PRELIMINARY FINAL

ENVIRONMENTAL ASSESSMENT

Modernization and Continued Operation of

Marine Corps Reserve Center Battle Creek

Springfield, Michigan

April 2022

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Abstract

Designation: Environmental Assessment

Title of Proposed Action: Modernization and Continued Operation of Marine Corps Reserve Center Battle Creek

Project Location: City of Springfield, Michigan

Lead Agency for the EA: Department of the Navy, U.S. Marine Corps

Cooperating Agency: None

Affected Region: Calhoun County, Michigan

Action Proponent: Marine Corps Forces Reserve

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Date: April 2022

The Marine Corps Forces Reserve has prepared this Environmental Assessment in accordance with the National Environmental Policy Act, as implemented by the Council on Environmental Quality Regulations and Navy and Marine Corps regulations for implementing the National Environmental Policy Act. The Proposed Action would demolish several existing facilities, construct and operate several new facilities, improve site access/circulation and security, and exchange land parcels with the City of Springfield at Marine Corps Reserve Center (MCRC) Battle Creek, located in the City of Springfield, Michigan. MCRC Battle Creek would continue to support multiple companies of the Major Subordinate Command(s). This Environmental Assessment evaluates the potential environmental impacts associated with the Action Alternative and the No Action Alternative to the following resource areas: air quality; water resources; cultural resources; biological resources; land use; and hazardous materials and wastes.

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EXECUTIVE SUMMARY

ES.1 Proposed Action

The United States (U.S.) Marine Corps Forces Reserve (MARFORRES) proposes to modernize the facilities of Marine Corps Reserve Center (MCRC) Battle Creek located in the City of Springfield, Calhoun County, Michigan (MI). The facilities of MCRC Battle Creek are outdated and inadequate to support current requirements of the assigned Major Subordinate Command(s). The Proposed Action evaluated in this Environmental Assessment (EA) would include: 1) demolition of several existing buildings, structures, and parking areas; 2) construction of several new buildings and parking areas within developed and undeveloped lands; 3) improvements to site access/circulation and security; 4) land exchange; and 5) continued operation of the MCRC.

ES.2 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to provide an adequately sized, multi-functional facility to train Marines assigned to MCRC Battle Creek. The need for the Proposed Action is to provide capabilities for training and equipping combat-capable forces ready to deploy worldwide as mandated for the U.S. Marine Corps under 10 United States Code, section 5063.

ES.3 Alternatives Considered

Potential alternatives were evaluated against screening factors to meet the purpose and need and the following siting criteria: total ownership costs must be minimized; the location must have space to allow for future expansion; the location must be in reasonable proximity to outdoor training areas/lands; and the location must meet Anti-terrorism/Force Protection standoff requirements.

MARFORRES is considering one action alternative that would meet the purpose of and need for the Proposed Action and a No Action Alternative. The Action Alternative, with two site layout options, would implement the Proposed Action. The Action Alternative includes: demolition of approximately 70,000 square feet of old facilities and infrastructure to include Buildings 410, 421, 423, 505, and 513, two storage sheds, a wind turbine, and removal of portions of the existing fence; construction of approximately 73,000 square feet of new facilities that would include a new reserve training center (RTC) with an indoor armory and an outdoor covered weapons maintenance area, vehicle maintenance facility, and organic storage shed(s). Utility service connections would be made to existing systems adjacent to the site. Paved parking areas would be constructed to accommodate privately owned vehicles. The total area of ground disturbance would be approximately 16 acres to include the removal of approximately 5.0 acres of trees and woody vegetation in preparation for construction. New security fencing would close portions of MCRC Battle Creek from public access. MARFORRES would exchange a 2.6 acre parcel of MARFORRES-owned land for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield. The project is anticipated to begin in fiscal year 2023 and take approximately 24 months to complete.

MCRC Battle Creek would continue to train Marine Corps reservists to meet current Marine Corps individual and/or unit level operational readiness training requirements during the demolition and construction process. MCRC Battle Creek would remain open weekdays (Monday through Friday) from

7:30 a.m. to 4:30 p.m. and during drill weekends (Saturday and Sunday) from 7:30 a.m. to 4:30 p.m. During weekdays, an average of 29 full time active duty Marines would be on site in support of administrative functions; during drill weekends, up to 472 reserve Marines would convene at MCRC Battle Creek.

The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action. Under the No Action Alternative, the outdated and inadequate facilities at MCRC Battle Creek would not be replaced. MCRC Battle Creek would continue to train Marine Corps reservists to meet current Marine Corps individual and/or unit level operational readiness training requirements; however, the assigned units would experience diminished training that could affect their ability to be deployed worldwide as combat-capable forces.

ES.4 Summary of Environmental Resources Evaluated in the EA

Council on Environmental Quality regulations, National Environmental Policy Act, and Navy and Marine Corps instructions for implementing the National Environmental Policy Act, specify that an EA should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The following resource areas have been evaluated in this EA: air quality; water resources; cultural resources; biological resources; land use; and hazardous materials and wastes. Because potential impacts were considered to be negligible or nonexistent, the following resources were not evaluated in this EA: geological resources; visual resources; airspace; noise; infrastructure; transportation; public health and safety; socioeconomics; and environmental justice.

ES.5 Summary of Potential Environmental Consequences of the Alternative Actions

Table ES-1 provides a tabular summary of the potential impacts to the resources associated with each of the alternative actions analyzed. Based on the analysis presented in the EA, no significant environmental impacts would result from implementation of the Proposed Action (i.e., Action Alternative) or the No Action Alternative.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Action Alternative*
Air Quality	The Proposed Action would not occur. The continued use of energy inefficient buildings and infrastructure may present minor, long-term impacts to air quality in the region.	Potential for short-term impacts to air quality during demolition and construction activities over an approximate 24-month period. Criteria pollutant emissions would be less than significant. Best management practices (BMPs) such as surface wetting of soils and limitation on idling for construction equipment and trucks operating onsite would reduce the potential for fugitive dust. New, energy efficient buildings could result in minor long-term beneficial impacts to air quality.
Water Resources	The Proposed Action would not occur; there would be no change to baseline water resources.	No short- or long-term effects to water resources would be anticipated. No direct impacts to groundwater, surface water, wetlands, or the floodplain; indirect impacts would be prevented and/or minimized through the use of BMPs for containing construction site soil disturbance. An un-named tributary was identified during a jurisdictional wetland delineation conducted in July 2020. The tributary is located within the 2.6 acre parcel proposed for land exchange. The MI Department of Environment, Great Lakes, and Energy (EGLE) Water Resources Division (WRD), Kalamazoo District Office has been delegated authority by the U.S. Army Corps of Engineers Detroit District Regulatory Branch to confirm wetlands in Calhoun County. On July 3, 2020, the District Office was contacted via telephone to request confirmation of the wetland delineation findings; however, since no activities for development of the 2.6 acre parcel are proposed, no jurisdictional determination was made. A National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit would be obtained prior to any construction and a stormwater pollution prevention plan would be prepared in accordance with the NPDES permit process. The plan would specify the BMPs for controlling stormwater runoff and minimizing potential impacts to water quality in the watershed during construction activities. In addition, low impact development methods would be incorporated as appropriate to minimize stormwater runoff. A 100-year floodplain is located along the un-named tributary in the 2.6 acre parcel; no direct or indirect impact to the floodplain would be anticipated as no development is proposed for the site under the Proposed Action. Based on the location and nature of the activities under the Proposed Action, MI Department of EGLE WRD determined there would be no impacts to the coastal zone; as such, a Coastal Consistency Determination is not required. The Proposed Action would not result in significant impacts to water resources.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Action Alternative*
Cultural Resources	The Proposed Action would not occur; there would be no change to cultural resources.	No National Register of Historic Places (NRHP)-eligible archaeological resources have been identified and no historic properties are located within the boundary of MCRC Battle Creek. MARFORRES consulted with the MI State Historic Preservation Office (SHPO) in accordance with Section 106 of the National Historic Preservation Act regarding potential effects of the Proposed Action on archaeological resources. MI SHPO concurred with the findings of MARFORRES regarding archaeological resources on January 7, 2021 stating that no historic archaeological properties would be affected. MARFORRES consulted with MI SHPO on two NRHP-eligible resources located outside of the MCRC Battle Creek boundary but within the viewshed of the proposed new Reserve Training Center. MI SHPO concurred with the determination by MARFORRES of ***no adverse effect*** on historic properties within the area of potential effect on October 13, 2021. Previous consultations conducted by the Navy in the same areas proposed for demolition and construction under the Proposed Action, identified no NRHP-eligible architectural or archaeological resources within the boundary of MCRC Battle Creek; MI SHPO concurred in with the previous findings in two correspondences, in May 2020 (architectural) and August 2020 (archaeological), respectively. In accordance with the NHPA (36 CFR 800.3(f)(2)) and EO 13175, MARFORRES is consulting with federally-recognized Native American tribes regarding the environmental impact analysis and the MI SHPO's determination of effects under Section 106.
Biological Resources	The Proposed Action would not occur; there would be no change to biological resources.	Potential for minor short-term impacts to biological resources during the construction phase; negligible impacts anticipated during the operational phase. Vegetation removal and habitat loss would represent a long-term impact; however, forested areas to the south, within the training lands area, would provide suitable habitat resulting in minimal long-term impact to wildlife. On February 21, 2022, coordination with the U.S. Fish and Wildlife Service (USFWS) was initiated regarding potential effects of the Proposed Action's preferred site layout option on federally listed species via the Service's Information, Planning, and Consultation (IPaC) system. The USFWS IPaC indicated the federally endangered Indiana bat, federally threatened Northern long-eared bat, Copperbelly water snake, and Eastern massasauga, and candidate Monarch butterfly may be present at MCRC Battle Creek; however, no critical habitat is within the project area for these species. No surveys have been conducted within the installation boundary; however, surveys conducted by NAVFAC in the adjacent training lands, an area that provides a much more diverse and spacious habitat, have not detected the presence of the listed endangered or threatened species. In compliance with Section 7 of the Endangered Species Act, and based on the location and the activities proposed, MARFORRES has determined the modernization of MCRC Battle Creek would have ***no effect*** to federally listed species. The USFWS IPaC also indicated the potential for the Bald eagle and nine migratory birds listed on the USFWS Birds of Conservation Concern list to be present in the project area. To avoid disturbance and destruction of nests that may be present, tree and woody vegetation clearing would occur in the non-breeding season (i.e., October 01 to March 31). Application of this avoidance measure would be anticipated to result in no significant impact during the demolition and construction phases.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Action Alternative*
Land Use	The Proposed Action would not occur; there would be no change to land use.	The proposed land exchange would align with the future land use plans of the City of Springfield. With completion of the land exchange and approval granted from the City of Springfield City Planning Commission for site development, there would be no significant impact to land use.
Hazardous Materials and Wastes	The Proposed Action would not occur; there would be no change to hazardous materials and wastes.	No significant short- or long-term impacts to this resource would be anticipated. A hazardous material survey conducted in January 2020 on buildings 410, 421, 423, 505, 513 and the two storage sheds detected the presence of asbestos-containing material, lead-based paint/ lead-containing paint, and the potential for polychlorinated biphenyls. The handling of hazardous materials and waste would be conducted in accordance with federal, state, and local regulations. MARFORRES would continue to follow the regulatory guidance for hazardous material and hazardous waste management and minimization provided in Marine Corps Order 5090.2, Volume 9, *Hazardous Waste Management*.

ES.6 Public and Agency Participation and Intergovernmental Coordination

MARFORRES will publish a notice of availability (NOA) for 1 day in the Battle Creek Enquirer newspaper to announce the availability of the preliminary final EA for a 14-day review period. The NOA will indicate the availability of the preliminary final EA on the following public website: https://www.navfac.navy.mil/navfac_worldwide/atlantic/fecs/mid-atlantic/about_us/environmental_norfolk/environmental_planning_and_conservation.html.

MARFORRES will publish a NOA for three (3) consecutive days in the Battle Creek Enquirer newspaper to announce the availability of the final EA and Finding of No Significant Impact, if warranted.

MARFORRES coordinated with the following federal and state agencies: MI Department of EGLE WRD, Kalamazoo District Office; U.S. Army Corps of Engineers, Detroit District; MI State Historic Preservation Office; and U.S. Fish and Wildlife Service during the preparation of the EA. MARFORRES is coordinating with the City of Springfield regarding the proposed land exchange and road closure considered under the Proposed Action.

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Preliminary Final
Environmental Assessment for the Modernization and Continued Operation of Marine Corps Reserve Center Battle Creek Springfield, Michigan

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Abbreviations and Acronyms

Acronym	Definition
ACM	asbestos-containing material
APE	Area of Potential Effect
AT/FP	Anti-terrorism Force Protection
BMP(s)	best management practice(s)
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CWA	Clean Water Act
DoD	Department of Defense
EA	Environmental Assessment
EGLE	Environment, Great Lakes, and Energy
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
ft^2	square feet
GHG	greenhouse gas
IPaC	Information, Planning, and Consultation
LBP	lead-based paint
LCP	lead-containing paint
LID	low impact development
MI	Michigan
MARFORRES	Marine Corps Forces Reserve
MCRC	Marine Corps Reserve Center
MI	Michigan
NAAQS	National Ambient Air Quality Standards
NAVFAC	Naval Facilities Engineering Command
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NOA	notice of availability
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OSS	organic storage shed
OVAI	Ohio Valley Archaeology, Inc
Pb	lead
PCB	polychlorinated biphenyl
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
POV(s)	Privately Owned Vehicles
ppb	parts per billion
ppm	parts per million
RTC	Reserve Training Center
SAGE	Semi-automatic Ground Environment
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
UFC	United Facilities Criteria
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
µg/m3	micrograms per cubic meter
VMF	vehicle maintenance facility
VOC(s)	volatile organic compound(s)
WRD	Water Resources Division

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1 Purpose of and Need for the Proposed Action

1.1 Introduction

The United States (U.S.) Marine Corps Forces Reserve (MARFORRES) proposes to modernize the facilities of Marine Corps Reserve Center (MCRC) Battle Creek located in the City of Springfield, Calhoun County, Michigan (MI). The facilities of MCRC Battle Creek are outdated and inadequate to support operational training requirements needed for Rifle Company A, 1st Battalion, 24th Marine Division, recently reassigned from MCRC Grand Rapids to MCRC Battle Creek and current requirements of Major Subordinate Command(s): 4th Marine Logistics Group and 6th Engineer Support Units, Detachment 1 Headquarters & Service Company and Engineer Support Company (U.S. Marine Corps Forces Reserve, 2018). In fiscal year 2022, MCRC Battle Creek will have a total of 517 personnel consisting of 31 active duty Marines and 486 reservist Marines (MARFORRES, 2019).

The mission of MARFORRES is to augment and reinforce the active Marine forces in times of war, national emergencies, or contingency operations; provide personnel and operational tempo (i.e., rate of activity) relief for the active forces in peacetime; and to provide a service to the community. MARFORRES is comprised of two groups. The first, known as the Selected Marine Corps Reserve, are active duty Marines who typically belong to reserve units and have a minimum obligation to drill one weekend a month and two weeks a year. The second, known as the Individual Ready Reserve, are Marines who have finished their active duty or Marine Corps Reserve obligations and are inactive; however, their names remain on the record to be called up in case of a war or other emergency. The primary purpose of drills is to provide individual and/or unit level readiness of active and inactive reservists thereby ensuring that they are equipped and trained to the same standards as the active Marine forces.

The reserve training center (RTC) serves as the single gathering point for personnel for administrative meetings and is essential to support training and operations of assigned MARFORRES units during drill weekends. Additionally, the RTC provides a headquarters facility for Marines and becomes the initial mobilization location during federal activation of Marines. Under the Proposed Action, a new RTC and support structures would be constructed to replace the existing facilities that are outdated, inefficient, and undersized.

MARFORRES has prepared this Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality (CEQ) Regulations and Navy and Marine Corps regulations for implementing NEPA.

1.2 Location

MCRC Battle Creek is located within the City of Springfield. The site is northwest of the W.K. Kellogg Airport and approximately 2.1 miles northeast of the Fort Custer Training Center (**Figure 1.2-1**).

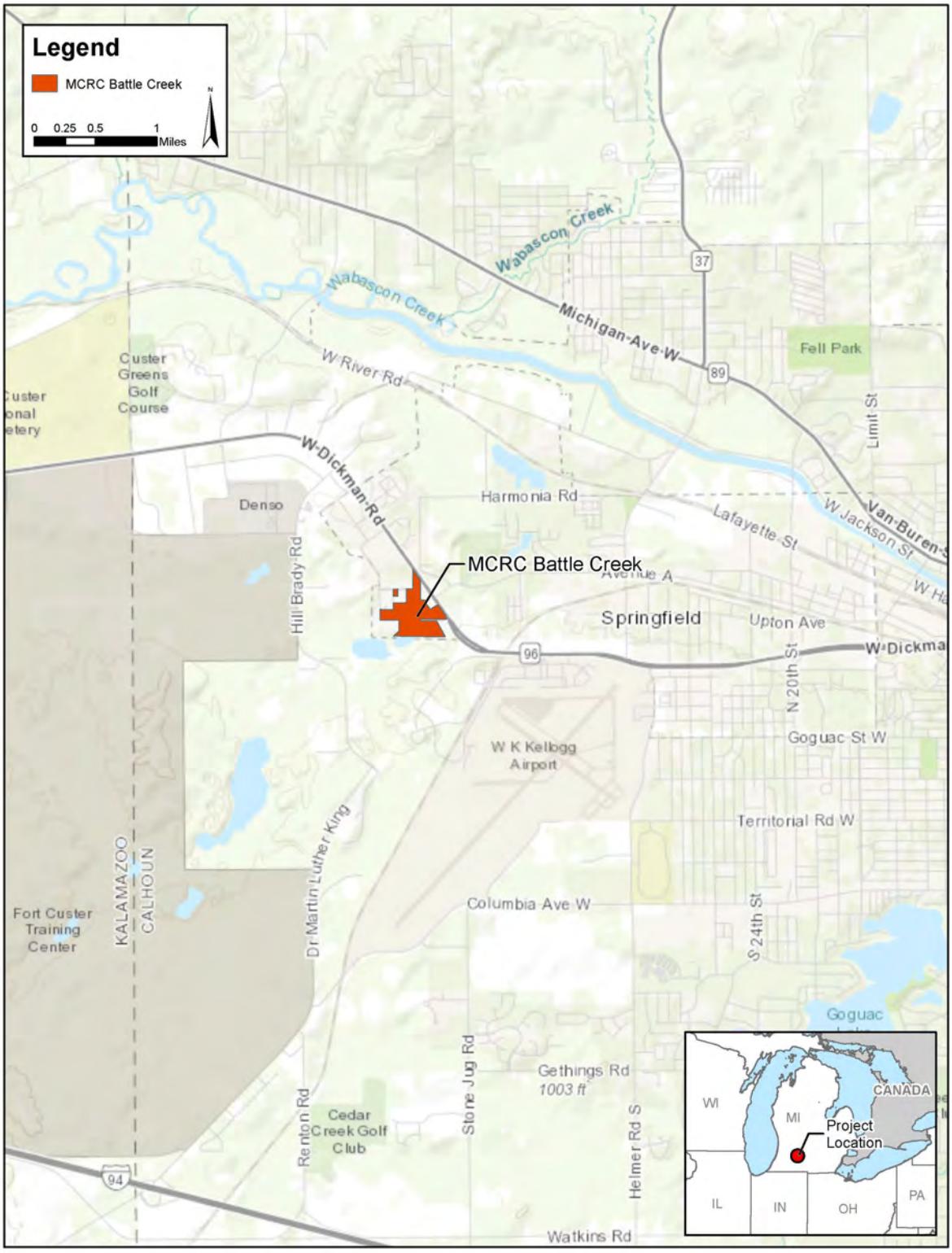

Figure 1.2-1. Regional Location of Marine Corps Reserve Center Battle Creek

1.3 Background

MCRC Battle Creek is one of MARFORRES' largest sites (174 acres) consisting of both owned (43 acres located in the City of Springfield) and leased training land (131 acres) located in the City of Battle Creek. The 43-acre site was previously owned by and shared with the Navy Operational Support Center; the site was transferred to MARFORRES when the Navy Operational Support Center moved to a new facility in Detroit, MI. Several of the MCRC buildings have exceeded their useful lifecycle. These include: RTC (Building 410) built in 1973, vehicle maintenance facility (Building 505) built in 1959, and warehouse (Building 513) built in 1995. These buildings are inadequate to support current MARFORRES operational and training requirements. Additionally, the site lacks adequate equipment storage areas resulting in equipment that must be stored outside without overhead protection in constant exposure to the elements (rain, sun, wind, etc.) resulting in undue wear and tear, accelerated deterioration, and continual costly maintenance requirements (MARFORRES, 2018; 2020c).

1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide an adequately sized, multi-functional facility to train Marines assigned to MCRC Battle Creek. The need for the Proposed Action is to provide capabilities for training and equipping combat-capable forces ready to deploy worldwide. In this regard, the Proposed Action furthers the U.S. Marine Corps' execution of its congressionally mandated roles and responsibilities under 10 United States Code (U.S.C.) section 5063:

> "The Marine Corps shall be organized, trained, and equipped to provide fleet marine forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign."

As such, the Proposed Action would ensure the MCRC Battle Creek reservists meet current Marine Corps individual and/or unit level operational readiness training requirements.

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the Action Alternative and the No Action Alternative. The environmental resource areas analyzed in this EA include: air quality, water resources, cultural resources, biological resources, land use, and hazardous materials and wastes. The study area for each resource analyzed may differ due to how the Proposed Action interacts with or impacts the resource. For instance, the study area for biological resources may only include the areas where proposed demolition and construction activities would occur whereas the study area for air quality may include all of Calhoun County.

The EA evaluates activities under the Proposed Action within the MARFORRES-owned 43-acre site and does not include an evaluation of training activities within the 131-acre area leased from the City of Battle Creek.

1.6 Key Documents

Key documents are sources of information incorporated into this EA. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. CEQ guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include:

- 2013 Phase 1 Environmental Site Assessments for Base Avenue, Ensign Avenue, and Dickman Road (Environmental Compliance Office Inc, 2013)
- 2018 Capability Gap and Global Shore Infrastructure Plan Alternatives Impact Analysis (MARFORRES, 2018)
- 2019 Protected Species (Eastern Massasauga and Copperbelly Water Snake) Surveys at Marine Corps Reserve Center Battle Creek, Michigan (NAVFAC, 2019)
- 2020 Wetland Delineation Marine Corps Reserve Center Battle Creek (MARFORRES, 2020a)
- 2020 Phase I Archaeological Survey Addendum Report U.S. Marine Corps Forces Reserve Center MCRC Battle Creek Calhoun County, Michigan (MARFORRES, 2020b)
- 2020 Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek (NAVFAC, 2020a)
- 2020 Final Hazardous Material Survey Report at Marine Corps Reserve Training Center and Maintenance Facility Battle Creek, Michigan (NAVFAC, 2020b)
- 2021 Marine Corps Reserve Center Battle Creek Viewshed Report (MARFORRES, 2021).

1.7 Relevant Laws and Regulations

MARFORRES has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including but not limited to the following:

- NEPA (42 U.S.C. sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508)
- Navy Regulations for Implementing NEPA (32 CFR part 775), which provides Navy policy for implementing CEQ regulations and NEPA
- Marine Corps Order 5090.2 and U.S. Marine Corps NEPA Manual 3.4
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Coastal Zone Management Act (16 U.S.C. sections 1451–1465)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. section 703–712)
- Bald and Golden Eagle Protection Act (16 U.S.C. section 668–668d)
- Executive Order (EO) 11988, Floodplain Management
- EO 11990, Protection of Wetlands

- EO 13175, Consultation and Coordination with Indian Tribal Governments.

A description of the Proposed Action's consistency with these laws, policies, and regulations is presented in Chapter 4 (**Table 4.1-1**).

1.8 Public and Agency Participation and Intergovernmental Coordination

Regulations from the CEQ direct agencies to involve the public in preparing and implementing their NEPA procedures.

1.8.1 Public and Agency Participation

MARFORRES will publish a notice of availability (NOA) for one (1) day in the Battle Creek Enquirer newspaper to announce the availability of the preliminary final EA for a 14-day review period. The NOA will indicate the availability of the preliminary final EA on the following Naval Facilities Engineering Command [NAVFAC] public website: https://www.navfac.navy.mil/navfac_worldwide/atlantic/fecs/mid-atlantic/about_us/environmental_norfolk/environmental_planning_and_conservation.html. MARFORRES will publish NOA for three (3) consecutive days in the Battle Creek Enquirer newspaper to announce the availability of the final EA and Finding of No Significant Impact, if warranted. **Appendix A** will provide copies of the published NOAs.

1.8.2 Intergovernmental Coordination

MARFORRES coordinated with the MI Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD), Kalamazoo District Office regarding the result of a jurisdictional wetland conducted July 8, 2020. The U.S. Army Corps of Engineers (USACE) Detroit District is currently delegating authority to confirm wetland delineations in Calhoun County to the MI Department of EGLE WRD, Kalamazoo District Office as part of the state assuming many of the Clean Water Act Section 404 processes, as noted in the delineation report. A stream with no fringe wetlands was found in a 2.6 acre parcel not intended for disturbance or development by MARFORRES. On July 30, 2020, the District Office advised that since the stream would not be impacted and no wetlands were identified, the state would not formally confirm the delineation at this time. The delineation report is provided in **Appendix C**. The District Office was also contacted regarding the MI Coastal Management Program enforceable policies. On June 23, 2021, MI EGLE WRD determined a Coastal Consistency Determination would not be required based on the location and activities proposed. This correspondence is provided in **Appendix C**.

MARFORRES coordinated with the MI State Historic Preservation Office (SHPO) regarding potential effects of the Proposed Action on archaeological resources and historic properties in accordance with Section 106 of the National Historic Preservation Act. A Phase I Archaeological Survey was conducted July 7-10, 2020; the survey report was submitted to the MI SHPO November 23, 2020. In a letter dated January 7, 2021, the MI SHPO concurred that there would be ***no effect*** to historic archaeological properties within the area of potential effect. A Viewshed Analysis was conducted in June 2021 to determine the potential effects the Proposed Action would have on two National Register of Historic Places (NRHP)-eligible resources located outside of the MCRC Battle Creek boundary but within the viewshed of the proposed new Reserve Training Center (i.e., area of potential effect). The viewshed analysis was submitted to the MI SHPO on July 22, 2021. In a letter dated October 13, 2021, the MI

SHPO concurred with the determination by MARFORRES of ***no adverse effect*** on historic properties within the area of potential effect. **Appendix D** provides the correspondence for the Phase I Archaeological Survey and Viewshed Analysis.

Section 106 also requires agencies to consult with federally-recognized Indian tribes that attach religious and cultural significance to historic properties that may be affected by an undertaking. In accordance with the National Historic Preservation Act (36 CFR 800.3(f)(2)) and EO 13175 (*Consultation and Coordination with Indian Tribal Governments*). MARFORRES is consulting with federally-recognized Native American tribes regarding the environmental impact analysis and the MI SHPO's determination of effects under Section 106. **Appendix D** provides the Section 106 Government-to-Government consultation correspondence.

Section 7 of the Endangered Species Act (ESA) requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. On February 21, 2022, coordination with the USFWS was initiated regarding potential effects of the Proposed Action's preferred site layout option on federally listed species via the Service's Information, Planning, and Consultation (IPaC) system. The USFWS IPaC indicated the federally endangered Indiana bat, federally threatened Northern long-eared bat, Copperbelly water snake, and Eastern massasauga, and candidate Monarch butterfly may be present at MCRC Battle Creek; however, no critical habitat is within the project area for these species and surveys conducted in the adjacent training lands area have not detected the presence of these species or critical habitat. In compliance with Section 7 of the ESA, and based on the location and the activities proposed, MARFORRES has determined the modernization of MCRC Battle Creek would have ***no effect*** to federally listed species. **Appendix E** provides the USFWS IPaC and coordination documentation.

Michigan State University maintains the state's list of endangered and threatened animal species. The current list is provided in **Appendix E**.

MARFORRES is also coordinating with the City of Springfield regarding the proposed land exchange and proposed road closures considered under the Proposed Action.

2 Proposed Action and Alternatives

2.1 Proposed Action

The United States (U.S.) Marine Corps Forces Reserve (MARFORRES) proposes to modernize the existing multi-functional Marine Corps Reserve Center (MCRC) located within the MARFORRES-owned 43-acre site in the City of Springfield, Calhoun County, Michigan (MI). The Proposed Action evaluated in this Environmental Assessment (EA) would include: 1) demolition; 2) construction; 3) improvements to site access/circulation and security; 4) land exchange; and 5) continued operation of MCRC Battle Creek.

The existing layout of MCRC Battle Creek is shown in **Figure 2.1-1**. As shown, buildings 410, 421, 423, 505, 513, two storage sheds, a wind turbine, and portions of the existing fence would be removed. **Figure 2.1-1** also illustrates the existing ownership of three land parcels.

MARFORRES is considering two site layout options for implementing the Proposed Action (i.e., Action Alternative). The following elements are common to both options: approximately 70,000 square feet (ft^2) of old facilities and infrastructure would be demolished; approximately 73,000 ft^2 of new facilities would be constructed; new security fencing would be erected; roads within the boundary of MCRC Battle Creek would be closed from public access; and MARFORRES would exchange a 2.6 acre parcel of MARFORRES-owned land for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield. Under either site layout option, the total area of ground disturbance would be approximately 16 acres to include the removal of approximately 5.0 acres of trees and woody vegetation (NAVFAC, 2020c; 2021).

Site Layout Option One (Preferred)

As illustrated in **Figure 2.1-2**, Option One would construct a new reserve training center (RTC) with an indoor armory and an outdoor covered weapons maintenance area, an organic storage shed (OSS), and privately owned vehicle (POV) parking area on the south side of Base Avenue. This area would be enclosed by new Anti-Terrorism Force Protection (AT/FP) fencing with gates to provide vehicle and pedestrian access. On the north side of Base Avenue, a new vehicle maintenance facility (VMF), a second OSS, and several POV parking areas would be constructed. As illustrated in **Figure 2.1-2**, this entire area would also be enclosed by AT/FP fencing with multiple vehicle and pedestrian access points. Segments of several roads within MCRC Battle Creek would be closed to the public. A Meadows Management Area, developed with low maintenance native plants, would be established at the corner of General Avenue and Base Avenue following the removal of buildings 421 and 423. Site improvements would include modifications to curbs and sidewalks. The existing gravel parking area located on the southside of Base Avenue would be enhanced and continue to provide additional secured onsite POV parking.

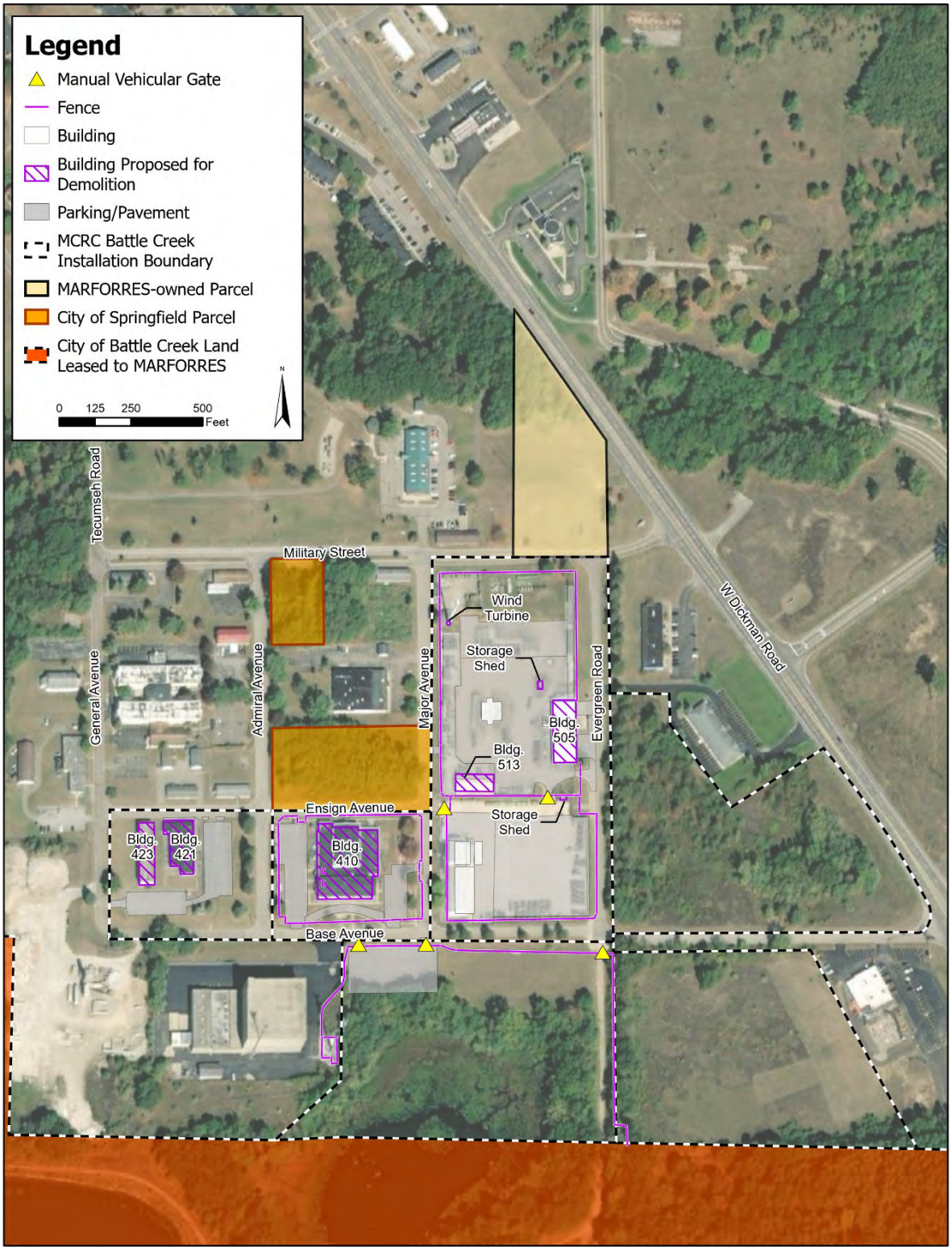

Figure 2.1-1. Marine Corps Reserve Center Battle Creek – Existing Site Layout

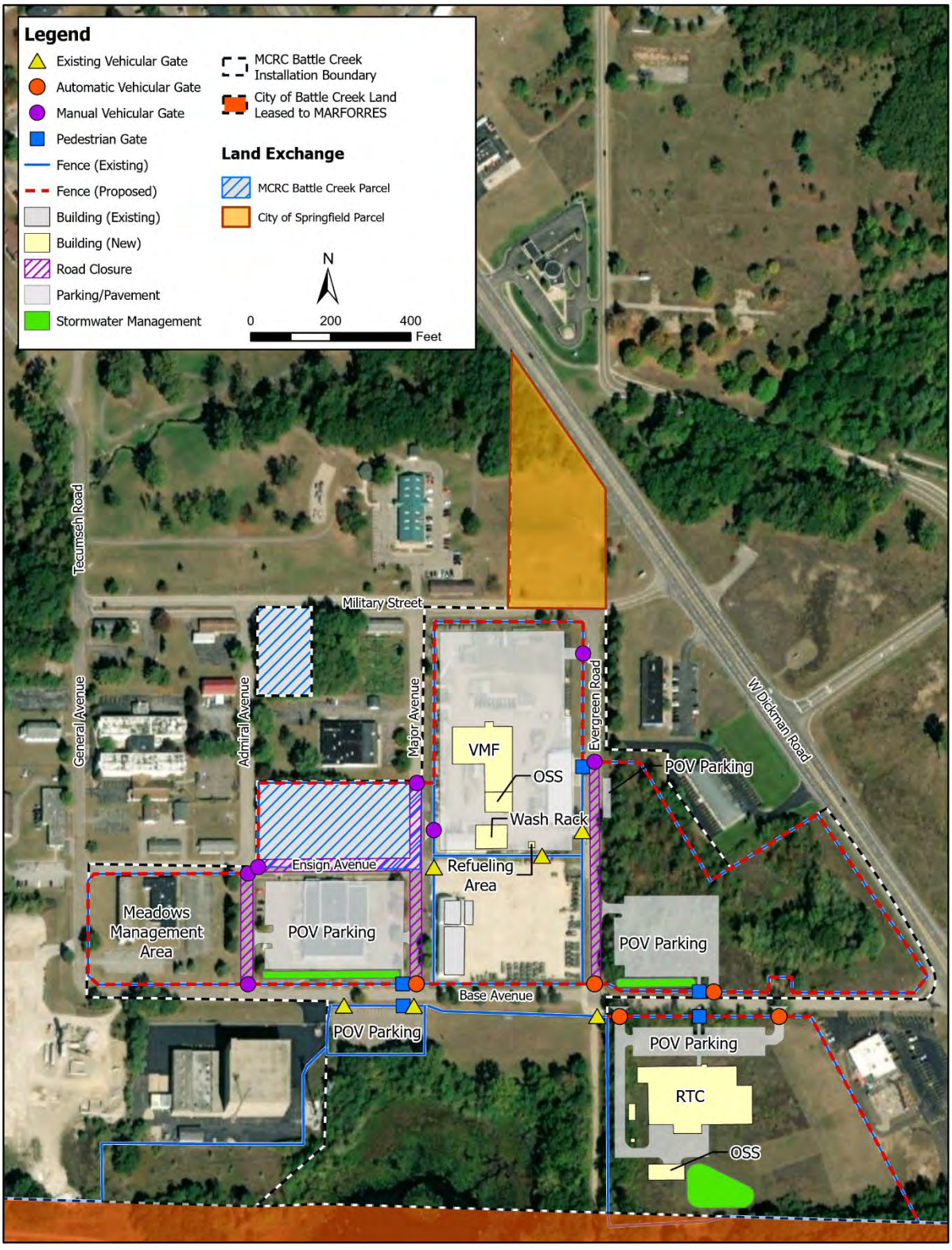

Figure 2.1-2. Marine Corps Reserve Center Battle Creek – Site Layout Option One (Preferred)

Site Layout Option Two

As illustrated in **Figure 2.1-3,** Option Two would construct all of the new facilities (RTC, VMF, OSS) and POV parking areas on the north side of Base Avenue. New AT/FP fencing would surround three separate areas: RTC and POV parking area, main site with VMF and OSS, and stand-alone POV parking area. Access to each of these areas would be via both automatic and manual vehicle access gates and pedestrian card access/egress gates. As with Option One, site improvements would include modifications to curbs and sidewalks and the existing gravel parking area located on the southside of Base Avenue would be enhanced and continue to provide additional secured onsite POV parking.

