasible project. This alternative was, therefore, rejected by OHARNG.

- 10c) Include a discussion of the technical feasibility, cost-effectiveness, and availability. In addition, the reliability of each alternative shall be addressed (include potential recurring and maintenance difficulties that could lead to increased surface water degradation). (OAC 3745-1-05(c)(6)(h, j-k) and OAC 3745-1-54)**

### *Preferred Design and Minimal Degradation Alternatives for MRF and MPMG Ranges*

The preferred design and minimal degradation alternatives are no more or less technically feasible or reliable in terms of surface water degradation. There are no potential or recurring maintenance difficulties that could lead to increased surface water degradation during or after construction. However, the cost-effectiveness for the alternatives does differ. Construction costs will be greater with the preferred design (demolition of additional igloos, additional fill for wetlands, culverts for streams, etc.). In addition, mitigation costs will also be higher with the implementation of the preferred design.

The minimal degradation alternatives were configured to minimize impacts to streams and wetlands to the greatest extent practicable while meeting the purpose and needs of the MRF and MPMG Ranges.

### *Non-Degradation Alternatives for MRF and MPMG Ranges*

Although this alternative provides an MRF Range, it would support one with fewer firing lanes; therefore, it would not be able to support the amount of training necessary to balance the cost of constructing and maintaining such a facility. In addition, a MRF Range reduced to this size would not be approved for funding because it does not meet the Army TC 25-1 standards.

The non-degradation alternative for the MPMG Range would entirely forego lanes 6, 7, 8, and 9 and some of the targets needed in lanes 1, 2, 3, 4, and 5. It would result in a sub-standard range and would also not be eligible for funding. This alternative was, therefore, rejected by OHARNG.

If the non-standard MRF range was approved for funding and was constructed, the reduced number of firing lanes would result in a much lower training output than standard ranges and would alter the economics of the project. No MPMG Range would be constructed under the non-degradation alternative as it would not meet the minimal requirements necessary to provide training. This would cause soldiers to have to still travel far distances to complete the training programs at other facilities.

Since the non-degradation alternatives would deny construction of one if not both ranges, they are not feasible, practicable, or cost-effective and do not meet the stated purpose and need. The non-degradation alternatives would significantly change the character of the project. By eliminating all direct impacts to waters of the state, large portions of both sites become restricted from use for both ranges. This alternative does not meet the project's stated purpose and need, which is to construct a complete training facility for units to ensure attainment and maintenance of a full readiness posture and to meet mission training objectives with sufficient land area as defined in Army TC 25-1.

- 10d) For regional sewage collection and treatment facilities, include a discussion of the technical feasibility, cost-effectiveness and availability, and long-range plans outlined in state or local water quality management planning documents and applicable facility planning documents.(OAC 3745-1-05(C)(6)(i))**

Not applicable.

- 10e) To the extent that information is available, list and describe any government and/or privately sponsored conservation projects that exist or may have been formed to specifically target improvement of water quality or enhancement of recreational opportunities on the affected water resource. (OAC 3745-01-05(B)(2)(g))**

### *Preferred Designs, Minimal Degradation Alternatives, and Non-degradation Alternatives*

The applicant is not aware of any government or privately sponsored conservation projects that are specifically targeting improvements to water quality or enhancements to recreational opportunities on the water resources affected by the project.

- 10f) Provide an outline of the costs of water pollution controls associated with the proposed activity. This may include the cost of best management practices to be used during construction and operation of the project. OAC 3745-01-05(C)(6)(g))**

### *Preferred Designs, Minimal Degradation Alternatives, and Non-degradation Alternatives*

The implementation of the stormwater pollution prevention plan (SWPPP) will provide the required water pollution control measures and ensure compliance with all applicable regulations throughout the construction and development process. Costs to implement the SWPPP for each site are estimated to be \$250,000 for the preferred design and minimal alternative. This estimate includes the installation, inspection, and maintenance of the following controls:

1. Rock construction entrances at all locations designated for ingress and egress of construction vehicles to and from the construction site.
2. Silt fence along level contours, downslope of the disturbed areas, and around stockpiles.
3. Temporary seeding of stockpiles or land areas that are disturbed and will remain inactive for 21 days or more.
4. Permanent seeding of surface areas with native vegetation within seven days of reaching final grade.
5. Sediment basins will be created during construction in the areas designated for detention basins and will be sized to provide an appropriate level of storage capacity. Riser pipe assemblies and emergency spillways will be constructed, inspected, and maintained until all contributing areas are stabilized.
6. Stream crossings will consist of culvert pipes held in place with stone and will be placed in all swale or ditch crossings.
7. Stone shall be placed over the entire staging area where vehicles are permitted.
8. Where required, diversion ditches with sediment traps at the low end shall be installed to collect the runoff, pond it, and then discharge the clean flows.

9. During dry conditions, any areas of bare soil within the site shall be sprayed to prevent dust from leaving the site.
10. Dumpsters, or similar receptacles, shall be located at the staging areas to collect workers' lunch debris or trash.
11. Inspection of all controls shall be weekly and after every storm event for the duration of the project.
12. Maintenance shall be required if the control has lost its shape or is damaged. Sediment shall be removed if it has filled the bottom third, or one-half, of the control volume. Maintenance shall be performed for the duration of the project.

