DOE/EA-1709

FINAL
ENVIRONMENTAL ASSESSMENT

FOR

COMPACT POWER, INC. ELECTRIC DRIVE VEHICLE BATTERY AND COMPONENT MANUFACTURING INITIATIVE APPLICATION, HOLLAND, MICHIGAN

U.S. Department of Energy
National Energy Technology Laboratory

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COVER SHEET

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

TITLE: *Final Environmental Assessment for Compact Power, Inc. Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Michigan*

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ABSTRACT: DOE prepared this EA to evaluate the potential environmental consequences of providing an *American Recovery and Reinvestment Act of 2009* (Recovery Act; Public Law 111-5, 123 Stat. 115) financial assistance grant to Compact Power, Inc. to facilitate the construction and operation of a high-volume manufacturing plant to build advanced lithium-ion cells and batteries. The cells and batteries would be for use in automotive applications including but not limited to hybrid electric, plug-in hybrid electric, pure electric vehicles for commercial purposes, and military hybrid vehicles, as well as for aviation, smart grid support, broadband backup power, and energy storage for renewable energy.

DOE's Proposed Action is to provide $151 million in financial assistance in a cost-sharing arrangement with the project proponent, Compact Power, Inc. The total cost of the project is estimated at $303 million. Compact Power, Inc.'s proposed project would expand its domestic capacity to produce advanced lead-acid batteries for use in the transportation industry. Compact's 850,000-square-foot facility would be built on vacant land located mostly in the City of Holland, Allegan County, Michigan, with a small portion of the proposed site located in the adjacent Fillmore Township.

This EA evaluates 14 resource areas and identifies no significant adverse impacts for the proposed project after consideration of the mitigation of impacts to wetlands. Beneficial impacts to the nation's air quality and transportation could be realized from implementation of the proposed project. In addition, beneficial socioeconomic impacts would occur from increased employment opportunities and spending in the affected local communities.

Availability: A Notice of Availability was placed in the *Holland Sentinel* and *Grand Rapids Press* on January 8, 9, and 10, 2010. The Draft EA was made available for public review from

January 8, 2009 through February 7, 2010 at the Herrick District Library, 300 S. River Avenue, Holland, Michigan.

The Draft EA was also available on the National Energy Technology Laboratory web site and was mailed to individuals and agencies listed in Appendix A. This Final EA is available on DOE's National Energy Technology Laboratory web site at http://www.netl.doe.gov/publications/others/nepa/ea.html.

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ACRONYMS AND ABBREVIATIONS

BPW	Board of Public Works
CFR	*Code of Federal Regulations*
CO	carbon monoxide
CPI	Compact Power, Inc.
DOE	U.S. Department of Energy (also called the Department)
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
$LiPF_6$	lithium hexafluorophosphate
NAAQS	National Ambient Air Quality Standards
NEPA	*National Environmental Policy Act*, as amended
NMP	N-methylpyrrolidone
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
O_3	ozone
Pb	lead
PM_{10}	particulate matter with an aerodynamic size less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic size less than or equal to 2.5 microns
SO_2	sulfur dioxide
Stat.	*United States Statute at Large*
U.S.C.	United States Code

Note: Numbers in this EA generally have been rounded to two or three significant figures. Therefore, some total values might not equal the actual sums of the values.

SUMMARY

The U.S. Department of Energy (DOE) proposes to provide a grant to Compact Power, Inc. to construct and operate a high-volume manufacturing plant to build advanced lithium-ion cells and batteries for automotive applications including but not limited to hybrid electric, plug-in hybrid electric, pure electric vehicles for commercial purposes, and military hybrid vehicles, as well as for aviation, smart grid support, broadband backup power, and energy storage for renewable energy. DOE would provide $151 million in financial assistance in a cost-sharing arrangement with the project proponent, Compact Power, Inc. The total cost of the proposed project is estimated at $303 million. The 850,000-square-foot facility would be built on about 80 acres, mostly located in the City of Holland, Michigan, with a small portion of the proposed project site located in the adjacent Fillmore Township. Compact Power, Inc. would employ approximately 450 workers when the facility was fully operational. The manufacturing facility would contribute to President Obama's commitment to accelerate the development of United States manufacturing capacity for batteries and electric drive components as well as the deployment of electric drive vehicles, helping to establish American leadership in creating the next generation of advanced vehicles.

In compliance with the *National Environmental Policy Act* (42 U.S.C. Section 4321 et seq.) and DOE's *National Environmental Policy Act* implementing regulations (10 CFR Part 1021) and procedures, this environmental assessment examines the potential environmental impacts of DOE's Proposed Action, Compact Power, Inc.'s proposed project, and the No-Action Alternative. The environmental assessment's purpose is to inform DOE and the public of the potential environmental consequences of the proposed project and alternatives.

In this environmental assessment, DOE analyzed impacts to land use; air quality; noise; aesthetics and visual resources; geology and soils; water resources; biological resources; cultural resources; socioeconomics; environmental justice; occupational health and safety; utilities, energy, and materials; waste; and transportation.

The proposed facility would be built on agricultural land that is mostly zoned industrial and would be compatible with surrounding land use. The eastern portion the project site in Fillmore Township (about 11 of the 80 acres) would require a change in zoning from residential to industrial. Fillmore Township and the City of Holland are working together to change the zoning of this land to be compatible with the facility. Vehicular and construction equipment exhaust would be a source of pollutant emissions, but would have a negligible impact on air quality. DOE estimates that the facility would emit 4.83 tons of nitrogen oxides, 0.42 tons of carbon monoxide, and 3.61 tons of dust annually. Compact Power, Inc. would obtain all necessary air permits from the Michigan Department of Environmental Quality. High-volume output of lithium-ion batteries resulting from operations of the facility is expected to result in significant reductions in carbon dioxide generated across the nation; and thus, a significant beneficial impact to the nation's air quality could be realized.

One residence at the southeastern boundary of the site on the south side of East 48th Street could be subject to minor, short-term adverse impacts from noise generated during the construction of the proposed facility. This residence would also experience increased traffic noise on East 48th Street from commuting workers and trucks traveling to the facility. Transportation impacts from increased traffic on East 48th Street would be lessened if the City of Holland widened this street. The City of Holland has plans in the developmental stages to expand East 48th Street from Waverly Road to the east city limit, a distance of approximately 3,700 feet. The road would be widened from the existing two lanes to three lanes with curbs and gutters; turning lanes may be added.

The proposed project site is visible from two residences, one on the south side of East 48th Street and one on the south side of East 40th Street. These residences would experience short-term visual impacts from construction activities and long-term visual impacts from the conversion of open, agricultural land to industrial use. However, the facility would be well-landscaped and would be compatible with surrounding developed areas to the west and northwest.

About 40 acres of "prime farmland if drained" and "farmland of local importance" would be converted to industrial use, consistent with the City of Holland's zoning. This farmland is protected under the Farmland Protection Policy Act. Preliminary evaluation indicates the value of this farmland is low, based on zoning, the size of the farmland, and other factors. DOE has consulted with the Natural Resources Conservation Service regarding loss of this farmland. Due to area zoning and the small size of the parcel, the project site scored low in relative value of farmland.

Best management practices during construction would lessen impacts of soil erosion and Compact Power, Inc. would develop a storm water pollution prevention plan to protect surface water. With these measures in place, there is little potential for adverse impacts to soils and water resources. Minimal short-term impacts to wildlife using existing agricultural crops for forage would result from disturbance during construction of the proposed facility. No adverse impacts to any federally listed threatened or endangered species would occur, as no such species are known to occur on the proposed project site. DOE initiated consultation with the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources. No responses were received.

This Environmental Assessment includes a wetlands assessment, as required by DOE regulations for *Compliance with Floodplain and Wetland Environmental Review Requirements* (10 *Code of Federal Regulations* Part 1022). The proposed project would impact three wetland systems determined to be regulated by the Michigan Department of Natural Resources and Environment, and a permit would be required. The impacts to would affect approximately 2.21 acres of wetlands, requiring approximately 8,058 cubic yards of excavation and approximately 8,795 cubic yards of fill. Since greater than 0.3 acre of a wetland would be disturbed, compensatory mitigation measures, in the form of mitigation banking, would be required. Mitigating the impacted wetlands at the appropriate ratio would require no less than 3.32 acres of mitigation.

Compact Power, Inc. submitted a Part 303 Permit Application, which contains a Compensatory Mitigation Proposal, to the Michigan Department of Natural Resources and Environment. Compact Power, Inc., in conjunction with the City of Holland, selected a location in the VanRaalte Farm Park for the newly created wetland. Overall approximately 3.5 acres of wetland mitigation would be created at this location. Compensatory mitigation measures would ensure that wetlands impacts would not be considered significant.

Long-term beneficial socioeconomic impacts would occur from increased employment opportunities and spending in the local economy. Long-term benefits to the nation's transportation industry would also occur from high-volume output of lithium-ion batteries by savings of fuel oil and greater use of plug-in hybrid electric vehicles.

Impacts to cultural resources are not expected. DOE initiated consultation with the Michigan State Historic Preservation Office and requested any additional information that office has developed or obtained on historic properties in the vicinity of the project site. DOE also sent a request to seven separate federally recognized tribes with interests in the area for information those tribes have, and are interested in sharing, on properties of traditional religious and cultural significance within the vicinity of the project site, and any comments or concerns they have on the potential for this project to affect those properties. A response from the State Historic Preservation Office supported DOE's determination that no historic properties would be affected by the proposed project.

No adverse impacts to environmental justice, utility systems, hazardous and solid waste management, or occupational health and safety would occur.

Under the No-Action Alternative, DOE would not provide funds for the proposed project. For the purposes of the environmental assessment, DOE assumed that the project would not proceed or would be delayed without DOE funding. No impacts to the existing environment would occur. In addition, the beneficial impacts discussed above would not be realized. This assumption establishes a baseline against which the potential environmental impacts of the proposed project are compared.

1. INTRODUCTION

Compact Power, Inc. (CPI) proposes to construct and operate a high-volume manufacturing plant to build advanced lithium-ion cells and batteries for automotive applications including but not limited to hybrid electric, plug-in hybrid electric, pure electric vehicles for commercial purposes, and military hybrid vehicles, as well as for aviation, smart grid support, broadband backup power, and energy storage for renewable energy. In order to facilitate this project, the U.S. Department of Energy (DOE or the Department) is considering providing CPI with a grant under Funding Opportunity Announcement DE-FOA 0000026 entitled *Recovery Act – Electric Drive Vehicle Battery and Component Manufacturing Initiative.* DOE will make its decision after evaluating the potential environmental impacts and other aspects of CPI's proposed project.

As part of the *American Recovery and Reinvestment Act of 2009* (Recovery Act; Public Law 111-5, 123 Stat. 115), as amended, the DOE's National Energy Technology Laboratory, on behalf of the Office of Energy Efficiency and Renewable Energy's Vehicle Technologies Program, will provide up to $2 billion in federal funding to competitively selected recipients for the construction (including increase in production capacity of current plants), of U.S. manufacturing plants that produce batteries and electric drive components. The funding of these projects, known as the Electric Drive Vehicle Battery and Component Manufacturing Initiative, requires compliance with the *National Environmental Policy Act* of 1969, as amended (NEPA; 42 United States Code [U.S.C.] 4321 et seq.), Council on Environmental Quality regulations (40 *Code of Federal Regulations* [CFR] Parts 1500 to 1508), and DOE NEPA implementing regulations (10 CFR Part 1021). Therefore, DOE prepared this *Environmental Assessment for Compact Power, Inc. Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, MI* (EA) to evaluate the potential environmental consequences of providing grants under the initiative. In compliance with these laws and regulations, this EA examines the potential environmental consequences of DOE's Proposed Action (that is, providing financial assistance) and No-Action Alternative (under which it is assumed that, as a consequence of DOE's denial of financial assistance, CPI would not proceed with the project). The EA's purpose is to inform DOE and the public of the potential environmental consequences of CPI's proposed project and alternatives.

This chapter explains the background, purpose and need, and the scope of the DOE's Proposed Action. Chapter 2 describes DOE's Proposed Action, CPI's proposed project, and the No-Action Alternative. Chapter 3 details the affected environment and potential environmental consequences of the proposed project and of the No-Action Alternative. Chapter 4 describes cumulative impacts, Chapter 5 provides DOE's conclusions, and Chapter 6 identifies references cited in this EA. Appendix A contains the distribution list, Appendix B contains consultation information, and Appendix C contains CPI's wetlands permit application, which includes a compensatory mitigation proposal, to the Michigan Department of Natural Resources and Environment.

1.1 National Environmental Policy Act and Related Procedures

In accordance with its NEPA implementing regulations, DOE must evaluate the potential environmental impacts of its Proposed Action that may have a significant impact on human health and the environment, including decisions on whether to provide financial assistance to states and private entities. In compliance with these regulations and DOE's procedures, this Final EA:

- Examines the potential environmental impacts of CPI's proposed project and the No-Action Alternative;
- Identifies unavoidable adverse environmental impacts of the proposed project;
- Describes the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- Characterizes any irreversible and irretrievable commitments of resources that would be involved should DOE decide to implement its Proposed Action.

These requirements must be met before DOE decides whether to proceed with any proposed action that could cause adverse impacts to human health or the environment. This EA fulfills DOE's obligations under NEPA and provides DOE with the information needed to make an informed decision about helping to finance CPI's proposed project.

The proposed project considered in this EA constitutes a wetlands action as defined in 10 CFR Part 1022 "Compliance with Floodplain and Wetland Environmental Review Requirements." To fully evaluate the potential impacts of the project on wetlands and methods that could be used to minimize those impacts, Chapter 3, Section 3.6 of this EA includes a wetlands assessment, as required by DOE regulations.

This EA evaluates the potential individual and cumulative impacts of the CPI proposed project. No other action alternatives are analyzed. For purposes of comparison, this EA also evaluates the impacts that would occur if DOE did not provide funding to support the construction and operation of a high-volume manufacturing facility to build advanced lithium-ion cells and batteries for military hybrid vehicles, aviation, smart grid support, broadband backup power, and energy storage for renewable energy (the No-Action Alternative), under which DOE assumes that CPI would not proceed with the project. This assumption may be incorrect—that is, CPI might proceed without federal assistance. However this assumption allows DOE to compare the impacts of an alternative in which expansion occurs with one in which it does not.

1.2 Background

DOE's National Energy Technology Laboratory manages the research and development portfolio of the Vehicle Technologies Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the Vehicle Technologies Program is accelerating the development

and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Other goals of the Program include the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

Congress appropriated significant funding for the Vehicle Technologies Program in the Recovery Act in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the Vehicle Technologies Program. DOE solicited applications for this funding by issuing a competitive funding opportunity announcement (DE-FOA-0000026) entitled *Recovery Act – Electric Drive Vehicle Battery and Component Manufacturing Initiative*, on March 19, 2009. The announcement invited applications in seven areas of interest:

- Area of Interest 1 – Projects that would build or increase production capacity and validate production capability of advanced automotive battery manufacturing plants in the United States.

- Area of Interest 2 – Projects that would build or increase production capacity and validate production capability of anode and cathode active materials, components (e.g. separator, packaging material, electrolytes and salts), and processing equipment in domestic manufacturing plants.

- Area of Interest 3 – Projects that combine aspects of Areas of Interest 1 and 2.

- Area of Interest 4 – Projects that would build or increase production capacity and validate capability of domestic recycling or refurbishment plants for lithium-ion batteries.

- Area of Interest 5 – Projects that would build or increase production capacity and validate production capability of advanced automotive electric drive components in domestic manufacturing plants.

- Area of Interest 6 – Projects that would build or increase production capacity and validate production capability of electric drive subcomponent suppliers in domestic manufacturing plants.

- Area of Interest 7 – Projects that combine aspects of Areas of Interest 5 and 6.

The application period closed on May 19, 2009, and DOE received 119 proposals across the seven areas of interest. DOE selected 30 projects based on the evaluation criteria set forth in the funding opportunity announcement. DOE gave special consideration to projects that promoted the objectives of the Recovery Act—job preservation or creation, and economic recovery—in an expeditious manner.

CPI's proposed project in Holland, Michigan was one of the 30 projects DOE selected for funding. DOE's Proposed Action under this funding opportunity is to provide $151 million in

financial assistance in a cost-sharing arrangement with the project proponent, CPI. The total cost of the proposed project is estimated at $303 million.

1.3 Purpose and Need

The overall purpose and need for DOE's Proposed Action under the Vehicle Technologies Program is to accelerate the development and production of various electric drive vehicle systems by building or increasing domestic manufacturing capacity for advanced automotive batteries, their components, recycling facilities, and electric drive vehicle components, in addition to stimulating the United States' economy. This work will enable market introduction of various electric vehicle technologies by lowering the cost of battery packs, batteries, and electric propulsion systems for electric drive vehicles through high-volume manufacturing. DOE intends to further this purpose and satisfy this need by providing financial assistance under cost-sharing arrangements to this and the other 29 projects selected under this funding opportunity announcement.

This and the other selected projects are needed to reduce the United States' petroleum consumption by investing in alternative vehicle technologies. Successful commercialization of electric drive vehicles would support the DOE's Energy Strategic Goal of "protect[ing] our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy." This proposed project will also meaningfully assist in the nation's economic recovery by creating manufacturing jobs in the United States in accordance with the objectives of the Recovery Act.

1.4 Consultations and Public Comment Response Process

1.4.1 CONSULTATIONS

DOE initiated consultation with the U.S. Fish and Wildlife Service on November 19, 2009 and asked for its concurrence with DOE's assessment that the proposed project would have no effect on federally listed species or habitats. A copy of this letter is included in Appendix B. On January 8, 2010, DOE sent the U.S. Fish and Wildlife Service a copy of the Draft EA. No responses or comments were received from the U.S. Fish and Wildlife Service.

DOE initiated consultation with the Michigan Department of Natural Resources on November 19, 2009 and asked for its concurrence with DOE's assessment that the proposed project would have no effect on state or federally listed species. A copy of this letter is included in Appendix B. On January 8, 2010, DOE sent the Michigan Department of Natural Resources a copy of the Draft EA; no responses or comments were received.

DOE initiated consultation with the Michigan State Historic Preservation Office on November 12, 2009 and completed and submitted its Section 106 application on January 29, 2010. A copy of this letter and the Section 106 application are included in Appendix B. On January 8, 2010, DOE sent the Michigan State Historic Preservation Office a copy of the Draft EA. A letter dated

February 25, 2010, from the State Historic Preservation Office supported DOE's determination that no historic properties would be affected by the proposed project. A copy of this letter is included in Appendix B.

DOE initiated consultation with the Natural Resources Conservation Service on December 2, 2009 and asked for its concurrence with DOE's assessment that the proposed project would have no effect on prime farmland. A copy of this letter is included in Appendix B. On January 5, 2010, the Natural Resources Conservation Service emailed a Farmland Conversion Impact Rating Form that it completed for the proposed project site. Due to area zoning and the small size of the parcel, the project site scored low in relative value of farmland. Copies of this form and the Natural Resources Conservation Service's email are included in Appendix B. On January 8, 2010, DOE sent the Natural Resources Conservation Service a copy of the Draft EA. No comments were received by the Natural Resources Conservation Service.

On November 12, 2009, DOE sent a request to seven separate federally recognized tribes chosen according to the U.S. Department of Housing and Urban Development – Office of Community Planning and Development – Environmental Planning Division (Citizen Potawatomi Nation, Forest County Potawatomi Community, Hannahville Indian Community, Match-e-be-nash-she-wish Band of Potawatomi, Ottawa Tribe of Oklahoma, Pokagon Band of Potawatomi Indians, and the Prairie Band of Potawatomi Nation) for information those tribes have, and are interested in sharing, on properties of traditional religious and cultural significance within the vicinity of the project site, and any comments or concerns they have on the potential for this project to affect those properties. A copy of the DOE's letter is included in Appendix B. On January 8, 2010, DOE sent the seven tribes copies of the Draft EA; no responses or comments were received.

1.4.2 COMMENT-RESPONSE PROCESS

DOE issued the Draft EA for comment on January 8, 2010, and advertised its release in the *Holland Sentinel* and *Grand Rapids Press* on January 8, 9, and 10, 2010. The Department sent copies for public review to the Herrick District Library in Holland, Michigan and to the persons and agencies listed in Appendix A of this EA and made the EA available on the National Energy Technology Laboratory Web site. The Department established a 30-day public comment period that began January 8, 2010, and ended February 7, 2010. The Department announced it would accept comments by mail, email, or facsimile. DOE received comments from 11 local agencies and individuals. Comments and DOE's responses, if required, are summarized below.

City of Holland
Kurt Dykstra, Mayor

Comment: This is a project with tremendous opportunities for the City, and could, in fact impact the use of energy across the United States and around the globe. The City of Holland has been experiencing an average unemployment rate during 2009 and the early part of 2010 above 16%. This is by far the highest unemployment rate experienced by City residents in many decades.

The potential economic benefits to this City and the region from the Compact Power project are substantial and could lead to ancillary growth that we could not even imagine at this point.

The City will be working with Compact Power to widen 48th Street to accommodate the traffic changes, to resolve any wetland issues, and to approve a project site plan that will ensure that the project is compatible with the surrounding area. The City will also be considering tax incentives for this project such as a creation of a Renaissance Zone. The City of Holland is very supportive of this project and we are excited about the opportunities it presents for our community.

John Fulenwider, Ph.D. EE

Comment: Holland can provide the work force necessary to run the proposed battery plant. Holland does not need an expanded coal fired power plant to furnish the electricity to run it however. Holland should be denied the permit to build the battery plant UNLESS it agrees to provide the additional energy requirements from renewable sources, such as wind, solar, and biogas (for example derived from land fill or megafarm anaerobic digesters). Holland must lower its use of coal to produce electricity.

Response: DOE appreciates your concern regarding use of renewable energy sources. However, CPI is relying on the City of Holland to supply the electricity to run the proposed facility. It should be noted that the Holland Board of Public Works (BPW) uses a combination of coal and natural gas along with two renewable energy sources, landfill gas and biomass, all of which would be used in combination to produce electricity for the CPI facility. It is recognized that the Holland BPW is considering expanding its power production capabilities through new or replacement facilities and that this has been a planning consideration that pre-dates the proposed CPI action. It is not within DOE's purview or within the scope of the CPI's proposed project to direct how BPW runs its facilities and whether it should change from its current fuel source.

Holland Area Chamber of Commerce
Jane Clark, President

Comment: The Holland Area Chamber of Commerce expresses enthusiastic support for this project.

Holland Hospital
Dale Sowders, President and Chief Executive Officer

Comment: Holland Hospital would like to communicate endorsement of the project and request DOE's support as well. We are the only acute care facility in a 70-mile stretch along Western Michigan, directly west of Grand Rapids. As such, we are completely dependent upon the economic condition of our community. It is well documented that Michigan's economy has been the poorest performing in the nation and many auto related jobs have been eliminated or moved out of the country. The current unemployment rate is approximately 12% and the opportunity to have a large employer like CPI is critical for the viability of this region. This would also

strengthen the school system and other retail/commercial businesses which experienced significant hardship for the last few years.

Philip J. Koning
Executive Vice President
Macatawa Bank

Comment: I am writing to encourage and support financial assistance to the Compact Power, Inc. project in Holland, Michigan. This project will have a positive impact on our community. The Holland area has suffered under significant unemployment and financial stress which has had a negative economic, environmental, and social impact on our area. Individuals without jobs have difficulty maintaining their homes, commercial and industrial buildings stand empty and begin to deteriorate when not used and maintain, and the social and emotional toll on families under these stresses are evident everywhere. This project will create jobs, increase economic activity and investment, and provide a positive impact to the entire area.

Also, this project will have the positive effect of reducing our country's dependence on foreign oil. Using batteries to power our cars instead of carbon fuels will have a positive environmental impact by reducing auto carbon emissions. From both an economic and energy policy standpoint, projects such as this one deserve our government's full support. Holland needs this project and I would support the approval of any financial and regulatory assistance by the United States Department of Energy that would get this project going as soon as possible.

Lakeshore Advantage
Randy Thelen, President

Comment: Lakeshore Advantage supports the CPI project because of the direct and indirect positive economic impacts (private investments & new job creation) that will be associated with the implementation of this project. CPI is an industry that can benefit from the skills and talents of our area's workforce. Lakeshore Advantage supports the project site because it is adjacent to existing industrial development; the close proximity of available public infrastructure; the development will be regulated through the permitting process; and the resulting environmental impacts can be mitigated.

Sara Leeland, PhD (focus in ethics)

Comment: As a Holland citizen concerned about the need to lower CO2 emissions from our coal-fired power plant, I think:

1. Holland does have a capable workforce that needs jobs. The battery plant is a plus for the jobs.
2. By encouraging electric car use, the technology is also an environmental positive.

3. To also encourage lower CO2 emissions in Holland, please consider the need to recommend that Holland's BPW will establish:

A. A rate-charge that will encourage charging electric batteries at night, especially in summer when peak electricity use drives up the amount of power HBPW needs to produce.

B. The use of Holland's already-in-place natural gas fired turbines to produce electricity for making electric batteries; thus avoiding need to build larger coal-fired plant than now in place.

C. Consultation with Michigan DEQ on point B. The DEQ is considering 'need' as a factor in a permit that would allow a double-sized coal-fired plant in Holland.

These latter two points are essential if the electric-battery support is not to conflict with the need to lower use of coal-fired electricity.

Response: Negotiation of power rate schedules to encourage nighttime charging of batteries is not within the scope of DOE's Proposed Action of providing financial assistance to CPI.

It is recognized that Holland BPW has some flexibility in the fuel sources used in its power generating plants. However, BPW is already required to operate within existing air emission permits and it is not within DOE's purview or within the scope of CPI's proposed project to direct how BPW runs its facilities and whether it should change from its current fuel source. BPW undoubtedly makes decisions on operating its power plants based on economics and best providing its customers with reliable power. As noted in the EA, BPW normally generates less power than required by its customers and relies on power from the regional grid to make up the remainder. It is also recognized that the Holland BPW is considering expanding its power production capabilities through new or replacement facilities and that this has been a planning consideration that pre-dates the proposed CPI action. Again, these are actions outside the scope of the activities addressed by this EA. DOE's analysis indicates that the CPI action would not have a significant effect on the capacity of the regional electrical grid to provide power and that the power requirements of the proposed CPI facility would be a tipping point for whether BPW "needs" additional power generating capacity.

Ottawa County Economic Development Office, Inc.
Kenneth J. Rizzio, Executive Director

Comment: OCEDO supports the CPI project because of the direct and indirect positive economic impacts (private investments & new job creation) that will be associated with the implementation of this project. CPI is an industry that can benefit from the skills and talents of our area's workforce. OCEDO supports the project site because it is adjacent to existing industrial development; the close proximity of available public infrastructure; the development will be regulated through the permitting process; and the resulting environmental impacts can be mitigated.

Southeast Michigan Council of Governments

Comment: Acknowledged receipt of the EA and stated additional time was needed for review.

E. John Trimberger

Comment: Please consider that Michigan has many vacant auto plants that could house the LG Chem battery plant without developing additional land, most likely prime agricultural land. All of those plants, including some in Grand Rapids, are closer to existing auto plants in the Lansing, Detroit and Flint than the proposed plant in Holland. Locating the proposed plant in an existing vacant facility closer to the auto plants would also result in considerable savings in transportation for fuel as well as wear and tear on roads, bridges, etc. and traffic. I would also suggest that politics should not be a part of the decision on location of the plant.

Response: DOE appreciates your concern for re-using existing facilities; site selection was the business choice of CPI, a private enterprise.

Jennifer B. Van Regenmorter
Siebers Mohney Attorneys

Comment: I strongly support this project and urge DOE to provide the $151 million in financial assistance in a cost-sharing arrangement with Compact Power. As an attorney, employer, and local business owner, I have seen first hand the devastating effects of the economic crisis within the State of Michigan and on its people, families, and businesses. Land is available for the Project in Holland, and the Holland area has a strong manufacturing background. Holland is also known for its strong talent in engineering and innovation. We also have many unemployed citizens who would welcome the opportunity for employment at a new local facility.

2. DOE PROPOSED ACTION AND ALTERNATIVES

This chapter describes DOE's Proposed Action (Section 2.1), CPI's proposed project (Section 2.2), the No-Action Alternative (Section 2.3), and the bases for not considering other alternatives (Section 2.4).

2.1 DOE's Proposed Action

DOE's Proposed Action is to provide a grant to partially fund expanded manufacturing of advanced lead-acid batteries at the proposed CPI facility in Holland, Michigan. DOE would award a Recovery Act grant to provide $151 million in financial assistance in a cost-sharing arrangement with CPI. The total cost of the proposed project is estimated to be $303 million.

2.2 CPI's Proposed Project

CPI's proposed project is to construct and operate an approximately 850,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production extended range electric vehicle or plug-in hybrid electric vehicle in the United States. The proposed project would provide a foundation for the emergence, growth, and success of extended range electric vehicles in the U.S. automobile market.

The site selected by CPI for the manufacturing facility is mostly located in the City of Holland, Allegan County, Michigan, with a small portion of the proposed project site located in the adjacent Fillmore Township. The 80-acre site is located northeast of the intersection of South Waverly Road and East 48th Street (Figure 2-1). Approximately half of the 80 acres would be used to construct and operate a two-story, 850,000 square-foot manufacturing facility. The proposed project includes construction of a building for manufacturing and office spaces, a detached storage building, a safety validation building, paved surface parking lots, above ground storage tank(s), a storm water detention pond, and one or two private access road(s). The City of Holland plans to widen the existing public road on frontage of the site (East 48th Street) from the existing two lanes to three lanes with curbs and gutters and possibly a turning lane. No demolition of existing structures is required. Figure 2-2 shows a proposed site layout.

The facility would make battery cells to supply General Motors for assembly into battery packs and full battery systems. More than 250 battery cells are required for each system. Construction would proceed in two phases. The first phase would involve construction of 580,000 square feet of space for assembly of the lithium-ion polymer cells and to install electrode-manufacturing capability for integrated production. The second phase would entail construction of the additional 260,000 square feet to add assembly lines to meet required customer volume. When in full production, the facility would create more than 450 jobs and would produce over 18

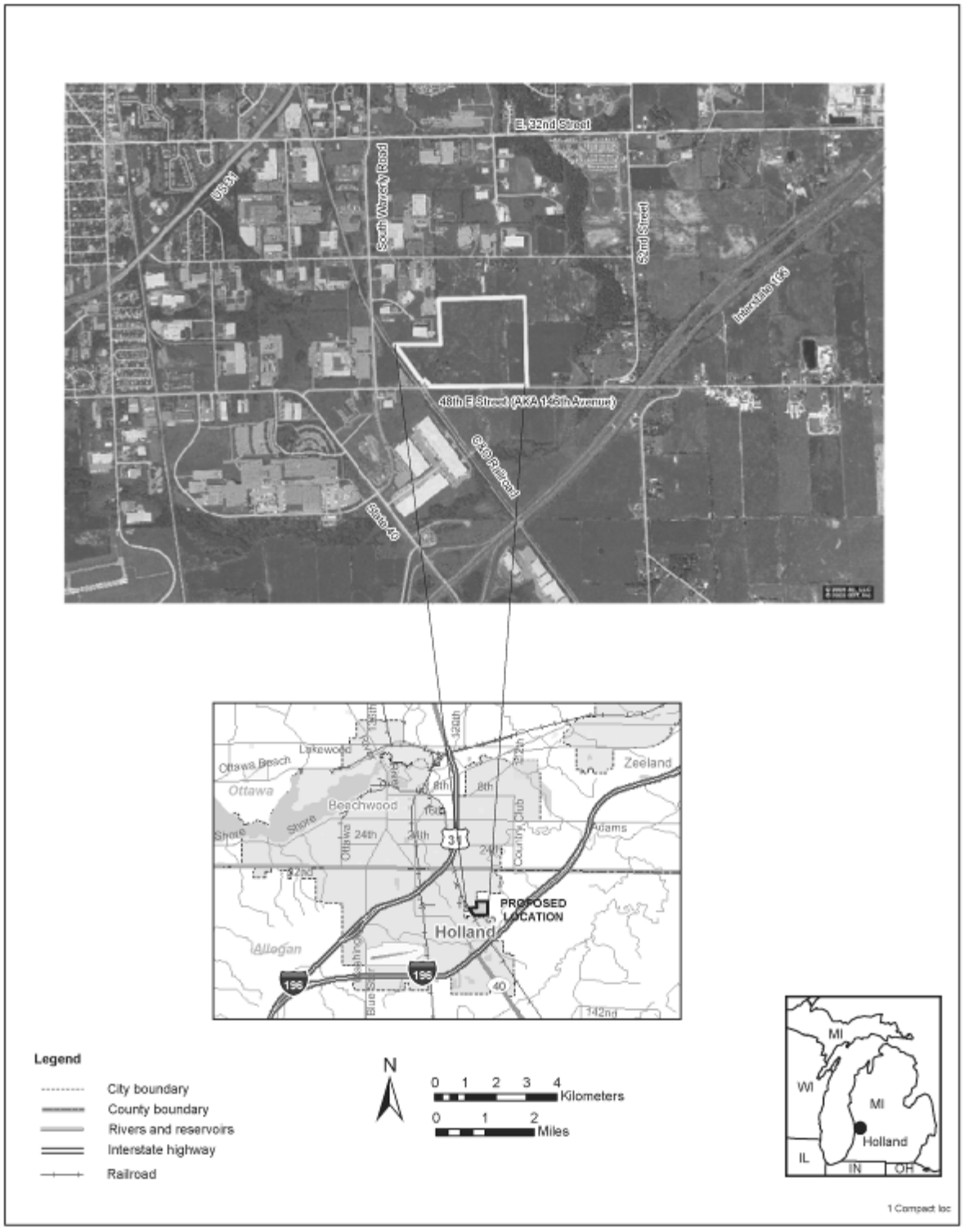

Figure 2-1. Project location -- Holland, Michigan

Figure 2-2. Proposed site plan – Compact Power, Inc. Lithium-Ion Battery Manufacturing Facility, Holland, Michigan

million battery cells (3.75 Volt, 15 Ampere-hour) annually. The new facility would start assembly operations in 2012, and CPI would expand production capability through 2013 with the addition of more assembly lines.

CPI completed the design, development, and qualification of its lithium-ion polymer battery cell for use in the Chevy Volt. This cell features a spinel ($LiMn_2O_4$)-based mixed oxide cathode including a proprietary layered compound, the Safety Reinforcing Separator proprietary separator and laminated packaging, and demonstrates state-of-the-art performance, life and abuse-tolerance.

The cell manufacturing process is highly automated and consists of three main operations, including Electrode Manufacturing; Cell Assembly; and Formation and Grading. A general version of this highly automated production process is described below and shown in Figure 2-3.

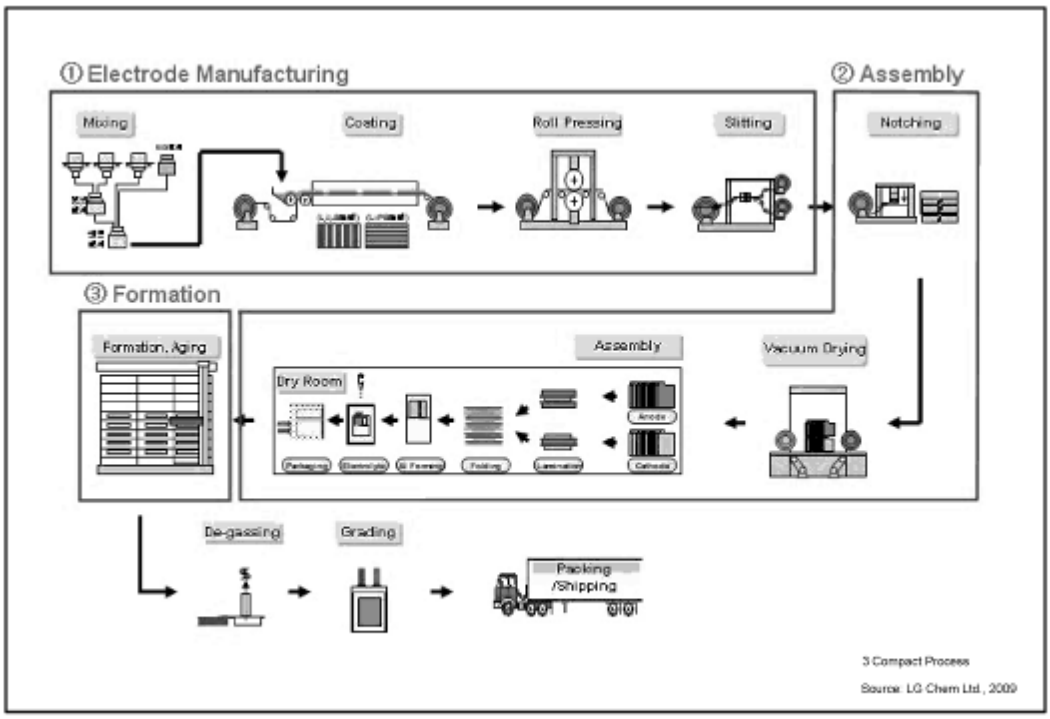

Figure 2-3. Flowchart of proposed manufacturing process (generalized).

- Electrode Manufacturing: The steps in the electrode manufacturing process include mixing of raw materials in a solvent to form a slurry, coating this slurry on a foil and stripping off the solvent, followed by roll pressing and then slitting of the electrode.

- Cell Assembly: The assembly process involves notching of the electrode to the desired size, vacuum drying, and then placing the anode, the cathode, and the separator in the dry room followed by lamination under heat and pressure to form a so-called bicell. The bicells are then assembled using the proprietary stack-and-fold process. After ultrasonically welding the

tabs, the electrode assembly is placed in the "formed" laminated packaging, filled with the appropriate amount of electrolyte and then the cell is assembled.

- Formation and Grading: The formation steps involve charging of the cells followed by an aging process for a certain period of time. Thereafter, the cells are de-gassed, graded, and are ready to be shipped.

Two toxic chemicals common to battery manufacturing would be used in the production process and stored at the CPI facility include N-methylpyrrolidone (NMP) and a lithium hexafluorophosphate ($LiPF_6$)-based electrolyte. NMP is a liquid solvent that would be used in the manufacturing process and would also be used to periodically flush out process lines and for other cleaning purposes. CPI may store NMP on site in an above ground storage tank. $LiPF_6$ is an inorganic chemical compound in the form of a white crystalline powder that would be dissolved in a solvent and used as an electrolyte in the lithium batteries. CPI could store $LiPF_6$ in an above ground storage tank or in 55-gallon drums.

N-METHYLPYRROLIDONE (NMP)

NMP is a water-miscible organic solvent widely used in the petrochemical industry, in fabricating microelectronics, and in manufacturing of compounds such as pigments, cosmetics, pesticides, floor cleaners, and paint removers. NMP increasingly is used as a substitute for chlorinated hydrocarbons that are more toxic to the environment and human health.

NMP has low acute toxicity, is potentially irritating to the skin and eyes, and at high aerosol concentrations can cause respiratory tract irritation. It is readily absorbed through the skin and along with inhalation represents the primary exposure routes for humans. As with other organic solvents, breathing excessive amounts of NMP can affect the brain and result in temporary headaches, nausea, dizziness, clumsiness, drowsiness and other effects similar to being drunk. Testing on animals has not shown a link to cancer that can be related to human exposures. However, NMP has been shown to cause effects, such as delayed growth, to offspring of animals exposed during pregnancy. As a result of these types of test results, the State of California has identified NMP as a reproductive toxin and has established maximum allowable dose levels of 17,000 and 3,200 micrograms per day for dermal contact and inhalation exposures, respectively. Products that could result in daily exposures exceeding these levels must carry an appropriate label under California law.

LITHIUM HEXAFLUOROPHOSPHATE ($LiPF_6$)

$LiPF_6$ is a white crystalline powder that hydrolyzes readily in contact with water or moisture. It is very destructive to mucous membranes. $LiPF_6$ is harmful if swallowed, inhaled, or absorbed through skin and causes burns through all exposure routes. $LiPF_6$ is considered corrosive and can be dissolved in some organic solvents for use as an electrolyte in lithium batteries. Only the liquid electrolyte ($LiPF_6$ dissolved in a solvent) would be managed at the CPI facility.

2.3 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funds to the proposed project. As a result, this project would be delayed as CPI looks for other funding sources to meet its need, or abandoned if other funding sources could not be obtained. Furthermore, acceleration of the development and production of various electric drive vehicle systems would not occur or would be delayed. DOE's ability to achieve its objectives under the Vehicle Technologies Program and the Recovery Act would potentially be impaired.

Although this and other selected projects might proceed if DOE decided not to provide financial assistance, DOE assumes for purposes of this EA that the project would not proceed without DOE assistance. If projects did proceed without DOE's financial assistance, the potential impacts would be essentially identical to those under DOE's action alternative (that is, providing assistance that allows the project to proceed). In order to allow a comparison between the potential impacts of a project as implemented and the impacts of not proceeding with a project, DOE assumes that if it decided to withhold assistance from this project, the project would not proceed.

2.4 DOE Alternative Actions

DOE's alternatives to this project consist of the 45 technically acceptable applications received in response to the funding opportunity announcement, *Recovery Act – Electric Drive Vehicle Battery and Component Manufacturing Initiative*. Prior to selection, DOE made preliminary determinations regarding the level of review required by NEPA based on potentially significant impacts identified in reviews of acceptable applications. DOE conducted these preliminary environmental reviews pursuant to 10 CFR 1021.216 and a variance to certain requirements in that regulation granted by the Department's General Counsel (74 *Federal Register* 30558; June 26, 2009). These preliminary NEPA determinations and reviews were provided to the selecting official, who considered them during the selection process.

Because DOE's Proposed Action is limited to providing financial assistance in cost-sharing arrangements to projects submitted by applicants in response to a competitive funding opportunity, DOE's decision is limited to either accepting or rejecting the selected projects as proposed by the proponents, including their proposed technologies and selected sites. DOE's consideration of reasonable alternatives is therefore limited to the technically acceptable applications and a No-Action Alternative for each selected project.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The site selected by CPI for the manufacturing facility is mostly located in the City of Holland, Allegan County, Michigan, with a small portion of the proposed project site located in the adjacent Fillmore Township. Holland is a city in the western region of the Lower Peninsula of the U.S. state of Michigan. It is situated near the eastern shore of Lake Michigan on Lake Macatawa, which is fed by the Macatawa River (also known locally as the Black River). The city spans the Ottawa/Allegan county line, with 9.08 square miles in Ottawa and the remaining 8.13 square miles in Allegan.

In this chapter, DOE assesses the following resources: land use; air quality; noise; aesthetics and visual resources; geology and soils; water resources; biological resources; cultural resources; socioeconomics; environmental justice; occupational health and safety; utilities, energy, and materials; waste; and transportation. The "environmental baseline" for each of these resource areas is described first, followed by an assessment of the potential impacts of the proposed project and No-Action Alternative.

3.1 Land Use

3.1.1 AFFECTED ENVIRONMENT

This section describes existing land use conditions on and surrounding the proposed project site. The project would be located on 80 acres northeast of the intersection of South Waverly Road and East 48th Street (Figure 2-1). The site is currently agricultural land with no existing structures (Atwell-Hicks 2009a). It is surrounded by the CSX rail line to the west, agricultural land to the north and east, and 48th Street (146th Avenue) to the south. The surrounding area includes a sizable industrial park, including neighboring firms such as Haworth, Tiara Yachts, Sherwin Williams, USF Holland, Global Sourcing Solutions, and various industrial warehouse buildings (Figure 2-1).

The majority of the proposed project site is part of an area that was annexed in 2003 by the City of Holland from Fillmore Township. The City of Holland Master Plan Update South End Area identifies the project site's planned land use as Industrial Park and the area to the south of 48th Street as General Industrial (City of Holland Planning Commission 2005). The eastern 11 acres of the project site remain part of Fillmore Township. The portion of the site in the City is zoned I-2 (Industrial Park) for industrial use. The portion of the site in Fillmore Township is zoned R-1 (Residential). The closest residence is located approximately 50 feet from the southern border of the site across East 48th Street (146th Avenue). Another residence, located on the south side of East 40th Street (147th Avenue), is approximately 500 feet from the northern property boundary.

3.1.2 ENVIRONMENTAL CONSEQUENCES

3.1.2.1 Proposed Project

The proposed project site is located where development meets rural land, and implementation of the proposed project would convert the land use of the proposed project site from agricultural use to industrial use. However, the majority of the proposed project site is planned and zoned for industrial use, and the facility would not conflict with zoning or the City of Holland Master Plan (City of Holland Planning Commission 2005). The portion the project site in Fillmore Township (eastern 11 acres of the site) is zoned Residential and a change in zoning would be required. Fillmore Township and the City of Holland are working together to change the zoning to I-2 (Industrial Park) to be compatible with the facility (Potter 2009). The facility would occupy approximately half of the 80-acre site, with the remaining acreage remaining in its natural state. The site plan is shown in Figure 2-2. The facility would not interfere with existing activities on adjacent land. Therefore, no adverse impacts to land use would occur.

3.1.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No changes to land use would occur.

3.2 Air Quality

3.2.1 AFFECTED ENVIRONMENT

This section describes the existing air quality conditions at and surrounding the project site. Ambient air quality conditions are discussed first, followed by a discussion of air quality conformity, and greenhouse gas emissions.

3.2.1.1 Ambient Air Quality Conditions

The ambient air quality in an area can be characterized in terms of whether it complies with the primary and secondary National Ambient Air Quality Standards (NAAQS). The *Clean Air Act* (42 U.S.C. 7401 et seq.) requires the U.S. Environmental Protection Agency (EPA) to set NAAQS for pollutants considered harmful to public health and the environment. National primary ambient air quality standards define levels of air quality which the EPA has determined as necessary to provide an adequate margin of safety to protect public health, including the health of "sensitive" populations such as children and the elderly. National secondary ambient air quality standards define levels of air quality deemed necessary to protect the public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. NAAQS have been established for six criteria pollutants: carbon monoxide (CO); lead (Pb); nitrogen dioxide (NO_2); ozone (O_3); particulate matter (which includes both particulate matter with an aerodynamic size less than or equal to 10 microns [PM_{10}] and less than or equal to 2.5 microns [$PM_{2.5}$]); and sulfur dioxide (SO_2). Table 3-1 lists the NAAQS primary and secondary standards for each criteria pollutant.

Table 3-1. National Ambient Air Quality Standards.

Pollutant	Primary Standards	Secondary Standards
Carbon monoxide (CO)		
8-hour average	9 ppm	None
1-hour average	35 ppm	None
Lead (Pb)		
Quarterly average	1.5 μg/m^3	Same as Primary
Nitrogen dioxide (NO_2)		
Annual arithmetic mean	0.053 ppm	Same as Primary
Ozone (O_3)		
8-hour average (2008 standard)	0.075 ppm	Same as Primary
Particulate matter less than 10 microns (PM_{10})		
24-hour average	150 μg/m^3	Same as Primary
Particulate matter less than 2.5 microns ($PM_{2.5}$)		
Annual arithmetic mean	15.0 μg/m^3	Same as Primary
24-hour average	35 μg/m^3	Same as Primary
Sulfur dioxide (SO_2)		
Annual arithmetic mean	0.03 ppm	None
24-hour average	0.14 ppm	None
3-hour average	None	0.5 ppm

Source: 40 CFR 50.4 through 50.13
μg/m^3 micrograms per cubic meter
ppm parts per million

Regions that are in compliance with the NAAQS are designated as attainment areas. A nonattainment status is designated for areas where the applicable NAAQS are not being met. A maintenance status is designated for areas that have had a history of nonattainment, but are now consistently meeting the NAAQS. Maintenance areas have been re-designated by the EPA from "nonattainment" to "attainment with a maintenance plan." Allegan County's air quality meets the NAAQS and is thus classified as being in attainment for the criteria pollutants CO, Pb, NO_2, $PM_{2.5,}$ PM_{10}, and SO_2. However, Allegan County is in nonattainment for 8-hour O_3 and has a proposed classification of "moderate" nonattainment (74 *Federal Register* 2936, January 16, 2009).

The proposed project site occurs in an area of Allegan County considered to have low potential for elevated indoor concentrations of radon gas. Radon is a radioactive gas that comes from the decay of uranium and radium, and exists in varying amounts in most soils. Because radon is a gas, it can move through soil and into the atmosphere or into a building structure. The EPA Map of Radon Zones assigns each of the counties in the United States into one of three zones based on radon potential. Allegan County in Michigan is assigned to Zone 3, with a predicted average indoor radon screening level less than 2 picocuries per liter (EPA 2009a). Zone 3 is considered to have the lowest potential for radon.

3.2.1.2 Air Quality Conformity

Section 176(c)(1) of the *Clean Air Act* requires federal agencies to ensure that their actions conform to applicable implementation plans for the achievement and maintenance of the NAAQS for criteria pollutants. To achieve conformity, a federal action must not contribute to new violations of standards for ambient air quality, increase the frequency or severity of existing violations, or delay timely attainment of standards in the area of concern (for example, a state or a smaller air quality region). The EPA general conformity regulations (40 CFR 93, Subpart B) contain guidance for determination of whether a proposed federal action would cause emissions to be above certain levels in locations designated as nonattainment or maintenance areas.

The proposed project site in Allegan County, Michigan, is located in an area that has been designated as a nonattainment area for ozone (8-hour standard). Federal agencies prepare written Conformity Determinations for federal actions that are in or affect NAAQS nonattainment areas or maintenance areas when the total direct or indirect emissions of nonattainment pollutants (or their precursors in the case of ozone) exceed specified thresholds. Conformity with the EPA-approved state implementation plan is demonstrated if the project emissions fall below the threshold value *de minimus* emissions. The Michigan State Implementation Plan contains the regulations and other materials for meeting clean air standards and associated federal *Clean Air Act* requirements. The *Clean Air Act* conformity threshold values for Allegan County are 100 tons per year for the ozone precursor nitrogen oxides (NO_x) or 100 tons per year for the ozone precursor volatile organic compounds (EPA 2009b). The proposed project is not expected to produce emissions greater than the threshold *de minimus* values for these pollutants. The estimated annual NO_x emissions would be about 4.8 tons per year. The estimated annual emissions of volatile organic compounds would be minimal and therefore less than 100 tons per year (LG Chem Ltd. and CPI 2009a). As a result, the project falls into conformity with the EPA-approved Michigan State Implementation Plan and a written Conformity Determination is not required.