2.1.1 Demolition

Demolition projects typically include identifying hazardous and salvageable/recyclable materials; developing a demolition plan; disconnecting utilities and securing the site; removing and disposing of hazardous chemicals and materials located within the building; draining oil or fluid-filled equipment; salvaging any unique architectural elements for future reuse or display; demolishing/deconstructing structures; removing slabs and pavements; and performing final site cleanup and grading. Demolition of buildings and structures would incorporate a sustainability approach whereby materials such as concrete, brick, metals, and other building components would be salvaged for recycling or reuse in accordance with Federal, state, and local requirements.

Approximately 5.0 acres of trees and woody vegetation would be cleared in preparation for new construction. Tree clearing would be required where new construction would occur in the undeveloped areas. Tree clearing would also be required to establish an unobstructed area (clear zone) on both sides of and between the new sections of secure fencing in accordance with Marine Corps Order 5530.14A *Marine Corps Physical Security Program Manual*.

2.1.2 Construction

Construction activities associated with new buildings, structures, and infrastructure include site preparation and excavation; construction of the foundation, structural components, and the building shell; completion of the interior spaces, support equipment, and utilities; and final grading and landscaping. Utility service connections would be made to existing systems adjacent to the site; a natural gas powered emergency generator would be onsite to provide a secondary power source. A key theme of the landscaping would be to use species of plants like what is found in the area. Plants native to Calhoun County would be planted at the RTC to provide screening and provide shading to paved areas. Near buildings, foundation planting would be designed to be low maintenance while enhancing views of the building.

2.1.2.1 Design Principles and Guidelines

Sustainable design principles would be included in the design and construction of the MCRC in accordance with Unified Facilities Criteria (UFC) 1-200-02, *High Performance and Sustainable Building Requirements* (2019). Federal projects that involve the development of over 5,000 ft^2 (0.1 acre) are required to maintain or restore the predevelopment hydrology of a project site through development and use of methods per Unified Facilities Criteria 3-210-10, *Low Impact Development*.

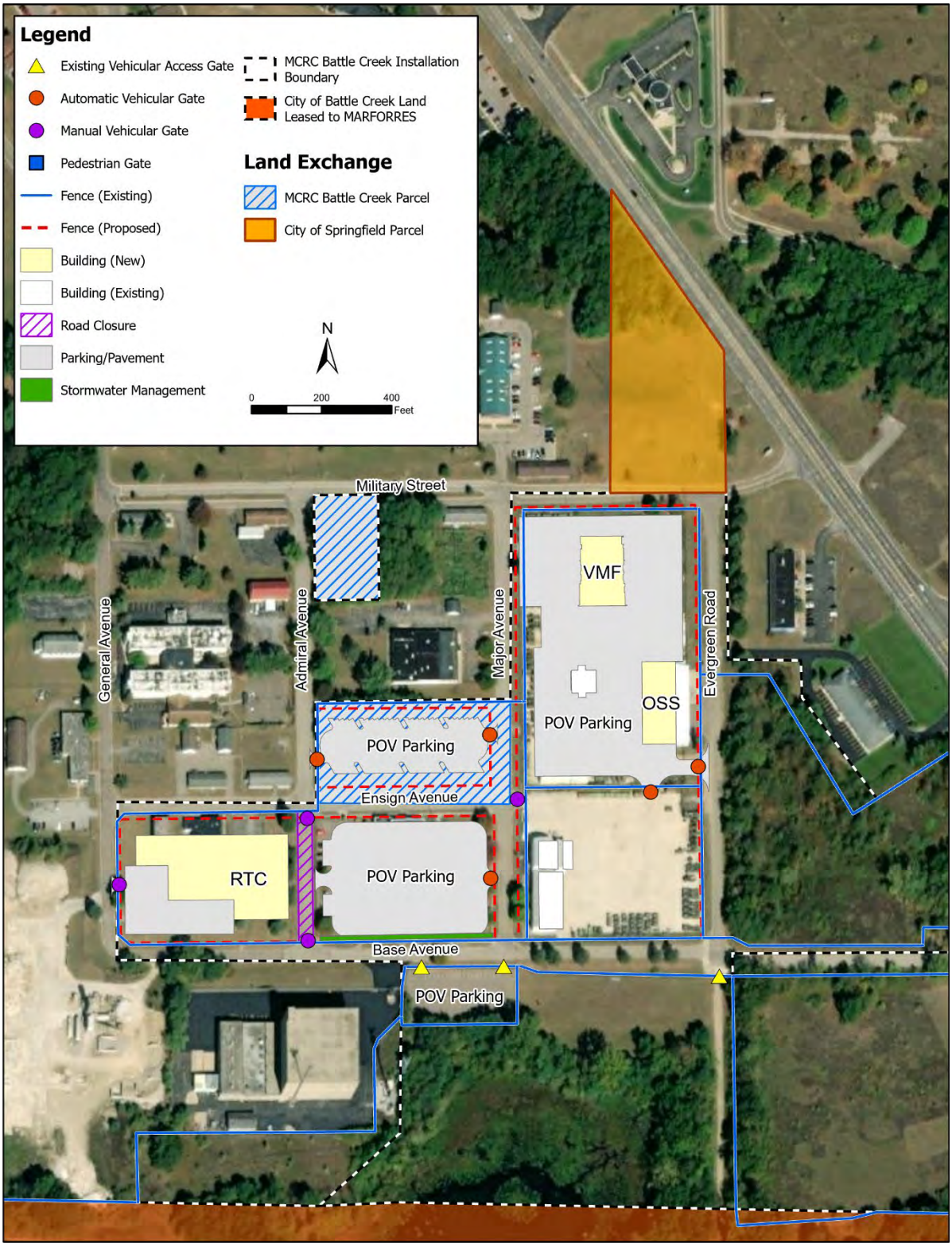

Figure 2.1-3. Marine Corps Reserve Center Battle Creek – Site Layout Option Two

Low Impact Development (LID) would be incorporated as appropriate to minimize stormwater runoff and protect existing landscapes and mature vegetation.

MI Department of Environment, Great Lakes, and Energy (EGLE) LID methods for the construction and maintenance of catch basins and stormwater retention basins would be incorporated, as appropriate, in addition to guidance found in *Low Impact Development Manual for Michigan* and the *Battle Creek Area Clean Water Partners Stormwater Management Technical Reference Manual*. Stormwater drainage would be by sheet flow and open channels to the extent possible. Curbs and gutters would be used in parking areas and along drive aisle ways to direct the flow to catch basins. Flow rates would be evaluated not to exceed predevelopment peak flow rates per MI Department of EGLE control volume standards.

2.1.3 Site Access/Circulation and Security Improvements

Site Access/Circulation. Access to MCRC Battle Creek is via W Dickman Road, an east-west four-lane highway that travels at a diagonal adjacent to the site (refer to **Figure 2.1-1**). From W Dickman Road, the site is accessed from the north via Military Street and Base Avenue to the south. The roads that provide north-south access include Evergreen Road, Major Avenue and General Avenue. Under Site Layout Option One, the following road segments would be permanently closed from public access: Admiral Avenue would be closed from Base Avenue to Ensign Avenue; Ensign Avenue would be closed between Admiral Avenue and Major Avenue, one half of Major Avenue would be closed from Base Avenue towards Military Street; and one half of Evergreen Road would be closed from Base Avenue towards Military Street (refer to **Figure 2.1-2**). Under Site Layout Option Two, one road would be permanently closed from public access; Admiral Avenue would be closed from Base Avenue to Ensign Avenue (refer to **Figure 2.1-3**).

Security Improvements. UFC 4-010-01, *DoD Minimum Anti-terrorism Standards for Buildings*, updated in August 2020, established minimum engineering standards for Department of Defense (DoD) projects that incorporate anti-terrorism based mitigating measures not associated with an identified threat or level of protection. AT/FP features would be incorporated in accordance with UFC 4-010-01. MCRC Battle Creek areas would be enclosed within a controlled perimeter to meet minimum AT/FP standoff requirements. Within the controlled perimeters, the building force protection measures would include notification systems, emergency shutoffs for ventilation systems, laminated windows, emergency lighting. Force protection measures outside the buildings would include new and reinforced security fencing (with established clear zones on both sides of the security fencing), vehicular and pedestrian access gates, bollards, and parking barriers (NAVFAC, 2020c; 2021). Vehicle and pedestrian access points are illustrated on figures **2.1-2** and **2.1-3**.

2.1.4 Land Exchange

MARFORRES has proposed a land exchange with the City of Springfield. The parcels proposed for land exchange include a 2.6 acre parcel of MARFORRES-owned land on the north side of Military Street for and two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield. These parcels are illustrated on figures **2.1-2** and **2.1-3**. A wetland delineation located an unconfirmed wetland in the 2.6 acre parcel (U.S. Marine Corps Forces Reserve, 2020a). A Phase I Archaeological Survey conducted on

the three parcels resulted in no artifacts (U.S. Marine Corps Forces Reserve, 2020b). A summary of the results is presented in **Section 3.2**, Water Resources and **Section 3.3**, Cultural Resources, respectively.

2.1.5 Continued Operation of MCRC Battle Creek

The Proposed Action would be implemented in a phased approach so that during the process, MCRC Battle Creek facilities and infrastructure could continue to support the operational training requirements of the Major Subordinate Command(s). MCRC Battle Creek would remain open weekdays (Monday through Friday) from 7:30 a.m. to 4:30 p.m. and during drill weekends (Saturday and Sunday) from 7:30 a.m. to 4:30 p.m.

2.1.5.1 Personnel

During weekdays, an average of 29 full time active duty Marines are on site at MCRC Battle Creek in support of administrative functions; during drill weekends, up to 472 reserve Marines convene for training. Many reservists drive alone to the MCRC; however, approximately 20 percent carpool. There are no dormitories and/or active barracks onsite and there is limited billeting available at Fort Custer Training Center. As such, during drill weekends, roughly 50 percent of the reservists stay in local area hotels.

2.1.5.2 Training

Monthly training includes classes, meetings, weapons maintenance, simulated marksmanship, gear issue and storage, and drill formations. These activities would continue to occur indoors and outdoors under the covered weapons maintenance/cleaning area at the rear of the RTC. Vehicle maintenance training would occur within the VMF.

Tactical vehicle training (includes convoy operations and patrolling/combat formations) and other training activities (i.e., mobility and general engineering operations) would continue to be conducted offsite at the Fort Custer Training Center (refer to **Figure 1.2-1**) or within the 131 acres of land leased from the City of Battle Creek (**Figure 2.1-4**).

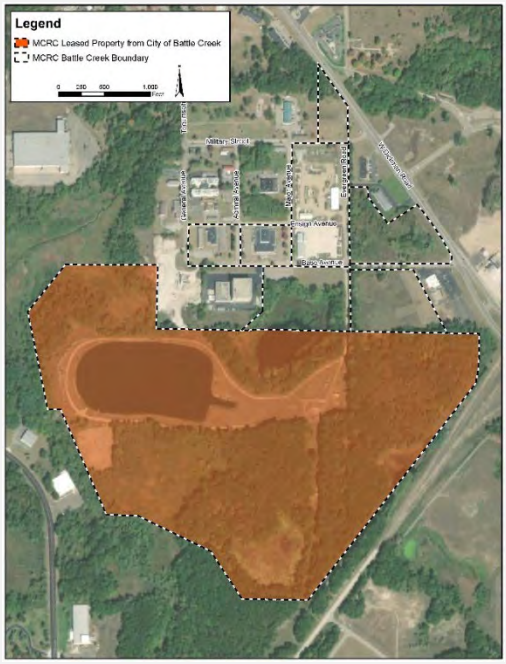

Figure 2.1-4. Land Leased from the City of Battle Creek

2.1.5.3 Vehicles and Equipment Usage

Tactical (i.e., organizational) vehicles and equipment would continue to be maintained and stored at MCRC Battle Creek. Light, medium, and heavy equipment such as augers and bulldozers are used during obstacle or bridge construction training. The types of tactical vehicles and equipment used by MCRC Battle Creek reservists during training exercises are shown in **Photo 2.1-1**. The tactical vehicles and equipment used would be cleaned in the

vehicle wash rack prior to being stored. Minor maintenance of tactical vehicles and equipment would take place in the new VMF. The types of maintenance activities that would occur include suspension system lubrication, oil and transmission fluid changes, and exhaust and air compressor systems cleaning; as such, small quantities of oil and lubricants would continue to be stored on site.

Quadruple storage containers, like those shown in **Photo 2.1-1,** may be used for additional site storage or to carry supplies to offsite training locations. When not in use, the containers and tactical vehicles and equipment would remain in the organizational vehicle and equipment parking areas adjacent to the VMF.

HUMMWV 1151 (Humvee)

MK27 Cargo Truck

Auger

Skid Steer with Front Loader Bucket

Quadruple Containers

Photo 2.1-1. Tactical Vehicles, Equipment, and Containers

2.2 Screening Factors

The NEPA implementing regulations provide guidance on the consideration of alternatives to a federally proposed action and require rigorous exploration and objective evaluation of reasonable alternatives.

Only those alternatives determined to be reasonable and to meet the purpose and need require detailed analysis.

Potential alternatives that meet the purpose and need were evaluated against the following screening factors:

- Total ownership costs must be minimized
- The location must have space to allow for future expansion
- The location must be in reasonable proximity to outdoor training areas/lands
- AT/FP standoff requirements must be achieved.

2.3 Alternatives Carried Forward for Analysis

Based on the purpose of and need for the Proposed Action and the evaluation of screening factors, one action alternative was identified and will be analyzed within this EA.

2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. The outdated, insufficient, and inadequate facilities at MCRC Battle Creek would not be replaced. The assigned units would experience diminished Marine Corps individual and/or unit level operational readiness training that could affect their ability to be deployed worldwide as combat-capable forces.

The No Action Alternative would not meet the purpose of and need for the Proposed Action; however, the No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for impacts of the Proposed Action.

2.3.2 Action Alternative

Under the Action Alternative, the Proposed Action as described in **Section 2.1** would be implemented. Specifically, the Action Alternative would demolish approximately 70,000 ft^2 of old facilities and infrastructure to include buildings 410, 421, 423, 505, and 513, two storage sheds, a wind turbine, and portions of the existing fence would be removed (refer to **Figure 2.1-1**). Approximately 73,000 ft^2 of new facilities and POV parking areas would be constructed and would include a RTC with an indoor armory and an outdoor covered weapons maintenance area, VMF, and OSS. Utility service connections would be made to existing systems adjacent to the site.

MARFORRES would implement one of the two site layout options. Under either site layout option, the total area of ground disturbance would be approximately 16 acres to include the removal of approximately 5.0 acres of trees and woody vegetation that would be cleared in preparation for construction. New AT/FP fencing would be erected and roads within the boundary of MCRC Battle Creek would be closed from public access. MARFORRES would exchange a 2.6 acre parcel of MARFORRES-owned land for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield. The project is anticipated to begin in fiscal year 2023 and take approximately 24 months to complete.

MCRC Battle Creek would continue to train Marine Corps reservists to meet current Marine Corps individual and/or unit level operational readiness training requirements. During weekdays, an average of

29 full time active duty Marines would be on site in support of administrative functions; during drill weekends, up to 472 reserve Marines would convene at MCRC Battle Creek.

2.4 Alternatives Considered but not Carried Forward for Detailed Analysis

2.4.1 Renovation

The current RTC, VMF, storage warehouse, and support facilities are old, failing, and undersized for the assigned Marines; these facilities were not designed for their current use and have exceeded their useful life cycle (U.S. Marine Corps Forces Reserve, 2018). The condition and age of the facilities do not support further recapitalization repair and modernization actions. Significant and expensive short- and long-term investments would be required to mitigate existing facility deficiencies. Renovation of the facilities would improve conditions to minimum standards; however, the facilities would not meet long-term needs (MARFORRES, 2020c). Given these many inadequacies, this alternative is not carried forward for detailed analysis in the EA.

2.4.2 Lease

MCRC Battle Creek is owned by MARFORRES and is one of MARFORRES' largest sites. There is ample space to construct facilities on site that would meet the necessary AT/FP standoff requirements and there is room for future expansion. Leasing land to construct a new MCRC would be costly and represent an unnecessary expenditure to the Marine Corps. Therefore, this alternative is not carried forward for detailed analysis in the EA.

2.5 Best Management Practices Included in the Proposed Action

Best Management Practices (BMPs) are existing policies, practices, and measures that the Navy and Marine Corps would adopt to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing, or reducing/eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action, (2) ongoing, regularly occurring practices, or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action.

BMPs that would be considered to help minimize potential impacts to the environment during the construction period may include, but are not limited to, the following:

- Coordination with the responsible agencies regarding the use of public roads during project construction to minimize any disruption to local traffic.
- All mechanized clearing and grading, vehicle traffic, equipment staging, and the deposition of soil would be confined to the temporary and/or permanent project footprint or to other disturbed or developed land.
- The use of shields, protective mats, or other fire prevention equipment would be used during grinding and welding to prevent or minimize the potential for fire, and vehicles would not be driven or parked in areas where catalytic converters could ignite dry vegetation. No smoking or disposal of cigarette butts would take place within vegetated areas.

- All fill material brought to the construction site from off site would be checked to ensure that it is clean – specifically, that it is free from contaminants and does not contain any seeds or plant materials from non-native or invasive species.
- A Stormwater Pollution Prevention Plan would be prepared in accordance with a National Pollutant Discharge Elimination System permit. This plan would contain an erosion and sedimentation control plan. The plan would incorporate BMPs for erosion and sedimentation control, including techniques to diffuse and slow the velocity of stormwater runoff. Stormwater Pollution Prevention Plan BMPs may include, but are not limited to, erosion, sedimentation, and stormwater control measures such as sandbags, silt fences, earthen berms, fiber rolls, and sediment traps. MI Department of EGLE stormwater BMPs would be adhered to; all erosion control devices would be inspected after a storm event and maintained throughout the construction phase.

In addition, MI Department of EGLE LID guidelines, as described in **Section 2.1.2.1**, would be observed.

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3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing the No Action or Action alternatives at Marine Corps Reserve Center (MCRC) Battle Creek. All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and Department of Navy guidelines; the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact.

As described in **Section 2.1**, MARFORRES is considering two site layout options for implementing the Proposed Action (i.e., Action Alternative). Impacts associated with demolition, construction, site security, land exchange, and continued operation of the MCRC are similar under both site layout options. This section evaluates the potential impacts to air quality, water resources, cultural resources, biological resources, land use, and hazardous materials and wastes.

The potential impacts to the following resource areas are considered to be negligible or nonexistent so they were not analyzed in detail in this EA:

Geological Resources includes topography, geology, seismology, and soils. The MCRC Battle Creek site is relatively flat, possesses no valuable mineral deposits or geological features, and is located in a geologic region with little tectonic activity. Soils within the area of interest have been classified as Boyer sandy loam 0 to 6 percent slopes (94.3 percent) and Boyer sandy loam 12 to 18 percent slopes (5.7 percent) (United States [U.S.] Department of Agriculture, 2021). A preliminary geotechnical engineering report (Naval Facilities Engineering Command [NAVFAC], 2021) indicate the soils are considered suitable for the type of construction proposed. Recommendations for surface compaction of bearing surfaces to support the footing foundation would be adhered. Implementing the Proposed Action would not alter the topography, geology, seismology, or soils at MCRC Battle Creek; therefore, no further analysis is required.

Visual Resources includes the natural and built features of the landscape visible from public views that contribute to an area's visual quality. An impact to visual resources would occur during site clearing, demolition, and construction activities. Old buildings and structures would be removed and replaced with new buildings and parking areas within the boundary of MCRC Battle Creek. The changes would alter the views of the area; however, the resultant change would have a negligible impact on visual resources. Therefore, this resource is not carried forward for detailed analysis.

Airspace for this EA refers to airspace associated with an airport airfield. MCRC Battle Creek is located northwest of the W.K. Kellogg Airport. The activities described under the Proposed Action would not affect the airport airfield or its airspace, nor require the operation and use of aerial vehicles or equipment. As such, airspace was eliminated from further analysis in this EA.

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying.

Noise from site preparation and construction activities under the Proposed Action would be short-term and intermittent. Permit(s) required by City of Springfield for construction activities adjacent to an assisted living facility (i.e., True Care Living) would be obtained. In addition, City of Springfield anti-noise regulations would be strictly adhered with construction activities permitted only between 7:00 a.m. and sundown on any day (City of Springfield, 2021). Noise generated from continued operations at MCRC Battle Creek would be anticipated to produce noise levels consistent with existing conditions resulting in a negligible impact to this resource. As such, noise has been eliminated from future discussion in this EA.

Infrastructure includes utilities such as potable water, wastewater, energy, communications, and stormwater management. Implementing the Proposed Action would include upgrades to existing systems; utility service connections would be made to existing systems adjacent to the site. A stormwater pollution prevention plan would be prepared; the plan would specify the best management plans (BMPs) for controlling stormwater runoff at the site. Operations would remain similar to existing conditions resulting in a negligible impact to this resource.

Transportation in this EA considers the local area roadways. Marine Corps Forces Reserve (MARFORRES) would coordinate with the responsible agencies regarding the use of public roads during the construction period to minimize a potential short-term disruption to traffic flow. Post construction, the volume of vehicles entering/exiting MCRC Battle Creek would remain similar to existing conditions. A 2020 traffic impact study concluded that the proposed road closures would not adversely affect traffic flow, patterns, or level-of-service on the surrounding streets (MARFORRES, 2020d). As such, this resource has been eliminated from future discussion in this EA.

Public Health and Safety includes consideration for any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. Demolition and construction activities would be performed by qualified personnel who are trained to safely operate the appropriate equipment and the activities would be conducted in accordance with federal and state Occupational Safety and Health Administration regulations. Appropriate signage and fencing would be placed to alert pedestrians and motorists of project activities, as well as any temporary changes in traffic patterns during the construction period. Operations would remain consistent with existing operations that pose no threat to public health and safety. Negligible impacts would be anticipated; therefore, this resource is not carried forward for further analysis in this EA.

Socioeconomics in this EA considers the potential economic activity from implementation of the Proposed Action. A slight beneficial impact to hotels and restaurants in the vicinity of MCRC Battle Creek would be likely during the construction period; however, no measurable impact to the local economy would be anticipated. Operations would remain consistent with existing operations, as such, no further evaluation of this resource is warranted.

Environmental Justice addresses the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income. Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs on minority and low-income populations. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, mandates that federal agencies identify and

assess environmental health and safety risks that may disproportionately affect children as a result of the implementation of federal policies, programs, activities, and standards. The potential for the modernization and continued operation of MCRC Battle Creek as described in **Section 2.1**, to disproportionately affect minority or low-income populations or pose environmental health and safety risks to children would be negligible. Therefore, this resource has been eliminated from future discussion in this EA.

3.1 Air Quality

Air quality in a given location is defined by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors, including the type and amounts of pollutants emitted into the atmosphere, the size and topography of the region of interest, and the prevailing meteorological conditions. Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents). Air pollutants are also released from natural sources such as forest fires.

3.1.1 Regulatory Setting

3.1.1.1 Criteria Pollutants and National Ambient Air Quality Standards

The principal pollutants defining the air quality, called "criteria pollutants," include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), lead (Pb), and sulfur dioxide (SO_2). CO, SO_2, Pb, and some particulates are emitted directly into the atmosphere from emissions sources.

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] part 50) for these pollutants. Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment. Calhoun County, which is the location of the Proposed Action, is designated as a maintenance area for O_3 (8-hour 1997 revoked standard) and as an attainment area for all other criteria pollutants (USEPA, 2021a). The current NAAQS are provided in **Table 3.1-1**.

Lead is not used as an additive in gasoline or diesel and so no sources of lead emissions are associated with the Proposed Action that would be of concern to the general public. As a result, lead has not been carried forward in the analysis.

In addition to the NAAQS for criteria pollutants, national emission standards exist for hazardous air pollutants for specific source categories, which are regulated under Section 112 of the 1990 Clean Air Act Amendments. Hazardous air pollutants emitted from mobile sources are called mobile source air toxics. Under the Proposed Action, construction equipment would be operated intermittently and would produce negligible ambient hazardous air pollutants in a localized area. As such, mobile source air toxics are not considered further in this EA.

Table 3.1-1. National Ambient Air Quality Standards

Pollutant	*Primary or Secondary*	*Averaging Time*	*Level 1*	*Form*	*Site Status*
CO	Primary	8-hour	9 ppm	Not to be exceeded more than once per year	In attainment
		1-hour	35 ppm		
NO_2	Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum, averaged over three years	In attainment
	Both	Annual	53 ppb	Annual Mean	
O_3	Both	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over three years	Designated Maintenance area[(a)]
$PM_{2.5}$	Primary	Annual	12 µg/m^3	Annual mean, averaged over three years	In attainment
	Secondary	Annual	15 µg/m^3	Annual mean, averaged over three years	
	Both	24-hour	35 µg/m^3	98th percentile, averaged over three years	
PM_{10}	Both	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over three years	In attainment
Pb	Both	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded	In attainment
SO_2	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over three years	In attainment
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year	

Source: USEPA, 2021a.
Legend: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.
Note: (a) Final rule signed October 1, 2015, and effective December 28, 2015. Some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

3.1.1.2 General Conformity

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year]) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question. Because volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) are ozone precursors, *de minimis* thresholds are used for these pollutants in areas where ozone nonattainment or maintenance designations exist.

A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. This is typically done by quantifying applicable direct and indirect emissions that are projected to result due to implementation of the federal action. If the results of the applicability analysis indicate that the total emissions would not exceed the *de minimis* emissions thresholds, then the conformity evaluation process is completed.

3.1.1.3 Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions are emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe. The U.S. Federal government has a target to reduce GHG emissions 50-52 percent from 2005 levels by 2030 (United States of America, 2021). EO 2020-182: *Council on Climate Solutions* and Executive Directive 2020-10: *Building a Carbon-Neutral Michigan*, both signed by Governor Whitmer, require development of a Michigan Healthy Climate Plan that coordinates the state's efforts to achieve carbon neutrality by 2050 (MI Department of EGLE Office of Climate and Energy, 2021).

Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO_2, which has a value of one. The equivalent CO_2 rate is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs (i.e., CO_2e).

3.1.2 Affected Environment

The following discussion provides a description of the existing conditions for air quality in the region of interest, which includes Calhoun County, Michigan, which is included in the South Central Michigan Intrastate Air Quality Control Region (40 CFR §81.106). The most recent emissions inventory for Calhoun County is shown in **Table 3.1-2**.

Table 3.1-2. Calhoun County Air Emissions Inventories (2021) in Tons per Year

Location	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2e
Calhoun County	4,186	7,201	20,116	74	3,644	1,334	1,589,684

Source: USEPA, 2021b.

In 2018, MCRC Battle Creek identified 23 stationary emissions sources on site, including boilers/heaters, solvent degreasers/parts washers, and a fuel storage tanks. However, the calculated annual emissions from these sources were under state reporting thresholds, as shown in **Table 3.1-3**.

Table 3.1-3. MCRC Battle Creek Emissions (2018) in Tons per Year

Location	NO_x	VOC	CO	SO_2	PM_{10}
MCRC Battle Creek	<40	<10	<100	<40	<15

Source: MARFORRES, 2019.
Legend: < = less than.

MCRC Battle Creek does not currently have any air permits, and based on the analyzed emission sources are not required to obtain any (MARFORRES, 2019).

3.1.3 Environmental Consequences

Effects on air quality are changes to the human environment from the proposed action that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action. Emissions were estimated using USEPA's Motor Vehicle Emission Simulator model for nonroad sources, which includes construction equipment. Emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations. Air quality impacts would be significant if emissions associated with the Proposed Action would: 1) increase ambient air pollution concentrations of CO, SO_2, PM_{10}, $PM_{2.5}$ above the NAAQS; 2) violate the ozone maintenance plan for Calhoun County; or 3) create local air quality impacts that may impact public health.

3.1.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. The outdated and inadequate facilities at MCRC Battle Creek would not be replaced. As a result, air pollutant emissions created from the energy inefficient buildings and infrastructure that would continue to be used may present minor, long-term impacts to air quality in the region.

3.1.3.2 Action Alternative

The study area for the analysis of effects to air quality associated with the Action Alternative is Calhoun County. Potential impacts associated with demolition and construction activities are similar under the two site layout options.

Demolition and Construction

Construction activities could last up to 24 months. The associated emissions are minor, with NO_x emissions being the greatest, estimated at 2.10 tons in the first year of construction. **Table 3.1-4** shows construction emissions that would be generated by the Action Alternative that are subject to the General Conformity Rule. Emissions of VOC and NO_x would be well below the *de minimis* thresholds, thus the Action Alternative would be exempt from the General Conformity Rule.

Table 3.1-4. Estimated Conformity-Related Construction Emissions in Tons per Year for MCRC Battle Creek

Year	VOC	NO_x
Year 1	0.59	2.10
Year 2	0.03	0.47
de minimis threshold	100	100
Exceedance?	**No**	**No**

Table 3.1-5 presents emissions that are not subject to General Conformity, as Calhoun County is in attainment for those criteria pollutants. To determine significance, a comparative threshold of 100 tons per year, which is the *de minimis* threshold for maintenance areas under the General Conformity Rule. As shown, emissions for these criteria pollutants would be well below the comparative threshold of 100 tons per year.

Table 3.1-5. Estimated Conformity-Related Construction Emissions in Tons per Year for MCRC Battle Creek

Year	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 1	0.94	0.50	2.10	0.73
Year 2	0.17	0.00	0.40	0.06
Comparative Threshold	100	100	100	100
Exceedance?	No	No	No	No

Construction emissions would be short-term and would cease at the conclusion of the construction period. The closest sensitive receptor location is True Care Living, an assisted living facility, located on General Avenue between Ensign Avenue and Military Street, lying within a few hundred feet of proposed demolition and construction activity areas. Because of the proximity of the assisted living facility, construction activities should incorporate BMPs for controlling fugitive dust and construction equipment emissions to ensure little or no impact to the facility. These practices include, but are not limited to:

- Surface wetting for dust control
- Idle limitations for construction equipment and trucks operating onsite.

The results from the air emissions analysis for construction indicate that ambient air pollution concentrations generated by construction activities would be too small to 1) result in an exceedance of the NAAQS; 2) violate the ozone maintenance plan for Calhoun County; or 3) create local air quality impacts that may impact public health.

Operation

The operation of the new facilities at MCRC Battle Creek may include one or more new stationary sources. These could include a natural gas emergency generator and heating equipment that would be similar to the types documented in the 2018 Air Emissions Inventory (MARFORRES, 2019). These stationary sources would need to be evaluated for applicability of the New Source Review regulations and would be exempt from the General Conformity Rule. New, energy efficient buildings could result in minor long-term beneficial impacts to air quality.

Greenhouse Gases

Emission sources evaluated in the air quality analysis are exclusively associated with construction mobile source activities. The analysis estimate considers CO_2 as the primary source of construction-related GHG emissions. **Table 3.1-6** presents the summary of anticipated CO_2 emissions for the Action Alternative.

Table 3.1-6. Anticipated CO_2 Emissions in Tons per Year

Year of Construction	CO_2 Emissions
Year 1	246
Year 2	113
Total Additional Tons	359

An estimated total of 359 tons of CO_2 would be emitted by construction mobile sources and equipment operating during the construction phase. Additional details can be found in **Appendix B**. Climate change presents a global problem caused by increasing concentrations of GHG emissions. While climate change results from the incremental addition of GHG emissions from millions of individual sources, the significance of an individual source alone is impossible to assess on a global scale beyond the overall need for global GHG emissions reductions to avoid catastrophic global outcomes. Therefore, the quantitative analysis of CO_2e emissions in this EA is for purposes of disclosing the net increase of the Action Alternative.

In summary, implementation of the Action Alternative would not result in significant impacts to air quality.

3.2 Water Resources

This discussion of water resources includes groundwater, surface water, wetlands, floodplains, and coastal zone.

Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater is frequently used for water consumption, agricultural irrigation, and industrial applications. *Surface water* resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. *Wetlands* are jointly defined by USEPA and U.S. Army Corps of Engineers (USACE) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include “swamps, marshes, bogs and similar areas.” *Floodplains* are areas of low-level ground that occur along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural floods attenuation, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse assemblage of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flows reach the main water body. Floodplain boundaries are most often defined in terms of frequency of inundation, that is, the 100-year and 500-year flood. Floodplain delineation maps are produced by the Federal Emergency Management Agency (FEMA) and provide a basis for comparing the location of the Proposed Action to the floodplains. *Coastal zone* is the border between the land and the ocean. The coastal zone is the zone in which the majority of infrastructure and human activities are directly connected to the ocean waters.

3.2.1 Regulatory Setting

The Safe Drinking Water Act is the federal law that protects public drinking water supplies throughout the nation. Under the Safe Drinking Water Act, The USEPA sets standards for drinking water quality. Groundwater quality and quantity are regulated under several statutes and regulations, including the Safe Drinking Water Act. The Clean Water Act (CWA) establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., stormwater) of water pollution.

The MI Construction Stormwater Program requires construction site operators engaged in clearing, grading, and excavating activities that disturb five acres or more to obtain a Part 91, *Soil Erosion and Sedimentation Control* permit and submit an application for Notice of Coverage along with the permit and approved Soil Erosion and Sedimentation Control Plan to the MI Department of EGLE WRD. Compliance with Part 91 is mandatory; inspections should be performed weekly and after every rainfall event to evaluate the effectiveness of the approved Soil Erosion and Sedimentation Control Plan.

Wetlands are currently regulated by the USACE under Section 404 of the CWA as a subset of all "Waters of the United States." Waters of the United States are defined as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries under Section 404 of the CWA, as amended, and are regulated by USEPA and the USACE. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other Waters of the United States. Any discharge of dredge or fill into Waters of the United States requires a permit from the USACE. Section 438 of the Energy Independence and Security Act establishes storm water design requirements for development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 square feet must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

The State of Michigan has assumed many of the CWA Section 404 processes. As such, USACE Detroit District Regulatory Branch has delegated authority for confirmation of wetlands in Calhoun County to the MI Department of EGLE WRD, Kalamazoo District Office.

EO 11990, *Protection of Wetlands,* requires that federal agencies adopt a policy to avoid, to the extent possible, long- and short-term adverse impacts associated with destruction and modification of wetlands and to avoid the direct and indirect support of new construction in wetlands whenever there is a practicable alternative. EO 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain, which is defined as the area that has a one percent chance of inundation by a flood event in a given year. EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, amends EO 11988 and establishes the Federal Flood Risk Management Standard to improve the nation's resilience to current and future flood risks, which are anticipated to increase over time due to the effects of climate change and other threats.

The Coastal Zone Management Act of 1972 provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Actions occurring within the coastal zone commonly have several resource areas that may be relevant to the Coastal Zone Management Act. As a federal agency, the Marine Corps is required to determine whether its proposed activities would affect the coastal zone. This takes the form of a consistency determination, a negative determination, or a determination that no further action is necessary.

3.2.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under water resources within and adjacent to MCRC Battle Creek. **Figure 3.2-1** and **Figure 3.2-2** illustrate the water resources within the affected environment.

3.2.2.1 Groundwater

A search of the MI Department of EGLE Water Well View indicates no groundwater wells are located within MCRC Battle Creek boundary (MI Department of EGLE, 2021).

3.2.2.2 Surface Water

MCRC Battle Creek is located in the Battle Creek River watershed, a tributary to the Kalamazoo River that drains to Lake Michigan. The closest surface water body is Lawrence Lake located approximately 140 yards south of Base Avenue. The lake straddles the cities of Springfield and Battle Creek. Surface water runoff within MCRC Battle Creek generally flows to the southwest (Environmental Compliance Office Inc, 2013).

3.2.2.3 Wetlands

In July 2020, MARFORRES' consultant, Cardno conducted a jurisdictional wetland delineation of five parcels at MCRC Battle Creek. The National Wetland Inventory mapping identified one stream, an un-named tributary, located at the intersection of Military Street and W Dickman Road within the 2.6 acre parcel owned by MARFORRES and proposed for land exchange with the City of Springfield (refer to **Section 2.1.4**, Land Exchange). On July 30, 2020, the Kalamazoo District Office of MI Department of EGLE WRD was contacted via telephone to request confirmation of the wetland delineation findings. The District Office indicated that only parcels with proposed impacts associated with development would be confirmed. As no activities for development are proposed by MARFORRES for the 2.6 acre parcel, no jurisdictional determination was made. **Appendix C** provides the jurisdictional wetland delineation and summary of the July 30, 2020 telephone call with MI Department of EGLE WRD.