In addition to the above costs, maintenance, inspection, and dust controls during construction periods will cost approximately \$50,000 for all alternatives. Upon completion of construction, the following post-construction control measures will exist:

1. Extended detention basins with forebays and micropools may be part of the stormwater management facilities.
2. Bio-retention swales may be installed surrounding the parking facility if the facility will consist of asphalt.
3. Permanent seeding of all firing lanes and landscape areas.

The OHARNG will follow appropriate best management practices (BMPs) to prevent or minimize lead or other contaminant migration off site. The BMPs selected would be limited to the minimum required based on the type of range and ammunition used, site-specific conditions, range design features, and will include applicable range maintenance procedures. All ranges will be periodically evaluated and monitored in accordance with the Army's Operational Range Assessment Program (ORAP).

**10g) Describe any impacts on human health and the overall quality and value of the water resource. (OAC 3745-1-05-(C)(6)(c) and OAC 3745-1-54)**

### *Preferred Designs and Minimal Degradation Alternatives*

Impacting streams and wetlands on the sites during construction should not have a quantifiable negative impact on human health. Since most stormwater runoff on both ranges will infiltrate the ground once the firing ranges become permanently vegetated, there will only be a few permanent stormwater ponds established. Post-construction discharges from the project site are not expected to have a quantifiable adverse impact on human health or the overall quality and value of the adjacent water resources.

Before construction, the owner will obtain coverage under Ohio's general stormwater permit for construction activity and will comply with the terms and conditions thereof, including, but not limited to, the requirement to implement a SWPPP for the project. During construction, stormwater will be managed in accordance with all applicable rules and regulations. Management of stormwater through the use of detention ponds will minimize downstream impacts from stormwater runoff to the maximum extent practicable. The SWPPP components are identified in Section 10f.

Finally, all stream and wetland impacts associated with these alternatives will be mitigated in accordance with an approved mitigation plan. The proposed conceptual mitigation plans for streams and wetlands are discussed in 10k.

### *Non-degradation Alternatives*

Although the non-degradation alternative would not directly impact the on-site streams and wetlands via filling as proposed in the preferred designs and minimal degradation alternatives, a development of this nature could indirectly impact the overall quality and value of the water resources on the sites.

As stated above, however, a non-degradation design would significantly change the character of the project. By eliminating all direct impacts to waters of the state, large portions of the sites become restricted from use. Accordingly, the non-degradation alternative would be neither practicable nor feasible and does not meet the stated purpose and need to construct a complete training facility for its units to ensure attainment and maintenance of a full readiness posture and to meet mission training objectives with sufficient land area as defined in Army TC 25-1. If this alternative were funded and constructed, it would provide firing ranges, but they would not be able to support the amount of training necessary to balance the cost of constructing and maintaining such a facility. This alternative was, therefore, rejected by OHARNG.

**10h) Describe and provide an estimate of the important social and economic benefits to be realized through this project. Include the number and types of jobs created and tax revenues generated and a brief discussion on the condition of the local economy. (OAC 3745-1-5(B)(2)(e), and OAC 3745-1-05(C)(6)(i))**

Camp Ravenna was worth \$23 million to the Ohio economy in fiscal year 2011 in training, operations, and maintenance. Currently there are no MPMG Ranges in the Ohio Army National Guard. Soldiers who are assigned the M249 squad automatic weapon, M60 MG, or M240B MG must qualify on paper targets or travel outside of the 2-hour travel distance to be trained and tested on the skills necessary to zero, detect, identify, engage, and defeat stationary and moving infantry targets. The current cost for a Battalion (400–1,200 soldiers) to train over a weekend ranges from \$70,000 to \$130,000 depending on the length of the trip. This includes food, fuel, lodging, and buses (longer trips). The cost for the Battalion to train at Atterberry, Indiana, where these firing ranges currently exist, is twice as much as it would be to train at Camp Ravenna.

All Range operation and maintenance will be designated to a staff of about 12 full-time personnel and 6 seasonal and 20 part-time personnel. This can provide an economic value of approximately \$1.8 million dollars. Of this amount, approximately 50% of the staff time will go towards MRF and MPMG Range operations.

Ranges will be used by Ohio, northwest Pennsylvania, and even possibly soldiers originating from West Virginia and other states. In addition, local law enforcement, including State, County, and City officers, will also use these ranges to train. Local businesses such as retail clothing and food will benefit from the increased amount of spending by soldiers when they leave Camp Ravenna.

## *Preferred Designs and Minimal Degradation Alternatives*

The preferred designs and minimal degradation alternatives will provide a positive impact on social and economic benefits by the construction of weapons training ranges that are geographically centrally located for many of the troops in this area. This will essentially fill a wide gap in training facility availability. This range, and the entire range complex as a whole will be able to provide complete weapons training for up to 2,500 soldiers at one time. This will allow for less government and tax dollar expenditure in fuel and travel expenses for the soldiers.

The MRF Range is estimated as a \$4.6 million dollar contract and the MPMG Range is estimated as a \$5.4 million dollar contract, which would create jobs for local companies for contracting of construction, vendors, and clearing/grubbing of trees. This would assist in boosting local Ohio economies as vendors provide meals, tents, and sanitary systems to training soldiers. In addition, local jobs will be created as construction of these ranges is outsourced to off-site construction firms. Operation of the proposed ranges would result in long-term positive impacts to the local and installation economies, including local shops and services, by increasing installation usage by as much as 25% over current conditions or by approximately 25,000 man-days per year.

