



Draft Environmental Assessment
**Pheasant Branch Creek Trail, Bridges, and
Streambank Restoration Project – Deming Way to
North of Century Avenue**

*City of Middleton, Dane County, WI
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List of Acronyms, Chemical Formulas, and Abbreviations

APE	Area of Potential Effect	NO _x	Nitrogen Oxides
ACS	American Community Survey	NOAA	National Oceanic and Atmospheric Administration
BGEPA	Bald and Golden Eagle Protection Act	NPDES/SDS	National Pollution Discharge Elimination System/State Disposal System
BCC	Birds of Conservation Concern	NPS	National Park Service
BMP	Best Management Practice	NRCS	Natural Resources Conservation Service
CAA	Clean Air Act	NRHP	National Register of Historic Places
CBRS	Coastal Barrier Resource System	NWI	National Wetland Inventory
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	O ₃	Ozone
CEQ	Council on Environmental Quality	OSHA	Occupational Safety and Health Administration
C.F.R.	Code of Federal Regulations	PA	FEMA's Public Assistance Program
CO	Carbon Monoxide	Pb	Lead
CWA	Clean Water Act	PM	Particulate Matter
CZMA	Coastal Zone Management Act	PMP	Private Nonprofit Organizations
DHS	United States Department of Homeland Security	P.L.	Public Law
EA	Environmental Assessment	RCRA	Resource Conservation and Recovery Act
EFH	Essential Fish Habitat	SFHA	Special Flood Hazard Area
EFPO	Eastern Fringed Prairie Orchid	SHPO	Wisconsin State Historic Preservation Office
EJ	Environmental Justice	SO ₂	Sulfur Dioxide
EO	Executive Order	SWPPP	Stormwater Pollution Prevention Plan
ESA	Endangered Species Act	THPO	Tribal Historic Preservation Office
FEMA	Federal Emergency Management Agency	TMDL	Total Daily Maximum Load
FHA	Federal Highway Administration	TSS	Total Suspended Solids
FIRM	Flood Insurance Rate Map	USACE	United States Army Corp of Engineers
FPPA	Farm Protection Policy Act	U.S.C.	United States Code
FONSI	Finding of No Significant Impact	USDA	United States Department of Agriculture
IPaC	Information for Planning and Consultation	USEPA	United States Environmental Protection Agency
MBTA	Migratory Bird Treaty Act	USFWS	United States Fish and Wildlife Service
NAAQS	National Ambient Air Quality Standards		
NEPA	National Environmental Policy Act		
NHPA	National Historic Preservation Act		
NLEB	Northern Long-eared Bats		
NO ₂	Nitrogen Dioxide		

USGS United States Geological Survey

VOC Volatile Organic Compound

WDNR Wisconsin Department of Natural
Resources

WEM Wisconsin Emergency Management

WGNHS Wisconsin Geological and Natural
History Survey

WHS Wisconsin Historical Society (State
Archaeologist)

WisDOT Wisconsin Department of
Transportation

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1 BACKGROUND

1.1 Project Authority

Between August 17 to September 14, 2018, severe storms, tornadoes, and straight-line winds resulted in flooding and landslides in fifteen counties throughout the state of Wisconsin. Effects of these storms in the City of Middleton, located in Dane County, included significant erosion and slope failure to non-engineered creekbanks and damage to existing creekbank-stabilization infrastructure from heavy rains, high flooding water levels, and extreme overbank flow of the Pheasant Branch Creek. Additionally, several existing maintenance-access trails, adjacent asphalt recreational trails, stormwater outfall structures, and pedestrian bridges over Pheasant Branch Creek were severely damaged from erosion caused by flooding. President Trump issued disaster declaration DR-4402-WI for the State of Wisconsin on October 18, 2018, which made disaster recovery assistance available through the Federal Emergency Management Agency (FEMA). The City of Middleton, the subrecipient, applied for funding from FEMA's Public Assistance (PA) Program, through Wisconsin Emergency Management (WEM), to repair damaged infrastructure and mitigate against future damages by adding improved creekbank stabilization and recreational infrastructure. FEMA's PA grant program provides federal assistance to government organizations and certain private nonprofit (PNP) organizations following a Presidential disaster declaration. PA is authorized by Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law [P.L.] 93-288), 42 United States Code [U.S.C.] §§ 5121-5207.

This environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. §§ 4321 - 4370h; President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations [C.F.R.] Parts 1500 to 1508); U.S. Department of Homeland Security (DHS) Directive No. 023-01; rev. 1, *Implementation of the National Environmental Policy Act* (Oct. 31, 2014); DHS Instruction Manual No. 023-01-001-01, rev. 1, *Implementation of the National Environmental Policy Act* (Nov. 6, 2014); FEMA Directive No. 108-01, *Environmental Planning and Historic Preservation Responsibilities and Program Requirements* (Aug. 22, 2016); and FEMA Instruction 108-01-1, *Instruction on Implementation of the Environmental and Historic Preservation Responsibilities and Program Requirements* (Aug. 22, 2016). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to meet FEMA's responsibilities under NEPA and to analyze the potential environmental impacts of the proposed project. FEMA will use the findings in this EA to determine whether to prepare an environmental impact statement for the proposed project or to issue a finding of no significant impact (FONSI).

In accordance with federal laws and FEMA regulations, the EA process for a proposed federal action must include an evaluation of alternatives and a discussion of the potential environmental impacts. As part of this NEPA review, the requirements of executive orders and other environmental laws are addressed.