3.2.1.3 Greenhouse Gas Emissions

The burning of fossil fuels such as diesel and gasoline emits carbon dioxide, which is a greenhouse gas. Greenhouse gases can trap heat in the atmosphere and have been associated with global climate change. The Intergovernmental Panel on Climate Change, in its Fourth Assessment Report issued in 2007, stated that warming of the Earth's climate system is unequivocal, and that most of the observed increase in globally averaged temperatures since the mid-20th Century is very likely due to the observed increase in concentrations of greenhouse gases from human activities (IPCC 2007). Greenhouse gases are well mixed throughout the lower atmosphere, such that any anthropogenic emissions would add to cumulative regional carbon dioxide emissions and to global concentrations of carbon dioxide. The effects from any individual source of greenhouse gases therefore cannot be determined.

3.2.2 ENVIRONMENTAL CONSEQUENCES

3.2.2.1 Proposed Project

Potential impacts to air quality from construction and operation of the proposed facility would not be significant. Using lithium-ion batteries from the CPI facility in electric vehicles is expected to result in significant reductions in carbon dioxide generated across the nation; and thus, a significant beneficial impact to air quality could be realized from decreased greenhouse gas emissions. Emissions of greenhouse gases from the energy required to operate the proposed facility should be offset by the reduction of gasoline consumption by electric and hybrid-electric vehicles using batteries produced at the facility.

Short-term air quality impacts would occur from construction activities associated with the movement of heavy equipment. Construction activities would be temporary and would occur in a localized area. Air emissions generated from construction would include particulate matter, vehicle emissions, and increased wind-borne dust (i.e. fugitive dust). Best management practices would be implemented for erosion control and fugitive dust mitigation. Vehicular and construction equipment exhaust would be a source of pollutant emissions, but would have a negligible impact on air quality. The emissions from construction activities and workers traveling to and from the site would be minor compared to the total existing vehicular emissions in the area.

Because Allegan County is in an attainment area for the criteria pollutants CO, Pb, NO_2, $PM_{2.5,}$ PM_{10}, and SO_2, long-term impacts associated with operation of the proposed facility are not likely to occur from the small emissions increase of those pollutants. CPI estimates the facility would emit 4.83 tons of NO_x, 0.42 tons of CO, and 3.61 tons of dust annually (LG Chem Ltd. and CPI 2009a). CPI would obtain all necessary air permits from the Michigan Department of Environmental Quality. These permits would include an air permit review, a permit to install, a pollution tax exemption, and a renewable operating permit to comply with Title V of the federal *Clean Air Act*, if required. The proposed facility would have the potential to emit organic solvent vapors and other volatile organic compounds. However, the facility would employ emission reduction controls. For example, the facility would condense, recover, refine, and then recycle NMP as part of its process. The recovery and recycling system would result in a 98 percent reuse rate of the NMP and would generate only very minor air emissions because the 4 tons per year of the waste that could no longer be reused would be liquidized and disposed of as a liquid (Eun 2009). As described in Section 3.2.1.2 of this EA, the quantities of the ozone precursors nitrogen oxide (NO_x) and volatile organic compounds would not be large enough to significantly increase ozone.

3.2.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No temporary air quality impacts, including particulate matter, vehicle emissions, and increased wind-borne dust, would occur due to construction and no new air emission sources

would occur. The potential beneficial impact of long-term reduction of carbon dioxide gases nationwide would also not be realized.

3.3 Noise

3.3.1 AFFECTED ENVIRONMENT

This section describes the existing noise conditions in the area of the project site. The project site is located in an area with substantial industrial development. The surrounding area includes neighboring firms such as Haworth, Tiara Yachts, Sherwin Williams, USF Holland, Global Sourcing Solutions, and various industrial warehouse buildings. The site is bordered by East 48th Street to the south, CSX railroad to the west, and agricultural land to the north and east. No data exist for ambient noise in the area. Sources of noise at the proposed project site include traffic and rail noise. Noise from farming the surrounding agricultural land is another potential source of noise at the site.

3.3.2 ENVIRONMENTAL CONSEQUENCES

3.3.2.1 Proposed Project

Potential noise impacts would not be significant. Minor adverse short-term noise impacts related to the construction of the facility would occur. One residence at the southeastern boundary of the site on the south side of East 48th Street would be subject to minor, short-term adverse impacts from noise generated during the construction of the proposed facility. Noise would be generated from large machinery such as bulldozers, graders, excavators, dump trucks, and cement trucks as well as from smaller tools such as jack hammers and nail guns. This type of construction equipment generates noise levels of about 85 dBA at 50 feet (Hanson et al. 2006). Noise and sound levels would be typical of new construction activities and would be intermittent. Effects of construction noise would be reduced by employing best management practices, such as confining construction activities to normal working hours and employing noise-controlled construction equipment to the extent possible. Traffic noise from an estimated 550 construction workers would also occur.

Once the facility becomes operational, adverse long-term noise effects would not be expected from its day-to-day use. Industrial processes performed at the facility would not present noise hazards or annoyances for the public (that is, would not add to ambient noise levels). Traffic noise from commuting workers as well as trucks for receiving and shipping materials would occur. An October 2009 traffic count indicated that there were 1,809 average daily trips on East 48th Street east of Waverly Road (Eun 2009). CPI estimates there would be 450 workers and 25 trucks daily at full capacity, which would represent a 25 percent increase in traffic. Facility workers would work in three shifts, thus the resulting traffic noise would be spread over a 24-hour period. The residence on East 48th Street would experience additional traffic noise from the commuters and trucks. This increase in traffic noise would not be considered significant, because the magnitude of the noise would not increase substantially over ambient conditions and

the road is located in an industrial/commercial use area. Section 3.14 discusses existing transportation infrastructure and potential impacts to transportation.

3.3.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be constructed or operated. No new sources of noise at the proposed project site would occur.

3.4 Aesthetics and Visual Resources

3.4.1 AFFECTED ENVIRONMENT

This section describes the existing aesthetic and visual resource conditions in the area of the proposed project site. Visual resources include natural and manmade physical features that provide the landscape its character and value as an environmental resource.

The proposed project site is located in the far southeast section of the City of Holland where development meets rural land. The project site is currently used as agricultural land but the majority of the site is zoned and planned for industrial use. The surrounding area is industrial to the west and northwest and agricultural to the east, north, and south (Figure 2-1). Views to the west include the CSX rail line, SEMCO gas pipeline, and power lines. Views to the northwest include a manufacturing facility and semi-trucks in a fenced parking lot. Views to the north and east are of agricultural land. Views to the south include East 48th Street and agricultural land beyond. Two residences are visible from the site, one to the southeast on the south side of East 48th Street and the other to the north, located on the south side of East 40th.

3.4.2 ENVIRONMENTAL CONSEQUENCES

3.4.2.1 Proposed Project

Potential impacts to aesthetics and visual resources would not be significant. The proposed project site is surrounded by industrial development and agricultural land most of which is zoned and planned for industrial use. The proposed project would cause minor short-term visual impacts resulting from ground disturbance and the presence of workers, vehicles, and equipment and the generation of dust and vehicle exhaust associated with construction of the proposed facility. CPI estimates the construction period would last 26 months. Once construction is complete, the reclamation of disturbed areas would remove these visual impacts.

Construction of the facility would result in some long-term visual impacts to the site, most notably, the conversion of open, agricultural land to industrial/manufacturing use. In addition, CPI would reduce the amount of non-agricultural vegetation on the site with the removal of several of the tree species along the northern border and the interior of the property. However, the new facility would appear similar to the surrounding developed areas. The facility would be a modern, well-landscaped two-story, 850,000 square-foot manufacturing building. Landscaping

would include trees surrounding the project site on all sides for screening purposes. A berm would also be constructed along East 48th Street with streetscape planting of a tree every 30 feet. Low shrubs with intermittent deciduous and evergreen trees would provide screening of the parking lot. Foundation planting of mid-height shrubs with intermittent deciduous and evergreen trees would decrease the visual impacts of the building.

Operations at the facility would result in minor adverse aesthetic impacts, including increased traffic and nighttime light. The expected number of workers is approximately 450. CPI plans to install twenty 400-watt night lights surrounding the facility.

3.4.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built or operated. No changes to aesthetics or visual resources would occur.

3.5 Geology and Soils

3.5.1 AFFECTED ENVIRONMENT

This section describes the existing geology and soil conditions in the area of the proposed project site. Geologic and topographic conditions are discussed first, followed by soils, and prime farmland.

3.5.1.1 Geologic and Topographic Conditions

The project site is relatively flat but tends to slope to the southeast towards the North Branch of the Macatawa River. The topography and sandy soils of the site contribute to a drainage pattern that follows this southeast slope (Atwell-Hicks 2009b). The elevation of the site ranges from about 714 to 665 feet above mean sea level (Atwell-Hicks 2009c). The buried bedrock at the site is composed of Mississippian shale and secondary deposits of limestone that are overlain by Pleistocene glacial till.

Historical data of seismic activity indicate that damaging earthquakes in Michigan are rare. The first significant earthquakes felt in Michigan occurred in 1811 and 1812 and were from a series of shocks centered near New Madrid, Missouri. As many as nine tremors from the New Madrid earthquake series were reportedly felt in Detroit, approximately 180 miles east of Holland. Between 1872 and 1883 a number of moderate earthquakes were centered within Michigan. On February 6, 1872, three shocks lasting 30 seconds were reported near Wenona (modern day Bay City on Lake Huron); on August 17, 1877, a minor earthquake occurred near Detroit that frightened horses; and on February 4, 1883, an earthquake cracked windows and shook buildings in Kalamazoo, approximately 35 miles southeast of Holland. The most recent damaging earthquake centered within Michigan occurred on August 9, 1947. It was felt over a large area in south-central Michigan, cracked plaster and damaged chimneys, and affected a total area of about 50,000 square miles (USGS 2009).

3.5.1.2 Soils

The proposed project site is covered by soils represented by five mapping units. The Blount silt loam (1 to 4 percent slopes) covers approximately 48 percent of the site and is located primarily in the central and eastern portion of the site. This unit is characterized by somewhat poor drainage, a profile changing from silt loam at the surface to a silty clay loam at depth, a maximum calcium carbonate content of 30 percent, and no frequency for ponding or flooding (USDA NRCS 2009). The Corunna sandy loam covers approximately 27 percent of the site and occurs primarily in the central and eastern portions of the site. The unit is characterized by poor drainage, a profile changing from loamy sand at the surface to clay loam at depth, a maximum calcium carbonate content of 30 percent, a frequency for ponding, but no frequency for flooding. The Rimer loamy sand (0 to 4 percent slopes) covers approximately 25 percent of the site and is located in the southwestern portion of the site. The unit is characterized by somewhat poor drainage, a profile changing from loamy sand at the surface to a silty clay loam at depth, and no frequency for ponding or flooding. Both the Capac-Wixom complex (1 to 4 percent slopes) and the Granby loamy sand cover less than one percent of the site and are located along the western boundary of the site (USDA NRCS 2009).

3.5.1.3 Prime Farmland

Prime farmland is land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Prime farmland could be cultivated land, pasture land, forest land, or other land, but it is not urban or built-up land or water areas (USDA NRCS 2009). Of the approximately 80 acres considered for the proposed site, approximately 76 percent is considered prime farmland if drained (USDA NRCS 2009). The remaining 24 percent is considered to be farmland of local importance. Prime farmland and farmland of local importance are covered by the Farmland Protection Policy Act (7 CFR Parts 657 and 658).

3.5.2 ENVIRONMENTAL CONSEQUENCES

3.5.2.1 Proposed Project

Potential impacts to geology and soils from the construction and operation of the proposed facility would not be significant. The site is in an area that is not normally impacted by seismic events and should not be affected by local geological hazards. However, risk from earthquakes that may result in damage should not be ignored. In order to avoid risks to buildings associated with earthquakes, the State of Michigan has adopted the International Building Code, 2006 Edition. The proposed facility would be constructed in accordance with the seismic requirements identified in the International Building Code.

The construction of the proposed facility would involve excavation, grading, and movement of heavy equipment at the proposed site. These activities would disturb the surface soil, thereby increasing the potential for soil erosion by wind and runoff. Wind and water erosion of soil

would be lessened by implementing best management practices such as using hay bales and silt fencing, as appropriate, to prevent the movement of soils into low-lying areas. Once the facility is operational and new vegetation is in place, additional erosion of topsoil would be minimal and would be limited or mitigated through adherence to a storm water management plan.

The total site improvements associated with the facility, including all phases, would cause about half of the site to be covered by impervious surfaces such as buildings, roads, and parking lots. The effect of this on regional infiltration in the vicinity of the site would not be significant because of the remaining open space near the facility and the creation of a storm water detention pond that would aid infiltration.

About 40 acres of "prime farmland if drained" and "farmland of local importance" would be converted to industrial use, consistent with the City of Holland's zoning and Master Plan. This farmland is protected under the Farmland Protection Policy Act. Preliminary evaluation using the U.S. Department of Agriculture's Farmland Conversion Impact Rating Form indicates the value of this farmland is low, based on zoning, the size of the farmland, and other factors. On December 2, 2009, DOE sent a letter to the Natural Resources Conservation Service to initiate consultation regarding loss of this farmland. DOE's letter and the Farmland Conversion Impact Rating Form are provided in Appendix B. On January 5, 2010, the Natural Resources Conservation Service emailed a Farmland Conversion Impact Rating Form that it completed for the proposed project site. Due to area zoning and the small size of the parcel, the project site scored low in relative value of farmland. Copies of this form and the Natural Resources Conservation Service's email are included in Appendix B. On January 8, 2010, DOE sent the Natural Resources Conservation Service a copy of the Draft EA. No comments were received from the Natural Resources Conservation Service.

3.5.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built or operated. No impacts to geology or soils would occur.

3.6 Water Resources

3.6.1 AFFECTED ENVIRONMENT

This section describes the existing water resources on and in the area of the project site. Surface water includes lakes, rivers, and streams while groundwater comprises the subsurface hydrogeologic resources of the physical environment. Wetlands and floodplains are also discussed.

3.6.1.1 Surface Water

The proposed project site is located within the drainage area or watershed of the North Branch of the Macatawa River. Based on the applicable U.S. Geological Survey 30 by 60 Minute Series

topographic map (that is, the map titled Holland, Michigan), the North Branch starts only 5 to 6 miles to the southwest of the project site and joins the Macatawa River just over 2 miles to the northeast of the project site. However, the total length of the North Branch with all its meandering is identified as about 31 miles (MDEQ 2008a). The Macatawa River then flows to the west-northwest into Lake Macatawa on the north side of the City of Holland. The watershed of the North Branch is part of the larger watershed designated the Black-Macatawa hydrologic unit and assigned the hydrologic unit code of 04050002 under the U.S. Geological Survey's hierarchy of cataloging units. Within the larger unit, the North Branch of the Macatawa River is designated hydrologic unit code 040500020404. These numbers are used in many of the records of these surface waters and associated watersheds.

As required under Section 305(b) of the *Clean Water Act*, Michigan assessed the quality of its surface waters and developed a list of waters that do not support their designated uses or attain water quality standards. Table 3-2 presents a summary of the latest Michigan water quality and designated use information for the surface waters associated with the proposed project site. The table addresses the North Branch of the Macatawa River, the section of the Macatawa River between that junction point and Lake Macatawa, and finally, Lake Macatawa in the area of Holland.

As can be seen in Table 3-2, the rivers in the project area support designated uses of navigation, industrial water supply, and agriculture. However, other potential uses are either not assessed (due to lack of data) or are not supported. The high phosphorus and sediment problems that cause several of the designated uses to be not supported are typical of runoff from agricultural activities and such activity is heavy in the watershed outside of the city and community areas.

3.6.1.2 Groundwater

The proposed facility would involve no use of groundwater or discharges that could adversely affect groundwater. As described in Section 3.12, the CPI facility would obtain its water from the Holland water distribution system, which has Lake Michigan as its source (after treatment). Since there is no potential to impact groundwater, there is no basis for further discussion of groundwater as part of the affected environment.

3.6.1.3 Wetlands and Floodplains

3.6.1.3.1 *Wetlands*

DOE regulations at 10 CFR Part 1022, "*Compliance with Floodplain and Wetland Environmental Review Requirements*," implement the requirements of Executive Order 11990, "Protection of Wetlands." These regulations require, among other things, that the Department notify appropriate government agencies and interested parties of a proposed wetland action; conduct a wetlands assessment to evaluate the impacts of that action to wetlands in an EA or environmental impact statement; consider alternatives that would avoid or minimize impacts to

Table 3-2. Summary of Michigan water quality and designated uses for surface waters in the area of the project site.

	Use support (Cause for not supporting)		
Designated use	**North Branch Macatawa River (HUC 040500020404)**	**Lower Macatawa River (HUC 040500020406)**	**Lake Macatawa (vicinity of Holland, Park Township and Holland Township) (HUC 040500020408-01)**
Total body contact recreation	Not assessed[a]	Not assessed	Not assessed
Partial body contact recreation	Not assessed	Not assessed	Not assessed
Navigation	Fully supporting	Fully supporting	Fully supporting
Industrial water supply	Fully supporting	Fully supporting	Fully supporting
Agriculture	Fully supporting	Fully supporting	Fully supporting
Warm water fishery	Not supporting (sedimentation/siltation)	Not supporting (sedimentation/siltation)	Not assessed
Other indigenous aquatic life and wildlife	Not supporting (phosphorus – total) (sedimentation/siltation)	Not supporting (phosphorus – total) (sedimentation/siltation)	Not assessed
Cold water fishery	Not assessed	Not assessed	Not assessed
Fish consumption	Not assessed	Not assessed	Not supporting (mercury in fish tissue) (polychlorinated biphenyls in fish tissue)

Source: MDEQ 2008a

a. "Not assessed" indicates there was no data available to assess whether this designated use could be supported.

HUC = hydrologic unit code

wetlands; design or modify the action to minimize potential harm to wetlands; and allow for public review and comment of the analysis. The analysis in this EA meets the requirements of 10 CFR Part 1022 and Executive Order 11990.

Neither the National Wetland Inventory (USFWS 2009a) nor the Michigan Department of Environmental Quality Wetlands Viewer (MDEQ 2009a) identifies wetlands within the proposed project site. However, the Michigan Department of Environmental Quality Wetlands Viewer does identify areas of hydric soils within the property. Hydric soils are wet soils formed under sufficient periods of saturation, flooding, or ponding during the growing season to develop anaerobic (no available oxygen) conditions in the upper layers and are one of the criteria used for identification of wetlands.

CPI arranged for a wetland evaluation at the proposed project site by an independent contractor. The results from this effort, a wetland determination and delineation report (Atwell-Hicks 2009b), concluded that the site contained four wetland systems as shown in Figure 3-1. Wetland D was identified in the delineation report as being off-site, but the eastern boundary shown in Figure 3-1 should be roughly 300 feet further to the east to incorporate the entire project site. As a result, a portion of Wetland D is within the project site.

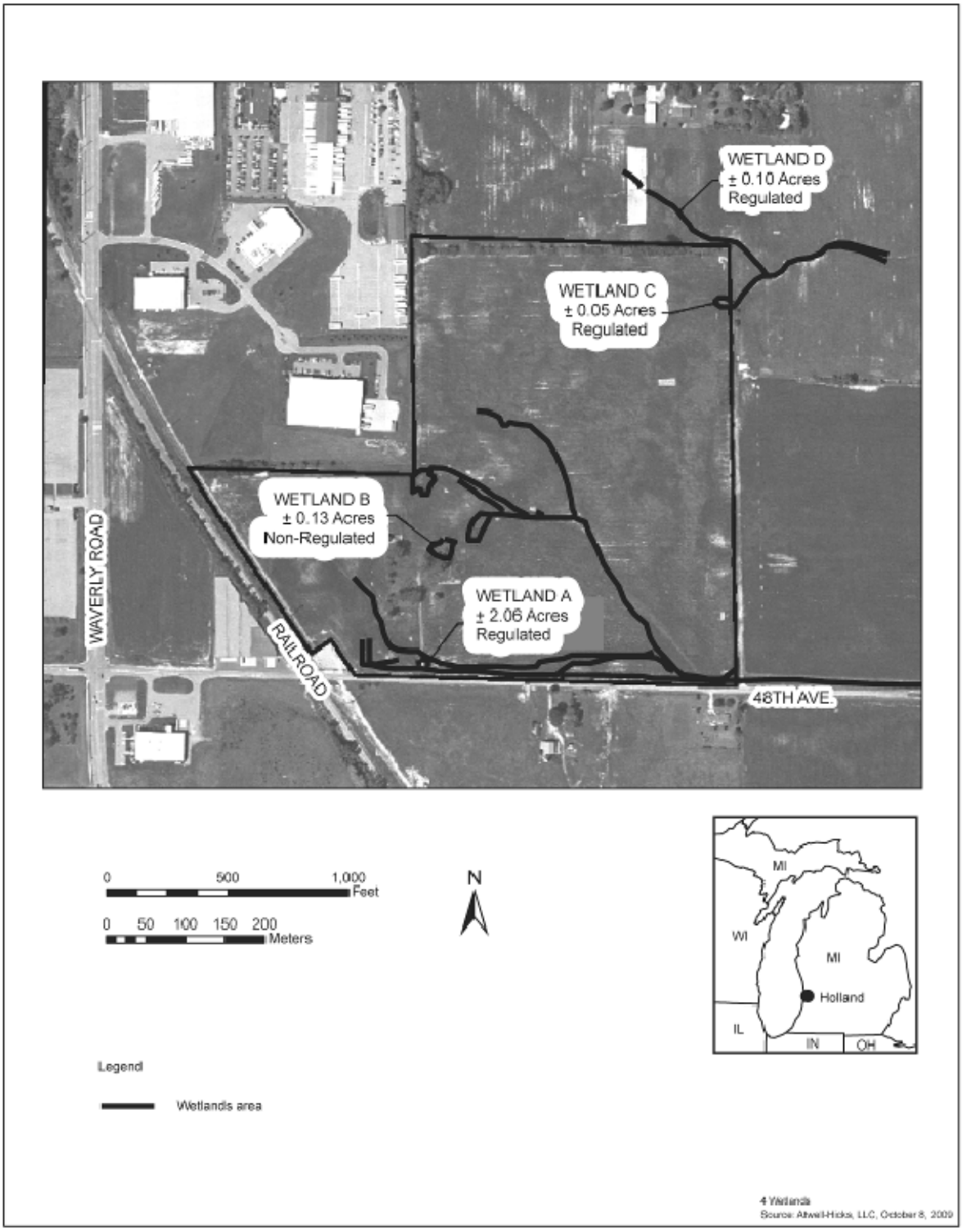

Figure 3-1. Wetlands at the proposed project site, Holland, Michigan

Wetland A consists of a 2.06 acre emergent wetland. The wetland extends through the subject property diagonally commencing from the southern portion of the property and extending to the north into the agricultural field. The wetland is considered very low quality due to highly intensive agricultural activities including plowing, fertilization/nutrient loading, and drainage practices. The continuous farming of the site has limited the establishment of wetland vegetation within portions of Wetland A. The wetland appears to receive hydrology from precipitation and runoff from adjacent upland. This wetland connects to the road side ditch which connects and outlets into the Macatawa River (North Branch) (Atwell 2010).

Wetland B consists of a small 0.13 acre isolated scrub-shrub wetland located in the central area of the property. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands (Atwell 2010).

Wetland C consists of a small emergent approximately 0.05 acre wetland in the northeast corner of the property. The wetland is considered very low quality due to highly intensive agricultural activities including plowing, fertilization/nutrient loading, and drainage practices. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands (Atwell 2010).

Wetland D consists of a 0.10 acre emergent wetland. The wetland extends across the northeastern corner of the subject property. The wetland is considered very low quality due to highly intensive agricultural activities including plowing, fertilization/nutrient loading, and drainage practices. The continuous farming of the site has limited the establishment of wetland vegetation within portions of Wetland D. The wetland appears to receive hydrology from precipitation and runoff from adjacent upland (Atwell 2010).

Wetlands A, C, and D are regulated by the Michigan Department of Natural Resources and Environment under Part 303, Wetlands Protection, of the *Michigan Natural Resources and Environmental Protection Act*, because they are connected with a regulated watercourse (i.e., the Macatawa River). Wetland B is an isolated wetland and is not regulated by the Michigan Department of Natural Resources and Environment (Atwell 2010). On January 28, 2010, CPI submitted a Part 303 Wetland Permit Application, which contains a compensatory mitigation proposal, to the Michigan Department of Natural Resources and Environment. The application and proposal are contained in Appendix C of this EA.

3.6.1.3.2 *Floodplains*

DOE was unable to find any evidence of flood evaluations that covered the proposed project site. Flood Insurance Rate Maps published by the U.S. Federal Emergency Management Agency show flood zone evaluations that cover most of the Holland, Michigan area. However, the map coverage stops at Waverly Road (shown as 120th Avenue on the U.S. Federal Emergency Management Agency map), which is the north-south road just to the west of the railroad tracks that border the southwest side of the project site (FEMA 2009). The flood map shows a small portion of land on the east side of Waverly Road as being included in the flood zone evaluation. This small portion of evaluated property is the built-up industrial area that borders the west side

of the project site. According to the flood map, all of these areas close to or immediately adjacent to the project site are designated "Zone X" meaning they are outside of the 500-year flood zone.

The proposed project site is closer to the North Branch of the Macatawa River than the described portion of Waverly Road, so there is potential that the flood zone associated with this surface water could extend for some distance toward the northwest and approach the project site. However, the portion of Waverly Road that is immediately to the south of East 48th Street is shown as being in Zone X and based on a topographic map appears to be at roughly the same elevation as the central part of the project site. Based on this information, it is unlikely that a flood zone associated with the North Branch of the Macatawa River would extend as far as the project site. This is consistent with the relatively small length of the river and the small size of the watershed that contributes to it. These physical characteristics would tend to reduce the magnitude of flooding in this area.

3.6.2 ENVIRONMENTAL CONSEQUENCES

3.6.2.1 Proposed Project

3.6.2.1.1 *Surface Water*

The proposed project would not significantly affect drainage and runoff from the proposed project site, which is currently an area of agricultural activity. Construction would be performed under terms required by a National Pollutant Discharge Elimination System permit for storm water discharge and as part of the permitting process CPI would be required to develop a storm water pollution prevention plan. The plan would provide detail on how storm water runoff would be managed so that the downgradient receiving stream would be protected. It is expected that storm water pollution prevention actions would include, as appropriate, measures such as silt fences, inlet filters, temporary and permanent seeding, street sweeping, and check dams. With such measures and precautions in place, there should be little potential for adverse impacts to area surface water as a result of construction.

The design of the facility would include measures for appropriate storm water management during the longer-term facility operations. In the area of the project site, storm water management is subject to requirements imposed by the Tulip Intercounty Drainage District, jointly run by Ottawa and Allegan counties. This Drainage District and the storm water management elements that would be incorporated into the design of the facility are addressed in Section 3.12 as a utility consisting of the area storm water system.

During operations, CPI would protect surface water by managing all hazardous liquids either inside the facility or in tanks or in closed containers stored within secondary containment structures. CPI has identified the solvent NMP and a $LiPF_6$-based electrolyte as materials (Sections 2.1 and 3.11.2) that would be used in sufficient quantities to require storage capacity outside of the main manufacturing buildings. The NMP would be stored in an exterior tank and

the electrolyte (also a liquid) would either be stored in drums or another tank. In addition to secondary containment, these storage areas would be managed as dictated through a spill prevention, control and countermeasures plan. Facility operations would involve no discharges of liquids or wastes of any type to the ground and measures would be taken to prevent any accidental releases or spills to exterior areas that could then be transported by precipitation runoff. There would be no adverse impacts expected to surface waters from facility operations with the proposed project. Additional storm water management measures are described in Section 3.12.

3.6.2.1.2 *Groundwater*

As described in Section 3.6.1.2, there would be no impacts to groundwater from the proposed facility, as it would not involve use of groundwater or discharges that could adversely affect groundwater.

3.6.2.1.3 *Wetlands and Floodplains*

Wetlands

Assessment of the site plan overlain on the wetlands locations shows impacts to all four wetland systems (Figure 3-1). Three of the wetland systems (Wetlands A, C, and D) have been determined to be regulated by the Michigan Department of Natural Resources and Environment, and a permit would be required. The wetlands would be impacted by the construction of the building, various parking lots, and access roads. The proposed impacts to these wetland systems consist of approximately 2.21 acres, requiring approximately 8,058 cubic yards of excavation and approximately 8,795 cubic yards of fill (Atwell 2010).

Since greater than 0.3 acre of a wetland would be disturbed, compensatory mitigation measures, in the form of mitigation banking would be required (Atwell-Hicks 2009b). The State of Michigan (Part 303, Wetlands Protection) requires mitigation ratios of 2.0 acres of mitigation for 1.0 acre of permitted impact to forested and coastal wetlands, and 1.5 acres of mitigation for 1.0 acre of permitted impact to all other wetlands, with the exception of wetland types that are rare or imperiled. The wetland fill proposed for the development includes filling 2.21 acres of emergent wetlands. Mitigating the impacted wetlands at the appropriate ratio would require no less than 3.32 acres of mitigation (Atwell 2010).

On January 28, 2010, CPI submitted a Part 303 Wetland Permit Application, which contains a compensatory mitigation proposal, to the Michigan Department of Natural Resources and Environment. The application and proposal are contained in Appendix C of this EA. The Michigan Department of Natural Resources and Environment published a public notice for this proposal on February 20, 2010. CPI proposes to compensate for the irreversible impacts to the existing wetlands as a result of the development by creating one wetland mitigation area at an offsite location. The continuous, emergent wetland would be created as a multi-functioning system and located within a City of Holland park where an existing wetland mitigation area

already exists. The wetland would then be placed under a conservation easement for the protection of the created wetland (Atwell 2010).

CPI, in conjunction with the City of Holland, selected a location in the VanRaalte Farm Park for the newly created wetland. The VanRaalte Farm Park consists of 160 acres of land between East 16th and East 24th Streets, approximately 1.5 miles north of the proposed project site. By creating an emergent wetland within this park, an additional ecological type would be provided as a natural and public resource that would be protected in perpetuity. Overall approximately 3.5 acres of wetland mitigation would be created at this location. A detailed wetland mitigation plan, including a wetland mitigation monitoring plan and performance standards, would be prepared and forwarded to the Michigan Department of Natural Resources and Environment for approval (Atwell 2010). Compensatory mitigation measures would ensure that wetlands impacts would not be considered significant.

From a standpoint of surface water resources, the wetland systems outside of the drainage ditch along the road are little more than drainage swales with only intermittent flowing water in response to precipitation events and these are areas that have already been affected by agricultural activities. Storm water runoff from the project site would be controlled with respect to discharge rates (Section 3.12), but would still be directed to the drainage ditch. There is no reason to suspect that filling or altering of these wetland areas on the proposed project site would cause any adverse impacts on surface water resources downstream from that area.

Floodplains

The proposed project site has not been evaluated with respect to whether it includes any 100-year flood zones. However, property immediately to the west of the site has been evaluated and is shown in U.S. Federal Emergency Management Agency flood maps as being outside of the more extensive reach of any 500-year flood zones. Based on the relative elevations of the project site compared to those of the adjacent, evaluated property, it is unlikely that any 100-year flood zones reach into the project site. Accordingly, there is no reason to suspect the proposed facility would impact floodplains or be impacted by a 100-year flood.

3.6.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built or operated. No impacts to water resources would occur.

3.7 Biological Resources

3.7.1 AFFECTED ENVIRONMENT

This section describes existing biological resources at the proposed project site. It focuses on plant and animal species or habitat types that are typical or are an important element of the ecosystem, are of special category importance (of special interest due to societal concerns), or

are protected under state or federal law or statute regulatory requirement. Vegetation is discussed first, followed by wildlife, sensitive species, and wetlands.

Allegan County is located near the southwestern edge of Michigan's Lower Peninsula and lies within the Southern Michigan/Northern Indiana Drift Plains Ecoregion (EPA 1999). The region is bordered on the west by Lake Michigan and is characterized by many lakes and marshes as well as an assortment of landforms, soil types, and land uses. Although not as heavily farmed as areas to the south, the ecoregion is well drained and contains nutrient soils conducive to growing feed grain and soybean. Woodlots, recreational development, quarries, livestock farming, and urban-industrial areas are common land uses within this ecoregion.

3.7.1.1 Vegetation

The landscape of Allegan County prior to widespread European settlement consisted mainly of beech-sugar maple forests and mixed hardwood swamp (MSU 2009a). By 1978, the area around the City of Holland was converted to agriculture and urban land use. The proposed project site is currently under agricultural crop production, most recently corn, and naturally occurring vegetation is limited to the treed hedgerow which borders portions of the site. Tree species that border the northern portion of the site and are found scattered in the landscaping near where a farmstead was once situated include: hawthorne (*Crataegus sp.*), northern red oak (*Quercus rubra*), red mulberry (*Morus rubra*), American elm (*Ulmus americana*), bitternut hickory (*Carya cordiformis*), apple (*Malus pumila)*, Osage orange (*Maclura pomifera*), American basswood (*Tilia americana*), boxelder (*Acer nigundo*), silver maple (*Acer sacchar*), Austrian pine (*Pinus niga*), Eastern cottonwood (*Populus deltoids*), green ash (*Fraxinus pennsylvanica*), Northern catalpa (*Catalpa speciosa*) and red maple (*Acer rubrum*). Other upland vegetation found confined to the hedgerows and abandoned farmstead include tall goldenrod (*Solidago altissima*) (Atwell-Hicks 2009b). Small areas of wetland vegetation are also present on the site and are discussed below in Section 3.7.1.4.

3.7.1.2 Wildlife

Based on the proposed project site's lack of natural habitat, lack of connection to intact natural habitats, current use as agricultural land, and its proximity to industrial disturbance, potential wildlife use of the site is low. Furthermore, most wildlife species are likely to be transients through the area. White-tailed deer (*Odocoileus virginianus*) can be found in the area most likely capitalizing on the available forage (crops). Other opportunistic species likely to exist in this agriculture-rural interface include: coyotes (*Canis latrans*), opossums (*Didelphis virginiana*), raccoons (*Procyon lotor*), red fox (*Vulpes vulpes*) and skunks (*Mephitis mephitis*). The constant disturbance of the site from agricultural use as well as the distance from any potential cover source for wildlife, reduce the potential of denning in the area and limit use to infrequent foraging.

3.7.1.3 Sensitive Species

The U.S. Fish and Wildlife Service administers the *Endangered Species Act* of 1973, as amended. This law provides federal protection for species designated as federally endangered or threatened. An endangered species is "in danger of extinction throughout all or a significant portion of its range," and a threatened species "is likely to become an endangered species within the foreseeable future" (USFWS 1988). Special status species are listed as threatened or endangered, are proposed for listing, or are candidates for listing by the state and/or federal government.

Four species classified as threatened, endangered, proposed, or candidate under the *Endangered Species Act* occur in Allegan County (Table 3-3). Although these species occur in portions of Allegan County, the preferred habitat does not exist for any of the species at the proposed project site due to historical disturbances of the area.

Table 3-3. Federally listed plant and animal species known to occur in Allegan County, Michigan.

Common name	Scientific name	Federal status	Habitat
Indiana bat	*Myotis sodalist*	Endangered	Forested riparian corridors
Eastern massasauga	*Sistrurus catenatus catenatus*	Candidate	Open wetlands
Karner blue butterfly	*Lycaeides melissa samuelis*	Threatened	Pine/oak savannas with lupine
Pitcher thistle	*Cirsium pitcher*	Threatened	Stabilized dunes

Source: USFWS 2009b

Thirty-nine plant species and 23 animal species classified as threatened under Michigan state law (Part 365 of the *Natural Resources and Environmental Protection Act*) are known to occur in Allegan County (Table 3-4). Of these species, 48 are state threatened and 13 are listed as state endangered species. Lack of flowing water and large water bodies on the site reduces the likelihood that the state listed amphibian, reptile, fish and mussel species exist on the proposed site. Additionally, native vegetation and canopy layered habitat is not available at the site due to the row crop use of the area, and thus the potential use of the area by the eight avian and one listed mammal species is low. The majority of the sensitive plant species occur in habitats not available at the proposed site, except for potential wetland species. However, none of the state-listed wetland plant species were documented during the wetlands delineations (Atwell-Hicks 2009b) and species-specific wetland habitat characteristics do not appear to be supported at these documented wetlands. One species, *Juncus vaseyi*, found in wet prairies and open marshy swales, may have the potential to occur at the proposed site although only one documented case in Allegan County of the species occurred in 1989 (MSU 2009c). The disturbed habitat of the site also reduces the likelihood that any of the state-listed plant species occur on the site.

Table 3-4. State-listed plant and animal species known to occur in Allegan County, Michigan.

Scientific name	Common name	State status	Habitat
Acipenser fulvescens	Lake sturgeon	T	Large rivers and shallow areas of large lakes
Acris crepitans blanchardi	Blanchard's cricket frog	T	Ponds near permanent flowing water
Alasmidonta viridis	Slippershell	T	Creeks and headwaters of rivers
Ambystoma opacum	Marbled salamander	E	Moist lowland forests and upland forests
Bartonia paniculata	Panicled screwstem	T	Fen complexes, the margins of shallow lakes/intermittent wetlands
Berula erecta	Cut-leaved water parsnip	T	Prairie fens in the marshy borders of cold streams and springs
Buteo lineatus	Red-shouldered hawk	T	Swamp woodlands
Carex albolutescens	Sedge	T	Intermittent wetlands, lake margins, and wet prairies
Cirsium pitcheri	Pitcher's thistle	T	Stabilized dunes
Clemmys guttata	Spotted turtle	T	Shallow bodies of standing or slow-flowing water
Coregonus artedi	Lake herring or Cisco	T	Deep inland lakes and the Great Lakes
Cryptotis parva	Least shrew	T	Dry upland meadows with dense coverage of grasses
Cyclonaias tuberculata	Purple wartyback	T	Medium to large rivers with gravel
Cypripedium candidum	White lady slipper	T	Alkaline wetlands
Dendroica cerulea	Cerulean warbler	T	Mesic sites of large tracts of mature deciduous forest
Dendroica discolor	Prairie warbler	E	Early successional shrubby/scrubby habitats
Dendroica dominica	Yellow-throated warbler	T	Mature bottomland and floodplain forest
Echinodorus tenellus	Dwarf burhead	E	Seasonally inundated wetlands within an oak barrens
Eleocharis microcarpa	Small-fruited spike-rush	E	Coastal plain marshes
Eleocharis tricostata	Three-ribbed spike rush	T	Areas with a fluctuating water table such as coastal plain marshes
Erimyzon claviformis	Creek chubsucker	E	Warm headwaters and small tributaries
Erynnis persius persius	Persius dusky wing	T	Oak/pine barrens with lupine
Eupatorium fistulosum	Hollow-stemmed Joe-pye weed	T	Low ground, sunny woods
Euphorbia commutata	Tinted spurge	T	Sandy hillsides and mesic forests bordering rivers

Table 3-4. State-listed plant and animal species known to occur in Allegan County, Michigan (cont).

Scientific name	Common name	State status	Habitat
Fuirena pumila	Umbrella-grass	T	Sandy peaty-sandy muck or marshy shores
Gavia immer	Common loon	T	Nest in sheltered islands on large, undeveloped inland lakes
Gentiana puberulenta	Downy gentian	E	Edges of coastal plain marshes in oak barrens
Geum triflorum	Prairie smoke	T	Dry sand prairie and barrens
Hesperia ottoe	Ottoe skipper	T	Dry sand prairies and open oak barrens
Hieracium paniculatum	Panicled hawkweed	T	Associated with sandy oak woods
Hiodon tergisus	Mooneye	T	Clear large rivers and lakes
Hydrastis canadensis	Goldenseal	T	Southern hardwood forests and moist ravines
Incisalia irus	Frosted elfin	T	Oak savannas and oak-pine barrens
Isoetes engelmannii	Engelmann's quilwort	E	Intermittent wetlands and soft water lakes
Juncus brachycarpus	Short-fruited rush	T	Areas of fluctuating water table such as coastal plain marshes
Juncus scirpoides	Scirpus-like rush	T	Areas of fluctuating water table such as coastal plain marshes
Juncus vaseyi	Vasey's rush	T	Intermittent wetlands of various types
Lanius ludovicianus migrans	Migrant loggerhead shrike	E	Open grasslands and short vegetation
Lechea pulchella	Leggett's pinweed	T	Edges of seasonally inundated intermittent wetlands
Linum virginianum	Virginia flax	T	Open oak forests, upland woods, and riparian forests
Ludwigia sphaerocarpa	Globe-fruited seedbox	T	Sandy-peaty margins of coastal plain marshes
Lycaeides melissa samuelis	Karner blue	T	Pine/oak savannas with lupine
Panax quinquefolius	Ginseng	T	Rich shaded forests with loamy soils
Panicum longifolium	Panic grass	T	Seasonally flooded wetlands
Platanthera ciliaris	Orange- or yellow-fringed orchid	E	Acidic swamps dominated by bog vegetation
Polygonum careyi	Carey's smartweed	T	Exposed lakeshores, sandy marshes, and beaver ponds
Potamogeton bicupulatus	Waterthread pondweed	T	Shallow softwater lakes
Rallus elegans	King rail	E	Marsh

Table 3-4. State-listed plant and animal species known to occur in Allegan County, Michigan (cont).

Scientific name	Common name	State status	Habitat
Rhexia mariana	Maryland meadow beauty	T	Areas with a fluctuating water table such as coastal plain marshes
Rhynchospora nitens	Short-beak beak-rush	E	Recent discovery in county. Coastal plain marsh.
Rhynchospora recognita	Globe beak-rush	E	Areas with a fluctuating water table such as coastal plain marshes
Rhynchospora scirpoides	Bald-rush	T	Areas with a fluctuating water table such as coastal plain marshes
Schoenoplectus hallii	Hall's bulrush	T	Intermittent wetlands within oak barrens complexes
Scleria reticularis	Netted nut rush	T	Seasonally flooded wetlands
Seiurus motacilla	Louisiana waterthrush	T	Broad forested areas along clear streams
Sistrurus catenatus catenatus	Eastern massasauga	SC	Open wetlands
Sisyrinchium atlanticum	Atlantic blue-eyed-grass	T	Moist sandy shores
Sporobolus clandestinus	Dropseed	E	Sandy openings in remnant oak barrens
Trichostema dichotomum	Bastard pennyroyal	T	Oak savanna areas
Triphora trianthophora	Nodding pogonia or three birds orchid	T	Rich oak-hickory forests and old wooded dune forests
Utricularia subulata	Bladderwort	T	Damp sand at the margins of interdunal wetlands
Zizania aquatica var. aquatica	Wild rice	T	Water less than 2 feet deep in areas with a slight current

Source: MSU 2009b and 2009d
E = endangered
SC = special candidate
T = threatened

On November 19, 2009, DOE sent consultation letters to the U.S. Fish and Wildlife Service and Michigan Department of Natural Resources requesting input into the flora and fauna of the area. DOE's letters are provided in Appendix B. On January 8, 2010, DOE sent the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources copies of the Draft EA. No responses or comments were received from the U.S. Fish and Wildlife Service of the Michigan Department of Natural Resources.

3.7.1.4 Wetlands

CPI arranged for a wetland evaluation at the proposed project site. The results from this effort are reported in a wetland determination and delineation report and are described in Section 3.6 of

this EA (Atwell-Hicks 2009b). The largest delineated wetland (Figure 3-1, Wetland A) consists of emergent wetland dominated by field nut sedge (*Cyperus esculentus*), bigseed smartweed (*Polygonum pensylvanicum*), cattail (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*), barnyard grass (*Echinochloa crusgalli*), New England aster (*Aster novae-angliae*), blue vervain (*Verbena hastata*), and sandbar willow (*Salix exigua*) (Atwell-Hicks 2009b).

A second wetland (Wetland B) consists of a small 0.13-acre isolated scrub-shrub wetland. The dominant species include field nut sedge, bigseed smartweed, barnyard grass, sandbar willow, and cottonwood saplings (Atwell-Hicks 2009b). The third wetland (Wetland C) is connected by agricultural drainage tile to a larger wetland that eventually drains into North Branch Macatawa River. The dominant vegetation includes barnyard grass, bigseed smartweed, and common cocklebur (*Xanthium strumarium)* (Atwell-Hicks 2009b).

A fourth wetland (Wetland D) was delineated in the northeast corner of the property. This linear emergent wetland is connected to Wetland C which eventually drains into the North Branch Macatawa River. Vegetation is sparse within the wetland; however, the dominant vegetation includes barnyard grass, bigseed smartweed, and common cocklebur (Atwell-Hicks 2009b).

Based on the information provided in the wetlands delineation report (Atwell-Hicks 2009b), a value and functions analyses was applied to each of the wetlands. Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society, where as values are benefits that derive from either one or more functions and the physical characteristics associated with a wetland (USACE 1999). Nutrient removal is considered a greater function and value of Wetland A along with groundwater recharge and production export. Wetland B also appeared to function mostly as a nutrient removal wetland with some value to wildlife due to the diversity of vegetation. The report contained limited information for analysis of some of the wildlife resource areas as well as for Wetland C.

3.7.2 ENVIRONMENTAL CONSEQUENCES

3.7.2.1 Proposed Project

Potential impacts to vegetation and wildlife resources from the proposed CPI facility would not be significant. The proposed project would entail a change in the allocation of the land resources from agriculture to industrial. The proposed project would reduce the amount of non-agricultural vegetation on the site with the removal of several of the tree species along the northern border and the interior of the property. Most of the trees along the northwest boundary of the property would remain and include osage orange, boxelder, black cherry, and American basswood. Tree species diversity would therefore decrease, and although potential cover for some wildlife species would also decrease, this impact would not be significant since tree species were sparsely distributed initially.

Wildlife currently using the agricultural crop for forage would be able to find other naturally occurring forage. Minimal short-term impacts to wildlife would result from disturbance from

construction of the proposed facility. No adverse impacts to any federally listed threatened or endangered species would occur, for no such species are known to occur on the proposed project site.

Although the proposed project would affect wetlands on the site, values and functions of the wetlands are very limited. Species-specific wetland habitat characteristics for the state-listed species in the county do not appear to be supported at these documented wetlands, and no listed species were documented in the wetland delineation. Additionally, Wetlands A, C and D are regulated wetlands since they are connected to the Macatawa River; however, elimination of this water source to the river would not negatively affect the river due to the wetlands' negligible contribution as a water source. Mitigation measures, as described in Section 3.6.2.1.3, would reduce impacts by replicating wetlands at the VanRaalte Farm Park in Holland.

3.7.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No impacts to biological resources would occur.

3.8 Cultural Resources

3.8.1 AFFECTED ENVIRONMENT

This section describes the existing cultural resources in the area of the proposed project site. The area of potential effect for cultural resources includes the property within and immediately adjacent to the proposed project site that would be affected by the action, either during construction only or permanently. Cultural resources are defined as historic properties as defined by the *National Historic Preservation Act*, cultural items as defined by the *Native American Graves and Repatriation Act*, archeological resources as defined by *Archaeological Resources Protection Act*, sacred sites as defined in Executive Order 13007 to which access is afforded under the *American Indian Religious Freedom Act*, and collections and associated records as defined in 36 CFR 79. The prehistoric and historic background of the area is summarized first, followed by the status of cultural resource inventories and Section 106 consultations, and Native American resources.

3.8.1.1 Prehistoric and Historic Background

When French explorers first visited Michigan in the early seventeenth century, there were approximately 100,000 Native Americans living in the Great Lakes region and an estimated population of 15,000 living in what is now Michigan. Several tribes made the forests and river valleys their home. The main groups, sometimes referred to as "The Three Fires," were the Chippewa (Ojibway), who lived mainly in the Upper Peninsula and the eastern part of the Lower Peninsula; the Ottawa, who resided along the western part of the Lower Peninsula; and the Potawatomi, who occupied part of southwestern Michigan after migrating from what is now eastern Wisconsin (Michigan Manual 2000). The Native Americans of the pre-European era in

Michigan left behind more than 1,000 burial mounds similar to those found in Ohio, Indiana, Illinois, and Missouri. Many mounds were discovered in the lower Grand River and Muskegon River valleys of west central Michigan (Michigan Manual 2000).

The first European inhabitants were the French and French-Canadians in the 1600s and early 1700s, followed by the British in the late 1700s. The great waves of immigration into Michigan began in the early 1800s, as New Englanders moved into Michigan's southern counties in large numbers. Attracted to the state's lumber, mining, and automobile industries, at least 40 national and ethnic groups arrived in sizeable numbers during the 19th and early 20th centuries. In the early years, the settlers knew that if Lake Michigan was to provide growth and development, it had to be made accessible by an adequate channel. The Hollanders took up shovels and dug the channel to allow shipping access to Lake Michigan (Holland Area Convention & Visitors Bureau 2008).

The beginning of the 20th century brought a number of industries to Holland. Soon, the city was noted not only for its furniture manufacturers, but also many other famous businesses such as the Holland Furnace company and the Bush and Lane Piano Company. After World War I, these and other businesses thrived, as did the tourist industry. The burgeoning resorts at Macatawa Park and Ottawa Beach attracted thousands of vacationers during the 1920s. Another draw was the Lakewood Farm with its greenhouses filled with rare plants and private zoo with exotic animals (Holland Area Convention & Visitors Bureau 2008). The industrial development that kept Holland's economy vital for nearly a century continued in the post-war era.

Latino families began settling in Holland as farm workers during the 1940s. Holland still boasted of its ethnically homogeneous population, with 90 percent Dutch heritage. But during the Vietnam era, the city that had so successfully retained its traditional atmosphere also found itself a community in transition. New industries and the resultant population growth produced a building boom. Through the sponsorship of various churches, there was an influx of Southeast Asian refugees (Holland Area Convention & Visitors Bureau 2008). The 1990s brought continued revitalization to downtown with the restoration of the Amtrak Railroad Station, the conversion of the old Post Office into the Holland Museum, and Hope College's restoration of the Knickerbocker Theatre.

3.8.1.2 Status of Cultural Resource Inventories and Section 106 Consultations

On November 12, 2009, DOE sent a letter to the Michigan State Historic Preservation Office to initiate consultation and request any additional information that office has developed or obtained on historic properties in the vicinity of the project site. As requested by the Michigan State Historic Preservation Office, DOE completed and submitted its Section 106 application on January 29, 2010. A copy of this letter and the Section 106 application are included in Appendix B. On January 8, 2010, DOE sent the Michigan State Historic Preservation Office a copy of the Draft EA. A letter dated February 25, 2010 from the State Historic Preservation Office

supported DOE's determination that no historic properties would be affected by the proposed project. A copy of this letter is included in Appendix B.