## *Non-degradation Alternative*

A non-degradation design would significantly change the character of the project. By eliminating all direct impacts to waters of the United States, large portions of the sites become restricted from use. After extensive studies and review during the EA, these areas are the properly placed in the Camp Ravenna facility for these types of ranges based on SDZ, cultural, and environmental restrictions. This alternative does not meet the project's stated purpose and need, which is to construct a complete training facility for its units to ensure attainment and maintenance of a full readiness posture and to meet mission training objectives with sufficient land area as defined in Army TC 25-1. More importantly, the significant reduction in land area for the ranges would alter the economics of the project to the point that these would no longer be practicable, viable, or feasible projects.

- 10i) Describe and provide an estimate of the important social and economic benefits that may be lost as a result of this project. Include the effect on commercial and recreational use of the water resource, including effects of lower water quality on recreation, tourism, aesthetics, or other use and enjoyment by humans.(OAC 3745-1-05(B)(2)(e, f), and OAC 3745-1-05(6)(e))**

## *Preferred Designs, Minimal Degradation Alternatives, and Non-degradation Alternatives*

No social or economic benefits are expected to be lost due to these projects. There is no commercial or recreational use of the water resources being impacted. The water resources are located within a restricted-access military facility, and some are on an existing military range. There is no planned development for the project areas besides developing the Camp Ravenna Joint Military Training Center as a premier military training site. These projects should have no adverse impacts on planned growth, land use, or development patterns for the facility or surrounding area. This property has been owned by the federal government since the 1940s and is restricted from public access. The wetlands and streams to be impacted are not suitable for recreational use. The project should have no adverse impacts on commercial use of the water resource by humans.

- 10j) Describe environmental benefits, including water quality, lost and gained as a result of this project. Include the effects on the aquatic life, wildlife, threatened, or endangered species. (OAC 3745-1-05 (B)(2)(e, f) and OAC 3745-1-54)**

### *Preferred Designs and Minimal Degradation Alternatives*

The losses and gains of various environmental benefits have been discussed previously, particularly in Section 10b. Although any development will result in the loss of some upland, wetland, and stream habitat, the design of the minimal degradation alternative balances that loss with appropriate avoidance, minimization, and mitigation, as well as the social and economic benefits to be gained by the MRF and MPMG Range projects.

The wetlands habitat to be lost is used as nesting and foraging habitat by a variety of birds and mammals; however, due to similar expansive habitat surrounding this area, it is expected that these species will simply relocate. Moreover, construction of the projects under the minimal degradation alternatives will result in less effects on aquatic life and wildlife than construction under the preferred designs.

No rare, threatened, or endangered species will be impacted as a result of either project under either alternative. As explained previously, the appropriate steps will be taken to avoid impact to any federally endangered species whose ranges include the project areas.

The designated SDZ areas associated with the ranges can never be developed for human occupation while the ranges are in use. This area can be used for transient military training when the ranges are not being fired on, but clearing and construction of buildings and other training facilities is not permitted. This will result in retention of large tracts of forested land, wetlands, streams, and habitat that otherwise could potentially be cleared for other military land use purposes.

### *Non-degradation Alternatives*

Because all wetlands and streams would be avoided if the projects were to be conducted in accordance with the non-degradation alternative, no loss of environmental benefits and no adverse effects on aquatic life, wildlife, or threatened or endangered species would occur.

As stated above, however, a non-degradation design would significantly change the character of the projects. By eliminating all direct impacts to waters of the state, large portions of the sites become restricted from use. This alternative does not meet the projects stated purpose and need, which is to construct a complete training facility for its units to ensure attainment and maintenance of a full readiness posture and to meet mission training objectives with sufficient land area as defined in Army TC 25-1. This alternative was, therefore, rejected by OHARNG.

- 10k) Describe mitigation techniques proposed (except for the Non-Degradation Alternative):**

## *Preferred Designs and Minimal Degradation Alternatives*

### *Mitigation Restrictive Covenant Language*

Wetland fill permits that require wetland mitigation usually require a deed restriction, conservation easement, or some other form of a restrictive covenant that ensures the wetland mitigation site will remain a wetland in perpetuity. Such restrictive covenants are not permitted on non-excess federal property (Randy Chambers, personal communication, October 5, 2012). This creates a challenge in complying with wetland permits that specify that a restrictive covenant/deed restriction filed with local authorities is required for wetland mitigation sites on the Camp Ravenna property.

As an alternative to restrictive covenants for on-site wetland mitigation areas, OHARNG has identified existing on-site wetland mitigation areas in the Camp Ravenna INRMP and in the Camp Ravenna Master Plan (when updated). Doing so officially identifies these mitigation sites and designates their land use as wetland mitigation. The land use of wetland mitigation sites may not be altered to another use without formal coordination with and concurrence of USACE and/or Ohio EPA as applicable. Altering a wetland mitigation site to another use may require a permit and/or compensatory wetland mitigation. The wetland mitigation sites must be managed and maintained in accordance with permit mitigation plan specifications.

The usual restrictive covenant/deed restriction language included in 401/404 permits is not applicable while Camp Ravenna is in federal ownership. Keeping such language in the permit is appropriate only if it clearly references applicability if the mitigation sites are ever exceeded by the federal government and ownership transferred to a non-federal entity. At that point a restrictive covenant to protect the wetland mitigation site would be applicable. Any such covenant must comply with applicable Ohio law. If the wetland permit contains language that the owner (US Property Fiscal Officer for Ohio) must enter into a restrictive convenient/deed restriction, ARNG/OHARNG will not be able to comply.