1.2 Project Location

The proposed project is located within and adjacent to Pheasant Branch Creek in T7N, R8E, sections 1, 2, 11, and 12, in the City of Middleton, Dane County, Wisconsin (**Figure 1, Table 1-1**), commencing at the Deming Way bridge, eastward to the Century Avenue bridge, then northward (downstream) approximately 0.4 miles (mi.), parallel to Conservancy Lane. The City of Middleton consists of 8.98 square mi. with a population of 21,827 based on the 2020 Census (U.S. Census Bureau 2020).

Figure 1: Project Location



Table 1-1: Proposed Work Area General Location and Coordinates

Waterway	Start	End
Pheasant Branch Creek	43.102522, -89.518287	43.10945, -89.49057

1.3 Purpose and Need

FEMA's PA Grant Program provides disaster recovery funds to repair damage caused by natural or man-made disasters and to help prevent similar future damages. The proposed project is needed because high-velocity channel flows and surface water flooding caused historically unprecedented creekbank erosion and infrastructure damage resulting in unsafe conditions and unusable recreational trails and bridges. Data collected from the flood on August 20, 2018, indicated that in less than 24 hours, over 11 inches (in.) of rain fell in the Middleton and Cross Plains area, causing damage throughout the Pheasant Branch Creek corridor and the adjacent public trails system within the City of Middleton. Creek discharge was measured at 3,000 cubic feet per second (cfs); three to four times higher than any water flow recorded in this watershed over the last 43 years (WDNR 2022a).¹ The results of these storm events were loosening of creekbank soil structure, scouring, and destruction of previous creekbank stabilization infrastructure, overtopping of pedestrian bridge superstructure and decking which caused damage to bridge railings, undermining of bridge support piers, and erosion damage to adjacent recreational trails. Future storm events without the proposed infrastructure repairs and improvements will result in further creekbank erosion, reducing water and habitat quality, and additional damage to remaining infrastructure. Furthermore, the City of Middleton needs these damaged pedestrian bridges and recreational trails returned to safe and usable conditions to restore public recreational opportunities lost due to these storm events.

The purpose of this proposed project is to ensure improved water quality and aquatic habitat and reduce the risk of future damages to recreational trails, pedestrian bridges, and other infrastructure adjacent to and within the project area by repairing and stabilizing heavily eroded creekbanks, completely relocating the creek bed in two locations, elevating pedestrian bridges, and in-stream modifications. Proposed work includes grading and reshaping the eroded land and replacing or installing stone toe protection, root wad composite, and toewood-sod mat erosion-reduction infrastructure. All creek banks requiring grading will be stabilized by the installation of erosion control blankets followed by the application of a native grass/forb seeding mix. That proposed work will reduce bank erosion and sediment load in the creek, which will improve aquatic habitat for fish and macroinvertebrates. At several locations where pedestrian bridges cross Pheasant Branch Creek, the creek bed will be excavated to a lower elevation to increase the potential volume of water flow under those structures during flood events. Additionally, several pedestrian bridges will be raised on new concrete piers to reduce their vulnerability to damage from future flood events.

2 ALTERNATIVE ANALYSIS

NEPA requires FEMA to evaluate alternatives to the proposed project and describe the environmental impacts of each alternative. NEPA also requires an evaluation of the No Action alternative, which is the future condition without the project being executed. This section

¹ Section 7.3 of this Environmental Assessment lists the referenced documents by author or agency, and year.

describes the No Action alternative, the Proposed Action, and alternatives that were previously considered but eliminated from further consideration.

2.1 Alternative 1 – No Action

Under the No Action alternative, no proposed stream stabilization, channel work, or bridge and trail restoration work of areas that were washed out during the disaster events will be executed along these two miles of Pheasant Branch Creek. Without the proposed infrastructure repairs and improvements, future excessive rain events and floodwaters would continue to cause further creekbank erosion and flooding throughout this section of Pheasant Branch Creek. That erosion will cause siltation and higher turbidity in Pheasant Branch Creek, reducing water and habitat quality of the creek and its distributary, Lake Mendota. Furthermore, the structural stability of roadway crossings, recreational trails, and pedestrian bridges would remain threatened, which would pose safety concerns. Over time, continued damage to existing infrastructure will cause additional closures or structural failures.

Loss of significant recreational benefits previously provided by Pheasant Branch Creek, its surrounding natural areas, and the trail and bridge system will continue to affect the community because of the limitations of the current temporary repairs of these areas.

2.2 Action Alternative 2 – Proposed Action

The Proposed Action includes scope items from a previously defined five-year restoration plan by the City of Middleton. That plan includes the protection of the Pheasant Branch Creek corridor from future stormwater damage, restoring multi-modal transportation and recreation opportunities, and improving ecological biodiversity throughout the Pheasant Branch Creek corridor.