DOE conducted a database search of the Michigan Historic Sites Online mapper and reviewed historic aerial photographs of the project site. There is one recorded national historic site and one recorded state historic site within 1 mile of the project site. The national historic site, called "Old Wing Mission" is 2,000 feet away and was built between 1844 and 1846 (Site Identification Number P22474). It was historically used as a single family home and is now used as a hotel. Its significance stems from being the oldest house in the Holland area, and the one-time home of the Reverend George N. Smith, founder of and missionary to the Ottawas. The state recorded site, called "Ebenezer Reformed Church" is located 4,500 feet from the proposed project site (Site Identification Number P22472). Members of the First Reformed Church in Holland founded this congregation in 1866 to provide a place of worship for the settlers living southeast of town. Three buildings have been used for worship at this location; the first church, dedicated in 1867, was destroyed by fire in 1883 and replaced immediately by a second structure. The third and present house of worship was dedicated in 1964. According to the online mapper, 17 sites are listed on the National Register of Historic Places and/or the State Register of Historic Sites in the central portion of the Town of Holland, northwest of the project site (Michigan Historic Sites Online Mapper 2009).

3.8.1.3 Native American Resources

No Native American concerns regarding the proposed project have been identified. On November 12, 2009, DOE sent a request to seven separate federally recognized tribes chosen according to the U.S. Department of Housing and Urban Development – Office of Community Planning and Development – Environmental Planning Division (Citizen Potawatomi Nation, Forest County Potawatomi Community, Hannahville Indian Community, Match-e-be-nash-she-wish Band of Potawatomi, Ottawa Tribe of Oklahoma, Pokagon Band of Potawatomi Indians, and the Prairie Band of Potawatomi Nation) for information those tribes have, and are interested in sharing, on properties of traditional religious and cultural significance within the vicinity of the project site, and any comments or concerns they have on the potential for this project to affect those properties. A copy of the DOE's letter is included in Appendix B. On January 8, 2010, DOE sent copies of the Draft EA to the seven federally recognized tribes; no responses or comments were received.

3.8.2 ENVIRONMENTAL CONSEQUENCES

3.8.2.1 Proposed Project

DOE does not expect the CPI facility to affect historic properties or other cultural resources. The Phase I Environmental Site Assessment concluded that the majority of the subject site has been undeveloped agricultural land (row crops) since at least 1932 (Atwell-Hicks 2009a). A residential dwelling and associated outbuildings on the southern portion of the subject site (815 East 48th Street) were demolished in 1995. From 1995 through the present, the former

homestead has consisted of vacant land. No historic properties are known to occur on the project site. There are no historic structures on the site and soils have been disturbed in the past for agriculture. The national and state historic properties within a mile of the site, and all other known cultural and historic resources known to occur in Holland are distant from the project site and would not be affected.

In the event that cultural resources (such as, human remains, lithics, pottery, remnants of older construction) are discovered during construction of the CPI facility, work would cease in the area of the discovery, and the Office of the State Archaeologist would be notified. A qualified archaeologist or a designated representative of the State Archaeologist, Michigan Historical Center, would evaluate any such discovery, and, in consultation with the State Historic Preservation Office, implement appropriate mitigation measures before construction activities would resume.

3.8.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No impacts to historic properties or other cultural resources would occur.

3.9 Socioeconomics

3.9.1 AFFECTED ENVIRONMENT

This section describes the existing socioeconomic conditions, including population and unemployment, industry and occupations, income, and housing. The region of influence for this analysis includes all of Holland, Michigan. Because Holland lies in both Allegan and Ottawa counties, both counties are considered to be in the region of influence for socioeconomics.

3.9.1.1 Population and Unemployment

Allegan County, Michigan's estimated population in 2008 was 112,975 people; Ottawa County's population was 260,364 (U.S. Census Bureau 2009a); and the city of Holland had a population of 34,076 in 2008 (City-Data 2009). Preliminary statistics for the Holland-Grand Haven area indicate that the unemployment rate peaked at 14.0 percent during the period of April through September 2009 (BLS 2009b), compared to 4.5 percent during the 2006-2008 U.S. Census period (U.S. Census Bureau 2009b). Nationwide unemployment during September 2009 was 9.8 percent (BLS 2009b). In 2008, the unemployment rate for Allegan County was 6.9 percent and for Ottawa County, it was 5.6 percent (U.S. Census Bureau 2009b).

3.9.1.2 Industry and Occupations

The top three industry sectors in Allegan County and Ottawa County include: (1) manufacturing; (2) educational services, health care, and social assistance; and (3) retail trade (U.S. Census Bureau 2009b). The top three industry sectors in Holland include: (1) manufacturing; (2) educational services, health care, and social assistance; and (3) arts, entertainment, recreation,

accommodation, and food services (U.S. Census Bureau 2009b). The top three occupations in both Allegan County and Holland include: (1) management, professional, and related occupations; (2) production, transportation, and moving occupations; and (3) sales and office occupations (U.S. Census Bureau 2009b). In Ottawa County, the top three occupations include: (1) management, professional, and related occupations; (2) sales and office occupations; and (3) production, transportation, and moving occupations (U.S. Census Bureau 2009b).

3.9.1.3 Income

Per capita income statistics estimates from the 2006-2008 U.S. Census period indicate that the per capita income of Allegan County, Ottawa County, and Holland was $23,439, $25,933, and $21,276, respectively. Nationwide per capita income during this same period was higher, at $27,466. Median household incomes for 2006-2008 were significantly lower in Holland ($44,935) than in Allegan County ($52,401) and Ottawa County ($57,307), the state of Michigan ($49,694), and the United States ($52,175) (U.S. Census Bureau 2009b).

3.9.1.4 Housing

During the 2006-2008 U.S. Census period, there were 6,759 vacant housing units in Allegan County, equating to 14.0 percent of available housing. Ottawa County had 8,777, or 8.7 percent, vacant houses. In Holland, 12.1 percent of homes were vacant (U.S. Census Bureau 2009b). Of the occupied homes in Allegan County and Ottawa County, the owner-occupancy rates (83.1 percent and 81.7 percent, respectively) were significantly higher than the national owner-occupancy rate during that time (67.1 percent). Holland's owner-occupancy rate (65.9 percent) was lower than the national owner-occupancy rate.

The median value of owner-occupied homes in Holland was $140,600, compared with the Allegan County median of $151,900, Ottawa County median of $165,000, and a state median of $152,600 during the 2006-2008 U.S. Census period (U.S. Census Bureau 2009b). These values are significantly lower than the national median home value of $192,400, and may be lower today as a result of depressed housing prices across the country.

3.9.2 ENVIRONMENTAL CONSEQUENCES

3.9.2.1 Proposed Project

The total workforce required to construct the proposed CPI facility is estimated at 550 workers during a 26-month period. During peak operations, the project would employ about 450 people. Overall, the increased employment would have a strong beneficial impact on the economies of Holland, Allegan County, Ottawa County, and the surrounding region, and would increase the tax base of the Holland, Allegan and Ottawa counties, and Michigan. However, the number of people to be employed would be small relative to the over 4,000 estimated unemployed people living in Holland-Grand Haven area (based on September 2009 data).

Because there is a large local pool of potential employees, it is likely that most people hired to work at the facility would already live near the site, and there would be very little migration of new employees into Holland and the surrounding communities. Any migration into the area would be limited and would not have an adverse impact on housing availability or prices, as there are a substantial number of vacant residential units in the area.

The police department, fire department, and other emergency service providers in Holland and Allegan County currently serve adjacent commercial/industrial facilities near the project site. Therefore, there would be no need to expand the training or capabilities of those organizations. Because it is likely that most people to be employed at the proposed facility would already live in the area, the facility would have little or no indirect impact on the local emergency service providers.

3.9.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding and the CPI facility would not be constructed. Beneficial economic impacts of increased employment and an increase in the tax base of local and state governments would not occur.

3.10 Environmental Justice

ENVIRONMENTAL JUSTICE TERMS

Minority:
Hispanic, Black, Asian/Pacific Islander, American Indian/Eskimo, Aleut, and other nonwhite person.

Low income:
Below the poverty level as defined by the U.S. Bureau of the Census.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to "promote nondiscrimination in Federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment." Executive Order 12898 also directs agencies to identify and consider disproportionately high and adverse human health or environmental impacts of their actions on minority and low-income communities and American Indian tribes, as well as provide opportunities for community input to the NEPA process, which includes input on potential effects and mitigation measures. Executive Order 12898 and its associated implementing guidance establish the framework for characterization of the affected environment for environmental justice.

3.10.1 AFFECTED ENVIRONMENT

This section describes the low-income and minority populations in the City of Holland, Allegan County, and Ottawa County.

3.10.1.1 Poverty Rate

In 2006-2008, 12.0 percent of individuals in Holland, 11.1 percent of individuals in Allegan County, and 6.7 percent of individuals in Ottawa County were below poverty level, which is lower than the state's poverty rate (U.S. Census Bureau 2009b). In 2006-2008, 14.0 percent of individuals in Michigan were below poverty level. In 2008, the poverty guideline for a family of four was an annual income of $21,200 in the 48 contiguous states and Washington, D.C.; for a family of three, it was $17,600 (Health and Human Services 2009).

3.10.1.2 Demographics

Based upon the 2006-2008 U.S. Census estimates, the state of Michigan included 20.4 percent minorities (U.S. Census Bureau 2009b). Holland's minority population was comparable at 21.5 percent minority. Both Allegan County and Ottawa County had significantly lower minority populations (7.9 percent and 10.5 percent, respectively). The nationwide minority population at that time was 25.7 percent.

3.10.2 ENVIRONMENTAL CONSEQUENCES

Potential environmental justice impacts are considered significant if the project resulting from the proposed project would cause disproportionate impacts on low-income and/or minority populations.

3.10.2.1 Proposed Project

No high and adverse potential impacts to populations are anticipated from the proposed CPI facility. Further, no subsections of the population, including minority or low-income populations that would receive disproportionate impacts, have been identified. No unique exposure pathways, sensitivities, or cultural practices that would expose minority or low-income populations to disproportionately high and adverse impacts have been identified. Therefore, no disproportionately high and adverse impacts would occur from the project resulting from the proposed project.

3.10.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. The beneficial impacts, such as increases in employment and economic growth, in the region would not be realized.

3.11 Occupational Health and Safety

3.11.1 AFFECTED ENVIRONMENT

Occupational health and safety is concerned with occupational and worker hazards during routine operations. The U.S. Department of Labor, Bureau of Labor Statistics, maintains

statistics on workplace injuries, illnesses, and fatalities. These statistics consider the potential for *total recordable cases*; *days away from work*, *days of restricted work activity or job transfer*; and *worker fatalities* in the work environment. The *incidence rates* (cases per 100 full-time workers for nonfatality statistics and cases per 100,000 full-time workers for fatality statistics) maintained by the Bureau of Labor Statistics are calculated separately for different industries based on the reported health and safety cases for that particular industry. A full-time worker is assumed to work 2,000 hours per year. The health and safety incident categories are defined as follows:

- Total recordable cases. The total number of work-related deaths, illnesses, or injuries that result in the loss of consciousness, days away from work, restricted work activity or job transfer, or required medical treatment beyond first aid.

- Days away from work, or days of restricted work activity or job transfer. Cases that involve days away from work, or days of restricted activity or job transfer, or both.

- Worker fatality. Cases that involve the death of a worker.

In order to minimize the effect of industrial health and safety hazards, industries must comply with all applicable regulations that relate to industrial health and safety.

3.11.2 ENVIRONMENTAL CONSEQUENCES

3.11.2.1 Proposed Project

DOE estimated health and safety impacts to workers from industrial hazards by using incidence rates from the U.S. Department of Labor, Bureau of Labor Statistics, for 2008 for nonfatal occupational injuries and for 2007 for occupational fatalities.

For construction activities, DOE used the Bureau of Labor Statistics incidence rates from the category "non-residential building construction" for 2008. The total recordable cases incidence rate was 4.4 injuries per 100 full-time employees, and the days away from work, days of restricted work activity or job transfer incidence rate was 2.2 injuries per 100 full-time employees (BLS 2009a). CPI estimates that between 500 and 600 construction workers would be required and that construction would last for 26 months (Eun 2009). For this analysis, DOE conservatively assumed that 550 construction workers would be required during the entire 26 months of construction. DOE estimates that about 52 total recordable cases and about 26 days away from work would occur during the construction phase. Standard best management practices for the construction industry would be implemented to reduce risks to workers. This includes, but is not limited to, complying with Occupational Safety and Health Agency regulation "Safety and Health Regulations for Construction" (29 CFR Part 1926).

The fatality incidence rate for construction activities in 2007 (2008 data was not available) was 10.5 fatalities per 100,000 full-time employees (BLS 2008). For this analysis, DOE conservatively assumed that 550 construction workers would be required during the entire 26 months of construction. DOE estimates that about 0.13 fatalities would occur during the

construction phase. Based on these results, DOE believes that a fatality during construction would be unlikely.

For operation activities, DOE used the Bureau of Labor Statistics incidence rates from the category "battery manufacturing" for 2008. The total recordable cases incidence rate was 4.6 injuries per 100 full-time employees, and the days away from work, days of restricted work activity or job transfer incidence rate was 2.5 injuries per 100 full-time employees (BLS 2009a). Assuming an annual work force of 450 workers, DOE estimates that about 21 total recordable cases and about 11 days away from work would occur annually during operations. There would be no unusual or potentially unacceptable hazards or risks to workers, who would be trained to operate under a safety program and procedures.

The fatality incidence rate for operation activities in 2007 (2008 data was not available) was 2.0 fatalities per 100,000 full-time employees for chemical manufacturing (BLS 2008). For this analysis, DOE assumed an annual workforce of 450 workers. DOE estimates that about 0.0090 fatalities would occur annually during operations. Based on these results, DOE believes that a fatality during operations would be unlikely.

Two hazardous materials would be stored at the proposed facility: NMP and an electrolyte, in which $LiPF_6$ is the acid substance. Each has its own toxicity concerns, as described in Section 2.1. Storage and use of these chemicals would require appropriate management to ensure the safety of workers and the public. However, neither of the materials is considered to present unusual or unreasonable risks for an industrial process. NMP's primary concerns are associated with chronic exposures like those experienced in the work place. NMP has low acute toxicity, so the short-term exposure that would normally be associated with accident conditions, and which could involve the public, would also be considered low risk. $LiPF_6$ would only be present at the CPI facility as the electrolyte salt in the liquid electrolyte that would be added to the batteries. Because of the $LiPF_6$, the electrolyte can react with water to form hydrogen fluoride, or in its aqueous form, hydrofluoric acid, which can be very corrosive and hazardous, depending on its concentration. In the event of being involved in a fire, the presence of the electrolyte could result in hydrogen fluoride forming in the combustion gases. These are similar concerns that would be experienced with many industrial materials; for example, industrial materials containing chlorine are not uncommon and would pose similar hazards in fire conditions.

Given the characteristics of both NMP and the $LiPF_6$-based electrolyte, any exposures to the public should be avoided or minimized, and CPI's health and safety program would include measures to minimize the potential for accidents, including release of hazardous substances. As noted in Section 3.6, tanks or drums of these materials would be located within secondary containment structures to minimize the potential for accidental spills or releases to move any distance from the plant. Gases or vapors that could be transported by wind are not expected to be a problem during an accidental release of either material (provided, of course, there was no fire involved). The local fire department would be informed of the potential hazards associated

with the CPI facility should there ever be a fire at the facility. Response to any such fire would include the normal considerations for keeping the public out of any smoke plumes or vapors.

In order to minimize the number of injuries and fatalities, CPI would implement a worker safety program in compliance with the Occupational Health and Safety Administration's 18001 Management Guideline. The safety program would provide the following: instruction on safety management for line managers, safe working procedures, identification of potential hazards, safety devices and protective equipment, chemical control (material safety data sheets), and yearly occupational health medical checkups. In addition, the employees of the plant would be educated in compliance with the company's employee safety training program, which includes new employee safety training, special safety program for transferred and new employees, and more than two hours of regular monthly training (LG Chem Ltd. and CPI 2009b).

3.11.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No injuries or fatalities would occur.

3.12 Utilities, Energy, and Materials

3.12.1 AFFECTED ENVIRONMENT

This section describes the existing electric, natural gas, water, sewer, and storm water systems at the project site. CPI has not identified any materials required for construction or manufacturing operations that would be considered unique or limited resources. Therefore, this section addresses only those materials that would be used in relatively large quantities during the manufacturing process and that would present potential hazards to the environment or public health.

3.12.1.1 Energy Sources

3.12.1.1.1 *Electricity*

The proposed facility would obtain electricity from the Holland BPW, the community-owned utility providing electric, water, and wastewater treatment services to the Greater Holland area (BPW 2009a). BPW operates electric generating stations as well as the community distribution lines and in mid-2005 served about 27,000 electric customers. BPW's three generating stations have a combined production capacity of about 220 megawatts of electricity (BPW 2005). BPW also owns shares of two other electrical generating plants in Michigan that are operated by other power companies (BPW 2009b) and also purchases additional power, as needed, from the grid. For example, during the one-year period ending June 30, 2005, BPW reported providing about 1.12 million megawatt-hours of electricity to their customers. Of this amount, about 60 percent was produced in generating stations they owned or partially owned and the remaining 40 percent was purchased from the grid (BPW 2005).

The BPW electrical distribution system is connected to the regional grid in the area that is serviced by Consumers Energy (MPSC 2008a). The Consumers Energy Company is considered a load serving entity, which means it provides electric service to end-users and wholesale customers. Although considered medium-sized, Consumers Energy provides electricity to about 1.8 million customers, maintains almost 6,700 miles of high-voltage transmission lines and 66,000 miles of distribution lines, and owns multiple power generation plants with a total generating capacity of about 6,500 megawatts (Consumers Energy 2008). Consumers Energy is a member of the Reliability*First* region under the North American Electric Reliability Corporation (formerly the North American Electric Reliability Council). The Reliability*First* region covers an area that includes all of Indiana, Ohio, Pennsylvania, West Virginia, New Jersey, Delaware, and Maryland; most of Michigan; and parts of Illinois, Wisconsin, Kentucky, and Virginia.

In its report, *Electric Power Annual 2007* (DOE 2009a), the DOE compiled information on electric usage by North American Electric Reliability Corporation regions within the United States. During summer, 2005 through 2007, the Reliability*First* region had net internal electrical demands that averaged 182,000 megawatts and, during the same period, had capacity margins that ranged from 13.5 to 17.1 percent (DOE 2009a). Capacity margin is defined as the amount of unused available capacity of an electric power system at peak load as a percentage of capacity resources. In projecting future effects of actual and planned capacity resources, DOE estimates that summer net demands in the Reliability*First* region from 2007 through 2012 will average 185,000 megawatts, and the capacity margin will range from 12.3 to 17.1 percent (DOE 2009a). During the corresponding winters (extending into 2013), DOE estimates that the average net demand will be 146,000 megawatts with the capacity margin ranging from 30.9 to 33.5 percent (DOE 2009a). The significantly lower demand in the winter is consistent with heavy use of electricity for cooling in the summer and heavy use of natural gas in the winter for heating.

3.12.1.1.2 *Natural Gas*

The area around Holland, Michigan gets its natural gas from SEMCO Energy Gas Company (MPSC 2008b), a distributor for numerous areas dispersed throughout Michigan. In 2008, SEMCO Energy reported $737 million in gas sales (SEMCO 2009). At an average residential price in Michigan of $15 per thousand cubic feet (DOE 2009b), SEMCO Energy's sales would represent about 49,000 million cubic feet of natural gas. A natural gas pipeline valve or metering site belonging to the SEMCO Energy Gas Company is located just outside the southwest boundary of the proposed project site, lying between the site boundary and the railroad tracks.

The state of Michigan has more natural gas reserves than any other state in the Great Lakes region and produces over three-tenths of its internal demand. Most of Michigan's gas wells are located in the Antrim fields in the northern portion of the Lower Peninsula. The remainder of the state's natural gas demand is met by deliveries through several major pipelines carrying product primarily from the Gulf States (DOE 2009b). Natural gas use in Michigan is high, with nearly four-fifths of households using natural gas as their primary energy source for heating. In 2007,

total natural gas consumption in the state was about 829,000 million cubic feet, which was about 3.6 percent of the overall amount used in the United States (DOE 2009b). Michigan also has the most underground natural gas storage capacity of any state in the nation and supplies gas to neighboring states during high-demand winter months.

3.12.1.2 Water and Sewer

The Holland BPW provides water and sewer services in the Holland area south of Lake Macatawa.

3.12.1.2.1 *Water System*

BPW maintains the community's water distribution system, which includes about 230 miles of water mains with about 13,000 service connections. The mains are predominantly 6-, 8-, and 12-inch diameter lines, but some are as large as 36 inches in diameter. The system also includes four water storage tanks and five pump stations that support five pressure zones within the system (BPW 2009c).

Water in the Holland distribution system comes from the Holland Water Filtration Plant located about 7 miles northwest of the city near the shore of Lake Michigan. The plant draws its feed water from Lake Michigan and has a treatment capacity of 38.5 million gallons per day (BPW 2009d).

3.12.1.2.2 *Sewer System*

BPW maintains the sewer collection system located in Holland south of the Lake Macatawa and the Macatawa River (also known as the Black River). The system includes over 180 miles of sanitary sewer mains and 36 sewage lift stations. Most of the sewer system consists of 8-inch diameter lines, but some are as large as 36 inches in diameter (BPW 2009e). This sewer system carries wastewater to the Holland Wastewater Treatment Plant, located in the north-central portion of the city, in an industrial area near the eastern end of Lake Macatawa near where the Macatawa River joins the lake.

The treatment plant has a capacity of 12 million gallons per day and treated effluent from the plant is discharged into Lake Macatawa (MDEQ 2007). The discharge is regulated under a National Pollutant Discharge Elimination System permit (Permit No. MI0023108) issued by the Michigan Department of Environmental Quality. According to monitoring records accumulated under the permit, the treatment plant's average daily discharge during the first 9 months of 2009 was 10.6 million gallons per day and the monthly maximum during that period averaged about 14.8 million gallons per day. These discharge quantities were up roughly 10 percent from 2008 when the comparable numbers were 9.8 and 13.4 million gallons per day, respectively (EPA 2009c). Assuming that the plant's discharge rates are basically representative of the influent rates, average flow rates to the plant remain below its treatment capacity, but peak rates exceed

the capacity. Since the plant is meeting its discharge permit requirements, it is assumed the plant has sufficient surge capacity to handle the short periods of high flows.

3.12.1.3 Storm Water System

The proposed project site is not served by an underground storm water system. Rather the field area is currently served by a ditch that runs from west to east along the north side of East 48th Street, which borders the south side of the project site. This ditch runs to and drains into the North Branch of the Macatawa River where it crosses East 48th Street about 0.25 mile east of the project site.

Storm water discharges into ditches or drains, such as the one alongside East 48th Street, are regulated by applicable cities or counties. For example, Allegan County regulates drains that might consist of an open ditch, stream, underground pipe, retention pond or swale that carries storm water. The Allegan County Drain Commissioner designates such a feature as a county drain through a petition process by property owners or communities. Once designated, the Commissioner is then responsible for maintaining and inspecting the drains, as well as accounting for the costs of these efforts (Allegan 2009). Ottawa County regulates storm water drains in a similar manner (Ottawa 2009).

The proposed project site is located within the Tulip Intercounty Drainage District, which was established by Ottawa and Allegan counties to address the area drained by the North Branch of the Macatawa River and which includes both counties. A map of the District shows land on either side of a drainage feature designated the "Tulip Intercounty Drain," which is the same watercourse as the North Branch of the Macatawa River. The District Board formed to administer the Drainage District performs the same role as the Drain Commissioners in the other portions of the counties. The objective of the District and its standards are to minimize flooding, property damage, erosion, and nuisances; and to improve drainage and water quality within the watershed (Ottawa 2005).

3.12.1.4 Hazardous Materials

The project site does not currently contain hazardous materials, with the possible exception of minor residues of fertilizers and pesticides that may have been used during past agricultural activities.

3.12.2 ENVIRONMENTAL CONSEQUENCES

3.12.2.1 Proposed Project

3.12.2.1.1 *Energy Sources*

Electricity

The proposed facility would have an estimated peak electrical load of 10,000 kilowatts, or 10 megawatts and an average load of 7.5 megawatts (LG Chem Ltd. and CPI 2009a). The peak load

represents 4.5 percent of BPW's generating capacity of 220 megawatts and the average load represents 3.4 percent of the local generating capacity. Operating 24 hours per day, 365 days per year, the average electric load would result in use of 65,700 megawatt hours of electricity, which would represent 5.9 percent of the 1.12 million megawatt hours of electricity delivered by BPW over a typical year ending in 2005. But, in comparison to electricity availability on the regional grid, the proposed facility's average electrical demand would represent only 0.12 percent of the 6,500 megawatt generating capacity of Consumers Energy and only about 0.004 percent of the average electric demand of 182,000 megawatts within the Reliability*First* region. Further, it is projected that the capacity margins in the Reliability*First* region will remain above 12 percent into 2013.

On the local level, the electrical demand of the proposed facility would represent a notable increase (about 6 percent) on the existing electrical distribution system. However, the local system is connected to the regional grid and normally obtains a significant portion of its electrical power from the grid (as opposed to its own generating capacity). The electrical demand of the proposed facility would be minor in comparison to regional generating capacity and demand and would have no significant impact on the regional system.

Natural Gas

The proposed facility would require about 33,200 cubic feet, of natural gas per hour when in full operation. Operating 24 hour per day, 365 days per year, natural gas use would be about 291 million cubic feet per year. This represents about 0.59 percent of the estimated 49,000 million cubic feet of natural gas delivered by SEMCO Energy Gas Company in Michigan in 2008. The proposed facility's natural gas demand is also about 0.035 percent of the 829,000 million cubic feet of natural gas used in the entire state of Michigan during 2007. The increased natural gas demand would have no notable impact on the existing natural gas utility service.

3.12.2.1.2 *Water and Sewer*

Water

CPI estimates that operation of the proposed facility would require up to 170,000 gallons of water per day. About 77 percent of this water demand would be for industrial processes; the remainder would be for domestic water needs. It is expected that this water would be obtained through connection to the Holland water distribution system. The existing water system has a 12-inch main running east and west on East 40th Street to the north of the proposed project site and a 16-inch main running east and west on East 48th Street, immediately south of the site. Both of these water mains are shown as being in a pressure district designated "Elevated Storage (High)" and there is a city water tower located on East 48th Street about 0.7 mile west of the property (BPW 2009f). It is anticipated that the facility connection would be to the larger, closer water main under East 48th Street, but the other main is not far away if necessary.

A daily water demand of 170,000 gallons represents 0.44 percent of the Holland Water Filtration Plant's treatment capacity of 38.5 million gallons per day. This is a notable increase to be attributed to a single entity, but should be well within the capabilities of the treatment plant and

distribution system to absorb. Water mains available to the proposed project site are large and would be expected to easily provide this amount of water, which over a 24-hour period equates to only about 120 gallons per minute. This is a large number in comparison to an average residential user, which would be on the order of only 1 gallon per minute (averaged over a typical day), but well within the capacity of the 16-inch water main, which would be several thousand gallons per minute. The nearby water tower should ensure that adequate pressure in the line is maintained and that water demand surges are met. The increased water demand would not be expected to have notable impact on the city's treatment and distribution system.

Sewer

CPI estimates that operation of the proposed facility would generate up to 48,700 gallons of wastewater per day (LG Chem Ltd. and CPI 2009a). Of this, 46,300 gallons per day would be appropriate for disposal in the Holland sewer collection system and treatment in the Holland Wastewater Treatment Plant. The 2,400 gallon per day difference would be attributed to industrial wastewater that would likely not meet acceptance criteria for the Treatment Plant and would be managed separately. It might be noted that the amount of wastewater produced from the facility is estimated to be far less than the 170,000 gallons per day of water required by the facility. This is due to estimates of more than 121,000 gallons per day being lost to evaporation or otherwise being used up in the manufacturing processes.

It is expected that wastewater in the amount of 46,300 gallons per day would be sent to the Holland Sanitary Sewer Collection System. The existing collection system has a sewer main running east and west on East 40th Street to the north of the proposed project site and another main coming up from the southwest to a point on East 48th Street, immediately south of the site. A map of the collection system (BPW 2009g) appears to show the line on East 40th Street flowing by gravity all the way to the Wastewater Treatment Plant. The line at East 48th Street drains to a large capacity (up to 2,400 gallons per minute) lift station located about 0.5 mile south of East 48th Street. It is anticipated that the facility connection would be to the closer sewer main under East 48th Street, but the other main is not far away if necessary.

A daily sewage production of 46,300 gallons represents 0.39 percent of the Holland Wastewater Treatment Plant's capacity of 12 million gallons per day. As with the water demand, this is a notable increase to be attributed to a single entity, but should be well within the capabilities of the treatment plant and collection system. With the added wastewater, the average flow to the Treatment Plant (10.6 million gallons per day for the first nine months of 2009) would remain below the capacity of the treatment plant and peak flows would not be expected to change by an appreciable amount. The two sewer mains available to the proposed project site would be expected to easily accommodate this amount of sewage, which over a 24-hour period equates to only about 32 gallons per minute. This is a relatively large sewage production in comparison to an average residence, which would be expected to produce less than 0.5 gallon per minute (averaged over a typical day), but within the capacity of the collection system. The nearby lift station, with a capacity of up to 2,400 gallons per minute provides an indication of the capacity of the collection system in this area. The lift station should also provide a nearby surge capacity

that would act to even out flows sent to downstream portions of the collection system. The increased sewage load would not be expected to have notable impact on the city's treatment and collection system.

CPI currently expects to collect and contract out the disposition of the 2,400 gallons of industrial wastewater that would be generated each day, and which is not planned to be sent to the sewer system. However, the City of Holland's BPW has an active pretreatment program associated with the sewer collection and treatment system. Although this program is primarily aimed at keeping unacceptable wastewater out of the treatment plant, CPI may also work with this group to determine appropriate treatment and disposal options for the industrial wastewater. In either case, management of this industrial wastewater would be expected to have no impact on the city's sewer collection and treatment system. At this stage of project planning, a specific disposition avenue for this industrial wastewater has not been determined. Unless future discussions with the City of Holland's BPW or regulatory groups identify other appropriate treatment alternatives, it is assumed this liquid would be collected and transported out of the area every few days or possibly on a weekly basis for treatment at a permitted commercial facility.

3.12.2.1.3 *Storm Water System*

Construction of the proposed facility with the associated buildings and parking lots would result in increased storm water runoff from the location. CPI would work with the Tulip Intercounty Drainage District Board as required by applicable Ottawa and Allegan County Standards to ensure appropriate management of storm water runoff. At the current, preliminary state of facility design, it is expected that a storm water detention basin would be constructed along the east side of the property. The basin would be designed to accommodate runoff from a 100-year storm while discharging to the existing ditch at a small, controlled rate to be determined by standards established by the District Board. Internal to the main construction area, a system of surface swales and underground storm water collection lines that conveyed runoff to the basin would be developed. Working closely with the District Board and within established standards, increased storm water generated from the facility would not adversely impact the downstream elements of the area's storm water system.

3.12.2.1.4 *Hazardous Materials*

The solvent NMP and a $LiPF_6$-based electrolyte would be used in the CPI manufacturing process and would routinely be present at the site in bulk quantities. New NMP would be stored in an exterior tank, with a capacity of about 12,000 gallons. Waste NMP (Section 3.13) would be managed in drums that would be staged in a temporary storage facility before being sent off-site for disposition. The $LiPF_6$-based electrolyte would be delivered to the site in drums. It is estimated that the manufacturing process would require about 20 drums of the liquid per day. CPI conservatively estimates keeping a two-week supply of the electrolyte on hand, which means there could be as many as about 300 drums of this material stored at the site. This material would be used in the manufacturing process (put in the batteries) and the empty drums would be returned to the supplier. CPI is also considering use of a storage tank for the

electrolyte. If CPI makes the decision to use a tank for this purpose, it would likely be sized in the 16,000 to 17,000 gallon range if maintaining a two-week supply was still the goal.

Potential impacts from the presence of NMP and the $LiPF_6$-based electrolyte are addressed in Section 3.6.2 with respect to water resources and in Section 3.11.2 with respect to occupational health and safety. Also, the management of NMP waste is addressed in Section 3.13.2.

3.12.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No impacts to utilities and energy resources would occur.

3.13 Waste

3.13.1 AFFECTED ENVIRONMENT

This section describes existing hazardous and solid waste conditions at the project site.

3.13.1.1 Hazardous Waste

Hazardous waste, as defined under the *Resource Conservation and Recovery Act*, is waste that poses substantial or potential threats to public health or the environment and, as a result, is tightly regulated from its point of generation to its point of ultimate treatment or other disposition. In Michigan, liquid industrial waste is managed under the same regulatory program as hazardous waste, and similarly is associated with tight regulatory control. Tight regulatory control over hazardous waste has resulted in treatment, storage, and disposal facilities that are generally large operations, accepting wastes from large geographic areas, and often specializing in specific waste treatment capabilities and therefore in specific waste types that can be accepted. As a result, it is common for hazardous waste to be transported relatively long distances for appropriate treatment or disposal actions. That is, compared to municipal solid waste, which is generally managed at local or regional facilities. There are no operating hazardous waste treatment, storage, and disposal facilities located in Ottawa County and only a single operating facility in Allegan County, specifically Drug and Laboratory Disposal, Inc. (MDEQ 2009b). This facility is a relatively small operation, specializing in managing lab packs and small bulk containers (55-gallon drums and smaller) (DLD 2009).

Hazardous waste and liquid industrial waste that would be generated at the proposed facility are wastes that would be amenable to treatment through incineration and possibly fuel blending or solvent recovery. In the state of Michigan during 2007, there were over 2 million tons of hazardous waste treated through incineration, 14,000 tons of hazardous waste managed through fuel blending, and 16,000 tons of hazardous waste managed through solvent recovery (EPA 2008).

3.13.1.2 Solid Waste

The City of Holland has a mandatory recycling program for residents (Holland 2009). The program is operated in conjunction with routine waste pick-up, which is performed for the City under a contract to Chef Container, LLC (Hensley 2009). Residents have a curbside container in which they place normal municipal solid waste and any recyclable materials (plastics, office paper, newspaper, aluminum and tin cans, corrugated cardboard, etc.) are put in specially provided yellow bags, which are either placed along side the curbside container or inside it. Chef Container then picks up both the bags of recyclable materials and the refuse during a single stop. The waste pickup trucks then go to the Chef Container transfer station where recyclables are sorted and bailed for offsite shipment and refuse is transferred to transport trucks for hauling to a landfill (Chef Container 2009). The City of Holland sends approximately 8,750 tons of solid waste to the landfill per year after recyclable materials are removed (Hensley 2009). Assuming 300 to 500 pounds per cubic yard is a reasonable estimate for uncompacted solid waste (EPA 1993), this amounts to about 35,000 to 58,000 cubic yards per year.

Solid waste leaving the Chef Container transfer station is taken to one of several landfills located within a 50-mile radius, depending on which site is offering the best tipping fees at the time (Hensley 2009). Table 3-5 lists the municipal solid waste disposal facilities, from closest to farthest, located within about 50 miles of the City of Holland. Also shown in the table are the

Table 3-5. Municipal solid waste disposal facilities within 50 miles of Holland, Michigan.

Landfill Name	County	Distance to Holland, MI (miles)[a]	Type II MSW Disposed in FY 2008 (cubic yards)			Years of Remaining Capacity[b]
			Total	From Ottawa County	From Allegan County	
Autumn Hills Recycling and Disposal Facility	Ottawa	8	751,000	383,000	92,000	20
South Kent Landfill	Kent	19	612,000	0	6,300	22
Ottawa County Farms Landfill	Ottawa	22	706,000	214,000	1,800	20
County of Muskegon – Solid Waste Landfill	Muskegon	33	227,000	1,200	0	13
Orchard Hill Sanitary Landfill	Berrien	41	575,000	310	1,800	79
City Environmental Services Landfill of Hastings	Barry	41	109,000	0	2,500	37
Central Sanitary Landfill	Moncalm	48	601,000	810	0	40
Pitsch Sanitary Landfill	Ionia	50	36,000	0	0	12
Rounded Totals			3,617,000	599,000	104,000	

Sources: MDEQ 2009c, MDEQ 2008b

a. Distance from the disposal facility to Holland, Michigan, was estimated from the map in MDEQ 2008b and using the scaling tool in Google™ Earth.

b. MDEQ 2009c shows two different "years of remaining capacity" figures: one reported by the disposal facility and one calculated by Michigan Department of Environmental Quality based on the volume of waste disposed during the year and the reported landfill volume remaining available. The value shown in the table is the one calculated by Michigan Department of Environmental Quality.

FY fiscal year
MSW municipal solid waste

amounts of solid waste received for disposal at each of the facilities in fiscal year 2008 and, of those totals, the amounts received from Ottawa and Allegan counties. Although the primary portions of the City of Holland are in Ottawa County, the southern portion of the city, including the proposed project site, extends into Allegan County. As a result, municipal solid waste from both counties is shown in the table and both counties are totally encompassed by the 50-mile radius circle around Holland. As can be seen in Table 3-5, most municipal solid waste generated within Ottawa County stays in the county (that is, goes to the Autumn Hills and Ottawa County Farms facilities). The Autumn Hills facility, near the Ottawa-Allegan border, also receives more municipal solid waste from Allegan County than any of the other landfills.

3.13.2 ENVIRONMENTAL CONSEQUENCES

3.13.2.1 Proposed Project

3.13.2.1.1 *Hazardous Waste*

The proposed facility is expected to generate about 61 tons per year of both hazardous and liquid industrial waste. The primary component of the waste would be the solvent NMP, which is used in the battery manufacturing process. NMP may not qualify as hazardous waste because it is not a specifically listed hazardous waste chemical and its flash point is high enough (greater than 140 degrees Fahrenheit) that it does not exhibit the characteristic of ignitability. However, if the waste does not qualify as hazardous, it would still have to be managed as liquid industrial waste and the most likely management options for this waste would be incineration, fuel blending, or solvent recovery. The production and subsequent management of about 61 tons per year of hazardous or liquid industrial waste would represent very small percentages of the 2 million tons, 14,000 tons, and 16,000 tons of hazardous waste that are managed annually through incineration, fuel blending, and solvent recovery, respectively, at the state level. In addition, these wastes could be sent to permitted hazardous waste facilities located outside of Michigan, so the amount generated by CPI could be considered even smaller percentages of larger, multi-state treatment markets. There should be no problem or increased impacts associated with the proper management of the hazardous and liquid industrial waste that would be generated by the proposed facility. Production and management of the wastes would be tightly regulated and capacity of existing treatment facilities would not be affected by the relatively minor increases in waste quantity.

As the hazardous and liquid industrial waste was generated, it would be stored temporarily at the site until there were sufficient quantities to warrant its transport off-site to a commercial treatment, storage, and disposal facility (or as needed to keep storage times below regulatory limits for temporary storage). The temporary storage would be in closed containers and it is expected that it would be inside a storage structure constructed outside the main facility. This storage facility would be about 30 feet from the main building and would be about 110 feet by 80 feet in size. It would be designed to incorporate factors, as appropriate, for fire fighting, explosion, ventilation, and security. As a storage area for containers of hazardous liquid, the facility would also have appropriate secondary containment features.

Management of hazardous and liquid industrial waste at the proposed facility would require the company to be registered with the Michigan Department of Environmental Quality as a generator of hazardous waste and liquid industrial waste and to obtain the appropriate identification number or numbers.

3.13.2.1.2 *Solid Waste*

It is estimated that the proposed facility would produce about 150 tons of municipal solid waste per year when in operation. It is possible that some of the material in this waste stream would be segregated out for recycling, particularly if CPI arranges for the waste to be collected by Chef Container as part of Holland services. For purposes of this evaluation, it is assumed that 150 tons of municipal solid waste would eventually go to a landfill for disposal. This amount of waste would represent a small portion, 1.7 percent, of the 8,750 tons per year sent from Holland to landfills for disposal. At an estimated 400 pounds per cubic yard, the annual production of 150 tons represents about 750 cubic yards, and this amount of waste would be very minor in comparison to the amount of waste currently going to landfills in the area (Table 3-5). As an example, the Autumn Hills Recycling and Disposal Facility is the closest landfill to the project site (about 8 miles) and, at least in fiscal year 2008, received most of the waste generated in Ottawa and Allegan counties. If it is assumed that all of the municipal solid waste from the proposed facility went to the Autumn Hills landfill, it would represent a 0.01 percent increase from the 2008 disposal volume. Further, this added volume of waste would result in the estimated 20-year life of the landfill being decreased by about 0.02 year or about 1 week. The increased loading of municipal solid waste would have no notable impact on the regional disposal capacity.

There would also be scrap metal generated from the battery manufacturing process that would be sent off-site for recycling. It is estimated that the quantity of these materials would be about 720 tons per year. Relative environmental impacts would be expected to be positive as a result of these materials being recycled.

3.13.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No impacts to waste management resources would occur.

3.14 Transportation

3.14.1 AFFECTED ENVIRONMENT

This section describes the existing transportation infrastructure on and surrounding the project site.

3.14.1.1 Roadways

The 80-acre project site is located at the intersection of East 48th Street, also known as East 146th Avenue, and the CSX rail line. This location is just east of the intersection of East 48th Street and South Waverly Road (Figure 2-1). State Highway 40, also known as Lincoln Road, has an interchange with Interstate 196, the Gerald R. Ford Freeway, about 0.75 mile south of the project site. North-bound State Highway 40 intersects South Waverly Road about 0.43 mile south of East 48th Street.

An October 2009 traffic count indicated average daily traffic on East 48th Street east of Waverly Road was 1,809 (Eun 2009). East 48th Street would provide access to the proposed facility.

3.14.1.2 Aviation

The City of Holland is serviced by two public general aviation airports, the Tulip City Airport (BIV) and the Park Township Airport (HLM), neither served by regularly scheduled commercial carriers. The Tulip City Airport is owned by the City of Holland and caters to corporate and charter jets. It is a modern all weather airport that has paved runways with taxiways, lighting, and taxiway identification, along with an instrument landing system approach to its 6,262-foot runway. The Park Township Airport is owned by Park Township and caters to smaller planes. It has a lighted paved strip.

Commercial airline service from seven airlines is available in Grand Rapids, Michigan, at Gerald R. Ford International Airport, about 35 miles northeast of Holland.

3.14.1.3 Rail

CSX Transportation provides rail services to the City of Holland with main rail line connections to Detroit, Michigan and Chicago, Illinois. A rail line from CSX occurs along the western boundary of the proposed project site.

The City of Holland offers regularly scheduled Amtrak service east to Grand Rapids, Michigan and west to Chicago, Illinois; where connections can be made to all points in the Amtrak system.

3.14.2 ENVIRONMENTAL CONSEQUENCES

3.14.2.1 Proposed Project

Traffic flow along East 48th Street, the only access road to the project site, would be impacted by the increased traffic associated with construction and operation of the proposed facility. During construction, an additional 550 workers would use East 48th Street daily to access the site. During operations, 450 persons would use the road daily. At full capacity, about 25 trucks per day would travel in and out of the facility for shipping of finished goods, receiving supplies and material, and for mail or package distribution. This worker and truck traffic would be in addition to the existing 1,809 average daily vehicles on the street and represents an increase in traffic of

25 percent. CPI would use two shifts during initial production and three shifts at full production, so the worker traffic would be split during the day and not occur at one time. No overlapping traffic should occur between shifts because all incoming workers would be at the facility before the shift hour begins and all outgoing workers would leave the facility after the shift hour ends.

The City of Holland has plans in the developmental stages to expand East 48th Street from Waverly Road to the east city limit, a distance of approximately 3,700 feet. CPI has submitted a road grant application to the Michigan Department of Transportation on behalf of the City of Holland for Category A funding (Frederick 2009). Category A funding is for road projects related to targeted industry development and for redevelopment opportunities. The design of the road expansion would be similar to improvements made to East 40th Street north of the project site. The road would be widened from the existing two lanes to three lanes with curbs and gutters. The City of Holland has not prepared the final design, but turning lanes might be provided if requested by CPI (Frederick 2009). The lane widening would occur within an existing city right of way.

3.14.2.2 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funding to CPI and the facility would not be built. No impacts to transportation would occur.

3.15 The Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Council on Environmental Quality regulations that implement the procedural requirements of NEPA require consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). Construction and operation of the facility would require short-term uses of land and other resources. Short-term use of the environment, as used here, is that used during the life of the project, whereas long-term productivity refers to the period of time after the project has been decommissioned, the equipment removed, and the land reclaimed and stabilized. The short-term use of the project site for the proposed facility would not affect the long-term productivity of the area. If it is decided at some time in the future that the project has reached its useful life, the facility and foundations could be decommissioned and removed, and the site reclaimed and revegetated to resemble a similar habitat to the pre-disturbance conditions.

3.16 Irreversible and Irretrievable Commitments of Resources

There would be an irretrievable commitment of land required for construction and operation of the new facility; because other uses would be precluded during the time the land is being used for the proposed use. There would also be an irreversible commitment of energy and materials used to construct and operate the facility. The materials used for the project would include construction materials and materials used to manufacture lithium-ion batteries, such as cathode

materials, anode materials, separators, cans, and foils and chemicals such as NMP and $LiPF_6$. DOE would also have expended the finances associated with the funding for the proposed project.

3.17 Unavoidable Adverse Impacts

Construction and operation of the proposed facility would cause unavoidable emissions of some criteria air pollutants. However, air pollutant concentrations would be regulated by the required permits from the Michigan Department of Environmental Quality and would not exceed the NAAQS. About 40 acres of "prime farmland if drained" and "farmland of local importance" would be converted to industrial use, consistent with the City of Holland's zoning. This farmland is protected under the Farmland Protection Policy Act. Preliminary evaluation indicates the value of this farmland to be low, based on zoning, the size of the farmland, and other factors. One residence at the southeastern boundary of the site on the south side of East 48th Street would be subject to minor, short-term adverse impacts from noise generated during the construction of the proposed facility. This residence would also experience increased traffic noise on East 48th Street from commuting workers and trucks traveling to the facility. The need for construction materials, such as steel and concrete would be unavoidable, but would represent a small fraction of available materials. The generation of some solid wastes, construction debris, and hazardous wastes would be unavoidable. CPI would handle all wastes in accordance with applicable regulations, and would implement best management practices and pollution prevention/waste minimization programs.

4. CUMULATIVE IMPACTS

Council on Environmental Quality regulations stipulate that the cumulative effects analysis within an EA consider the potential environmental impacts resulting from the "incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions" (40 CFR 1508.7). This chapter presents past, present, and reasonably foreseeable actions at the project site, followed by potential cumulative impacts.

4.1 Past, Present, and Reasonably Foreseeable Actions

Allegan County is mostly rural in nature. Extensive lumbering by early settlers cleared the way for farm production (Allegan 2008) and resulted in long-term adverse impacts to the land use, soils, and potentially the flora and fauna of the county. Allegan County is one of the fastest growing regions of the state as a result of an influx of technology and other light industries (Allegan 2008). The City of Holland South End Master Plan addresses the desired characteristics for growth in this area of the city to include a mix-used neighborhood area (City of Holland 2000).

The City of Holland recognizes one current and three future projects within the area of the proposed project site that are considered in the cumulative impacts analyses (Meyers 2009a). These projects, south of 24th Street and east of Washington, include a mixture of light industrial and residential development. Phase I of the mixed-use Kensington Development, consisting of commercial, residential and open space, is currently underway. A total of 84 acres of development is planned in the area with 19 acres under Phase I (Meyers 2009b). A central open space area, a community building and 20 of the 72 residential units are already completed (Meyers 2009b).

Approximately 2 miles west of the proposed project site is the proposed site for the Johnson Controls-Saft Advanced Power Solutions factory which will produce advanced lithium-ion cells for automotive applications (Anonymous 2009). The facility plans to begin supplying batteries for Ford's plug-in hybrid electric vehicles by 2012 which will generate over 450 new jobs.

Lean Logistics, a transportation network, plans to re-use an existing vacant industrial building as a proposed call center. Lean Logistics would upgrade the current facility and add approximately 300 to 500 new jobs in the area, with approximately 114 jobs to be filled by the end of 2010 (Goodall 2009).

The final proposed future project in the south end area is the improvement of an existing city-owned parcel for an elementary school and park. The 20-acre parcel is south of the Kensington development; however, the city has no immediate schedule for the development (Meyers 2009b).

4.2 Cumulative Impacts Summary

Short-term cumulative impacts to the affected environment presented in Chapter 3 are mainly confined to the time frame during the construction of the site and the effects on land use, aesthetics, air quality, noise, hazardous waste, infrastructure, and transportation. Impacts from construction activities include increased exhaust emissions and noise from machinery, traffic, construction debris, soil erosion, and visual impacts of the construction site. These impacts would be temporary and best construction management practices would be used to lessen these impacts.

Long-term cumulative impacts would include the conversion of agricultural land to industrial, commercial, and residential uses. However, the development of this land is compatible with the future land use plans of the City of Holland (City of Holland 2000). Cumulative effects to biological and soil resources would be coupled with the change in land use. The proposed CPI facility would result in the conversion of at least 40 acres of "prime farmland if drained" and "farmland of local importance." The present and future projects would also result in loss of prime farmland; however the impacts to prime farmland would not be significant due to the size of the area relative to the average size farms (172 acres) in Allegan County.

Cumulative impacts to aesthetics and visual resources would occur as buildings replace the once open landscape. In an effort to enhance the visual character of the I-196 corridor, which is a major gateway to the City of Holland, and convey the image of the "Tulip City," corridor overlays will concentrate on enhancing the visual character of the area (City of Holland 2000). Development along the M40 and I-196 corridor will address the general character of the corridor, including the placement of the buildings, landscaping, signage, and access management to maintain the special character and aesthetics of the area and reduce cumulative impacts to visual resources (City of Holland 2000).

As the area becomes more developed, cumulative impacts to air quality, transportation, and noise would occur from increased traffic. The current configuration of East 48th Street is a narrow two-lane road with minimal shoulders and limited drainage, and will not hold up structurally to an increase in commercial traffic (Syens 2009). Cumulative impacts can be reduced with upgrades planned by the city (approximately 3,700 feet) entirely within the existing right-of-way. The upgrades will maintain the number of through lanes at two and add a center turn lane, storm sewer, and curb and gutter. If additional funding is available, and it were deemed necessary, the City may look at extending this same configuration to the small segment of East 48th Street between M-40 and Waverly Road (Syens 2009). Annual resurfacing programs by the City of Holland, and potentially the Michigan Department of Transportation resurfacing M-40 from I-196 to US-31, will also reduce cumulative impacts to traffic as roadways are improved for increase traffic volume.

The proposed CPI facility would impact three regulated wetlands and mitigation for these wetlands would be necessary as described in Section 3.6.2.1.3. Additionally, several freshwater

emergent wetlands, forested/shrub wetlands, and a large freshwater pond, most likely borrow pits remaining from highway construction (City of Holland 2000), exist on the sites of future proposed projects. Cumulative impacts to wetlands may occur if the current and future projects would impact these wetlands and further mitigation efforts may be necessary.