3.2.2.4 Floodplains

The FEMA Flood Zones mapping identified Flood Zone A (100-year zone) along the un-named tributary located at the intersection of Military Street and W Dickman Road and Lawrence Lake located approximately 140 yards south of Base Avenue.

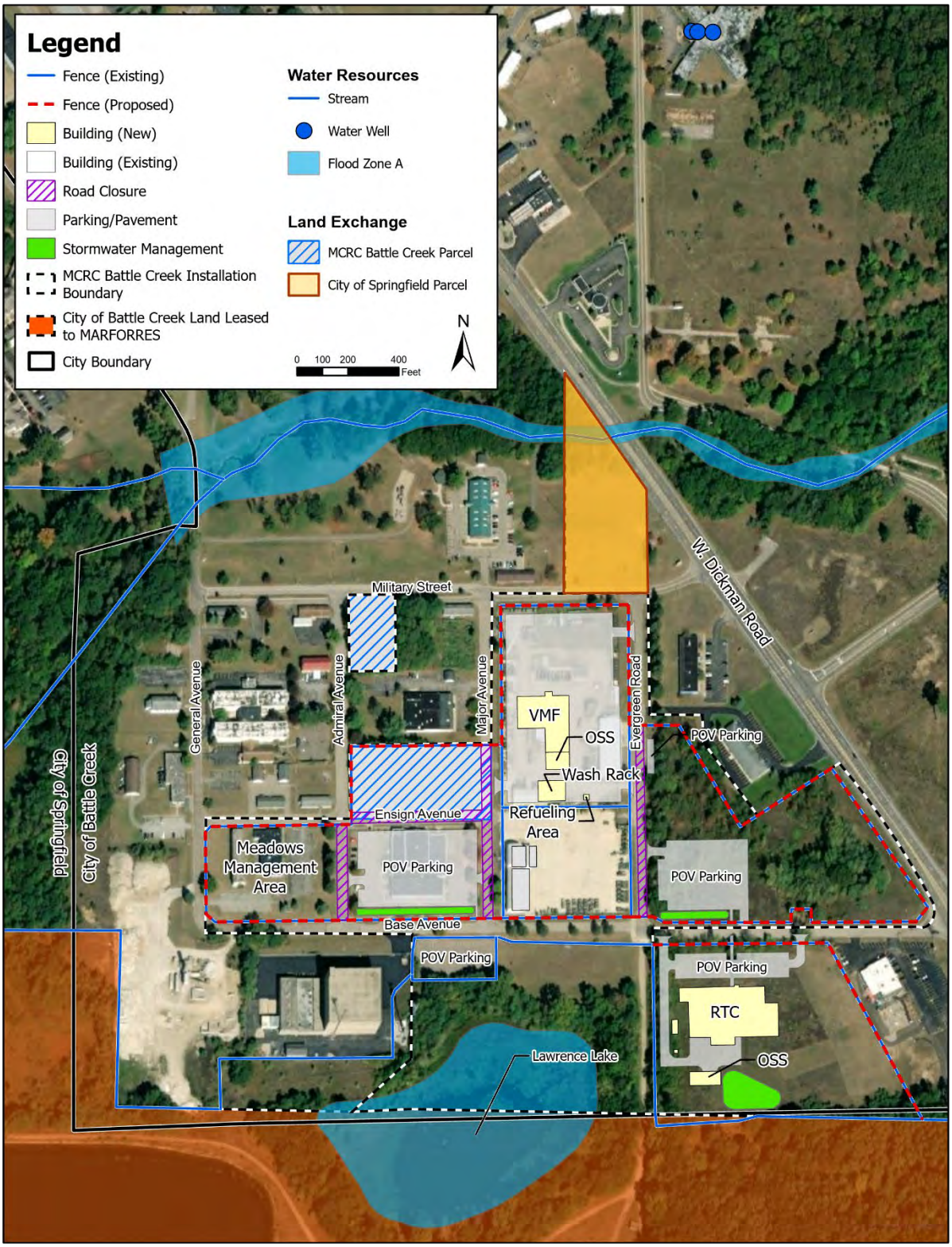


Figure 3.2-1. Water Resources under Site Layout Option One (Preferred)

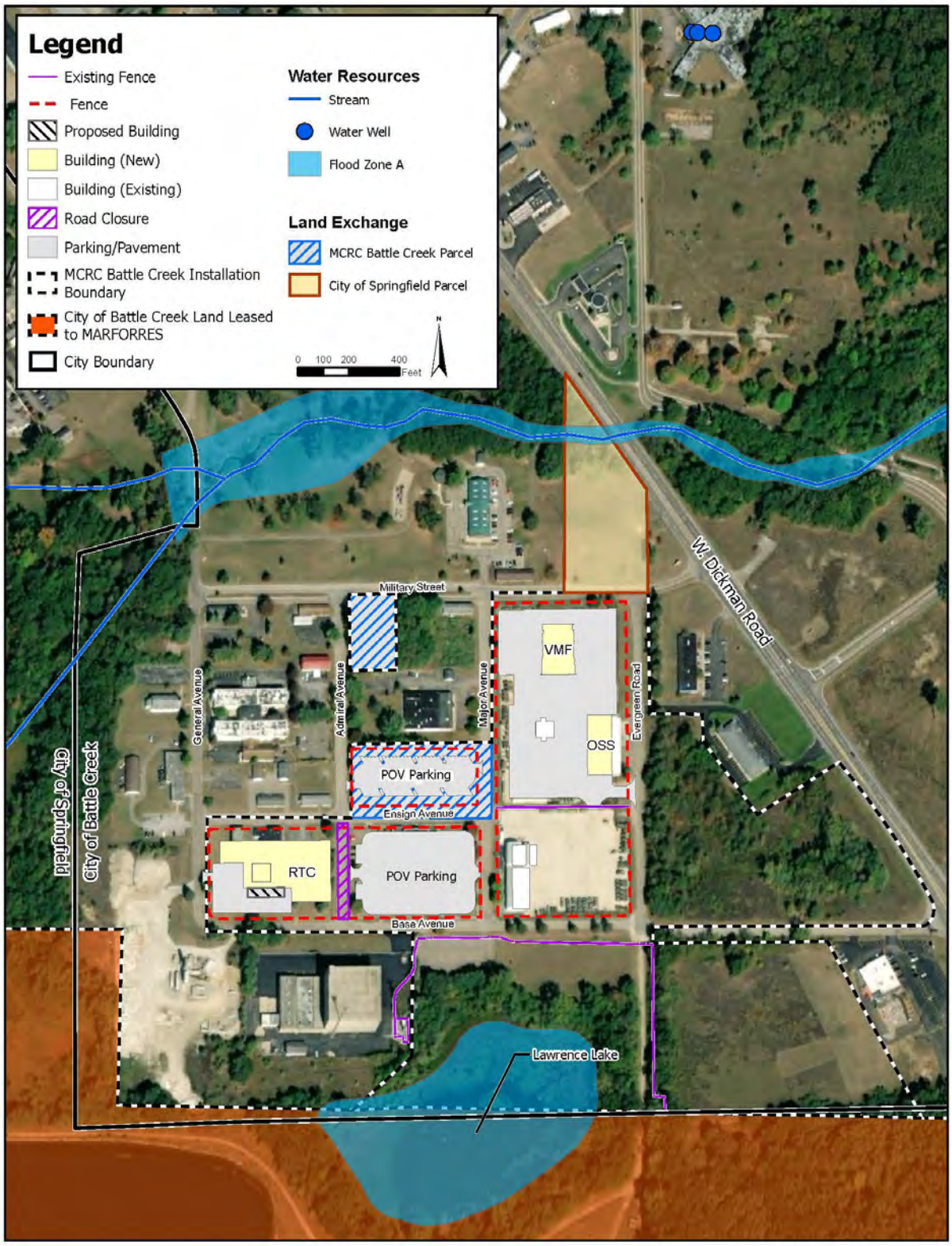


Figure 3.2-2. Water Resources under Site Layout Option Two

3.2.2.5 Coastal Zone

MCRC Battle Creek is located approximately 50 miles from Lake Michigan to the west, 115 miles from Lake Huron to the northeast, 120 miles from Lake St. Clair to the east, and 100 miles from Lake Erie to the southeast. Based on the location and nature of the activities under the Proposed Action, a Coastal Consistency Determination is not required (MI Department of EGLE WRD, 2021). As such, no further discussion of this resource is warranted in this EA.

3.2.3 Environmental Consequences

In this EA, the analysis of water resources considers the potential impacts on groundwater, surface water, wetlands, and floodplains. Groundwater analysis focuses on the potential for impacts to the quality, quantity, and accessibility of the water. The analysis of surface water quality considers the potential for impacts that may change the water quality, including both improvements and degradation of current water quality. The impact assessment of wetlands considers the potential for impacts that may change the local hydrology, soils, or vegetation that support a wetland. The analysis of floodplains considers if any new construction is proposed within a floodplain or may impede the functions of floodplains in conveying floodwaters.

3.2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to baseline water resources. Therefore, no significant impacts to water resources and no effect on the resources of Michigan would occur with implementation of the No Action Alternative.

3.2.3.2 Action Alternative

The study area for the analysis of effects to water resources associated with the Action Alternative is MCRC Battle Creek and the land parcels proposed for exchange. Potential impacts associated with demolition and construction activities are similar under the two site layout options.

Demolition and Construction

As shown in **Figure 3.2-1** and **Figure 3.2-2**, no aspect of demolition or construction activities would cause any direct impacts to groundwater, surface water, or wetlands, and no construction activities are proposed within the floodplain that may impede the functions of floodplains in conveying floodwaters. Indirect impacts would be prevented and/or minimized through the use of BMPs for containing construction site soil disturbance such as silt fencing, hay bales, re-vegetation of exposed soils, or other methods that would prevent sediment from entering stormwater. A NPDES Construction Stormwater General Permit would be obtained prior to any construction and a Stormwater Pollution Prevention Plan would be prepared in accordance with the NPDES permit process. This plan would specify the BMPs for controlling stormwater runoff and minimizing potential impacts to water quality in the watershed during construction activities. In addition, LID methods would be incorporated as appropriate to minimize stormwater runoff (refer to Section 2.1.2.1). No short- or long-term effects to water resources would be anticipated based on the BMPs, LID methods, and the proximity of the resources to the study area. As such, no significant impacts to water resources would be anticipated.

Operation

Post construction, stormwater would be managed in accordance with the NPDES permit. As described in **Section 2.1.2.1**, stormwater flow rates would be evaluated not to exceed predevelopment peak flow rates per MI Department of EGLE control volume standards. No short- or long-term impacts to surface waters would be anticipated.

In summary, implementation of the Action Alternative would not result in significant impacts to water resources.

3.3 Cultural Resources

This discussion of cultural resources includes prehistoric and historic archaeological sites; historic buildings, structures, sites, and districts; and physical entities and human-made or natural features important to a culture, a subculture, or a community for traditional, religious, or other reasons. Cultural resources can be divided into three major categories:

- Archaeological resources (prehistoric and historic) are locations where human activity measurably altered the earth or left deposits of physical remains.
- Architectural resources include standing buildings, structures, landscapes, and other built-environment resources of historic or aesthetic significance.
- Traditional cultural properties may include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

3.3.1 Regulatory Setting

Cultural resources are governed by other federal laws and regulations, including the National Historic Preservation Act (NHPA), Archeological and Historic Preservation Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1990. Federal agencies' responsibility for protecting historic properties is defined primarily by sections 106 and 110 of the NHPA. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties. Section 110 of the NHPA requires federal agencies to establish—in conjunction with the Secretary of the Interior—historic preservation programs for the identification, evaluation, and protection of historic properties. Cultural resources also may be covered by state, local, and territorial laws. Section 106 also requires agencies to consult with federally-recognized Indian tribes that attach religious and cultural significance to historic properties that may be affected by an undertaking In accordance with the NHPA (36 CFR 800.3(f)(2)) and EO 13175, *Consultation and Coordination with Indian Tribal Governments*.

3.3.2 Affected Environment

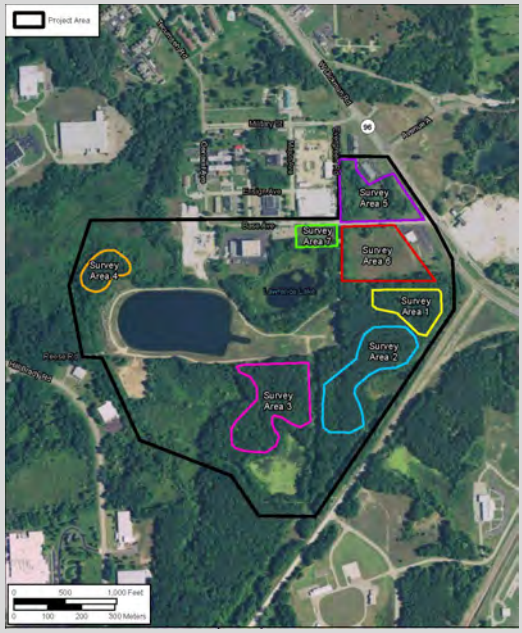
Cultural resources listed in the National Register of Historic Places (NRHP) or eligible for listing in the NRHP are "historic properties" as defined by the NHPA. The list was established under the NHPA and is administered by the National Park Service on behalf of the Secretary of the Interior. The NRHP includes properties on public and private land. Properties can be determined eligible for listing in the NRHP by the Secretary of the Interior or by a federal agency official with concurrence from the applicable State Historic Preservation Office (SHPO). A NRHP-eligible property has the same protections as a property listed in the NRHP. The historical properties include archaeological and architectural resources.

Previous Surveys: In March 2020, a revised draft of the 2019 *Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan*, prepared by Ohio Valley Archaeology, Inc (OVAI) was submitted to the MI SHPO for concurrence of two NRHP-eligible resources identified at MCRC Battle Creek (NAVFAC, 2020a). The Semi-automatic Ground Environment (SAGE) building (circa 1956) was found to be individually eligible for listing in the NRHP under Criteria A and C, in the areas of significance of Military and Architecture, as an outstanding example of Cold War-era

defense infrastructure. The Chapel (circa 1940 to 1945) was found to be eligible for listing in the NRHP under Criterion A, in the area of significance of Military, for its association with World War II-era temporary mobilization buildings. In May 2020, the MI SHPO concurred with the report's recommendations of eligibility for the SAGE building and Chapel (NAVFAC, 2020a).

In July 2019, a Phase I archaeology survey was conducted in the areas proposed for demolition and construction activities under the Proposed Action. The survey yielded 12 oxidized nails and a clear glass fragment; however, no archaeological sites were recorded, and no further work was recommended within the surveyed areas. The 2019 survey report and findings were included in the revised draft of the 2019 *Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan*, prepared by OVAI and submitted to MI SHPO for concurrence. In August 2020, the MI SHPO concurred with the archaeological findings of the OVAI report (NAVFAC, 2020a).

In October 2017, a Phase 1 archaeology survey was conducted that consisted of pedestrian and subsurface testing of 75 discontinuous acres within seven survey areas (**Figure 3.3-1**). Survey Areas 5 and 6 are located within the Site Layout Option One under the Proposed Action. No artifacts were recovered from Survey Area 5; however, several artifacts were recovered from Survey Area 6 and archaeological sites were recorded. However, based on the location and level of previous disturbance at the sites, the artifacts were recommended not eligible for listing in the NRHP, and no additional archaeological investigations were recommended. The MI SHPO concurred with the findings (NAVFAC, 2018).



Source: NAVFAC 2018.

Figure 3.3-1. Phase I Survey Areas (2017)

Area of Potential Effect

The area of potential effect (APE) for cultural resources is the geographic area or areas within which an undertaking (project, activity, program or practice) may cause changes in the character or use of any historic properties present. The APE is influenced by the scale and nature of the undertaking and may be different for various kinds of effects caused by the undertaking. The undertaking is described in **Section 2.1**, Proposed Action.

In accordance with 36 CFR § 800.4(a)(1), MARFORRES has determined an APE in consideration of both potential direct and indirect effects to historic properties as a result of implementing the proposed undertaking. **Figure 3.3-2** illustrates the APEs for Site Layout Option One. The archaeological resources APE includes land proposed for development and land parcels proposed for exchange; the architectural resources APE encompasses the current MCRC Battle Creek property boundaries and two offsite NRHP-eligible properties: the SAGE building and the Chapel. **Figure 3.3-3** illustrates the APEs for Site Layout Option Two. Under this option, the archaeological resources APE includes only those parcels proposed for exchange; the architectural resources APE remains the same as shown in **Figure 3.3-2**.

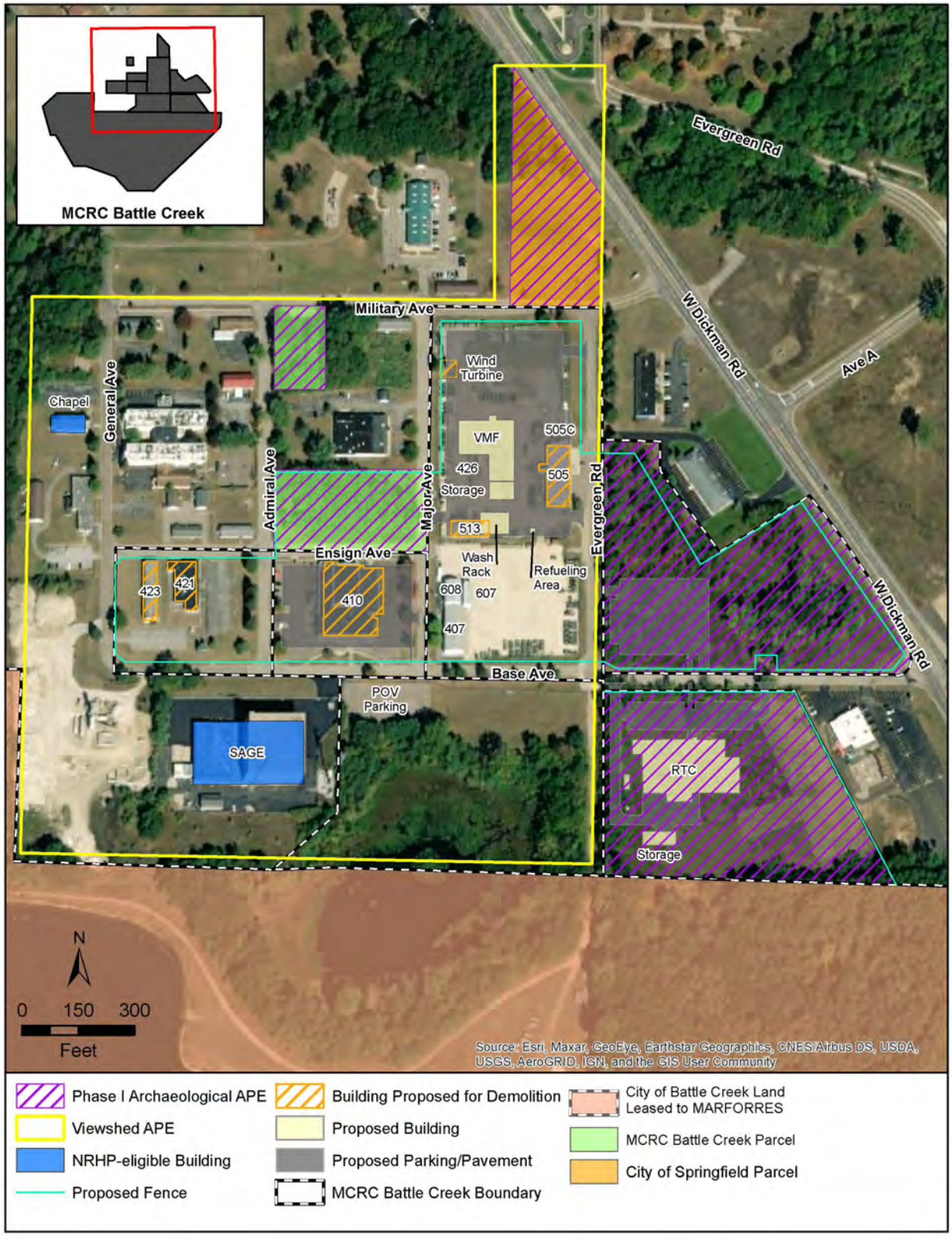


Figure 3.3-2. Areas of Potential Effect under Site Layout Option One (Preferred)

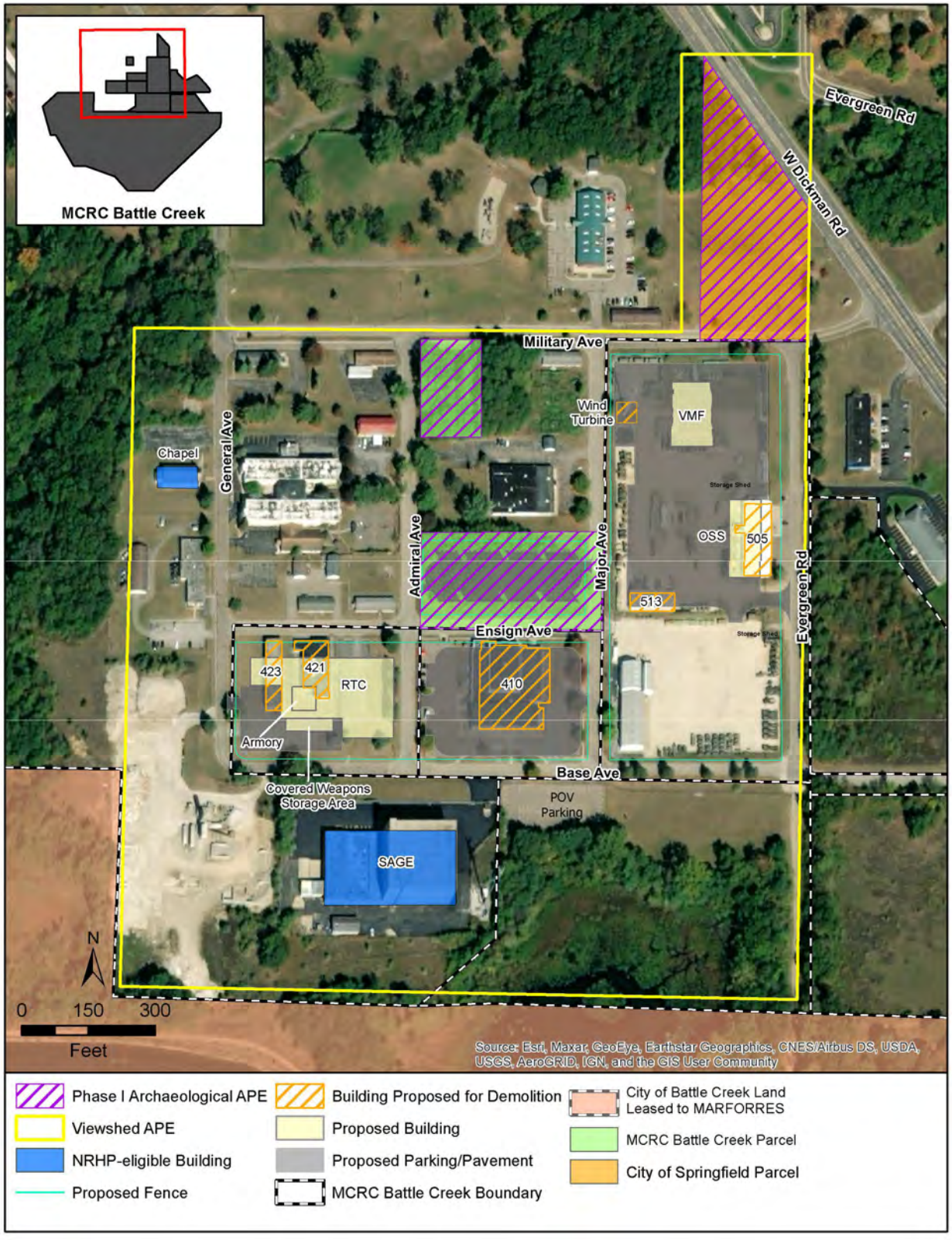


Figure 3.3-3. Areas of Potential Effect under Site Layout Option Two

3.3.2.1 Archaeological Resources

In July 2020, MARFORRES' consultant, Cardno conducted a Phase I archaeological survey within the three land parcels proposed for exchange. The survey did not identify any archaeological resources within the APE and no additional archaeological investigations were recommended. A Phase I archaeological survey report (MARFORRES, 2020b) was prepared by as an addendum to the *Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan* (NAVFAC, 2020a). MARFORRES consulted with the Michigan State Historic Preservation Office (MI SHPO) in November 2020 in accordance with Section 106 of the NHPA. The MI SHPO concurred with the findings of the Phase I archaeological survey addendum report on January 7, 2021 stating that no historic archaeological properties (i.e., below ground) are affected (i.e., ***no effect***) within the APE of this undertaking. **Appendix D** provides the final Phase I archaeological survey addendum report and MI SHPO concurrence.

3.3.2.2 Architectural Resources

In June 2021, MARFORRES' consultant, Cardno conducted a viewshed analysis to determine the potential effects the Proposed Action (under Site Layout Option Two) would have on the aboveground historic properties within the APE (MARFORRES, 2021). In accordance with 54 U.S.C. § 306018 and its implementing regulations at 36 CFR Part 800, MARFORRES determined that the proposed undertaking would result in ***no adverse effect*** to aboveground historic architectural properties (i.e., SAGE building and Chapel) because all proposed demolitions and new construction efforts would not directly or indirectly diminish the integrity of the location, design, setting, materials, workmanship, feeling, or association of the historic properties. MARFORRES consulted with the MI SHPO in July 2021. In a letter dated October 13, 2021, the MI SHPO concurred with the determination by MARFORRES of ***no adverse effect*** on historic properties within the architectural resources APE. **Appendix D** provides the viewshed analysis and MI SHPO concurrence.

In accordance with the NHPA (36 CFR 800.3(f)(2)) and EO 13175, MARFORRES is consulting with federally-recognized Native American tribes regarding the environmental impact analysis and the MI SHPO's determination of effects under Section 106. **Appendix D** provides the Section 106 Government-to-Government consultation correspondence.

3.3.2.3 Traditional Cultural Properties

No traditional cultural properties or resources have been identified with the MCRC Battle Creek APEs.

3.3.3 Environmental Consequences

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may be the result of physically altering, damaging, or destroying all or part of a resource, altering characteristics of the surrounding environment that contribute to the importance of the resource, introducing visual, atmospheric, or audible elements that are out of character for the period the resource represents (thereby altering the setting), or neglecting the resource to the extent that it deteriorates or is destroyed. Indirect impacts primarily result from the effects that are farther removed

from the immediate project area including visual, audible (noise), or atmospheric changes due to the project implementation.

3.3.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to cultural resources. Therefore, no significant impacts to cultural resources would occur with implementation of the No Action Alternative.

3.3.3.2 Action Alternative

The study area for archaeological and architectural resources are the APEs identified in Section 3.3.2, Affected Environment and illustrated on **Figure 3.3-2** and **Figure 3.3-3**.

Demolition and Construction

Demolition and construction activities under the Proposed Action for either of the site layout options would not impact archaeological resources. The previous Phase I archaeological surveys (MARFORRES, 2018; 2020b) did not identify any archaeological resources within either of the site layout options. MI SHPO concurred with the findings of the two Phase I archaeological surveys stating that no historic archaeological properties are affected (i.e., ***no effect***) within the APE of the respective undertakings.

The viewshed analysis (MARFORRES, 2021) determined that demolition and construction activities would result in ***no adverse effect*** to aboveground historic architectural properties (i.e., SAGE building and Chapel) under Site Layout Option Two. The MI SHPO concurred with this determination (see **Appendix D**).

Site Layout Option One lies within the architectural resources APE. Buildings and structures proposed for demolition and construction of the new VMF, OSS, wash rack, and refueling station would be the same as that evaluated in the viewshed analysis. The difference under Site Layout Option Two is construction of the new privately owned vehicle (POV) parking area (on the east side of Evergreen Road) and new RTC and POV parking area would not be located within the viewshed APE of the two offsite NRHP-eligible properties (i.e., SAGE building and Chapel). As such, there would be ***no effect*** to these resources.

Operation

MCRC Battle Creek would continue to operate in the same manner and within the same boundaries of the installation as described in **Section 2.1.5**. Therefore, impacts to archaeological and architectural resources would be negligible.

Based on the analysis and findings in this EA, implementation of the Action Alternative would not result in significant impacts to cultural resources.

3.4 Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal. Within this EA, biological resources are divided into two major categories: (1) terrestrial vegetation and wildlife, and (2) threatened and endangered species.

3.4.1 Regulatory Setting

Special-status species, for the purposes of this assessment, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Migratory Bird Treaty Act. The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the Endangered Species Act requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the Department of Defense where an Integrated Natural Resources Management Plan has been developed that, as determined by the Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

Birds, both migratory and most native-resident bird species, are protected under the Migratory Bird Treaty Act, and their conservation by federal agencies is mandated by EO 13186 (Migratory Bird Conservation). Bald and golden eagles are protected by the Bald and Golden Eagle Protection Act. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

3.4.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under biological resources within MCRC Battle Creek and the land parcels proposed for exchange.

3.4.2.1 Terrestrial Vegetation and Wildlife

Vegetation within the developed portions of MCRC Battle Creek consists of ornamental shrubs, trees, and manicured lawns that surround the buildings and vehicle parking areas. A variety of trees, shrubs, and vines are found within the undeveloped parcels proposed for land exchange. Wildlife within the undeveloped parcels may consist of mammals such as raccoons, opossums, rabbits, and squirrels. Resident bird species may include the American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), red-tailed hawk (*Buteo jamaicensis*), black-capped chickadee (*Poecile atricapillus*), tufted titmouse (*Baeolophus bicolor*), American robin (*Turdus migratorius*), northern cardinal (*Cardinalis cardinalis*), yellow warbler (*Dendroica petechia*), mourning dove (*Zenaida macroura*), downy woodpecker (*Dryobates pubescens*), red-bellied woodpecker (*Melanerpes carolinus*) (NAVFAC, 2014).

3.4.2.2 Threatened and Endangered Species

On February 21, 2022, coordination with the USFWS was initiated regarding potential effects of the Proposed Action's preferred site layout option on federally listed species via the Service's Information, Planning, and Consultation (IPaC) system was initiated. The USFWS IPaC indicated two mammals: Indiana bat (*Myotis sodalist*), a federally listed endangered species and the Northern long-eared bat (Myotis septentrionalis), a federally listed threatened species, two federally listed threatened reptiles:

Copperbelly water snake (*Nerodia erythrogaster neglecta*) and Eastern massasauga (*Sistrurus catenatus*), and the Monarch butterfly (*Danaus plexippus*), a candidate listed insect, may be present at MCRC Battle Creek; however, no critical habitat is within the project area for the listed species. **Appendix E** provides the USFWS IPaC report.

Surveys for the presence of the listed species within the installation boundary have not been conducted; however, past surveys conducted in the training area lands located to the south did not confirm the presence of the Copperbelly water snake or Eastern massasauga although suitable habitat exists (NAVFAC, 2019) nor was the presence of the Northern long-eared bat or Indiana bat detected in 2016 during a summer presence/absence survey conducted in accordance with the USFWS *2016 Range-wide Indiana Bat Summer Survey Guidelines* (NAVFAC, 2016). To date, no surveys have been conducted for the presence of the Monarch butterfly.

The USFWS IPaC report includes birds protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The Bald eagle (*Haliaeetus leucocephalus*) and seven migratory birds listed on the USFWS Birds of Conservation Concern list have the potential to be in the project area (see **Appendix E**).

Michigan State University maintains a database of Michigan's state listed endangered and threatened species. The list was produced by the Endangered Species Program of the Michigan Department of Natural Resources and the Michigan Natural Features Inventory; the current list became effected in 2009. In Calhoun County, 27 species are listed threatened, and 13 species are listed endangered. (Michigan State University, 2021). Michigan lists the Northern long-eared bat as a state species of concern, the Indiana bat as a state endangered species, and the Eastern massasauga as a state species of concern.

3.4.3 Environmental Consequences

This analysis focuses on vegetation types and wildlife that are important to the function of the ecosystem or are protected under federal or state law or statute.

3.4.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to biological resources. Therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

3.4.3.2 Action Alternative

The study area for the analysis of effects to biological resources associated with the Action Alternative is MCRC Battle Creek and the land parcels proposed for exchange. Potential impacts associated with demolition, construction, and operational activities are similar under the two site layout options.

Terrestrial Vegetation and Wildlife

Demolition and Construction

Approximately 5.0 acres of trees and woody vegetation would be removed in preparation for new construction under either site layout option. The loss of trees and woody vegetation would represent a long-term impact; however, landscape plantings would replace vegetation lost to development. In the

short-term, wildlife would be disturbed with implementation of the Action Alternative, and habitat would be lost. Grass and forested areas to the south, within the training lands area, would provide suitable habitat resulting in minimal long-term impact to wildlife. In addition, landscape plantings around buildings and parking areas and development of the Meadows Management Area (refer to **Figure 2.1-2**) with low maintenance native plants would provide replacement refuge for wildlife. Overall, the potential impacts to terrestrial wildlife would not be significant.

Operation

MCRC Battle Creek operations and activities would not change. As such, impacts to terrestrial vegetation and wildlife during the operational phase would be negligible.

Threatened and Endangered Species

Demolition and Construction

Potential impacts to federally listed species would not be anticipated under the Action Alternative. While surveys have not been conducted within the installation boundary for these species, surveys conducted in the adjacent training lands, an area that provides a much more diverse and spacious habitat, have not detected the presence of the federally listed endangered or threatened mammals or reptiles. As such, and based on the location and the activities proposed, and in compliance with Section 7 of the ESA, MARFORRES has determined the modernization of MCRC Battle Creek would have ***no effect*** to federally listed species. **Appendix E** provides the USFWS IPaC and coordination documentation.

The USFWS IPaC report includes guidance on when to schedule activities or implement avoidance measures to reduce potential impacts to listed species and Birds of Conservation Concern that may be present in the project area. To avoid disturbance and destruction of nests that may be present, tree and woody vegetation clearing would occur in the non-breeding season (i.e., October 01 to March 31). Application of this avoidance measure would be anticipated to result in no significant impact during the demolition and construction phases.

Operation

MCRC Battle Creek operations and activities would not change. No impacts to federally listed species during the operational phase would be anticipated.

In summary, there would be no significant impact on listed species and no formal consultation between MARFORRES and USFWS would be required. Vegetation clearing during the non-breeding season (i.e., October 01 to March 31) would reduce potential impacts to terrestrial wildlife. As such, implementation of the Action Alternative would not result in significant impacts to biological resources.

3.5 Land Use

Land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, military, and public. Land uses are frequently regulated by management plans, policies, and ordinances that determine the types of uses that are allowable.

3.5.1 Regulatory Setting

The City of Springfield adopted a new Master Plan in 2019 (City of Springfield, 2019a). The Plan sets forth recommendations for types of land uses which may be established in the City. The Master Plan was prepared by the City Planning Commission and adopted by the Springfield City Council under provisions of the Michigan Planning Enabling Act, Public Act 33 of 2008, as amended.

3.5.2 Affected Environment

MCRC Battle Creek is located in the City of Springfield. **Figure 3.5-1** presents the City of Springfield existing and future land use categories for MCRC Battle Creek, and the immediate vicinity as presented in the 2019 City of Springfield Master Plan (City of Springfield, 2019a) and Future Land Use Map (City of Springfield, 2019b).

The definition of several of the future land use categories within MCRC Battle Creek changed. Specifically, *U.S. Government Military Use* changed to *Public*. According to the 2019 Master Plan, the land use category "Public" includes "all City operated facilities such as City offices, the Police and Fire Station, Reese Cemetery, and all City parks. Public and private schools are also included in this category as are the lands owned by the U.S. government west of Evergreen Road and south of Military Avenue" (City of Springfield, 2019a).

As illustrated in **Figure 3.5-1**, future land use for two parcels located east of Evergreen Road and southeast of Base Avenue that are owned by and to be retained by MCRC Battle Creek have been designated by the City of Springfield as "General Commercial" and "Industrial, Research & Technology", respectively. These City of Springfield land use designations, as illustrated, do not accurately portray the future land use of parcels owned by MCRC Battle Creek.

The Master Plan does not contain a specific time frame for the development of City lands; development takes place as land owners seek rezoning and as developers request approval of plans for residential, commercial, and industrial projects.