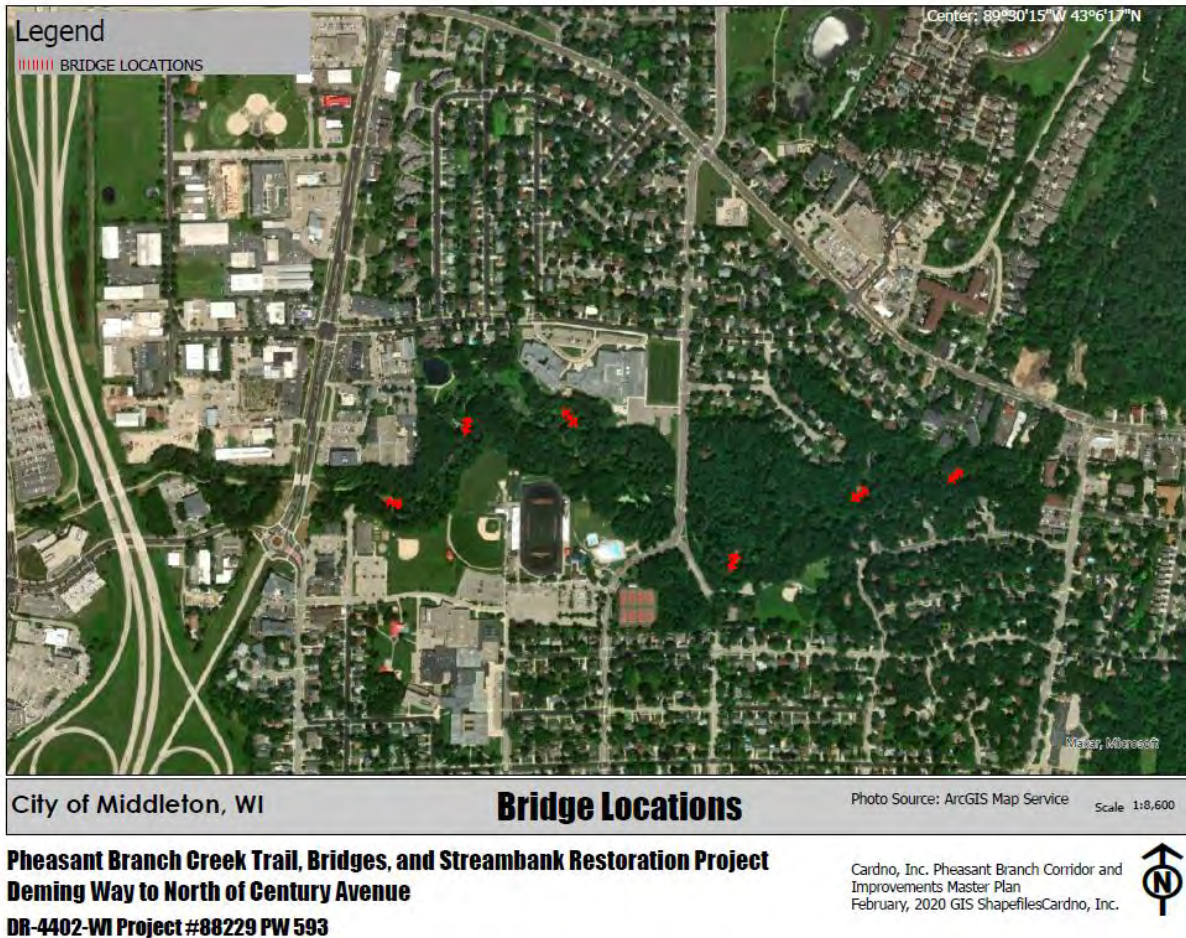
The proposed project will be a combination of several eligible federally funded disaster repair and mitigation projects, and several additional improved projects. Required non-federal matching monies from the subrecipient will fund portions of the Proposed Action, but some additional work not eligible for federal funds will also be performed in conjunction with the federally funded work. Regardless of funding source, all contemporaneous work being proposed within the project area is included in the description of the Proposed Action.

The Proposed Action consists of three components: (1) repairs and improvements to recreational trails and pedestrian bridges, (2) stream stabilization, and (3) channel work including stream realignment and associated bank stabilization. All work will be conducted in and adjacent to Pheasant Branch Creek, within the City of Middleton, between the Deming Way bridge and an area approximately 0.4 mi. downstream (north) of the Century Avenue bridge. Worksites and staging areas will be accessed using existing recreational trails and maintenance-access roads within developed rights-of-way owned by the subrecipient, the City of Middleton.

Trails and Bridges:

Six flood-damaged pedestrian bridges and numerous washed-out pedestrian trail segments will be repaired or improved. Bridges are designated from the most upstream location of the project area (Deming Way), progressing downstream (towards Lake Mendota) (**Figure 2**).

Figure 2: Bridge Locations



Proposed work includes rebuilding 277 linear feet (lf.) washout of crushed limestone recreation trail 1,300 lf. downstream of Century Avenue bridge, and repair to 6 pedestrian bridges and associated trails. Each bridge will have the railing repaired and be elevated between 3 and 6 ft. above its current location on new concrete abutments. In addition, at each location, the following trail repairs will be made to existing asphalt and gravel trails. Two bridges will be relocated, as noted below.

- First pedestrian bridge (Bridge #6) (43.103016, -89.509429): repair 55 lf. of trail at both ends of the bridge, and repair additional 250 lf. of trail east of the bridge.
- Second pedestrian bridge (Bridge #5) (43.104170, -89.507500): repair 189 lf. of trail at both ends of the bridge.

- Third pedestrian bridge (Bridge #4) (43.104287, -89.505070): relocate and re-align bridge 10 lf. downstream from the original location and repair 15 lf. of trail at both ends of the bridge.
- Fourth pedestrian bridge (Bridge #3) (43.101879, -89.501156): repair 20 lf. of trail at both ends of the bridge and an additional 235 lf. of trail east of the bridge.
- Fifth pedestrian bridge (Bridge #2) (43.103065, -89.498190): repair 40 lf. of trail at both ends of the bridge, and 279 lf. of trail beyond both sides of bridge approach repairs.
- Sixth pedestrian bridge (Bridge #1) (43.103350, -89.495906): relocate and re-align bridge 14 lf. downstream from the original location, repair 20 lf. of trail at both ends of the bridge and 250 lf. of trail beyond both sides of bridge approach repairs.