Long-term cumulative impacts to socioeconomics would be beneficial. The proposed CPI facility combined with the present and future planned development would increase employment, spending in the local economy, and the tax base of the City of Holland, Allegan County, and the State of Michigan.

5. CONCLUSIONS

The proposed facility would be constructed in the southeast part of Holland, Michigan. The facility would be built on agricultural land, the majority of which is zoned industrial, and would be compatible with surrounding land use. A small portion of the site, located in adjacent Fillmore Township, would require a zoning change from residential use to industrial use. Vehicular and construction equipment exhaust would be a source of pollutant emissions, but would have a negligible impact on air quality. DOE estimates that the facility would emit 4.83 tons of NO_x, 0.42 tons of CO, and 3.61 tons of dust annually. CPI would obtain all necessary air permits from the Michigan Department of Environmental Quality. High-volume output of lithium-ion batteries resulting from operations of the facility is expected to result in significant reductions in carbon dioxide generated across the nation; and thus, a significant beneficial impact to air quality could be realized.

One residence at the southeastern boundary of the site on the south side of East 48th Street would be subject to minor, short-term adverse impacts from noise generated during the construction of the proposed facility. This residence would also experience increased traffic noise on East 48th Street from commuting workers and trucks traveling to the facility. Transportation impacts from increased traffic on East 48th Street would be lessened if the City of Holland widened this street. The City of Holland has plans in the developmental stages to expand East 48th Street from Waverly Road to the east city limit, a distance of approximately 3,700 feet. The road would be widened from the existing two lanes to three lanes with curbs and gutters; turning lanes may be added.

The proposed project site is visible from two residences, one on the south side of East 48th Street and one on the south side of East 40th Street. These residences would experience short-term visual impacts from construction activities and long-term visual impacts from the conversion of open, agricultural land to industrial use. However, the facility would be well-landscaped and would be compatible with surrounding developed areas to the west and northwest.

About 40 acres of "prime farmland if drained" and "farmland of local importance" would be converted to industrial use, consistent with the City of Holland's zoning. This farmland is protected under the Farmland Protection Policy Act. The National Resources Conservation Service's evaluation indicates the value of this farmland to be low, based on zoning, the size of the farmland, and other factors.

The proposed project would impact approximately 2.21 acres of regulated wetlands. Since greater than 0.3 acre of a wetland would be disturbed, compensatory mitigation measures, in the form of mitigation banking, would be required. CPI would mitigate the wetlands impact by replicating approximately 3.5 acres of wetlands at the VanRaalte Farm Park in Holland. Compensatory mitigation measures would ensure that wetlands impacts would not be considered significant.

Long-term beneficial socioeconomic impacts would occur from increased employment opportunities and spending in the local economy. Long-term benefits to the nation's transportation industry would also occur from high-volume output of lithium-ion batteries by savings of fuel oil and greater use of plug-in hybrid electric vehicles.

No adverse impacts to water resources, environmental justice, utility systems, hazardous and solid waste management, geology and soils, biological resources, cultural resources, or occupational health and safety would occur.

Under the No-Action Alternative, DOE would not provide funding to CPI and it is assumed that the proposed facility would not be built. No impacts to the existing environment would occur. In addition, the potential beneficial impacts discussed above would not be realized.

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APPENDIX A. DISTRIBUTION LIST

State and Local Offices

Herrick District Library
300 S. River Avenue
Holland, MI 49423

Rebecca Humphries, Director
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909

Brian D. Conway, State Historic Preservation Officer
Michigan State Historic Preservation Office
Michigan Historical Center
P.O. Box 30740
702 W. Kalamazoo Street
Lansing, MI 48909

Governor of Michigan
P.O. Box 30013
Lansing, MI 48909

William Parkus
Coordinator, Regional Review Office
Southeast Michigan Council of Governments
535 Griswold, Suite 300
Detroit, MI 48226

Keith Potter
Fillmore Township--Supervisor
4219 52nd Street
Holland, MI 49423

Gregory W. Robinson
Holland Assistant City Manager
City Hall
270 S. River
Holland, MI 49423

Federal Offices

Craig Czarnecki, Field Supervisor
U.S. Fish and Wildlife Service
East Lansing Ecological Services Office
2651 Coolidge Road
East Lansing, MI 48823

Tina Clemmons
Allegan Conservation District
USDA Natural Resources Conservation Service
1668 Lincoln Road (M-40)
Allegan, MI 49010

Tribes

John Barrett, Chairman
Citizen Potawatomi Nation
1601 South Gordon Cooper Drive
Shawnee, OK 74801

Harold Frank, Chairman
Forest County Potawatomi Community
P.O. Box 340
Crandon, WI 54520

Kenneth Meshigaud, Chairman
Hannahville Indian Community
N14911 Hannahville B1 Road
Wilson, MI 49896

David Sprague, Chairman
Match-e-be-nash-she-wish Band of Potawatomi
P.O. Box 218
Dorr, MI 49823

Charles Todd, Chief
Ottawa Tribe of Oklahoma
P.O. Box 110
Miami, OK 74355

John Miller, Chairperson
Pokagon Band of Potawatomi Indians
P.O. Box 180
Dowagiac, MI 49047

Steve Ortiz, Chairperson
Prairie Band of Potawatomi Nation
16281 Q Road
Mayetta, KS 66509

Others

Randy Thelen
Lakeshore Advantage – President
201 W. Washington - Loft 410
Zeeland, MI 4946

APPENDIX B. CONSULTATIONS

This appendix contains consultation correspondence between DOE and the Natural Resources Conservation Service, U.S. Fish and Wildlife Service, Michigan Department of Natural Resources, State Historic Preservation Office, and seven separate federally recognized tribes chosen according to the U.S. Department of Housing and Urban Development – Office of Community Planning and Development – Environmental Planning Division (Citizen Potawatomi Nation, Forest County Potawatomi Community, Hannahville Indian Community, Match-e-be-nash-she-wish Band of Potawatomi, Ottawa Tribe of Oklahoma, Pokagon Band of Potawatomi Indians, and the Prairie Band of Potawatomi Nation).

November 19, 2009

Craig Czarnecki, Field Supervisor
U.S. Fish and Wildlife Service
East Lansing Ecological Services Office
2651 Coolidge Road
East Lansing, MI 48823

Dear Mr. Czarnecki:

SUBJECT: U.S. Department of Energy Conclusion of No Effects for Construction and Operation of a New Battery Manufacturing Facility in Holland, Michigan to Supply Lithium Ion Batteries for Automotive

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market.

The site selected for the manufacturing facility is in the town of Holland, Allegan County, Michigan. The 80-acre site is located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (Attachment 1). The site is currently agricultural land zoned for industrial use. The surrounding area is comprised of a sizable industrial part, including neighboring firms such as Haworth, Tiara Yachts, Sherwin Williams, USF Holland, Global Sourcing Solutions and various industrial warehouse buildings. The immediate vicinity consists of agriculture land that is zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

A portion of the 80 acres would be used to construct and operate a single-story, 800,000 square-foot manufacturing building. The project includes construction of a building for manufacturing and office spaces, a detached storage, paved surface parking lots and detention pond. One or two private access road(s) to the project site are planned, and the existing public road on frontage of the site is planned to be improved with a turning lane.

To comply with Section 7(a)(2) of the Endangered Species Act, the DOE has obtained from the United States Fish and Wildlife Service's *Midwest Region Endangered Species Program – Technical Assistance Website* a list of federally-listed threatened, endangered, proposed and candidate species that occur within Allegan County. The list includes four species:

Indiana bat (*Myotis sodalist*) - endangered
Eastern massasauga (*Sistrurus catenatus catenatus*)- candidate
Karner blue butterfly (*Lycaeides melissa samuelis*)- endangered
Pitcher thistle (*Cirsium pitcher*) – threatened

The DOE has concluded that the construction and operation of the lithium-ion polymer battery cells manufacturing facility in Holland, Michigan would have no effect on Federally-listed species or habitats for the following reasons: (1) while these species may occur in Allegan County, DOE does not believe that habitat to support the species is available, and therefore the species are unlikely present at the site; (2) the project will be constructed within an area that is already disturbed as it is being used for row crops.

Additionally, based on a 2009 Wetlands delineation report of the site, three wetland systems are located on the property and one wetland system borders the northeastern edge of the property. Three of the wetlands, including the one on the border of the property, appear to meet the requirements of Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451(NREPA) and would be considered regulated by the Michigan Department of Environmental Quality (MDEQ). These linear wetlands are ≤ 5 acres; however, they are interconnected with the Macatawa River (North Branch).

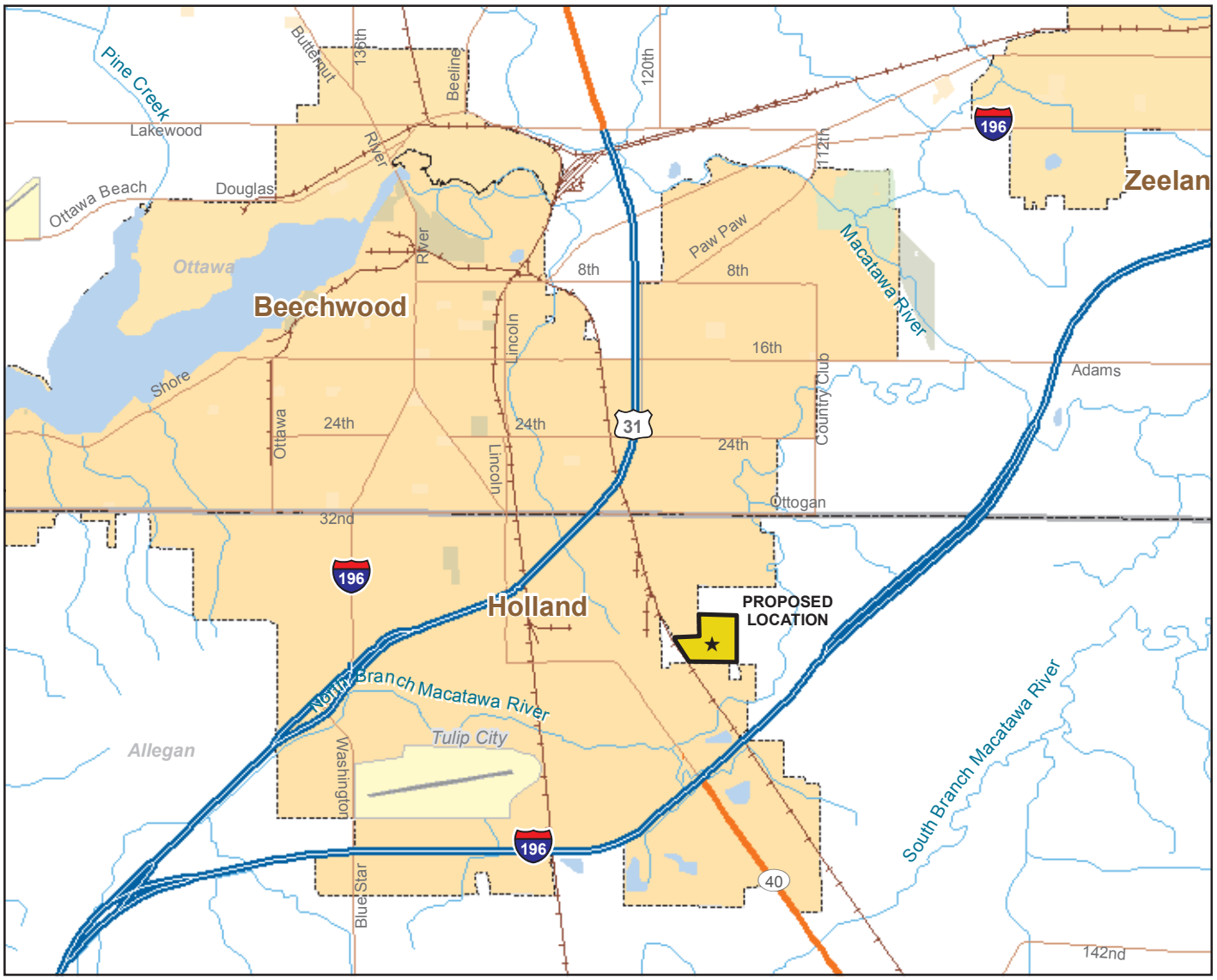
An environmental assessment currently is being prepared for this project by the Department's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to your office later this year.

If you have any comments or questions about the Compact Power facility or our conclusion that the project will have no effect on federally-listed species, please contact me at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
P.O. Box 880
3610 Collins Ferry Road
Morgantown, WV 26507-0880
Telephone: 304-285-4145
Email: mark.lusk@netl.doe.gov

Thank you for taking the time to review this letter and attachment. Please respond with any comments or concurrence of this assessment to enable us to complete this phase of the project within the scheduled timeframe. DOE anticipates releasing the draft EA for public comment on December 18, 2009 for a 30-day public comment period. DOE appreciates your agency's input and looks forward to working with you on this and future projects.

Sincerely,



0 1 2 Miles

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N

Legend

- City boundary
- County boundary
- Rivers and reservoirs
- Interstate highway
- Railroad

A1 Compact loc

Attachment 1. Project location -- Holland, Michigan

November 19, 2009

Rebecca Humphries, Director
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909

Dear Ms. Humphries

SUBJECT: U.S. Department of Energy Conclusion of No Effects for Construction and Operation of a New Battery Manufacturing Facility in Holland, Michigan to Supply Lithium Ion Batteries for Automotive

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market.

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A portion of the 80 acres would be used to construct and operate a single-story, 800,000 square-foot manufacturing building. The project includes construction of a building for manufacturing and office spaces, a detached storage, paved surface parking lots and detention pond. One or two private access road(s) to the project site are planned, and the existing public road on frontage of the site is planned to be improved with a turning lane.

The DOE has obtained from the Michigan Department of Natural Resources' *Endangered and Non-game Wildlife Website* a list of state-listed endangered and threatened species that occur within Allegan County. The list includes 48 state threatened and 13 state endangered species as well as the four federally listed species:

Indiana bat (*Myotis sodalist*) - endangered
Eastern massasauga (*Sistrurus catenatus catenatus*)- candidate
Karner blue butterfly (*Lycaeides melissa samuelis*)- endangered
Pitcher thistle (*Cirsium pitcher*) – threatened

Lack of flowing water and large water bodies on the site reduces the chance that the state listed amphibian, reptile, fish and mussel species exist on the proposed site. Additionally, native vegetation and extensive canopy layered habitat is not available at the site due to the row crop use of the area, and reduces the potential use of the area by the 8 avian and 1 listed mammal species. The DOE has concluded that the construction and operation of the lithium-ion polymer battery cells manufacturing facility in Holland, Michigan would have no effect on state or federally-listed species for the following reasons: (1) while the federally-listed species may occur in Allegan County, DOE does not believe that habitat to support the species is available, and therefore the species are unlikely present at the site; (2) the project will be constructed within an area that is already disturbed as it is being used for row crops.

Additionally, based on a 2009 Wetlands delineation report of the site, three wetland systems are located on the property and one wetland system borders the northeastern edge of the property. Three of the wetlands, including the one on the border of the property, appear to meet the requirements of Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451(NREPA) and would be considered regulated by the Michigan Department of Environmental Quality (MDEQ). These linear wetlands are ≤ 5 acres; however, they are interconnected with the Macatawa River (North Branch). None of the state-listed wetland plant species were documented during the wetlands delineations and species-specific wetland habitat characteristics do not appear to be supported at these documented wetlands.

An environmental assessment currently is being prepared for this project by the Department's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to your office later this year.

If you have any comments or questions about the Compact Power facility or our conclusion that the project will have no effect on federally-listed species, please contact me at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
P.O. Box 880
3610 Collins Ferry Road
Morgantown, WV 26507-0880
Telephone: 304-285-4145
Email: mark.lusk@netl.doe.gov

Thank you for taking the time to review this letter and attachment. Please respond with any comments or concurrence of this assessment to enable us to complete this phase of the project within the scheduled timeframe. DOE anticipates releasing the draft EA for public comment on

December 18, 2009 for a 30-day public comment period. DOE appreciates your agency's input and looks forward to working with you on this and future projects.

Sincerely,

Mark Lusk
NEPA Document Manager

Enclosure/Attachment 1: Map of the project location

November 12, 2009

Brian D. Conway, State Historic Preservation Officer
Michigan State Historic Preservation Office
Michigan Historical Center
P.O. Box 30740
702 W. Kalamazoo St.
Lansing, MI 48909-8240

Dear Mr. Conway:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, Michigan.

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to historic or archeological resources at the project site in Holland, Michigan for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently used for agricultural purposes and has been since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to your office later this year.

To aid in the preparation of that Environmental Assessment, and to meet our obligations under Section 106 of the National Historic Preservation Act to take into account the effects of undertakings by federal agencies on historic properties, DOE is requesting any additional information your office has on historic properties that may occur within one mile of the proposed project site. Please respond to Mr. Mark Lusk of the National Energy Technology Laboratory at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark.Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

November 12, 2009

John Barrett, Chairman
Citizen Potawatomi Nation
1601 South Gordon Cooper Drive
Shawnee, Oklahoma 74801

Dear Mr. Barrett:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, MI

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to tribal resources or artifacts for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently being used for agricultural purposes and has since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to you for your review and comments.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed CPI facility and any comments or concerns you have on the potential for this Project to affect those properties.

This information is being requested to aid in the preparation of that Environmental Assessment and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Mark Lusk of the National Energy Technology Laboratory as soon as possible at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark.Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

November 12, 2009

Harold Frank, Chairman
Forest County Potawatomi Community
P.O. Box 340
Crandon, Wisconsin 54520

Dear Mr. Frank:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, MI.

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to tribal resources or artifacts for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently being used for agricultural purposes and has since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to you for your review and comments.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed CPI facility and any comments or concerns you have on the potential for this Project to affect those properties.

This information is being requested to aid in the preparation of that Environmental Assessment and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Mr. Mark Lusk of the National Energy Technology Laboratory as soon as possible at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark_Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

November 12, 2009

Kenneth Meshigaud, Chairman
Hannahville Indian Community
N14911 Hannahville B1 Road
Wilson, Michigan 49896-9728

Dear Mr. Meshigaud:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, MI.

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to tribal resources or artifacts for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently being used for agricultural purposes and has since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to you for your review and comments.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed CPI facility and any comments or concerns you have on the potential for this Project to affect those properties.

This information is being requested to aid in the preparation of that Environmental Assessment and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Mr. Mark Lusk of the National Energy Technology Laboratory as soon as possible at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark.Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

November 12, 2009

David Sprague, Chairman
Match-e-be-nash-she-wish Band of Potawatomi
P.O. Box 218
Dorr, Michigan 49823

Dear Mr. Sprague:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, MI.

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to tribal resources or artifacts for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently being used for agricultural purposes and has since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to you for your review and comments.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed CPI facility and any comments or concerns you have on the potential for this Project to affect those properties.

This information is being requested to aid in the preparation of that Environmental Assessment and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Mr. Mark Lusk of the National Energy Technology Laboratory as soon as possible at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark_Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

November 12, 2009

Charles Todd, Chief
Ottawa Tribe of Oklahoma
P.O. Box 110
Miami, Oklahoma 74355

Dear Mr. Todd:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, MI.

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to tribal resources or artifacts for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently being used for agricultural purposes and has since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to you for your review and comments.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed CPI facility and any comments or concerns you have on the potential for this Project to affect those properties.

This information is being requested to aid in the preparation of that Environmental Assessment and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Mr. Mark Lusk of the National Energy Technology Laboratory as soon as possible at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark.Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

November 12, 2009

John Miller, Chairperson
Pokagon Band of Potawatomi Indians
P.O. Box 180
Dowagiac, Michigan 49047

Dear Mr. Miller:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, MI

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to tribal resources or artifacts for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently being used for agricultural purposes and has since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to you for your review and comments.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed CPI facility and any comments or concerns you have on the potential for this Project to affect those properties.

This information is being requested to aid in the preparation of that Environmental Assessment and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Mr. Mark Lusk of the National Energy Technology Laboratory as soon as possible at the following:

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U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark.Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

November 12, 2009

Steve Ortiz, Chairperson
Prairie Band of Potawatomi Nation
16281 Q Road
Mayetta, Kansas 66509

Dear Mr. Ortiz:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Allegan County, MI.

The U.S. Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market. The facility would be located in the Town of Holland, Allegan County, Michigan.

Construction of the CPI facility would require disturbing some portion of an 80-acre site and would include a building for manufacturing and office spaces, a detached storage, paved surface parking lots, and detention pond. The facility would be constructed on land located at the intersection of East 48th Street (also known as East 146th Street) and the CSX rail line (see attached map). The site is currently agricultural land zoned for industrial use. The 80-acre site is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

DOE does not have any reason to believe the project would cause any effects to tribal resources or artifacts for the following reasons: (1) the site is vacant land and there are no structures or foundations on the site; and (2) the site is currently being used for agricultural purposes and has since at least 1940.

An Environmental Assessment currently is being prepared for this project by the DOE's National Energy Technology Laboratory to meet the requirements of the National Environmental Policy Act. A copy of that Environmental Assessment will be sent to you for your review and comments.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed CPI facility and any comments or concerns you have on the potential for this Project to affect those properties.

This information is being requested to aid in the preparation of that Environmental Assessment and to meet our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Mr. Mark Lusk of the National Energy Technology Laboratory as soon as possible at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P. O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark.Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachment: Site Location Map

December 2, 2009

Ms. Tina Clemmons
Allegan Conservation District
USDA Natural Resources Conservation Service
1668 Lincoln Road (M-40)
Allegan, MI 49010

Dear Ms. Clemmons:

SUBJECT: Compact Power, Inc., Electric Drive Vehicle Battery and Component Manufacturing, Holland, Allegan County, Michigan; Compliance with the Farmland Protection Policy Act.

The United States Department of Energy (DOE) is proposing to provide funding to Compact Power, Inc. (CPI) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells. The battery cells would be manufactured and delivered to meet General Motor's performance and production specifications for the Volt, General Motor's first high volume production Extended Range Electric Vehicle (EREV) or Plug-In Hybrid Electric Vehicle (PHEV) in the U.S. The project would provide a foundation for the emergence, growth, and success of EREV in the U.S. automobile market.

The site selected for the manufacturing facility is in the town of Holland, Allegan County, Michigan. The 80-acre site is located at the intersection of East 48th Street (also known as East 146th Avenue) and the CSX rail line (Attachment 1). A portion of the 80 acres would be used to construct and operate a two-story, 800,000 square-foot manufacturing building. The project includes construction of a building for manufacturing and office spaces, a detached storage, paved surface parking lots and detention pond. The site is currently agricultural land zoned for industrial use and is surrounded by the CSX rail to the west, agricultural land to the north and east, and 48th Street to the south.

The site being evaluated for construction of the manufacturing facility is comprised of "prime farmland if drained" (76 percent) and "farmland of local importance" (24 percent). All 80 acres of the site would be removed from farm use due to construction of the facility even though only about half the site would be covered by buildings, roads, or parking lots. Attachment 2 shows the results of the custom farmland classification report, derived from the NRCS Web Soil Survey database, for the site.

The Farmland Protection Policy Act (7 CFR Part 658) requires Federal agencies to identify and take into account the adverse effects of their programs on the preservation of farmland. The majority of the site being evaluated is located within the City of Holland and is zoned for industrial use, but the eastern portion of the site is outside the city limits, within Fillmore Township. Although the majority of the site is zoned industrial, and the Farmland Protection Policy Act exempts urban lands from the provisions of the Act, we are including a Farmland Conversion Impact Rating Form (Attachment 3), with Parts I, III, and VI completed, for your consideration.

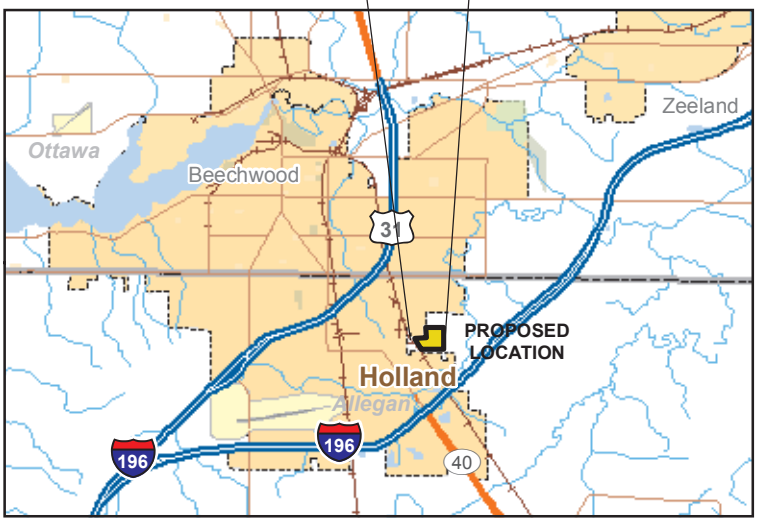
We feel the conversion of about 80 acres of "prime farmland if drained" and "farmland of local importance" at this location is warranted due to the national importance of this proposal and, given the zoning, is consistent with the Farmland Protection Policy Act. The purpose of this letter and attached evaluation form is to request input and/or concurrence from the NRCS on the proposed federal action. If you have questions or require further information, please contact Mark Lusk of the National Energy Technology Laboratory at the following:

Mr. Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
P.O. Box 880, MS B07
Morgantown, WV 26507-0880
Telephone: (304) 285-4145
Email: Mark.Lusk@netl.doe.gov

Sincerely,

Mark Lusk
NEPA Document Manager

Attachments: Attachment 1 – Site Location Map
Attachment 2 – Custom Farmland Classification Report for Site
Attachment 3 – Farmland Conversion Impact Rating Form



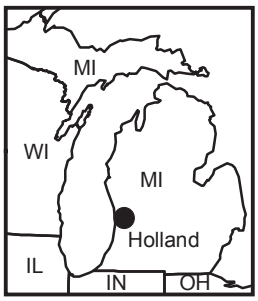
Legend

- City boundary
- County boundary
- Rivers and reservoirs
- Interstate highway
- Railroad

N

0 1 2 3 4 Kilometers

0 1 2 Miles



1 Compact loc

Attachment 1. Project location -- Holland, Michigan


86° 4' 36"
86° 3' 52"
575600
575700
575800
575900
576000
576100
576200
576300
576400
576500
42° 45' 37"
42° 45' 15"
4734600
4734500
4734400
4734300
4734200
4734100
4734000
Waverly Ct
41B
41B
36
21B
28A
36
39
146th Ave
86° 4' 37"
86° 3' 53"
Map Scale: 1:4,760 if printed on A size (8.5" x 11") sheet.
N
Meters
0 50 100 200 300
Feet
0 250 500 1,000 1,500

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Political Features

- Cities

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:4,760 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 16N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Allegan County, Michigan
Survey Area Data: Version 8, Jun 17, 2009

Date(s) aerial images were photographed: 6/6/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification

Farmland Classification— Summary by Map Unit — Allegan County, Michigan				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
21B	Capac-Wixom complex, 1 to 4 percent slopes	Prime farmland if drained	0.1	0.2%
28A	Rimer loamy sand, 0 to 4 percent slopes	Farmland of local importance	18.8	24.0%
36	Corunna sandy loam	Prime farmland if drained	21.7	27.7%
39	Granby loamy sand	Farmland of local importance	0.1	0.1%
41B	Blount silt loam, 1 to 4 percent slopes	Prime farmland if drained	37.5	48.0%
Totals for Area of Interest			**78.2**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 12/1/09
Name Of Project Compact Power,Inc Electric Battery Manufacturing	Federal Agency Involved U.S. Department of Energy
Proposed Land Use Vehicle Electric Battery Manufacturing Facility	County And State Allegan, MI (City of Holland & Fillmore Twnshp)
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☐	No ☐	Acres Irrigated	Average Farm Size
Major Crop*(s)*	Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined in FPPA Acres: %	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System		Date Land Evaluation Returned By NRCS	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	80.0			
B. Total Acres To Be Converted Indirectly	0.0			
C. Total Acres In Site	80.0	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	7			
2. Perimeter In Nonurban Use	10	7			
3. Percent Of Site Being Farmed	20	19			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area	15	0			
6. Distance To Urban Support Services	15	0			
7. Size Of Present Farm Unit Compared To Average	10	0			
8. Creation Of Nonfarmable Farmland	10	0			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	2			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	0			
TOTAL SITE ASSESSMENT POINTS	160	40	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	40	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	40	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ■

Reason For Selection:

(See Instructions on reverse side) **Form AD-1006 (10-83)**

This form was electronically produced by National Production Services Staff

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step '4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

Site Assessment Scoring for the Twelve Factors Used in FPPA

The Site Assessment criteria used in the Farmland Protection Policy Act (FPPA) rule are designed to assess important factors other than the agricultural value of the land when determining which alternative sites should receive the highest level of protection from conversion to non agricultural uses.

Twelve factors are used for Site Assessment and ten factors for corridor-type sites. Each factor is listed in an outline form, without detailed definitions or guidelines to follow in the rating process. The purpose of this document is to expand the definitions of use of each of the twelve Site Assessment factors so that all persons can have a clear understanding as to what each factor is intended to evaluate and how points are assigned for given conditions.

In each of the 12 factors a number rating system is used to determine which sites deserve the most protection from conversion to non-farm uses. The higher the number value given to a proposed site, the more protection it will receive. The maximum scores are 10, 15 and 20 points, depending upon the relative importance of each particular question. If a question significantly relates to why a parcel of land should not be converted, the question has a maximum possible protection value of 20, whereas a question which does not have such a significant impact upon whether a site would be converted, would have fewer maximum points possible, for example 10.

The following guidelines should be used in rating the twelve Site Assessment criteria:

1. How much land is in non-urban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent:	15 points
90-20 percent:	14 to 1 points
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the area within one mile of the proposed site is non-urban area. For purposes of this rule, "non-urban" should include:

- Agricultural land (crop-fruit trees, nuts, oilseed)
- Range land
- Forest land
- Golf Courses
- Non paved parks and recreational areas
- Mining sites
- Farm Storage
- Lakes, ponds and other water bodies
- Rural roads, and through roads without houses or buildings
- Open space
- Wetlands
- Fish production
- Pasture or hayland

Urban uses include:

- Houses (other than farm houses)
- Apartment buildings
- Commercial buildings
- Industrial buildings
- Paved recreational areas (i.e. tennis courts)
- Streets in areas with 30 structures per 40 acres
- Gas stations

- Equipment, supply stores
- Off-farm storage
- Processing plants
- Shopping malls
- Utilities/Services
- Medical buildings

In rating this factor, an area one-mile from the outer edge of the proposed site should be outlined on a current photo; the areas that are urban should be outlined. For rural houses and other buildings with unknown sizes, use 1 and 1/3 acres per structure. For roads with houses on only one side, use one half of road for urban and one half for non-urban.

The purpose of this rating process is to insure that the most valuable and viable farmlands are protected from development projects sponsored by the Federal Government. With this goal in mind, factor S1 suggests that the more agricultural lands surrounding the parcel boundary in question, the more protection from development this site should receive. Accordingly, a site with a large quantity of non-urban land surrounding it will receive a greater
number of points for protection from development. Thus, where more than 90 percent of the area around the proposed site (do not include the proposed site in this assessment) is non-urban, assign 15 points. Where 20 percent or less is
non-urban, assign 0 points. Where the area lies between 20 and 90 percent non-urban, assign appropriate points from 14 to 1, as noted below.

Percent Non-Urban Land within 1 mile	**Points**
90 percent or greater	15
85 to 89 percent	14
80 to 84 percent	13
75 to 79 percent	12
70 to 74 percent	11
65 to 69 percent	10
60 to 64 percent	9
55 to 59 percent	8
50 to 54 percent	7
45 to 49 percent	6
40 to 44 percent	5
35 to 39 percent	4
30 to 24 percent	3
25 to 29 percent	2
21 to 24 percent	1
20 percent or less	0

2. How much of the perimeter of the site borders on land in non-urban use?

More than 90 percent:	l0 points
90 to 20 percent:	9 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the land adjacent to the proposed site is non-urban use. Where factor #1 evaluates the general location of the proposed site, this factor evaluates the immediate perimeter of the site. The definition of urban and non-urban uses in factor #1 should be used for this factor.

In rating the second factor, measure the perimeter of the site that is in non-urban and urban use. Where more than 90 percent of the perimeter is in non-urban use, score this factor 10 points. Where less than 20 percent, assign 0 points. If a road is next to the perimeter, class the area according to the

use on the other side of the road for that area. Use 1 and 1/3 acre per structure if not otherwise known. Where 20 to 90 percent of the perimeter is non-urban, assign points as noted below:

Percentage of Perimeter Bordering Land	Points
90 percent or greater	10
82 to 89 percent	9
74 to 81 percent	8
65 to 73 percent	7
58 to 65 percent	6
50 to 57 percent	5
42 to 49 percent	4
34 to 41 percent	3
27 to 33 percent	2
21 to 26 percent	1
20 percent or Less	0

3. How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last ten years?

More than 90 percent:	20 points
90 to 20 percent:	19 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the proposed conversion site has been used or managed for agricultural purposes in the past 10 years.

Land is being farmed when it is used or managed for food or fiber, to include timber products, fruit, nuts, grapes, grain, forage, oil seed, fish and meat, poultry and dairy products.

Land that has been left to grow up to native vegetation without management or harvest will be considered as abandoned and therefore not farmed. The proposed conversion site should be evaluated and rated according to the percent, of the site farmed.

If more than 90 percent of the site has been farmed 5 of the last 10 years score the site as follows:

Percentage of Site Farmed	Points
90 percent or greater	20
86 to 89 percent	19
82 to 85 percent	18
78 to 81 percent	17
74 to 77 percent	16
70 to 73 percent	15
66 to 69 percent	14
62 to 65 percent	13
58 to 61 percent	12
54 to 57 percent	11
50 to 53 percent	10
46 to 49 percent	9
42 to 45 percent	8
38 to 41 percent	7
35 to 37 percent	6
32 to 34 percent	5
29 to 31 percent	4
26 to 28 percent	3

23 to 25 percent	2
20 to 22 percent percent or Less	1
Less than 20 percent	0

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected:	20 points
Site is not protected:	0 points

This factor is designed to evaluate the extent to which state and local government and private programs have made efforts to protect this site from conversion.

State and local policies and programs to protect farmland include:

State Policies and Programs to Protect Farmland

1. Tax Relief:

   A. Differential Assessment: Agricultural lands are taxed on their agricultural use value, rather than at market value. As a result, farmers pay fewer taxes on their land, which helps keep them in business, and therefore helps to insure that the farmland will not be converted to nonagricultural uses.

      1. Preferential Assessment for Property Tax: Landowners with parcels of land used for agriculture are given the privilege of differential assessment.

      2. Deferred Taxation for Property Tax: Landowners are deterred from converting their land to nonfarm uses, because if they do so, they must pay back taxes at market value.

      3. Restrictive Agreement for Property Tax: Landowners who want to receive Differential Assessment must agree to keep their land in - eligible use.

   B. Income Tax Credits

   Circuit Breaker Tax Credits: Authorize an eligible owner of farmland to apply some or all of the property taxes on his or her farmland and farm structures as a tax credit against the owner's state income tax.

   C. Estate and Inheritance Tax Benefits

   Farm Use Valuation for Death Tax: Exemption of state tax liability to eligible farm estates.

2. "Right to farm" laws:

   Prohibits local governments from enacting laws which will place restrictions upon normally accepted farming practices, for example, the generation of noise, odor or dust.

3. Agricultural Districting:

   Wherein farmers voluntarily organize districts of agricultural land to be legally recognized geographic areas. These farmers receive benefits, such as protection from annexation, in exchange for keeping land within the district for a given number of years.

4. Land Use Controls: Agricultural Zoning.

Types of Agricultural Zoning Ordinances include:

A. Exclusive: In which the agricultural zone is restricted to only farm-related dwellings, with, for example, a minimum of 40 acres per dwelling unit.

B. Non-Exclusive: In which non-farm dwellings are allowed, but the density remains low, such as 20 acres per dwelling unit.

Additional Zoning techniques include:

A. Slidinq Scale: This method looks at zoning according to the total size of the parcel owned. For example, the number of dwelling units per a given number of acres may change from county to county according to the existing land acreage to dwelling unit ratio of surrounding parcels of land within the specific area.

B. Point System or Numerical Approach: Approaches land use permits on a case by case basis.

LESA: The LESA system (Land Evaluation-Site Assessment) is used as a tool to help assess options for land use on an evaluation of productivity weighed against commitment to urban development.

C. Conditional Use: Based upon the evaluation on a case by case basis by the Board of Zoning Adjustment. Also may include the method of using special land use permits.

5. Development Rights:

A. Purchase of Development Rights (PDR): Where development rights are purchased by Government action.

Buffer Zoning Districts: Buffer Zoning Districts are an example of land purchased by Government action. This land is included in zoning ordinances in order to preserve and protect agricultural lands from non-farm land uses encroaching upon them.

B. Transfer of Development Rights (TDR): Development rights are transferable for use in other locations designated as receiving areas. TDR is considered a locally based action (not state), because it requires a voluntary decision on the part of the individual landowners.

6. Governor's Executive Order: Policy made by the Governor, stating the importance of agriculture, and the preservation of agricultural lands. The Governor orders the state agencies to avoid the unnecessary conversion of important farmland to nonagricultural uses.

7. Voluntary State Programs:

A. California's Program of Restrictive Agreements and Differential Assessments: The California Land Conservation Act of 1965, commonly known as the Williamson Act, allows cities, counties and individual landowners to form agricultural preserves and enter into contracts for 10 or more years to insure that these parcels of land remain strictly for agricultural use. Since 1972 the Act has extended eligibility to recreational and open space lands such as scenic highway corridors, salt ponds and wildlife preserves. These contractually restricted lands may be taxed differentially for their real value. One hundred-acre districts constitute the minimum land size eligible.

Suggestion: An improved version of the Act would state that if the land is converted after the contract expires, the landowner must pay the difference in the taxes between market value for the land and the agricultural tax value which he or she had been

paying under the Act. This measure would help to insure that farmland would not be converted after the 10 year period ends.

B. Maryland Agricultural Land Preservation Program: Agricultural landowners within agricultural districts have the opportunity to sell their development rights to the Maryland Land Preservation Foundation under the agreement that these landowners will not subdivide or develop their land for an initial period of five years. After five years the landowner may terminate the agreement with one year notice.

   As is stated above under the California Williamson Act, the landowner should pay the back taxes on the property if he or she decides to convert the land after the contract expires, in order to discourage such conversions.

C. Wisconsin Income Tax Incentive Program: The Wisconsin Farmland Preservation Program of December 1977 encourages local jurisdictions in Wisconsin to adopt agricultural preservation plans or exclusive agricultural district zoning ordinances in exchange for credit against state income tax and exemption from special utility assessment. Eligible candidates include local governments and landowners with at least 35 acres of land per dwelling unit in agricultural use and gross farm profits of at least $6.000 per year, or $18,000 over three years.

8. Mandatory State Programs:

A. The Environmental Control Act in the state of Vermont was adopted in 1970 by the Vermont State Legislature. The Act established an environmental board with 9 members (appointed by the Governor) to implement a planning process and a permit system to screen most subdivisions and development proposals according to specific criteria stated in the law. The planning process consists of an interim and a final Land Capability and Development Plan, the latter of which acts as a policy plan to control development. The policies are written in order to:

   - prevent air and water pollution;
   - protect scenic or natural beauty, historic sites and rare and irreplaceable natural areas; and
   - consider the impacts of growth and reduction of development on areas of primary agricultural soils.

B. The California State Coastal Commission: In 1976 the Coastal Act was passed to establish a permanent Coastal Commission with permit and planning authority The purpose of the Coastal Commission was and is to protect the sensitive coastal zone environment and its resources, while accommodating the social and economic needs of the state. The Commission has the power to regulate development in the coastal zones by issuing permits on a case by case basis until local agencies can develop their own coastal plans, which must be certified by the Coastal Commission.

C. Hawaii's Program of State Zoning: In 1961, the Hawaii State Legislature established Act 187, the Land Use Law, to protect the farmland and the welfare of the local people of Hawaii by planning to avoid “unnecessary urbanization”. The Law made all state lands into four districts: agricultural, conservation, rural and urban. The Governor appointed members to a State Land Use Commission, whose duties were to uphold the Law and form the boundaries of the four districts. In addition to state zoning, the Land Use Law introduced a program of Differential Assessment, wherein agricultural landowners paid taxes on their land for its agricultural use value, rather than its market value.

D. The Oregon Land Use Act of 1973: This act established the Land Conservation and Development Commission (LCDC) to provide statewide planning goals and guidelines.

Under this Act, Oregon cities and counties are each required to draw up a comprehensive plan, consistent with statewide planning goals. Agricultural land preservation is high on the list of state goals to be followed locally.

If the proposed site is subject to or has used one or more of the above farmland protection programs or policies, score the site 20 points. If none of the above policies or programs apply to this site, score 0 points.

5. How close is the site to an urban built-up area?

The site is 2 miles or more from an urban built-up area	15 points
The site is more than 1 mile but less than 2 miles from an urban built-up area	10 points
The site is less than 1 mile from, but is not adjacent to an urban built-up area	5 points
The site is adjacent to an urban built-up area	0 points

This factor is designed to evaluate the extent to which the proposed site is located next to an existing urban area. The urban built-up area must be 2500 population. The measurement from the built-up area should be made from the point at which the density is 30 structures per 40 acres and with no open or non-urban land existing between the major built-up areas and this point. Suburbs adjacent to cities or urban built-up areas should be considered as part of that urban area.

For greater accuracy, use the following chart to determine how much protection the site should receive according to its distance from an urban area. See chart below:

Distance From Perimeter of Site to Urban Area	Points
More than 10,560 feet	15
9,860 to 10,559 feet	14
9,160 to 9,859 feet	13
8,460 to 9,159 feet	12
7,760 to 8,459 feet	11
7,060 to 7,759 feet	10
6,360 to 7,059 feet	9
5,660 to 6,359 feet	8
4,960 to 5,659 feet	7
4,260 to 4,959 feet	6
3,560 to 4,259 feet	5
2,860 to 3,559 feet	4
2,160 to 2,859 feet	3
1,460 to 2,159 feet	2
760 to 1,459 feet	1
Less than 760 feet (adjacent)	0

6. How close is the site to water lines, sewer lines and/or other local facilities and services whose capacities and design would promote nonagricultural use?

None of the services exist nearer than 3 miles from the site	15 points
Some of the services exist more than one but less than 3 miles from the site	10 points
All of the services exist within 1/2 mile of the site	0 points

This question determines how much infrastructure (water, sewer, etc.) is in place which could facilitate nonagricultural development. The fewer facilities in place, the more difficult it is to develop an area. Thus, if a proposed site is further away from these services (more than 3 miles distance away), the site should be awarded the highest number of points (15). As the distance of the parcel of land to services decreases, the number of points awarded declines as well. So, when the site is equal to or further than 1 mile but less than 3 miles away from services, it should be given 10 points. Accordingly, if this distance is 1/2 mile to less than 1 mile, award 5 points; and if the distance from land to services is less than 1/2 mile, award 0 points.

Distance to public facilities should be measured from the perimeter of the parcel in question to the nearest site(s) where necessary facilities are located. If there is more than one distance (i.e. from site to water and from site to sewer), use the average distance (add all distances and then divide by the number of different distances to get the average).

Facilities which could promote nonagricultural use include:

- Water lines
- Sewer lines
- Power lines
- Gas lines
- Circulation (roads)
- Fire and police protection
- Schools

7. Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with $1,000 or more in sales.)

As large or larger:	10 points
Below average: Deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more is below average	9 to 0 points

This factor is designed to determine how much protection the site should receive, according to its size in relation to the average size of farming units within the county. The larger the parcel of land, the more agricultural use value the land possesses, and vice versa. Thus, if the farm unit is as large or larger than the county average, it receives the maximum number of points (10). The smaller the parcel of land compared to the county average, the fewer number of points given. Please see below:

Parcel Size in Relation to Average County Size	Points
Same size or larger than average (l00 percent)	10
95 percent of average	9
90 percent of average	8
85 percent of average	7
80 percent of average	6
75 percent of average	5
70 percent of average	4
65 percent of average	3
60 percent of average	2
55 percent of average	1
50 percent or below county average	0

State and local Natural Resources Conservation Service offices will have the average farm size information, provided by the latest available Census of Agriculture data

8. If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project	10 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project	9 to 1 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project	0 points

This factor tackles the question of how the proposed development will affect the rest of the land on the farm The site which deserves the most protection from conversion will receive the greatest number of points, and vice versa. For example, if the project is small, such as an extension on a house, the rest of the agricultural land would remain farmable, and thus a lower number of points is given to the site. Whereas if a large-scale highway is planned, a greater portion of the land (not including the site) will become non-farmable, since access to the farmland will be blocked; and thus, the site should receive the highest number of points (10) as protection from conversion

Conversion uses of the Site Which Would Make the Rest of the Land Non-Farmable by Interfering with Land Patterns

Conversions which make the rest of the property nonfarmable include any development which blocks accessibility to the rest of the site Examples are highways, railroads, dams or development along the front of a site restricting access to the rest of the property.

The point scoring is as follows:

Amount of Land Not Including the Site Which Will Become Non-Farmable	Points
25 percent or greater	10
23 - 24 percent	9
21 - 22 percent	8
19 - 20 percent	7
17 - 18 percent	6
15 - 16 percent	5
13 - 14 percent	4
11 - 12 percent	3
9 - 11 percent	2
6 - 8 percent	1
5 percent or less	0

9. Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available	5 points
Some required services are available	4 to 1 point(s)
No required services are available	0 points

This factor is used to assess whether there are adequate support facilities, activities and industry to keep the farming business in business. The more support facilities available to the agricultural

landowner, the more feasible it is for him or her to stay in production. In addition, agricultural support facilities are compatible with farmland. This fact is important, because some land uses are not compatible; for example, development next to farmland cam be dangerous to the welfare of the agricultural land, as a result of pressure from the neighbors who often do not appreciate the noise, smells and dust intrinsic to farmland. Thus, when all required agricultural support services are available, the maximum number of points (5) are awarded. When some services are available, 4 to 1 point(s) are awarded; and consequently, when no services are available, no points are given. See below:

Percent of Services Available	Points
100 percent	5
75 to 99 percent	4
50 to 74 percent	3
25 to 49 percent	2
1 to 24 percent	1
No services	0

10. Does the site have substantial and well-maintained on farm investments such as barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment	20 points
Moderate amount of non-farm investment	19 to 1 point(s)
No on-farm investments	0 points

This factor assesses the quantity of agricultural facilities in place on the proposed site. If a significant agricultural infrastructure exists, the site should continue to be used for farming, and thus the parcel will receive the highest amount of points towards protection from conversion or development. If there is little on farm investment, the site will receive comparatively less protection. See-below:

Amount of On-farm Investment	Points
As much or more than necessary to maintain production (100 percent)	20
95 to 99 percent	19
90 to 94 percent	18
85 to 89 percent	17
80 to 84 percent	16
75 to 79 percent	15
70 to 74 percent	14
65 to 69 percent	13
60 to 64 percent	12
55 to 59 percent	11
50 to 54 percent	10
45 to 49 percent	9
40 to 44 percent	8
35 to 39 percent	7
30 to 34 percent	6
25 to 29 percent	5
20 to 24 percent	4
15 to 19 percent	3
10 to 14 percent	2
5 to 9 percent	1
0 to 4 percent	0

11. Would the project at this site, by converting farmland to nonagricultural use, reduce the support for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted	10 points
Some reduction in demand for support services if the site is converted	9 to 1 point(s)
No significant reduction in demand for support services if the site is converted	0 points

This factor determines whether there are other agriculturally related activities, businesses or jobs dependent upon the working of the pre-converted site in order for the others to remain in production. The more people and farming activities relying upon this land, the more protection it should receive from conversion. Thus, if a substantial reduction in demand for support services were to occur as a result of conversions, the proposed site would receive a high score of 10; some reduction in demand would receive 9 to 1 point(s), and no significant reduction in demand would receive no points.

Specific points are outlined as follows:

Amount of Reduction in Support Services if Site is Converted to Nonagricultural Use	**Points**
Substantial reduction (100 percent)	10
90 to 99 percent	9
80 to 89 percent	8
70 to 79 percent	7
60 to 69 percent	6
50 to 59 percent	5
40 to 49 percent	4
30 to 39 percent	3
20 to 29 percent	2
10 to 19 percent	1
No significant reduction (0 to 9 percent)	0

12. Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of the surrounding farmland to nonagricultural use?

Proposed project is incompatible with existing agricultural use of surrounding farmland	10 points
Proposed project is tolerable of existing agricultural use of surrounding farmland	9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland	0 points

Factor 12 determines whether conversion of the proposed agricultural site will eventually cause the conversion of neighboring farmland as a result of incompatibility of use of the first with the latter. The more incompatible the proposed conversion is with agriculture, the more protection this site receives from conversion. Therefor-, if the proposed conversion is incompatible with agriculture, the site receives 10 points. If the project is tolerable with agriculture, it receives 9 to 1 points; and if the proposed conversion is compatible with agriculture, it receives 0 points.

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor-type site or design alternative for protection as farmland along with the land evaluation information.

For Water and Waste Programs, corridor analyses are not applicable for distribution or collection networks. Analyses are applicable for transmission or trunk lines where placement of the lines are flexible.

(1) How much land is in nonurban use within a radius of 1.0 mile form where the project is intended?

(2)	More than 90 percent	(3)	15 points
(4)	90 to 20 percent	(5)	14 to 1 point(s).
(6)	Less than 20 percent	(7)	0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

(3)	More than 90 percent	(4)	10 point(s)
(5)	90 to 20 percent	(6)	9 to 1 points
(7)	less than 20 percent	(8)	0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

(4)	More than 90 percent	(5)	20 points
(6)	90 to 20 percent	(7)	19 to 1 point(s)
(8)	Less than 20 percent	(9)	0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected	20 points
Site is not protected	0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with $1,000 or more in sales.)

As large or larger	10 points
Below average deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average	9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project	25 points
Acreage equal to between 25 and 5 percent of the acres directly convened by the project	1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project	0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available	5 points
Some required services are available	4 to 1 point(s)
No required services are available	0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment	20 points
Moderate amount of on-farm investment	19 to 1 point(s)
No on-farm investment	0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is convened	25 points
Some reduction in demand for support services if the site is convened	1 to 24 point(s)
No significant reduction in demand for support services if the site is converted	0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible to existing agricultural use of surrounding farmland	10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland	9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland	0 points

>>> "Vandenbosch, Bruce - Allegan, MI" <bruce.vandenbosch@mi.usda.gov> 1/5/2010 11:52 AM >>>

Mark;

I have completed and attached the Farmland Conversion Impact Rating form AD-1006 for the proposed Compact Power, Inc. (CPI) construction site in Holland, Allegan County, Michigan; for compliance with the Farmland Protection Policy Act.