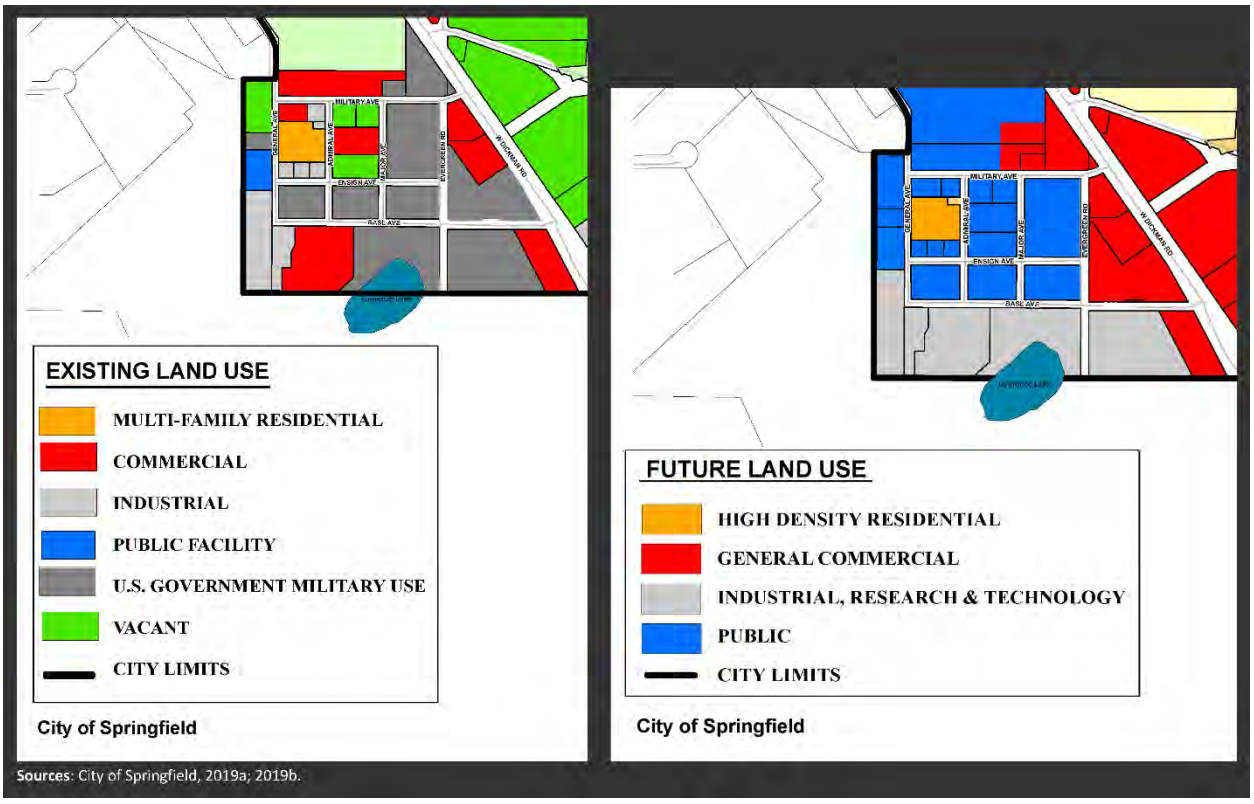


Figure 3.5-1. Existing and Future Land Use in the Vicinity of MCRC Battle Creek

3.5.3 Environmental Consequences

The analysis of land use considers the effect the land exchange would have to adjacent land uses.

3.5.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to land use. The proposed land exchange, as described in **Section 2.1.4**, would not occur. Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.5.3.2 Action Alternative

The study area for land use analysis includes MCRC Battle Creek and the parcels proposed for land exchange that include a 2.6 acre parcel owned by MARFORRES, and two parcels (0.69 acres and 1.9 acres) owned by the City of Springfield as described in **Section 2.1.4**.

The proposed land exchange would align with the future land use as presented in the 2019 City of Springfield Master Plan and illustrated in **Figure 3.5-1**. The two City of Springfield parcels (0.69 acres and 1.9 acres) would become MARFORRES-owned land. MARFORRES would need to apply for rezoning of the two parcels. Development of either parcel would require approval through the City of Springfield City Planning Commission (City of Springfield, 2019a). With completion of the land exchange and approval obtained should MARFORRES decide to develop either of the two parcels, no significant impact to land use would be anticipated.

The inaccurate depiction for two parcels located east of Evergreen Road and southeast of Base Avenue that are owned by and to be retained by MCRC Battle Creek (refer to **Figure 3.5-1**) is noted; however, no impact on MARFORRES' use of the land within MCRC Battle Creek would be anticipated.

No significant impact to land use would occur from continued operation of MCRC Battle Creek. The land exchange and subsequent rezoning of the parcels would ensure that land use would be compatible with the City of Springfield's Master Plan and City Planning Commission zoning ordinances, and would support the operational needs of MCRC Battle Creek. As such, implementing the Action Alternative would not result in significant impacts to land use.

3.6 Hazardous Materials and Wastes

The following discussion considers hazardous materials, hazardous wastes (including universal wastes), and special hazards that could be encountered during the course of demolition, construction, and operational activities.

3.6.1 Regulatory Setting

Hazardous materials are defined by 49 CFR section 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR part 173." Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations. ***Hazardous wastes*** are defined by the Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called ***universal wastes*** and their associated regulatory requirements are specified in 40 CFR part 273. Four types of waste are currently covered under the universal waste regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps, such as fluorescent light bulbs.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include asbestos-containing material (ACM), polychlorinated biphenyls (PCBs), and lead-based paint (LBP), also referred to as lead-containing paint (LCP). USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act. Asbestos is also regulated by USEPA under the Clean Air Act, and the Comprehensive Environmental Response, Compensation, and Liability Act.

3.6.2 Affected Environment

In January 2020, consultant Michael Baker, conducted a hazardous material survey on buildings 410, 421, 423, 505, 513 and the two storage sheds proposed for demolition (NAVFAC, 2020b). The survey detected the presence of ACM, LBP/LCP, and the potential for PCBs. **Table 3.6-1** provides a brief summary of the hazardous materials identified or suspected for each of the buildings proposed for demolition. **Appendix F** provides the hazardous material survey.

Table 3.6-1. Hazardous Materials Identified or Suspected in Select Buildings

Building Number	ACM Identified	LBP/LCP Suspected	Other Hazards Identified
410	Yes	Yes	Yes
421	Yes	Yes	Yes
423	Yes	Yes	Yes
505	Yes	Yes	Yes
513	Yes	Yes	No
Shed #1	No	Yes	No
Shed #2	No	Yes	No

Source: NAVFAC, 2020b.

3.6.3 Environmental Consequences

The hazardous materials and wastes analysis addresses issues related to the Proposed Action and the continued use and management of hazardous materials and wastes at MCRC Battle Creek.

3.6.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change associated with hazardous materials and wastes. Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.6.3.2 Action Alternative

The study area for evaluation of hazardous materials and wastes is MCRC Battle Creek. Potential impacts associated with demolition and construction activities are similar under both site layout options.

Demolition and Construction

As indicated in **Table 3.6-1**, hazardous materials were detected and/or suspected in each of the buildings proposed for demolition. ACMs were found in five of the seven buildings. Special precautions would be taken for the handling and disposal of building materials suspected or confirmed to include ACMs. LBP/LCP was suspected in all of the buildings and sheds proposed for demolition. Special precautions would be taken to protect onsite workers from exposure to airborne metals. Fluorescent light bulbs and ballasts have the potential to contain PCBs. The removal and disposal of the fixtures would be done in accordance with the *Toxic Substances Control Act Storage Disposal Requirements for Fluorescent Light Ballasts*.

Construction activities would require the use of certain hazardous materials (e.g., paints, welding gases, solvents, preservatives, sealants). Hazardous materials usage during construction activities would be temporary and would be managed in accordance with federal and state regulations. MARFORRES would

continue to follow the regulatory guidance for hazardous material and hazardous waste management and minimization provided in Marine Corps Order 5090.2, Volume 9, *Hazardous Waste Management*.

Operation

There would be no change in the type of operations conducted at MCRC Battle Creek. Hazardous materials could be released during operational activities from an accidental spill or discharge from parked POVs or onsite maintenance of tactical vehicles and equipment. Marine Corps procedures for the cleanup and disposal of such materials would continue to be followed. All hazardous materials would continue to be stored and all hazardous wastes generated would continue to be disposed of in accordance with federal, state, and local regulations.

Implementing the Action Alternative would not result in a significant impact to human health or the environment from hazardous materials or wastes. Demolition and construction debris and materials would be disposed of properly and in accordance with federal and state regulations. MARFORRES would continue to follow the regulatory guidance for hazardous material and hazardous waste management and minimization provided in Marine Corps Order 5090.2, Volume 9, *Hazardous Waste Management*.

3.7 Summary of Potential Impacts to Resource Areas

A summary of potential impacts associated with the Action Alternative and the No Action Alternative to each of the resource areas evaluated are presented in **Table 3.7-1**.

Table 3.7-1. Summary of Potential Impacts to Resource Areas

Resource Area	No Action Alternative	Action Alternative
Air Quality	The Proposed Action would not occur. The continued use of energy inefficient buildings and infrastructure may present minor, long-term impacts to air quality in the region.	Potential for short-term impacts to air quality during demolition and construction activities over an approximate 24-month period. Criteria pollutant emissions would be less than significant. BMPs such as surface wetting of soils and limitation on idling for construction equipment and trucks operating onsite would reduce the potential for fugitive dust. New, energy efficient buildings could result in minor long-term beneficial impacts to air quality.
Water Resources	The Proposed Action would not occur; there would be no change to baseline water resources.	No short- or long-term effects to water resources would be anticipated. No direct impacts to groundwater, surface water, wetlands, or the floodplain; indirect impacts would be prevented and/or minimized through the use of BMPs for containing construction site soil disturbance. An un-named tributary was identified during a jurisdictional wetland delineation conducted in July 2020. The tributary is located within the 2.6 acre parcel proposed for land exchange. The MI Department of EGLE WRD, Kalamazoo District Office has been delegated authority by the USACE Detroit District Regulatory Branch to confirm wetlands in Calhoun County. On July 3, 2020, the District Office was contacted via telephone to request confirmation of the wetland delineation findings; however, since no activities for development of the 2.6 acre parcel are proposed, no jurisdictional determination was made. A NPDES construction stormwater general permit would be obtained prior to any construction and a stormwater pollution prevention plan would be prepared in accordance with the NPDES permit process. The plan would specify the BMPs for controlling stormwater runoff and minimizing potential impacts to water quality in the watershed during construction activities. In addition, LID methods would be incorporated as appropriate to minimize stormwater runoff. A 100-year floodplain is located along the un-named tributary in the 2.6 acre parcel; no direct or indirect impact to the floodplain would be anticipated as no development is proposed for the site under the Proposed Action. Based on the location and nature of the activities under the Proposed Action, MI Department of EGLE WRD determined there would be no impacts to the coastal zone; as such, a Coastal Consistency Determination is not required. The Proposed Action would not result in significant impacts to water resources.

Table 3.7-1. Summary of Potential Impacts to Resource Areas

Cultural Resources	The Proposed Action would not occur; there would be no change to cultural resources.	No NRHP-eligible archaeological resources have been identified and no historic properties are located within the boundary of MCRC Battle Creek. MARFORRES consulted with the MI SHPO in accordance with Section 106 of the NHPA regarding potential effects of the Proposed Action on archaeological resources. MI SHPO concurred with the findings of MARFORRES regarding archaeological resources on January 7, 2021 stating that no historic archaeological properties would be affected. MARFORRES consulted with MI SHPO on two NRHP-eligible resources located outside of the MCRC Battle Creek boundary but within the viewshed of the proposed new Reserve Training Center. MI SHPO concurred with the determination by MARFORRES of ***no adverse effect*** on historic properties within the area of potential effect on October 13, 2021. Previous consultations conducted by the Navy in the same areas proposed for demolition and construction under the Proposed Action, identified no NRHP-eligible architectural or archaeological resources within the boundary of MCRC Battle Creek; MI SHPO concurred in with the previous findings in two correspondences, in May 2020 (architectural) and August 2020 (archaeological), respectively. In accordance with the NHPA (36 CFR 800.3(f)(2)) and EO 13175, MARFORRES is consulting with federally-recognized Native American tribes regarding the environmental impact analysis and the MI SHPO's determination of effects under Section 106.
Biological Resources	The Proposed Action would not occur; there would be no change to biological resources.	Potential for minor short-term impacts to biological resources during the construction phase; negligible impacts anticipated during the operational phase. Vegetation removal and habitat loss would represent a long-term impact; however, forested areas to the south, within the training lands area, would provide suitable habitat resulting in minimal long-term impact to wildlife. On February 21, 2022, coordination with the USFWS was initiated regarding potential effects of the Proposed Action's preferred site layout option on federally listed species via the Service's IPaC system. The USFWS IPaC indicated the federally endangered Indiana bat, federally threatened Northern long-eared bat, Copperbelly water snake, and Eastern massasauga, and candidate Monarch butterfly may be present at MCRC Battle Creek; however, no critical habitat is within the project area for these species. No surveys have been conducted within the installation boundary; however,

Table 3.7-1. Summary of Potential Impacts to Resource Areas

		surveys conducted by NAVFAC in the adjacent training lands, an area that provides a much more diverse and spacious habitat, have not detected the presence of the listed endangered or threatened species. In compliance with Section 7 of the ESA, and based on the location and the activities proposed, MARFORRES has determined the modernization of MCRC Battle Creek would have ***no effect*** to federally listed species. The USFWS IPaC also indicated the potential for the Bald eagle and nine migratory birds listed on the USFWS Birds of Conservation Concern list to be present in the project area. To avoid disturbance and destruction of nests that may be present, tree and woody vegetation clearing would occur in the non-breeding season (i.e., October 01 to March 31). Application of this avoidance measure would be anticipated to result in no significant impact during the demolition and construction phases.
Land Use	The Proposed Action would not occur; there would be no change to land use.	The proposed land exchange would align with the future land use plans of the City of Springfield. With completion of the land exchange and approval granted from the City of Springfield City Planning Commission for site development, there would be no significant impact to land use.
Hazardous Materials and Wastes	The Proposed Action would not occur; there would be no change to hazardous materials and wastes.	No significant short- or long-term impacts to this resource would be anticipated. A hazardous material survey conducted in January 2020 on buildings 410, 421, 423, 505, 513 and the two storage sheds detected the presence of ACM, LBP/LCP, and the potential for PCBs. The handling of hazardous materials and waste would be conducted in accordance with federal, state, and local regulations. MARFORRES would continue to follow the regulatory guidance for hazardous material and hazardous waste management and minimization provided in Marine Corps Order 5090.2, Volume 9, *Hazardous Waste Management*.

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4 Other Considerations Required by NEPA

4.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

In accordance with 40 Code of Federal Regulations (CFR) section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. **Table 4.1-1** identifies the principal federal and state laws and regulations that are applicable to the Proposed Action, and describes briefly how compliance with these laws and regulations would be accomplished.

Table 4.1-1. Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	Status of Compliance
National Environmental Policy Act (NEPA); CEQ NEPA implementing regulations; Navy procedures for Implementing NEPA	This Environmental Assessment (EA) has been prepared in accordance with Council on Environmental Quality Regulations for implementing NEPA and Navy and Marine Corps NEPA procedures.
Clean Air Act	The air quality analysis concludes that the emissions under the Proposed Action would not affect the current attainment status and would comply with all applicable state and regional air agency rules and regulations. Construction emissions would not exceed the *de minimis* thresholds that apply under the General Conformity Rule (refer to **Table 3.1-4**).
Clean Water Act	The Proposed Action analyzed in this EA would be implemented in accordance with this Act. A National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit would be obtained prior to any construction and a stormwater pollution prevention plan would be prepared in accordance with the NPDES permit process. This plan would specify the best management practices for controlling stormwater runoff and minimizing potential pollution during construction activities. In addition, low impact development guidelines would be observed.
National Historic Preservation Act	MARFORRES consulted with the Michigan (MI) State Historic Preservation Office (SHPO) on in accordance with Section 106 of the National Historic Preservation Act regarding potential effects of the Proposed Action on archaeological resources (Phase I archaeological survey) and historic properties (Viewshed analysis). MI SHPO concurred with the findings of MARFORRES regarding archaeological resources on January 7, 2021 stating that no historic archaeological properties would be affected. MI SHPO concurred with the determination by MARFORRES of ***no adverse effect*** on historic properties within the area of potential effects on October 13, 2021 (see **Appendix D**).
Endangered Species Act	On February 21, 2022, coordination with the U.S. Fish and Wildlife Service (USFWS) via the Service's Information, Planning, and Consultation (IPaC) system was initiated. The USFWS IPaC indicated the federally endangered Indiana bat, federally threatened Northern long-eared bat, Copperbelly water snake, and Eastern massasauga, and candidate Monarch butterfly may be present at MCRC Battle Creek; however, no critical habitat is within the project area and

Table 4.1-1. Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	Status of Compliance
	surveys conducted in the adjacent training lands area have not detected the presence of these species or critical habitat. In compliance with Section 7 of the Endangered Species Act, and based on the location and the activities proposed under the preferred site layout option, MARFORRES has determined the modernization of MCRC Battle Creek would have ***no effect*** to federally listed species. See **Appendix E** for USFWS IPaC and coordination documentation.
Migratory Bird Treaty Act	The Proposed Action analyzed in this EA would be implemented in accordance with this Act. To avoid disturbance and destruction of nests that may be present, vegetation clearing would occur in the non-breeding season (i.e., October 01 to March 31).
Bald and Golden Eagle Protection Act	The Proposed Action analyzed in this EA would be implemented in accordance with this Act. To avoid disturbance and destruction of nests that may be present, vegetation clearing would occur in the non-breeding season (i.e., October 01 to March 31).
Executive Order 11988, Floodplain Management	The FEMA Flood Zones mapping identified Flood Zone A (100-year zone) along the un-named tributary located at the intersection of Military Street and W Dickman Road and Lawrence Lake located approximately 140 yards south of Base Avenue. No disturbance or development is proposed in the flood zones. There are no 500-year flood zones located within or adjacent to the project area (refer to **Section 3.2**).
Executive Order 11990, Protection of Wetlands	The National Wetland Inventory mapping identified one stream, an un-named tributary located at the intersection of Military Street and W Dickman Road within the 2.6 acre parcel owned by MARFORRES and proposed for land exchange with the City of Springfield. A wetland delineation was conducted in August 2020. On July 30, 2020, the Kalamazoo District Office of MI Department of EGLE WRD was contacted via telephone to request confirmation of a wetland delineation that had been conducted. MI Department of EGLE WRD indicated only parcels with proposed impacts associated with development would be confirmed. As no activities for development are proposed by MARFORRES for the 2.6 acre parcel, no jurisdictional determination was made (see **Appendix C**).
Executive Order 13175, Consultation and Coordination with Indian Tribal Governments	MARFORRES will consult with federally-recognized Native American tribes regarding the environmental impact analysis and the MI SHPO's determination of effects under Section 106. **Appendix D** will provide the Government-to-Government consultation correspondence.

4.2 Irreversible or Irretrievable Commitments of Resources

NEPA requires that environmental analysis include the identification of any irreversible and irretrievable commitments of resources that would be involved if the Proposed Action is implemented. Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the Proposed Action would involve human labor, the consumption of fuel, oil, and lubricants for construction vehicles, and the use of construction materials such as wood and metal. The recycling and reuse of eligible metal materials during demolition could potentially offset the loss of some construction materials. The Proposed Action would not affected or damage water resources or destroy any cultural resources. The conversion of the 1.9 acre wooded lot to a POV parking area would result in the loss of grasses and trees; however, plants native to Calhoun County would replace some of those lost to development. Implementing the Proposed Action would not result in significant irreversible or irretrievable commitment of resources.

4.3 Unavoidable Adverse Impacts

NEPA requires a description of any significant impacts resulting from implementation of a proposed action, including those that can be mitigated to a less than significant level. Based on the analysis in this EA, the Proposed Action would not result in any significant or unavoidable adverse impacts to any resource area. As such, no mitigation actions are required.

4.4 Relationship between Short-Term Use of the Environment and Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

The Proposed Action would dedicate equipment and other resources to a particular use during an extended period of time. These resources would not be available for other productive uses throughout the useful life of the proposed facilities. However, these impacts are considered negligible, as the facilities associated with MCRC Battle Creek are designated for and or have historically accommodated the types of uses proposed. The Proposed Action has the potential to incrementally increase global emissions of greenhouse gases; however, the significance of an individual source alone is impossible to assess on a global scale. In summary, the Proposed Action would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

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This EA was prepared collaboratively between the Navy, MARFORRES, and contractor preparers.

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Appendix A
Public and Agency Participation

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NOTICE OF AVAILABILITY OF AN ENVIRONMENTAL ASSESSMENT FOR THE MODERNIZATION AND CONTINUED OPERATION OF MARINE CORPS RESERVE CENTER BATTLE CREEK CITY OF SPRINGFIELD, MICHIGAN

The Department of the Navy and the U.S. Marine Corps gives notice, per the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality regulations at 40 Code of Federal Regulations parts 1500-1508, and Navy and Marine Corps regulations for implementing NEPA, that an Environmental Assessment (EA) has been prepared for the proposed modernization of Marine Corps Reserve Center (MCRC) Battle Creek located in the City of Springfield, Michigan (MI). The Proposed Action is needed to provide capabilities for training and equipping combat-capable forces ready to deploy worldwide as mandated for the U.S. Marine Corps under 10 United States Code, section 5063.

The project would include demolition of several existing facilities, construction and operation of several new facilities, improvement to site circulation and security including new fencing and road closures within the boundary of MCRC Battle Creek, exchange of land parcels with the City of Springfield, and continuation of operations at MCRC Battle Creek. Potential environmental impacts of this project have been evaluated for air quality; water, cultural, and biological resources; land use; and hazardous materials and wastes.

The following federal and state agencies were consulted for this project: MI Department of Environment, Great Lakes, and Energy, Water Resources Division; MI State Historic Preservation Office; U.S. Army Corps of Engineers Detroit District; and U.S. Fish and Wildlife Service. The City of Springfield was consulted regarding the proposed land exchange and proposed road closures being considered for this project.

A copy of the preliminary final EA may be obtained from the following public website: https://www.navfac.navy.mil/navfac_worldwide/atlantic/fecs/mid-atlantic/about_us/environmental_norfolk/environmental_planning_and_conservation.html

The public comment period ends DATE, 2022. For additional information, please contact Christopher Hurst in writing at Marine Corps Support Facility New Orleans, 2000 Opelousas Avenue, New Orleans, Louisiana, 70114; or via e-mail: christopher.a.hurst@usmc.mil.

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Appendix B
Air Emissions Calculations

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TAB A. **CONSTRUCTION EMISSIONS**

Production rates from MDOT:
https://mdotwiki.state.mi.us/images_construction/a/a4/MDOT_Production_Rates.pdf

Basic Conversions

453.59	grams per pound (lbs)
43,560	Conversion from acre to square feet (SF)
0.03704	Cubic feet to cubic yards (CY)
0.1111	SF to square yards (SY)
1.4	tons/CY for gravel
80,000	lbs/truck load for delivery
1.66	CY for each CY of asphalt/concrete demo
0.33333333	asphalt thickness for demolition
0.33333333	asphalt thickness for pavement
2000	lbs per ton
145	lbs/cubic feet (ft^3) density of Hot Mix Asphalt (HMA)

Off-road emissions factors from MOVES3
On-road emissions factors need to be updated from MOVES3, right now are likely overestimating some

Table 1.1 **Demolition** 70,385 SF 23 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	352	145	0.58	0.02	0.15	0.48	1.45E-03	0.03	0.03	537
Loader/Backhoe	352	87	0.21	0.51	2.70	2.75	2.09E-03	0.41	0.40	695
Small Backhoe	352	55	0.21	0.54	2.71	3.81	2.08E-03	0.40	0.39	694

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	1.43	9.48	31.35	0.09	2.24	2.18	35,024
Loader w/integral Backhoe	7.30	38.26	39.02	0.03	5.81	5.64	9,845
Small backhoe	4.83	24.28	34.13	0.02	3.61	3.50	6,223
Subtotal in lbs	14	72	104	0	12	11	51,092
Demo Total in Tons	**0.01**	**0.04**	**0.05**	**0.00**	**0.01**	**0.01**	**26**

293 Truck trips

Table 1.2 **Demolition - Hauling** 20 miles per trip

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck (12 CY)	5,865	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck (12 CY)	8.92	47.17	211.57	0.11	8.82	8.55	20,168
Subtotal in lb:	9	47	212	0	9	9	20,168
Demo Hauling Grand Total in Tons	**0.00**	**0.02**	**0.11**	**0.00**	**0.00**	**0.00**	**10**

Table 1.3 **Clearing** 5 acres 29 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	58	145	0.58	0.02	0.15	0.48	1.45E-03	0.03	0.03	537
Loader/Backhoe	58	87	0.21	0.51	2.70	2.75	2.09E-03	0.41	0.40	695
Small Backhoe	58	55	0.21	0.54	2.71	3.81	2.08E-03	0.40	0.39	694

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	0.24	1.56	5.17	0.02	0.37	0.36	5,772
Loader w/integral Backhoe	1.20	6.31	6.43	0.00	0.96	0.93	1,622
Small backhoe	0.80	4.00	5.62	0.00	0.59	0.58	1,026

20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck (12 CY)	529	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	0.81	4.26	19.09	0.01	0.80	0.77	1,820
Subtotal in lbs	3	16	36	0	3	3	10,240
Clearing Grand Total in Tons	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**	**5**

Table 1.4 **Site Prep**

Site Prep - Excavate/Fill (CY) 13,733 CY 9 days 1,144 truck trips
Grading (SY) 77,440 SY 39 days

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Excavator	46	243	0.59	0.02	0.07	0.23	1.43E-03	0.01	0.01	537
Skid Steer Loader	55	160	0.23	0.70	2.40	3.58	1.99E-03	0.42	0.41	625
Dozer (Rubber Tired)	50	145	0.59	0.02	0.15	0.48	1.45E-03	0.03	0.03	537
Compactor	179	103	0.58	0.05	0.25	0.83	1.49E-03	0.05	0.05	537
Grader	28	285	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	537

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Excavator	0.24	0.96	3.40	0.02	0.18	0.18	7,767
Skid Steer Loader	3.12	10.72	15.95	0.01	1.89	1.83	2,783
Dozer (Rubber Tired)	0.21	1.36	4.51	0.01	0.32	0.31	5,037
Compactor	1.21	5.83	19.59	0.04	1.29	1.25	12,671
Grader	0.19	0.85	2.87	0.01	0.16	0.15	5,379

Excavation - Hauling 20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck	22,889	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck	34.82	184.07	825.61	0.41	34.44	33.37	78,705

	VOC	CO	NOx	SO2	PM10	PM2.5	CO_2
Subtotal in lb:	40	204	872	1	38	37	112,343
Site Prep Grand Total in Tons	**0.02**	**0.10**	**0.44**	**0.00**	**0.02**	**0.02**	**56**

Table 1.5 **Gravel Work** 6,864 CY 7 days 572 truck trips

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM_{10} g/hp-hr	$PM_{2.5}$ g/hp-hr	CO_2 g/hp-hr
Dozer	69	185	0.59	0.02	0.09	0.30	1.44E-03	0.02	0.02	537
Wheel Loader for Spreading	86	87	0.59	0.51	2.70	2.75	2.09E-03	0.41	0.40	695
Compactor	51	103	0.43	0.05	0.25	0.83	1.49E-03	0.05	0.05	537

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	0.32	1.46	4.89	0.02	0.27	0.26	8,866
Wheel Loader for Spreading	5.00	26.21	26.73	0.02	3.98	3.86	6,744
Compactor	0.25	1.23	4.12	0.01	0.27	0.26	2,665

20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck	11,441	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
		Dump Truck	17.40	92.00	412.66	0.21	17.21	16.68	39,339
		Subtotal (lbs):	**23**	**121**	**448**	**0**	**22**	**21**	**57,613**
		Gravel Work Grand Total in Tons	**0.01**	**0.06**	**0.22**	**0.00**	**0.01**	**0.01**	**29**

Table 1.6 **Concrete Work** 5,627 CY 8 days 625 truck trips

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
				Emission Factors						
Concrete Mixer	296	3.5	0.43	0.97	3.49	5.44	2.16E-03	0.50	0.48	588
Concrete Truck	268	300	0.43	0.20	0.91	3.29	1.69E-03	0.13	0.13	530
				Annual Emissions						
				VOC lb	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
			Concrete Mixer	0.96	3.43	5.34	2.12E-03	0.49	0.47	577
			Concrete Truck	15.36	69.69	250.57	0.13	10.09	9.79	40,426
			Subtotal (lbs):	**16**	**73**	**256**	**0**	**11**	**10**	**41,003**
			Concrete Work Grand Total in Tons	**0.01**	**0.04**	**0.13**	**0.00**	**0.01**	**0.01**	**21**

20 miles RT

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Concrete Truck	12,505	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
		Concrete Truck	19.02	100.57	451.06	0.23	18.81	18.23	43,000
		Subtotal (lbs):	**19**	**101**	**451**	**0**	**19**	**18**	**43,000**
		Concrete Truck Travel Grand Total in Tons	**0.01**	**0.05**	**0.23**	**0.00**	**0.01**	**0.01**	**21**

35% Year 1

Table 1.7 **Construction** 73,160 SF 405 days 65% Year 2

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
				Emission Factors						
Crane	366	330	0.58	0.06	0.25	1.03	1.51E-03	0.04	0.04	531
Concrete Truck	366	300	0.43	0.20	0.91	3.29	1.69E-03	0.13	0.13	530
Diesel Generator	293	40	0.43	0.11	0.35	2.60	1.60E-03	0.03	0.03	596
Telehandler	732	99	0.59	0.06	0.62	1.48	1.66E-03	0.10	0.09	596
Scissors Lift	585	83	0.59	0.06	0.62	1.48	1.66E-03	0.10	0.09	596
Skid Steer Loader	366	67	0.59	0.95	4.40	4.76	2.21E-03	0.70	0.68	693
All Terrain Forklift	732	84	0.59	0.06	0.68	1.49	1.66E-03	0.10	0.10	596
				Annual Emissions						
				VOC lb	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
			Crane	8.62	38.83	158.54	0.23	5.89	5.71	81,989
			Concrete Truck	20.98	95.19	342.23	0.18	13.79	13.37	55,215
			Diesel Generator	1.18	3.90	28.86	0.02	0.37	0.35	6,620
			Telehandler	6.07	58.52	139.20	0.16	8.97	8.71	56,177
			Scissors Lift	4.07	39.21	93.26	0.10	6.01	5.83	37,640
			Skid Steer Loader	30.41	140.45	151.89	0.07	22.37	21.70	22,111
			All Terrain Forklift	4.82	54.77	119.02	0.13	8.40	8.15	47,667
			Subtotal (lbs):	**76**	**431**	**1,033**	**1**	**66**	**64**	**307,419**
			Building Construction Grand Total in Tons	**0.04**	**0.22**	**0.52**	**0.00**	**0.03**	**0.03**	**154**

148,392 SF

Table 1.8 **Paving** 916 ft3 66 tons 1 days

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Grader	8	145	0.59	0.02	0.14	0.46	1.45E-03	0.03	0.03	537
Roller	8	401	0.59	0.05	0.33	0.87	1.51E-03	0.04	0.04	537
Paving Machine	8	164	0.59	0.05	0.26	0.83	0.00	0.06	0.06	537
Asphalt Curbing Machine	8	130	0.59	0.05	0.26	0.83	0.00	0.06	0.06	537
				VOC lb	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
			Grader	0.03	0.21	0.69	0.00	0.05	0.05	810
			Roller	0.21	1.36	3.63	0.01	0.19	0.18	2,239
			Paving Machine	0.09	0.44	1.42	0.00	0.10	0.10	916
			Asphalt Curbing Machine	0.07	0.35	1.12	0.00	0.08	0.08	726

On-road Equipment	Hours of Operation	Engine HP	based Speed (miles/hour)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	8	230	17	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
Water Truck	8	230	10	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
				VOC lb	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
			Dump Truck	0.21	1.09	4.91	0.00	0.20	0.20	467.64
			Water Truck	0.12	0.64	2.89	0.00	0.12	0.12	275.08

Hot Mix Asphalt (HMA)	Volume of HMA (ft^3)	Weight of HMA (tons)	VOC lb/ton	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Standard Hot Mix Asphalt	916	66	0.04	2.66	-	-	-	-	-	-
			Subtotal (lbs):	3	4	15	0	1	1	5,434
			Paving Grand Total in Tons	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**3**

Table 1.9 **Construction - Worker Trips** 520 trips per day 50% Year 1
10 miles per trip 50% Year 2

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Light-duty Truck	5,200	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
		Light-duty Truck	7.91	41.82	187.56	0.09	7.82	7.58	17,880
		Subtotal (lbs):	8	42	188	0	8	8	17,880
Construction Worker TripsGrand Total in Tons			**0.00**	**0.02**	**0.09**	**0.00**	**0.00**	**0.00**	**9**

Table 1.10 **Material Deliveries** 480 trips 20 miles RT 50% Year 1 50% Year 2

On-road Equipment	Miles	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Delivery Truck	9,600	265	-	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
			Delivery Truck	14.60	77.20	346.27	0.17	14.44	13.99	33,009.99
Material Deliveries Grand Total in Tons				**0.01**	**0.04**	**0.17**	**0.00**	**0.01**	**0.01**	**17**

Table 1.11 **Fugitive Dust Emissions**

Year	PM_{10} tons/acre/mo	acres per month	annual days of disturbance	PM_{10} Total	PM2.5/PM_{10} Ratio	$PM_{2.5}$ Total
Year 1	0.42	0.6	120	1.5	0.1	0.2
Year 2	0.42	0.3	72	0.4	0.1	3.78E-02

Table 1.12 **Total Emissions**

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Year 1	0.59	0.94	2.10	0.50	2.10	0.73	246
Year 2	0.03	0.17	0.47	0.00	0.40	0.06	113

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Appendix C
Wetland Delineation and Coastal Consistency Determination Correspondence

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MARINE CORPS RESERVE CENTER BATTLE CREEK MICHIGAN

Jurisdictional Wetland Delineation

August 2020

Cardno

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1.0 INTRODUCTION

The United States (U.S.) Marine Corps Forces Reserve (MARFORRES) proposes to demolish several existing facilities, construct and operate several new facilities, and close several roads to form a contiguous site at Marine Corps Reserve Center (MCRC) Battle Creek located in the City of Battle Creek, Calhoun County, Michigan (MI). The facilities of MCRC Battle Creek are outdated and inadequate to support current requirements of the 4th Marine Logistics Group and Rifle Company A 1st Battalion 24th Marine Division and 6th Engineer Support Units, Detachment 1 Headquarters & Service Company, Engineer Company and future operational training requirements that will be required with the addition of Bridge Company A 6th Engineer Support Battalion that has been reassigned from MCRC Grand Rapids to MCRC Battle Creek.

The mission of MARFORRES is to augment and reinforce the active Marine forces in times of war, national emergencies, or contingency operations; provide personnel and operational tempo (i.e., rate of activity) relief for the active forces in peacetime; and to provide a service to the community. MARFORRES is comprised of active and inactive reservists. Active reservists are required to drill one weekend a month and two weeks a year. Inactive reservists consist of previously active Marines or reservists that may be called back into service at any time. The primary purpose of drills is to provide individual and/or unit level readiness of active and inactive reservists thereby ensuring that they are equipped and trained to the same standards as the active Marine forces.

The reserve training center serves as the single gathering point for personnel for administrative meetings and is essential to support training and operations of assigned MARFORRES units during drill weekends. Additionally, the training center provides a headquarters facility for the reserve component organization and becomes the initial mobilization location during federal activation of reserve component units. Under the Proposed Action, a new reserve training center and support structures would be constructed to replace the existing facilities that are outdated, inefficient, and undersized.

2.0 STUDY AREA, METHODS AND BACKGROUND

MCRC Battle Creek is located in the City of Battle Creek, MI adjacent to and west of the W.K. Kellogg Airport (see Appendix A, Figure 1 Battle Creek Vicinity Map).

The study area is comprised of 5 parcels totaling 20.30 acres; the parcels are illustrated in Appendix A, Figure 2 Battle Creek Study Area Map and summarized below.

Parcel 1 2.60 ac. Located at intersection of Military Rd and W Dickman Rd.
Parcel 2 0.69 ac. Located at intersection of Military Rd and Admiral Ave.
Parcel 3 1.90 ac. Located along Base Rd between Admiral Ave and Major Ave.
Parcel 4 7.69 ac. Located at the intersection of Evergreen Rd and Base Ave (north of Base).
Parcel 5 7.39 ac. Located at the intersection of Evergreen Rd and Base Ave (south of Base).

A jurisdictional wetland delineation was conducted on the study area to identify the limits of wetlands and waters of the U.S. subject to jurisdiction using the Corps of Engineers Wetland Delineation Manual (1987) and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region. The limits of wetlands and streams were flagged and the flags were located by handheld global positioning system surveying equipment (processed to sub meter accuracy). The delineation report includes mapping and other exhibits, and a site narrative.

Prior to the initiation of field activities, a data review was conducted of available resources to include U.S. Geological Survey, Soils, National Wetland Inventory, and Federal Emergency Management Agency Flood Zone mapping.

The study area drains through un-named tributaries north to the Kalamazoo River (see Appendix A, Figure 3 Battle Creek U.S. Geological Survey Map).

The soils mapped in the study area are primarily sandy loams and loamy sands of various slopes including Boyer sandy loam 0-6% and 6-12% slopes, Oshtemo sandy loam 6-12% and 12-18% slopes, and Spinks loamy sand 0-6% slopes. These soils are characterized as very deep and well drained on shallow and moderate slopes (see Appendix A, Figure 4 Battle Creek Soils Map).

The National Wetland Inventory mapping identified one stream in the study area, an un-named tributary located in Parcel 1. No other lakes, ponds, streams, or wetlands were identified in the study area (see Appendix A, Figure 5 National Wetland Inventory Map).

The Federal Emergency Management Agency Flood Zones mapping identified Flood Zone A (100-year zone) along the stream in Parcel 1. No other flood plains were identified in the study area (see Appendix A, Figure 6 Battle Creek Federal Emergency Management Agency Map).

3.0 RESULTS

The field effort was conducted on July 8, 2020.

Random transects were surveyed through the five parcels with special attention to any low lying or depressional areas. All five of the parcels were highly disturbed and the investigation identified remnant building foundations, debris piles and small excavations on Parcels 2-5 and an active frisbee golf hole on Parcel 1.

No hydric soils were identified, and no predominance of wetland vegetation or wetland hydrology indicators were identified. One stream was identified in Parcel 1 with no fringe wetlands (see Figure 2 MARFORRES Battle Creek Study Area Map Appendix A). The south side of the stream was a wooden bulkhead (see Appendix B, Photos 1and 2) and the north side was a steep slope. No wetlands or other streams were identified within the study area. Since no wetlands were identified, no wetland data sheets are included.