Stream Bank Stabilization:

Stream Stabilization will include ecological enhancements such as natural channel design techniques to improve aquatic habitat including slope re-shaping using natural stone, native vegetation seeding, and tree-root wad/log installation. Site selection was based on need for stabilization to protect existing infrastructure and recreation amenities (Figure 4). Four specific stabilization methods will be implemented:

- **Slope Grading/Native Seeding:** creekbank slope grading and re-shaping followed by slope stabilization through the installation of erosion control blankets and subsequent application of native grass/forb seeding mix at all disturbed creekbank slope grading locations. In total, 3.71 acres (ac.) of native seeding will be installed.
- **Stone Toe Protection:** creekbank slope grading and re-shaping followed by slope stabilization through the installation of erosion control blankets and subsequent application of native grass/forb seeding mix and natural stone on the creekbank slope and toe.
- **Root Wad Composite:** creekbank slope grading and re-shaping followed by slope stabilization through the installation of erosion control blankets and subsequent application of native grass/forb seeding mix and a natural stone and tree root/log composite structure on the creekbank slope, toe, and within the creek channel. Root wad logs will be keyed into the creekbank 8-12 ft. Stone will be placed into the creekbank at its base to a depth of at least 2 ft. to stabilize and anchor the logs.
- **Toewood–Sod Mat Composite:** creekbank slope grading and re-shaping followed by slope stabilization through the installation of erosion control blankets and subsequent application of native grass/forb seeding mix and a tree root/log and vegetation/soil mat composite structure on the creekbank slope and toe, and within the creek channel. Footer logs (without root wad) will be keyed into the bank at 15-20 degrees to bank tangent and arranged in an interlocking pattern for reinforcement. A layer of root wad logs, limbs, and coarse woody material will be placed above the footer logs and interwoven into footers where possible to serve as revetment for a live brush layer. Live brush will be applied and staked with willow or other appropriate posts.

Stream Stabilization Locations: The following locations include replacing or removing eroded non-classified fill, installing from 20 lf. and up to 500 lf. of stone toe protection, from 30 lf. and up to 500 lf. of slope grading and installing from 70 up to 270 lf. root wad and/or toewood-sod mat composite:

- Deming Way bridge downstream to U.S. Highway 12 bridge.
- First pedestrian bridge (Bridge #6) downstream to second pedestrian bridge crossing.
- Second pedestrian bridge (Bridge #5) downstream to third pedestrian bridge crossing.
- Third pedestrian bridge (Bridge #4) downstream to Park Street bridge crossing.
- Park Street bridge downstream to fourth pedestrian bridge crossing.

In addition to non-classified fill, stone toe protection, slope grading, and installation of root wad and/or sod mat composite, the following locations have the following additional scope:

- U.S. Highway 12 bridge downstream to Parmenter Street:
 - Stabilize stone culvert outfall.
- Parmenter Street downstream to first pedestrian bridge crossing:
 - Stabilize Clark Street culvert outfall.
- Fourth pedestrian bridge (Bridge #3) downstream to fifth pedestrian bridge crossing:
 - Remove 50 lf. of gabion wall and sheet pile.
 - Remove eroded erosion control blankets.
 - Stabilize Nina Court culvert outfall.
- Fifth pedestrian bridge (Bridge #2) downstream to sixth pedestrian bridge crossing:
 - Replace stone gabion basket.
- Sixth pedestrian bridge (Bridge #1) downstream to Century Avenue bridge crossing:
 - Stabilize Santa Maria Court culvert outfall.
- Downstream of Century Avenue Bridge crossing:
 - Remove eroded erosion control blankets, unclassified fill, and root wads at four locations.
 - Remove failed gabions at Century Avenue Bridge.

Channel Work:

Instream work will be completed during low flow conditions. The Proposed Action consists of three specific types of channel work:

Creek Bottom Excavation: the creek bottom will be excavated to a lower elevation at the first, second, third, and sixth pedestrian bridges to increase the capacity of creek flow underneath those bridges during flood events. The channel will be lowered by 1 ft, 0.5 ft, 1 ft, and 0.9 ft, respectively. Additionally, commencing 200 lf. downstream of Century Avenue bridge, an 80 lf. in-channel silt bar will be removed.

Stone Riffle Structures: placement of natural stone into the creek bottom comprising in-channel boulder cluster/glide/riffle structures and converging boulder cross vanes will reduce shear stress on creekbanks and minimize the size and volume of stone protection needed. Five boulder cluster/glide/riffle structures will be installed throughout the project area at 900 lf. and 1,560 lf.

downstream of the second pedestrian bridge, 300 lf. upstream of Park Street bridge, and 1,550 lf. and 1,700 lf. downstream of Century Avenue bridge. Two converging boulder cross vanes will be constructed at 175 lf. and 750 lf. downstream of Century Avenue bridge.

These structures provide significant benefits for both bank protection and aquatic habitat. Constructed riffles and rock vanes work to modify stream flows, providing a variety of flow conditions and microhabitats for fish, ranging from scouring channels and pools to slower backwater refuges. The rock placed within the stream channel will provide substrate for colonization by macroinvertebrates and provide benthic habitat for small fish. Where installed, the riffle and vane structures will reduce ongoing erosion, which contributes to instream siltation and embeddedness.