### *Mitigation for Wetlands Impacts*

Wetlands impacts and minimum mitigation requirements for both the preferred design and minimal degradation alternative for the MRF Range are shown in Tables 13 and 14 and for the MPMG Range in Tables 15 and 16.

The preferred design for the MRF Range requires 9.60 acres of jurisdictional and isolated wetlands mitigation, while the minimal degradation alternative requires only 5.62 acres of jurisdictional wetlands mitigation. A separate Ohio EPA Level I Isolated Wetlands Permit Application will be filed for all impacts to isolated wetlands within the project area; however, impacts will be mitigated in the same areas proposed in this application.

Table 13. Summary Table of Jurisdictional Wetlands Mitigation Requirements for MRF Range

Wetland	Wetland Type	ORAM Category	Mitigation Ratio On Site	Preferred Design		Minimal Degradation	
				Impact Acreage	Minimum Required Mitigation	Impact Acreage	Minimum Required Mitigation
P	scrub/shrub	2	1.5:1	0.203	0.30	0.019	0.03
Q North	lowland woods and scrub/shrub	2	2:1	3.207	6.41	2.097	4.19
R	scrub/shrub	2	1.5:1	0.073	0.11	0.026	0.04
S	lowland woods	2	2:1	0.114	0.23	0.114	0.23
T	lowland woods	2	2:1	0.555	1.11	0.549	1.10
U	lowland woods	Modified 2	2:1	0.018	0.04	0.018	0.04
V	scrub/shrub and wet meadow	2	1.5:1	0.364	0.55	0	0
W	wet meadow	1	1.5:1	0.180	0.27	0	0
X	wet meadow	1	1.5:1	0.019	0.03	0	0
Y	wet meadow	1	1.5:1	0.038	0.06	0	0
BB	lowland woods	2	2:1	0.250	0.50	0	0
Total On-site Mitigation				5.02 ac.	9.60 ac.	2.82 ac.	5.62 ac.

Table 14. Summary Table of Isolated Wetlands Mitigation Requirements for MRF Range

Wetland	Wetland Type	ORAM Category	Mitigation Ratio On-Site	Preferred Design		Minimal Degradation	
				Impact Acreage	Minimum Required Mitigation	Impact Acreage	Minimum Required Mitigation
D	wet meadow	2	1.5:1	0.055	0.08	0	0

For the MPMG Range, the preferred design alternative requires 9.78 acres of jurisdictional and isolated wetlands mitigation, while the minimal degradation alternative requires 5.89 acres. A separate Ohio EPA Level I Isolated Wetlands Permit Application will be filed for all impacts to isolated wetlands within the project area; however, impacts will be mitigated in the same areas proposed in this application.

To allow this area to be used as a firing range, Wetland 95 will be permanently converted from lowland woods to wet meadow. No fill will be placed in this wetland. Minor disturbances from removal of the trees and stumps will occur, but existing contours and elevations will be maintained, and the area will be reseeded with a wet meadow mix following clearing activities. To address the permanent conversion of the forested wetlands to herbaceous wetlands, a 1:1 mitigation ratio will be used to off-set the change in habitat.

Table 15. Summary Table of Jurisdictional Wetlands Mitigation Requirements for MPMG Range

Wetland	Wetland Type	ORAM Category	Mitigation Ratio On Site	Preferred Design		Minimal Degradation	
				Impact Acreage	Minimum Required Mitigation	Impact Acreage	Minimum Required Mitigation
37	emergent	Modified 2	1.5:1	0.068	0.10	0	0
40	lowland woods and emergent	Modified 2	2:1	0.264	0.53	0.187	0.37
41	emergent	Modified 2	1.5:1	0.134	0.20	0.134	0.20
42	emergent	Modified 2	1.5:1	0.032	0.05	0.032	0.05
43	emergent	Modified 2	1.5:1	0.101	0.15	0	0
47	emergent	Modified 2	1.5:1	0.039	0.06	0.039	0.06
49	scrub/shrub, emergent	Modified 2	1.5:1	0.232	0.35	0.232	0.35
68	lowland woods, scrub/shrub, emergent	2	2:1	0.176	0.35	0	0
72	emergent	Modified 2	1.5:1	0.003	0.01	0	0
80	emergent	Modified 2	1.5:1	0.012	0.02	0	0
82	emergent	Modified 2	1.5:1	0.009	0.01	0	0
83	emergent	Modified 2	1.5:1	0.013	0.02	0.013	0
85	emergent	Modified 2	1.5:1	0.033	0.05	0	0
86	lowland woods, scrub/shrub	Modified 2	2:1	0.021	0.04	0.021	0.04
91	lowland woods	Modified 2	2:1	0.157	0.31	0.157	0.31
92	lowland woods	2	2:1	0.175	0.35	0.175	0.35
95	lowland woods	2	1:1	6.632	6.632	3.631	3.631
Total On-Site Mitigation				8.10 ac.	9.23 ac.	4.62 ac.	5.38 ac.