The vegetation of the study area was predominantly early successional and invasive young trees, shrubs, and dense undergrowth with a few remnant large trees along the perimeters of the parcels. Shagbark hickory *(Carya ovata*) and black oak (*Quercus velutina*) were the dominant trees. The common sapplings and shrubs include American bladdernut (*Staphylea trifolia*), red chokeberry (*Aronia arbutifolia*), blackhaw viburnum (*Viburnum prunifolium*), autumn olive (Elaeagnus umbellate), common buckthorn (*Rhamnus cathartica*), and black locust (*Robinia pseudoacacia*). The predominant herbaceous species identified include common lambsquarters (*Chenopodium album*), fall panicum (*Panicum dichotomiflorum*), giant foxtail (*Setaria faberi*), giant ragweed, (*Ambrosia trifida*), wild mustard (*Brassica kaber*), and common blackberry (*Rubus allegheniensis*) with common wild grape vines (*Vitus riparia*).

4.0 WETLAND AND STREAM CONFIRMATION

Cardno contacted the U.S. Army Corps of Engineers Detroit District Regulatory Branch, Michigan Branch Office (covers Calhoun County) regarding submittal of the delineation report for confirmation. The Corps advised that the Kalamazoo District Office of Michigan Department of Environment, Great Lakes and Energy (EGLE), Water Resources Division, was currently confirming wetland delineations in Calhoun County as part of the state assuming many of the Clean Water Act Section 404 processes.

Cardno contacted the Kalamazoo District Office of Michigan Department of EGLE regarding confirmation of the delineation and was informed that the office is currently under mandatory budget cuts and staff is working part time. Cardno was instructed to submit the delineation only if impacts were proposed and a pre-application meeting would be scheduled by staff to confirm the wetland and stream limits and to discuss the potential impacts, permitting and mitigation. Because no impacts to wetlands or streams are proposed, Cardno was advised to tell the client (MARFORRES) to rely on the consultant's report and the project can move forward without a confirmation at this time.

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Appendix A
Figures

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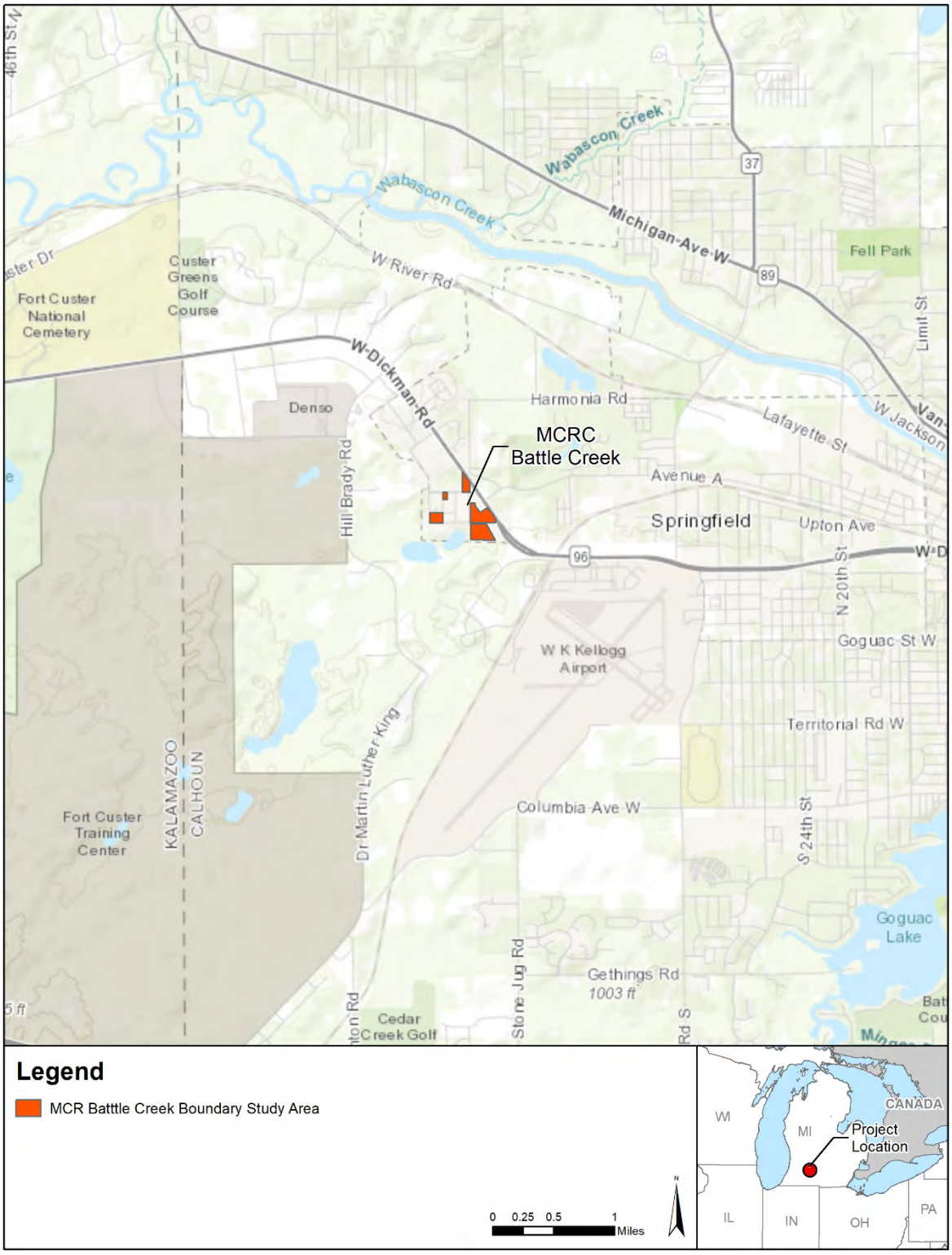

Figure 1. Battle Creek Vicinity Map

Figure 2. Battle Creek Study Area Map

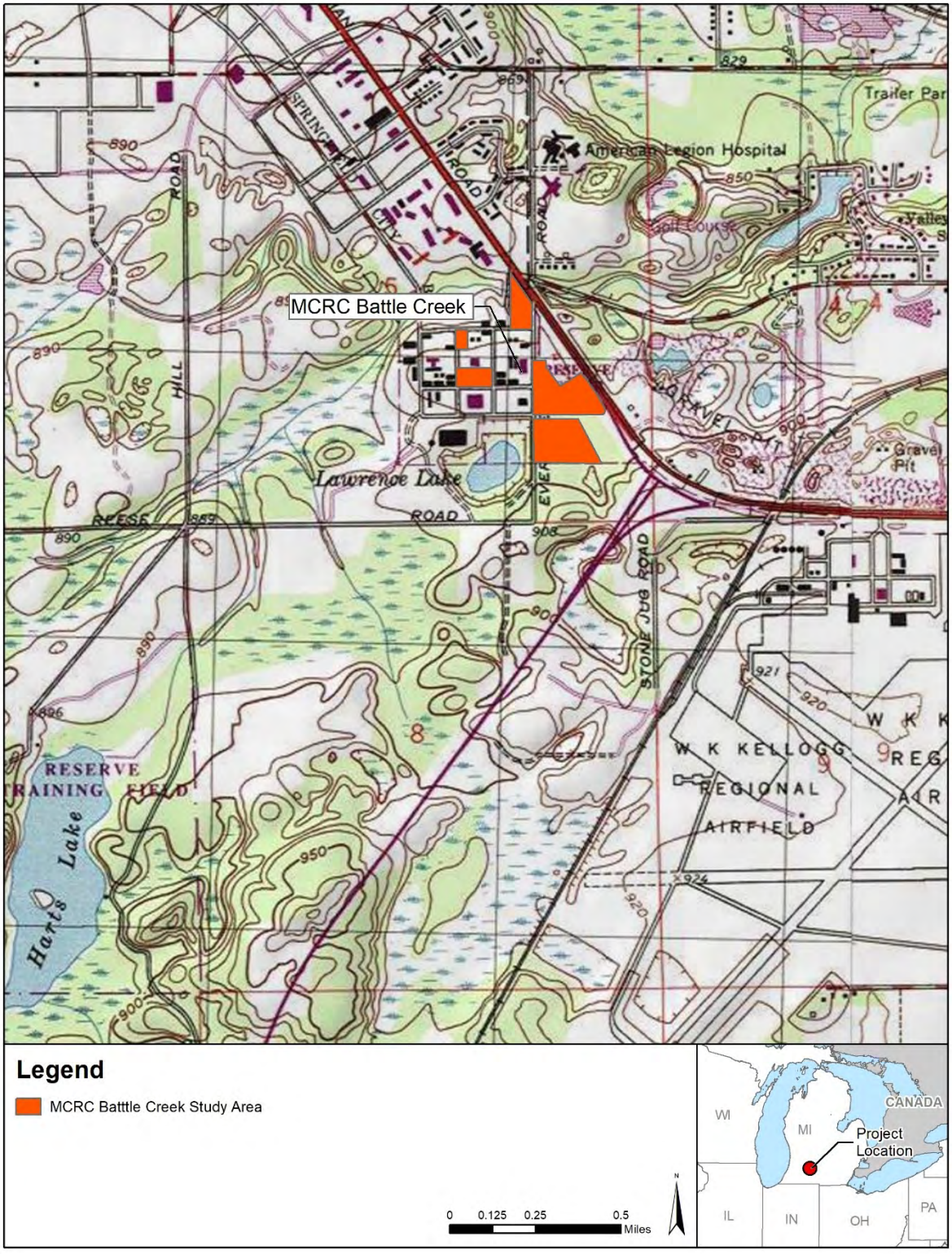

Figure 3. Battle Creek U.S. Geological Survey Map

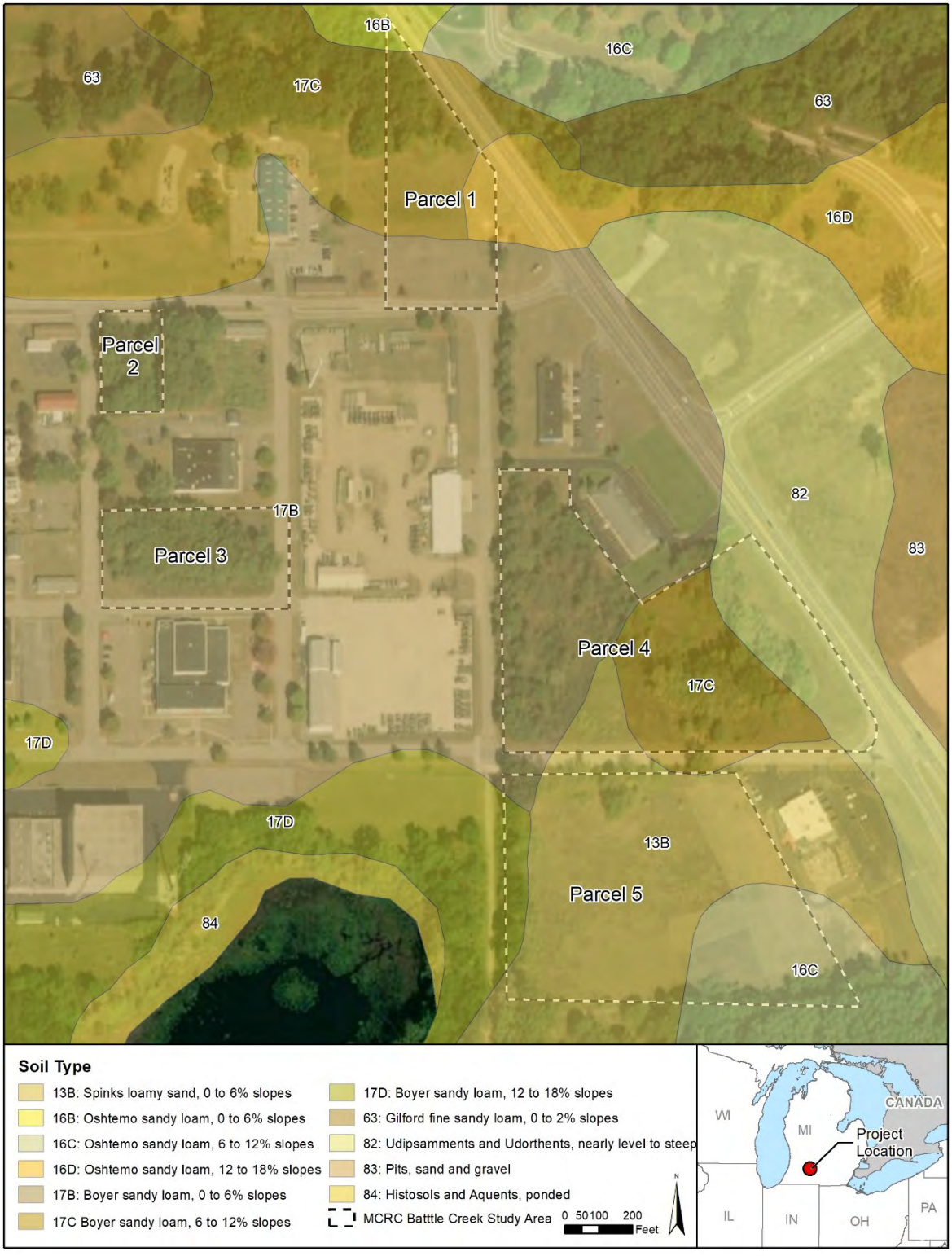

Figure 4. Battle Creek Soils Map

Figure 5. Battle Creek National Wetland Inventory Map

Figure 6. Battle Creek Federal Emergency Management Agency Map

Appendix B
Stream Photos

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Photo 1 of Stream on Parcel 1 looking west

Photo 2 of Stream on Parcel 1 looking east

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Coastal Consistency Correspondence

From: Smar, Matt (EGLE)
To: Charee Hoffman
Subject: RE: MI Coastal Consistency Determination question
Date: Wednesday, 23 June, 2021 11:30:16 AM
Attachments: image001.png

Good morning, Charee – a Consistency Determination is not required for the project described in your e-mail and located in Calhoun County. Let me know if you have questions.

All the best,
Matt

Matt Smar
Federal Consistency Specialist
Water Resources Division
EGLE
SmarM@Michigan.gov

From: Charee Hoffman <Charee.Hoffman@cardno-gs.com>
Sent: Tuesday, June 22, 2021 1:59 PM
To: Smar, Matt (EGLE) <SMARM@michigan.gov>
Subject: MI Coastal Consistency Determination question

Hi Matt,

I am a contractor assisting Marine Corps Forces Reserve (MARFORRES) in the preparation of an environmental assessment and Coastal Consistency Determination (CCD) for a proposed action at Marine Corps Reserve Center (MCRC) Battle Creek, located in the City of Springfield, in Calhoun County. The MCRC is northwest of the W.K. Kellogg Airport and approximately 2.1 miles northeast of the Fort Custer Training Center. The proposed action is to modernize the existing MCRC by demolishing several old buildings and small structures and essentially rebuilding in the same building footprints.

Given the location of the proposed action, will a CCD be required? If a CCD will be required, could you possibly provide me with a current list of the Michigan Coastal Management Program enforceable policies to be evaluated?

Thank you in advance for any assistance you can provide.

Chareé

Charee Hoffman
SENIOR PROJECT MANAGER

CARDNO

Office (+1) 757-594-1465 Direct (+1) 757-690-2823 Cell 757-218-2116
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The health, wellbeing, and livelihoods of our people, families, clients, and communities is Cardno's key priority. Our teams are responding to COVID-19 with robust business continuity plans and we will continue to work closely with our people and clients to support them every day. *> LEARN MORE*

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Appendix D
Section 106 Consultation

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GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
MICHIGAN STRATEGIC FUND
STATE HISTORIC PRESERVATION OFFICE

MARK A. BURTON
PRESIDENT

January 7, 2021

RICH GODCHAUX
MARINE FORCES RESERVE
2000 OPELOUSAS AVENUE
NEW ORLEANS LA 70114

RE: ER11-452 Marine Corps Forces Reserve Training Center (MARFORRES) (MCRC) Land Parcel Exchange & Phase I Archaeological Survey Addendum Report, Springfield, Calhoun County (USMC)

Dear Mr. Godchaux:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited undertaking at the location noted above. Based on the information provided for our review, it is the opinion of the State Historic Preservation Officer (SHPO) that no historic archaeological properties are affected within the area of potential effects of this undertaking. Please note that the information provided did not address above-ground resources, therefore we cannot comment on effects to all historic properties.

If you have any questions, please contact Brian Grennell, Cultural Resource Management Coordinator, at 517-335-2721 or by email at GrennellB@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,

Brian G. Grennell
Cultural Resource Management Coordinator

SAT:KAK:BGG

Copy: Steven Brann, Cardno

MICHIGAN SHPO STATE HISTORIC PRESERVATION OFFICE

300 NORTH WASHINGTON SQUARE • LANSING, MICHIGAN 48913
michigan.gov/**shpo** • (517) 335-9840

UNITED STATES MARINE CORPS
MARINE FORCES RESERVE
2000 OPELOUSAS AVENUE
NEW ORLEANS, LOUISIANA 70114

IN REPLY REFER TO:
5090
FAC
16 Nov 2020

From: United States Marine Corps Forces Reserve
Environmental and Energy Program Manager
To: Ms. Stacy Tchorzynski
Archaeologist
Michigan State Historic Preservation Office
300 N. Washington Square
Lansing MI 48913

Subj: SECTION 106 COORDINATION FOR THE PROPOSED LAND PARCEL EXCHANGE AT MARINE CORPS RESERVE CENTER BATTLE CREEK, CITY OF SPRINGFIELD, CALHOUN COUNTY, MI

Encl: 1) PHASE I ARCHAEOLOGICAL SURVEY ADDENDUM REPORT FOR U.S. MARINE CORPS FORCES RESERVE CENTER BATTLE CREEK

Dear Ms. Tchorzynski:

The U.S. Marine Corps Forces Reserve (MARFORRES) is proposing to exchange a 2.6 acre land parcel owned by MARFORRES for two land parcels (0.69 acres and 1.9 acres) owned by the City of Springfield. The three land parcels are in the City of Springfield, Calhoun County, Michigan (MI).

In July 2020, a Phase I archaeological survey was performed by Cardno, Inc. The area of potential effects consists of the three land parcels totaling approximately 5.19 acres. The largest parcel is 2.6 acres on the north side of Military Street, within the boundary of Marine Corps Reserve Center Battle Creek. The second parcel is 0.69 acre, southeast of the intersection of Military Street and Admiral Avenue, and the third parcel is 1.9 acres to the northeast of the intersection of Admiral Avenue and Ensign Avenue. The results of the survey are submitted as an Addendum to the Ohio Valley Archaeology Inc. Report #2019-36.

Based upon the results of the survey, MARFORRES has determined that the project will have no adverse effect on

Subj: SECTION 106 COORDINATION FOR THE PROPOSED LAND PARCEL EXCHANGE AT MARINE CORPS RESERVE CENTER BATTLE CREEK, CITY OF SPRINGFIELD, CALHOUN COUNTY, MI

archaeological resources recommended eligible or potentially eligible for listing in the National Register of Historic Places. MARFORRES invites you to concur with this finding in reply to this letter. MARFORRES requests review and comment on the report within 30 days after receipt. If you have any comments or questions pertaining to the report, please coordinate directly with our contractor identified below:

Steven Brann, M.A., RPA
Cardno
145 Limekiln Road, Suite 100
New Cumberland, PA 17070
717-547-6278
steven.brann@cardno-gs.com

We appreciate your time and attention to this project.

Godchaux, R.

Phase I Archaeological Survey Addendum Report

U.S. Marine Corps Forces Reserve Center Battle Creek Calhoun County, Michigan

November 2020

Naval Facilities Engineering Command, Mid-Atlantic

9324 Virginia Avenue

Norfolk, VA 23511-3095

ACRONYMS AND ABBREVIATIONS

AFS	Air Force Station
Cardno GS, Inc.	Cardno
MCRC	Marine Corps Reserve Center
NRHP	National Register of Historic Places
SHPO	State Historic Preservation Office
STP(s)	Shovel Test Pit(s)
U.S.	United States
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WWII	World War II

Phase I Archaeological Survey Addendum Report
U.S. Marine Corps Forces Reserve Center Battle Creek
Calhoun County, Michigan

Prepared for:

Naval Facilities Engineering Command, Mid-Atlantic
9324 Virginia Ave.
Norfolk, VA 23511-3095

Prepared by:

Steven W. Brann, M.A., RPA
Cardno GS, Inc.
New Cumberland, Pennsylvania

November 2020

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ABSTRACT

Cardno GS, Inc. (Cardno), under contract to Naval Facilities Engineering Command, Mid-Atlantic, conducted a Phase I Archaeological Survey for the United States Marine Corps Forces Reserve Center (MCRC) in Battle Creek, Michigan. The purpose of the archaeological survey was to determine the presence or absence of potentially significant archaeological resources that may be located within land parcels proposed for exchange.

This Phase I archaeological survey report was prepared as an addendum to the *Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan* (Clark et al. 2020).

The project area consists of three parcels totaling approximately 5.19 acres (2.1 hectares). The largest parcel is 2.6 acres (1.1 hectares) on the north side of Military Street, within the boundary of MCRC Battle Creek. The second parcel is 0.69 acres (0.3 hectares), southeast of the intersection of Military Street and Admiral Avenue, and the third is 1.9 acres (0.8 hectares) to the northeast of the intersection of Admiral Avenue and Ensign Avenue. These last two parcels are owned by the City of Springfield.

A total of 48 shovel test pits were excavated within the project area for the proposed MCRC Battle Creek project and no artifacts were recovered from the shovel test pits. Historic aerial photographs of the project area show multiple structures throughout the project area that were constructed by the Army during World War II and were later used for Fort Custer Air Force Station. Construction and subsequent demolition of the buildings disturbed the natural soils and destroyed any intact archaeological deposits that may have been in the area.

No archaeological resources recommended eligible for listing in the National Register of Historic Places were encountered during this survey. The proposed undertaking would not affect any National Register of Historic Places-eligible archaeological resources and no additional archaeological testing of the proposed property is recommended.

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1.0 INTRODUCTION

In July 2020, under contract to Naval Facilities Engineering Command, Mid-Atlantic, Cardno GS, Inc. (Cardno), conducted a Phase I Archaeological Survey for the proposed modernization of the existing United States (U.S.) Marine Corps Reserve Center (MCRC) located in the City of Springfield, Calhoun County, Michigan. The proposed project includes a land exchange with the City of Springfield. As such, the purpose of the investigation was to determine if archaeological properties or resources that may be eligible for listing in the National Register of Historic Places (NRHP) are located within the parcels proposed for land exchange.

The project area consists of three parcels totaling approximately 5.19 acres (2.1 hectares). The largest parcel is 2.6 acres (1.1 hectare) on the north side of Military Street, within the boundary of MCRC Battle Creek. The second parcel is 0.69 acres (0.3 hectare), southeast of the intersection of Military Street and Admiral Avenue, and the third is 1.9 acres (0.8 hectare) to the northeast of the intersection of Admiral Avenue and Ensign Avenue. These two parcels are owned by the City of Springfield. All three parcels are located in Township 2 South, Range 8 West, Section 5.

Phase I investigations were conducted in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 Code of Federal Regulations 800: *Protection of Historic Properties,* and the Archaeological and Historic Preservation Act of 1974. The work was conducted by Cardno staff members who meet the *Secretary of Interior's Professional Qualifications Standards for Archaeology* published in 36 Code of Federal Regulations 61, Appendix A. Steven Brann, M.A., RPA, served as the Principal Investigator and Field Director (Appendix A) and Ariel Kegel assisted as Archaeological Field Technician.

This Phase I archaeological survey report was prepared as an addendum to the *Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan* (Clark et al. 2020).

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2.0 PROJECT DESCRIPTION AND SETTING

The proposed project area includes three parcels totaling 5.19 acres (2.1 hectares) located in the City of Springfield, Calhoun County, Michigan, approximately 5 miles (8 kilometers) west of the City of Battle Creek and 16 miles (25.7 kilometers) east of the City of Kalamazoo (Figure 2-1). The project area is located on property owned or leased by MCRC Battle Creek and includes wooded areas as well as areas that are currently maintained as a landscaped public park (Figure 2-2; Plates 1 through 3).

The area surrounding MCRC Battle Creek is a mixture of residential and commercial properties with a combination of second-growth forests, landscaped areas, and fallow fields. The Fort Custer Training Center, operated by the Michigan Army National Guard, is located to the west and the Battle Creek Executive Airport at Kellogg Field is located to the southeast. West Dickman Road (Michigan State Highway M-96) runs to the northeast of MCRC Battle Creek, connecting the towns of Marshall, Battle Creek, and Kalamazoo. The parcel to the north of the MCRC is part of Begg Park, a public park operated by the City of Springfield and was referred to as Area 1 during this investigation. Two of the three parcels in the project area are predominately second growth woods to the west of the existing MCRC. The parcel in the northwest quadrant of the block between Military Avenue and Ensign Avenue was referred to as Area 2 and the parcel in the south half of the block was referred to as Area 3 (see Figure 2-2).

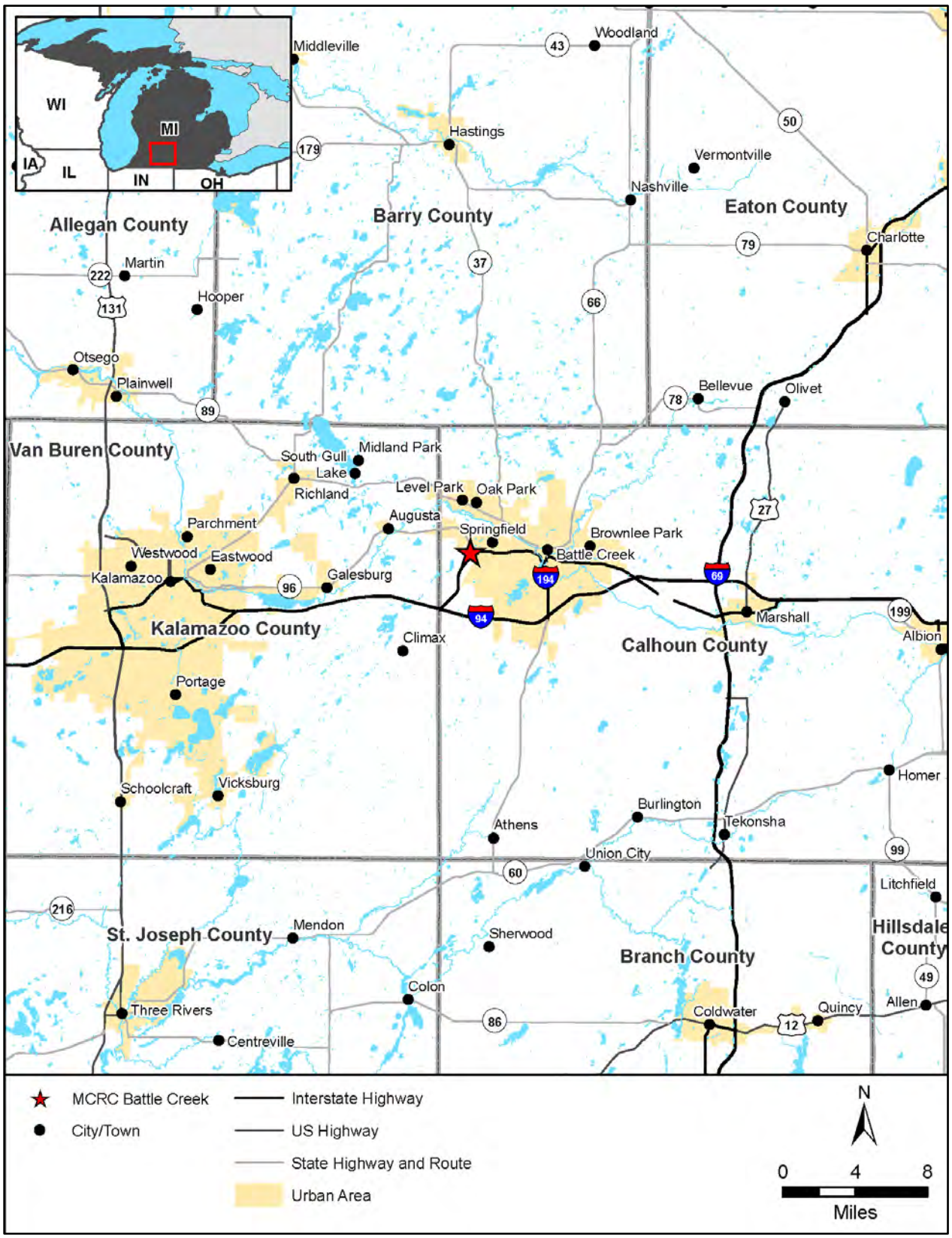

Figure 2-1. Location of MCRC Battle Creek

Figure 2-2. Project Areas Located at MCRC Battle Creek

Plate 1. Overview of Area 1, Facing North

Plate 2. Overview of Area 2, Facing North

Plate 3. Overview of Area 3, Facing South

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3.0 RESEARCH DESIGN

3.1 Objectives

The objective of the Phase I Archaeological Survey was to determine the presence of archaeological properties, sites, or resources within the project area that may be eligible for listing in the NRHP. If such properties had been located, Phase II field and archival research would be directed toward:

- Defining the horizontal and vertical limits of the site(s).
- Interpreting the site(s) in terms of activities, functions, chronology, and context.
- Investigating research issues that would provide information on the site(s) regional significance.

3.2 Shovel Test Pits

Phase I investigations focused on identifying the presence or absence of archaeological sites within the project area. Fieldwork for the Phase I Survey consisted of subsurface testing through the use of shovel test pits (STPs). STPs were excavated in transects at 50 feet (15 meters) testing intervals across the proposed site. No testing was conducted in areas with steep slope, asphalt, or concrete. Each STP was excavated following discernible stratigraphic levels where possible and excavated no deeper than a maximum of 3.2 feet (1 meter). Excavated soil was screened through ¼-inch hardware cloth. Recovered artifacts were collected and bagged separately by STP and excavation level. Artifacts less than 50 years old were noted in the field and discarded. If artifacts were recovered, radial STPs would be excavated in the cardinal directions to determine if they represent a site or isolated find. Radial STPs to delineate archaeological site boundaries would be excavated at a 16.4-foot (5-meter) interval and the site boundary would be defined by two negative shovel tests.

Exposed ground surfaces were examined during the field investigations for evidence of archaeological resources, such as topographic anomalies potentially representing archaeological features. Areas that are too steep to investigate using shovel testing (greater than 15 percent slopes) were subjected to visual inspection through pedestrian survey to ensure there were no archaeological features present.

A description of each STP was recorded in the field. The description included the location of the STP within the project area and information pertaining to the local terrain. In addition, information about the color, texture, composition, and thickness of soil strata were recorded, and the presence or absence of cultural materials and/or features was indicated. After excavation and recordation, each STP was refilled. The location of each STP was recorded using a Trimble Geo 7X handheld Global Positioning System unit with sub-meter post-processing accuracy.

3.3 Laboratory Methods

No artifacts were collected during the field investigation; therefore, no laboratory analysis was required. Modern objects resulting from recent discard were noted in the field, but not collected or analyzed in a laboratory setting.

3.4 Background Research Methods

Background research was undertaken for the project prior to commencement of fieldwork. The purpose of the research was to develop detailed cultural and environmental contexts for the project area. The research

included review of archaeological files located at the Michigan State Historic Preservation Office (SHPO), archaeological journals, and previously submitted cultural resource reports. Relevant information on the environment was also examined, including topographic and geological maps, soil surveys, and data on climate, hydrology, and flora and fauna. Historic maps and historic U.S. Geological Survey (USGS) maps were consulted in order to determine former land use patterns.

4.0 ENVIRONMENTAL CONTEXT

4.1 Physiography

MCRC Battle Creek is located in the Battle Creek Hills Section of the Southern Lower Peninsula Hills and Plains Physiographic Province. The Battle Creek Hills Section is a relatively flat plain with rolling hills and drumlins that were created by the Laurentian Ice Sheet (Schaetzl et al. 2013). Elevations within the project area range from 860 to 895 feet (262 to 273 meters) above mean sea level. The rolling hills that make up the section are crosscut by river valleys and interconnected lakes. It is primarily underlain by Marshall sandstone, a tan or gray very fine- to coarse-grained sandstone that formed from deposits in the Mississippian geologic age (USGS 2020a).

Elevations within the APE range from 895 feet (272 meters) above mean sea level in Area 3, near Ensign Avenue, down to approximately 860 feet (262 meters) above mean sea level along the unnamed tributary in Area 1.

4.2 Drainage

The project area is in the Kalamazoo River Watershed with the Kalamazoo River being the closest major stream. An unnamed third order tributary of the Kalamazoo River flows from west to east to the north of MCRC Battle Creek before flowing into the Kalamazoo River approximately 2 miles (3 kilometers) to the northeast.

4.3 Geology

The project area is located within an area made up of glacial outwash sand and gravel and postglacial alluvium that is underlain by the coarse sandstone of the Mississippian Period Marshall Formation (Farrand and Bell 1982; Michigan Department of Natural Resources 1987; Catacosinos et al. 2000). The surficial rock observed throughout the survey area during field investigations was primarily glacial outwash gravels and cobbles.

4.4 Soils

Soils identified by the U.S. Department of Agriculture (USDA) Web Soil Survey in the proposed project area are primarily Boyer sandy loams found on 0 to 6 percent slopes and 6 to 12 percent slopes. Other soils found in the study area include Oshtemo sandy loam found on 0 to 6 percent slopes and 12 to 18 percent slopes (USDA 2020). The typical soil column for both soil series are provided in Tables 4-1 and 4-2.

The Boyer soils are described as well drained soils that are found on outwash plains and terraces. Both Boyer soils found in the project area are well suited to farming and are considered prime farmland or farmland of local importance. Their parent material is sandy and gravelly glacial outwash (USDA 2020; Tardy 1997).

Oshtemo soils are also typically found on outwash plains and terraces and are also considered either prime farmland or farmland of local importance. Their parent material is calcareous sandy and gravelly drift (USDA 2020; Tardy 1997).

Table 4-1. Pedon for Oshtemo Soil Series (Tardy 1997)

Horizon	*Depth*	*Description*
Ap	0 to 9 inches/ 0 to 23 centimeters	Dark brown (10YR3/3) sandy loam
Bt1	9 to 13 inches/ 23 to 33 centimeters	Dark yellowish brown (10YR4/4) sandy loam
Bt2	13 to 18 inches/ 33 to 46 centimeters	Dark yellowish brown (10YR4/6) sandy loam
Bt3	18 to 33 inches/ 46 to 84 centimeters	Dark yellowish brown (10YR4/6) sandy loam
Bt and E	33 to 47 inches/ 84 to 119 centimeters	(Bt) Brownish yellow (10YR4/6) sandy loam (E) Yellow brown (10YR5/6) sand
E and Bt	47 to 70 inches/ 119 to 178 centimeters	(E) Brownish yellow (10YR6/6) sand (Bt) Dark yellowish brown (10YR4/6) sandy loam
C	70 to 80 inches/ 178 to 203 centimeters	Yellowish brown (10YR5/6) sand

Note: Horizon is a layer of soil having distinct characteristics produced by soil-formation processes. Uppercase letters represent major horizons and lowercase letters and numbers indicate subdivisions. Major horizons listed in this table are defined as:

A horizon – The mineral horizon at or near the surface in which organic matter is mixed with the mineral material. *Ap horizon* indicates a soil layer that has been plowed.

E horizon – Clay, iron, and aluminum have passed through or have otherwise been removed from this horizon.

B horizon – The mineral horizon below an A or E horizon. The B horizon often contains clay, oxidized elements such as iron oxide or manganese oxide.

C horizon – The C horizon is made up of decaying bedrock and is typically found just above consolidated bedrock. (Tardy 1997)

Table 4-2. Pedon for Boyer Soil Series (Tardy 1997)

Horizon	*Depth*	*Description*
Ap	0 to 10 inches/ 0 to 25 centimeters	Dark brown (10YR3/3) sandy loam
E	10 to 14 inches/ 25 to 36 centimeters	Yellowish brown (10YR5/6) loamy sand
Bt1	14 to 20 inches/ 36 to 51 centimeters	Strong brown (7.5YR4/6) sandy loam
Bt2	20 to 29 inches/ 51 to 74 centimeters	Brown (7.5YR4/4) sandy loam
BC	29 to 37 inches/ 74 to 94 centimeters	Yellowish brown (10YR5/6) loamy sand
C2	37 to 60 inches/ 94 to 152 centimeters	Light yellowish brown (10YR6/4) sand

Note: Horizon is a layer of soil having distinct characteristics produced by soil-formation processes. Uppercase letters represent major horizons and lowercase letters and numbers indicate subdivisions. Major horizons listed in this table are defined as:

A horizon – The mineral horizon at or near the surface in which organic matter is mixed with the mineral material. *Ap horizon* indicates a soil layer that has been plowed.

E horizon – Clay, iron, and aluminum have passed through or have otherwise been removed from this horizon.

B horizon – The mineral horizon below an A or E horizon. The B horizon often contains clay, oxidized elements such as iron oxide or manganese oxide.

C horizon – The C horizon is made up of decaying bedrock and is typically found just above consolidated bedrock. (Tardy 1997)

5.0 CULTURAL CONTEXT

This report is an addendum to the previous investigation done at MCRC Battle Creek. The initial Phase I survey was completed in 2019 and detailed background research, Pre-Contact Context, and Historic Context sections were included in the report, *Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan* (Clark et al. 2020).