If you require further information please contact Bruce Van Den Bosch, NRCS District Conservationist Allegan, at the information below.

Sincerely,

Bruce Van Den Bosch

USDA/NRCS
Bruce Van Den Bosch
District Conservationist
1668 Lincoln Rd.
Allegan, MI 49010
PH: 269-673-6940 ext.3
FAX: 269-673-9671
email: bruce.vandenbosch@mi.usda.gov

Helping People Help the Land

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 12/1/09
Name Of Project Compact Power,Inc Electric Battery Manufacturing	Federal Agency Involved U.S. Department of Energy
Proposed Land Use Vehicle Electric Battery Manufacturing Facility	County And State Allegan,MI (City of Holland & Fillmore Twnshp)
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☑	No ☐	Acres Irrigated 9240	Average Farm Size 155
Major Crop*(s)* corn, specialty	Farmable Land In Govt. Jurisdiction Acres: 401300	% 74	Amount Of Farmland As Defined in FPPA Acres: 155200	% 29
Name Of Land Evaluation System Used LESA	Name Of Local Site Assessment System None		Date Land Evaluation Returned By NRCS 1/5/10	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	80.0			
B. Total Acres To Be Converted Indirectly	0.0			
C. Total Acres In Site	80.0	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	56.0			
B. Total Acres Statewide And Local Important Farmland	24.0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	34.0			
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	84	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	7			
2. Perimeter In Nonurban Use	10	7			
3. Percent Of Site Being Farmed	20	19			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area	15	0			
6. Distance To Urban Support Services	15	0			
7. Size Of Present Farm Unit Compared To Average	10	0			
8. Creation Of Nonfarmable Farmland	10	0			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	2			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	0			
TOTAL SITE ASSESSMENT POINTS	160	40	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	84	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	40	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	124	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ■

Reason For Selection:

This form was electronically produced by National Production Services Staff

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step '4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

January 29, 2010

Environmental Review Coordinator
State Historic Preservation Office
Michigan Historical Center
P.O. Box 30740
702 W. Kalamazoo St.
Lansing, MI 48909-8240

SUBJECT: Compact Power, Inc. Battery Manufacturing Facility in Allegan County, Michigan

The U.S. Department of Energy (DOE) is submitting the attached *Application for Section 106 Review* for your review of the Compact Power, Inc. Battery Manufacturing Project as required by the National Historic Preservation Act.

The Department is proposing to provide financial assistance to Compact Power, Inc. through the Electric Drive Vehicle Battery and Component Manufacturing Initiative of the American Reinvestment and Recovery Act. Funding to that company would be used to construct the Midland Battery Park, a facility for the manufacturing of advanced superior lithium polymer batteries for hybrid and electric vehicles. As further described in the application, the facility would be located in the City of Holland, Allegan County, Michigan.

Please forward the results of your review and any requests for additional information to Mark Lusk of the Department's National Energy Technology Laboratory using the contact information included in the application.

Sincerely,

Mark Lusk
NEPA Document Manager

Attachments: Application for Section 106 Review (20 pages)

STATE HISTORIC PRESERVATION OFFICE
Application for Section 106 Review

SHPO Use Only
☐ IN Received Date ____ / ____ / ____ Log In Date ____ / ____ / ____
☐ OUT Response Date ____ / ____ / ____ Log Out Date ____ / ____ / ____
Sent Date ____ / ____ / ____

Submit one copy for each project for which review is requested. This application is required. Please type. Applications must be complete for review to begin. Incomplete applications will be sent back to the applicant without comment. Send only the information and attachments requested on this application. Materials submitted for review cannot be returned. Due to limited resources we are unable to accept this application electronically.

I. GENERAL INFORMATION

☒ THIS IS A NEW SUBMITTAL ☐ THIS IS MORE INFORMATION RELATING TO ER#

a. Project Name: Compact Power Inc. Battery Manufacturing Facility
b. Project Address (if available): approximately 80 acres of undeveloped land at 859 E. 48th Street, Holland, MI
c. Municipal Unit: City of Holland and Fillmore Township County: Allegan
d. Federal Agency, Contact Name and Mailing Address (*If you do not know the federal agency involved in your project please contact the party requiring you to apply for Section 106 review, not the SHPO, for this information*.): Mark W. Lusk, Office of Project Facilitation & Compliance, U.S. Department of Energy
e. National Energy Technology Laboratory, 3610 Collins Ferry Road, P.O. Box 880, MS B07, Morgantown, WV 26507-0880 Telephone: 304-285-4145 Email: mark.lusk@netl.doe.gov
f. State Agency (if applicable), Contact Name and Mailing Address: None
g. Consultant or Applicant Contact Information (if applicable) *including mailing address*: None - please contact Mark Lusk of the Department of Energy

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II. GROUND DISTURBING ACTIVITY (INCLUDING EXCAVATION, GRADING, TREE REMOVALS, UTILITY INSTALLATION, ETC.)

DOES THIS PROJECT INVOLVE GROUND-DISTURBING ACTIVITY? ☒ YES ☐ NO (If no, proceed to section III.)
Exact project location must be submitted on a USGS Quad map (portions, photocopies of portions, and electronic USGS maps are acceptable as long as the location is clearly marked).

a. USGS Quad Map Name: Holland East and Fillmore Township, MI
b. Township: 5N Range: 15W Section: 3
c. Description of width, length and depth of proposed ground disturbing activity: The dimensions of the ground-disturbing activity for the primary site grading is approximately 1,900 feet by 1,200 feet, with cuts ranging from 0 to 19 feet and fills ranging from 0 to 13 feet.
d. Previous land use and disturbances: See attached
e. Current land use and conditions: Farmland - row crops; no existing structures
f. Does the landowner know of any archaeological resources found on the property? ☐ YES ☒ NO

Please describe:

III. PROJECT WORK DESCRIPTION AND AREA OF POTENTIAL EFFECTS (APE)
Note: Every project has an APE.

a. Provide a detailed written description of the project (plans, specifications, Environmental Impact Statements (EIS), Environmental Assessments (EA), etc. **cannot** be substituted for the written description): See attached
b. Provide a localized map indicating the location of the project; road names must be included and legible.
c. On the above-mentioned map, identify the APE.
d. Provide a written description of the APE (physical, visual, auditory, and sociocultural), the steps taken to identify the APE, and the justification for the boundaries chosen. See attached

IV. IDENTIFICATION OF HISTORIC PROPERTIES

a. List and date **all** properties 50 years of age or older located in the APE. If the property is located within a National Register eligible, listed or local district it is only necessary to identify the district: None
b. Describe the steps taken to identify whether or not any **historic** properties exist in the APE and include the level of effort made to carry out such steps: site visits; review of historic aerial photographs; use of Michigan Historical Center Historic Sites Online
c. Based on the information contained in "b", please choose one:
   - ☐ Historic Properties Present in the APE
   - ☒ No Historic Properties Present in the APE
d. Describe the condition, previous disturbance to, and history of any historic properties located in the APE: N/A

V. PHOTOGRAPHS

Note: All photographs must be keyed to a localized map.

a. Provide photographs of the site itself.
b. Provide photographs of all properties 50 years of age or older located in the APE (faxed or photocopied photographs are not acceptable).

VI. DETERMINATION OF EFFECT

☒ No historic properties affected based on [36 CFR § 800.4(d)(1)], please provide the basis for this determination.

☐ No Adverse Effect [36 CFR § 800.5(b)] on historic properties, explain why the criteria of adverse effect, 36 CFR Part 800.5(a)(1), were found not applicable.

☐ Adverse Effect [36 CFR § 800.5(d)(2)] on historic properties, explain why the criteria of adverse effect, [36 CFR Part 800.5(a)(1)], were found applicable.

Please print and mail completed form and required information to:

State Historic Preservation Office, Environmental Review Office, Michigan Historical Center, 702 W. Kalamazoo Street, P.O. Box 30740, Lansing, MI 48909-8240

Attachments to U.S. Department of Energy (DOE) Application for Section 106 Review of the Proposed Compact Power, Inc. Battery Manufacturing Facility, Holland, MI

Section II. Ground Disturbing Activities

d. Previous Land Use and Disturbances— Aerial photographs for the years 1950, 1955, 1960, 1967, 1974, 1981, 1992, 1997, 2002, 2005 and 2008 on file with EDR Aerial Photography Database and TerraServer.com have been reviewed. In the 1950 through 2008 aerial photographs, the majority of the subject site appears as it does today, undeveloped land occupied by agricultural fields (i.e., row crops) with the exception of one former homestead. In the 1950 through 1974 aerial photographs, the southern portion of the subject site appears to be developed with a residential dwelling and several outbuildings. In the 1981 through 1997 aerial photographs, fewer structures appear to be present and in the 2002 through 2008 aerial photographs, no structures are present.

During the site reconnaissance, minor amounts of construction debris (i.e., concrete, shingles, wood, bricks, etc.) were observed in the area of the former homestead (815 E 48th Street).

A review of the EDR Physical Setting Source Summary indicates that an oil/gas production well may have been located on the subject site or adjacent to the subject site. According to the EDR report, the oil/gas well was a "dry well", which indicates that no petroleum was identified at that location.

Section III: Project Work Description And Area Of Potential Effects

a. Detailed Description of the Project— The U.S. Department of Energy (DOE) is proposing to provide a $151 million grant to CPI (also known as LG Chem, Ltd.) to construct and operate an approximately 800,000-square-foot facility capable of manufacturing and delivery of high quantities of lithium-ion polymer battery cells.

The site selected by CPI for the manufacturing facility is mostly located in the City of Holland, Allegan County, Michigan, with a small portion of the proposed project site located in the adjacent Fillmore Township. The 80-acre site is located northeast of the intersection of South Waverly Road and East 48th Street (see Figure 1). The site is currently agricultural land with no existing structures. It is surrounded by the CSX rail line to the west, agricultural land to the north and east, and 48th Street (146th Avenue) to the south. The surrounding area includes a sizable industrial park, including neighboring firms such as Haworth, Tiara Yachts, Sherwin Williams, USF Holland, Global Sourcing Solutions, and various industrial warehouse buildings. Figures 2 and 3 are aerial photographs of the site.

Approximately half of the 80 acres would be used to construct and operate a two-story, 800,000 square-foot manufacturing facility, with the remaining acreage remaining in its natural state. The proposed project includes construction of a building for manufacturing and office spaces, a

detached storage building, a safety validation building, paved surface parking lots, above ground storage tank(s), a storm water detention pond, and one or two private access road(s). The City of Holland plans to widen the existing public road on frontage of the site (East 48th Street) from the existing two lanes to three lanes with curbs and gutters and possibly a turning lane. No demolition of existing structures is required. Figure 4 shows a proposed site layout.

d. Written Description of the Area of Potential Effects—The area of potential effects includes the 80-acre project site and a 200-foot buffer around that site. The DOE evaluated the characteristics of the proposed facility and land use and traffic patterns in the surrounding area, and selected this area of potential effects for the following reasons:

- This area includes all sites that may be disturbed to construct the Compact Power, Inc. Battery Manufacturing Facility.
- The project would be located in an area surrounded by two residences and an increasing number of manufacturing and warehouse uses. The City of Holland Master Plan Update South End Area identifies the project site's planned land use as Industrial Park and the area to the south of 48th Street as General Industrial.
- The addition of the Compact Power, Inc. Battery Manufacturing Facility would cause little or no change in the visual setting of the area outside of the area of potential effects.
- Although there would be temporary increases in noise levels in surrounding areas on some days during construction, the Department does not anticipate changes in noise levels outside of the area of potential effects in this setting where rural and urban meet during operations of the facility.
- The facility would be located in an area whose land use is zoned as Industrial Park and General Industrial. The site and surrounding area has sufficient infrastructure to support the facility and its employees. Thus, DOE does not anticipate any changes in land use outside of the area of potential effects as a result of this project.
- After the City of Holland completes their plans to improve the existing public road on frontage of the site (East 48th Street) from the existing two lanes to three lanes with curbs and gutters and possibly a turning lane, there would be no impact on traffic patterns or congestion.
- DOE has identified no other secondary or indirect impacts from construction and operation of the Compact Power, Inc. Battery Manufacturing Facility that could occur to historic properties if such properties were to occur outside of the area of potential effects.

Section VI. Determination Of Effects

The DOE has determined that no historic properties would be affected for the following reasons.

- There are no historic or other structures within the 80-acre site.
- No Native American concerns regarding the proposed project have been identified. On November 12, 2009, DOE sent a request to seven separate federally-recognized tribes

chosen according to the U.S. Department of Housing and Urban Development – Office of Community Planning and Development – Environmental Planning Division (Citizen Potawatomi Nation, Forest County Potawatomi Community, Hannahville Indian Community, Match-e-be-nash-she-wish Band of Potawatomi, Ottawa Tribe of Oklahoma, Pokagon Band of Potawatomi Indians, and the Prairie Band of Potawatomi Nation) for information those tribes have, and are interested in sharing, on properties of traditional religious and cultural significance within the vicinity of the project site, and any comments or concerns they have on the potential for this project to affect those properties. No responses have been received as of January 27, 2010.

- It is very unlikely that there are archeological sites within the project site that would be eligible for inclusion in the National Register of Historic Places because of the characteristics of the non-stratified surface soils in the area and because the site has been disturbed in the past for farming and oil well drilling.

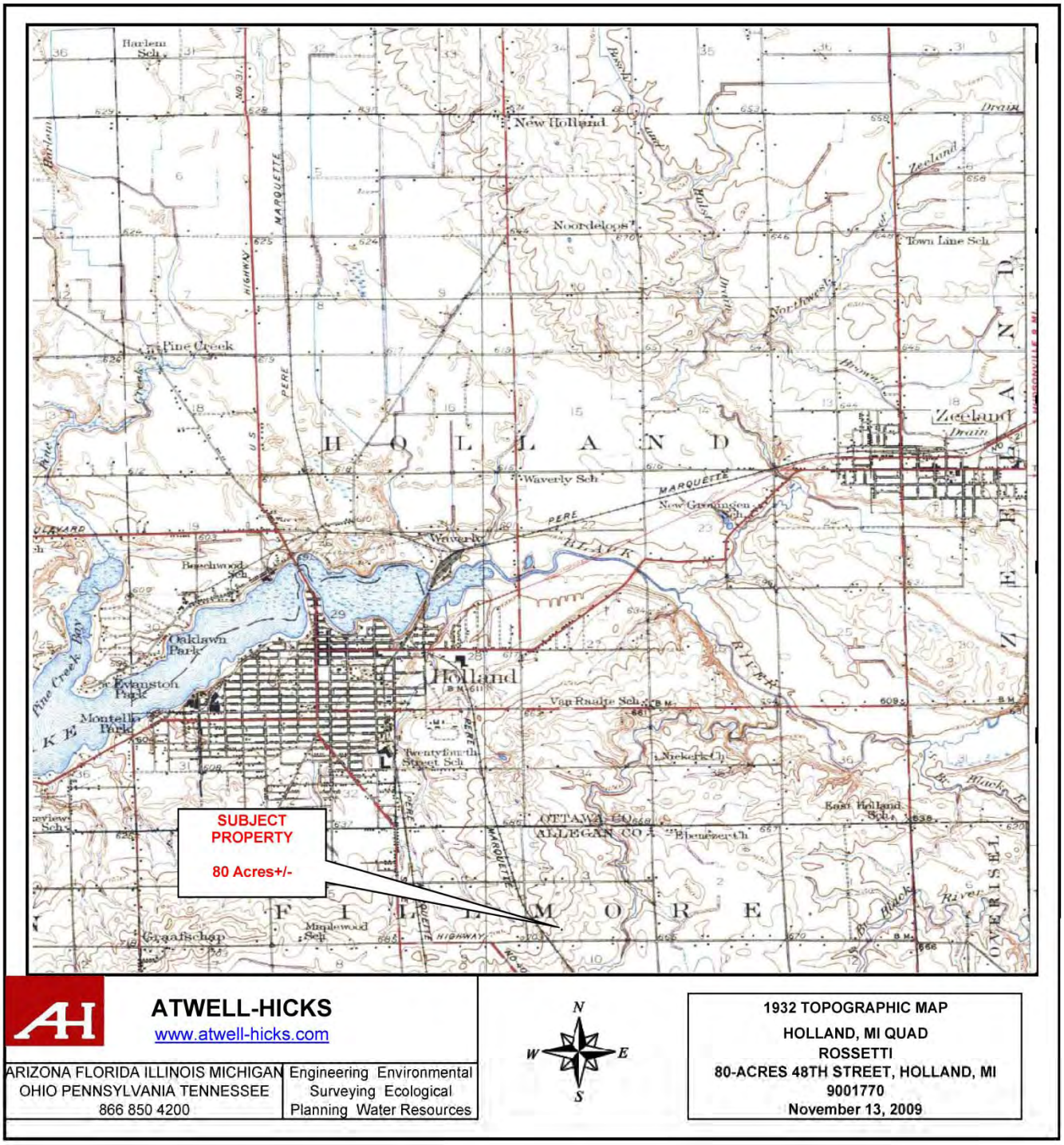
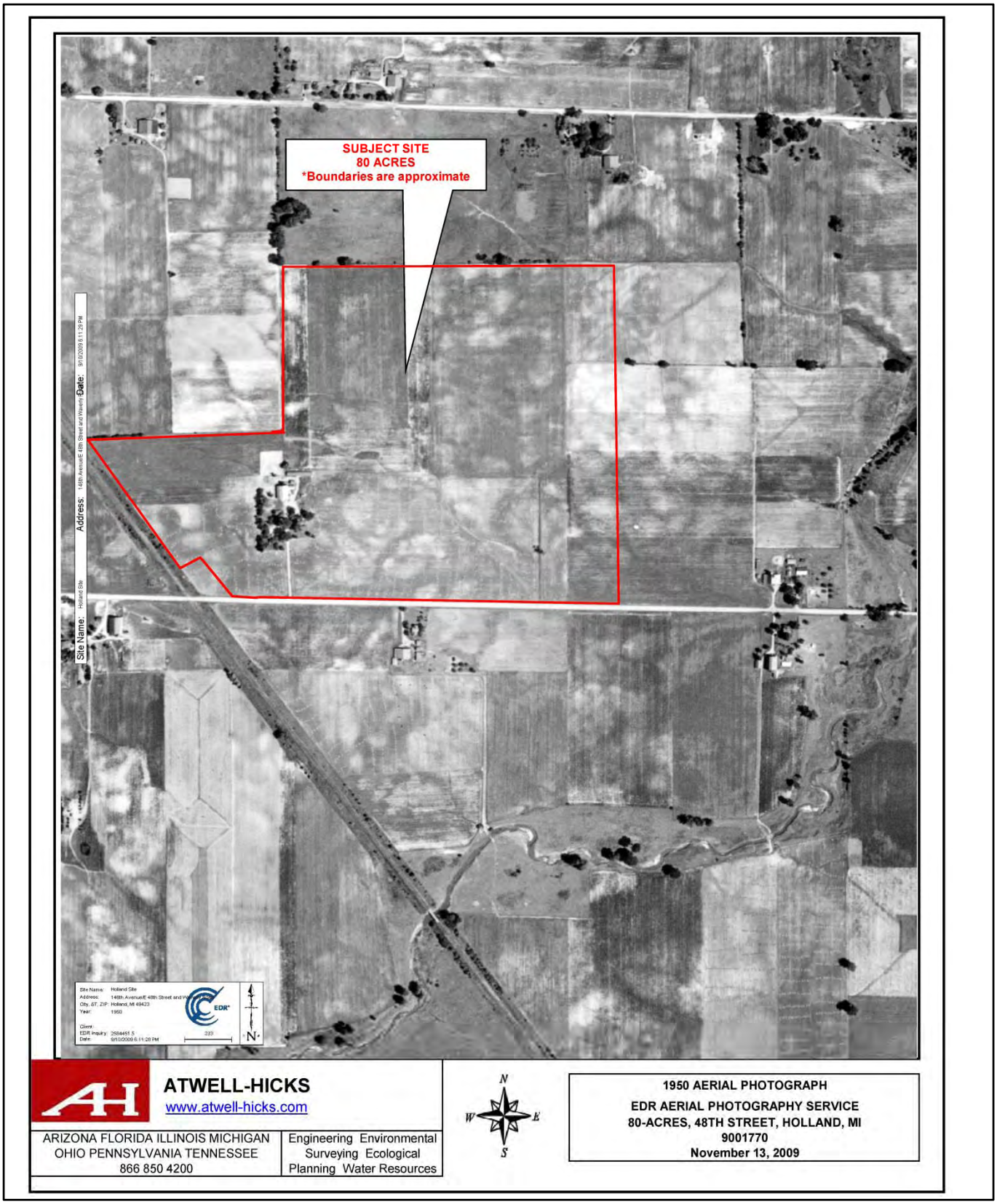

SUBJECT PROPERTY
80 Acres+/-
ATWELL-HICKS
www.atwell-hicks.com
ARIZONA FLORIDA ILLINOIS MICHIGAN
OHIO PENNSYLVANIA TENNESSEE
866 850 4200
Engineering Environmental
Surveying Ecological
Planning Water Resources
N
W
E
S
1932 TOPOGRAPHIC MAP
HOLLAND, MI QUAD
ROSSETTI
80-ACRES 48TH STREET, HOLLAND, MI
9001770
November 13, 2009

Figure 1.


SUBJECT SITE
80 ACRES
*Boundaries are approximate
Site Name: Holland Site
Address: 148th Avenue/E 48th Street and Ottawa
Date: 9/10/2009 6:11:28 PM
N
ATWELL-HICKS
www.atwell-hicks.com
ARIZONA FLORIDA ILLINOIS MICHIGAN
OHIO PENNSYLVANIA TENNESSEE
866 850 4200
Engineering Environmental
Surveying Ecological
Planning Water Resources
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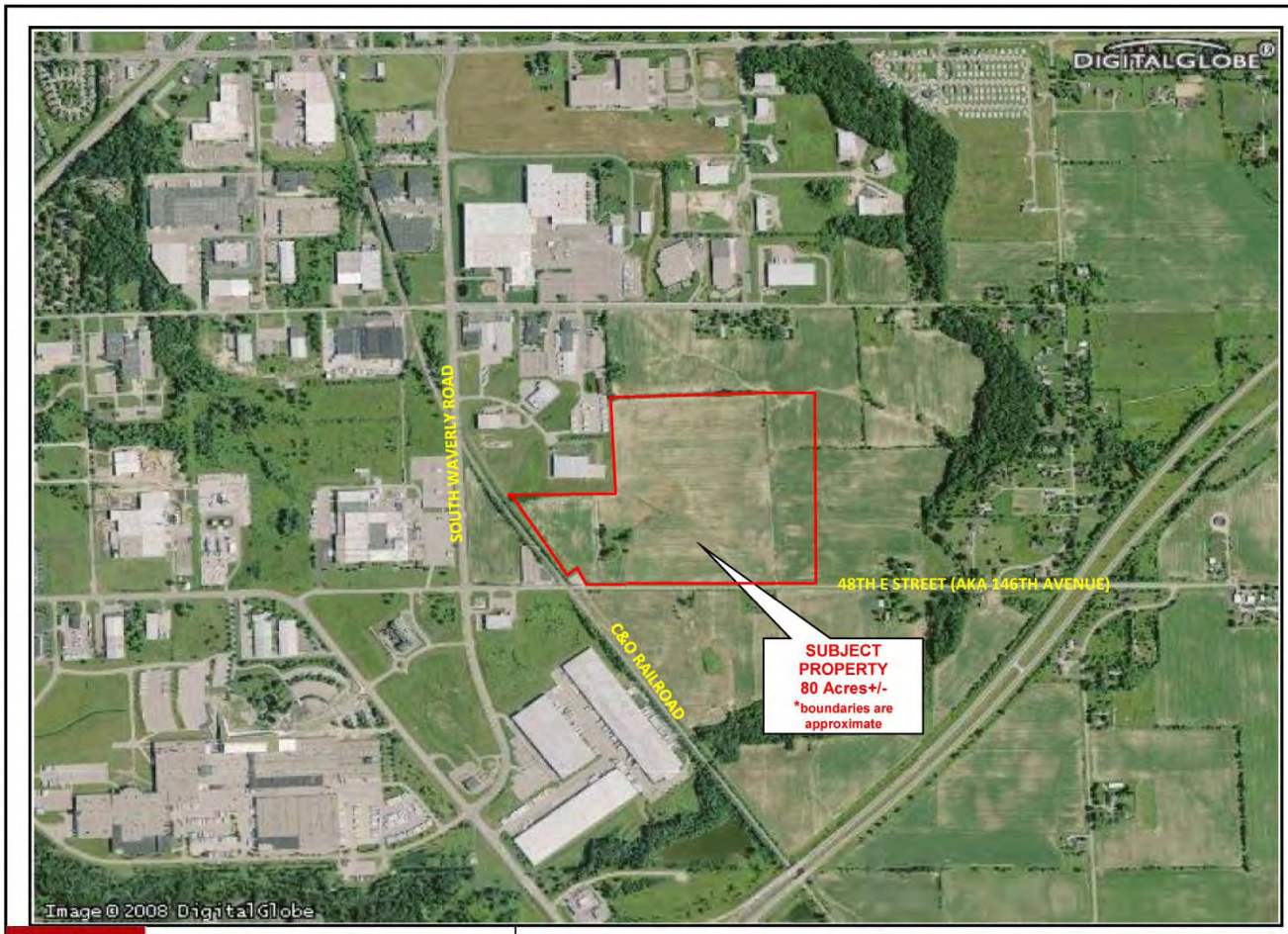
1950 AERIAL PHOTOGRAPH
EDR AERIAL PHOTOGRAPHY SERVICE
80-ACRES, 48TH STREET, HOLLAND, MI
9001770
November 13, 2009

Figure 2.



ATWELL-HICKS
www.atwell-hicks.com

ARIZONA FLORIDA ILLINOIS MICHIGAN
OHIO PENNSYLVANIA TENNESSEE
866 850 4200

Engineering Environmental
Surveying Ecological
Planning Water Resources

N
W E
S

2008 AERIAL PHOTOGRAPH
TERRASERVER.COM
ROSSETTI
80-ACRES, 48TH STREET, HOLLAND, MI
9001770
November 13, 2009

Figure 3.

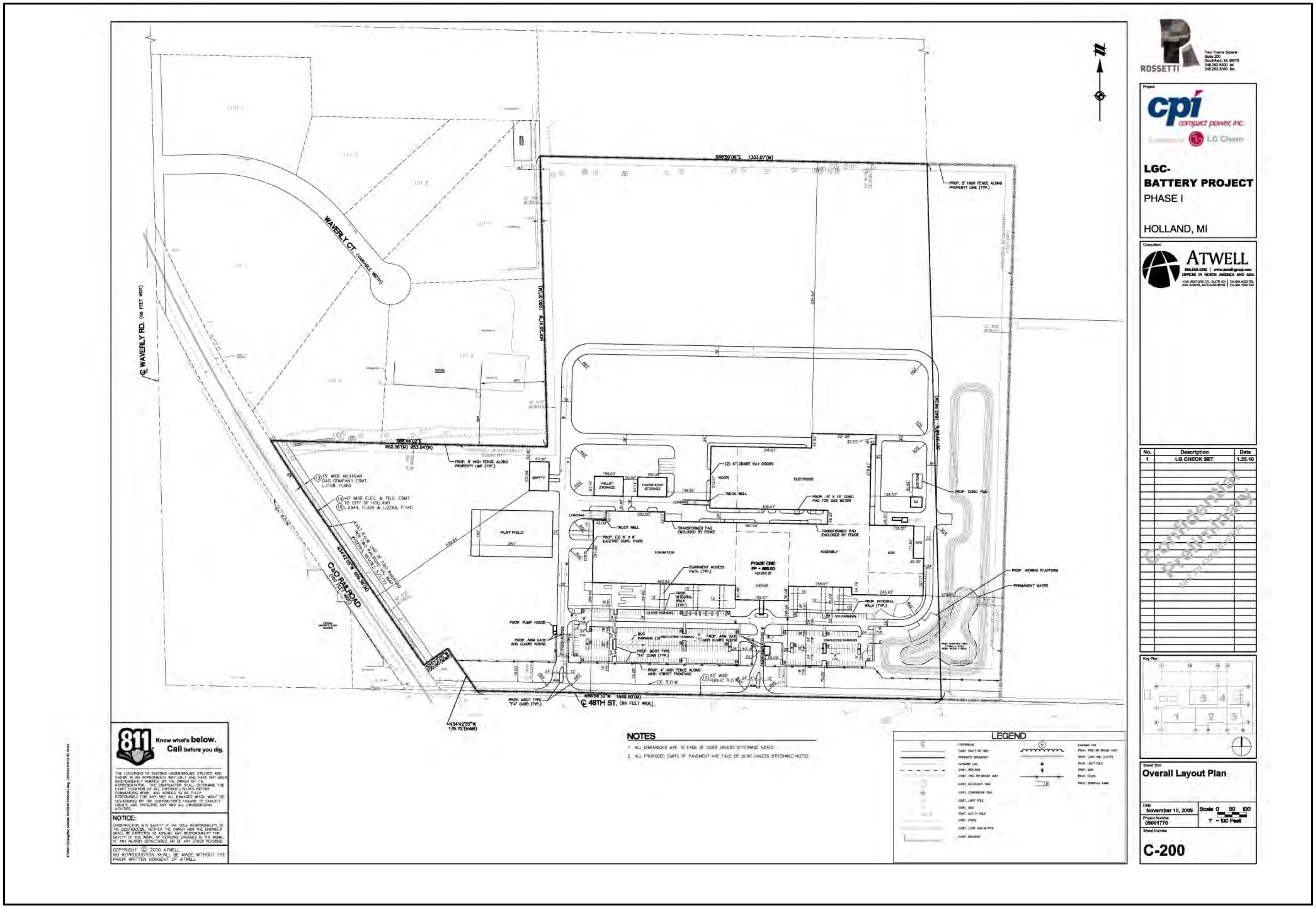

ROSSETTI
cpi
compact power inc.
LG Chem
LGC-
BATTERY PROJECT
PHASE I
HOLLAND, MI
ATWELL
WAVERLY CT.
WAVERLY RD.
C&O RAILROAD
48TH ST.
PLAY FIELD
PHASE ONE
811 Know what's below. Call before you dig.
NOTICE:
NOTES
LEGEND
LG CHECK SET
1.25.10
Confidential Preliminary
Overall Layout Plan
November 10, 2009
C-200

Figure 4.

North Side of E. 48th Street
Holland, Michigan
Rossetti

VIEW OF THE SUBJECT SITE FACING NORTH

VIEW OF THE SUBJECT SITE, FACING NORTH

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF THE FORMER HOMESTEAD AREA, FACING NORTH

VIEW OF THE CENTRAL PORTION OF THE SUBJECT SITE,
FACING NORTHEAST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

North Side of E. 48th Street
Holland, Michigan
Rossetti

VIEW OF THE EASTERN SITE BOUNDARY, FACING SOUTH

VIEW OF THE SOUTHERN SITE BOUNDARY, FACING WEST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF THE SOUTHWESTERN PORTION OF THE SUBJECT SITE, FACING NORTH

VIEW OF DRAINAGE AREA LOCATED ON THE NORTHERN PORTION OF THE SUBJECT SITE, FACING NORTHWEST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF DRAINAGE AREA LOCATED ON THE CENTRAL PORTION OF THE SUBJECT SITE, FACING EAST

VIEW OF DRAINAGE DITCH/SWALE LOCATED ALONG SOUTHERN PROPERTY BOUNDARY, FACING EAST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF BRICK DEBRIS LOCATED NEAR THE SOUTHEASTERN PORTION OF THE SITE

VIEW OF THE NORTHERN ADJACENT PROPERTY, FACING NORTH

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF THE EASTERN/NORTHEASTERN ADJACENT PROPERTY, FACING NORTHEAST

VIEW OF THE EASTERN ADJACENT PROPERTY, FACING NORTHEAST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF THE EASTERN ADJACENT RESIDENTIAL PROPERTY, ACROSS 48TH STREET, FACING SOUTHEAST

VIEW OF THE EASTERN AND SOUTHERN ADJACENT PROPERTIES ALONG 48TH STREET, FACING EAST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF SEMCO GAS PIPELINE, POWERLINES, AND RAILROAD LOCATED ADJACENT TO THE SOUTHWEST AND WEST OF THE SUBJECT SITE, FACING NORTHWEST

VIEW OF THE WESTERN AND SOUTHERN ADJACENT PROPERTIES ALONG 48TH STREET, FACING WEST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF THE SOUTHWESTERN ADJACENT PROPERTIES,
ACROSS 48TH STREET, FACING SOUTHWEST

VIEW OF THE NORTHWESTERN ADJACENT PROPERTY,
FACING NORTHWEST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

VIEW OF THE NORTHWESTERN ADJOINING PROPERTY,
FACING NORTHWEST

Photographer: Rebecca A. Payne
Date: September 8, 2009 and November 13, 2009

STATE OF MICHIGAN
JENNIFER GRANHOLM
GOVERNOR
MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY
LANSING
KEITH MOLIN
EXECUTIVE DIRECTOR

February 25, 2010

MARK LUSK
U S DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY
3610 COLLINS FERRY ROAD
P O BOX 880 MS B07
MORGANTOWN WV 26507-0880

RE: ER10-226 Compact Power, Inc., Battery Manufacturing Facility, Holland, Section 3, T5N, R15W, City of Holland and Fillmore Township, Allegan County (DOE)

Dear Mr. Lusk:

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 properties are affected** within the area of potential effects of this undertaking.

The views of the public are essential to informed decision making in the Section 106 process. Federal Agency Officials or their delegated authorities must plan to involve the public in a manner that reflects the nature and complexity of the undertaking, its effects on historic properties and other provisions per 36 CFR § 800.2(d). We remind you that Federal Agency Officials or their delegated authorities are required to consult with the appropriate Indian tribe and/or Tribal Historic Preservation Officer (THPO) when the undertaking may occur on or affect any historic properties on tribal lands. **In all cases**, whether the project occurs on tribal lands or not, Federal Agency Officials or their delegated authorities are also required to make a reasonable and good faith effort to identify any Indian tribes or Native Hawaiian organizations that might attach religious and cultural significance to historic properties in the area of potential effects and invite them to be consulting parties per 36 CFR § 800.2(c-f).

This letter evidences the DOE's compliance with 36 CFR § 800.4 "Identification of historic properties", and the fulfillment of the DOE's responsibility to notify the SHPO, as a consulting party in the Section 106 process, under 36 CFR § 800.4(d)(1) "No historic properties affected".

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. If the scope of work changes in any way, or if artifacts or bones are discovered, please notify this office immediately.

If you have any questions, please contact Brian Grennell, Cultural Resource Protection Specialist, at (517) 335-2721 or by email at ER@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,

Martha MacFarlane Faes
Cultural Resources Protection Manager

for Brian D. Conway
State Historic Preservation Officer

MMF:JRH:BGG

Equal Housing Lender

APPENDIX C. PART 303 WETLAND PERMIT APPLICATION, WETLAND IMPACT ASSESSMENT AND COMPENSATORY MITIGATION PROPOSAL

On January 28, 2010, Compact Power, Inc. submitted a Part 303 Wetland Permit Application, which contains a compensatory mitigation proposal, to the Michigan Department of Natural Resources and Environment. The application and proposal are contained in this appendix.

ATWELL

January 28, 2010

Ms. Wendy Fitzner
Michigan Department of Environmental Quality
Land and Water Management Division
525 West Allegan Street
1st Floor South Tower
Lansing, Michigan 48933

Atwell, LLC Project No. 09001770

Re: Part 303 Wetland Permit Application
LG Chem Holland
Allegan County, Michigan

Dear Ms. Fitzner

Please find enclosed an application for impacts to regulated wetlands for the project referenced above. LG Chem, the applicant, proposes activities including placing fill within regulated wetlands for the construction of a new industrial development. The total proposed impacts include permanent impact to approximately 2.21 acres of wetland with approximately 8,058 cubic yards of excavation and approximately 8,795 cubic yards of fill.

Please find enclosed a payment authorization for the Part 303 permit $2,000.00 filing fee.

Should you have any questions or need additional information, please feel free to contact me at (248) 447-2000.

Sincerely,
Atwell, LLC

Bobbi Roberson
Project Manager
Natural Resources Group

January 15, 2010

Michigan Department of Environmental Quality
Land and Water Management Division
525 W. Allegan Street
Lansing, Michigan 48933

RE: Property Owner Authorization Letter
City of Holland, MI
Parcel(s) _03-02-03-300-015
_03-02-03-300-017

To Whom It May Concern:

Please be advised that PHC, L.L.C., a Michigan limited liability company, owner of the above referenced property, has no objection to LG Chem/Compact Power Inc., or their authorized agent applying for or obtaining a Michigan Department of Environmental Quality (MDEQ) Impact Permit for the proposed LG Chem/Compact Power Inc., Lithium Ion Battery Manufacturing Facility.

PHC, L.L.C. has no objection to an MDEQ representative entering the property to evaluate site conditions for the purpose of receiving approval for the permit provided that the property is left in the same general physical condition as it was prior to entering.

Sincerely,

Paul Schoolmeester

Paul Schoolmeester
Vice President
PHC, L.L.C.
190 S. River Ave., Ste 300
Holland, MI 49423
616-494-8100

Michigan Department of Environmental Quality
Land and Water Management Division
525 W. Allegan Street
Lansing, Michigan 48933

RE: Property Owner Authorization Letter
Fillmore Township
Parcel(s) _03-06-003-027-10

To Whom It May Concern:

Please be advised that James Rabbers, Jr., owner of the above referenced property, has no objection to LG Chem/Compact Power Inc., or their authorized agent applying for or obtaining a Michigan Department of Environmental Quality (MDEQ) Impact Permit for the proposed LG Chem/Compact Power Inc., Lithium Ion Battery Manufacturing Facility.

James Rabbers, Jr. has no objection to an MDEQ representative entering the property to evaluate site conditions for the purpose of receiving approval for the permit provided that the property is left in the same general physical condition as it was prior to entering.

Sincerely,

James Rabbers Jr. 1-15-10

James Rabbers, Jr
64 W. 35th St.
Holland, MI 49423
616-396-6672

Michigan Department of Environmental Quality
Land and Water Management Division
525 W. Allegan Street
Lansing, Michigan 48933

RE: Property Owner Authorization Letter
Fillmore Township
Parcel(s) _03-06-003-020-00

To Whom It May Concern:

Please be advised that Bernice J. Welscott, Trustee of the Raymond J. and Bernice J. Welscott Trust, owner of the above referenced property, has no objection to LG Chem/Compact Power Inc., or their authorized agent applying for or obtaining a Michigan Department of Environmental Quality (MDEQ) Impact Permit for the proposed LG Chem/Compact Power Inc., Lithium Ion Battery Manufacturing Facility.

Bernice J. Welscott, Trustee of the Raymond J. and Bernice J. Welscott Trust has no objection to an MDEQ representative entering the property to evaluate site conditions for the purpose of receiving approval for the permit provided that the property is left in the same general physical condition as it was prior to entering.

Sincerely,

Bernice J Welscott Trustee

Bernice J. Welscott, Trustee
311 Harvest Lane
Holland, MI 49423
616-355-0982

Michigan Department of Environmental Quality
Land and Water Management Division
525 W. Allegan Street
Lansing, Michigan 48933

RE: Agent Authorization Letter
LG Chem/Compact Power Inc. Holland
City of Holland, Allegan County, Michigan

To Whom It May Concern:

This is to inform you that Compact Power Inc. (Applicant), has contracted Atwell, LLC to act as an authorized agent in attempting to obtain a permit from the Michigan Department of Environmental Quality for the proposed LG Chem/Compact Power Inc., project referenced above.

If you have any questions or comments, please contact our agent at (248) 447-2000.

Sincerely,

Kee Eun (Name)
Business Development Director (Title)
Compact Power Inc (Company)

US Army Corps of Engineers (USACE) | Michigan Department of Environmental Quality (MDEQ) DEQ

AGENCY USE				AGENCY USE
	Previous USACE Permit or File Number	Date Received	Land and Water Management Division, MDEQ File Number	
	USACE File Number		Pre-application Number or Marina Operating Permit Number	
	District Office		Fee received $	

Read instructions pages i - iii. All of the following boxes below must be checked and information provided for the application to be processed:

- ☒ All items in Sections 1 through 9 are completed
- ☒ Items in Sections 10 through 21 that apply to the project are completed
- ☒ Dimensions, volumes and calculations are provided
- ☒ Date project was staked *9/5/2009*
- ☒ Application fee is attached
- ☒ All requested supplementary attachments (➡) are included
- ☒ Reproducible location map, site plan(s), cross sections and photographs are provided, one set must be black and white on 8 ½ by 11 inch paper.
- ☒ List any additional attachments, tables, etc.: *Summary Report, Plan Set, Adjacent Property Owners, Owner Authorization, Photographic Log, Wetland Data Forms, Site Location Map, Cover Letter, Payment Authorization Form, Alternative Analysis.*

1 PROJECT LOCATION INFORMATION

- Refer to your property's legal description for the Township, Range, and Section information, and your property tax bill for your Property Tax Identification Number(s).

Site location Address (road, if no street address)	Zip Code	Township Name(s)	Township(s)	Range(s)	Section(s)
northeast of the intersection of S. Waverly Road and 48th Avenue		*Fillmore Township*	*4N*	*15W*	*03*

City/Village	County(ies)	Property Tax Identification Number(s)	
Holland	*Allegan*	*03-02-03-300-017, 03-02-03-300-015*	
Name of Waterbody *Wetlands,*	Project Name or Job Number *Atwell# 09001770*	Subdivision/Plat / Lot Number	Private Claim

Project types (check all that apply): ☒ private ☐ public/government ☒ industrial ☐ commercial ☐ multi-family ☐ building addition ☒ new building or structure ☐ building renovation or restoration ☐ river restoration ☐ single-family ☐ project is receiving federal transportation funds ☐ other (explain)

The proposed project is on, within, or involves (check all that apply)

☐ a legally established County Drain (date established) (M/D/Y) / /

☐ a stream	☐ a pond (less than 5 acres)	☐ a Great Lake or Section 10 Waters	☐ a natural river	☐ a new marina
☐ a river	☐ a channel/canal	☐ a designated high risk erosion area	☐ a dam	☐ a structure removal
☐ a ditch or drain	☐ an inland lake (5 acres or more)	☐ a designated critical dune area	☒ a wetland	☐ a utility crossing
☐ a floodway area	☐ a 100-year floodplain	☐ a designated environmental area	☐ 500 feet of an existing waterbody	

2 DESCRIBE PROPOSED PROJECT AND ASSOCIATED ACTIVITIES, AND THE CONSTRUCTION SEQUENCE AND METHODS (attached additional sheets)

Written Summary of All Proposed Activities. *The proposed activities associated with this project include the construction an approximately 420,000 square foot building in phase I and an approximately 203,500 square foot building in phase II with all associated utilities, stormwater management system, parking lots, and access roads. The proposed development will impact approximately 2.21 acres of emergent wetland with approximately 8,058 cubic yards of excavation and approximately 8,795 square feet of fill.*

Construction Sequence and Methods. *Refer to the attached Summary of Proposed Work*

3 APPLICANT, AGENT/CONTRACTOR, AND PROPERTY OWNER INFORMATION

Owner/Applicant (individual or corporate name)	Agent/Contractor (firm name and contact person)
Compact Power, Inc.	*Atwell, LLC, Attn: Bobbi Roberson*
Mailing Address *1857 Technology Drive*	Address *Two Towne Square, Suite 700*
City *Troy* State *MI* Zip Code *48083*	City *Southfield* State *MI* Zip Code *48076*
Daytime Phone Number with Area Code *248-307-1800* Cell Phone Number - -	Daytime Phone Number with Area Code *248-447-2000* Cell Phone Number - -
Fax *248-597-0900* E-mail	Fax *248-447-2001* E-mail *broberson@atwell-group.com*

☐ No ☒ Yes Is the applicant the sole owner of all property on which this project is to be constructed and all property involved or impacted by this project?

➡ If no, attach letter(s) of authorization from all owners. A letter signed by each property owner authorizing the agent/contractor/other owner to act on his or her behalf or a copy of easements or right-of-ways must be provided. If multiple property owners, also attach a list of all owners along with their names, mailing addresses, and telephone numbers. If the applicant is a corporation, a corporate officer must provide written document authorizing any agent/contractor listed above to act on its behalf. A letter of authorization must be provided from an owner receiving dredge spoils on their property, or where access through their property is required..

Property Owner's Name (If different from applicant)	Mailing Address

US Army Corps of Engineers (USACE) Michigan Department of Environmental Quality (MDEQ) DEQ

Daytime Phone Number with Area Code	Cell Phone Number	City	State	Zip Code
- -	- -			

☒ No ☐ Yes Is there a MDEQ conservation easement or other easement, deed restriction, lease, or other encumbrance upon the property in the project area?
➡ If yes, attach a copy.

4 PROPOSED PROJECT PURPOSE, INTENDED USE, AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)

Purpose/Intended Use: The purpose must include any new development or expansion of an existed land use. *This project proposes to construct an LG Chem Battery Plant.*

Alternatives: Include a description of alternatives considered to avoid or minimize resource impacts. Include factors such as, but not limited to, alternative construction technologies; alternative project layout and design; and alternative locations. For utility crossings, include both alternative routes and alternative construction methods.
Refer to the attached Alternative Analysis.

5 LOCATING YOUR PROJECT SITE
➡ Attach a black and white, legible copy of a map that clearly shows the site location and road from the nearest major intersection, and includes a north arrow.

Is there an access road to the project? ☒ No ☐ Yes (If Yes, type of road, check all that apply) ☐ private ☐ public ☐ improved ☐ unimproved

Name of roads at closest main intersection *S. Waverly Road* and *48th Avenue*

Directions from main intersection *Travel approximately 0.25 miles east on 48th Avenue and arrive at the site on the north side of 48th Ave.*

Style of house or other building on site ☐ ranch ☐ 2-story ☐ cape cod ☐ bi-level ☐ cottage/cabin ☐ pole barn ☐ none ☐ other (describe)

Color | Color of adjacent property house and/or buildings | House number | Street name

Fire lane number | Lot number | Address is visible on ☐ house ☐ garage ☐ mailbox ☐ sign ☐ other (describe)

How can your site be identified if there is no visible address? *Refer to the attached Site Location Map*

Provide directions to the project site, with distances from the best and nearest visible landmark and waterbody. *Refer to the MDEQ Plan Set.*

Does the project cross the boundaries of two or more political jurisdictions? (City/Township, Township/Township, County/County, etc.)
☒ No ☐ Yes ➡ If Yes, list jurisdictions:

6 List all other federal, interstate, state, or local agency authorizations required for the proposed activity, including all approvals or denials received.

Agency	Type approval	Identification number	Date applied	Date approved / denied	If denied, reason for denial
Allegan County	*SECS*				
City of Holland	*Site Plan*				
State of Michigan	*SWPPP*				

7 COMPLIANCE

If a permit is issued, date activity will commence (M/D/Y) *06/1/2010* | Proposed completion date (M/D/Y) *06/1/2013*

Has any construction activity commenced or been completed in a regulated area? ☒ No ☐ Yes
➡ If Yes, identify the portion(s) underway or completed on drawings or attach project specifications and give completion date(s) (M/D/Y) / /

Were the regulated activities conducted under a MDEQ permit? ☐ No ☐ Yes
If Yes, list the MDEQ permit number

Are you aware of any unresolved violations of environmental law or litigation involving the property? ☒ No ☐ Yes (If Yes, explain)

8 ADJACENT/RIPARIAN AND IMPACTED OWNERS (Attach additional sheets if necessary)

- Complete information for all adjacent and impacted property owners and the lake association or established lake board, including the contact person's name.
- If you own the adjacent lot, provide the requested information for the first adjacent parcel that is not owned by you.

Property Owner's Name	Mailing Address	City	State	Zip Code
Refer to Adjacent Property Owners List				

Name of ☐ Established Lake Board ☐ or Lake Association
and the Contact Person's name, phone number, and mailing address

9 APPLICANT'S CERTIFICATION READ CAREFULLY BEFORE SIGNING

I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application; that it is true and accurate; and, to the best of my knowledge, that it is in compliance with the State Coastal Zone Management Program. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the MDEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site and the completed project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does not release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does not guarantee the issuance of a permit.

☒ Property Owner ☐ Agent/Contractor ☐ Corporation/Public Agency – Title	Printed Name	Signature	Date (M/D/Y)
	DONGWOOK KIM	D.W. Kim	1/29/10

10 PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

- Check boxes A through M that may be applicable to your project and provide all the requested information.
- If your project may affect wetlands, also complete Section 12. If your project may impact regulated floodplains, also complete Section 13.
- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27.
- Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness.

➡ Provide a cross-section and overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures, land change activities and soil erosion and sedimentation control measures. Review Appendix B and EZ Guides for completing site-specific drawings.

➡ Provide tables for multiple impact areas or multiple activities and provide fill and excavation/dredge calculations.

Water Level Elevation
On a Great Lake use IGLD 85 ☐ surveyed ☐ converted from observed still water elevation. On inland waters, ☐ NGVD 29 ☒ NAVD 88 ☐ other
Observed water elevation (ft) date of observation (M/D/Y)

☒ **A. PROJECTS REQUIRING FILL** (See All Sample Drawings)

- Attach both overall site plan and cross-section views to scale showing maximum and average fill dimensions.

(Check all that apply) ☐ floodplain fill ☒ wetland fill ☐ riprap ☐ seawall, bulkhead, or revetment ☐ bridge or culvert ☐ boat launch ☐ off-shore swim area ☐ beach sanding ☐ boatwell ☐ crib dock ☐ other

Fill dimensions (ft)	Total fill volume (cu yd)	Maximum water depth in fill area (ft)
length *Varies* width *See* maximum depth *Plans*	*8,795*	*0.2*

Type of clean fill ☐ pea stone ☐ sand ☐ gravel ☐ wood chips ☒ other *clean upland fill material*

Will filter fabric be used under proposed fill? ☒ No ☐ Yes (If Yes, type)

Source of clean fill ☐ on-site, ➡ If on-site, show location on site plan. ☒ commercial ☐ other, ➡ If other, attach description of location.