Table 16. Summary Table of Isolated Wetlands Mitigation Requirements for MPMG Range

Wetland	Wetland Type	ORAM Category	Mitigation Ratio On Site	Preferred Design		Minimal Degradation	
				Impact Acreage	Minimum Required Mitigation	Impact Acreage	Minimum Required Mitigation
38	emergent	1	1.5:1	0.121	0.18	0.121	0.18
39	emergent	Modified 2	1.5:1	0.046	0.07	0.046	0.07
48	emergent	Modified 2	1.5:1	0.024	0.04	0.024	0.04
78	emergent	Modified 2	1.5:1	0.016	0.02	0	0
93	lowland woods	2	2:1	0.066	0.13	0.066	0.13
96	lowland woods	2	2:1	0.057	0.11	0.057	0.11
Total On-Site Mitigation				0.33 ac.	0.55 ac.	0.31 ac.	0.53 ac.

Mitigation for the preferred plans is cost-prohibitive and, therefore, mitigation for the minimal degradation alternatives has been presented below.

For mitigation of wetland impacts associated with the proposed MRF Range, OHRANG plans to utilize a site that exists within Camp Ravenna property. At this site, 2.625 acres of wetlands have been restored and have completed five years of monitoring, thus fulfilling mitigation requirements. This site is known as the Route 80 Tank Farm Mitigation Site (Appendix M). A portion of this site (0.915 acre) is designated as mitigation for a previous isolated wetland permit leaving a total of 1.7 acres available for use as mitigation for the MRF Range Project.

Additional wetlands mitigation for the MRF Range project will be fulfilled on site at a Route 80 wetlands mitigation area as provided in Appendix N. This area will have former fill and tiled areas restored to wetland to match the adjacent Category 3 wetlands. This area will restore a total of 3.9 acres of wetlands.

Mitigation for wetlands impacts occurring on the MPMG Range will be completed directly on the MPMG Range site (Appendix O). A current operational firing lane will be abandoned and 5.9 acres of wetlands will be restored in this area through excavation and planting.

All wetlands for both ranges will be mitigated on site through restoration of 11.5 acres of wetlands utilizing the 1.7 acres available at the Route 80 Tank Farm Site; the 3.9 acres that will be restored at the Route 80 site; and finally the 5.9 acres of wetlands restored on the abandoned Lane 4 on the MPMG Range site. This will mitigate the entire amount of impacts associated with the minimal degradation alternative for the MRF and MPMG Range projects.

### *Mitigation for Impacts to Streams*

Impacts to streams in the preferred design for the MRF Range total 1,564 linear feet. The plans would be to culvert all streams within the firing lanes. This method is preferred based on the cost of the long-term maintenance of having to mow around streams. The minimal degradation alternative has far less impacts, 235 linear feet, and will include installation of three culverts over existing streams in the firing lanes. This will result in less cost in terms of mitigation. Therefore, mitigation for the minimal degradation alternative has been presented in Table 17.

The impacts to streams on the MPMG Range for the minimal degradation alternative have been limited to two culverts placed over one stream. This stream is directly adjacent to a target and the earth berm around the target lifter will intersect the stream. Mitigation for these impacts is presented in Table 18.

To provide compensatory mitigation for these projects, the applicant proposes to complete a dam removal and stream restoration project on the South Fork Eagle Creek which is located within Camp Ravenna property (Appendix P). This project will include the removal of a dam and creation of a meandering stream with natural features. Re-vegetation of the area will occur with native Ohio woody material similar to what exists in the surrounding riparian area. This project area is located in a gorge on the north-central side of the installation and will not be disturbed by development on the range. The total amount of mitigation that will be allocated for the MRF and MPMG Ranged is 900 linear feet. The remaining amount of stream mitigation constructed as part of this dam removal project will be pooled to be used towards other future Camp Ravenna construction projects that may have potential stream impacts.

Table 17. Stream Mitigation Requirements MRF Range Minimal Degradation Alternative

Stream	Stream Type	HHEI Score	Mitigation Ratio On-site	Impact (linear feet)	Proposed Mitigation (linear feet)
4	ephemeral	42	1:1.5	67	100.5
5	intermittent	58	1:1.5	96	144
6	ephemeral	23	1:1.5	72	108
Total				235	352.5

Table 18. Stream Mitigation Requirements MPMG Range Minimal Degradation Alternative

Stream	Stream Type	HHEI Score	Mitigation Ratio On-site	Impact (linear feet)	Proposed Mitigation (linear feet)
10	intermittent	43	1:1.5	261	391.5
Total				261	391.5

## References

AMEC. 2009. *Supplemental Environmental Assessment for Proposed Range Development at the Ravenna Training and Logistics Site, Portage and Trumbull Counties*. Columbus, OH: Ohio Army National Guard.

Davey Resource Group. 2013. *Wetlands Delineation Report. Multipurpose Machine Gun (MPMG) Range and Combat Pistol Qualification Course (CPQC), 509 Acres, Camp Ravenna, Paris and Windham Townships, Portage County, Ohio*. Kent, OH: Davey Resource Group.

Davey Resource Group. 2010. *Wetlands Delineation Report. 102.5 Acres, Mechanized Record Fire Range Project, Camp Ravenna Joint Military Training Center, Windham Township, Portage County, Ohio*. Stow, OH: Davey Resource Group.