5.1 Results of Site File Search

A records search of the archaeological site files at the Michigan Office of the State Archaeologist within the Michigan SHPO in Lansing, Michigan was performed on June 22, 2020. Due to procedures in place because of the COVID-19 pandemic, the records search was performed by Michigan SHPO personnel. The records search covered a 1-mile (1.6-kilometer) radius around the proposed project area. No previously recorded archaeological sites were identified within the boundaries of the current project area. Six previously conducted surveys and nine previously recorded archaeological sites were identified within 1 mile (1.6 kilometers) of the project area. The previous archaeological surveys are described in Table 5-1 and the archaeological sites are described in Table 5-2.

Table 5-1. Previously Conducted Archaeological Surveys within 1 mile of the Project Area

Project ID	*Date*	*Title*	*Author (s)*	*Sites Recorded*
ER03-1069	2011	Battle Creek Air National Guard Base – W.K. Kellogg Airport	Robert Chidester, Maura Johnson, and Kate Hayfield	4 new sites: 20CA173, 20CA174, 20CA175, 20CA176
ER10-746	2010, 2013	Phase I Cultural Resources Survey of Enbridge Line 6B Pipeline Release Response in Calhoun and Kalamazoo Counties, MI. 2 Vol.; and Field Visit Memo: 1930s Trash Deposit	Evelyn Tidlow, Jaclyn Lillis-Warwick, Elaine Robinson, and Kelly Hagenmaier; Chris Espenshade	1 new site; revisit 6 sites
ER11-452	2019	Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan.	Jessica L. Clark, Albert M. Pecora, and Robert W. Ball	Multiple sites were identified or investigated
ER-1378	1976	Archaeological Survey of Proposed Port of Entry, Battle Creek, Michigan	Marvin Keller	No sites
ER-1853	1975 - 2015	Multiple Surveys at Fort Custer Military Reservation	Multiple Authors	Multiple sites at Fort Custer were identified or evaluated
ER-940656	2005	New Parallel Runway Section 106 Report, W.K. Kellogg Airport, Battle Creek, Michigan.	Luke Heckencamp	1 new site: 20CA167

Table 5-2. Previously Recorded Archaeological Sites within 1 Mile of the Project Area

SHPO Site Number	*Site Name*	*Time Period*	*Description*	*NRHP Status*
20CA142	C-23	Nineteenth and Twentieth Centuries	Historic foundation and fieldstone basement	Not Evaluated
20CA153	Ch. L. Blakesley Homestead	Nineteenth and Twentieth Centuries	Historic Homestead	Ineligible
20CA173	Site A1	Undetermined Pre-Contact	Undetermined	Ineligible
20CA174	Site D1	Twentieth Century	Historic Homestead	Ineligible
20CA175	Site E1	Twentieth Century	Historic Homestead	Ineligible
20CA176	Site G1	Twentieth Century	Historic Homestead	Eligible
20CA192	NA	Undetermined Pre-Contact	Isolated Chert Flake	Recommended not eligible
20CA193	NA	Nineteenth and Twentieth Centuries	Historic Scatter	Recommended not eligible
20CA194	NA	Nineteenth and Twentieth Centuries	Historic Scatter	Recommended not eligible

Note: NA = Not Applicable.

5.2 Historic Aerial Photographs

A review of historic aerial photographs identified multiple buildings that are no longer present on the parcels. Beginning in 1970, the property was operated by the Navy as a training center for Navy and Marine Corps reservists. Prior to its use by the Navy, the property was operated by the Air Force and known as Custer Air Force Station (AFS). Custer AFS was used as part of a radar system for tracking enemy aircraft known as the Semi-Automatic Ground Environment system. The buildings on Custer AFS were built by the Army during World War II (WWII) as part of Fort Custer and while most of the WWII buildings on the MCRC Battle Creek property have been demolished or heavily modified, some examples, such as Custer Chapel (Plate 4), remain on the parcels surrounding the MCRC (Chilton and Cook 2018).

Plate 4. WWII-Era Custer Chapel, Facing Southwest

An aerial photograph taken in 1946 shows the development of roads in Area 1 of the project area and the Army buildings can be seen in Areas 2 and 3 (Figure 5-1). An aerial photo taken in 1961 shows smaller structures in Area 1 and the buildings located in Areas 2 and 3 are complete while several of the original WWII- era buildings had been replaced or expanded (Figure 5-2). Another aerial photograph shows that many of the WWII structures within the project area had been removed by 1979 (Figure 5-3). Aerial photography from 1993 shows that the remaining WWII structures had been removed and vegetation was beginning to grow throughout the project area (Figure 5-4).

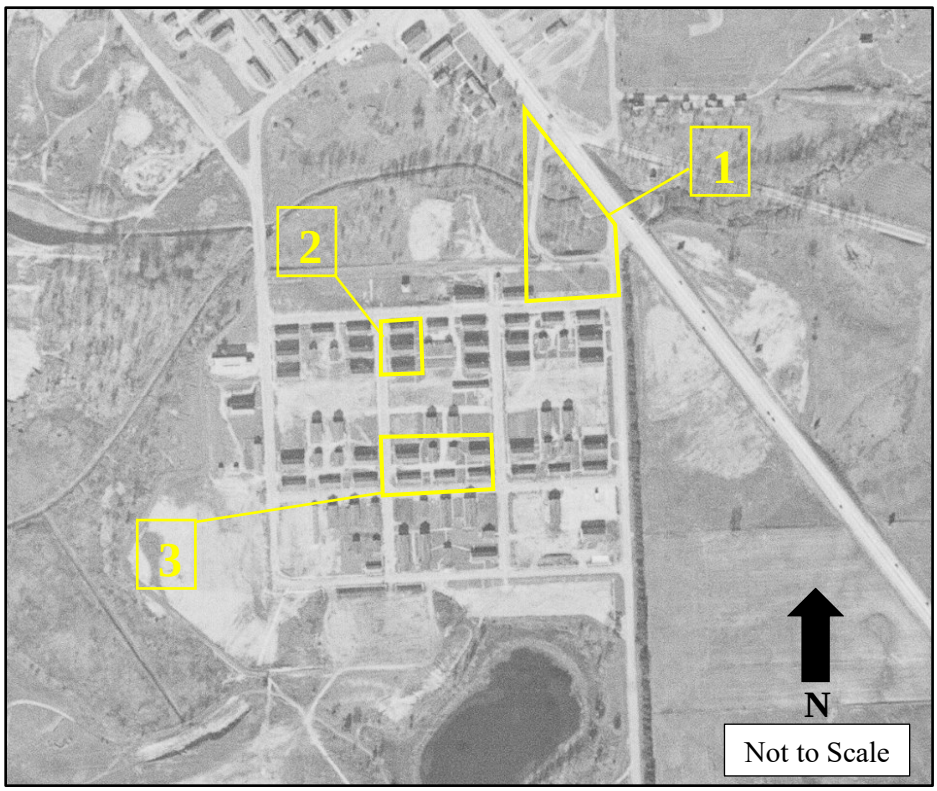

Figure 5-1. 1946 Aerial Photograph Showing Roads and Structures Surrounding the Present-Day MCRC Battle Creek (USGS 2020b)

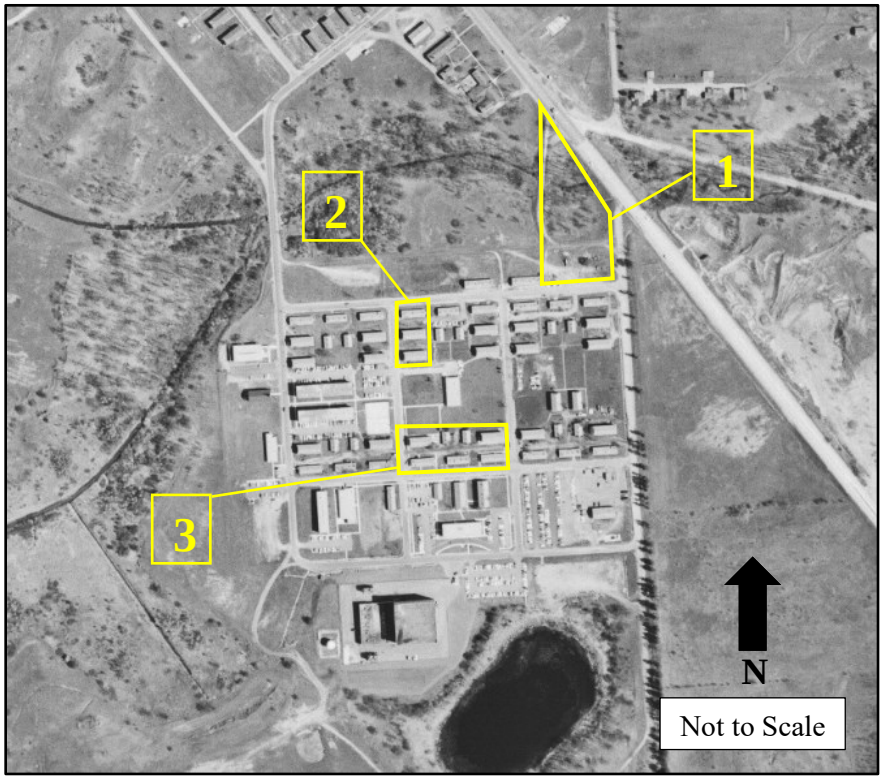

Figure 5-2. 1961 Aerial Photograph Showing Additional Structures in Area 1 and Changes to Buildings Between Areas 2 and 3 (USGS 2020b)

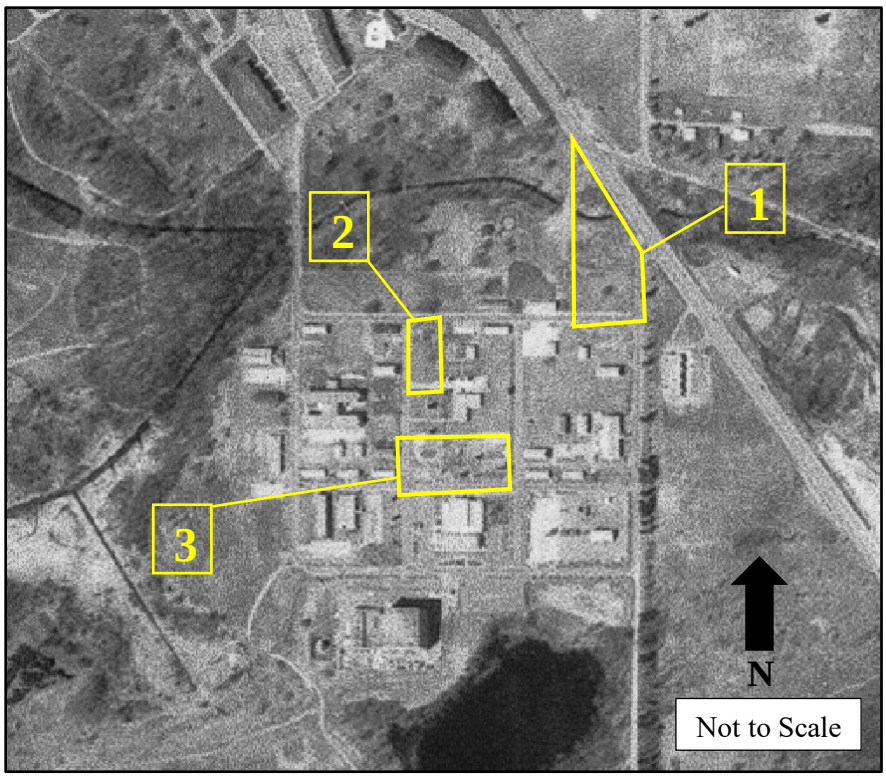

Figure 5-3. 1979 Aerial Photograph Showing That Many of the Structures in the Project Area Have Been Demolished (USGS 2020b)

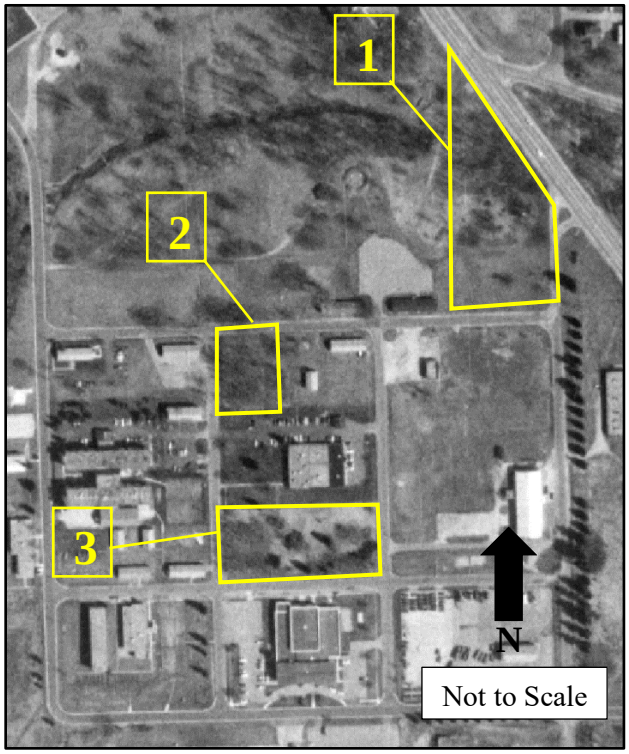

Figure 5-4. 1993 Aerial Photograph Showing That All the WWII Buildings in the Project Area Have Been Demolished (USGS 2020b)

6.0 RESULTS

6.1 Results of Archaeological Investigations

Field investigations were performed between July 7 and July 10, 2020. A total of 48 STPs were excavated on transects placed within the project areas on a 50-foot (15-meter) grid aligned with true north (Figure 6-1). Transects were assigned letters "A" through "E" in Area 1, "F" through "H" in Area 2 (transect "H" was not excavated due to possible unmarked utilities), and "I" through "J" in Area 3. STPs were placed on each transect starting with number "1" in the south.

STPs were not excavated in areas that were steeply sloped (greater than 15 percent slope) or areas that have been disturbed by utility or construction activities. This included the steeply sloped areas in Area 1 and areas near Dickman Road that were disturbed by existing utilities. These disturbed areas also included locations where concrete structural material was visible on the surface in Areas 2 and 3, and portions of Areas 2 and 3 where structures were identified in historic aerial photographs (see Figure 6-1; Plates 5 and 6).

Plate 5. Existing Utilities in Area 1, Facing Northwest

Plate 6. Overview of Area 1 Showing Steep Slope Near Dickman Road

Figure 6-1. Three Project Areas Showing STP Locations

Area 1

Shovel testing in Area 1 began in the southwest corner on the west boundary of the parcel and proceeded to the north into the lower elevation area near the unnamed tributary and stopped at the steep slope along the berm of Dickman Road near the northern boundary of Area 1. A total of 32 STPs were placed in Area 1 (see Figure 6-1; Plates 7 through 10).

Soils in Area 1 were mapped by the Natural Resources Conservation Service Web Soil Survey as predominantly Boyer series sandy loams (USDA 2020). The soil survey for Calhoun County (Tardy 1997) states that the typical soil profile for Boyer series soils consists of a dark brown (10YR3/3) sandy loam from 0 to 10 inches (25.4 centimeters) below ground surface above a yellowish brown (10YR5/4 to 5/8) loamy sand from 10 to 14 inches (25.4 to 34.6 centimeters). A strong brown to brown (7.5YR4/6 to 7.5YR4/2) sandy loam is listed from 14 to 29 inches (34.6 to 73.7 centimeters) and a yellowish brown (10YR5/4 to 5/8) loamy sand is listed from 29 to 37 inches (63.5 to 94 centimeters).

The typical soil profile recorded in the STPs excavated in the Area 1 was an A horizon of brown (10YR4/3) sandy loam from ground surface to between 3.1 inches (8 centimeters) to 21.6 inches (55 centimeters). Under the A horizon was typically a B horizon of yellowish brown (10YR5/6) sandy loam (Figure 6-3). While some of the soils observed during shovel testing appeared to have been truncated, the soil profile is similar to that described in the Calhoun County soil survey and indicates that the soils in this portion of the project area are largely intact.

No archaeological materials were recovered from shovel testing in Area 1 and no additional archaeological investigations are recommended for the property.

Plate 7. Overview of Area 1, Facing North

Plate 8. Overview of Area 1 Showing Lower Elevation Area by Tributary, Facing West

Plate 9. Overview of Woods in Area 1, Facing South

Plate 10. Unnamed Tributary in Area 1, Facing East

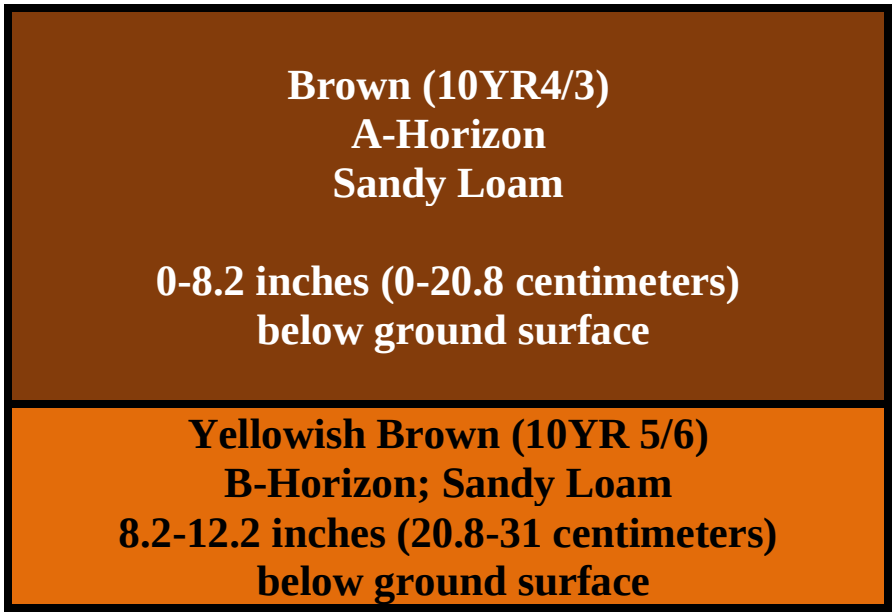

Figure 6-3. Typical Profile in Area 1 at MCRC Battle Creek - STP B2

Area 2

The soils in Area 2 are also mapped by the Natural Resources Conservation Service Web Soil Survey as Boyer series loams (USDA 2020). Soil profiles observed in the excavated STPs in Area 2 had a similar B-Horizon as the profiles observed in the STPs excavated in Area 1; however, the soil observed in the A-Horizon of Area 2 STPs was typically darker, and was recorded as a very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3). The darker color could indicate that the soils in Area 2 have been more heavily impacted by previous ground disturbances (see Figure 6-1 and 6-4; Plates 11 and 12).

Twelve STPs were placed in Area 2, however, several disturbances from the construction and demolition of the buildings that were on the parcel were noted in the vicinity of Transect H and no STPs were excavated there. Disturbances included push piles of concrete demolition debris, existing overhead electrical cables, and a concrete and brick manhole with a cast iron cover that was labelled "NEENAH FOUNDRY CO; NEENAH WIS" (see Figure 6-1 and Plate 13).

No archaeological materials were recovered from STPs excavated in Area 2 and no additional archaeological investigations are recommended for the property.

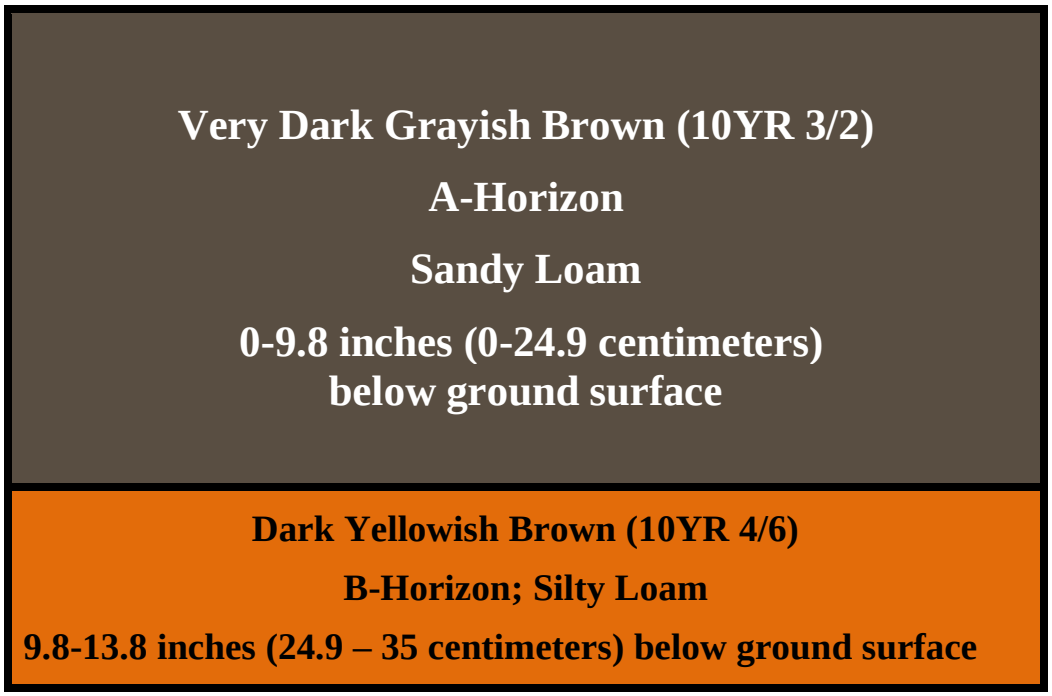

Figure 6-4. Typical Soil Profile in Area 2 – STP G2

Plate 11. Overview of Area 2 from Intersection of Admiral Avenue and Military Road, Facing South

Plate 12. Overview of Area 2 near STP F3, Facing South

Plate 13. Cast Iron Manhole Cover in Area 2, Embossed with "NEENAH FOUNDRY CO; NEENAH WIS"

Area 3

Soil profiles observed in the STPs located in the Area 3 of the proposed MCRC Battle Creek property were also similar to what was described in the Calhoun County soil survey but were also most likely impacted by construction and demolition of the structures that are present on historic aerial photographs of the area and the remains of which were observed during fieldwork (Plates 14 through 16). The typical profile consisted of a dark yellowish brown (10YR 3/4) silty loam from the ground surface to between 9.8 and 14.1 inches (25 and 36 centimeters) below ground surface that included 20 to 30 percent gravel. This layer was underlain by a dark yellowish brown (10YR4/4) to reddish brown (5YR4/4) sandy clay (Figure 6-5).

Remnants of the buildings that were observed in historic aerial photographs (see Section 5.2) were identified throughout Area 3. Structural remains located in Area 3 included piles of concrete demolition debris, concrete block foundations, concrete pads (Plate 15), rows of concrete and steel foundation pilings that would have supported the center of the buildings (Plate 16), and a set of concrete steps (Plate 17).

Shovel testing of Area 3 began with Transect I on the west side of the block (see Figure 6-1). When structural remains of the buildings observed in the historic aerial photographs were encountered on Transect I and pedestrian survey identified structural remains and piles of demolition debris throughout the area, judgmental STPs were placed along Transect J through the center of Area 3 to confirm that the area was disturbed. Modern vessel glass, window glass, coal, and plastic were recovered from the STPs and discarded in the field. The presence of modern trash and demolition debris in the STPs, combined with the aerial photographs showing military structures throughout Area 3, confirms that the area has been heavily disturbed by construction and subsequent demolition of the structures. Because of this disturbance, no additional archaeological investigations are recommended for Area 3.

Plate 14. Overview of Area 3 near STP J4, Facing West

Plate 15. Concrete Foundation Slab in Area 3

Plate 16. Concrete and Steel Support Pilings Located in Area 3, Facing West

Plate 17. Concrete Stairs in Area 3, Facing East

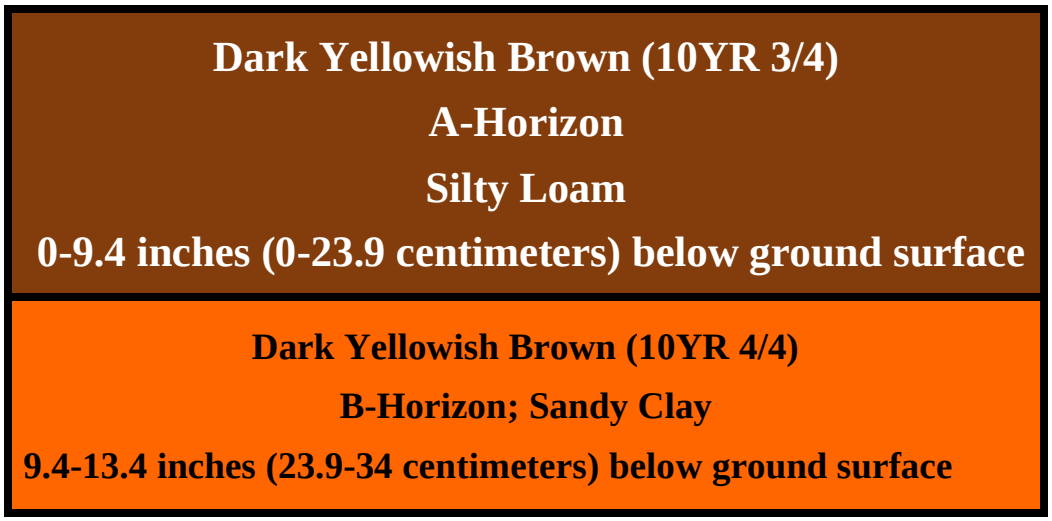

Figure 6-5. Typical Soil Profile in Eastern Part of the Project Area - STP J3

7.0 SUMMARY AND CONCLUSION

A total of 48 STPs were excavated within the project areas at MCRC Battle Creek. No artifacts were recovered from the STPs. Historic aerial photographs of the project areas show multiple structures that were constructed by the Army during WWII throughout the areas and were later used for Fort Custer AFS. Construction and subsequent demolition of the buildings disturbed the natural soils and destroyed any intact archaeological deposits that may have been in the area.

No archaeological resources recommended eligible for listing in the NRHP were encountered during this survey. The proposed undertaking would not affect any NRHP-eligible archaeological resources and no additional archaeological testing of the proposed property is recommended. However, if cultural materials, human remains, funerary objects, or Native American sacred objects are encountered during the course of construction activities, all work should cease in the area of the find until the significance of the resources can be determined through coordination with the Michigan SHPO and the Michigan State Archaeologist.

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APPENDIX A
RÉSUMÉS OF KEY PERSONNEL

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Steven Brann, MA, RPA

Current Position
Archaeologist

Discipline Area
Historic and Prehistoric Archaeology

Years' Experience:
17

Joined Cardno
2010

Education
2008 / MA / American Studies / Penn State University

2003 / BA / Anthropology, Archaeology / University of Pittsburgh

Professional Registrations
Registered Professional Archaeologist

Affiliations
Society of Pennsylvania Archaeologists

Continuing Education and Training
Historic Archaeology Field School at Ephrata Cloister, Lancaster County, PA 2003

Volunteer with Commonwealth Archaeology Program, Pennsylvania Historical and Museum Commission 2006, 2008

Summary of Experience

Steven Brann is an Archaeologist with 16 years of experience in cultural resource management. Mr. Brann has conducted and supervised historic and prehistoric archaeological investigations throughout the Northeast, Mid-Atlantic and Southeastern United States, including Phase I surveys, Phase II evaluations, and Phase III data recoveries. He has also led archaeological field surveys in New England and southern California. His experience includes laboratory processing and identification of both historic and prehistoric artifacts, processing flotation samples, database maintenance, and the curation of artifact collections according to state and federal standards. Using archaeological field methods extensively, he has completed numerous projects involving overhead electrical transmission line routes, military facilities, power plants, and natural gas transmission pipeline routes.

Recent Projects

Archaeological Monitoring in Support of the Marine Corps Reserve P-135 Electric Feeder Ductbank Project, Floyd Bennett Field, Gateway National Recreation Area, Kings County, New York
Principal Investigator and Field Director for archaeological monitoring of installation of a high voltage electrical line at Marine Corps Reserve Center Brooklyn at Flyd Bennett Field in Brooklyn, NY
Year completed: 2020

Phase I Archaeological Survey of Marine Corps Forces Reserve Training Center Camp Fretterd, Reisterstown, Maryland
Principal Investigator and Field Director for Phase I investigation of the proposed location of a new Marine Corps Reserve Center at Camp Fretterd Military Reservation near Reisterstown, MD.
Year Completed: 2019

Phase I Archaeological Survey for Proposed Expansion of Little Rock Air Force Base Airfield, Little Rock, Arkansas
Field Director for investigation of areas for proposed expansion of the airfield at Little Rock Air Force Base.
Year Completed: 2019

Phase I Archaeological Survey of Marine Corps Forces Reserve Local Training Area Access Road and Utility Right of Way, Clinton, Pennsylvania
Principal Investigator and Field Director for Phase I investigation of the proposed routes of a new access road and utilities ROW for a MARFORRES LTA near Clinton, PA.
Year Completed: 2019

National Parks Service, DOI LEARN Management Portal, "Managing Archeological Collections" Online Course 2008

Advanced Metal Detecting for the Archaeologist (AMDA) Training Course, Harrisburg, PA 2015

Federal Energy Regulatory Commission (FERC), Environmental Review and Compliance for Natural Gas Facilities Seminar, April 2015

National Center for Preservation Technology and Training, Archaeological Prospection in the 21st Century, Fort Casmir Site, DE, May 2019

Languages/Skills

Adult CPR/Standard First Aid

40-hours HAZWOPER

USACE Wetland Delineator Trained

Fort Brooke Estuary Cemetery Project, Tampa, Florida

Crew member for exhumation of human remains from Fort Brooke Cemetery. The Cemetery was established in the early 19th century and contained the remains of U.S. Army soldiers and Seminole Indians. The cemetery had been lost over time as Tampa grew on the land that was once Fort Brooke. Proposed construction uncovered the cemetery and the remains were relocated to other cemeteries in the area.
Year Completed: 2019

Bethel Cemetery Relocation Project at Indianapolis International Airport, Indianapolis, Indiana

Crew member for excavation and exhumation of human remains from Bethel Cemetery. The Cemetery was established in 1838 and was active into the early 20th century. The airport had been built around the cemetery and a new construction project to expand the deicing runoff ponds required that the cemetery be relocated.
Year Completed: 2018

Cultural Resources Survey of Navy Operational Support Centers in Cincinnati, Toledo, and Youngstown, Ohio and Louisville, Kentucky

Principal Investigator for cultural resources surveys of Navy Operational Support Centers (NOSCs) in Cincinnati, Toledo, and Youngstown, OH and Louisville, KY. Surveys included review of background information, including previous surveys, aerial images and historic maps, and archaeological site searches. Prepared reports for submittal to Navy personnel and to State Historic Preservation Offices. No new cultural resources were identified as a result of these surveys and the SHPOs concurred with the findings of each report.
Year Completed: 2018

Fort Pickett Oral History Project, Blackstone, VA

Team Member for preparation of an oral history of MTC Fort Pickett near Blackstone, VA. Responsibilities included community outreach, coordinating interviews, historic research, preparing historic context sections, and comparing oral accounts with known archaeological sites. Several historic sites were identified as those that were described in accounts given by former residents of what became MTC Fort Pickett.
Year Completed: 2018

Mountain Valley Pipeline Phase III Archaeology Monitoring, Roanoke, VA

On-Site Archaeological Monitor representing the Federal Energy Regulatory Commission(FERC). Coordinated with Mountain Valley Pipeline (MVP) archaeologists and FERC personnel to ensure compliance with an approved treatment plan for two sites determined eligible for listing on the NRHP. Duties included observing MVP archaeologists as they processed the sites according to the treatment plan, communicating with FERC archaeologists, and accompanying MVP personnel during the return of the artifact collection to the property owner.
Year Completed: 2018

Phase I Archaeological Survey and Metal Detecting for Southeastern Trail Pipeline, Manassas, VA

Project Manager and Team Member for Phase I investigation of proposed pipeline near Manassas, VA. Also completed metal detecting survey of portions of right of way that traveled through the boundaries of Civil War battlefields.
Year Completed: 2018

Viewshed Analysis

STATE OF MICHIGAN
MICHIGAN STRATEGIC FUND
STATE HISTORIC PRESERVATION OFFICE

GRETCHEN WHITMER
GOVERNOR

QUENTIN L. MESSER, JR.
PRESIDENT

October 13, 2021

RICH GODCHAUX
MARINE FORCES RESERVE
2000 OPELOUSAS AVENUE
NEW ORLEANS LA 70114

RE: ER11-452 Marine Corps Forces Reserve Training Center (MARFORRES) (MCRC)
Land Parcel Exchange and New Construction, Springfield, Calhoun County (USMC)

Dear Mr. Godchaux:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited undertaking at the location noted above. Based on the information provided for our review, the State Historic Preservation Officer (SHPO) concurs with the determination of USMC that the effects of the proposed undertaking do not meet the criteria of adverse effect [36 CFR § 800.5(a)(1)]. Therefore, the project will have **no adverse effect** [36 CFR § 800.5(b)] on historic properties within the area of potential effects for the above-cited undertaking.

This letter evidences the USMC's compliance with 36 CFR § 800.4 "Identification of historic properties" and 36 CFR § 800.5 "Assessment of adverse effects," and the fulfillment of the USMC's responsibility to notify the SHPO, as a consulting party in the Section 106 process, under 36 CFR § 800.5(c) "Consulting party review." **If the scope of work changes in any way, or if artifacts or bones are discovered, please notify this office immediately.**

We remind you that federal agency officials or their delegated authorities are required to involve the public in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties per 36 CFR § 800.2(d). The National Historic Preservation Act also requires that federal agencies consult with any Indian tribe and/or Tribal Historic Preservation Officer (THPO) that attach religious and cultural significance to historic properties that may be affected by the agency's undertakings per 36 CFR § 800.2(c)(2)(ii).

Finally, the State Historic Preservation Office is not the office of record for this undertaking. You are therefore asked to maintain a copy of this letter with your environmental review record for this undertaking. Thank you for this opportunity to review and comment, and for your cooperation.

If you have any questions, please contact Brian Grennell, Cultural Resource Management Coordinator, at 517-335-2721 or by email at GrennellB@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.**

Sincerely,

Martha MacFarlane-Faes
Deputy State Historic Preservation Officer

MMF:MJH:BGG

copy: Charee Hoffman, Cardno

UNITED STATES MARINE CORPS
MARINE FORCES RESERVE
2000 OPELOUSAS AVENUE
NEW ORLEANS, LA 70114-1500

5090
FAC
12 July 2021

From: U.S. Marine Corps Forces Reserve (MARFORRES), Environmental and Energy Director

To: Mr. Brian Grennell
Cultural Resource Management Specialist
Michigan State Historic Preservation Office
300 North Washington Square
Lansing, MI 48913

Subject: SECTION 106 COORDINATION FOR THE PROPOSED NEW CONSTRUCTION AND CONTINUED OPERATION OF MARINE CORPS RESERVE CENTER BATTLE CREEK, CITY OF SPRINGFIELD, CALHOUN COUNTY, MI

Encl: (1) Assessment of Aboveground Historic Architectural Resources for Proposed Marine Corps Reserve Center Battle Creek

Dear Mr. Grennell:

The United States Marine Corps Forces Reserve (MARFORRES) is proposing an undertaking at Marine Corps Reserve Center (MCRC) Battle Creek in the City of Springfield, Michigan. The proposed undertaking would be to construct a new Reserve Training Center (RTC), a Vehicle Maintenance Facility (VMF), Organic Storage Shed, and paved parking areas to accommodate up to 360 privately owned vehicles. The undertaking would also demolish five buildings (Buildings 410, 421, 423, 505, and 513), two storage sheds, and a wind turbine. Site improvements would include: installation of a refueling station near the VMF; installation of stormwater management systems; installation of automatic vehicle and pedestrian access gates, vehicle barriers, and additional fencing; and modifications to curbs, sidewalks, and landscaping. In addition to proposed facility demolition and construction projects, MARFORRES proposes to exchange a 2.6 acre parcel of MARFORRES-owned land on the north side of Military Street for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield.

Pursuant to Section 306108 of the National Historic Preservation Act of 1966, as amended and its implementing regulations at 36 Code of Federal Regulations (CFR) Part 800, Protection of Historic Properties, MARFORRES is consulting with the Michigan State Historic Preservation Office (MI SHPO) regarding aboveground historic architectural resources for the proposed undertaking.

Subject: SECTION 106 COORDINATION FOR THE PROPOSED NEW CONSTRUCTION AND CONTINUED OPERATION OF MARINE CORPS RESERVE CENTER BATTLE CREEK, CITY OF SPRINGFIELD, CALHOUN COUNTY, MI

The Area of Potential Effects (APE) for the proposed undertaking encompasses the current MCRC Battle Creek property boundaries and two offsite properties adjacent to the proposed new RTC: the Semi-automatic Ground Environment building and the Chapel (refer to Figure 8 in the Enclosure). The APE includes five buildings proposed for demolition (Buildings 410, 421, 423, 505, and 513) and the footprint for three new construction projects, in addition to new parking areas and AT/FP fencing. In addition, the APE includes the proposed land exchange of a 2.6 acre parcel of MARFORRES-owned land on the north side of Military Street for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield. Potential effects on belowground archaeological resources due to ground-disturbing activities were addressed in a separate consultation letter sent to the MI SHPO in November 2020. MARFORRES received subsequent concurrence from the MI SHPO on January 7, 2021 on their finding of no historic archaeological properties affected.

Pursuant to 36 CFR § 800.5(b), MARFORRES has determined that the proposed undertaking would result in ***No Adverse Effect*** to historic properties because all proposed demolitions and new construction efforts would not directly or indirectly diminish the integrity of the location, design, setting, materials, workmanship, feeling, or association of the historic properties. Attached for your review are copies of relevant supporting documents supporting MARFORRES's finding and determinations. This includes a letter report with details regarding the proposed undertaking, including the project location, project description, the APE, and analysis of potential effects to aboveground historic properties.