Creek Realignment: at two locations where creekbank erosion is severe because of adjacent, abrupt, steep elevation differences (cutbanks), Pheasant Branch Creek will be completely realigned to reduce erosion of adjacent high slopes into the creek. Near the third pedestrian bridge and 500 lf. upstream of the Park St. bridge, former creekbank stabilization structures have failed, necessitating creek realignment. A 2,885 square ft. (sf.) (210 lf.) and 3,820 sf. (290 lf.) toewood-sod mat composite structure will be placed into the existing creek channel to force the realigned creek to remain in its newly excavated channel. Additionally, upstream of the Park Street bridge, 80 lf. of a damaged sheet pile wall will be buried in place and a dead cottonwood tree within channel relocation work area will be removed. (See **Appendix A: Project Plans.**)

2.3 Alternatives Considered and Eliminated from Further Consideration

The City of Middleton performed a comprehensive analysis of trail alignment, trail materials, bridge designs, and stream restoration alternatives. The subrecipient also completed several public meetings to solicit feedback on preferred approach and best design solution for the proposed project.

The following options were considered:

Option A – Maintain existing alignment and trail cross-section

This alternative consists of using the existing alignment and trail cross-section with only minor deviations to improve some blind spots and to adjust to match elevated bridges. Per this option, no bridges would be eliminated.

Option B – Widen the existing trails and trail cross-section

This alternative consists of using the existing alignment and trail cross-section but widening it from 10 ft. to 12 ft. Recreational trail surfacing would be standard asphalt instead of porous asphalt.

Option C – Pathway Realigned with Split-Use Side Paths

This alternative consists of the realignment of the recreational trail in two areas. The proposed pathway would be approximately 5,765 ft. long and would have 3 bridges on the mainline,

including bridge realignments. The path would remain a 10 ft. wide asphalt surface with turf shoulders.

Option C was eliminated for further analysis based on public input. The subrecipient decided to apply elements of the other approaches to reduce possible environmental impacts and to meet public concerns. Options A and B will be used on different segments of the trail.

3 AFFECTED ENVIRONMENT AND CONSEQUENCES

This section describes the natural and human environment of the study area potentially affected by the alternatives, evaluates potential impacts, and recommends measures to avoid or reduce those impacts. The description of the study area represents current conditions and serves as a baseline from which to identify and evaluate environmental changes that may occur because of the Proposed Action. When possible, quantitative information is provided to establish potential impacts, but qualitative information may also be used where data are unavailable. Potential impacts are then evaluated qualitatively based on the criteria listed in **Table 3.1**.

Table 3-1: Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None / Negligible	The resource area would not be affected, or changes or benefits would be either nondetectable or, if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, although the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, but long-term changes to the resource would be expected.

The “study area” generally includes the project work area and access and staging areas needed to complete the Proposed Action. If the study area for a particular resource category is different from the project area, the differences will be described in the appropriate subsection. The proposed project work area is located along Pheasant Branch Creek within the City of Middleton, Dane County, Wisconsin. The portion of the Pheasant Branch Creek corridor where the proposed

project would occur is in an environment of both natural areas and maintained infrastructure including the creek and recreational trails, bridges, and maintained rights-of-way.

Pheasant Branch Creek is a small waterway that meanders and scours through loamy soils on its side slopes. Through much of the City of Middleton and the entire study area, the Pheasant Branch Creek floodplain is developed and maintained by the City's Parks and Recreation Department as a public outdoor recreation area for walkers, cyclists, alternative transportation, and other passive activities such as birding or education. The damaged portions of the recreational trails and pedestrian bridges proposed to be repaired or improved through this project are part of a 27 mi. recreational trail system throughout the City of Middleton. The study area along the Pheasant Branch Creek corridor from Deming Way to Parmenter Street is mostly open and surrounded by development and major roads including a crossing of U.S. Highway 12. The study area downstream of Parmenter Street to its terminus 0.4 mi. downstream of Century Drive is the Pheasant Branch Creek floodplain consisting of river bottom forest habitat with a mostly closed tree canopy and fairly steep side slopes surrounded by urban development.

3.1 Preliminary Screening of Assessment Categories

Based on a preliminary screening of resources and the project's geographic location, the following resources do not require a detailed assessment.

- *Coastal Barrier Resources System (CBRS)*. The Coastal Barrier Resources Act, 16 U.S.C. §§ 3501-3510, is not applicable because the project is not within or near a CBRS unit (U.S. Fish and Wildlife Service [USFWS] 2019a).
- *Coastal Zone Management*. The Coastal Zone Management Act (CZMA), 16 U.S.C. §§ 1451-1464, ch. 33, enacted in 1972, is not applicable because the project is not near a coast.
- *Essential Fish Habitat (EFH)*. The Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1801 *et seq.*, does not apply because there are no Habitat Areas of Particular Concern and no EFH Areas identified at the project site according to the National Oceanic and Atmospheric Administration (NOAA) Essential Fish Habitat (EFH) Mapper (NOAA 2022).
- *Seismic Risks*. Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, does not apply because there is low seismic risk in the project area based on seismic hazard maps developed by the U.S. Geological Survey (USGS). This includes less than 1 percent chance of potentially minor-damage (equivalent to Modified Mercalli Intensity VI) ground shaking in the 2018 Short-Term Seismicity Model (USGS 2018a), and the lowest hazard in the 2018 Long-Term National Seismic Hazard Map (USGS 2018b).
- *Sole Source Aquifers*. There are no sole-source aquifers regulated by the Safe Drinking Water Act of 1974, 42 U.S.C. §§ 300f *et seq.*, within Wisconsin (United States Environmental Protection Agency [USEPA] 2020).
- *Wild and Scenic Rivers*. The Wild and Scenic Rivers Act, 16 U.S.C. §§ 1271 *et seq.*, is not applicable because no federally designated wild and scenic rivers occur near or in the

project area based on a review of the National Wild and Scenic Rivers System website maintained by the National Park Service (NPS 2022). The closest federally designated wild and scenic river is the Wolf River, approximately 124 mi. north-northeast of the project area.