Fill will extend feet into the water from the shoreline and upland feet out of the water. Fill volume below OHWM (cu yd)

☒ **B. PROJECTS REQUIRING DREDGING OR EXCAVATION** (For dredging projects see Sample Drawing 7, for excavation see other applicable Sample Drawings)

- Attach both overall site plan and cross-section views to scale showing maximum and average dredge or excavation dimensions and dredge disposal location.
- Refer to www.michigan.gov/jointpermit for disposal requirements and authorization.

(Check all that apply) ☐ floodplain excavation ☒ wetland dredge or draining ☐ seawall, bulkhead, or revetment ☐ navigation ☐ boat well ☐ boat launch ☐ other

Total dredge/excavation volume (cu yd)	Dimensions	Dredge/excavation volume below OHWM (cu yd)	Method and equipment for dredging
8,058	length *Varies* width *See* depth *Plan*		*Mechanical*

Has proposed dredge material been tested for contaminants? ☒ No ☐ Yes
➡ If Yes, provide test results with a map of sampling locations.

Dredged or excavated spoils will be placed ☒ on-site ☐ off-site.
➡ Provide detailed disposal area site plan and location map.
➡ Provide letter of authorization from owner, if disposing of spoils off site.

Has this same area been previously dredged? ☒ No ☐ Yes If Yes, date and permit number: / / /
If Yes, are you proposing to enlarge the previously dredged area? ☐ No ☐ Yes

Is long-term maintenance dredging planned? ☒ No ☐ Yes If Yes, when and how much?

☐ **C. PROJECTS REQUIRING RIPRAP** (See Sample Drawings 2, 3, 8, 12, 14, 17, 22, and 23. Others may apply)

Riprap waterward of the ☐ shoreline OR ☐ ordinary high water mark	Dimensions (ft) length width depth	Volume(cu yd)
Riprap landward of the ☐ shoreline OR ☐ ordinary high water mark	Dimensions (ft) length width depth	Volume(cu yd)

Type of riprap ☐ field stone ☐ angular rock ☐ other

Will filter fabric be used under proposed riprap? ☐ No ☐ Yes (If Yes, type)

☐ **D. SHORE PROTECTION PROJECTS** (See Sample Drawings 2, 3, and 17) Complete Sections 10A, B, and/or C above, as applicable.

(check all that apply) ☐ riprap – length (ft) ☐ seawall/bulkhead – length (ft) ☐ revetment – length (ft)

Distances of project from both property lines (ft)

☐ **E. DOCK - PIER – MOORING PILINGS – ROOFS** (See Sample Drawing 10)

Dock Type ☐ open pile ☐ filled ☐ crib
Seasonal support structure? ☐ No ☐ Yes

Permanent Roof? ☐ No ☐ Yes Mounted on
Maximum Dimensions: length width height

Proposed structure dimensions (ft) length width

Dimensions of nearest adjacent structures (ft) length width

☐ **F. BOAT WELL** (See EZ Guides)

Type of sidewall stabilization ☐ wood ☐ steel ☐ concrete ☐ vinyl ☐ riprap ☐ other

Boat well dimensions (ft) length width depth

Number of boats

Volume of backfill behind sidewall stabilization (cu yd)

Distances of boat well from adjacent property lines (ft)

☐ **G. BOAT LAUNCH** (See EZ Guide) (check all that apply) ☐ new ☐ existing ☐ public ☐ private ☐ commercial ☐ replacement

Proposed overall boat launch dimensions (ft) length width depth

Type of material ☐ concrete ☐ wood ☐ stone ☐ other

Existing overall boat launch dimensions (ft) length width depth

Boat launch dimensions (ft) below ordinary high water mark length width depth

Distances of launch from both property lines (ft)

Number of adjacent Skid piers

Skid pier dimensions (ft) length width

☐ **H. BOAT HOIST** (See EZ Guide)

(Check all that apply) ☐ seasonal ☐ permanent ☐ cradle ☐ side lifter ☐ other

located on ☐ seawall ☐ dock ☐ bottomlands

10 Continued - PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

☐ I. BOARDWALKS AND DECKS IN ☐ WETLANDS - OR - ☐ FLOODPLAINS (See Sample Drawings 5 and 6. Provide table if necessary)

	Dimensions (ft)		Dimensions (ft)
Boardwalk ☐ on pilings ☐ on fill	length width	Deck ☐ on pilings ☐ on fill	length width

☐ J. INTAKE PIPES (See Sample Drawing 16) ☐ OUTLET PIPES (See Sample Drawing 22)

Type ☐ headwall ☐ end section ☐ pipe ☐ other	If outlet pipe, discharge is to ☐ wetland ☐ inland lake ☐ stream, drain, or river ☐ Great Lake ☐ other	
Dimensions of headwall OR end section (ft) length width depth	Number of pipes	Pipe diameters and invert elevations

☐ K. MOORING AND NAVIGATION BUOYS (See EZ Guide for Sample Drawing)
- ➡ Provide an overall site plan showing the distances between each buoy, distances from the shore to each buoy, and depth of water at each buoy in feet.
- ➡ Provide cross-section drawing(s) showing anchoring system(s) and dimensions.

Number of buoys	Boat Lengths	Type of anchor system	Purpose of buoy ☐ mooring ☐ navigation ☐ swimming
Dimensions of buoys (ft) width height swing radius chain length		Do you own the property along the shoreline? ☐ No ☐ Yes ➡ Attach Authorization Letter from the property owner(s), if No above.	

☐ L. FENCES IN WETLANDS, STREAMS, OR FLOODPLAINS (No Sample Drawing available)
- Provide an overall site plan showing the proposed fencing through wetlands, streams, or floodplains.
- Provide drawing of fence profile showing the design, dimension, post spacing, board spacing, and distance from ground to bottom of fence.

(check all that apply) ☐ wetlands ☐ streams ☐ floodplains	Total length (ft) of fence through wetlands streams floodplains	Fence height (ft)	Fence type and material

☐ M. OTHER - e.g., structure removal or construction, breakwater, aerator, fish shelter, and structural foundations in wetlands or floodplains

11 EXPANSION OF AN EXISTING OR CONSTRUCTION OF A NEW LAKE OR POND (See Sample Drawings 4 and 15)

Which best describes your proposed waterbody use (check all that apply)
☐ wildlife ☒ stormwater retention basin ☐ recreation ☐ wastewater basin ☐ other

Water source for lake/pond
☐ groundwater ☐ natural springs ☐ Inland Lake or Stream ☒ stormwater runoff ☐ pump ☐ sewage ☐ other

Location of the lake/basin/pond ☐ floodplain ☐ wetland ☒ upland

Maximum dimensions (ft) length *1200* width *370* depth *18*	Spoils will be placed ☒ onsite ☐ offsite outside of wetland and floodplain ☐ other ➡ Provide a Detailed Disposal Area Site Plan with location map, address and disposal dimensions ➡ Provide a Letter of Authorization from off site disposal site owner ➡ Provide elevations and cross sections for outlets and/or emergency. Complete Section 10J.
Maximum Area: ☒ acres ☐ sq ft *4.5*	

Will project involve construction of a dam, dike, outlet control structure, or spillway? ☐ No ☐ Yes (If Yes, complete Section 17)

12 ACTIVITIES THAT MAY IMPACT WETLANDS (See Sample Drawings 8 & 9, and complete sections 10 A and 10 B for dredge or excavation as applicable)
- For information on the MDEQ's Wetland Identification Program (WIP) visit www.michigan.gov/deqwetlands or call 517-373-1170.
- Complete the wetland dredge and wetland fill dimension information below for each impacted wetland area. ➡ Attach tables for multiple impact areas or activities
- Label the impacted wetland areas on a site plan, drawn to scale or with dimensions. ➡ Attach at least one cross-section for each wetland dredge and/or fill area.
- If dredge/excavation material will be disposed of on site, show the location on site plan and include soil erosion and sedimentation control measures.

(check all that apply) ☒ fill (Section 10A) ☐ dredge or excavation (Section 10B) ☐ boardwalk or deck (Section 10I) ☐ dewatering ☐ fences (Section 10L) ☐ bridges and culverts (Section 14) ☐ draining surface water ☐ stormwater discharge ☐ restoration ☐ other

wetland dredge/excavation dimensions *Varies*	maximum length (ft) *See*	maximum width (ft) *Plans*	dredge/excavation area ☒ acres ☐ sq ft *1.03*	average depth (ft) *5*	dredge volume (cu yd) *8,058*
wetland fill dimensions *Varies*	maximum length (ft) *See*	maximum width (ft) *Plans*	fill area ☒ acres ☐ sq ft *1.18*	average depth (ft) *6*	fill volume (cu yd) *8,795*

Total wetland dredge/excavation area ☒ acres ☐ sq ft *1.03*	Total wetland dredge/excavation volume (cu yd) *8,058*	Total wetland fill area ☒ acres ☐ sq ft *1.18*	Total wetland fill volume (cu yd) *8,795*

The proposed project will be serviced by: ☒ public sewer ☐ private septic system ➡ Show system on plans	If septic system, has an application for a permit been made to the County Health Department? ☐ No ☐ Yes	If Yes, has a permit been issued? ☐ No ☐ Yes ➡ Provide a copy.
Has a professional wetland delineation been conducted for this parcel? ☐ No ☒ Yes ➡ Provide a copy of the delineation. ➡ Supply data sheets.		Applicant purchased property ☐ before OR ☒ after October 1, 1980.

Is there a recorded MDEQ easement on the property? ☒ No ☐ Yes If Yes, provide the easement number)

Has the MDEQ conducted a wetland assessment for this parcel? ☒ No ☐ Yes ➡ If Yes, provide a copy of assessment or WIP number:

Describe the wetland impacts, the proposed use or development, and any alternatives considered: *Refer to Summary of Proposed Work*

Does the project impact more than 1/3 acre of wetland? ☐ No ☒ Yes
➡ If Yes, submit a Mitigation Plan that includes the type and amount of mitigation proposed. For more information go to www.michigan.gov/deqwetlands

Describe how impacts to waters of the United States will be avoided and minimized: *Refer to Summary of Proposed Work*

Describe how impact to waters of the United States will be compensated. OR Explain why compensatory mitigation should not be required for the proposed impacts.
Refer to Summary of Proposed Work

Is any grading or mechanized land clearing proposed? ☐ No ☒ Yes ➡ Show locations on submitted site plan.	Has any of the proposed grading or mechanized land clearing been completed? ☒ No ☐ Yes ➡ Show labeled locations on site plan.

SUMMARY OF PROPOSED WORK

1.0 INTRODUCTION

Atwell, LLC (Atwell) was contracted to prepare a Michigan Department of Environmental Quality (MDEQ) permit application for wetland impacts associated with the proposed development. The approximately 79.85 acre site is located northeast of the intersection of S. Waverly Road and 48th Avenue in Section 03 of Fillmore Township (T4N – R15W), Allegan County, Michigan.

2.0 EXISTING SITE CONDITIONS

Atwell conducted a site inspection and wetland determination and delineation on September 5, 2009. The site consists mainly of an irregularly shaped agricultural (planted in corn at time of inspection) property totaling approximately 79.85 acres. A large industrial complex and a transmission line right-of-way that parallels a railroad occupy the western boundary of the project. An old abandoned farmstead, demarcated by an unimproved dirt lane and a long-established grove of trees, is located towards the southwestern corner of the property. A treed hedgerow (west to east) is located in the northern portion of the property.

The information gathered from the delineation and the review of historical and current documents indicates that four (4) wetland systems are located on the subject property. These wetlands have been labeled Wetlands A-D.

3.0 PROPOSED ACTIVITIES

The proposed activities associated with this project include the construction an approximately 420,000 square foot building in phase I and an approximately 203,500 square foot building in phase II with all associated utilities, stormwater management system, parking lots, and access roads. The proposed development will impact approximately 2.21 acres of emergent wetland with approximately 8,058 cubic yards of excavation and approximately 8,795 square feet of fill. To compensate for these unavoidable wetland impacts, the project proposes to create approximately 3.32 acres of off-site emergent wetland mitigation. A detailed description of each proposed impact is provided below.

- Impact 1: Excavate approximately 8,058 cubic yards of material wetland material and place approximately 7,459 cubic yards of clean upland fill material within approximately 2.06 acres of Wetland A.

- Impact 2: Place approximately 717 cubic yards of clean upland fill material within approximately 0.05 acres of Wetland C.

- Impact 3: Place approximately 619 cubic yards of clean upland fill material within approximately 0.10 acres of Wetland D.

4.0 THREATENED AND ENDANGERED SPECIES

A review of the Michigan Department of Natural Resources (MDNR) online viewer indicated that no listed features are known to occur within the subject property. A review of the U.S. Fish and Wildlife Service (USFWS) threatened and endangered species Allegan County list revealed that the following federal listed species are known to occur in the county: the endangered Indiana bat (*Myotis sodalis*) and Karner blue butterfly (*Lyceides Melissa samuelis)*, the threatened Pitcher's thistle (*Cirsium pitcher),* and the candidate eastern massasauga (*Sistrurus catenatus catenatus*).

The subject property is actively farmed and does not contain lakes, streams, other significant sources of water, sedge meadow, marsh edge and bog, pine barrens, oak savanna, stabilized dune and blowout areas, preferred and/or required habitat does not exist on-site for the Indiana bat, Karner blue butterfly, Pitcher's thistle, or eastern massasauga. These species were not observed on-site and are likely not present on the subject property.

ADJACENT PROPERTY OWNERS

03-02-03-303-009
KCI Properties, LLC
782 Waverly Court
Holland, MI 49423

03-02-03-303-008
Global Concepts Enterprise, Inc.
785 Waverly Court
Holland, MI 49423

03-02-03-300-012
USF of Holland, Inc.
750 Waverly Court
Holland, MI 49423

06-003-020-00
Welscott, Ray J. & B.
5390 147th Avenue
Holland, MI 49423

WETLAND IMPACT ASSESSMENT
AND
COMPENSTORY
MITIGATION PROPOSAL

for:

the ±69 Acre property located
Northeast of the Intersection of
S. Waverly Road & 48th Avenue
Fillmore Township & the City of Holland
Allegan County, Michigan

Prepared for:

ROSSETTI
ARCHITECTURE | INTERIORS | GRAPHICS
PLANNING
TWO TOWNE SQUARE; SUITE 200
SOUTHFIELD, MI 48076

Atwell, LLC
Project No. 09001770

January 28, 2010

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1.0-INTRODUCTION

Atwell, LLC (Atwell) was retained by Rosetti to prepare a Wetland Assessment and Compensatory Mitigation Proposal for wetland impacts involving the proposed development of the LG Chem industrial facility. The subject property consists of approximately 79.85 acres and is located northeast of the intersection of 48th Avenue and Waverly Road in Section 03 of Fillmore Township (T4N – R15W), Allegan County, Michigan. The proposed site plan includes the development of the an approximately 420,000 square foot building in phase I and an approximately 203,500 square foot building in phase II with all associated utilities, stormwater management system, parking lots, and access roads. A *Site Location Map* along with an overall site plan is provided in **Appendix I** for review.

The site consists of an undeveloped, irregular-shaped property, which contains a mix of agricultural fields, hedgerows, and shrubs. An old abandoned farmstead is located near the southwestern corner of the site (accessed from 48th Avenue). The information gathered from site reconnaissance and the review of historical and current documents indicates that four (4) wetland systems (Wetlands A, B, C, & D) are located on the subject property. Wetlands A, C, and D appear to meet the requirements of Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA) and would be considered regulated by the Michigan Department of Natural Resources & Environment (DNRE). A *Wetland Location Map* is presented in **Appendix II** for review. These wetland areas are also presented within the *MDEQ Permit Application* plan set.

The purpose of this Wetland Assessment and Compensatory Mitigation Proposal is to provide a discussion of current site conditions, characteristics of the proposed impact areas, and a mitigation plan for compensation for the wetland impacts. This proposal will provide a plan for the functional replacement of each regulated wetland. The newly created wetland system will contain attributes similar to the function and value lost due to proposed construction activities. Additionally, an effective monitoring plan is proposed, which will insure the success of the mitigation area in terms that are set forth in the final success criteria and performance standards.

The Mitigation Proposal was written in accordance with the guidance of *Appendix I Mitigation Plan* (The Michigan Department of Environmental Quality), *A Technical Manual for Identifying Wetlands in Michigan* (Michigan Department of Environmental Quality, March 2001), *Field Guide for Wetland Delineation* (Army Corps of Engineers, January 1987), *Wetland Engineering Handbook* (Army Corps of Engineers, March 2000), and *Chapter 13 Wetland Restoration, Enhancement or Creation* (U.S. Department of Engineering Field Handbook, Revised May 1997).

2.0-EXISTING SITE CONDITIONS

Atwell conducted a site inspection and wetland determination and delineation on September 5, 2009. The subject property, consisting of approximately 79.85-acres, is located northeast of the intersection of S. Waverly Road and 48th Avenue in Fillmore Township, Allegan County, Michigan. Specifically, the property is located in the southern half of Section 03 (T4N – R15W).

The property is currently an actively farmed agricultural landscape surrounded by a mix of industrial and residential areas. The site is bordered by 147th Avenue to the north along with a mix of industrial/corporate complexes and rural residential areas. To the east, the site is bound by agricultural fields. Isolated rural residences and agricultural fields along 48th Avenue occupy the southern site boundary. A large industrial complex and a railroad right-of-way (intersecting both S. Waverly Road and 48th Avenue in a northwest to southeast direction) border the site to the west. Refer to the *Property Features Map* included in **Appendix III**.

The topography of the site is relatively flat but tends to slope to the southeast towards the North Branch of the Macatawa River, which is located to the east of the property. Topography, in addition to the sandy soils of the site, help contribute to a substantial drainage pattern that follows this southward slope and connects with a drainage ditch running parallel to and along the north side of 48th Avenue. This drainage ditch empties into the Macatawa River. A portion of the drainage system consists of a well-vegetated swale that lies just to the northeast of the abandoned farmstead (detectable on aerial images; **Appendix III**), which consists of a shrub-scrub wetland dominated by willows (*Salix sp.)*, cattails *(Typha sp.),* and other wetland plant species. The northeastern portion of the farmstead consists of a low depression with associated wetland vegetation but is likely not connected with the site's drainage pattern.

With the exception of wetland vegetation growing within the onsite wetlands, the site mainly consists of agricultural row crops. Upland vegetation is confined to the fencerows and the abandoned farmstead and is typical of that found in these types of locations. Vegetation in the upland portions include species such as tall goldenrod (*Solidago altissima*), silver maple (*Acer saccharinum*), Austrian pine (*Pinus nigra*), green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), northern catalpa (*Catalpa speciosa*), osage orange (*Maclura pomifera*), American basswood (*Tilia americana*), boxelder (*Acer negundo*), black cherry (*Prunus serotina*), American elm (*Ulmus americana*), red mulberry (*Morus rubra*), hawthorn (*Crataegus* spp.), apple (*Malus pumila*), red oak (*Quercus rubra*), and bitternut hickory (*Carya cordiformis*).

The information gathered from the delineation and the review of historical and current documents indicates that four (4) wetland systems are located on the subject property. These wetlands have been labeled Wetlands A-D. The wetland delineation conducted indicated that the onsite wetlands comprise a total of 2.21 acres. See the *Overall Existing Conditions Plan* in **Appendix IV**. A discussion of each wetland system follows.

2.1 Wetland A

Wetland A consists of a 2.06 acre emergent wetland. The wetland extends through the subject property diagonally commencing from the southern portion of the property and extending to the north into the agricultural field. Refer to the *Overall Existing Conditions Plan* in **Appendix IV**. The wetland would be considered very low quality due to highly intensive agricultural activities including plowing, fertilization/nutrient loading, and drainage practices. The continuous farming of the site has limited the establishment of wetland vegetation within portions of Wetland A. Long areas of this linear wetland

system lack a dominance of wetland vegetation. However, these areas that lacked wetland vegetation contained evidence of hydric soils and wetland hydrology and therefore were delineated as part of the larger Wetland A system. Species found within this wetland area consisted of field nut sedge (*Cyperus esculentus*), bigseed smartweed (*Polygonum pensylvanicum*), cattail (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*), barnyard grass (*Echinochloa crusgalli*), New England aster (*Aster novae-angliae*), blue vervain (*Verbena hastata*), and sandbar willow (*Salix exigua*). The majority of these species are considered plants that are typically found in highly disturbed wetland areas. These species range in wetland indicator status from FACW to OBL. Refer to the *Photographic Log and Wetland Data Forms in* **Appendix V** for photographs of the wetland area and specific data on the wetland characteristics.

Due to the sandy nature of the soils within Wetland A, the flowing water has created small drainage swales through the wetland. These multiple drainage swales connect and appear to outlet water into the road site ditch along the north side of 48th Avenue. The wetland area is linear in nature and transports agricultural runoff from the field. The wetland is typical of an agricultural drainage and water conveyance. At the time of the site visit, the majority of Wetland A contained saturated soils with small areas of inundation. The wetland appears to receive hydrology from precipitation and runoff from adjacent upland. This wetland connects to the road side ditch which connects and outlets into the Macatawa River (North Branch).

Wetland A would be considered regulated by the DNRE under Part 303, Wetlands Protection, because it is connected with a regulated watercourse (*i.e.*, the Macatawa River).

2.2 Wetland B

Wetland B consists of a small 0.13 acre isolated scrub-shrub wetland located in the northeast corner of the old farmstead. Refer to the *Overall Existing Conditions Plan* in **Appendix IV**. The dominant species include field nut sedge, bigseed smartweed, barnyard grass, sandbar willow, and cottonwood (*Populus deltoides*) saplings. These species range in wetland indicator status from FAC+ to OBL. Refer to the *Photographic Log and Wetland Data Forms in* **Appendix V** for photographs of the wetland and specific data on the wetland characteristics.

At the time of the site visit, the majority of Wetland B contained saturated soils. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands.

Wetland B is an isolated wetland and would not be regulated by the DNRE.

2.3 Wetland C

Wetland C consists of a small emergent approximately 0.05 acre wetland. Refer to the *Overall Existing Conditions Plan* in **Appendix IV**. The wetland would be considered very low quality due to highly intensive agricultural activities including plowing, fertilization/nutrient loading, and drainage practices. The dominant vegetation includes barnyard grass, bigseed smartweed, and common cocklebur. These species range in

wetland indicator status from FAC to FACW+. Refer to the *Photographic Log and Wetland Data Forms in* **Appendix V** for photographs of the wetland area and specific data on the wetland characteristics.

At the time of the site visit, the wetland contained saturated soils. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands.

Wetland C would be considered regulated by the DNRE under Part 303, Wetlands Protection, because it is connected to a regulated watercourse (*i.e.,* the Macatawa River).

2.4 Wetland D

Wetland D consists of a 0.10 acre emergent wetland. The wetland extends across the northeastern corner of the subject property. Refer to the *Overall Existing Conditions Plan* in **Appendix IV**. The wetland would be considered very low quality due to highly intensive agricultural activities including plowing, fertilization/nutrient loading, and drainage practices. The continuous farming of the site has limited the establishment of wetland vegetation within portions of Wetland D. Long areas of this linear wetland system lack a dominance of wetland vegetation. However, the areas that lacked wetland vegetation contained evidence of hydric soils and wetland hydrology and therefore were delineated as part of the larger Wetland D located offsite. Species found within this wetland area consisted of field nut sedge, bigseed smartweed, and barnyard grass. The majority of these species are considered plants that are typically found in highly disturbed wetland areas. These species range in wetland indicator status from FACW to OBL. Refer to the *Photographic Log and Wetland Data Forms in* **Appendix V** for photographs of the wetland area and specific data on the wetland characteristics.

Due to the sandy nature of the soils within Wetland D, the flowing water has created small drainage swales through the wetland. These multiple drainage swales connect and appear to outlet water into the Macatawa River. The wetland is linear in nature and transports agricultural runoff from the field and is typical of an agricultural drainage and water conveyance. At the time of the site visit, the majority of Wetland D contained saturated soils with small areas of inundation. The wetland appears to receive hydrology from precipitation and runoff from adjacent upland.

Wetland D would be considered regulated by the DNRE under Part 303, Wetlands Protection, because it is connected with a regulated watercourse (*i.e.*, the Macatawa River).

3.0-DESCRIPTION OF IMPACTS TO REGULATED WETLANDS

All of the wetland systems (Wetlands A, B, C, & D) found onsite will be impacted during the development of the industrial facility. A *Proposed Wetland Impact Table*, a *Wetland Impact Plan*, and corresponding impact cross-sections are shown on sheets 3 and 4 of the and presented in **Appendix VI** for review. The proposed impacts to these wetland systems consist of approximately 2.21 acres, requiring approximately 8,058 cubic yards of excavation and approximately 8,795 cubic yards of fill. These areas will be impacted for the placement of the building, various parking lots, and access roads. All regulated wetland impacts will be compensated for through mitigation at an offsite location located

within the same watershed as the proposed development. Refer to the *Site Location Map* provided in **Appendix VII**.

3.1 Wetland A

The proposed impacts to Wetland A consist of excavating approximately 8,058 cubic yards of wetland material and placing approximately 7,459 cubic yards of clean upland fill material within 2.06 acres of wetland. This area will be impacted for grading purposes and placement of parking lots and a building.

3.2 Wetland C

The proposed impacts to Wetland C consist of filling approximately 0.05 acres with approximately 717 cubic yards of clean upland fill material. This area will be impacted for grading purposes and a building.

3.3 Wetland D

The proposed impacts to Wetland D consist of filling 0.10 acres with approximately 619 cubic yards of clean upland fill material. The wetland will be filled for the construction of an access road and site grading.

4.0-ALTERNATIVE ANALYSIS

An alternative analysis is required under Rule 2a(2) of the Wetland Protection Act Part 303 and is necessary for the DNRE to review a permit application. Rule 2a(2) states: "As required by subsection 30311(4) of the act: a permit applicant shall bear the burden of demonstration that an unacceptable disruption to aquatic resources will not occur as a result of the proposed activity and demonstrating either of the following:

(a) The proposed activity is primarily dependent upon being located in the wetland.
(b) There are no feasible and prudent alternatives to the proposed activity."(R281.922a)

The proposed activity is not primarily dependent upon being located in a wetland. The following alternative analysis describes the site selection and site layout processes in order to demonstrate that there are no feasible or prudent alternatives to the proposed activity.

As with the majority of other large industrial development complexes throughout the United States, corporations execute an extensive analysis of all aspects of development and then subsequently implement careful due diligence before any prospective site development is considered. LG Chem, with the assistance of Atwell, has performed extensive due diligence planning including a comprehensive site selection process throughout Michigan to determine their base headquarters in the United States. Upon completion of the initial review of potential sites within the State of Michigan, five (5) specific locations were determined to be potential development sites. Refer to the *Site Locations Map* in **Appendix VIII**. Upon completion of the review performed throughout the State. The City of Holland assisted LG Chem in locating a specific site in Holland for their facility. All selected properties underwent a detailed evaluation on a site-by-site basis to determine the preferred option for development of the proposed facility.

4.1 Site Selection Process

Site selection is one of the most critical aspects of any development endeavor especially that of large industrial complexes like the proposed lithium battery manufacturing plant. LG Chem's planning and development of other industrial facilities along with Atwell's experience in Michigan provides a unique understanding as to what constitutes a feasible and viable site. If a potential site for a new development does not possess certain characteristics, then it is considered not viable for development.

The site selection process takes into account many factors when analyzing prospective locations. During the site selection process the following attributes were reviewed: site acreage, ability to expand, socio-economic factors, available infrastructure, access, zoning, the presence of a railroad spur, vicinity to an airport, environmental factors, and additional factors that might preclude or encourage development. Of these attributes reviewed, ability to expand, socio-economic, access to a railroad spur, and an airport were extremely important for the development of the site. In addition, environmental constraints were an important factor when determining the viability and cost of the overall development of the facility.

Upon determining the specific attributes that must be reviewed, LG Chem and Atwell determine the base or minimum requirements necessary for development. Specifically, the preferred site must meet these basic requirements:

- Contain 80 acres or more of developable land
- Posses the potential for expansion
- Possess acceptable infrastructure
- Located adjacent to a railroad
- Located near an airport

The remaining factors reviewed were also a significant factor in determining the preferred site. Socio-economic factors, such as the presence of union, available work force and a willingness to allow development of this type of facility were ranked high on LG Chem's list of requirements. In addition, environmental factors, such as wetland, threatened and endangered species, and potential contamination were taken into consideration and prohibited the selection of two of the five sites in Michigan. Other factors such as zoning, access and proximity to residential developments also were reviewed. A chart providing the requirements in relation to each alternative site is provided in **Appendix IX** for review and use.

As previously mentioned, a total of five (5) individual locations were selected as prospective development sites throughout Michigan and warranted further review. The five sites are located within Allegan, Oakland, St. Clair, and Wayne (location of both Van Buren North & Van Buren South) counties. More specifically, these sites are located in:

- Township 4N, Range 15W, Section 3 (Allegan County)
- Township 3N, Range 10E, Section 19 & 30 (Oakland County)
- Township 5N, Range 17E, Section 19 (St. Clair County)

- Township 3S, Range 8E, Section 4 (Wayne County; Van Buren North & South)

These specific site locations are illustrated on *Site Locations Map* presented in **Appendix VIII.**

A few of the above listed attributes were fulfilled by all five prospective sites. For example, all of the sites are located adjacent to existing access roads and located within approximately 1.0 miles of a major highway. Taking into consideration the zoning ordinance, set back requirements, storm water management regulations, configuration of the property and access drive locations, all five sites met the minimum required acreage necessary to construct the proposed facility. After careful analysis and consideration, one of the five sites was identified as the preferred site for development. A discussion of the preferred site as well as the four alternative sites is provided below.

4.2 Preferred Development Site

LG Chem with the assistances of the City of Holland and Atwell has determined that the Holland Site (Allegan County) is, indeed, the most viable location for the construction of the proposed industrial facility. Refer to the *Site Location Map* and the *MDEQ Permit Application* plan set presented in **Appendix I**. The site was offered as the best alternative in the vicinity of Holland by LG Chem, Atwell, and the City. It also meets the majority of the site-selection criteria. A discussion on the onsite alternatives as well as the determination of the preferred site in Holland is provided in *Section 4.4 City of Holland and Onsite Alternatives.* The following paragraphs discuss the fulfillment of the requirements in detail.

The preferred site within the City of Holland and Fillmore Township (Allegan County) totals approximately 80 acres. The review of the City of Holland zoning, required set backs from roads, property lines, stormwater, and parking requirements for the property revealed that the acreage will accommodate the development of the facility during the initial phases of development. As stated in the previous section, the ability to expand the facility was one minimum requirement for site selection. Additional property is available adjacent to the preferred site for expansion purposes if necessary in the future.

The preferred site possesses sufficient road frontage to meet access criteria. The southern boundary of the Holland site parallels 48th Avenue/146th Avenue, which connects directly to State Route 40 to the west. This roadway may not accommodate subsequent increases in traffic volume that may occur in response to the new development. As a result, road widening in the form of accessory turning lanes may need to commence in order to accommodate traffic flow associated with an influx of personnel during shift changes. The City of Holland will facilitate a three lane roadway extension with curb and gutters once the development plan is approved. Two access drives are currently proposed for the property, one of which mirrors an existing access point associated with an abandoned homestead at the southwestern portion of the site. State Route 40 connects directly to Interstate-196, which is directly to the south of the proposed site.

The western most boundary of the preferred site is the Chesapeake & Ohio Railroad, which will accommodate any subsequent need for railroad spurs. The 598 yards (i.e.,

1,794 feet) of road frontage on the preferred site is provided in a continuous fashion along 48th Avenue/146th Avenue, which greatly enhances the future accessibility of the proposed facility. Approximately 320 yards (i.e., 960 feet) of railway frontage is located along the western most boundary of the proposed site. The site is also within vicinity of an airport.

Development of this preferred site is less challenging and costly because of pre-existing conditions. An existing 48 acre established industrial park (e.g., USF Holland, Inc.; LS Molds, Inc.) is located northwest of the development site. This existing infrastructure should ensure readily available access to various utilities within an industrial development context. Furthermore, stormwater management concerns are able to be more easily addressed on this preferred site than the alternative sites due to the location of a qualifying waterway/drain. The South Branch Macatawa River is conveniently situated to the east of the subject property and is proposed to receive overflow waters from the detention pond, provided that DNRE and Drain Commission grant approval. A roadside ditch on the north side of 48th Avenue also appears to connect with the North Branch Macatawa River. No modifications to this watercourse are required for clean water discharge.

In addition to the factors discussed above, ecological concerns were given significant attention and taken into consideration during the layout planning phase. The preferred site does contain wetland systems which are considered regulated by the DNRE. These wetlands are discussed in detail in *Section 2.0 Existing Site Conditions*. Although wetlands do exist, the continued agricultural nature of the site has left these wetland severely impacted. The wetlands are typical of water conveyance systems used to drain water from agricultural fields. The amount of sedimentation and erosion occurring on the subject site should be considered a concern due to their direct connection to the North Branch Macatawa River. The wetlands barely contain wetland attributes as heavy sedimentation and agricultural impacts have inhibited the growth of wetland vegetation and any possibility of these wetlands providing significant ecological function, such as wildlife habitat, water quality improvements, floodwater storage or aesthetic attributes.

Compare to the other four alternative sites, this site ranked third with regard to wetland and stream impacts, behind Alternative Sites A and C. The development plan proposes to fill the entire wetland area comprising of approximately 2.21 acres. These impacts are unavoidable due to the configuration and size of the wetlands onsite. Although wetland impacts totaling 2.2 acres are typically considered extensive, the quality, positioning and potential adverse impact to the North Branch of the Macatawa River supports the assertion that the development requirements onsite outweigh the adverse impacts that may occur with the filling of these wetlands.

The potential for the presence of threatened and endangered species was also considered during the site selection process. In August of 2009, Atwell contacted the United States Fish and Wildlife Service (USFWS) and DNRE during the due diligence phase of the proposed project, requesting comments on potential impacts to endangered, threatened, and proposed species, and their critical habitat, within the proposed project area. The DNRE response to the request stated that the federal and state endangered, threatened,

special concern species, exemplary natural plant communities, or unique natural features are not known to occur at or near the development site. The USFWS county list of federally listed species revealed the possible presences of the federally-endangered Indiana bat (*Myotis sodalis*), candidate eastern massasauga (*Sistrurus catenatus catenatus*), endangered Karner blue butterfly (*Lycaeide melsissa samuelis*), and threatened Pitcher's thistle (*Cirsium pitcheri*). However, after the review of the subject property Atwell determine that due to the site characteristics it is very unlikely that the these species would be located on the subject property. Please see *Section 5.0 Threatened and Endangered Species Review* for further discussion.

The preferred development site was chosen after careful review because the base conditions provide prudent reasoning for the site's selection and ensure the feasibility of development. Environmental concerns were at the forefront of the factors taken into consideration when selecting the preferred site. Development of the preferred site would result in relatively small amounts of wetland impact, no drain/water course alteration and no impact to the habitat or presence of threatened or endangered species Due to all of the considerations addressed above, the preferred site has been selected as the favored site for development. A discussion of the site selection process for the four alternative sites follows.

4.3 Alternative Sites

When researching a location for their new battery facility, LG Chem looked at various options throughout the State of Michigan. Four alternative sites were considered prior to the selection of the preferred site, and extensive due diligence was completed on each of the sites. The four alternative sites consist of the following: A-Pontiac, B-St. Clair, C-Van Buren North, and D-Van Buren South.

Alternative Site A (Pontiac) consists of approximately 84 acres and is located on US-24/Telegraph Road near Elizabeth Lake Road in Sections 19 and 30 of the City of Pontiac, Oakland County (T3N, R10E), Michigan. This site has been cleared, mass graded, and contains minimal natural resources. A proposed site layout plan is presented in **Appendix X**. Although this site did satisfy some basic requirements, it did not meet essential factors in site planning. Alternative Site A is similar in size to the preferred site; however, the odd shape of the parcel does not provide adequate space to accommodate the buildings and associated parking needs, and additional property would be necessary to allow for future expansion of the facility. Additionally, adequate infrastructure is not available to service the proposed facility and significant upgrades may be necessary, including the construction of an onsite electrical sub-station, improvements to increase the capacity of the current water system, and improvements to the road system to improve access.

A preliminary wetland determination was performed for the alternative site. Information gathered from the determination and the review of historical and current documents indicates that one emergent wetland is located on the site. This wetland does not appear to have been formed naturally and is located at the end of a stormwater outlet swale. The wetland is not likely regulated by the DNRE. As with the preferred site, wetland impacts

would be inevitable due to the configuration of the wetlands and the use of the majority of the site for grading and development activities.

Alternative Site B (St. Clair) consists of approximately 81 acres and is located on Range Road near Yankee Road in Section 19 of the City of St. Clair, St. Clair County (T5N, R17E), Michigan. A proposed site layout plan is presented in **Appendix XI**. This site is currently undeveloped and consists of a semi-mature forest and an old field in various stages of succession. Although this site did satisfy some basic requirements, it did not meet essential factors in site planning. Alternative Site B is similar in size to the preferred site; however, the portions of this site are opposite those of the preferred site. The narrow shape of the parcel will require the building to be modified from its standard footprint and additional property to allow for future expansion of the facility may not be available. Additionally, the site involves two recently platted lots which would need to be assembled/combined prior to use. Furthermore, the construction of an onsite electrical sub-station and transformers would be required to provide adequate electrical service to the proposed facility. A variance may be required from the City to allow an increase in the maximum building height to approximately 85 feet.

A preliminary wetland determination was performed for Alternative Site B. Information gathered from the determination and the review of historical and current documents indicates that two large wetland systems, multiple isolated wetland pockets, and one watercourse (Bowman Drain) are located on the site. One approximately 3.5 acre scrub-shrub wetland is located in the southern portion of the site, one approximately 4 acre forested wetland is located within the central portion of the site, and small isolated wetland pockets are scattered throughout the site. Additionally, the Bowman Drain bisects the central portion of the site and would require relocation prior to development. As with the preferred site, wetland impacts would be inevitable due to the configuration of the wetlands and the use of the majority of the site for grading and development activities. The onsite scrub-shrub wetland does not appear to be regulated by the DNRE; however, the onsite forested wetland would likely be regulated by the DNRE. The total acreage of the wetland impacts is estimated at approximately 4-acres (more impact than on the preferred site). In addition to the wetland impacts, the Bowman Drain would require enclosure and/or relocation if development took place. The relocation or enclosure would inevitably have an irreversible impact on vegetation and wildlife associated with the water course.

Furthermore, potential habitat for the Indiana bat may exist onsite. Before any development could take place, a Threatened and Endangered Species (TES) survey would need to be conducted by a trained environmental specialist in order to determine the presence or absence of this species.

Alternative Sites C and D (Van Buren North, and Van Buren South) are located on the northern and southern halves respectively of the same parcel of land and were evaluated simultaneously. Alternative Site C consists of approximately 88.5 acres and is located on Belleville Road near Van Born Road in Section 4 of Van Buren Township, Wayne County, (T3S, R8E), Michigan. Alternative Site D consists of approximately 87 acres and is located at the intersection of Belleville Road and Ecorse Road in Section 4 of Van

Buren Township, Wayne County (T3S, R8E), Michigan. A proposed site layout plan for each of these sites is presented in **Appendix XII**. Both of these sites are currently undeveloped and consist of semi-mature forests and old fields in varying stages of succession. Although these sites did satisfy some basic requirements, they did not meet essential factors in site planning. Both sites are similar in size to the preferred site and additional property is readily available for future expansion of the facility. However, both sites may require the vacation of existing road rights-of-way. A portion of the Van Born Road right-of-way bisects the northern area of Alternative Site C and would require vacation to accommodate development. Alternative Site D contains the entirety of the right-of-way for Gaines Road, which was included as part of a previously platted subdivision and would also require vacation prior to development. Additionally, Belleville Road is within the Downtown Development Authority district and may require additional landscaping and pedestrian infrastructure in addition to the road improvements required for site access and circulation. Based on a review of the soil borings, groundwater may present a concern in the development of these sites. The construction of an onsite electrical sub-station and transformers would be required to provide adequate electrical service to the proposed facility. Furthermore, variances may be required from the Township to reduce the number of required parking spaces and to allow an increase in the maximum building height to approximately 85 feet.

A preliminary wetland determination was performed for Alternative Site C. Information gathered from the determination and the review of historical and current documents indicates that seventeen wetland systems and one watercourse (McKinstry Drain) are located within the assessment area. Sixteen wetlands appear to be forested and one appears to be emergent/wet meadow. As with the preferred site, wetland impacts would be inevitable due to the configuration of the wetlands and the use of the majority of the site for grading and development activity. Two of the forested wetlands would likely be regulated by the DNRE. The total acreage of the wetland impacts is estimated at approximately 0.8 acres. In addition to the wetland impacts, the McKinstry Drain would require enclosure and/or relocation if development took place. The relocation or enclosure would inevitably have an irreversible impact on vegetation and wildlife associated with the water course.

A preliminary wetland determination was performed for Alternative Site D. Information gathered from the determination and the review of historical and current documents indicates that twelve forested wetland systems and one watercourse (Apple Run Drain) are located within the assessment area. As with the preferred site, wetland impacts would be inevitable due to the configuration of the wetlands and the use of the majority of the site for grading and development activity. Five of the forested wetlands would likely be regulated by the DNRE, and the total acreage of the wetland impacts is estimated at approximately 6.4 acres (more impact than on the preferred site). In addition to the wetland impacts, the Apple Run Drain would require enclosure and/or relocation if development took place. The relocation or enclosure would inevitably have an irreversible impact on vegetation and wildlife associated with the water course.

Based on these findings, Atwell believes that these four alternative sites do not possess the base requirements that are considered necessary for the development of the LG Chem

battery facility. While development on some of the sites may have fewer impacts to the natural features, the constraints with regard to site layout, availability of infrastructure, access, and other criteria generally make these sites less suitable for the proposed development. A feasible and prudent alternative exists for the alternative sites as described in *Section 4.2*.

4.4 City of Holland and Onsite Alternatives

The City of Holland offered and helped chose the preferred site for the development of the lithium battery manufacturing facility with the City of Holland. The site was chosen due to meeting the basic requirements needed by LG Chem as well as the City's requirements for a facility of this type. The City chose the site due to its proximity to exiting manufactory, distance from residential developments, zoning, acreage, and proximity to the railroad. The City did review additional sites in Holland and efforts were made to locate an alternative site; however, no alternative sites were available which would accommodate the proposed development and meet the site selection criteria for parcel size, socio-economic factors, available infrastructure, access, and zoning.

There are no alternatives with the exception of a "No Build" options to the impact of wetlands onsite. As discussed previously, this site is the best option for development. The climate of Michigan at the present time requires the encouragement and facilitation of the development and establishment of new business within the state. The state and community will benefit from the development of this facility. The "No Build" alternative is not an option for this development.

Based on the size of the proposed development, alternative options for the onsite layout are also unfeasible. Phases I-III of the proposed facility include approximately 931,500 square feet of building area, nearly 1,000 parking spaces, a proposed railroad spur, and loading area. Due to the nature of the proposed business activity, it is important that the functions be consolidated on one contiguous parcel and that the layout and building footprints be prototypical to maximize efficiency and production. The preferred layout provides high visibility from the adjacent road, allows for optimal onsite circulation for passenger vehicles, delivery trucks, and railroad spur access, and makes greatest use of the site while also providing minimal impact to the surrounding properties and uses.

The wetlands located on the site traverse diagonally from the northwestern property line to the southeastern portions of the site. In addition these wetlands connect into a significant roadside ditch which runs the entire length of the southern boundary of the site. The linear nature of the wetlands along with their location onsite make in all but impossible to avoid impacts with the development of the site. Small portions of the wetland, such as the areas located within the 30-foot set back along the property line could be preserved, however the continuous nature of the wetland would severely impact the areas preserved and therefore long-term success of these wetlands could not be guaranteed and would most likely remain a non-functional system. Atwell's professional opinion is that wetland mitigation to compensate for the impacts proposed with development is the best option for a no net loss of wetlands within this watershed.

5.0-THREATENED AND ENDANGERED SPECIES REVIEW

As previously mentioned, Atwell contacted the United States Fish and USFWS and DNRE during the due diligence phase of the proposed project, requesting comments on potential impacts to endangered, threatened, and proposed species, and their critical habitat, within the proposed project area. The DNRE utilizes a statewide database, which contains records of known localities of rare species and unique natural features to determine the likely presence of certain species and features of concern. This database provides information which aids in compliance with the Endangered Species Act. The DNRE's statewide database does not list any known or potential TES within the project section, therefore potential impact to TES is highly unlikely.

The review of the USFWS Allegan County list revealed that the following federal listed species are known or were historically known to occur in the county: the endangered Indiana bat (*Myotis sodalis*) and Karner blue butterfly (*Lyceides Melissa samuelis)*, the threatened Pitcher's thistle (*Cirsium pitcher),* and the candidate eastern massasauga (*Sistrurus catenatus catenatus*).

The subject property is actively farmed and does not contain lakes, streams, other significant sources of water, sedge meadow, marsh edge and bog, pine barrens, oak savanna, stabilized dune or blowout areas. Therefore, preferred and/or required habitat does not exist onsite for the Indiana bat, Karner blue butterfly, Pitcher's thistle, or eastern massasauga. The State of Michigan TES letter an the county list for the USFWS are available in **Appendix XIII**.

6.0-WETLAND MITIGATION GOALS

Due to the amount of impact proposed to naturally occurring wetlands on the subject property, LG Chem's development plans include compensatory wetland mitigation. An assessment of potential areas for mitigation was preformed both on and offsite to determine the best possible location in terms of adequate compensation for the impact to existing wetlands, possible improvements to existing natural resources, and benefit to the surrounding community. After careful consideration, an offsite location was chosen. See the *Off-site Mitigation Plan* in **Appendix XIV** and *Sheet 05* in the plan set.

The State of Michigan (Part 303, Wetlands Protection) requires mitigation ratios of 2.0 acres of mitigation for 1.0 acre of permitted impact to forested and coastal wetlands, and 1.5 acres of mitigation for 1.0 acre of permitted impact to all other wetlands, with the exception of wetland types that are rare or imperiled. The wetland fill proposed for the development includes filling 2.21 acres of emergent wetlands. Mitigating the impacted wetlands at the appropriate ratio requires no less than 3.32 acres of mitigation.

The wetland mitigation plan for LG Chem proposes to compensate for the irreversible impacts to the existing wetlands as a result of the development by creating one wetland mitigation area. The continuous, emergent wetland will be created as a multi-functioning system, which will be offsite and in-kind. The wetland will be located within a City of Holland park where an existing wetland mitigation area already exists. The wetland will then be placed under a conservation easement for the protection of the created wetland.

This newly created wetland area is designed to be functionally diverse. The wetland will provide significant wildlife habit containing adequate cover, a consistent water source and a diverse food source. It will provide storm water storage and will allow water to stand for long periods of time, therefore allowing infiltration into the soil and eventually into the surrounding groundwater aquifer aiding in groundwater recharge. In addition, the placement of the wetland mitigation on city park land will allow for educational opportunities for both LG Chem and the City of Holland.

The proposed wetlands will contain attributes typical of emergent wetlands. Overall approximately 3.5 acres of wetland mitigation will be created on the offsite property. A development plan for the mitigation area is currently being prepared and additional site investigation such as topographic survey and water budget are being completed to insure the correct grades and water elevation are achieved to insure establishment of the wetland area. Atwell anticipates that the wetland mitigation plans will be completed and provided to the DNRE prior to April of 2010.

Construction recommendations will accompany the wetland mitigation plan. The development of the wetland will be implemented under the specific construction recommendations. These recommendations will assist in creating functioning emergent wetland areas that will be viable and diverse. The recommendations will also include grading notes, wetland soils, vegetation, and hydrology requirements

7.0- WETLAND MITIGATION ALTERNATIVES

During the analysis of potential wetland mitigation areas, two offsite locations, both owned and operated as city parks were identified and reviewed. Additionally, an analysis of potential onsite mitigation areas was preformed. After careful consideration, an offsite area was chosen, which is located within VanRaatle Farm Park. See the *Site Location Map* in **Appendix XV** for the location of each area.

Several important factors must be considered during mitigation site selection. Hydrology is the most important factor in a successful mitigation. Hydrologic sources must be identified at the outset to ensure flooding and/or saturation for at least part of the growing season. The soil characteristics, such as permeability and chemical composition, should complement the hydrology in order to provide the appropriate hydrologic regime and to support the desired vegetation. Proximity to existing wetlands greatly improve the probability of a successful mitigation. Areas near existing wetlands are more likely to possess favorable hydrologic conditions and substrate characteristics, which are crucial to wetland establishment. The position of the mitigation in the overall landscape is also important. Moreover, the probability of successful wetland establishment and persistence is increased if human impacts can be avoided or minimized. Preference should be given to mitigation locations farther from sources of pollution, trash, and other potential impacts.

7.1 Onsite Wetland Mitigation

Due to the layout of the development and the requirements necessary to comply with all pertinent regulations there is no option with regard to constructing the wetland mitigation on the subject site. As stated in *Section 4.4 City of Holland and Onsite Alternatives* the

development of the site will use virtually the entire site with the exception of setbacks from roadways and property lines. Placing wetland mitigation within these elongated areas is not an acceptable form of mitigation and rarely results in successful establishment of wetlands.

7.2 Alternative Mitigation Site 1

Alternative Mitigation Site 1 is located within Paw Paw Park (southwest of the intersection of Chicago Drive and 112th Ave). This location is within a city park and is directly adjacent to the Macatawa River. The site consists of a mix of emergent wetlands, scrub-shrub wetlands, forested wetland/upland complexes, and floodplain forests. The majority of the park is dominated by a matrix of mature forested wetlands and uplands.

In reviewing the suitability of this site for potential wetland mitigation, staff from Atwell used the State of Michigan's "Potential Wetland Restoration" spatial data and identified multiple areas within the park which the state has deemed suitable for wetland restoration. However, a field visit revealed that these areas largely occur in exiting forested areas and are relatively small. Therefore, in order to create the amount of wetland mitigation required for the proposed impacts, numerous areas of mature forest would have to be cut down for the creation of emergent wetland.

7.3 Preferred Mitigation Site

The preferred mitigation site is also located with a city park (VanRaatle Farm Park). This site consists of multiple ecological landscapes including fallow fields, young shrub areas, a mature American beech (*Fagus grandifolia*) forest, emergent wetlands, scrub-shrub wetlands, forested wetlands, and an emergent wetland mitigation area.

The preferred location consists of an existing fallow field and young shrub area with relatively flat topography. Additionally, multiple isolated wetlands were identified adjacent to this proposed mitigation location. The placement of newly created wetlands near existing wetland systems will provide the mitigation area with an excellent seed source for the further establishment wetland vegetation. By creating an emergent wetland mitigation within this park, an additional ecological type will be provided as a natural and public resource that will be protected in perpetuity.