MARFORRES requests your comment and/or concurrence on our finding of ***No Adverse Effect*** within 30 days from receipt of this letter. If you have any comments or questions, please coordinate directly with our contractor: Katie Briscoe, Cardno, Inc., 2496 Old Ivy Road, Suite 300, Charlottesville, VA 22903; phone (434) 295-4446; email katie.briscoe@cardno-gs.com.

R. Godchaux

Marine Corps Reserve Center Battle Creek Viewshed Report

Assessment of Aboveground Historic Architectural Resources for
Proposed New Construction and Continued Operation of
Marine Corps Reserve Center Battle Creek
City of Springfield, MI

Prepared for
Marine Corps Forces Reserve
New Orleans, LA

July 2021

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MARINE CORPS RESERVE CENTER BATTLE CREEK VIEWSHED REPORT

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Photograph 6. View looking south-southeast toward the proposed RTC site from the Chapel. Buildings 421, 423, and the SAGE building are in the background. 18

ACRONYMS AND ABBREVIATIONS

APE	area of potential effects
AT/FP	Anti-Terrorism/Force Protection
CFR	Code of Federal Regulations
MARFORRES	Marine Corps Forces Reserve
MCRC	Marine Corps Reserve Center
MI SHPO	Michigan State Historic Preservation Office
NRHP	National Register of Historic Places
OSS	Organic Storage Shed
OVAI	Ohio Valley Archaeology, Inc.
POVs	privately owned vehicles
RTC	Reserve Training Center
SAGE	Semi-automatic Ground Environment
VMF	Vehicle Maintenance Facility

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INTRODUCTION

The United States Marine Corps Forces Reserve (MARFORRES) is proposing an undertaking at Marine Corps Reserve Center (MCRC) Battle Creek in the City of Springfield, Michigan (Figure 1). The proposed undertaking would construct a new Reserve Training Center (RTC), a Vehicle Maintenance Facility (VMF), Organic Storage Shed (OSS), and paved parking areas to accommodate up to 360 privately owned vehicles (POVs). The undertaking would also demolish five buildings (Buildings 410, 421, 423, 505, and 513), two storage sheds, and a wind turbine. In addition to proposed facility demolition and construction projects, MARFORRES proposes to exchange a 2.6 acre parcel of MARFORRES-owned land on the north side of Military Street for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield.

This letter report details the scope of the proposed undertaking and the area of potential effects (APE), the identification of aboveground historic architectural properties located in the APE, and the effects of the undertaking on these properties. Potential effects on belowground archaeological resources due to ground-disturbing activities were addressed in a separate consultation letter sent to the Michigan State Historic Preservation Office (MI SHPO) in November 2020. MARFORRES received subsequent concurrence from the MI SHPO on January 7, 2021, on their finding of no historic archaeological properties affected.

DESCRIPTION OF UNDERTAKING

The purpose of the proposed undertaking is to construct a new RTC, VMF, OSS, and paved parking areas to accommodate up to 360 POVs (Figures 2 and 3). These new facilities are necessary as the existing buildings are structurally deficient and are unable to support current operational training requirements of the Marines assigned to MCRC Battle Creek. The RTC would be a single-story building, approximately 46,300 square feet, and would include an indoor armory and an outdoor covered weapons maintenance area (Figure 4). The planned design of the RTC features concrete masonry unit load-bearing walls with decorative masonry exterior walls and gable roofs clad in standing seam metal (Figure 5). The RTC would be located at the site currently occupied by Buildings 421 and 423 between Admiral and General Avenues. The VMF would be an approximately 12,700 square foot, two-story building, located in an existing parking lot at the corner of Military Avenue and Evergreen Road. The planned design of the VMF features concrete masonry unit load-bearing walls with decorative masonry exterior walls and gable roofs clad in standing seam metal (Figure 6). The color scheme of the RTC and VMF buildings would be compatible with the adjacent buildings. Utility work and improvements to electrical, sewer, potable water, and telecommunications would be required to support the new construction. The OSS, approximately 12,000 square feet, would be located approximately 150 feet southeast of the VMF, in the location of what is presently Building 505 (Figure 7). The OSS will be a one-story building in a rectangular plan topped with a low-pitched gable roof of standing seam metal, and metal paneling on its exterior (Jacobs Engineering 2021).

Site improvements would occur as part of the new construction and would consist of the following: 1) installation of a refueling station near the VMF; 2) installation of stormwater management systems; 3) installation of security improvements (automatic vehicle and pedestrian access gates, vehicle barriers, and additional fencing around the property); and 4) modifications to curbs, sidewalks, and landscaping. In addition, new Anti-Terrorism/Force Protection (AT/FP) fencing would surround three separate areas: the RTC and parking area, the main site of the VMF and OSS, and the new stand-alone parking area between Major and Admiral Avenues (Figure 3) (Jacobs Engineering 2021).

In addition to proposed facility demolition and construction projects, MARFORRES proposes to exchange a 2.6 acre parcel of MARFORRES-owned land on the north side of Military Street for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield. The first parcel, located at the corner of Military and Admiral Avenues, will remain wooded. MARFOREES has indicated no plans for development of this parcel. The second parcel, located between Admiral and Major Avenues along Ensign Avenue, will be converted to a parking area to support new construction. The City of Springfield has assigned the parcel between Military Avenue and West Dickman Road as General Commercial, though future development efforts have not been released.

As planned, the proposed undertaking would demolish five buildings within the MCRC property. These buildings include the current RTC (Building 410), vacant Executive Officers Club (Building 421), Barracks (Building 423), VMF (Building 505), and storage warehouse (Building 513).

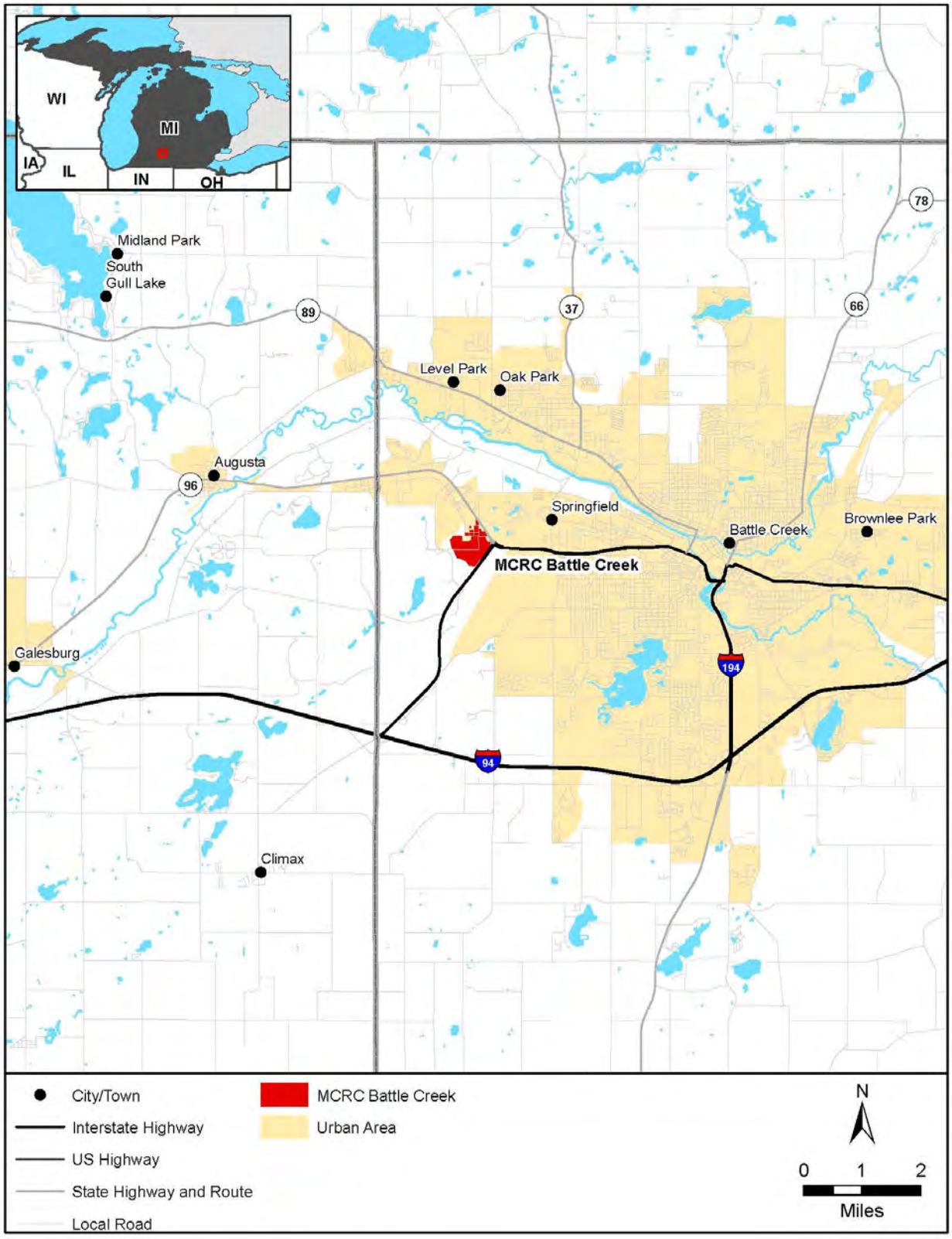


Figure 1. Project Location Map

Figure 2. Existing Site Plan

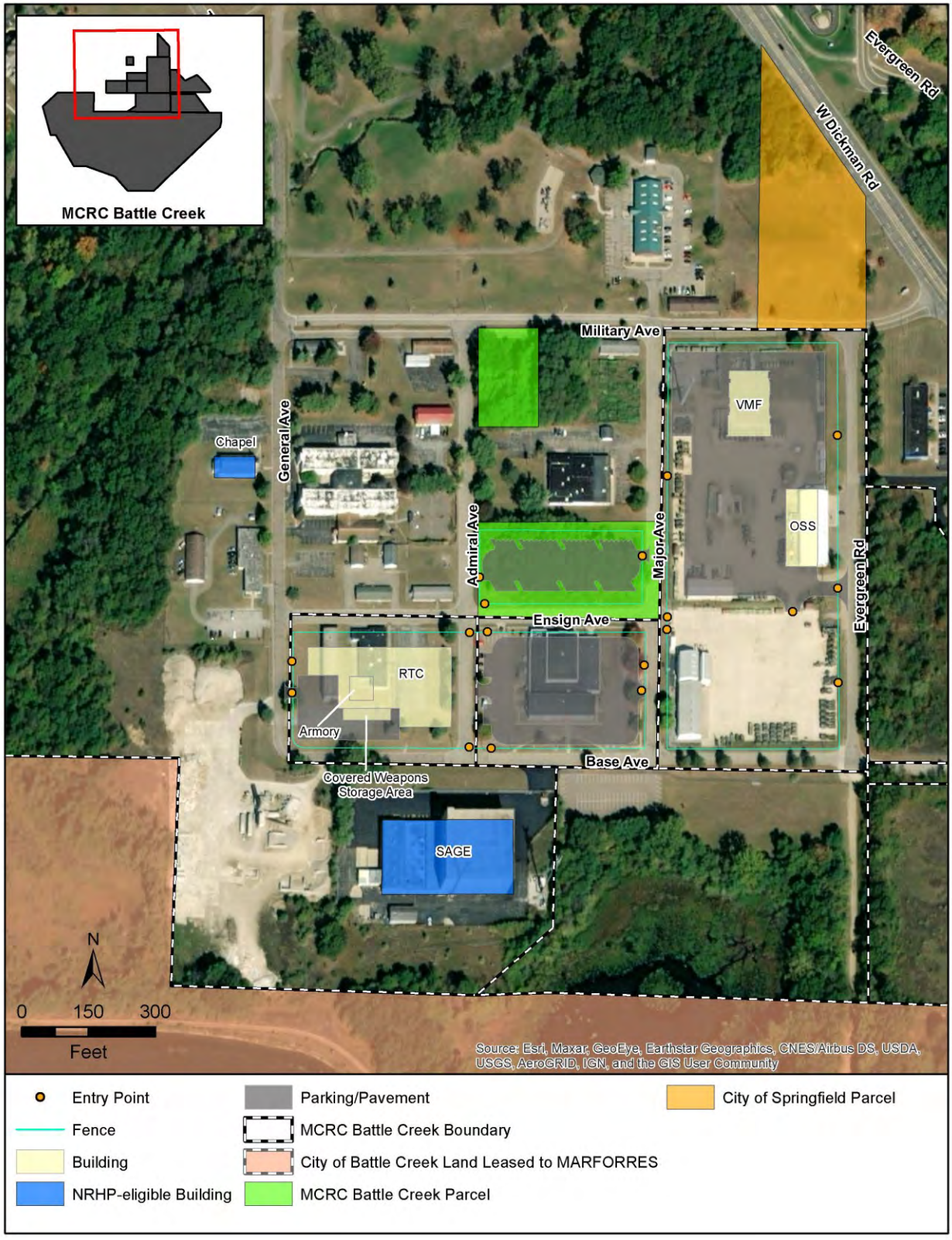


Figure 3. Proposed Site Plan

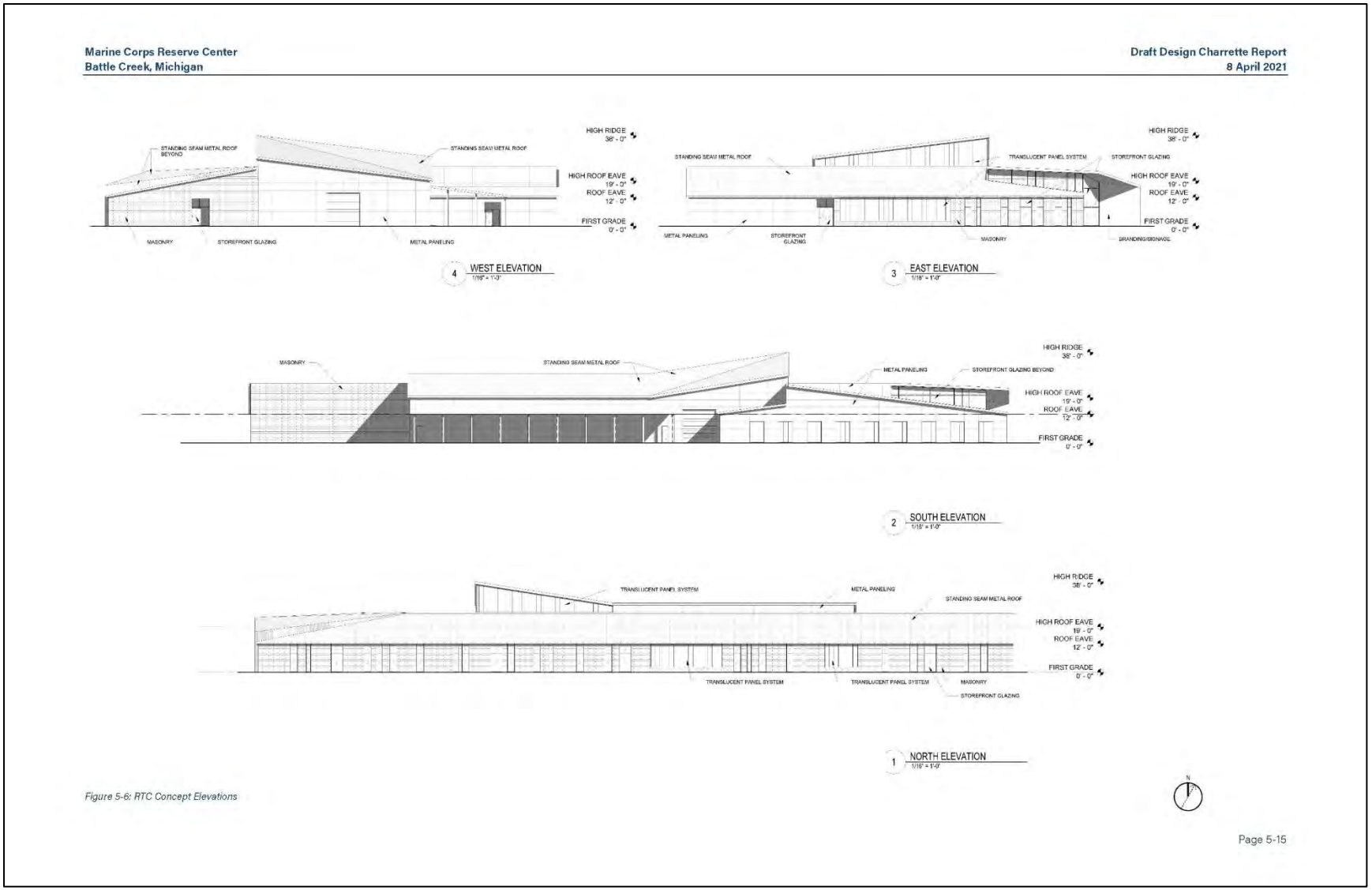
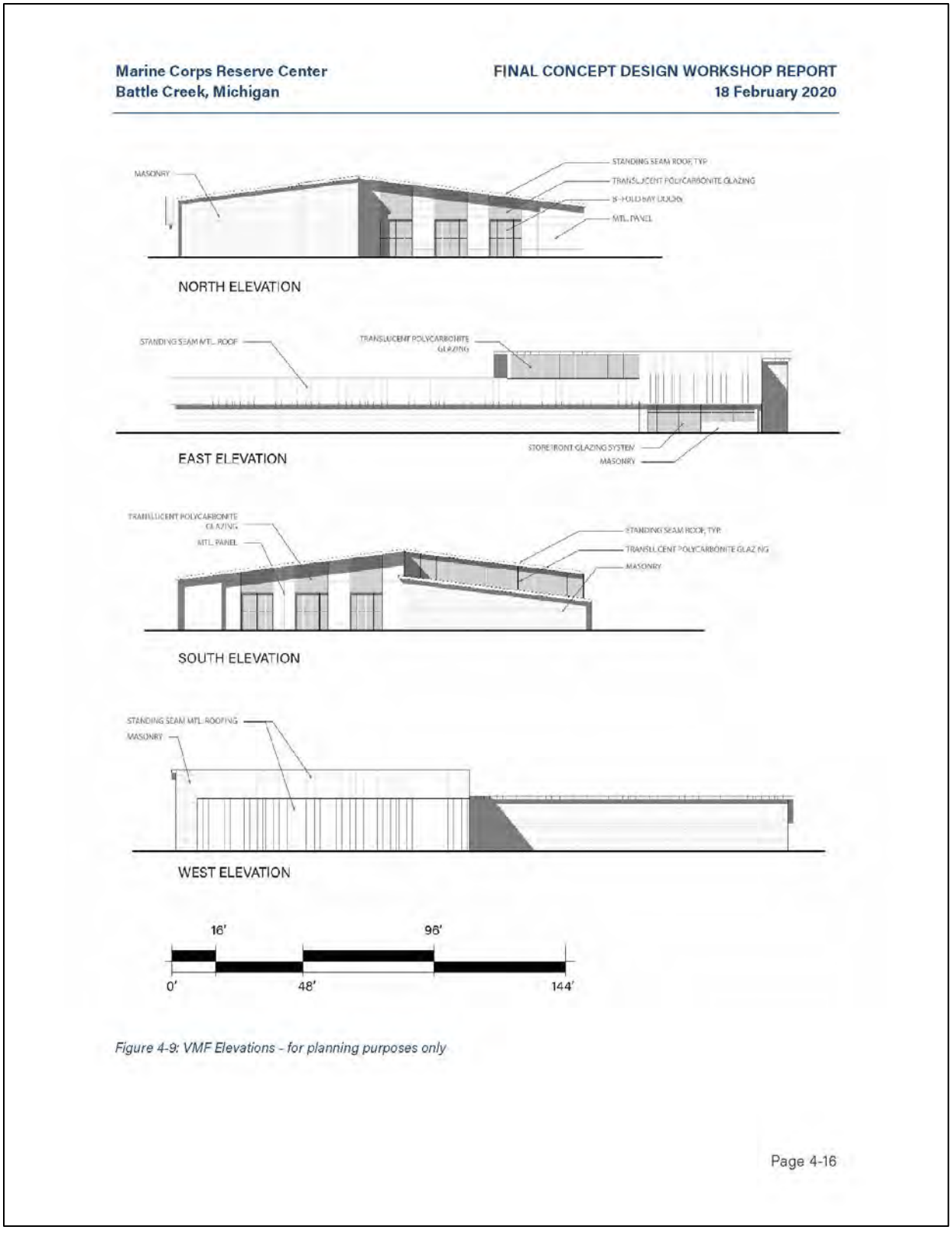


Figure 4. Conceptual Rendering of Proposed RTC Elevations

Figure 5. Conceptual Rendering of Proposed RTC



[Note: The new design of the VMF is anticipated to have a smaller, 4-bay plan, rather than the 6-bay plan as shown]

Figure 6. Conceptual Rendering of Proposed VMF Elevations

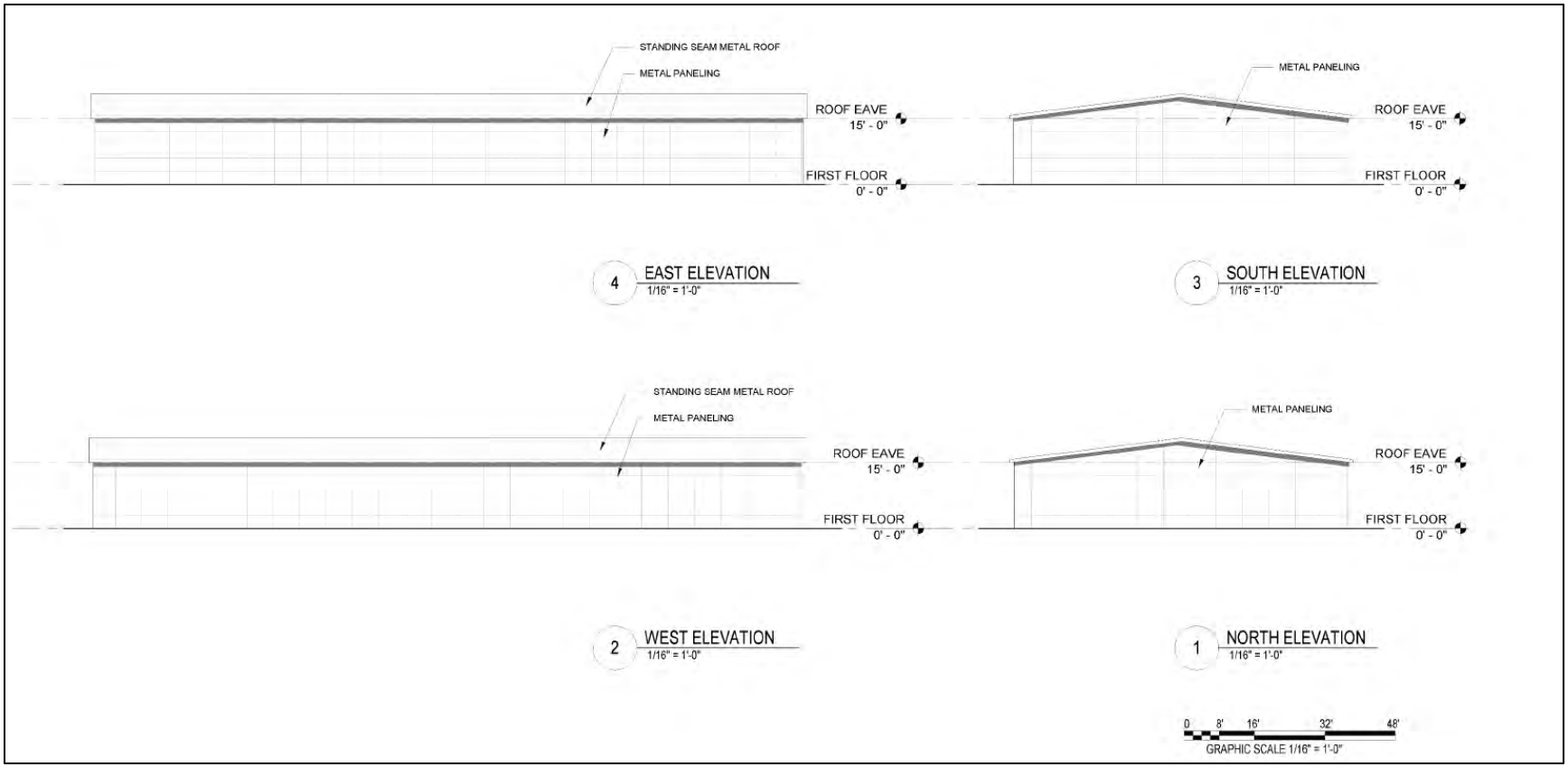


Figure 7. Conceptual Rendering of Proposed OSS Elevations

AREA OF POTENTIAL EFFECTS (APE)

According to Section 106 regulations set forth at 36 Code of Federal Regulations (CFR) § 800.16(d), the APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." In accordance with these regulations, MARFORRES has determined an APE in consideration of both potential direct and indirect effects to historic properties as a result of implementing the proposed undertaking.

The APE for the proposed undertaking, as shown in Figure 8, encompasses the current MCRC Battle Creek property boundaries and two offsite National Register of Historic Places (NRHP)-eligible properties adjacent to the proposed new RTC: the Semi-automatic Ground Environment (SAGE) building and the Chapel. The APE includes five buildings proposed for demolition (Buildings 410, 421, 423, 505, and 513) and the footprint for three new construction projects, in addition to new parking areas and AT/FP fencing. In addition, the APE includes the proposed land exchange of a 2.6 acre parcel of MARFORRES-owned land on the north side of Military Street for two parcels of land (0.69 acres and 1.9 acres) owned by the City of Springfield. The APE for the proposed undertaking is not within or adjacent to an NRHP-listed or eligible historic district.

This APE accounts for potential construction and demolition impacts to historic properties within the project area, potential visual effects to the setting of historic properties from new construction, and potential visual and auditory effects from POV and tactical vehicle operations.

Figure 8. Area of Potential Effects

IDENTIFICATION OF HISTORIC PROPERTIES

Within the APE are two historic properties individually eligible for listing in the NRHP: the SAGE building and the Chapel. Both buildings are no longer owned and operated by MCRC Battle Creek and are outside the installation's boundaries. The SAGE building, also referred to as the SAGE Direction Center, was built by the United States Air Force circa (c.) 1956. The building, which is a large, windowless, reinforced-concrete cube with a flat roof, sits approximately 130 feet from Base Avenue and is surrounded by an asphalt parking lot (Photograph 1). The building has a square plan, though a one-story projection is present on the western elevation. This portion was built of the same materials and historically served as the center's power plant. The building's elevations are entirely concrete, pierced only by an occasional garage door or louvered vents. A c. 1956 guardhouse is a contributing resource to the SAGE building. Located approximately 105 feet northeast of the SAGE building, the guardhouse is a one-story, one-room, flat-roof building clad in asbestos shingles. Two additional resources, a garage (c. 1975 to 2000) and a metal communications tower (c. 2000 to 2018) are considered non-contributing resources as they both post-date the operation of the SAGE building. The SAGE building is individually eligible for listing in the NRHP under Criteria A and C, in the areas of significance of Military and Architecture, as outstanding examples of Cold War-era defense infrastructure (OVAI 2020).

The Chapel is located at 579 General Avenue and is set back approximately 35 feet from the road. Built by the United States Army c. 1940 to 1945, the Chapel is a one-and-a-half-story building in a rectangular plan on a concrete foundation. It is three bays wide and five bays deep and has a wood frame construction clad in asbestos shingles. The building is capped with a gable front roof of asphalt shingles and a central, square steeple set back slightly from the front elevation (Photograph 2). Fenestration consists of 16-over-16 and 6-over-6 double-hung wood sashes. The Chapel is eligible for listing in the NRHP under Criterion A, in the area of significance of Military, for its association with World War II-era temporary mobilization buildings (OVAI 2020).

The buildings to be demolished as part of the proposed undertaking include the current RTC (Building 410), Executive Officers Club (Building 421), Barracks (Building 423), Vehicle Maintenance Facility (Building 505), and storage warehouse (Building 513). A historic architecture and archaeological survey for MCRC Battle Creek was completed in August 2020 (OVAI 2020). The survey found that none of the five resources to be demolished in the proposed undertaking were individually eligible for listing in the NRHP nor were eligible as part of a historic district. In May 2020, MI SHPO concurred with the findings and recommendations of eligibility of the historic architectural survey.

Building Number	Building Name	Construction Date
410	Reserve Training Center	c. 1959
421	Executive Officers Club	c. 1959
423	Barracks	c. 1959
505	Vehicle Maintenance Facility	c. 1962 – 1970
513	Storage Warehouse	c. 1995

MCRC Battle Creek does not contain a historic district and there are no additional historic properties within the proposed APE.

Photograph 1. SAGE Building and guardhouse, north and east elevations, looking south-southwest.
(Taken from OVAI 2020)

Photograph 2. Chapel, eastern and southern elevations, looking north-northwest.
(Taken from OVAI 2020)

EFFECTS TO HISTORIC PROPERTIES

The proposed undertaking would construct a new RTC, VMF, OSS, and paved parking areas, and demolish five buildings (Buildings 410, 421, 423, 505 and 513), two storage sheds, and a wind turbine. Site improvements would occur as part of the new construction and would consist of the following: 1) installation of a refueling station near the VMF; 2) installation of stormwater management systems; 3) installation of security improvements (automatic vehicle and pedestrian access gates, bollards, parking barriers, and additional fencing around property); and 4) modifications to curbs, sidewalks, and landscaping. In addition, new AT/FP fencing would surround three separate areas: the RTC and parking area, the main site of the VMF and OSS, and the new stand-alone parking area between Major and Admiral Avenues (see Figure 3) (Jacobs Engineering 2021).

The VMF would be constructed in an existing parking lot at the corner of Military Avenue and Evergreen Road. The OSS would be located approximately 150 feet southeast of the VMF, in the location of what is presently Building 505. No historic properties are located within the vicinity of these proposed construction projects. Buildings 410, 421, 423, 505, and 513 are not individually eligible for listing in the NRHP nor as part of a historic district (OVAI 2020).

The new RTC would be located at the site currently occupied by Buildings 421 and 423 between Admiral and General Avenues. The construction of the RTC would not denigrate the integrity of location, design, materials, workmanship, or association of historic properties. However, construction of the new RTC would have the potential to affect the integrity of setting and feeling of the two NRHP-eligible historic resources, the SAGE building and the Chapel, by introducing new visual elements within their setting.

The proposed RTC would be located approximately 200 feet north of the SAGE building. The SAGE building stands approximately 130 feet from Base Avenue on slightly elevated terrain. Cut grass covers the area directly in front of the resource, while a row of dense, mature trees and foliage creates a vegetative border along its western elevation. The proposed undertaking would remove Building 421 (a one-story concrete block building) and Building 423 (a two-story concrete block building) from the viewshed. A paved parking area would be constructed on the southern and western sides of the RTC. The entirety of the RTC and new adjacent parking area between Ensign and Base Avenues would be surrounded by AT/FP fencing. Four access points with automatic vehicle and pedestrian access gates would be located on the western and southern elevations, within the viewshed of the SAGE building.

Buildings 421 and 423 are not considered eligible for listing in the NRHP or as contributing resources to the SAGE building. The new RTC would have a larger overall footprint than Buildings 421 and 423, but the overall mass of the new construction would be comparable to existing buildings. The new RTC would be visible from the SAGE building, but the materials and color scheme would be similar to the surrounding buildings and would not change the feeling of the SAGE building. The setting of the SAGE building was not considered a significant aspect of its overall integrity, therefore, construction of the new RTC would not adversely affect the setting, and/or feeling of the SAGE building (Photographs 3 and 4; Photo point locations are shown in Figure 9). The introduction of a new RTC or the proposed demolitions of Buildings 421 and 423 would not diminish the integrity of the SAGE building, and its ability to convey its significance.

Photograph 3. View looking northwest toward the RTC site from the center fence line of the SAGE building. Building 423 is in the background, Building 421 is obscured by vegetation.

Photograph 4. View looking northeast toward Building 410 (to be demolished) from the center fence line of the SAGE building.

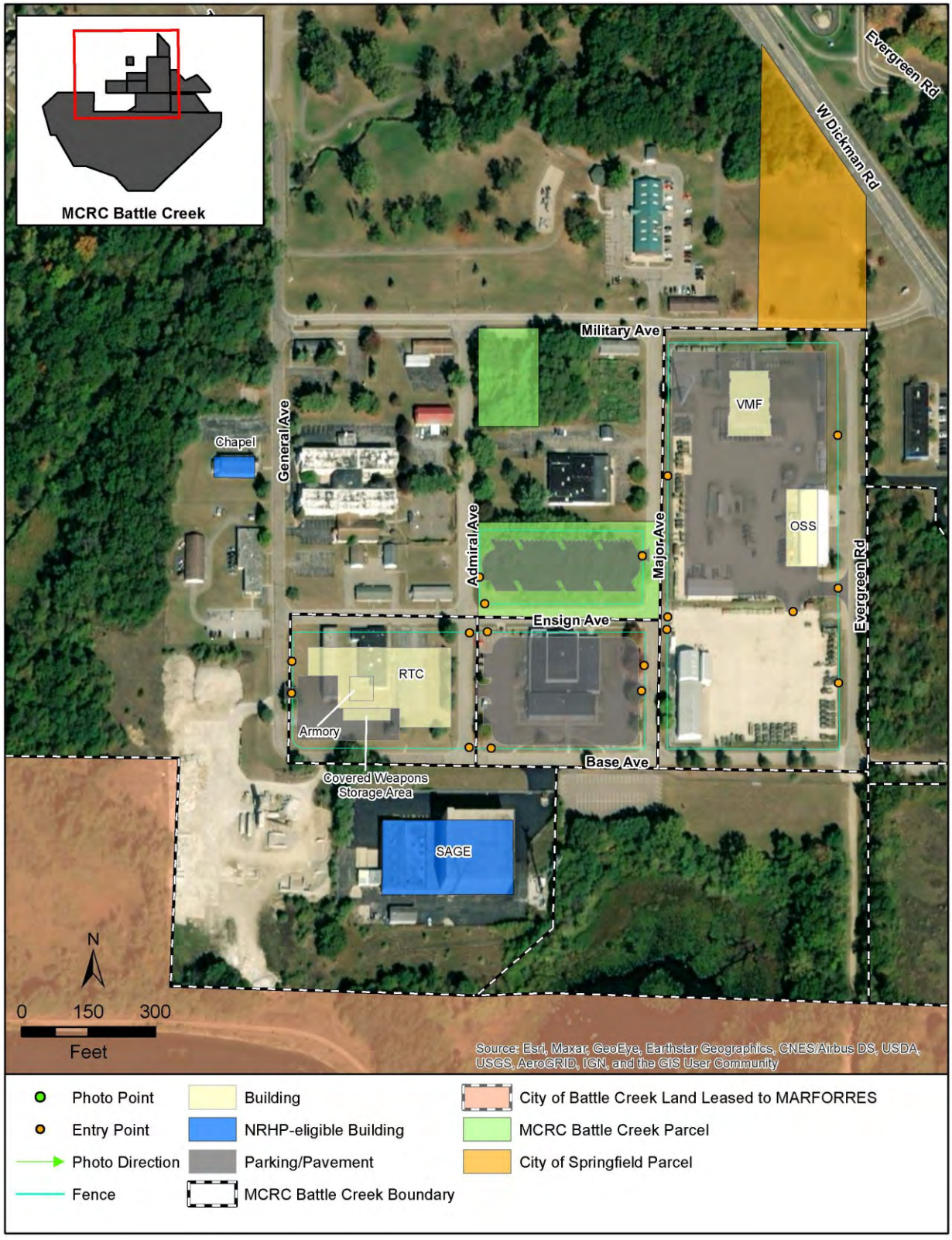


Figure 9. Proposed Site Plan with Photo Points and Directions

The proposed RTC would be located approximately 425 feet southeast of the Chapel. The Chapel stands approximately 35 feet from General Avenue in a cleared lot of cut grass. The rear, western elevation of the Chapel faces a dense, wooded area. A row of mature trees is present along General Avenue on the Chapel's southern side. The new RTC, AT/FP fencing, and two access points with automatic vehicle and pedestrian access gates (General Avenue) would be visible from the Chapel (Photographs 5 and 6, Photo point locations are shown in Figure 9). The Chapel's period of significance corresponds to its construction during World War II, and in the years since, several buildings have been erected in the surrounding area. These buildings include: Buildings 421, 423, 568, and 569 were built in 1959; Building 528 was built in 1945 and was modified from 1961 to 1972; and a garage adjacent to Building 528 was built in 2005 (OVAI 2020). The introduction of a new RTC, AT/FP fencing, and access points would not lessen the integrity of the Chapel's setting and feeling because these aspects have already been diminished from previous construction. Therefore, the proposed undertaking would not diminish the building's integrity and its ability to convey its significance.

Photograph 5. View looking northwest toward the Chapel from the northwest corner of the RTC site. The Chapel is in the background, obscured by vegetation.

Photograph 6. View looking south-southeast toward the proposed RTC site from the Chapel. Buildings 421, 423, and the SAGE building are in the background.

DETERMINATION OF EFFECT

In accordance with 54 United States Code § 306018 and its implementing regulations at 36 CFR Part 800, MARFORRES has determined that the proposed undertaking would result in ***No Adverse Effect*** to aboveground historic architectural properties because all proposed demolitions and new construction efforts would not directly or indirectly diminish the integrity of the location, design, setting, materials, workmanship, feeling, or association of the historic properties.

REFERENCES CITED

Jacobs Engineering

2021 Marine Corps Reserve Center, Battle Creek, Michigan, Draft Design Charrette Report. Submitted to NAVFAC MIDLANT and MARFORRES. 8 April.