***Appendix A***  
***Range Development Plan Map***

***Appendix B***  
***Location of Study Area on Highway Map***

***Appendix C***  
***Finding of No Significant Impact Letter (FSNI)***

## Appendix D

### Wetlands and Streams Identified on the Proposed MRF and MPMG Range Sites

Wetlands Delineated on the MRF Site

Wetlands	Type	Connectivity to Waters of the U.S.	Area (Acres)	ORAM Score	ORAM Category
A	shrub/shrub	non-isolated	0.383	42	Modified 2
B	wet meadow and lowland woods	isolated	0.126	39.5	Modified 2
C	lowland woods	isolated	0.004	39	Modified 2
D	wet meadow and scrub/shrub	isolated	0.055	31.5	1 or 2 gray zone (assumed 2)
E	wet meadow	isolated	0.007	17.5	1
F	lowland woods and scrub/shrub	isolated	0.383	50	2
G	wet meadow and scrub/shrub	isolated	0.111	39	Modified 2
H	lowland woods	isolated	0.068	36.5	Modified 2
I	lowland woods and wet meadow	non-isolated	0.160	35.5	Modified 2
J	wet meadow	non-isolated	0.014	31.5	1 or 2 gray zone (assumed 2)
K	lowland woods	isolated	0.051	38	Modified 2
L	lowland woods	non-isolated	0.089	48	2
M	lowland woods	non-isolated	0.047	52.5	2
N	lowland woods	non-isolated	0.010	49.5	2
O	lowland woods	non-isolated	0.019	49.5	2
P	scrub/shrub	non-isolated	0.203	54	2
Q	lowland woods	non-isolated	7.203	59	2
R	scrub/shrub	non-isolated	0.073	47.5	2
S	lowland woods	non-isolated	0.114	49	2
T	lowland woods	non-isolated	0.555	55	2
U	lowland woods	non-isolated	0.018	39	Modified 2
V	scrub/shrub and wet meadow	non-isolated	0.364	32	1 or 2 gray zone (assumed 2)
W	wet meadow	non-isolated	0.180	24	1
X	wet meadow	non-isolated	0.019	23	1
Y	wet meadow	non-isolated	0.110	24	1
Z	lowland woods	isolated	0.011	28	1
AA	lowland woods	isolated	0.009	36.5	Modified 2
BB	lowland woods	non-isolated	0.250	53	2
CC	scrub/shrub	non-isolated	0.072	48	2
DD	lowland woods and wet meadow	non-isolated	0.147	26.5	1
EE	lowland woods	non-isolated	0.010	33.5	1 or 2 gray zone (assumed 2)

Wetlands Delineated on the MRF Site (Continued)

Wetlands	Type	Connectivity to Waters of the U.S. <sup>1</sup>	Area (Acres)	ORAM Score	ORAM Category
FF	scrub/shrub	non-isolated	0.213	25.5	1
GG	scrub/shrub	isolated	0.152	37.5	Modified 2
HH	scrub/shrub	non-isolated	0.095	27.5	1
II	scrub/shrub	isolated	0.021	38.5	Modified 2
JJ	scrub/shrub	isolated	0.083	46.5	2
KK	scrub/shrub and wet meadow	isolated	0.141	42.5	Modified 2
LL	lowland woods	isolated	0.004	35	Modified 2
MM	lowland woods and scrub/shrub	isolated	0.096	38.5	Modified 2
<b>Total</b>			<b>11.670</b>		

Drainageways Delineated on the MRF Site

Stream	Type	Length (Linear Feet)
1	perennial	549
2	perennial	642
3	perennial	432
4	ephemeral	336
5	intermittent	1,347
6	ephemeral	153
7	ephemeral	539
8	ephemeral	521
<b>Total Ephemeral</b>		<b>1,549</b>
<b>Total Intermittent</b>		<b>1,347</b>
<b>Total Perennial</b>		<b>1,623</b>
<b>Total</b>		<b>4,519</b>

Wetlands Delineated on the MPMG Site

Wetlands	Type	Connectivity to Waters of the U.S.	Area (Acres)	ORAM Score	ORAM Category
1	emergent, forested, scrub/shrub	non-isolated	2.033	60	3
2	forested	non-isolated	0.094	41.5	Modified 2
3	emergent, scrub/shrub, forested	non-isolated	2.176	59.5	2
4	scrub/shrub	non-isolated	0.024	39	Modified 2
5	forested	non-isolated	0.115	49	2
6a	emergent, forested	non-isolated	3.858	61	3
6b	emergent, forested	non-isolated	0.928	53.5	2
7	forested	non-isolated	0.197	57	2
8	forested, scrub/shrub	isolated	0.717	66.5	3
9	forested	isolated	0.167	43.5	Modified 2
10	forested	isolated	0.015	45	2
11	forested	isolated	0.011	45	2
12	emergent	isolated	0.139	58	2
13	forested	isolated	0.051	47.5	2
14	forested	isolated	0.047	47.5	2
15	forested	non-isolated	0.537	59	2
16	forested	non-isolated	0.014	51	2
17	forested	non-isolated	0.209	49	Modified 2
18	forested	non-isolated	0.071	51.5	2
19	forested	isolated	0.014	46.5	2
20	forested	non-isolated	0.178	56	2
21	emergent, forested	non-isolated	0.182	56	2
22	emergent	non-isolated	0.022	56	2
23	forested	non-isolated	0.075	56	2
24	forested	isolated	0.137	49	2
25	forested	non-isolated	0.339	56	2
26	forested	non-isolated	0.193	53	2
27	forested	isolated	0.008	39	Modified 2
28	emergent	non-isolated	0.167	35.5	Modified 2
29	emergent	isolated	0.009	32	Modified 2
30	forested	isolated	0.198	37.5	Modified 2
31	emergent, forested, scrub/shrub	non-isolated	9.709	74	3
32	forested	non-isolated	0.073	49	2
33	emergent, scrub/shrub	isolated	0.163	56	2
34	scrub/shrub	non-isolated	0.060	40	Modified 2