A conceptual wetland mitigation plan is provided in **Appendix I**. A detailed wetland mitigation plan is currently being designed. This plan will incorporate a topographic survey, wetland delineation of existing wetlands adjacent to the chosen site, a water budget, detailed grading plan and planting plan, and a specific sequence of construction. A wetland mitigation monitoring plan and performance standards will also be included in the final wetland mitigation plan set. Once the final site plan is complete, a copy will be forwarded to the DNRE for approval.

8.0-FINANCIAL ASSURANCE & CONSERVATION EASMENTS

The applicant will provide the DNRE with financial assurances to guarantee that the replacement wetland will be constructed, monitored, corrective actions performed as

required, and protected in perpetuity. The applicant will provide financial assurance in the form of a performance bond, letter of credit, and/or certificate of deposit.

If you have any questions regarding this or any other matter, please feel free to contact our office at (248) 447-2000.

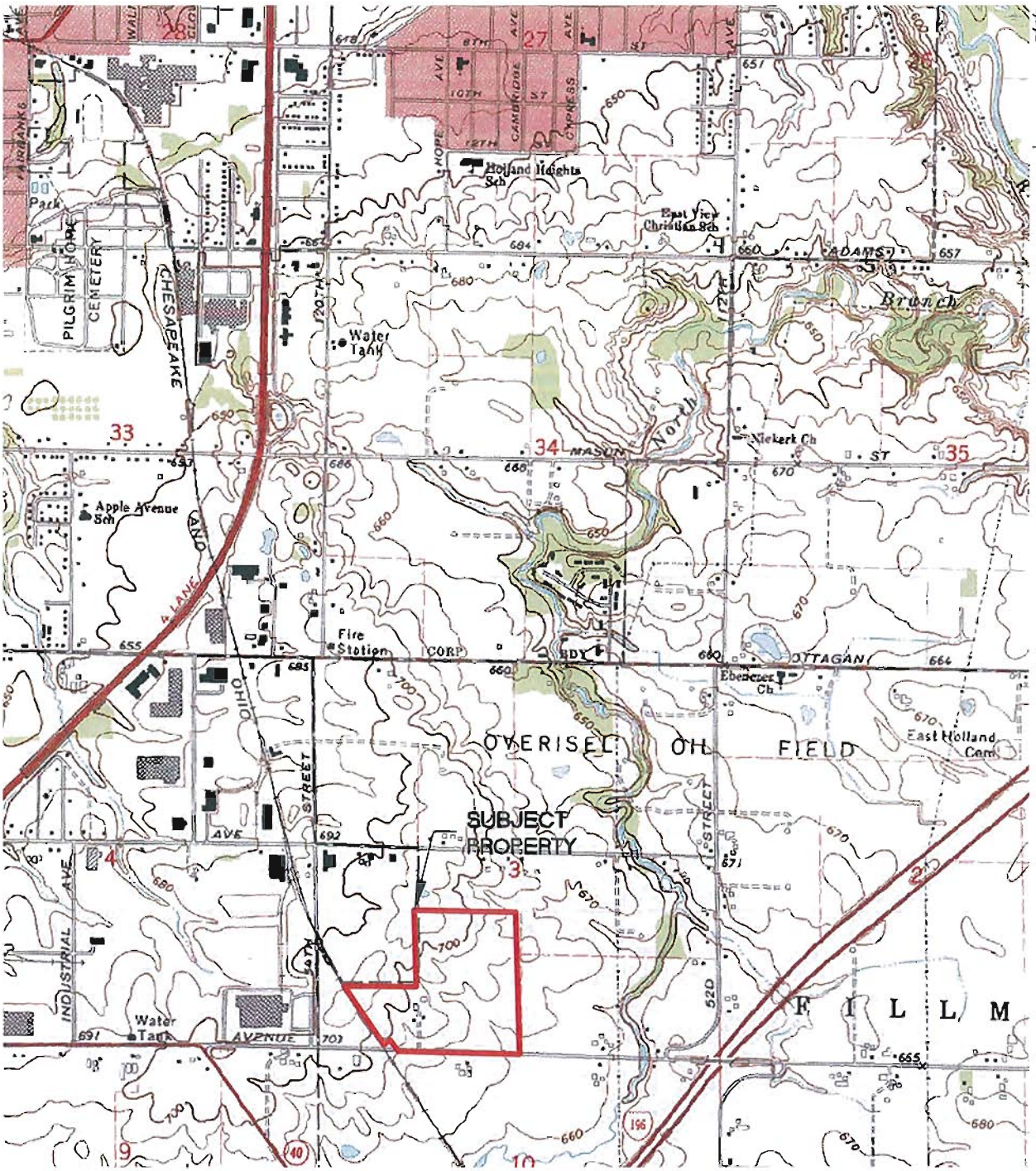
ATWELL, LLC

Prepared by:

Bobbi Roberson
Project Manager
Natural Resources Group

APPENDIX I

Site Location Map
and
MDEQ Permit Application Site Plan



SITE LOCATION MAP
FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 1000 2000
1" = 2000 FEET

REFERENCE
USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE
HOLLAND EAST, MICHIGAN QUADRANGLE
DATED: 1972, PHOTOREVISED: 1980
SECTION 3

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

ATWELL
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OFFICES IN NORTH AMERICA AND ASIA

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MDEQ PERMIT APPLICATION FOR
LG CHEM BATTERY PROJECT
PHASES I - III
CITY OF HOLLAND, ALLEGAN COUNTY, MICHIGAN

OWNER/DEVELOPER

COMPACT POWER, INC.
A SUBSIDIARY OF LG CHEM
1857 TECHNOLOGY DRIVE
TROY, MICHIGAN 48083
PHONE: 248.307.1800
FAX: 248.307.0900
CONTACT: MR. KEE CUN

LG CHEM, LTD
MOBILE ENERGY DIVISION
#114-1(80) OCHANG SCIENCE & INDUSTRIAL COMPLEX
CHEONGWON, CHUNGBUK, 363-911, KOREA
PHONE: 82.43.219.7007
FAX: 82.43.219.7299
CONTACT: MR. CHANG KI KIM

ARCHITECT

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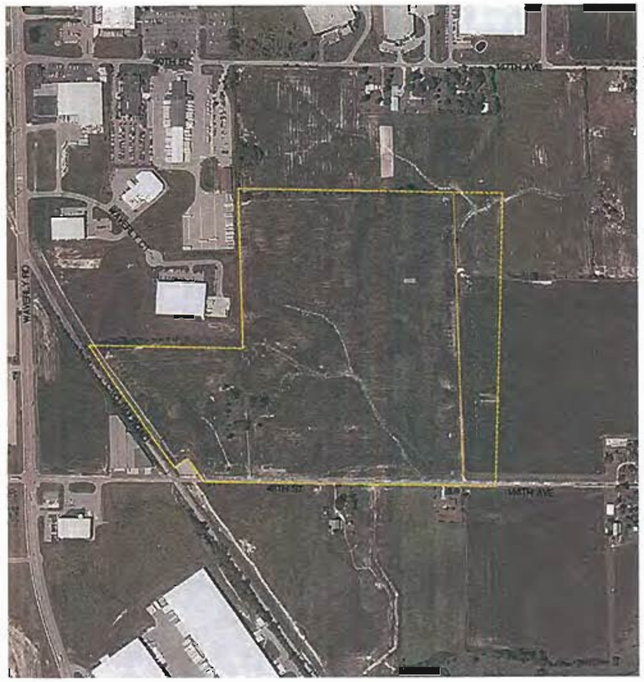
SOUTHFIELD, MICHIGAN 48076
PHONE: 248.262.8300
FAX: 248.262.8360
CONTACT: MR. SUBOHOON JUNG

ENGINEER/SURVEYOR

ATWELL
4750 VENTURE DRIVE, SUITE 101
ANN ARBOR, MICHIGAN 48108
PHONE: 734.994.4000
FAX: 734.994.1590
CONTACT: MR. THOMAS COVERT, PLA, AICP, LEED AP

MEP

GHAFARI
17101 MICHIGAN AVENUE
DEARBORN, MICHIGAN 48126
PHONE: 313.436.8641
FAX: 313.436.8630
CONTACT: MR. MICHAEL NEVILLE, AIA, NCARB



OVERALL DEVELOPMENT MAP
1"=300 FEET

SHEET INDEX

LEGAL DESCRIPTION:

[illegible]

VICINITY MAP
(NO SCALE)

SITE ADDRESS: 853 E. 48TH STREET
TAX ID#: 03-02-03-300-015

811 Know what's below. Call before you dig.

NOTICE:

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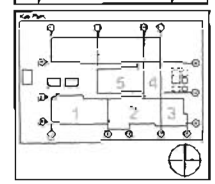
LGC-
BATTERY PROJECT
PHASES I - III

HOLLAND, MI

ATWELL

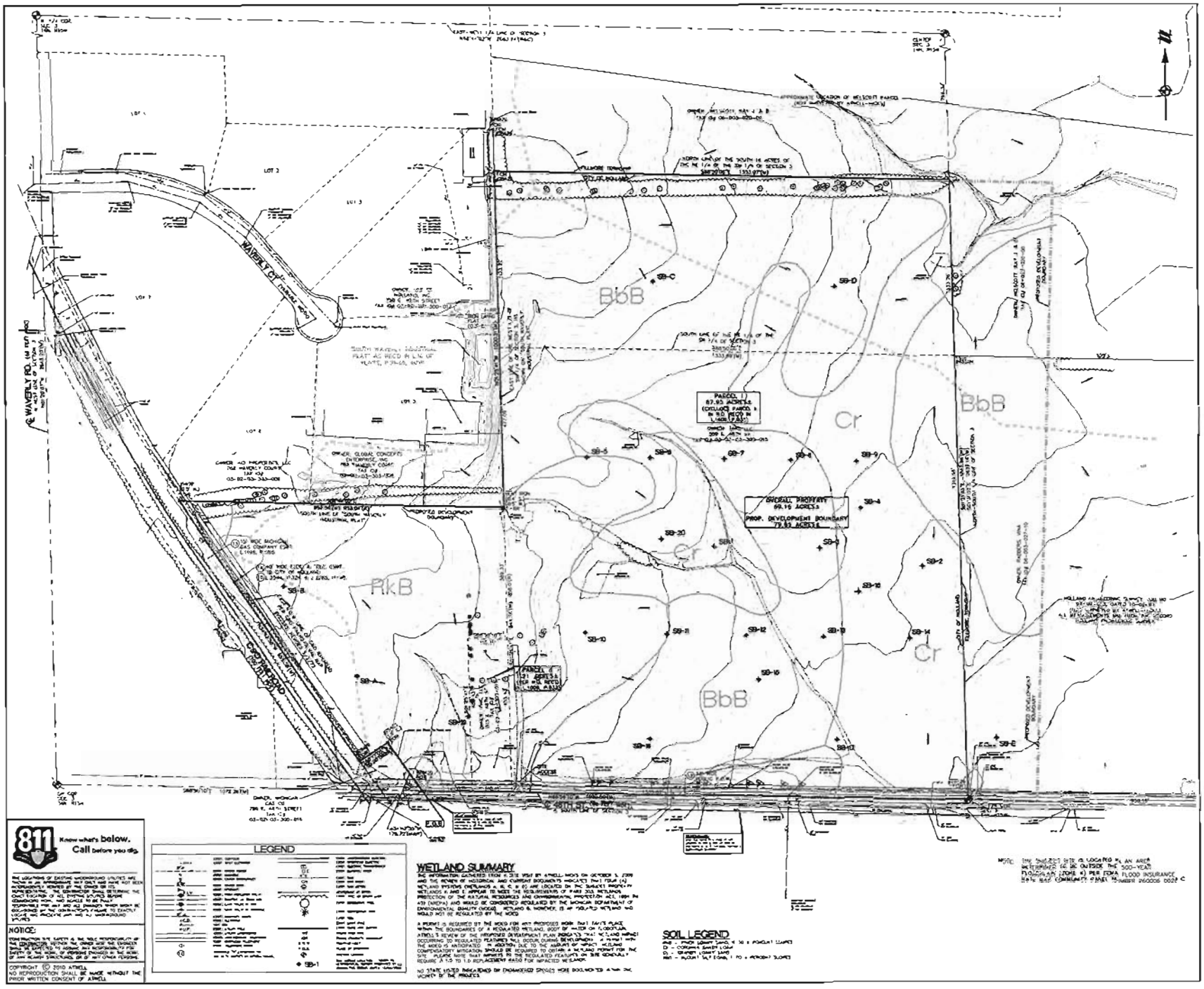
No.	Description	Date



Cover Sheet

Date: January 22, 2010
Project Number: D9001770
Scale: No Scale

Sheet Number: 01



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BATTERY PROJECT
PHASES I - III

HOLLAND, MI

ATWELL

No.	Description	Date

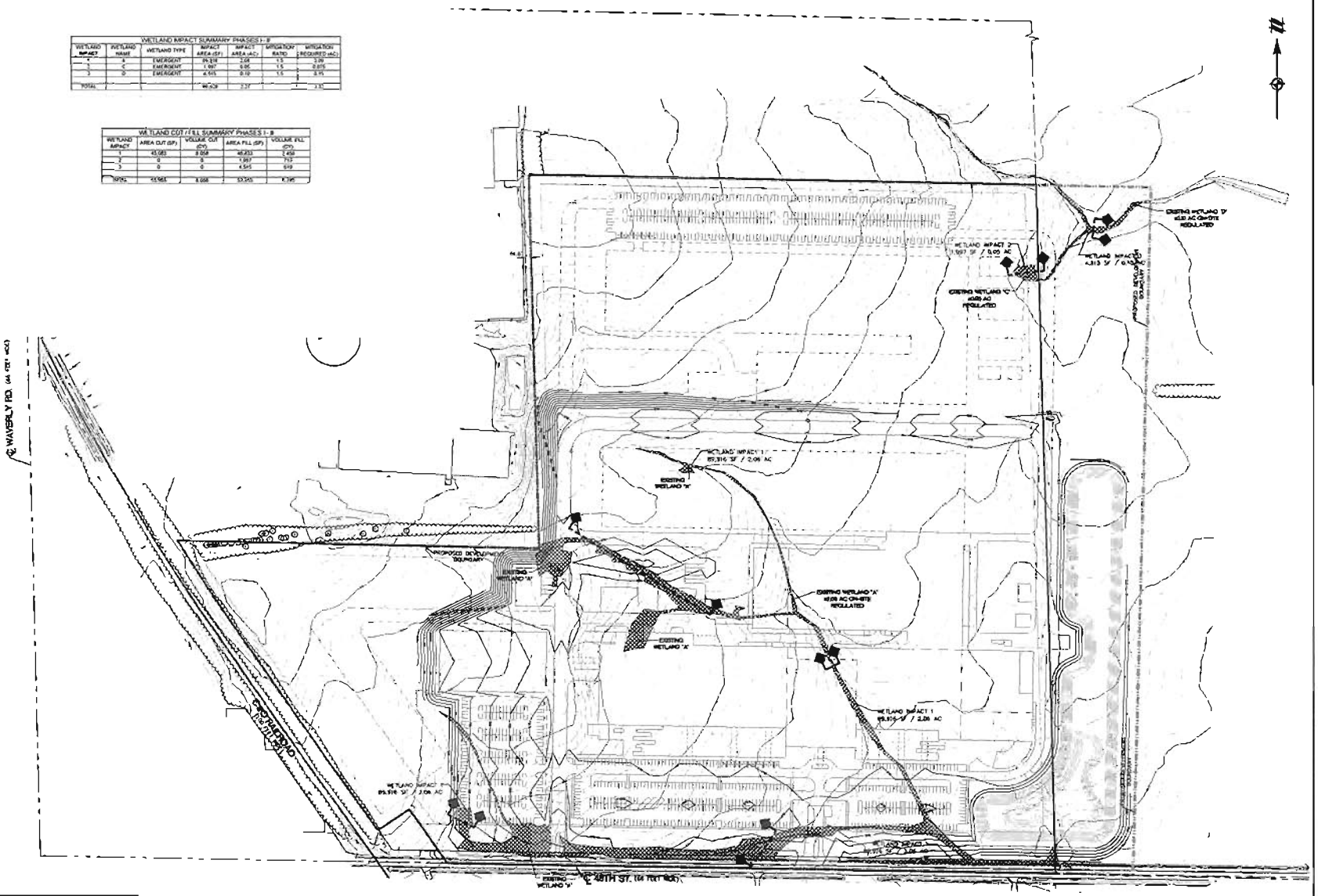
Overall Existing Conditions Plan

January 22, 2010
Scale: 0 50 100
1" = 100 Feet
Project Number: 09001775

02

WETLAND IMPACT SUMMARY PHASES I - II						
WETLAND IMPACT	WETLAND NAME	WETLAND TYPE	IMPACT AREA (SF)	IMPACT AREA (AC)	MITIGATION RATIO	MITIGATION REQUIRED (AC)
1	A	EMERGENT	89,916	2.06	1.5	3.09
2	C	EMERGENT	1,997	0.05	1.5	0.075
3	D	EMERGENT	4,313	0.10	1.5	0.15
TOTAL			96,226	2.21		3.32

WETLAND CUT / FILL SUMMARY PHASES I - II				
WETLAND IMPACT	AREA CUT (SF)	VOLUME CUT (CY)	AREA FILL (SF)	VOLUME FILL (CY)
1	45,083	8,059	46,233	2,456
2	0	0	1,997	713
3	0	0	4,545	649
TOTAL	45,083	8,059	53,345	3,795



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LEGEND

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BATTERY PROJECT
PHASES I - III

HOLLAND, MI

ATWELL

No.	Description	Date

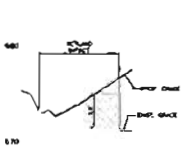
Wetland Impact Plan

January 22, 2010

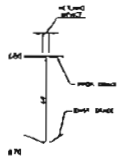
09001779

03

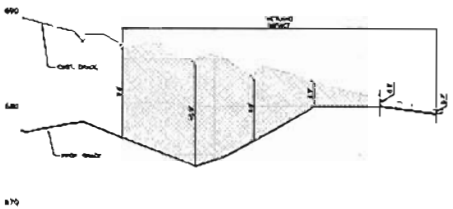
WETLAND IMPACT 1A-1A'



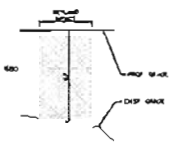
WETLAND IMPACT 1B-1B'



WETLAND IMPACT 1C-1C'



WETLAND IMPACT 1D-1D'



WETLAND IMPACT 2-2'

WETLAND IMPACT 3-3'

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THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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PHASES I - III

HOLLAND, MI

ATWELL

No.	Description	Date

Wetland Impacts Cross Sections

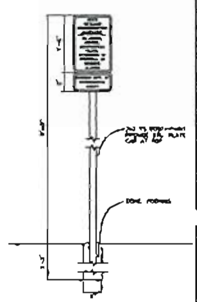
January 22, 2010
As Noted

04

LEGEND

BREAKDOWN OF CONSTRUCTION ACTIVITIES

Wetland Mitigation Area Species List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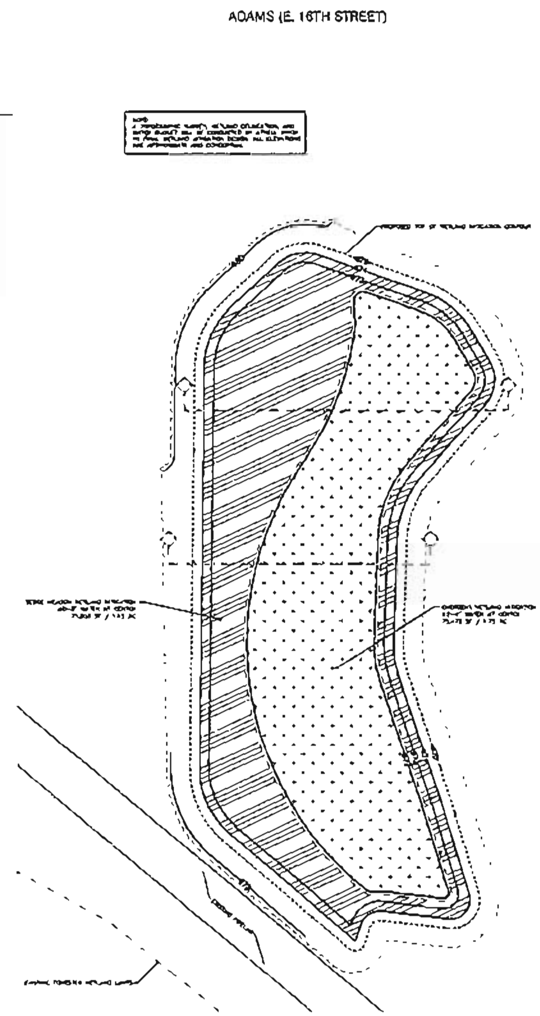
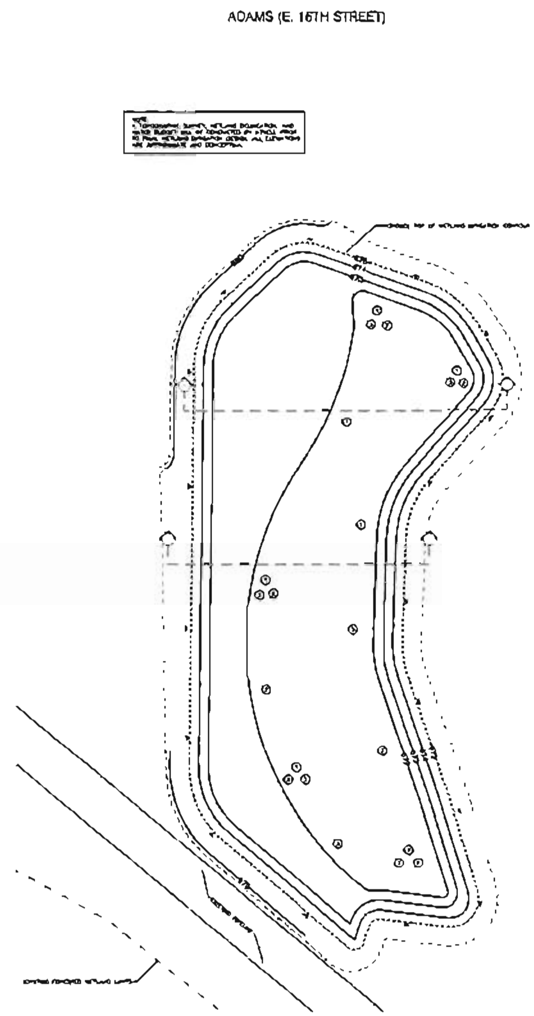
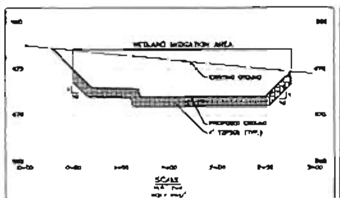


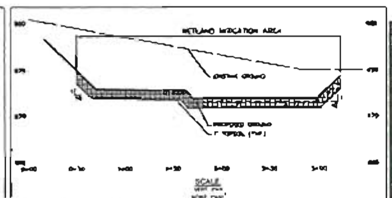
PLANTING PLAN VIEW



HABITAT STRUCTURE PLAN VIEW

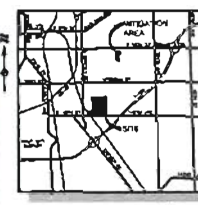


SECTION A-A



SECTION B-B


SITE VICINITY MAP



VICINITY MAP

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LGC-
BATTERY PROJECT
PHASE I

HOLLAND, MI

ATWELL

No.	Description	Date
1	LG CHECK SET	1-25-10

Confidential Preliminary

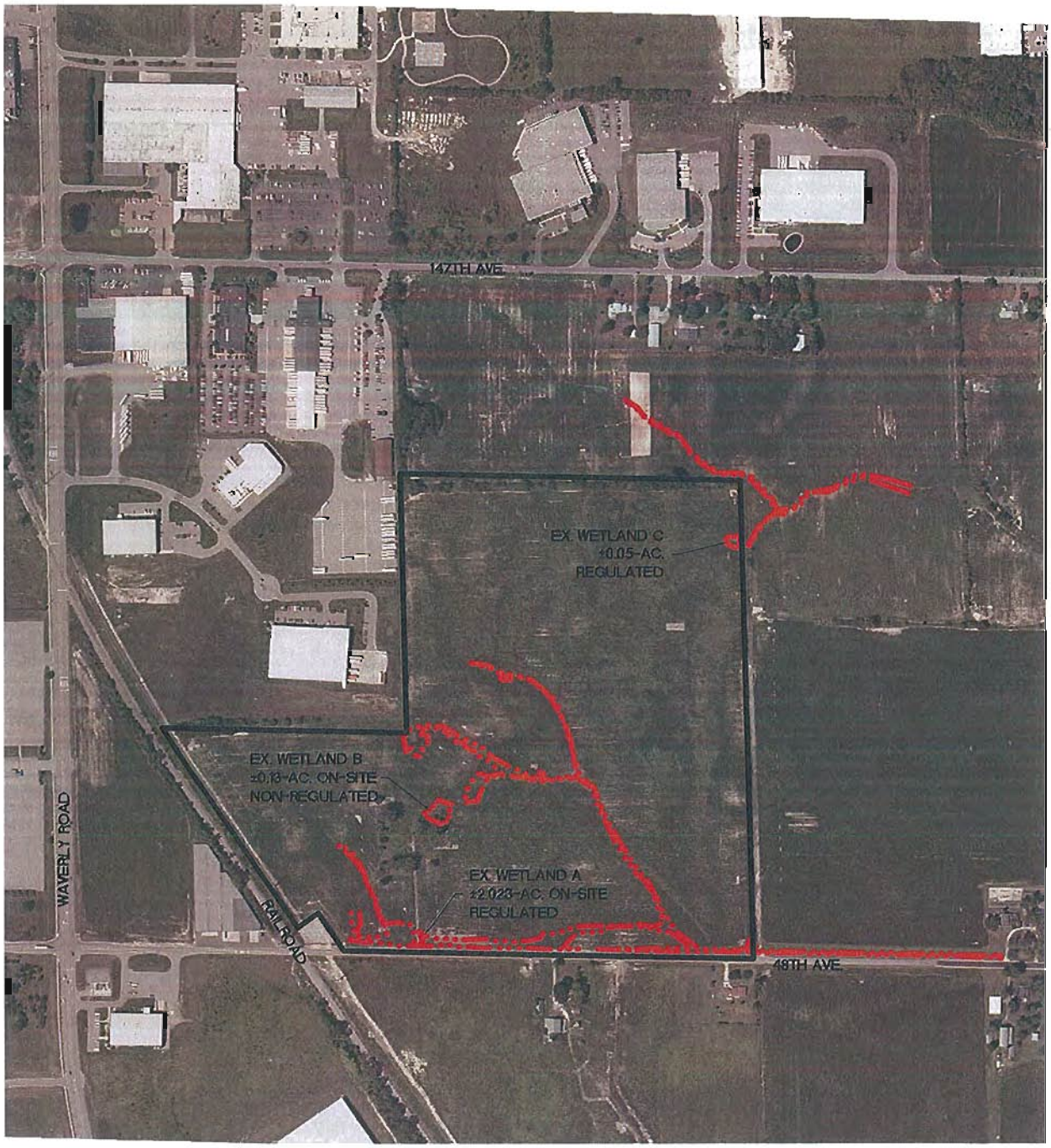
Conceptual
Off-Site Mitigation Plan

November 10, 2009
Scale 1" = 60 Feet

05

APPENDIX II

Wetland Location Map



WETLAND LOCATION MAP

FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 300 600

1" = 600 FEET

LEGEND:

SUBJECT PROPERTY
SURVEYED WETLAND BOUNDARY

NOTE: ATWELL-HICKS PERFORMED A WETLAND DELINEATION ON OCTOBER 5, 2009.

REFERENCE

MICHIGAN GEOGRAPHIC DATA LIBRARY
CENTER FOR GEOGRAPHIC INFORMATION
DIGITAL ORTHOGRAPHIC QUAD-2005 SERIES
ALLEGAN COUNTY

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

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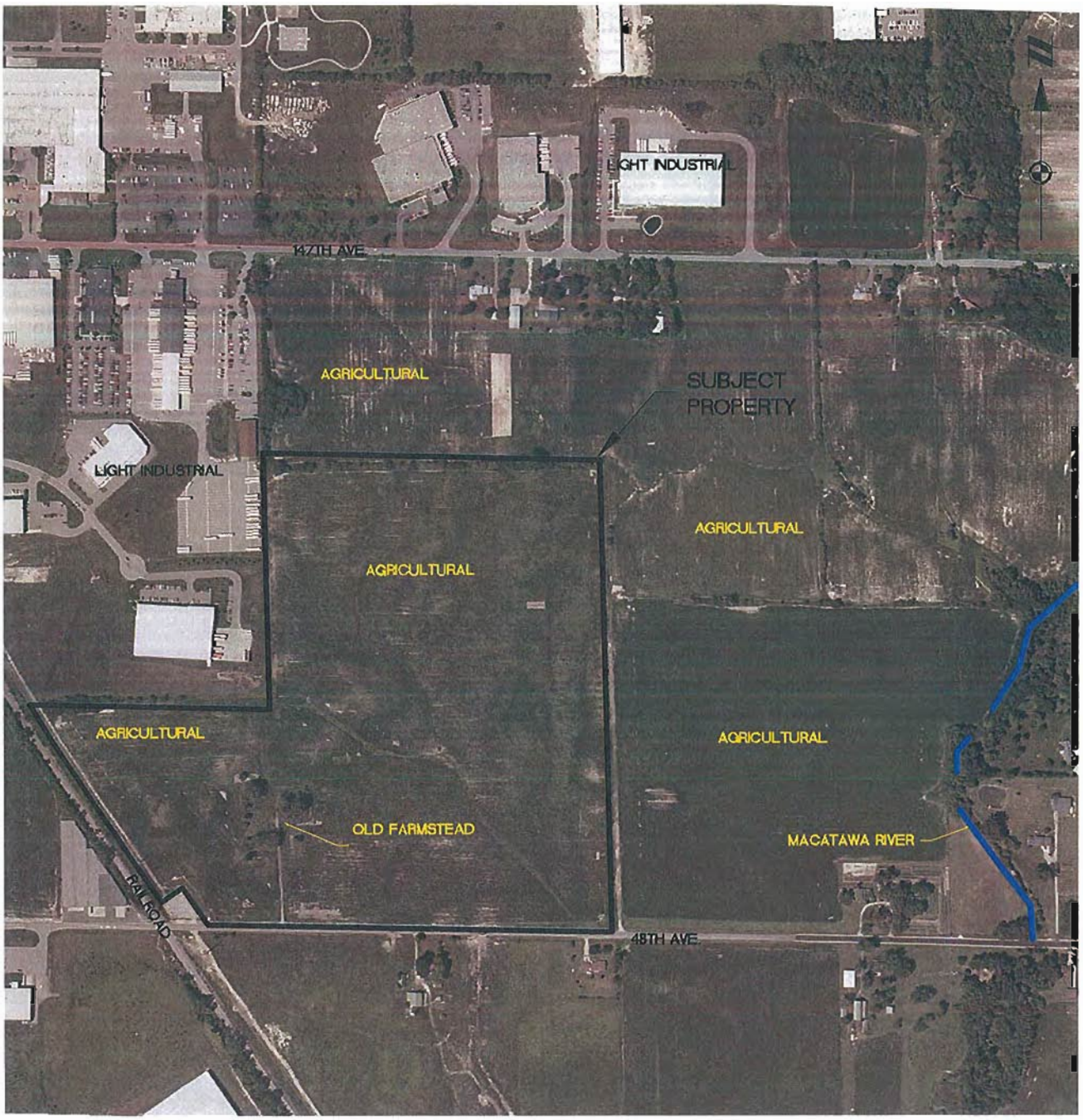
APPENDIX III

Property Features Map



PROPERTY FEATURES MAP
FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 300 600

1" = 600 FEET

LEGEND:
SUBJECT PROPERTY
OPEN WATER OR STREAM

REFERENCE
AERIALS EXPRESS, LLC
2005 AERIAL PHOTOGRAPH
AERIAL IMAGERY AND GIS VIEWER, GRAND RAPIDS
ALLEGAN COUNTY, MICHIGAN

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

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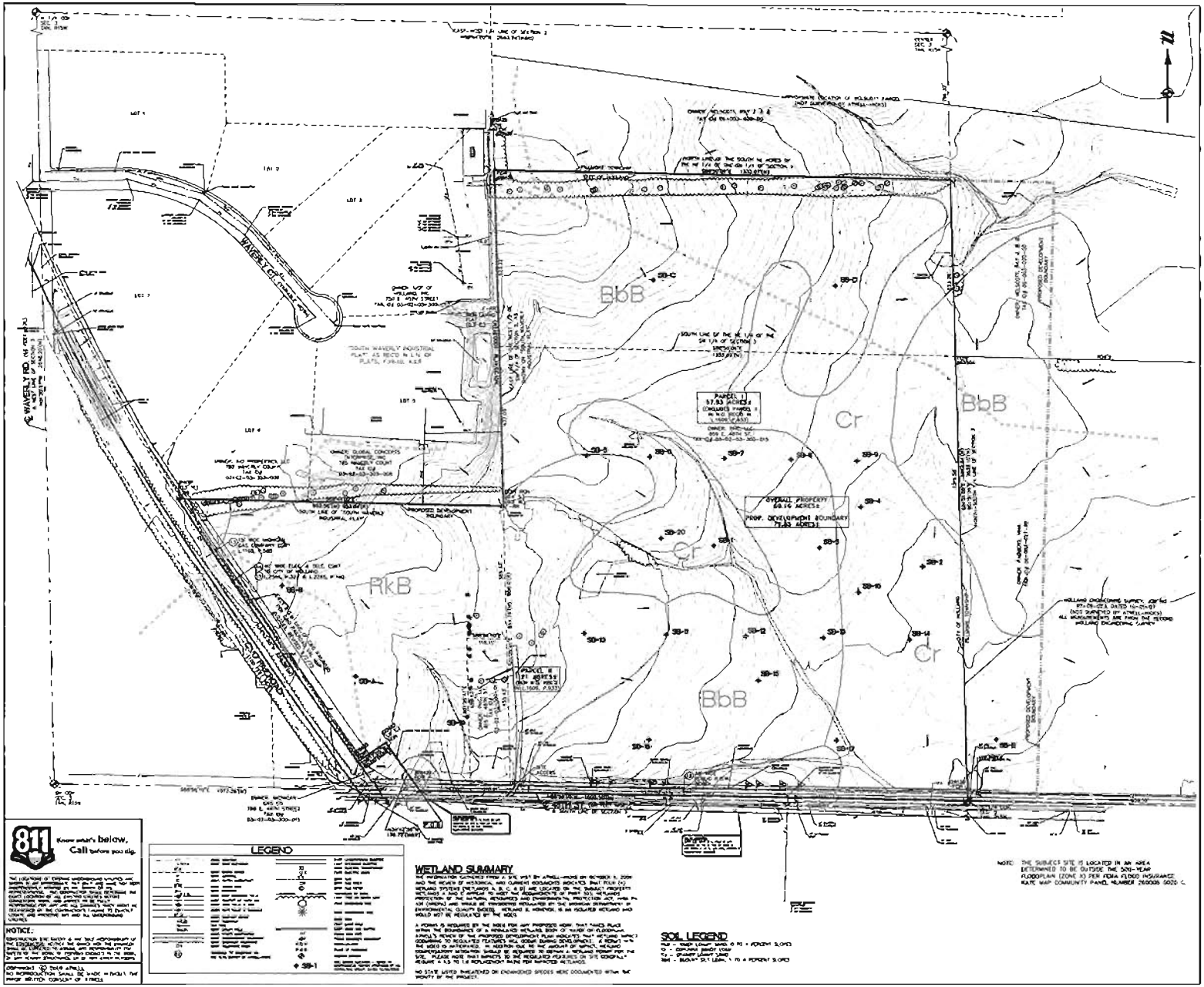
APPENDIX IV

Overall Existing Conditions Plan



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LGC BATTERY PROJECT
PHASES I - III

HOLLAND, MI

ATWELL

No.	Description	Date

Overall Existing Conditions Plan

Date: January 22, 2024
Scale: 0 20 100
1" = 100 ft.

02

APPENDIX V

Photographic Log
and
Wetland Data Sheets

PHOTOGRAPHIC LOG

A view looking north across the location of the old farmstead.

A view looking east across Wetland A.

PHOTOGRAPHIC LOG

A view looking north at a drainage swale portion of Wetland A.

A view looking north at the small scrub-shrub portion of Wetland A.

PHOTOGRAPHIC LOG

A view looking north at Wetland B.

A view looking northwest across a drain swale portion of Wetland C.

PHOTOGRAPHIC LOG

A view looking east across a drain swale portion of Wetland C.

A view looking west across Wetland D.

PHOTOGRAPHIC LOG

Photograph of the proposed offsite wetland mitigation area.

Photograph of the proposed offsite wetland mitigation area.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant LG Chem	*For DEQ Use:* File: __ __-__ __-__ __ __ __ - __
County: Allegan T 4N R 15W S 3	Date: 10 / 05 / 2009
Form Completed By: Bourke Thomas	Wetland Area: A

Instructions:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/**N**) Is the site significantly disturbed? If yes, describe: _____

N (Y/**N**) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?
If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation on *Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cyperus esculentus	Field nut sedge	H	FACW
ECHINOCHLOA CRUSGALLI	Barnyard grass	H	FACW
Polygonum pensylvanicum	Bigseed smartweed	H	FACW+
Typha latifolia	Cattail	H	OBL
Aster novae-angliae	New England Aster	H	FACW
Phalaris arundinacea	Reed canary grass	H	FACW+
Verbena hastata	Blue vervain	H	FACW+
Penthorum sedoides	Ditch stonecrop	H	OBL
Salix exigua	Sandbar willow	S	OBL

Aquatic Life Observed _____

Dominant Vegetation on Upland Side of the Boundary: (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
ZEA MAYS	Corn	H	UPL

* Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

__X__ (√) Visible observation of inundation (Depth __3__ in.)
__X__ (√) Visible observation of soil saturation (Depth __Surface__ in.)
_____ (√) Hydraulic soils (√ below)
_____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
_____ (√) FAC-Neutral test
__X__ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
_____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  _____(√) Matrix chroma of 2 or less in mottled soils
  _____(√) Matrix chroma of 1 or less in unmottled soils
  _____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil test
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
__X__(√) Streaking of subsurface horizons by organic matter
_____(√) Organic pans: at depth of _____ inches

Supplement Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√): __X__Adventitious roots _____Shall root system _____Floating leaves
__X__Inflated leaves, stems, or root _____Polymorphic leaves _____Oxygen pathway to roots _____ Floating stem
_____Hypertrophied lenticels _____Multiple trunks or stooling _____Buttressed tree trunks _____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary
Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 3/2		Loam	
3-8	10YR 6/3		Loam	

Soil Profile on *Upland Side* of the Boundary
Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Depth (inches)	Depth (inches)	Depth (inches)	Notes
0-3	0-3	0-3	0-3	
3-8	3-8	3-8	3-8	

WETLAND DETERMINATION

__X__(√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
__X__(√) Wetland hydrology and/or hydric soil present

__Y__ (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
__Y__ (Y/N) Is the area REGULATED wetland (refer to *Part 303 – Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

__X__(√) Emergent Marsh __X__(√) Deciduous Swamp _____(√) Fen _____(√)Shrub Swamp
_____(√) Wet Meadow _____(√) Coniferous Swamp _____(√) Bog/Muskeg _____(√) Floodplain Forest
_____(√) Wet Prairie _____(√) Deciduous Forest _____(√) Great Lakes Marsh _____(√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant LG Chem	*For DEQ Use:* File: __ __-__ __-__ __ __ __ - __
County: Allegan T 4N R 15W S 3	Date: 10 / 05 / 2009
Form Completed By: Bourke Thomas	Wetland Area: B

Instructions:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

_N (Y/**N**) Is the site significantly disturbed? If yes, describe: _____

_____

_N (Y/**N**) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation on *Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cyperus esculentus	Field nut sedge	H	FACW
ECHINOCHLOA CRUSGALLI	Barnyard grass	H	FACW
Polygonum pensylvanicum	Bigseed smartweed	H	FACW+
Salix exigua	Sandbar willow	S	OBL
Populus deltoides	Cottonwood	O	FAC+

Aquatic Life Observed _____

_____

Dominant Vegetation on Upland Side of the Boundary: (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
ZEA MAYS	Corn	H	UPL

* Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

____ (√) Visible observation of inundation (Depth ____ in.)
__X__ (√) Visible observation of soil saturation (Depth Surface in.)
____ (√) Hydraulic soils (√ below)
____ (√) Watermarks
____ (√) Drift lines
____ (√) Sediment deposits
____ (√) Drainage patterns within wetlands

Secondary Indicators:

____ (√) Oxidized rhizospheres in upper 12"
____ (√) Water stained leaves
____ (√) Confirm soil profile matches hydric soil list
____ (√) FAC-Neutral test
__X__ (√) Bare soil areas
____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

____(√) Organic soils (Histosols)
____(√) Histic epipedon
____(√) Sulfidic material (H_2S odor)
____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  ____(√) Matrix chroma of 2 or less in mottled soils
  ____(√) Matrix chroma of 1 or less in unmottled soils
  ____(√) Black mineral soil with gray mottles at ≤ 10 inches
____(√) Confirm soil profile matches local hydric soil test
____(√) Iron and manganese concretions
____(√) Reducing soil conditions (ferrous iron test)
____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

____(√) High organic matter in the surface horizon
__X__(√) Streaking of subsurface horizons by organic matter
____(√) Organic pans: at depth of ____ inches

Supplement Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√): __X__Adventitious roots ____Shall root system ____Floating leaves
__X__Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____ Floating stem
____Hypertrophied lenticels __X__Multiple trunks or stooling ____Buttressed tree trunks ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey: Corunna Sandy Loam (36)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-11	10YR 2/1		Sandy loam	
11-21	10YR 5/1		Sandy loam	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 3/2		Loam	
3-8	10YR 6/3		Loam	

WETLAND DETERMINATION

__X__(√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
__X__(√) Wetland hydrology and/or hydric soil present

__Y__ (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
__N__ (Y/N) Is the area REGULATED wetland (refer to *Part 303 – Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____(√) Emergent Marsh __X__(√) Deciduous Swamp ____(√) Fen ____(√)Shrub Swamp
____(√) Wet Meadow ____(√) Coniferous Swamp ____(√) Bog/Muskeg ____(√) Floodplain Forest
____(√) Wet Prairie ____(√) Deciduous Forest ____(√) Great Lakes Marsh ____(√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant LG Chem	*For DEQ Use:* File: __ __-__ __-__ __ __ __ - __
County: Allegan T 4N R 15W S 3	Date: 10 / 05 / 2009
Form Completed By: Bourke Thomas	Wetland Area: C & D

Instructions:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/**N**) Is the site significantly disturbed? If yes, describe: _____

N (Y/**N**) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation on *Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cyperus esculentus	Field nut sedge	H	FACW
ECHINOCHLOA CRUSGALLI	Barnyard grass	H	FACW
Polygonum pensylvanicum	Bigseed smartweed	H	FACW+

Aquatic Life Observed _____

Dominant Vegetation on Upland Side of the Boundary: (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
ZEA MAYS	Corn	H	UPL

* Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

__X__ (√) Visible observation of inundation (Depth __2__ in.)
__X__ (√) Visible observation of soil saturation (Depth Surface in.)
_____ (√) Hydraulic soils (√ below)
_____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
_____ (√) FAC-Neutral test
__X__ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
_____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  _____(√) Matrix chroma of 2 or less in mottled soils
  _____(√) Matrix chroma of 1 or less in unmottled soils
  _____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil test
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
__X__(√) Streaking of subsurface horizons by organic matter
_____(√) Organic pans: at depth of _____ inches

Supplement Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√): __X__Adventitious roots _____Shall root system _____Floating leaves
__X__Inflated leaves, stems, or root _____Polymorphic leaves _____Oxygen pathway to roots _____Floating stem
_____Hypertrophied lenticels _____Multiple trunks or stooling _____Buttressed tree trunks _____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey: Corunna Sandy Loam (36)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-11	10YR 2/1		Sandy loam	
11-21	10YR 5/1		Sandy loam	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 3/2		Loam	
3-8	10YR 6/3		Loam	

WETLAND DETERMINATION

__X__(√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
__X__(√) Wetland hydrology and/or hydric soil present

__Y__ (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
__Y__ (Y/N) Is the area REGULATED wetland (refer to *Part 303 – Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

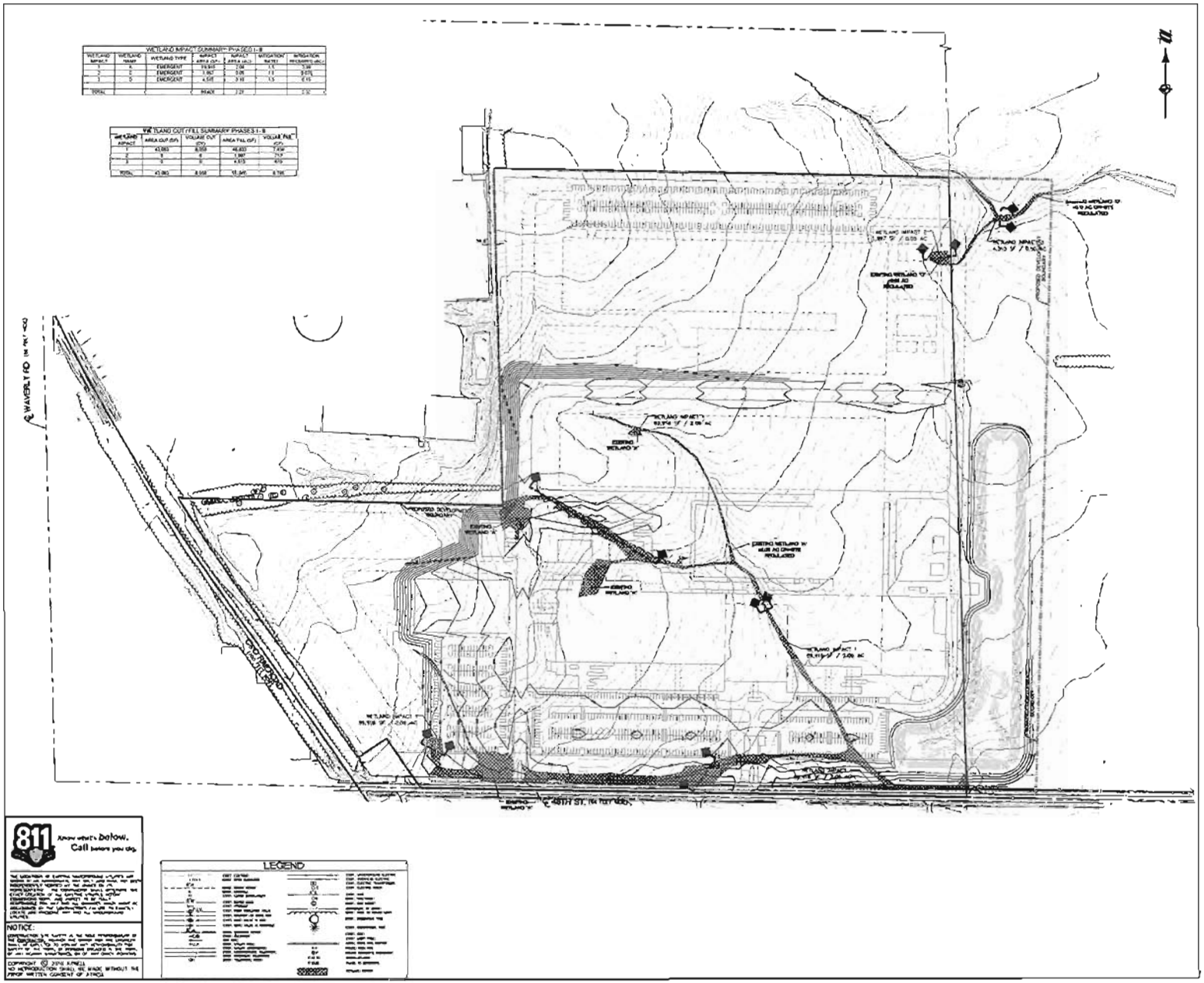
__X__(√) Emergent Marsh _____(√) Deciduous Swamp _____(√) Fen _____(√)Shrub Swamp
_____(√) Wet Meadow _____(√) Coniferous Swamp _____(√) Bog/Muskeg _____(√) Floodplain Forest
_____(√) Wet Prairie _____(√) Deciduous Forest _____(√) Great Lakes Marsh _____(√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

APPENDIX VI

Proposed Wetland Impact Table
and
Wetland Impact Plan

Proposed Wetland Impact Summary Table									
Impact	Natural Feature	Type	Acreage (On-Site)	Regulatory Status	Permanent Impact (AC.)	Cut (CU. YDS.)	Fill (CU. YDS.)	Mitigation Ratio	Mitigation Required (AC)
Impact 1	Wetland A	Emergent	2.06	MDEQ	2.06	8,058	7,459	1.5:1	3
Impact 2	Wetland C	Emergent	0.05	MDEQ	0.05	0	717	1.5:1	0.075
Impact 3	Wetland D	Emergent	0.10	MDEQ	0.1	0	619	1.5:1	0.15
Totals	--	--	**2.21**	--	**2.21**	**8058**	**8795**	--	**3.32**



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BATTERY PROJECT
PHASES I - III