3.2 Physical Environment

3.2.1 Geology, Soils, and Topography

Bedrock geology was characterized using the Wisconsin Geological and Natural History Survey (WGNHS) map of Preliminary Bedrock Geology of Dane County, Wisconsin (Plate 1) (WGNHS 2013). The geology in the project area is formed from rocks of Late Cambrian age (541 to 485.4 million years ago) consisting of sandstones that are shaly, silty, and dolomitic. The average stratigraphic thickness is about 800 ft. Erosion has cut into sandstones of Cambrian age in many places in Dane County. Recent Pleistocene drainage eroded the sandstones in the northwest and the Yahara River valley. In the Wisconsin River valley, the stratigraphic thickness is about 300 ft. and 380 ft. in a well in Madison. The sandstones of the Cambrian age are a single water-yielding unit consisting of five formations. The formations laid from the oldest and deepest upwards are Mount Simon Sandstone, Eau Claire Sandstone, Galesville Sandstone (belonging to the Dresbach Group), and lastly the Franconia Sandstone and Trempealeau Group (USGS 1965, WGNHS 2013, Figure 3).

Figure 3: Geological Map



Soils in the proposed project area were identified using the U.S. Department of Agriculture (USDA) Natural Resource and Conservation Service (NRCS) Web Soil Survey (accessed February 2022(a)). The thirteen soil types underlying the proposed project area are identified in **Figure 4** and **Table 3-2**.

Figure 4: Soil Types

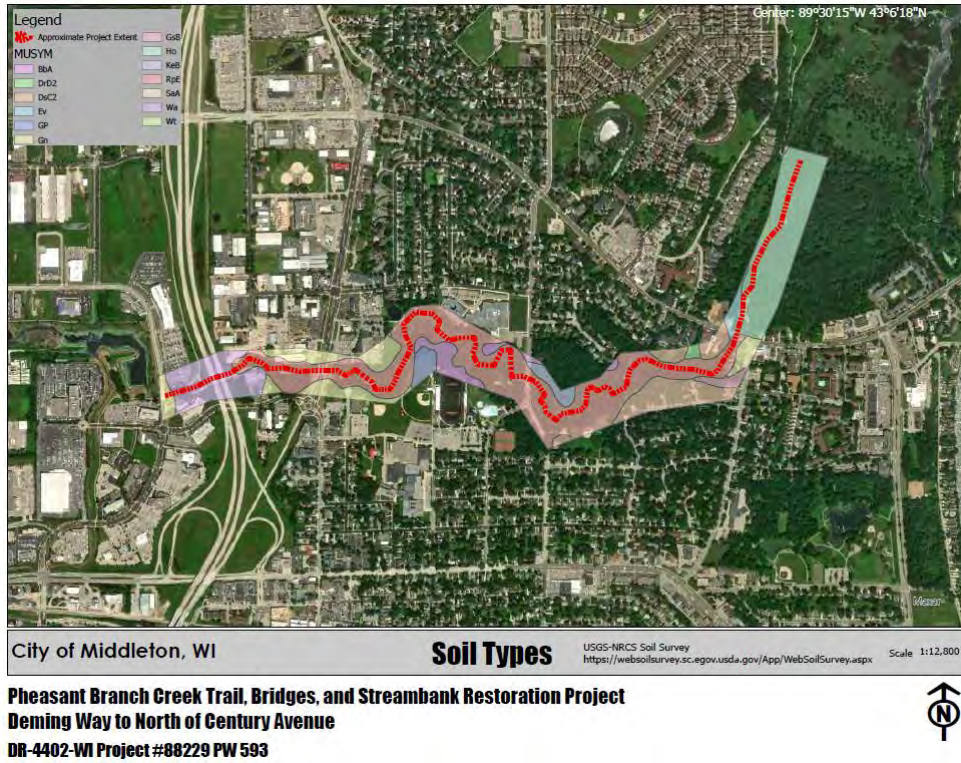


Table 3-2: Soil Types within the Proposed Project Area

Soil Type	Percent of Project Area
BbA—Batavia silt loam, gravelly substratum, 0 to 2 percent slopes	0.4%
DrD2—Dresden loam, 12 to 20 percent slopes, eroded	0.3%
DsC2—Dresden silt loam, 6 to 12 percent slopes, eroded	3.6%
Ev—Elvers silt loam, 0 to 2 percent slopes	2.5%
GP—Gravel pit	0.3%
Gn—Granby loamy sand, 0 to 2 percent slopes	1.0%
GsB—Grays silt loam, 2 to 6 percent slopes	0.9%
Ho—Houghton muck, 0 to 2 percent slopes	19.6%

Soil Type	Percent of Project Area
KeB—Kegonsa silt loam, 2 to 6 percent slopes	1.8%
RpE—Rodman sandy loam, 12 to 35 percent slopes	71.3%
SaA—Sable silty clay loam, 0 to 2 percent slopes	2.5%
Wa—Wacousta silty clay loam, 0 to 2 percent	0.6%
Wt—Watseka loamy sand	0.2%

Between Deming Way and Century Drive, the Pheasant Branch Creek corridor is mostly comprised of the most prevalent soil type throughout the entire proposed project area, Rodman sandy loam (71.3%). This soil type consists of very deep, excessively drained soils that are shallow to calcareous, stratified sandy and gravelly outwash that formed in sandy and gravelly outwash slopes ranging from 12 to 35 percent (NRCS 2021). This includes much of the area where significant erosion has occurred due to the presence of steep, loamy side-slopes.