Ohio Valley Archaeology, Inc. (OVAI)

2020 Historic Architecture and Archaeological Survey for Marine Corps Reserve Center (MCRC) Battle Creek, Michigan. August 2020.

Tribal Government Consultation

FEDERALLY RECOGNIZED TRIBES IN MICHIGAN						
Name	**Title**	**Tribal Name**	**Street Address**	**City**	**State**	**Zip-Code**
Paula Carrick	THPO	Bay Mills Indian Community, Michigan	12104 W. Lakeshore Drive	Brimley	MI	49715
Alden Connor	THPO	Keweenaw Bay Indian Community, Michigan	16429 Beartown Rd.	Baraga	MI	49908
Daisy McGeshick	THPO	Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan	P.O. Box 249	Watersmeet	MI	49969
Jay Sam	THPO	Little River Band of Ottawa Indians, Michigan	2608 Government Center Drive	Manistee	MI	49660
Melissa Wiatrolik	THPO	Little Traverse Bay Bands of Odawa Indians, Michigan	7500 Odawa Circle	Harbor Springs	MI	49740
Lakota Pochedley	THPO	Match-e-be-nash-she-wish Band of Pottawatomi Indians of Michigan	2872 Mission Drive	Shelbyville	MI	49344-9580
Douglas Taylor	THPO	Nottawaseppi Huron Band of the Potawatomi, Michigan	1485 Mno-Bmadzewen Way	Fulton	MI	49052
Matthew Bussler	THPO	Pokagon Band of Potawatomi Indians, Michigan and Indiana	PO Box 180	Dowagiac	MI	49047
Marcella Johnson	THPO	Saginaw Chippewa Indian Tribe of Michigan	6650 E. Broadway	Mt. Pleasant	MI	48858

The attached letter is representative of the letter sent to this list of federally recognized tribes in Michigan.

UNITED STATES MARINE CORPS
MARINE FORCES RESERVE
2000 OPELOUSAS AVENUE
NEW ORLEANS, LOUISIANA 70114

IN REPLY REFER TO:
FAC
17 Mar 22

From: United States Marine Corps Forces Reserve
Environmental and Energy Program Director

To: Paula Carrick, THPO
Bay Mills Indian Community, Michigan
12104 W. Lakeshore Drive
Brimley, Michigan 49715

Subj: PROPOSED MODERNIZATION AND CONTINUED OPERATION OF MARINE CORPS RESERVE CENTER (MCRC) BATTLE CREEK, MICHIGAN

Encl: (1) Location of MCRC Battle Creek
(2) MCRC Battle Creek, Site Layout Option One (Preferred)
(3) MCRC Battle Creek, Site Layout Option Two

The United States Marine Corps Forces Reserve (MARFORRES) is proposing to modernize the facilities of Marine Corps Reserve Center (MCRC) Battle Creek located in the City of Springfield, Calhoun County, Michigan (MI). The proposed action would include: 1) demolition of several existing buildings, structures, and parking areas; 2) construction of several new buildings and parking areas within developed and undeveloped lands; 3) improvements to site circulation and security; 4) land exchange with the City of Springfield; and 5) continued operation of the MCRC. MARFORRES is considering two site layout options for implementing the proposed action. The location of MCRC Battle Creek and the two site layout options being considered are presented in the attached enclosures.

MARFORRES has prepared an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) of 1969, as amended, and complied with Section 106 of the National Historic Preservation Act (NHPA). In accordance with Section 106 of the NHPA (36 Code of Federal Regulations [CFR] Part 800.4), MARFORRES consulted with the MI State Historic Preservation Office (SHPO) regarding potential effects on historic archaeological properties from the proposed undertaking. In 2017 and 2019, archaeological surveys were conducted in the areas proposed for demolition

and construction activities. Several artifacts were recovered, and archaeological sites were recorded in the 2017 survey; however, based on the location and level of previous disturbance, the recovered artifacts were recommended not eligible for listing in the National Register of Historic Places (NRHP). No archaeological sites were recorded in the 2019 survey and no further work was recommended. The MI SHPO concurred with the findings and recommendations of the 2017 and 2019 survey reports. In November 2020, another archaeological survey was conducted within three land parcels proposed for exchange between MARFORRES and the City of Springfield. The 2020 survey yield no archaeological resources or sites and no further work was recommended. The MI SHPO concurred with the findings and recommendations in January 2021 stating that no historic archaeological properties would be affected by the proposed undertaking.

MARFORRES also consulted with the MI SHPO on two NRHP-eligible resources located outside of the MCRC Battle Creek boundary but within the viewshed of the proposed new Reserve Training Center under site layout option two. MI SHPO concurred with the determination by MARFORRES of no adverse effect on historic properties within the area of potential effect (APE) for the proposed undertaking in October 2021. Appendix D of the EA provides the November 2020 archaeological survey report, June 2021 viewshed analysis, and concurrences by the MI SHPO.

As a part of the NEPA process, government-to-government consultation with federally recognized Tribal Nations is required per Executive Order 13175: *Memorandum on Government-to-Government Relations with Native American Tribal Governments*. The purpose of this letter is to initiate government-to-government consultation pursuant to the terms of Section 306108 (formerly known as Section 106) of the NHPA, as amended and its implementing regulations at 36 CFR Part 800. Available records indicate that there are no sacred sites or Traditional Cultural Properties in the APE of the proposed action. However, MARFORRES requests your input in identifying any issues or areas of concern you feel should be addressed in the environmental analysis. Additionally, please let us know if you believe this undertaking might adversely affect any historic properties of religious and cultural significance to your Tribal Nation.

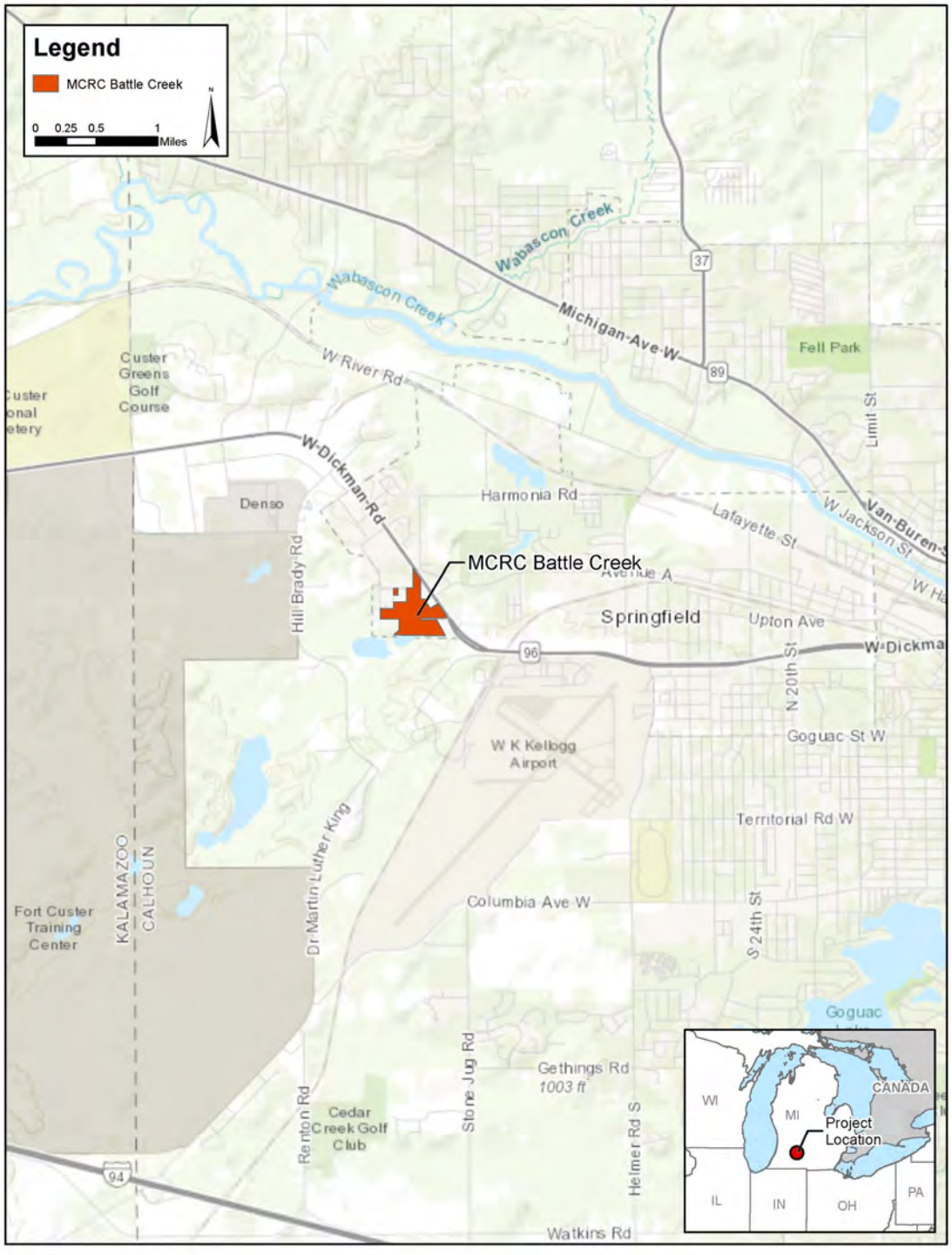
The preliminary final EA is available on the following public website: https://www.navfac.navy.mil/navfac_worldwide/atlantic/fecs/mid-atlantic/about_us/environmental_norfolk/environmental_planning_and_conservation.html.

Please provide your written questions or comments at your earliest convenience, but no later than 45 days from receipt of this correspondence. Address all questions and comments to Mr. Christopher Hurst, MARFORRES Environmental proponent, by email to christopher.a.hurst@usmc.mil. For further information, please call Mr. Hurst at (504) 697-9892.

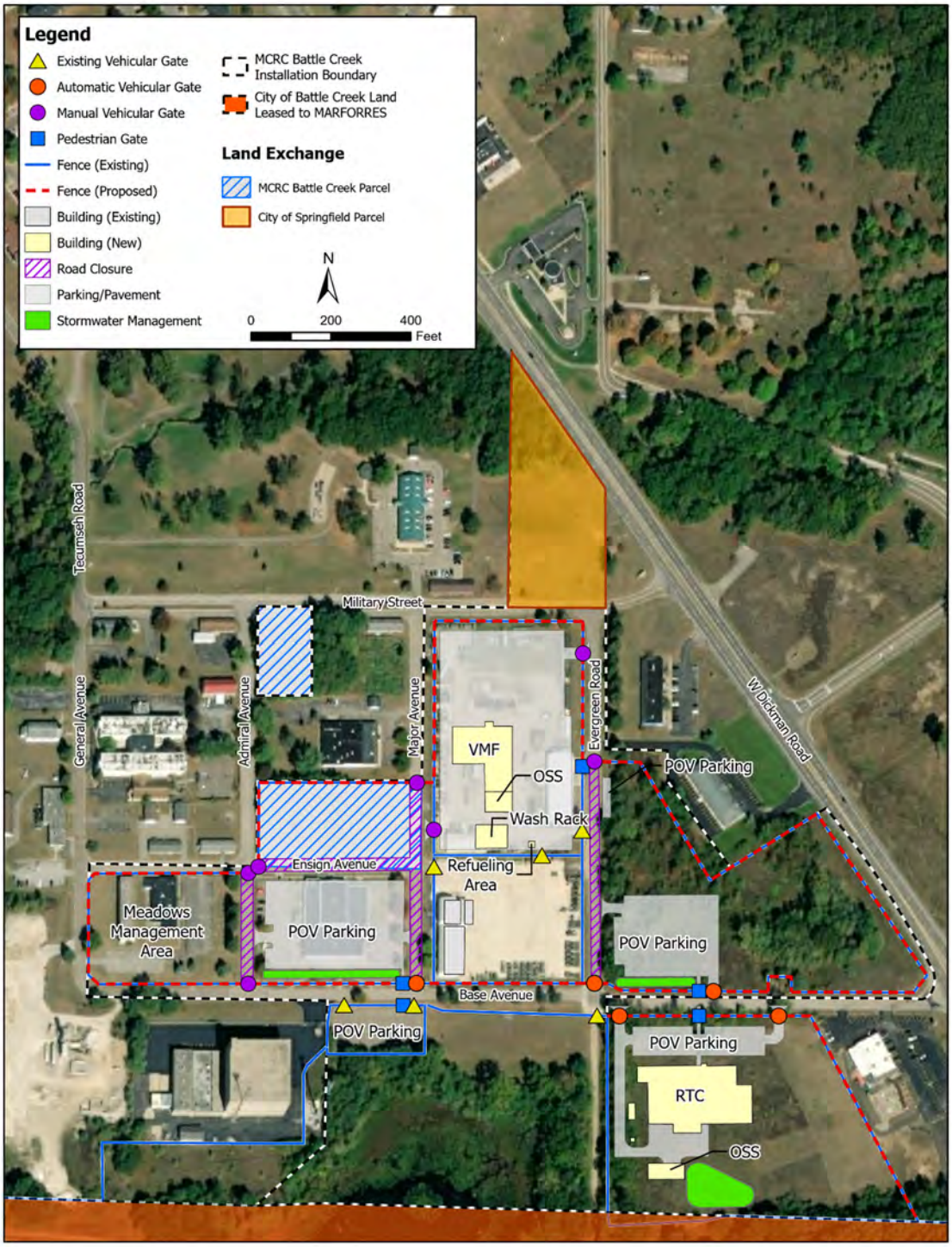
GODCHAUX.RICHARD.L.1230847602 Digitally signed by GODCHAUX.RICHARD.L.1230847602 Date: 2022.03.17 10:55:24 -05'00'

R. GODCHAUX

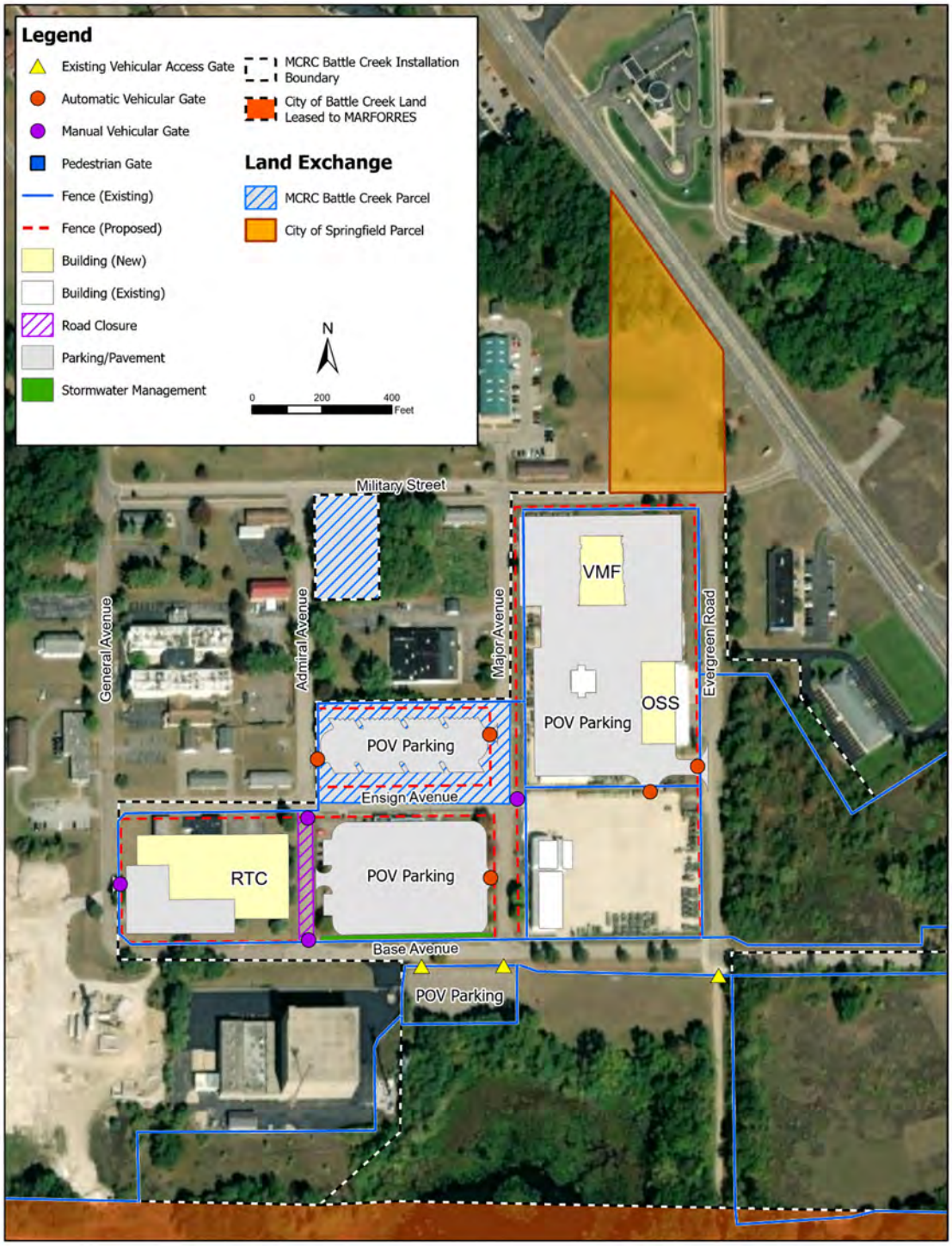
Enclosure 1: Location of MCRC Battle Creek, Springfield, MI



Enclosure 2: MCRC Battle Creek, Site Layout Option One (Preferred)



Enclosure 3: MCRC Battle Creek, Site Layout Option Two



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Appendix E
Section 7 U.S. Fish and Wildlife Service Coordination and State Listed Species

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MEMORANDUM

TO: U.S. Fish and Wildlife Service

FROM: Chris Hurst, MARFORRES

Date: February 22, 2022

Subj: Section 7 Endangered Species Act Consultation – Modernization of Marine Corps Reserve Center Battle Creek (Project Code: 2022-0008675)

The United States Marine Corps Forces Reserve (MARFORRES) is proposing to modernize the facilities of Marine Corps Reserve Center (MCRC) Battle Creek located in the City of Springfield, Calhoun County, Michigan.

The MARFORRES modernization project would include demolition of approximately 70,000 square feet (ft^2) of old facilities and infrastructure and construction of approximately 73,000 ft^2 of new facilities within the installation boundary of MCRC Battle Creek. The new construction would replace the demolished reserve training center (RTC); vehicle maintenance facility (VMF); and organic storage sheds (OSS). Several paved parking areas to accommodate privately owned vehicles would be constructed, and an existing gravel parking lot would be enhanced. New security fencing would surround MCRC Battle Creek with access via both automatic and manual vehicle and pedestrian gates. Site improvements would include modifications to curbs and sidewalks. New landscape plants around the buildings and parking areas and development of a native plants area would replace the approximately 5 acres of trees, shrubs, and manicured lawns that would be cleared in preparation for construction. The total area of ground disturbance to implement the project would be approximately 16 acres.

The USFWS Information for Planning and Consultation (IPaC) results indicate the federally endangered Indiana bat, federally threatened Northern long-eared bat, Copperbelly water snake, and Eastern massasauga, and candidate Monarch butterfly may be present at MCRC Battle Creek; however, no critical habitat is within the project area for these species. Surveys for the presence of these federally listed species within the installation boundary have not been conducted; however, surveys have been conducted in the training area lands located to the south, an area that provides a much more diverse and spacious habitat. A 2019 survey did not confirm the presence of the Copperbelly water snake or Eastern massasauga, although suitable habitat exists, nor was the presence of the Indiana bat or Northern long-eared bat detected in 2016 during a summer presence/absence survey conducted in accordance with the USFWS 2016 *Range-wide Indiana Bat Summer Survey Guidelines*. The USFWS IPaC results also indicate the potential presence of the candidate Monarch butterfly at MCRC Battle Creek; however, no critical habitats are within the project area. To date, no surveys have been conducted for the presence of the Monarch butterfly at MCRC Battle Creek or in the training area lands to the south.

The USFWS IPaC report includes guidance on when to schedule activities or implement avoidance measures to reduce potential impacts to listed species and Birds of Conservation Concern that may be present in the project area. To avoid disturbance and destruction of nests that may be present, tree and woody vegetation clearing would occur in the non-breeding season (i.e., October 01 to March 31).

In compliance with Section 7 of the Endangered Species Act, MARFORRES has determined the proposed modernization of MCRC Battle Creek would have ***no effect*** to federally listed species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443
http://www.fws.gov/midwest/EastLansing/

In Reply Refer To: February 21, 2022
Project Code: 2022-0008675
Project Name: MARFORRES MCRC Battle Creek EA

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Official Species List
The attached species list identifies any Federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Under 50 CFR 402.12(e) (the regulations that implement section 7 of the Endangered Species Act), the accuracy of this species list should be verified after 90 days. You may verify the list by visiting the IPaC website (https://ipac.ecosphere.fws.gov/) at regular intervals during project planning and implementation. To update an Official Species List in IPaC: from the My Projects page, find the project, expand the row, and click Project Home. In the What's Next box on the Project Home page, there is a Request Updated List button to update your species list. Be sure to select an "official" species list for all projects.

Consultation requirements and next steps
Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize Federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-Federal representative) must consult with the Fish and Wildlife Service if they determine their project may affect listed species or critical habitat.

There are two approaches to evaluating the effects of a project on listed species.

Approach 1. Use the All-species Michigan determination key in IPaC. This tool can assist you in

making determinations for listed species for some projects. In many cases, the determination key will provide an automated concurrence that completes all or significant parts of the consultation process. Therefore, we strongly recommend screening your project with the **All-Species Michigan Determination Key (Dkey)**. For additional information on using IPaC and available Determination Keys, visit https://www.fws.gov/midwest/EastLansing/te/pdf/MIFO_IPAC_instructions_v1_Jan2021.pdf. Please carefully review your Dkey output letter to determine whether additional steps are needed to complete the consultation process.

Approach 2. Evaluate the effects to listed species on your own without utilizing a determination key. Once you obtain your official species list, you are not required to continue in IPaC, although in most cases using a determination key should expedite your review. If the project is a Federal action, you should review our section 7 step-by-step instructions before making your determinations: http://www.fws.gov/midwest/endangered/section7/s7process/index.html. If you evaluate the details of your project and conclude "no effect," document your findings, and your listed species review is complete; you do not need our concurrence on "no effect" determinations. If you cannot conclude "no effect," you should coordinate/consult with the Michigan Ecological Services Field Office. The preferred method for submitting your project description and effects determination (if concurrence is needed) is electronically to EastLansing@fws.gov. Please include a copy of this official species list with your request.

For all **wind energy projects** and **projects that include installing communications towers that use guy wires**, please contact this field office directly for assistance, even if no Federally listed plants, animals or critical habitat are present within your proposed project area or may be affected by your proposed project.

Migratory Birds
Please see the "Migratory Birds" section below for important information regarding incorporating migratory birds into your project planning. Our Migratory Bird Program has developed recommendations, best practices, and other tools to help project proponents voluntarily reduce impacts to birds and their habitats. The Bald and Golden Eagle Protection Act prohibits the take and disturbance of eagles without a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at https://www.fws.gov/midwest/eagle/permits/index.html to help you avoid impacting eagles or determine if a permit may be necessary.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/administrative-orders/executive-orders.php.

We appreciate your consideration of threatened and endangered species during your project planning. Please include a copy of this letter with any request for consultation or correspondence

about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
(517) 351-2555

Project Summary

Project Code: 2022-0008675
Event Code: None
Project Name: MARFORRES MCRC Battle Creek EA
Project Type: Military Development
Project Description: MARFORRES proposes to modernize the existing multi-functional MCRC located within the MARFORRES-owned 43-acre site in the City of Springfield, Calhoun County, MI. The Proposed Action evaluated in this Environmental Assessment (EA) would include: 1) demolition of several existing buildings, structures, and parking areas; 2) construction of a several new buildings and parking areas; 3) improvements to site circulation and security; 4) continued operation of the MCRC. Approximately 70,000 square feet of old facilities and infrastructure would be demolished and approximately 73,000 square feet of new facilities would be constructed. The Proposed Action would be implemented in a phased approach so that during the process, MCRC Battle Creek facilities and infrastructure could continue to support the operational training requirements of the Major Subordinate Command(s). Approximately 5.0 acres of trees and woody vegetation would be removed in preparation for demolition/construction. Landscape plantings would replace vegetation lost to development. In the short-term, wildlife would be disturbed with implementation of the Action Alternative, and non-critical habitat would be lost. However, grass and forested areas to the south, within the training lands area, would provide suitable habitat resulting in minimal long-term impact to wildlife. In addition, plants native to Calhoun County would be planted of around buildings and parking areas and development of the Meadows Management Area with low maintenance native plants would provide replacement refuge for wildlife. Overall, the potential impacts to terrestrial wildlife would not be significant.
The project is anticipated to begin in fiscal year 2023 and take approximately 24 months to complete.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.32272711850007,-85.26443413674957,14z

Counties: Calhoun County, Michigan

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/4J4CUSURKJGQBINSBVIY6BNCTM/documents/generated/5663.pdf	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/4J4CUSURKJGQBINSBVIY6BNCTM/documents/generated/5664.pdf	Threatened

Reptiles

NAME	STATUS
Copperbelly Water Snake *Nerodia erythrogaster neglecta*	Threatened

Population: Indiana north of 40 degrees north latitude, Michigan, Ohio
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7253

Eastern Massasauga (=rattlesnake) *Sistrurus catenatus*	Threatened

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- For all Projects: Project is within EMR Range

Species profile: https://ecos.fws.gov/ecp/species/2202
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/4J4CUSURKJGQBINSBVIY6BNCTM/documents/generated/5280.pdf

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

NAME	BREEDING SEASON
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Henslow's Sparrow *Ammodramus henslowii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

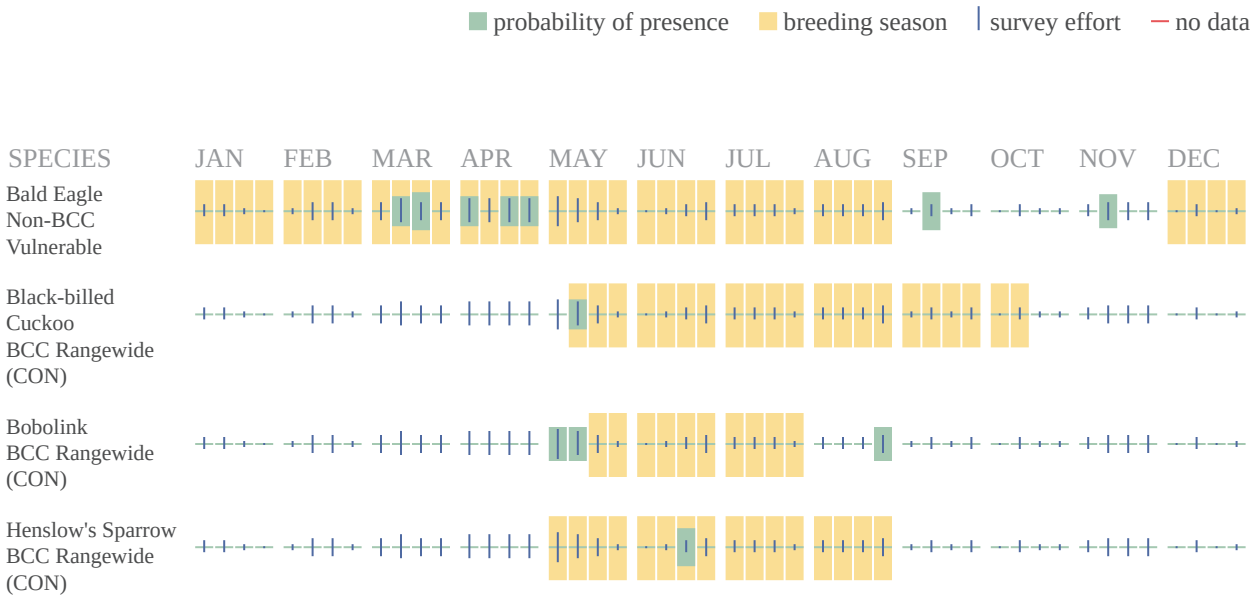
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

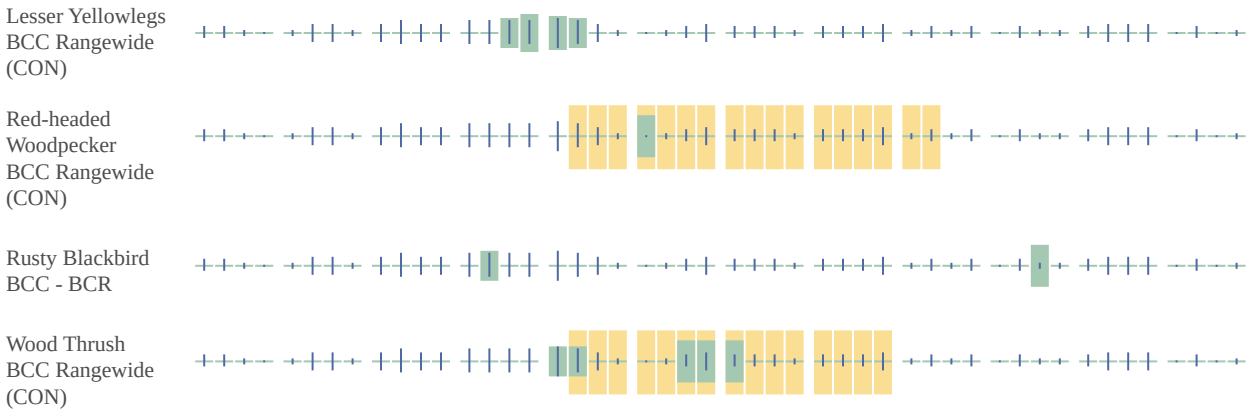
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act

requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPaC User Contact Information

Name: charee hoffman
Address: 501 Butler Farm Road, Suite H
City: Hampton
State: VA
Zip: 23666
Email charee.hoffman@cardno-gs.com
Phone: 7575941465

State Listed Species

County Element Data

The lists include all elements (species and natural communities) for which locations have been recorded in MNFI's database for each county. Information from the database cannot provide a definitive statement on the presence, absence, or condition of the natural features in any given locality, since much of the state has not been specifically or thoroughly surveyed for their occurrence and the conditions at previously surveyed sites are constantly changing. The County Elements Lists should be used as a reference of which natural features currently or historically were recorded in the county and should be considered when developing land use plans. Included in the list is scientific name, common name, element type, federal status, and state status for each element.

Choose a county Calhoun

Calhoun County

Code Definitions

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Acella haldemani	Spindle lymnaea		SC	G3	SH	1	
Acris blanchardi	Blanchard's cricket frog		T	G5	S2S3	7	2016
Agrimonia rostellata	Beaked agrimony		T	G5	S2	1	2020
Alasmidonta marginata	Elktoe		SC	G4	S3?	9	2018
Alasmidonta viridis	Slippershell		T	G4G5	S2S3	5	2018
Ammodramus henslowii	Henslow's sparrow		E	G4	S3	2	2007
Ammodramus savannarum	Grasshopper sparrow		SC	G5	S4	3	2007
Amorpha canescens	Leadplant		SC	G5	S3	3	2012
Angelica venenosa	Hairy angelica		SC	G5	S3	1	1898
Arnoglossum plantagineum	Prairie indian-plantain		SC	G4G5	S3	1	1954
Baptisia lactea	White or prairie false indigo		SC	G4Q	S3	9	2016
Bombus borealis	Northern amber bumble bee		SC	G4G5	S3	2	1966
Bombus pensylvanicus	American bumble bee		SC	G3G4	S1	1	1927
Brickellia eupatorioides	False boneset		SC	G5	S2	1	2009
Carex amphibola	Narrow-leaved Sedge		SC	G5	SNR	1	1964
Catinella protracta	A land snail (no common name)		E	G2Q	SNR	2	1947
Chondestes grammacus	Lark sparrow		X	G5	SNA	1	2015
Clemmys guttata	Spotted turtle		T	G5	S2	4	2010
Conioselinum chinense	Hemlock-parsley		SC	G5	SNR	1	1949
Corydalis flavula	Yellow fumewort		T	G5	S2	2	2019
Cryptotis parva	Least shrew		T	G5	S1S2	1	1929
Cygnus buccinator	Trumpeter swan		T	G4	S3	1	2019
Cypripedium candidum	White lady slipper		T	G4	S2	2	2005
Dichanthelium leibergii	Leiberg's panic grass		T	G4	S2	1	2005

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Dichanthelium microcarpon	Small-fruited panic-grass		SC	GNR	SX	1	1984
Eleocharis compressa	Flattened spike rush		T	G4	S2	1	1967
Eleocharis engelmannii	Engelmann's spike rush		SC	G4G5	S2S3	1	1974
Eleocharis radicans	Spike rush		X	G5	S1	1	1905
Emydoidea blandingii	Blanding's turtle		SC	G4	S2S3	9	2020
Erimyzon claviformis	Creek chubsucker		E	G5	S1	1	1982
Eryngium yuccifolium	Rattlesnake-master or button snakeroot		T	G5	S2	2	2019
Eupatorium sessilifolium	Upland boneset		T	G5	S1	2	2020
Falco peregrinus	Peregrine falcon		E	G4	S3	1	2018
Faxonius immunis	Calico crayfish		SC	G5	S4	1	2014
Filipendula rubra	Queen-of-the-prairie		T	G4G5	S2	9	2019
Fontigens nickliniana	Watercress snail		SC	G5	S2S3	3	1947
Fraxinus profunda	Pumpkin ash		T	G4	S2	1	2000
Galearis spectabilis	Showy orchis		T	G5	S2	1	2006
Geum virginianum	Pale avens		SC	G5	S1S2	2	2020
Haliaeetus leucocephalus	Bald eagle		SC	G5	S4	3	2017
Helianthus hirsutus	Whiskered sunflower		SC	G5	S3	1	1914
Helianthus mollis	Downy sunflower		T	G4G5	S2	1	2010
Hydrastis canadensis	Goldenseal		T	G3G4	S2	3	2006
Isotria verticillata	Whorled pogonia		T	G5	S2	2	2006
Lasmigona compressa	Creek heelsplitter		SC	G5	S3	6	2018
Lasmigona costata	Flutedshell		SC	G5	SNR	9	2018
Lechea minor	Least pinweed		X	G5	S1	1	1896
Lepisosteus oculatus	Spotted gar		SC	G5	S2S3	1	1863
Lepyronia angulifera	Angular spittlebug		SC	G3	S3	1	1927
Ligumia recta	Black sandshell		E	G4G5	S1?	1	2012
Lithobates palustris	Pickerel frog		SC	G5	S3S4	6	2018
Mertensia virginica	Virginia bluebells		E	G5	S1S2	1	1888
Mesomphix cupreus	Copper button		SC	G5	S1	3	1947
Moxostoma carinatum	River redhorse		T	G4	S2	1	1987
Myotis septentrionalis	Northern long-eared bat	LT	SC	G1G2	S1	1	
Myotis sodalis	Indiana bat	LE	E	G2	S1	1	2005
Nerodia erythrogaster neglecta	Copperbelly water snake	LT	E	G5T3	S1	2	1992
Notropis anogenus	Pugnose shiner		E	G3	S1S2	4	1994
Notropis chalybaeus	Ironcolor shiner		X	G4	S1	1	1930
Notropis texanus	Weed shiner		X	G5	S1	3	1953
Oecanthus laricis	Tamarack tree cricket		SC	G3?	S3	1	2005

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Panax quinquefolius	Ginseng		T	G3G4	S2S3	1	2007
Pandion haliaetus	Osprey		SC	G5	S4	1	2017
Papaipema beeriana	Blazing star borer		SC	G2G3	S2	1	1968
Papaipema cerina	Golden borer		SC	G2G4	S2	1	2017
Parkesia motacilla	Louisiana waterthrush		T	G5	S2	1	2010
Perimyotis subflavus	Eastern pipistrelle		SC	G2G3	S1	1	2005
Platanthera ciliaris	Orange- or yellow-fringed orchid		E	G5	S1S2	2	2005
Platanthera leucophaea	Prairie white-fringed orchid	LT	E	G2G3	S1	1	1887
Pleurobema sintoxia	Round pigtoe		SC	G4G5	S3	8	2018
Protonotaria citrea	Prothonotary warbler		SC	G5	S3	2	1997
Rallus elegans	King rail		E	G4	S2	3	1960
Setophaga cerulea	Cerulean warbler		T	G4	S3	2	2019
Setophaga citrina	Hooded warbler		SC	G5	S3	2	2010
Silene stellata	Starry campion		T	G5	S2	1	1860
Silphium integrifolium	Rosinweed		T	G5	S2	1	2019
Silphium perfoliatum	Cup plant		T	G5	S2	2	2019
Sistrurus catenatus	Eastern massasauga	LT	SC	G3	S3	9	2019
Speyeria idalia	Regal fritillary		E	G3?	SH	2	1949
Spiza americana	Dickcissel		SC	G5	S3	2	2007
Stenelmis douglasensis	Douglas stenelmis riffle beetle		SC	G1G3	S1S2	1	1971
Terrapene carolina carolina	Eastern box turtle		SC	G5T5	S2S3	11	2019
Utterbackia imbecillis	Paper pondshell		SC	G5	S2S3	1	
Venustaconcha ellipsiformis	Ellipse		SC	G4	S3	9	2018
Villosa iris	Rainbow		SC	G5	S3	12	2018
Viola pedatifida	Prairie birdfoot violet		T	G5	S1	1	1981
Zizania aquatica	Wild rice		T	G5	S2S3	5	2014

State Status Code Definition

E
Endangered
T
Threatened
SC
Special concern