Wetlands Delineated on the MPMG Site (Continued)

Wetlands	Type	Connectivity to Waters of the U.S.	Area (Acres)	ORAM Score	ORAM Category
35	emergent, scrub/shrub	non-isolated	0.321	36	Modified 2
36	emergent	isolated	0.035	24	1
37	emergent	non-isolated	0.068	30	Modified 2
38	emergent	isolated	0.121	25.5	1
39	emergent	isolated	0.046	33	Modified 2
40	emergent, forested	non-isolated	0.264	33	Modified 2
41	emergent	non-isolated	0.134	35	Modified 2
42	emergent	non-isolated	0.123	34	Modified 2
43	emergent	non-isolated	0.101	33.5	Modified 2
44	emergent	isolated	0.034	32.5	Modified 2
45	emergent	isolated	0.019	33.5	Modified 2
46	emergent	non-isolated	0.227	34.5	Modified 2
47	emergent	non-isolated	0.039	33.5	Modified 2
48	emergent	isolated	0.024	33.5	Modified 2
49	emergent, scrub/shrub	non-isolated	4.430	40	Modified 2
50	emergent	non-isolated	0.117	34.5	Modified 2
51	scrub/shrub	non-isolated	0.021	33.5	Modified 2
52	emergent	isolated	0.018	32.5	Modified 2
53	emergent	isolated	0.017	31.5	Modified 2
54	emergent	isolated	0.004	31.5	Modified 2
55	emergent	isolated	0.051	31.5	Modified 2
56	emergent, scrub/shrub	non-isolated	0.149	35	Modified 2
57	emergent	isolated	0.044	32.5	Modified 2
58	emergent	non-isolated	0.144	33.5	Modified 2
59	emergent	non-isolated	0.074	33.5	Modified 2
60	scrub/shrub	non-isolated	0.130	37.5	Modified 2
61	forested	isolated	0.041	42.5	Modified 2
62	forested	non-isolated	0.127	42.5	Modified 2
63	emergent	Isolated	0.324	34.5	Modified 2
64	emergent	isolated	0.019	33	Modified 2
65	emergent	non-isolated	0.684	34	Modified 2
66	emergent	non-isolated	0.114	36.5	Modified 2
67	forested	isolated	0.028	37.5	Modified 2
68	emergent, scrub/shrub, forested	non-isolated	10.848	59	2
69	emergent	non-isolated	0.277	32.5	Modified 2
70	emergent	non-isolated	0.037	31.5	Modified 2
71	emergent	non-isolated	0.161	32.5	Modified 2
72	emergent	non-isolated	0.341	33.5	Modified 2
73	emergent	non-isolated	0.209	32.5	Modified 2
74	emergent	non-isolated	0.030	31.5	Modified 2

Wetlands Delineated on the MPMG Site (Continued)

Wetlands	Type	Connectivity to Waters of the U.S.	Area (Acres)	ORAM Score	ORAM Category
75	emergent	isolated	0.049	31.5	Modified 2
76	emergent	non-isolated	0.026	31.5	Modified 2
77	emergent	non-isolated	0.086	31.5	Modified 2
78	emergent	isolated	0.054	31	Modified 2
79	emergent	non-isolated	0.096	31	Modified 2
80	emergent	non-isolated	0.049	31	Modified 2
81	emergent	non-isolated	0.062	32	Modified 2
82	emergent	non-isolated	0.206	33.5	Modified 2
83	emergent	non-isolated	0.453	32.5	Modified 2
84	emergent	non-isolated	0.138	33.5	Modified 2
85	emergent	non-isolated	0.152	33.5	Modified 2
86	forested, scrub/shrub	non-isolated	0.032	36	Modified 2
87	emergent	non-isolated	0.020	32.5	Modified 2
88	emergent	non-isolated	0.021	32.5	Modified 2
89	emergent	non-isolated	0.369	43	Modified 2
90	emergent	non-isolated	0.069	32.5	Modified 2
91	forested	non-isolated	0.157	40.5	Modified 2
92	forested	non-isolated	0.239	58.5	2
93	forested	isolated	0.091	53	2
94	forested	isolated	0.055	54.5	2
95	forested	non-isolated	6.632	58.5	2
96	forested	isolated	0.057	49	2
97	forested	non-isolated	0.334	58.5	2
98	forested	non-isolated	0.085	63.5	3
99	forested, scrub/shrub	non-isolated	0.347	67.5	3
100	forested	isolated	0.051	52	2
101	forested	isolated	0.183	53	2
102	forested	non-isolated	0.072	51	2
103	emergent	isolated	0.086	30.5	Modified 2
104	emergent	non-isolated	0.038	55.5	2
105	forested	non-isolated	0.388	70.5	3
106	emergent, forested	non-isolated	0.920	65.5	3
107	forested	non-isolated	0.311	61.5	3
108	forested	non-isolated	0.108	58.5	2
109	forested	non-isolated	1.609	76.5	3
110	emergent	isolated	0.160	34	Modified 2
111	emergent, forested	non-isolated	2.128	45	2
112	emergent	isolated	0.221	35.5	Modified 2
113	emergent, forested	non-isolated	0.799	41.5	Modified 2
114	emergent	non-isolated	0.034	31.5	Modified 2
115	emergent	isolated	0.019	31	Modified 2