North of Century Avenue, the Pheasant Branch Creek corridor is mostly comprised of the second-most common soil type present within the proposed project area, Houghton muck (19.6 %). Houghton muck consists of very deep, very poorly drained soils formed in herbaceous organic materials more than 51 in. thick in depressions and drainageways on lake plains, outwash plains, ground moraines, end moraines, till plains, and floodplains with slope ranges from 0 to 2 percent (NRCS 2021).

Another feature of soils is their suitability for farming. The purpose of the Farmland Protection Policy Act (FPPA) of 1981, 7 U.S.C. §§ 4201 *et seq.*, is to minimize the extent that federal programs contribute to the unnecessary and irreversible conversion of prime and important farmland to non-agricultural uses. The conversion of prime or unique farmland must be considered whenever Federal funding or time is used in the direct or indirect conversion of prime farmland unless an exemption exists. Houghton muck is a soil type designated as farmland of statewide importance (USDA 2021).

The topography of Dane County at the project area is rolling to moderately hilly and poorly drained, containing many lakes and swamps (USGS 1965). Topography consists of the Pheasant Branch Creek basin, steeply sloped banks, and relatively flat upland areas above the basin, interspersed with other steeply sloped ravines. The existing alignment of the recreational trail is within the basin, but riverbanks are not far from the trails in most locations.

Due to development in the area over the past century, this portion of the Pheasant Branch Creek watershed now consists of urban impervious surfaces and residential lawns. These types of land uses increase surface runoff which, in combination with the steep terrain in some areas and erodible soils, has led to active erosion along the creek banks and within the channel causing slope failures on adjacent lands.

Alternative 1 – No Action

Under the No Action alternative, proposed stream stabilization, channel work, or bridge and trail improvements along Pheasant Branch Creek would not be performed; therefore, no direct short- or long-term effects to the geology, soils, topography, or prime or unique farmland within the proposed project area would occur from project construction activities.

However, the No Action alternative would cause moderate long-term impacts to the soils and topography because of continued channel and stream bank erosion. Erosion caused by excessive rain events and floodwaters would continue to wash away creekbank soils and prime or unique farmland, and high slope cutbanks would continue to collapse into Pheasant Branch Creek.

Action Alternative 2 – Proposed Action

Proposed Action construction activities consist of excavation, re-shaping, and re-sloping of Pheasant Branch creekbanks, deposition of clean soil fill, stone boulders, and timber logs along creekbanks and within the channel, removal of creek bed soils under several bridges, removal of an 80 lf. in-channel silt bar, and complete creek bed realignment at two locations. Earthwork will include relocation of soils, adding fill materials, grading to slope, and reshaping creekbanks to match the surrounding topography. Those proposed construction activities would have moderate short-term impacts on soils and topography.

The reconstruction of asphalt and gravel recreational trails and repair and elevating of pedestrian bridges would have minor short-term impacts on soils and topography resulting from the excavation of the existing asphalt trails, bridge approaches and associated aggregate base material and subsequent placement of clean fill and aggregate base material.

Geology, soils, and topography would not be negatively impacted over the long-term from construction activities performed through the Proposed Action. Measures that would curtail soil erosion and improve creekbank stability would provide moderate long-term benefits to soils and topography in the project area. Furthermore, the native plantings associated with the proposed creekbank stabilization would further stabilize soils.

The depth to bedrock is 0 to 45 ft. in this area and it is not anticipated that the geology would be impacted by the Proposed Action (U.S. Geological Survey 2004).

Though a portion of the project area (north of Century Drive) contains Houghton muck, a prime and important farmland soil, work where that soil type exists will be repair of soft infrastructure (existing gravel pedestrian trail) within the urbanized center of the City of Middleton and no irreversible conversion as defined by FPPA (2022b) of any land containing designated prime farmland soil will occur. Therefore, FEMA determines that the Proposed Action is not subject to the FPPA.

3.2.2 Water Resources and Water Quality

Water resources include surface water, groundwater, stormwater, and drinking water (wetlands are evaluated in **Section 3.3.2**). The Clean Water Act (CWA) of 1972, 33 U.S.C. §§ 1251 *et seq.*, is

the primary federal law in the United States that regulates the discharge of pollutants into water, with various sections falling under the authority of United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (USEPA) or as delegated to the states. Section 404 of the CWA establishes USACE permit requirements for discharge of dredged or fill materials into waters of the United States. Furthermore, USACE regulation of activities within navigable waters are authorized under the 1899 Rivers and Harbors Act, Section 10 (33 U.S.C. §§ 403 *et seq.*). Section 401 of the CWA is administered by WDNR and provides regulations for the protection of water quality on projects that involve dredge or fill in waters of the United States (Wis. Statutes, § 283.01(20)). The CWA made it unlawful to discharge any pollutant from a point source into navigable waters unless permitted. Under the National Pollution Discharge Elimination System/State Disposal System (NPDES/SDS) (Section 402 of the CWA), USEPA's regulation of both point and nonpoint pollutant sources, including stormwater and stormwater runoff, has been delegated to the state and is administered by the WDNR. Therefore, the City must apply for and obtain coverage under the Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit for Storm Water Associated with Land Disturbing Construction Activity (Permit No. WI-S067831-6) from WDNR. This general permit regulates the discharges of pollutants to waters of the state as provided in Wis. Statutes, § 283.33, and Wis. Adm. Code subch. III of § NR 216.