HOLLAND, MI

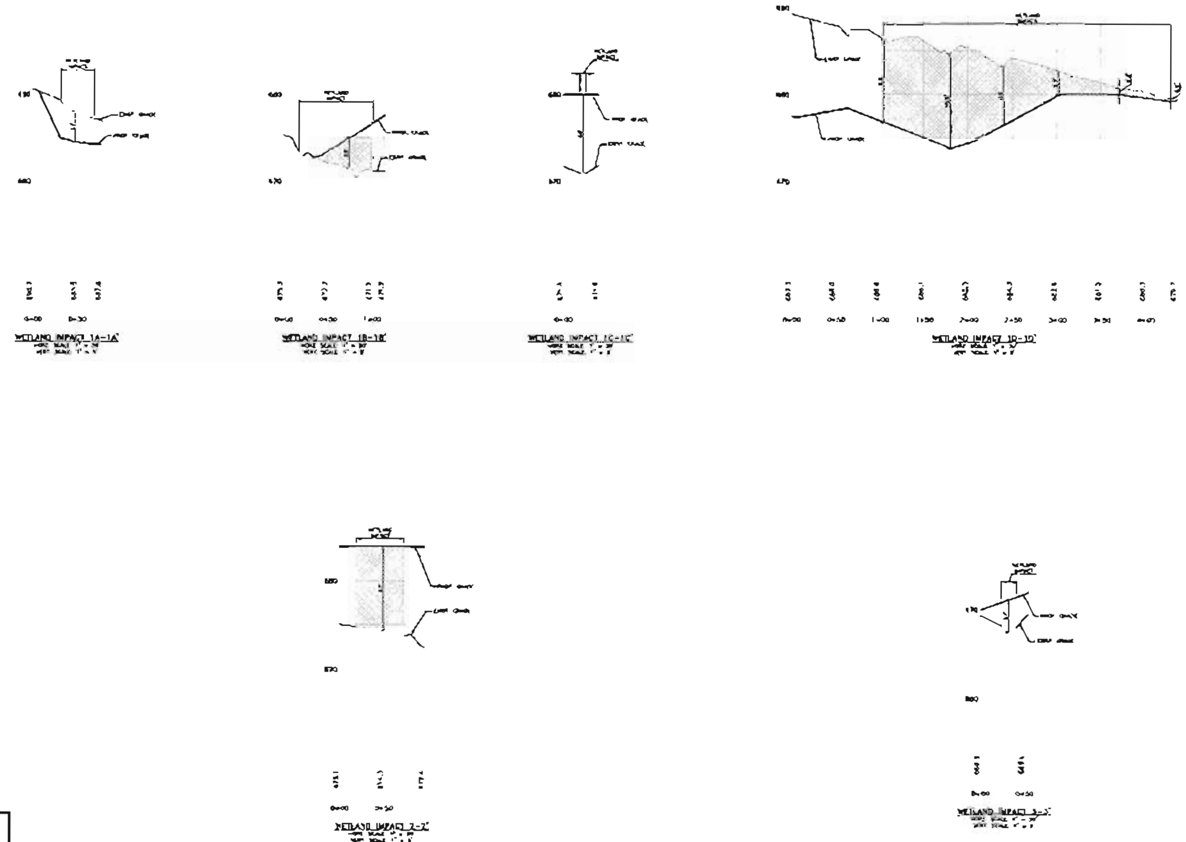
ATWELL

No.	Description	Date

Wetland Impact Plan

January 22, 2010 | Scale 0 50 100 | 1" = 100 Feet

03



811 Know what's below. Call before you dig.

NOTICE

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LGC-
BATTERY PROJECT
PHASES I - III

HOLLAND, MI

ATWELL

No.	Description	Date

Wetland Impacts Cross Sections

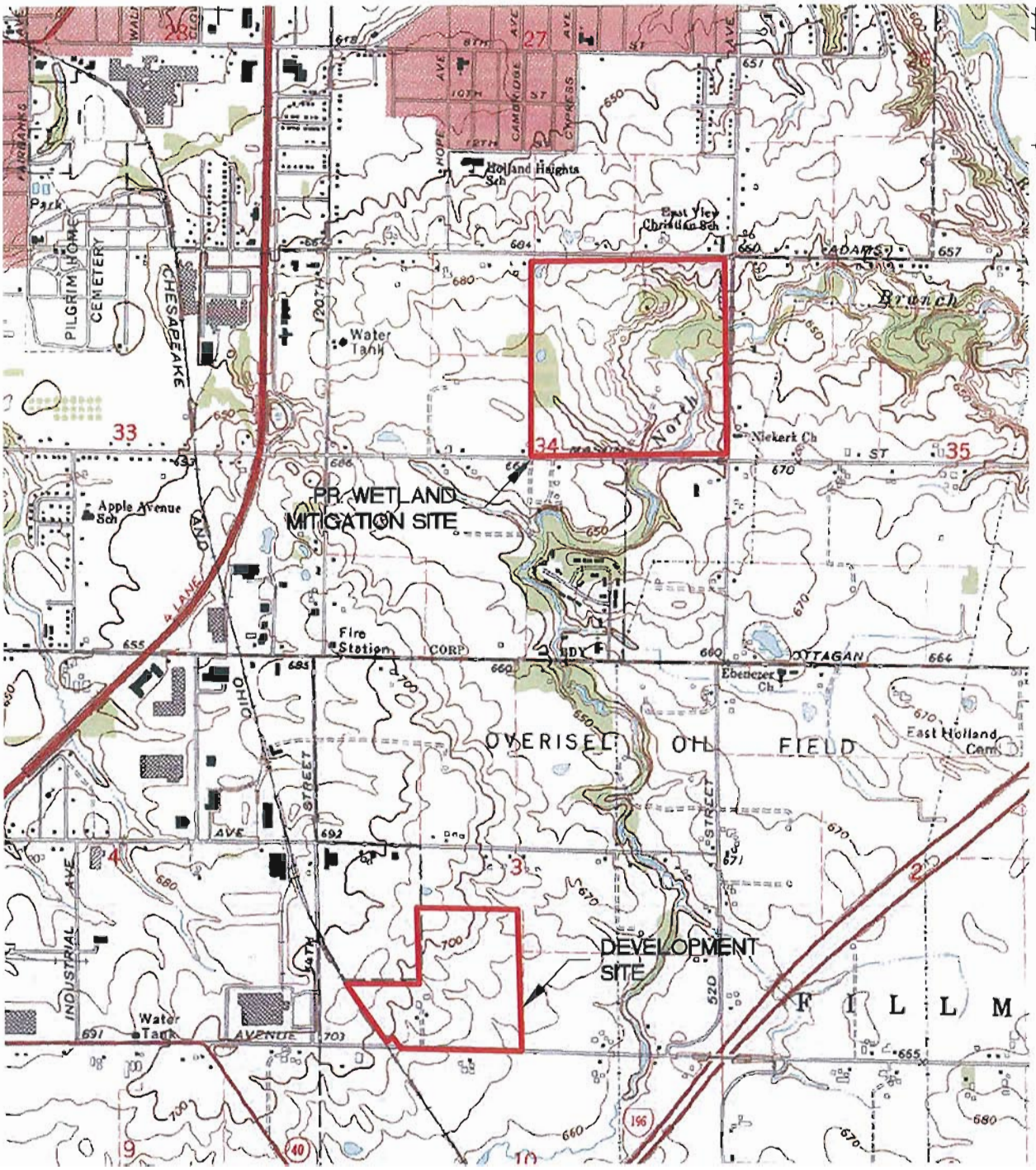
January 22, 2010

Scale: As Noted

04

APPENDIX VII

Site Location Map



SITE LOCATION MAP
CITY OF HOLLAND
ALLEGAN & OTTAWA COUNTIES, MICHIGAN

SCALE 0 1000 2000
1" = 2000 FEET

REFERENCE
USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE
HOLLAND EAST, MICHIGAN QUADRANGLE
DATED: 1972, PHOTOREVISED: 1980
SECTION 3

PROJECT: 09001770
DATE: JANUARY 11, 2010
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-04

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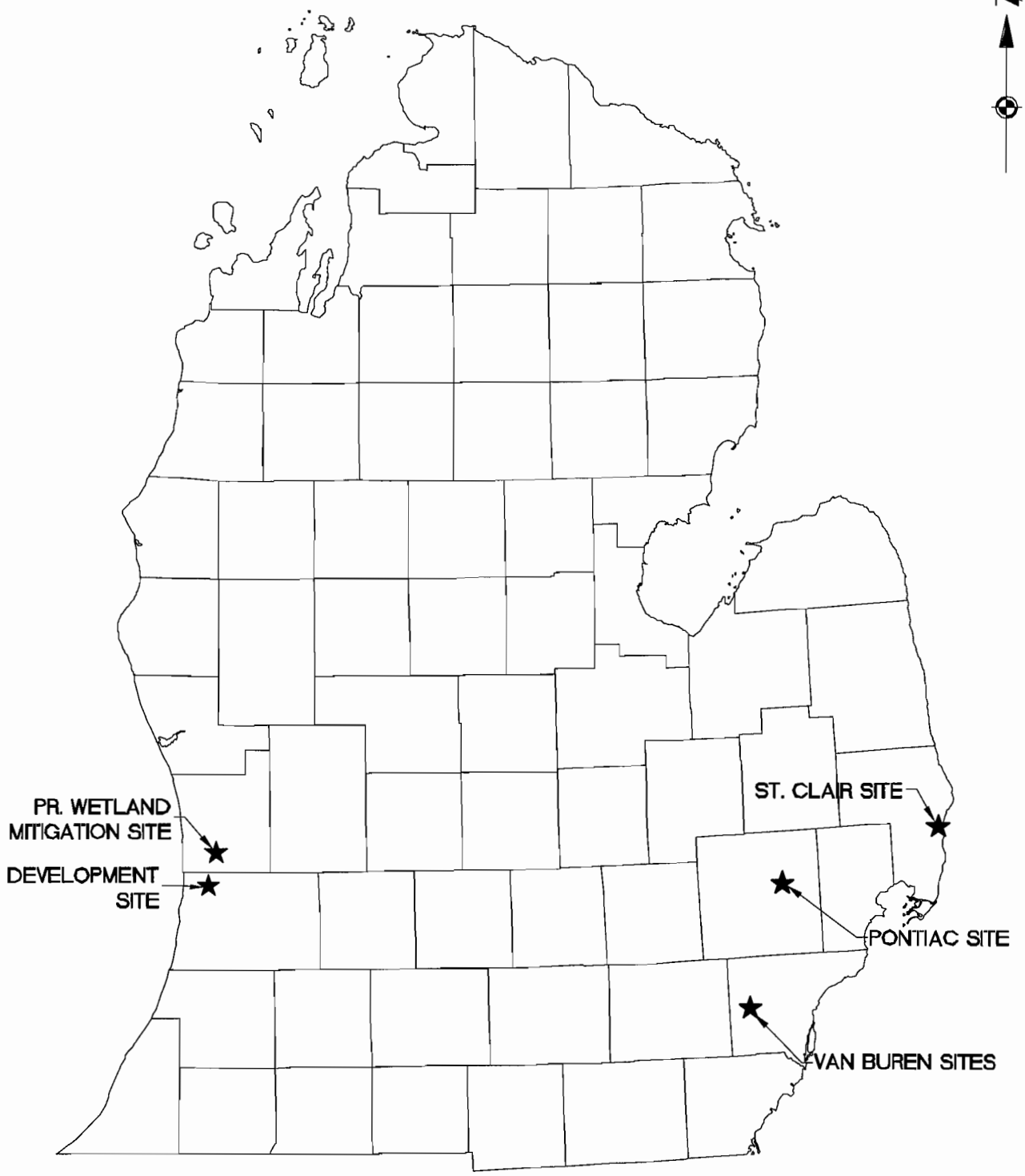
866 850 4200
Engineering Surveying Planning
Environmental Ecological Water Resources

APPENDIX VIII

Site Locations Map



SITE LOCATIONS MAP
ALLEGAN, OTTAWA, VAN BUREN, JACKSON,
OAKLAND, ST. CLAIR, AND WAYNE COUNTIES, MICHIGAN

SCALE 0 30000 60000

1" = 60000 FEET

PROJECT: 09001770	
DATE: JANUARY 11, 2010	
DRAWN: BWT	
CHECKED: BR	
CAD FILE: 09001770EC-05	

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OFFICES IN NORTH AMERICA AND ASIA

K:\09001770\dwg\Ecological\09001770-EC-05.dwg, 1/28/2010 11:34:03 AM, bthomas

APPENDIX IX

Alternative Site Analysis Chart

	80 acres	**79.85 - Fullfills Requirments**	84 acres - **Fullfills Requirement** Configuration of the land is not adequate	81 acres - **Fullfills Requirement** Shape of parcel would require modification of building footprint	**88.5 acres - Fullfills Requirement**	**87 acres - Fullfills Requirement**
	Required	**Fullfills Requirement**	**Does Not Meet with Requirement** Additional acreage would need to be purchased	**Does Not Meet with Requirement** Additional acreage would need to be purchased	**Fullfills Requirement**	**Fullfills Requirement**
		Fullfills Requirement	**Does Not Meet with Requirement** *Unions present, not ecomically feasible for buisness model*	**Does Not Meet with Requirement** *Unions present, not ecomically feasible for buisness model*	**Does Not Meet with Requirement** *Unions present, not ecomically feasible for buisness model*	**Does Not Meet with Requirement** *Unions present, not ecomically feasible for buisness model*
		Fullfills Requirement	**Limitation Present** Electrical, Water, Sewer and Roadway Limitations (upgrade would be required)	**Limitation Present** Electrical improvements	**Limitation Present** Electrical improvements	**Limitation Present** Electrical improvements
		Limitation Present Road Improvements would be necessary	**Limitation Present** Roadway Limitations (upgrade would be required)	**Fullfills Requirements**	**Limitation Present** Road Improvements for Belleville Road with additional landscaping and pedestrian treatments	**Limitation Present** Road Improvements for Belleville Road with additional landscaping and pedestrian treatments
		Limitations Present Approximately 2.2 acres of emergent wetland impact is proposed. Mitigation required off site No TES	**Generally Meets with Requirement** Topographic limitations-excess fill required No Enviromental Concerns No Wetlands, Streams or TES	**Property Limitations Present** Approximately 4 acres of forested wetland impact and 2,100 linear feet of drain relocation would be required.	**Property Limitations Present.** Development would require the relcation of the McKinstry Drain and the filling of approximatley 0.8 acres of forested wetland.	**Property Limitations Present** Approximately 6.4 acres of forested wetland impact and relocation of the Apple Run Drain would be required.
				Variance on building height would likely be necessary	Variance on building height and parking would likely be necessary	Variance on building height and parking would likely be necessary
	Required	**Fullfills Requirement**	Limitations Present (Easement Necessary)	**Fullfills Requirement**	**Fullfills Requirement**	Limitations Present Significant extention to place rail spur
	Required	**Fullfills Requirement**	**Does Not Meet with Requirement** *Nearest airports are approximately 40 miles from site*	**Fullfills Requirement**	**Fullfills Requirement**	**Fullfills Requirement**
					Consent agreement on property, close proximity to residential subdivsion	Consent agreement on property, close proximity to residential subdivsion

***** Important Requirement**

APPENDIX X

Site Layout Plan

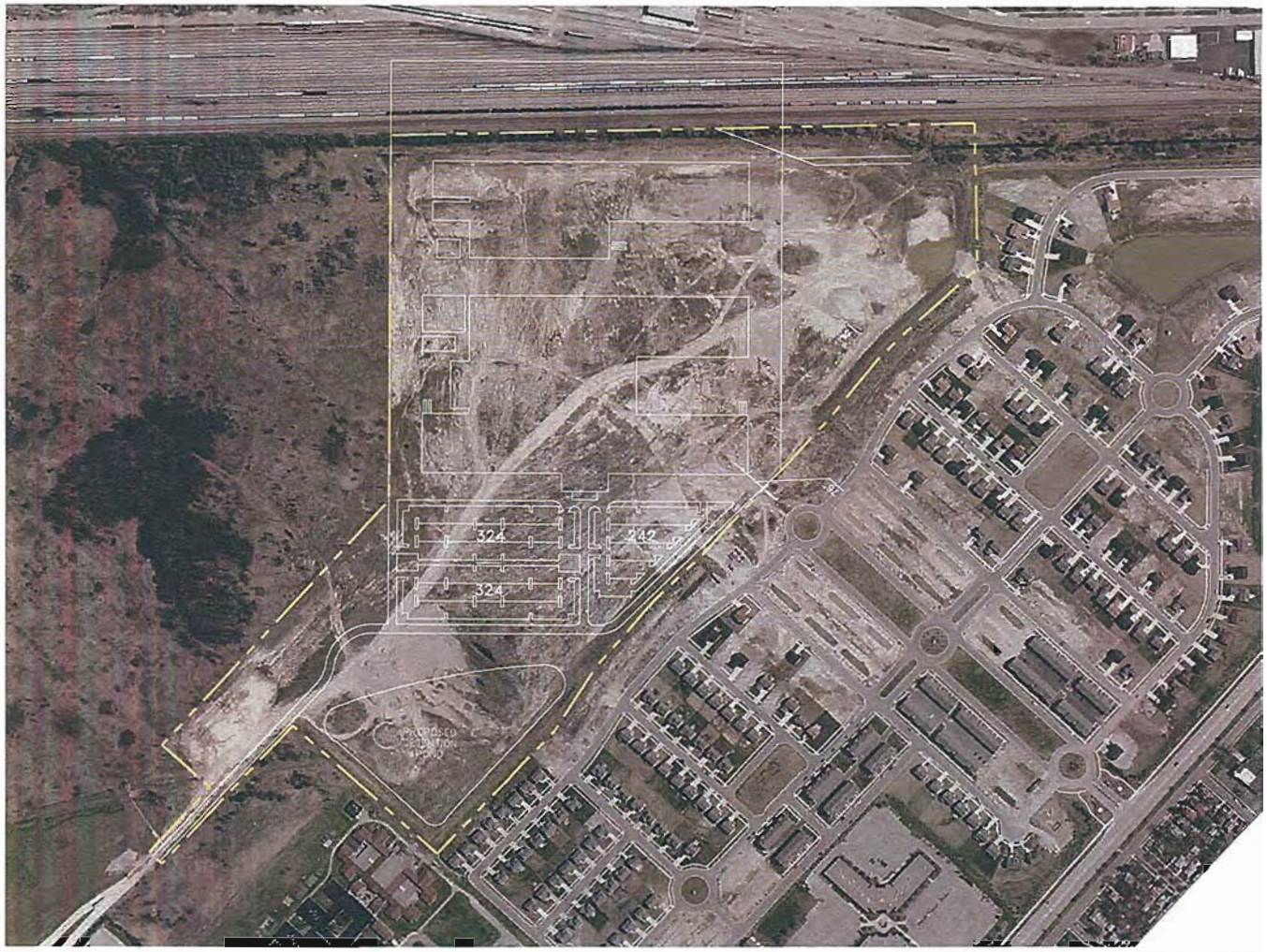
SITE SUMMARY
SITE AREA ±84 ACRES TOTAL

BUILDING AREA
PHASE 1 500,000 SF
PHASE 2 300,000 SF

SETBACKS – BUILDING
TO BE DETERMINED BASED ON M.U.D ZONING & DEVELOPMENT AGREEMENT W/ CITY OF PONTIAC

PARKING
SIZE: 9' x 20'
REQUIRED: 2,000 SPACES
PROVIDED: 890 SPACES (1.3 SPACE/EMP)

DETENTION ±6.5 ACRES (ASSUME 5' DEPTH) (100-YEAR VOLUME)



SCALE: 1" = 400'

LG CHEMICAL
CITY OF PONTIAC SITE
PROJECT NO.: 09001770
DATE: SEPTEMBER 14, 2009

ROSSETTI

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MICHIGAN OHIO PENNSYLVANIA
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Surveying Ecological
Planning Water Resources

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APPENDIX XI

Site Layout Plan

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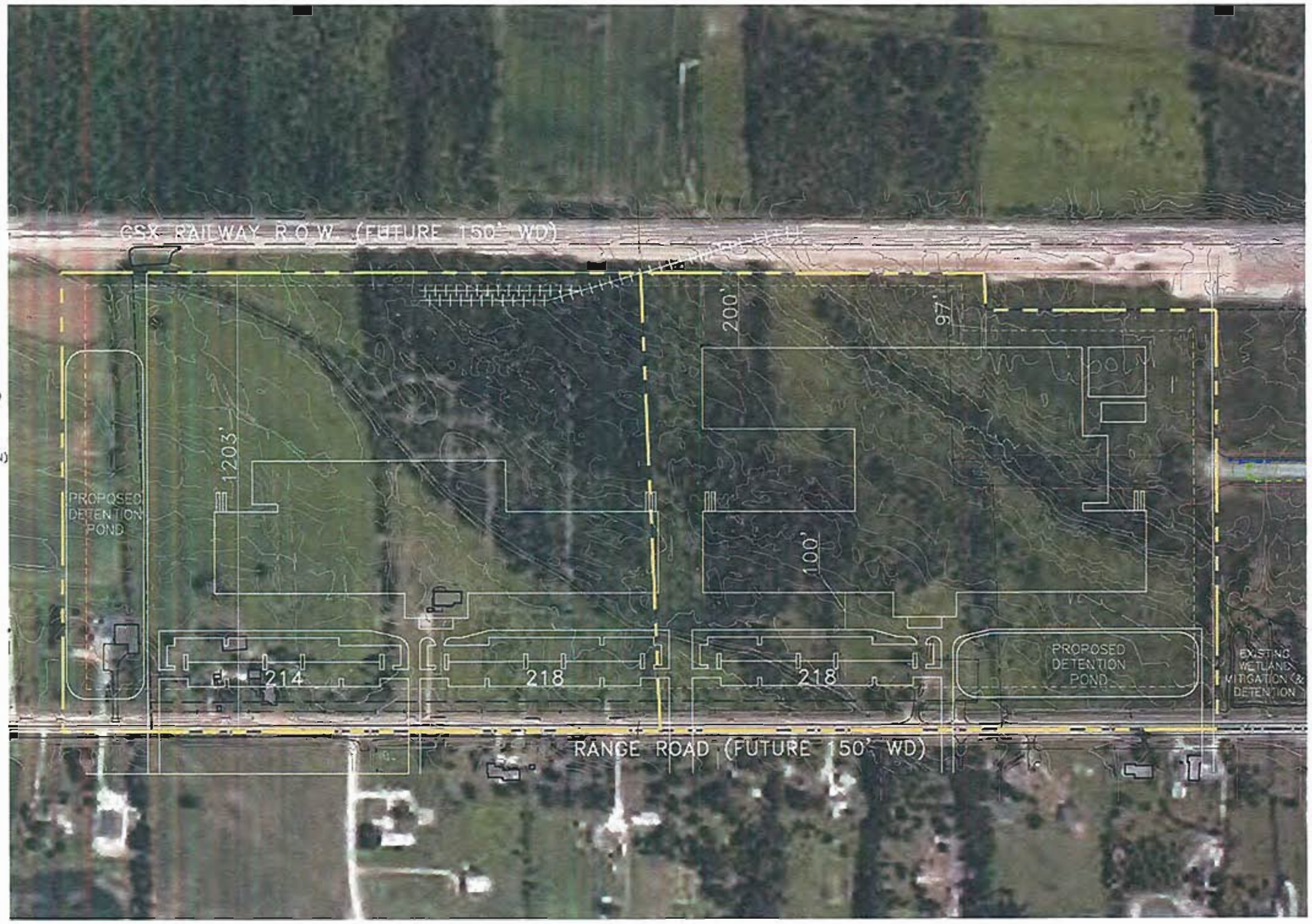
SITE SUMMARY

SITE AREA:	±81 ACRES TOTAL
	(±39 AC SOUTHERN PARCEL)
	(±42 AC NORTHERN PARCEL)
BUILDING AREA	
PHASE 1:	500,000 SF.
PHASE 2:	300,000 SF.
SETBACKS – BUILDING	
FRONT:	110' (℄ RANGE ROAD)
SIDE:	60'
REAR	60' (35' R.R. R.O.W.)
PARKING	
SIZE:	9' x 20'
REQUIRED:	460 SPACES
PROVIDED:	650 SPACES (0.94 SPACE/EMP.)
DETENTION	±6.5 ACRES (ASSUME 5' DEPTH)
	(100-YEAR VOLUME)

POTENTIAL WETLAND IMPACTS (±8 AC MITIGATION)

DRAIN RELOCATION



N

SCALE: 1" = 300'

LG CHEMICAL
CITY OF ST CLAIR
PROJECT NO.: 09001770
DATE: SEPTEMBER 14, 2009

ROSSETTI

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Engineering Surveying Planning
Environmental Ecological Water Resources

APPENDIX XII

Site Layout Plan

SITE SUMMARY
SITE AREA ±88.5 ACRES (85.5 W/O VAN BORN)

BUILDING AREA
PHASE 1 500,000 SF.
PHASE 2 300,000 SF.

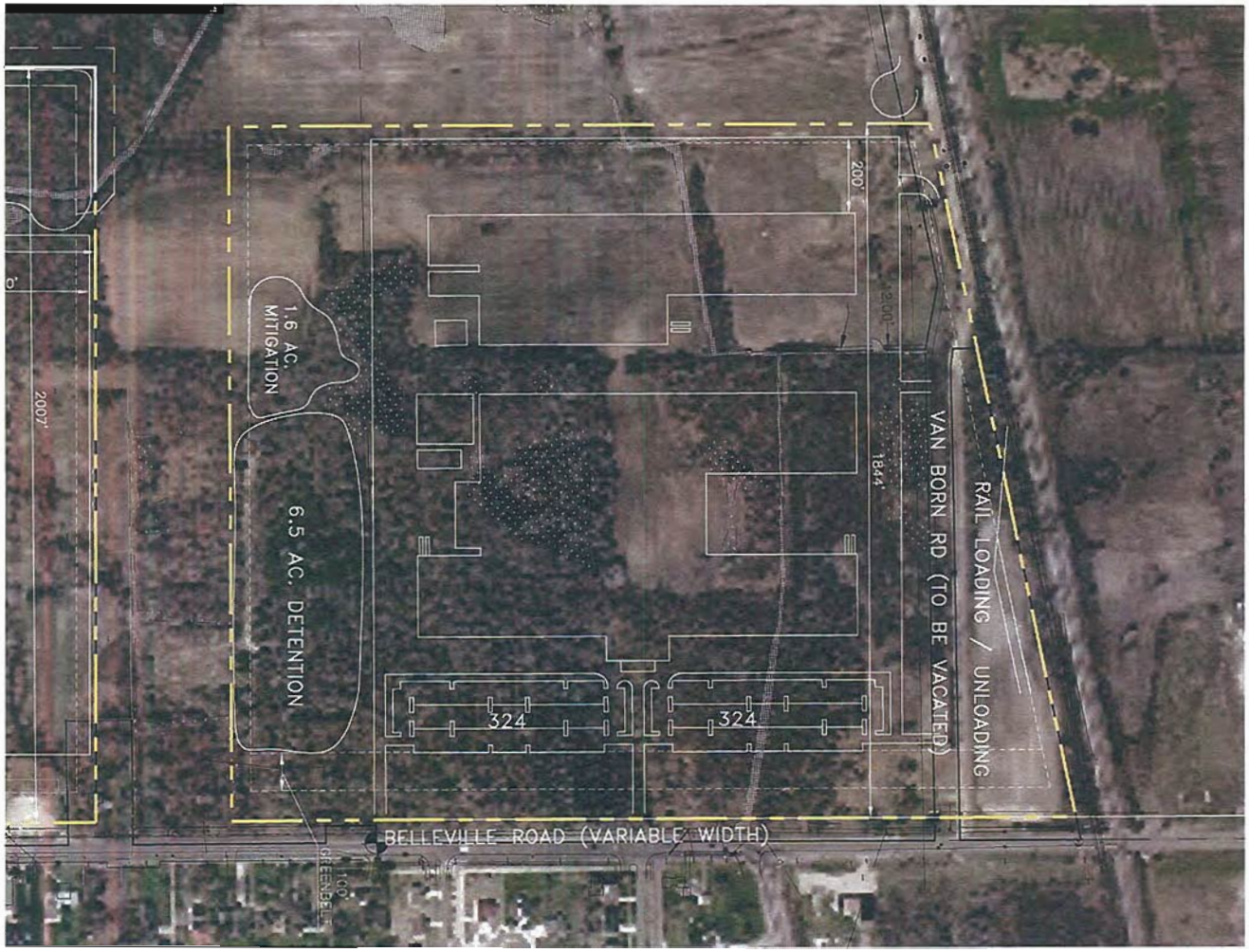
SETBACKS - BUILDING
FRONT 60' (BELLEVILLE RD 80' AT BUILDING HEIGHT OF 80')
SIDE 50' ONE/100' TOTAL
REAR 50'

PARKING
SIZE: 9.5' x 20'
REQUIRED: 1,360 SPACES
PROVIDED 648 SPACES (0.9x SPACE/EMP.)

DETENTION ±6.5 ACRES (ASSUME 5' DEPTH) (100-YEAR VOLUME)

MCKINSTRY DRAIN VACATION

WETLAND IMPACTS



SCALE: 1" = 300'

LG CHEMICAL
VAN BUREN TOWNSHIP SITE - NORTH
PROJECT NO.: 09001770
DATE: SEPTEMBER 14, 2009

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SITE SUMMARY
SITE AREA: ±87 ACRES

BUILDING AREA
PHASE 1: 500,000 SF
PHASE 2: 300,000 SF

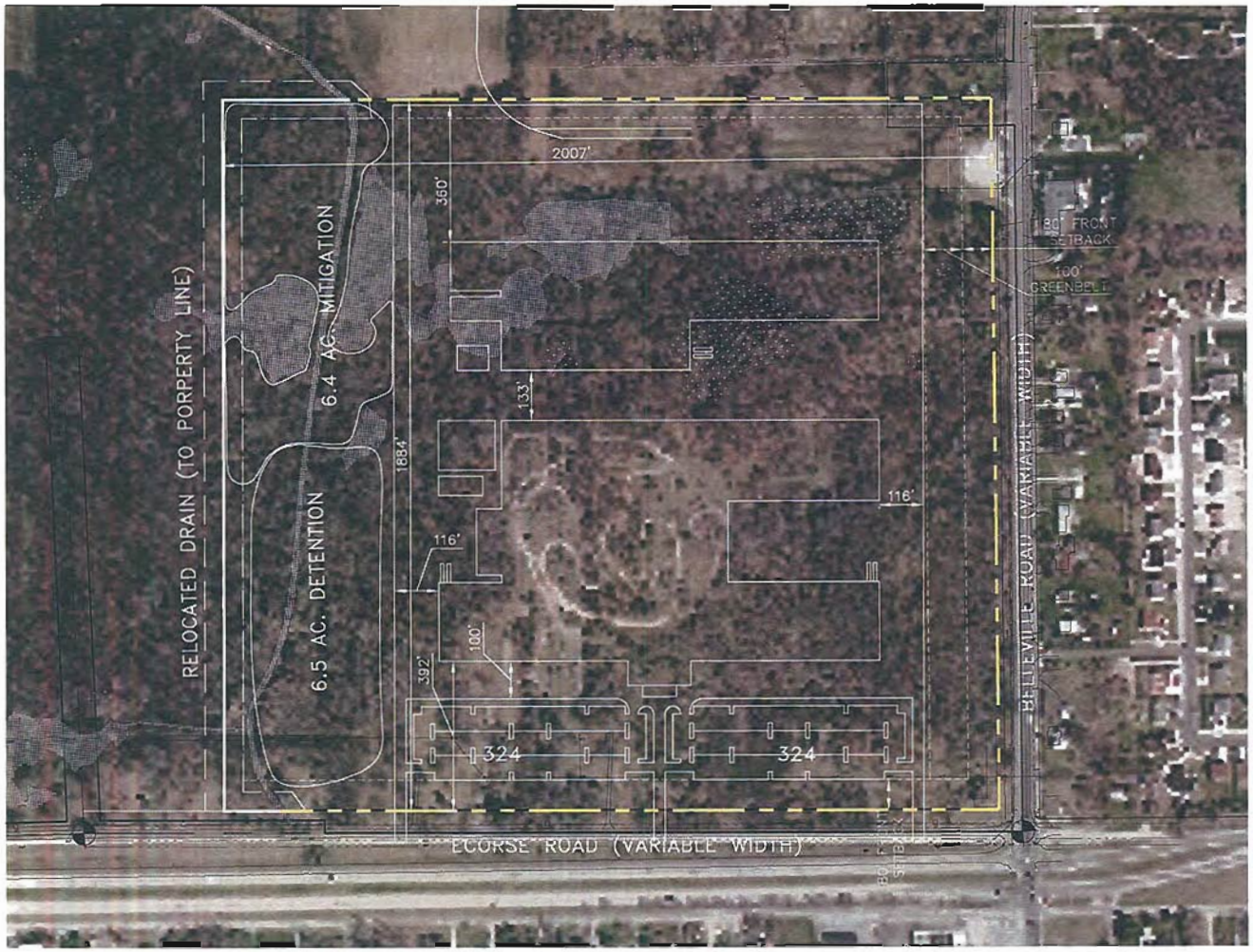
SETBACKS - BUILDING
FRONT: 60' (BELLEVILLE RD/ECORSE RD 80' AT BUILDING HEIGHT OF 80')
SIDE: 50' ONE/100' TOTAL
REAR: 50'

PARKING
SIZE: 9.5' x 20'
REQUIRED: 1,360 SPACES
PROVIDED: 648 SPACES (0.94 SPACE/EMP)

DETENTION: ±6.5 ACRES (ASSUME 5' DEPTH) (100-YEAR VOLUME)

DRAIN RELOCATION

WETLAND IMPACTS (PHASE 2)



SCALE: 1" = 300'

LG CHEMICAL
VAN BUREN TOWNSHIP SITE - SOUTH
PROJECT NO.: 09001770
DATE: SEPTEMBER 14, 2009

ROSSETTI

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APPENDIX XIII

State TES Letter
and
USFWS Allegan County List

STATE OF MICHIGAN

JENNIFER M. GRANHOLM
GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LANSING

REBECCA A. HUMPHRIES
DIRECTOR

January 22, 2010

Bourke Thomas
Atwell,LLC
Two Towne Square Suite 700
Southfield MI 48076

RE: **LG Chem Holland 09001770**

Dear Bourke Thomas:

Thank you for using the Michigan DNR Endangered Species Assessment website. Based on the information you have provided, project activities may proceed. It has been determined that federal and state endangered, threatened, special concern species, exemplary natural plant communities, or unique natural features are **not known to occur** at or near the location specified:

Allegan County, T04N R15W Section 03.

The location of the request was checked against known localities for rare species and unique natural features, which are recorded in a statewide database. This continuously updated database is a comprehensive source of information on Michigan's endangered, threatened and special concern species, exemplary natural communities and other unique natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features at a site. The absence of records may mean that a site has not been surveyed. Records may not always be up-to-date. In some cases, the only way to obtain a definitive statement on the presence of rare species is to have a competent biologist perform a field survey.

Michigan's endangered and threatened species are protected under Part 365 of the Natural Resources and Environmental Protection Act, Act 451 of the Michigan Public Acts of 1994. Federally listed species are protected under the United States Endangered Species Act of 1973. Special concern species, exemplary natural communities and other unique natural features are not legally protected by state or federal endangered species legislation, but they are considered to be rare and should be protected to prevent future listing.

Thank you for your advance coordination in addressing the protection of Michigan's natural resource heritage. Responses and correspondence can be sent to: Endangered Species Review, Michigan Department of Natural Resources, Wildlife Division - Natural Heritage Program, PO Box 30180, Lansing, MI 48909. If you have further questions, please call 517-373-1263 or e-mail DNR-EndangeredSpecies@michigan.gov.

County Distribution of Michigan's Federally Threatened, Endangered, Proposed, and Candidate Species

For more information about threatened and endangered species in Michigan, contact the U.S. Fish & Wildlife Service office at 2651 Coolidge Road, Suite 101, East Lansing, Michigan 48823 (517/351□6274)

County	Species	Status	Habitat
Alcona	Kirtland's warbler (*Dendroica kirtlandii*)	Endangered	Nests in young stands of jack pine
Alcona	Eastern massasauga *(Sistrurus catenatus catenatus)*	Candidate	
Alcona	Pitcher's thistle (*Cirsium pitcheri*)	Threatened	Stabilized dunes and blowout areas
Alger	Canada lynx (*Lynx canadensis*)	Threatened	A Canada lynx was recently documented in the Upper Peninsula. The counties listed here have the highest potential for Lynx presence: Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, Schoolcraft.
Alger	Gray wolf (*Canis lupus*)	Endangered	Northern forested areas
Alger	Piping plover (*Charadrius melodus*)	Endangered	Beaches along shorelines of the Great Lakes
Alger	Piping plover *(Charadrius melodus)*	Critical Habitat Designated	
Alger	Pitcher's thistle (*Cirsium pitcheri*)	Threatened	Stabilized dunes and blowout areas
Allegan	Indiana bat (*Myotis sodalis*)	Endangered	Summer habitat includes small to medium river and stream corridors with well developed riparian woods; woodlots within 1 to 3 miles of small to medium rivers and streams; and upland forests. Caves and mines as hibernacula.
Allegan	Eastern massasauga *(Sistrurus catenatus catenatus)*	Candidate	
Allegan	Karner blue butterfly (*Lycaeides melissa samuelis*)	Endangered	Pine barrens and oak savannas on sandy soils and containing wild lupines *(Lupinus perennis)*, the only known food plant of larvae.
Allegan	Pitcher's thistle (*Cirsium pitcheri*)	Threatened	Stabilized dunes and blowout areas
Alpena	Piping plover (*Charadrius melodus*)	Endangered	Beaches along shorelines of the Great Lakes
Alpena	Eastern massasauga *(Sistrurus catenatus catenatus)*	Candidate	
Alpena	Hine's emerald dragonfly (*Somatochlora hineana)*	Endangered	Spring fed wetlands, wet meadows and marshes; calcareous streams & associated wetlands overlying dolomite bedrock
Alpena	Dwarf lake iris (*Iris lacustris*)	Threatened	Partially shaded sandy-gravelly soils on lakeshores
Alpena	Pitcher's thistle (*Cirsium pitcheri*)	Threatened	Stabilized dunes and blowout areas

APPENDIX XIV

Off-site Mitigation Plan

LEGEND

BREAKDOWN OF CONSTRUCTION ACTIVITIES

CONSERVATION EASEMENT SIGN

ADAMS (E. 16TH STREET)

PLANTING PLAN VIEW

ADAMS (E. 16TH STREET)

HABITAT STRUCTURE PLAN VIEW

SECTION A-A

SECTION B-B

SITE VICINITY MAP

VICINITY MAP

811 Know what's below. Call before you dig.

NOTICE

ROSSETTI

cpi compact power, inc. LG Chem

LGC-
BATTERY PROJECT
PHASE I

HOLLAND, MI

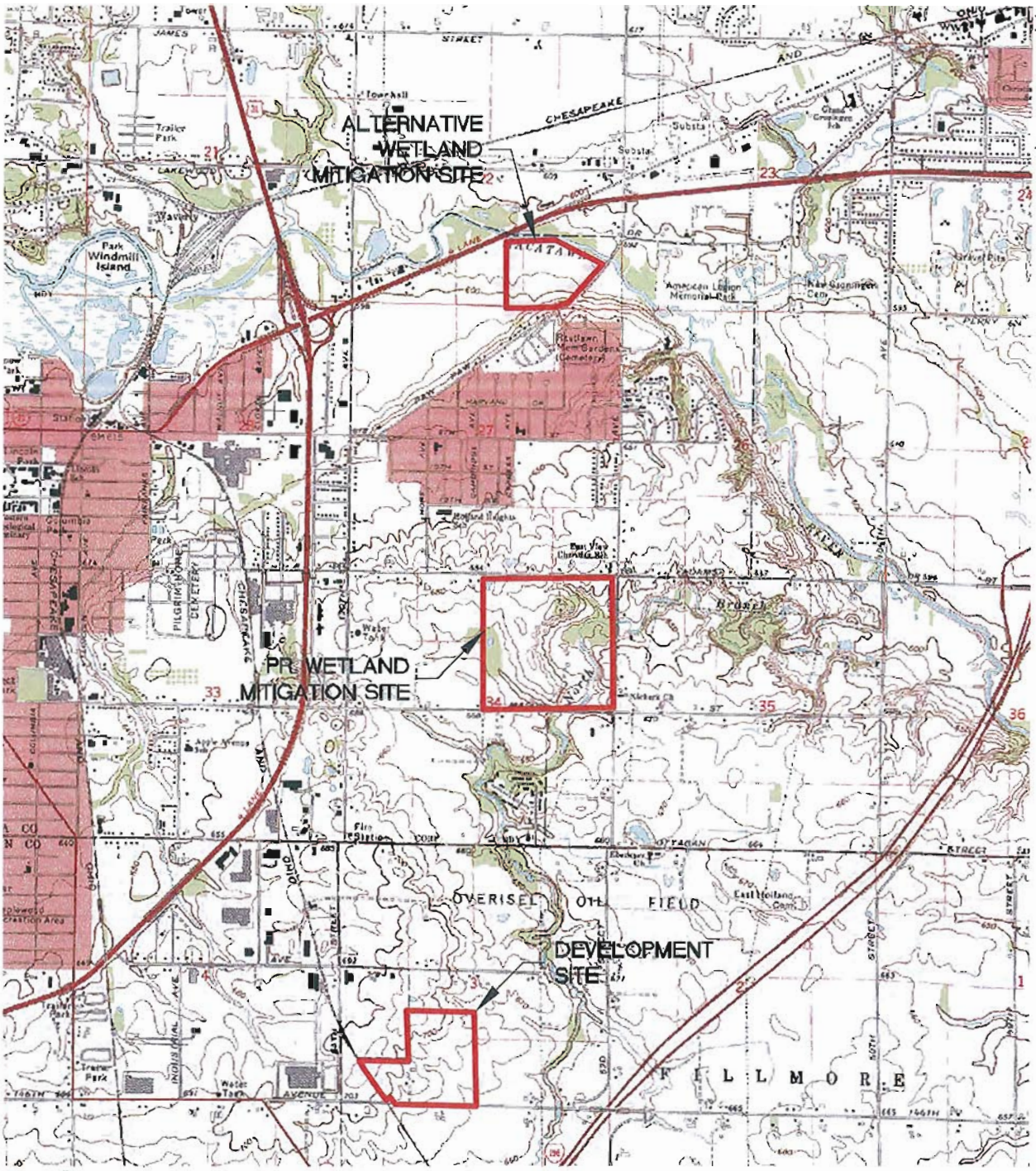
ATWELL

Conceptual
Off-Site Mitigation Plan

05

APPENDIX XV

Site Location Map



SITE LOCATION MAP
CITY OF HOLLAND
ALLEGAN & OTTAWA COUNTIES, MICHIGAN

SCALE 0 1500 3000

1" = 3000 FEET

REFERENCE

USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE
HOLLAND EAST, MICHIGAN QUADRANGLE
DATED: 1972, PHOTOREVISED: 1980

PROJECT: 09001770
DATE: JANUARY 11, 2010
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-04

ATWELL
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OFFICES IN NORTH AMERICA AND ASIA

FINDING OF NO SIGNIFICANT IMPACT
FOR THE
COMPACT POWER, INC. ELECTRIC DRIVE VEHICLE BATTERY AND COMPONENT MANUFACTURING INITIATIVE APPLICATION, HOLLAND, MICHIGAN

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: DOE completed the *Final Environmental Assessment for the Compact Power, Inc. Electric Drive Vehicle Battery and Component Manufacturing Initiative Application, Holland, Michigan* (DOE/EA-1709). Based on the analyses in the environmental assessment (EA), DOE determined that its Proposed Action, awarding a federal grant to Compact Power, Inc. (CPI) to facilitate the construction and operation of a plant to build advanced lithium-ion cells and batteries for automotive applications, would result in no significant adverse impacts. DOE further determined that there could be beneficial impacts to the nation's air quality and transportation industry from implementation of CPI's proposed project. In addition, beneficial local socioeconomic impacts would occur from increased employment opportunities and spending in surrounding communities

BACKGROUND: As part of the *American Recovery and Reinvestment Act of 2009* (Recovery Act; Public Law 111-5, 123 Stat 115), DOE's National Energy Technology Laboratory, on behalf of the Office of Energy Efficiency and Renewable Energy's Vehicle Technologies Program, is providing up to $2 billion in federal funding for competitively awarded agreements to facilitate the construction (including increase in production capacity at existing plants) of U S manufacturing plants to produce advanced batteries and electric drive components

The federal action of providing funding for these projects, known as the *Electric Drive Vehicle Battery and Component Manufacturing Initiative*, requires compliance with the *National Environmental Policy Act of 1969*, as amended (NEPA; 42 U S C. 4321 et seq.), Council on Environmental Quality regulations (40 CFR Parts 1500 to 1508), and DOE's NEPA implementing procedures (10 CFR Part 1021). DOE prepared an EA to evaluate the potential environmental consequences of providing a grant for this proposed project under the initiative

PURPOSE AND NEED: The overall purpose and need for DOE's action pursuant to the Vehicle Technologies Program and the funding opportunity under the Recovery Act are to accelerate the development and production of various electric drive vehicle systems by building or increasing domestic manufacturing capacity for advanced automotive batteries, their components, recycling facilities, and electric drive vehicle components in addition to stimulating the U.S. economy. This and the other selected projects are needed to reduce the U.S. petroleum consumption by investing in alternative vehicle technologies. This proposed project will also assist with the nation's economic recovery by creating manufacturing jobs in the United States in accordance with the objectives of the Recovery Act

DESCRIPTION OF THE PROPOSED ACTION: DOE's proposed action is to provide a financial assistance grant to partially fund the construction and operation of a high-volume manufacturing plant to

make advanced lithium-ion cells and batteries for automotive applications. These applications include hybrid electric, plug-in hybrid electric, pure electric vehicles for commercial purposes, and military hybrid vehicles, as well as for aviation, smart grid support, broadband backup power, and energy storage for renewable energy. The 850,000-square-foot facility would be built on about 80 acres, mostly located in the City of Holland, with a small portion of the proposed site located in the adjacent Fillmore Township. CPI's facility would employ approximately 450 workers when fully operational. DOE would provide a $151 million grant in a cost-sharing arrangement with CPI. The total cost of the proposed project is estimated at $303 million.

ALTERNATIVES CONSIDERED: In addition to the proposed action, DOE considered the No-Action Alternative as required under NEPA. Under the No-Action Alternative, DOE would not provide funds for the proposed project. For the purposes of the EA, DOE assumed that the project would not proceed without DOE funding. This assumption establishes a baseline against which the potential environmental impacts of the proposed project are compared.

ENVIRONMENTAL CONSEQUENCES: DOE evaluated the potential environmental consequences of the proposed project and the No-Action Alternative. DOE considered the following resource areas for its analysis: land use; air quality; noise; aesthetics and visual resources; geology and soils; water resources; biological resources; cultural resources; socioeconomics; environmental justice; occupational health and safety; utilities, energy, and materials; waste; and transportation. The EA prepared for this proposed project identified no significant adverse impacts to these resources, with the exception of impacts to wetlands at the proposed site.

Four small interconnected wetlands were identified at the proposed site. DOE determined that the proposed project would impact approximately 2.21 acres of wetlands regulated by the Michigan Department of Natural Resources and Environment under Part 303, Wetlands Protection, of the *Michigan Natural Resources and Environmental Protection Act*. Since greater than 0.3 acre of a wetland would be disturbed, compensatory mitigation measures, in the form of mitigation banking, would be required. In its Part 303 Wetland Permit Application, which contains a compensatory mitigation proposal, CPI proposed to mitigate the wetlands impact by replicating approximately 3.5 acres of wetlands at the VanRaalte Farm Park in Holland. The Michigan Department of Natural Resources and Environment published a public notice of this proposal on February 20, 2010. Compensatory mitigation measures would ensure that wetlands impacts associated with this proposed project would not be significant.

DOE's regulations in 10 CFR Part 1022, "*Compliance with Floodplain and Wetland Environmental Review Requirements*," implement Executive Order 11990, "Protection of Wetlands." These regulations require, among other things, that the Department notify appropriate government agencies and interested parties of a proposed wetland action; conduct a wetlands assessment to evaluate the impacts of that action on wetlands in an EA or environmental impact statement; consider alternatives that would avoid or minimize impacts to wetlands; design or modify the action to minimize potential harm to wetlands; and allow for public review and comment of the analysis. The analysis documented in the EA for this proposed project meets the requirements of 10 CFR Part 1022 and Executive Order 11990.

The following beneficial impacts could be realized from the proposed project. High-volume output of lithium-ion batteries resulting from the facility is expected to reduce reliance on fossil fuels and improve air quality through replacement of fossil fuels. The proposed project is anticipated to result in small increases in local employment opportunities and local spending, potentially providing a minor benefit to the local economy.

Under the No-Action Alternative, the project would either be delayed, as CPI sought other funding sources, or abandoned altogether. The potential environmental consequences, if the project was delayed, could be different if the project was modified. If abandoned, the potential environmental consequences would not occur. Furthermore, the potential beneficial impacts would change or not occur.

PUBLIC AVAILABILITY: DOE issued the Draft EA on January 8, 2010, and advertised its release in the *Holland Sentinel* and the *Grand Rapids Press* on January 8, 9, and 10. In addition, the Department sent copies for public review to the Herrick District Library in Holland. DOE also posted the Draft EA on the National Energy Technology Laboratory (NETL) web site. DOE established a 30-day public comment period that began January 8, 2010 and ended February 7, 2010.

The Draft EA was distributed to various federal, state, and local agencies. DOE initiated consultations with the Michigan State Historic Preservation Office, the Michigan Department of Natural Resources, the Natural Resources Conservation Service (NRCS), and the U.S. Fish and Wildlife Service. A response from the State Historic Preservation Office supported DOE's determination that no historic properties would be affected by the proposed project. The NRCS provided a completed Farmland Conversion Impact Rating Form, scoring the project site low in relative value of the farmland. DOE received no other comments from these agencies. DOE also sent letters to seven separate federally recognized Native American tribes and received no comments.

The Southeast Michigan Council of Governments acknowledged receipt of the Draft EA and commented that the project should consider using an existing vacant building. DOE contacted the West Michigan Regional Planning Commission, as recommended by the Southeast Michigan Council of Governments, and it echoed support for the project. Other comments expressed support for the project by local governmental agencies, businesses, and individuals. Two individuals expressed concern regarding the City of Holland's continued use of a coal-fired plant for electricity in general, and specifically for the proposed project.

Copies of the Final EA and this FONSI will be sent to stakeholders that provided comments or consultation, and will be available at DOE's National Energy Technology Laboratory web site at http://www.netl.doe.gov/publications/others/nepa/ea.html.

DETERMINATION: On the basis of the evaluations in the Final EA, DOE determined that its proposed action – to provide a $151 million federal grant – and CPI's proposed project – to construct and operate an advanced lithium-ion battery plant in Holland, Michigan – would have no significant effect on the human environment. Although the proposed project would increase air emissions and require new construction and operating permits, these changes would be minor and the project

proponent would be required to comply with permit requirements The proposed project would impact approximately 2.21 acres of small interconnected wetlands regulated by the Michigan Department of Natural Resources and Environment. However, approved and permitted compensatory mitigation measures would ensure that wetlands impacts associated with this proposed project would not be significant. Beneficial local socioeconomic impacts are expected to occur from increased employment opportunities and spending in the surrounding community. All other potential environmental impacts identified and analyzed in the EA would be negligible. Therefore, preparation of an environmental impact statement is not required, and DOE is issuing this Finding of No Significant Impact.

Issued in Pittsburgh, PA, this 23 day of April 2010.

Anthony V Cugini
Director
National Energy Technology Laboratory