Wetlands Delineated on the MPMG Site (Continued)

Wetlands	Type	Connectivity to Waters of the U.S.	Area (Acres)	ORAM Score	ORAM Category
116	emergent, forested, scrub/shrub	non-isolated	1.384	72.5	3
117	emergent, scrub/shrub	non-isolated	0.185	37.5	Modified 2
118	emergent	non-isolated	0.033	35.5	Modified 2
119	scrub/shrub	non-isolated	0.183	46.5	2
120	emergent, scrub/shrub, forested	non-isolated	0.782	65	3
121	Emergent	non-isolated	0.530	35.5	Modified 2
<b>Total</b>			<b>63.028</b>		

Drainageways Delineated on the MPMG Site

Stream	Type	Length (Linear Feet)
1	perennial	749
2	intermittent	1,404
3	intermittent	2,099
4	intermittent	3,954
5	intermittent	191
6	intermittent	469
7	ephemeral	175
8	ephemeral	58
9	ephemeral	61
10	intermittent	3,745
11	intermittent	4,283
12	intermittent	3,474
13	ephemeral	92
14	ephemeral	60
15	intermittent	675
16	intermittent	335
Sand Creek	perennial	4,530
<b>Total</b>		<b>26,354</b>
Total Ephemeral		446
Total Intermittent		20,629
Total Perennial		5,279

***Appendix E***  
***Jurisdictional Determination Letters***

***Appendix F***  
***ORAM v5 Summary and Forms for Impacted Wetlands***

## *MRF Range*

## *MPMG Range*

***Appendix G***  
***HHEI/QHEI Summary and Forms for Impacted Streams***

## *MRF Range*

## *MPMG Range*

***Appendix H***  
***NEPA Agency Correspondence***

***Appendix I  
Construction Plans and Impacts Maps for the MRF and  
MPMG Range Preferred Design Alternatives***

***Appendix J  
Construction Plans and Impacts Maps for the MRF and  
MPMG Range Minimal Degradation Alternatives***

***Appendix K  
Construction Plan and Impacts Map for the MRF Range  
Non-Degradation Alternative***

## **Appendix L**

### **Site Selection Alternatives Analysis from Environmental Assessment**

Through the completion of the environmental assessment (EA), all viable layouts and alternative sites were considered for this project. The Ohio Army National Guard (OHARNG) has only three large training sites in Ohio that were evaluated, Camp Ravenna (21,683 acres), Camp Perry Training Site (CPTS) (640 acres), and Camp Sherman Training Site (CSTS) (462 acres). The OHARNG's overall training range requirements were evaluated with range projects proposed at each of the training sites consistent with site constraints. The CPTS, located adjacent to Lake Erie, does not have sufficient training land to accommodate the number of ranges needed by the OHARNG to meet Standards in Training Commission (STRAC) requirements. CSTS similarly lacks suitable available area not constrained by ongoing live-fire training for placing the ranges proposed for Camp Ravenna. The CPTS and CSTS were both eliminated from further consideration because they do not meet Screening Criteria.

Establishment of a new training site was examined but eliminated due to the fact that, as a primary component of Base Realignment and Closure, the Department of Defense (DoD) is eliminating and/or consolidating many installations throughout the United States. As sufficient land area is available at Camp Ravenna to accommodate the required ranges, the OHARNG determined that, in accordance with DoD directives and vision, establishment of a new training site was neither feasible nor necessary.

The potential for a reduced-scale alternative was considered and evaluated by the OHARNG. The Preferred Action Alternative presented in the EA represents the optimum and minimum entire range development proposal necessary to meet the purpose of and need for the Proposed Action. Eliminating proposed ranges would not meet the OHARNG's specified training requirements; reducing the size of proposed ranges is also not possible as proposed ranges are required to meet the standards outlined in Army TC 25-8.

All practicable layouts within the confines of Camp Ravenna were explored; however, due to safety restrictions that do not allow certain activities within Surface Danger Zones (SDZs), many areas within the property owned by the base are excluded from the analysis. The expansion of an existing MK-19 range, was chosen for this purpose as it could have greater SDZs and thus could accommodate a 1500m lane. With knowledge of these restrictions, possible layouts for this site were evaluated to try to overlap these SDZs with existing SDZs from other training areas. Although training cannot occur within SDZs, these zones can overlap each other.

By fully evaluating these options, the Modified Record Fire (MRF) Range footprint was minimized to the extent practicable with minimum impact to other on-site training activities. This project area was also chosen for the placement of the MRF Range because it provided the most limited environmental impacts of all viable alternatives investigated. Additional areas were evaluated; however, some of these areas, such as the alternative MRF2 site, not only contained wetlands, but also were contained within a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site (within a portion of the footprint of a Munitions Response Site), and have the potential topographical issues, including stream impacts. Thus these sites were rejected as alternative site locations because they would potentially lead to greater environmental impacts than the current project sites.

***Appendix M***  
***Route 80 Tank Farm On-Site Wetlands Mitigation Project***

***Appendix N***  
***Route 80 Wetlands Mitigation Site Conceptual Plan***

***Appendix O***  
***MPMG Range Mitigation Plan***

***Appendix P***  
***South Fork Eagle Creek Restoration Site 30% Design***