The proposed project area is located within and adjacent to the Pheasant Branch Creek, which is regulated as a water of the United States and water of the state of Wisconsin under federal and state law. Pheasant Branch Creek is a 7-mile-long stream that drains 22.7 square mi. of west-central Dane County and is part of the Rock River and greater Mississippi River Watershed. The Pheasant Branch watershed has 145.61 stream mi., 9,959.08 lake ac., and 2,759.80 wetland ac. It begins in the glacial moraine area of the Town of Springfield, WI, and flows south and east through the City of Middleton, entering Lake Mendota on its western lobe. The North Fork drainage area is agricultural until its confluence with the South Fork at the western edge of the City of Middleton near U.S. Highway 12. Several portions of the creek have been straightened and most adjacent wetlands have been drained for agricultural and residential development. The creek is adversely influenced by poor base flow and excessive peak runoff, causing high sediment load that threatens remaining adjacent marsh areas. The main source of sediment is the erosion of unconsolidated, unstable glacial deposits at the creek's headwaters that is intensified by local land development.

As early as 1995, channel manipulation of Pheasant Branch Creek commenced with relocation of the South Fork of the creek from the city limits of Middleton to its confluence with the North Fork and construction of a detention pond which is a 22-ac. sedimentation basin with filtering system to reduce sedimentation influx. The goal of that project was to reduce extreme natural influences within the 100-year floodplain and improve flood control. The system was designed with gabions running perpendicular to the flow to prevent streambank erosion and trap nutrients, sediment, and heavy metals before entering the pond (WDNR 2022b).

Pheasant Branch is classified as both Cool-Warm Headwater and Cool-Cold Headwater community-types under the WDNR's Natural Community Determinations. Cool (Warm-

Transition) Headwaters are small, sometimes intermittent streams with cool to warm summer temperatures., Cool (Cold-Transition) Headwaters are small, usually perennial streams with cold to cool summer temperatures.

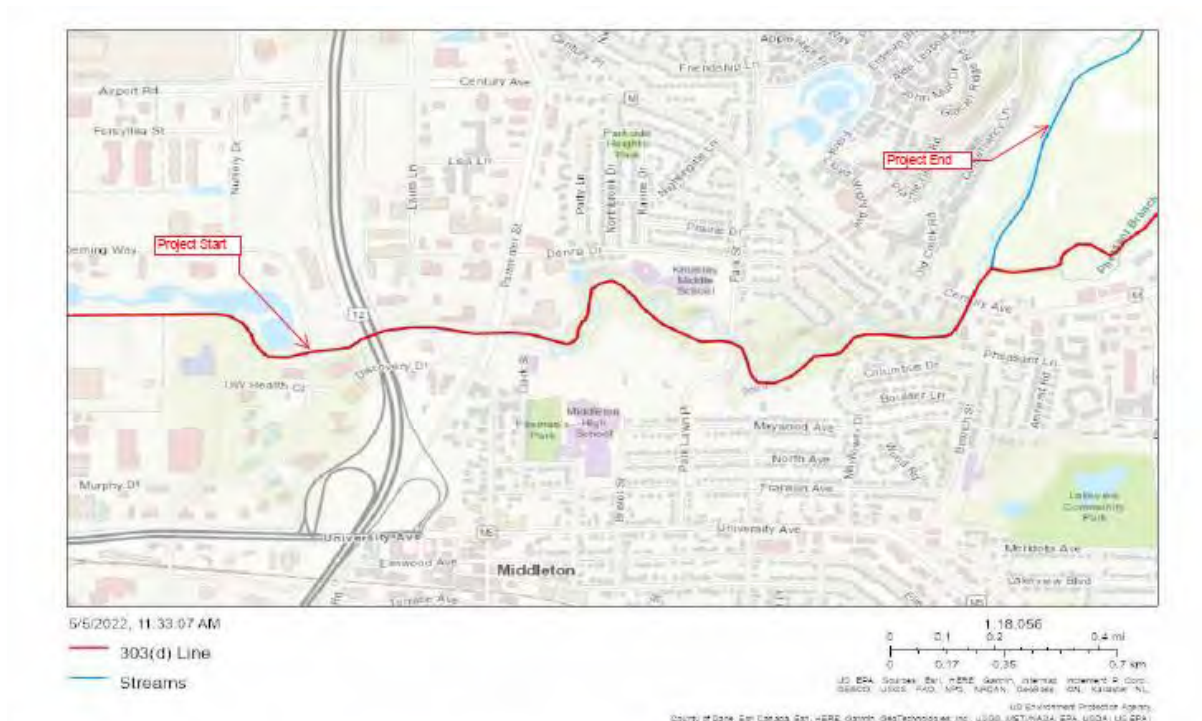
The USEPA defines “water quality” as “the condition of a water body as it relates to purposes such as recreation, scenic enjoyment, aquatic habitat, and human health.” Water quality is regulated by both the CWA and Wisconsin State Statutes.

Stormwater runoff affects water quality in surface waters, such as Pheasant Branch Creek. The overall watershed in which the project area is located is predominantly rural with adjacent upland areas are in agricultural use. Contaminants, including eroded soils, fertilizers (synthetic and manure), herbicides, pesticides and road chemicals can be transported from adjacent farm fields and roads to the upper portion of the watershed and tributary creeks during storm events and flooding. Furthermore, the segment of Pheasant Branch Creek where the proposed project is located is the rapidly growing area of the City. Pollutants commonly found in urban stormwater runoff include sediment, nutrients, pesticides, wear metals, organic pollutants, and oil and grease (USEPA 2022a).

WDNR manages the Total Daily Maximum Load (TMDL) List and Inventory of Impaired Waters per Section 303(d) of the CWA. Water quality of Pheasant Branch Creek is negatively impacted by moderately high alkalinity and urban runoff flows containing significant amounts of sediments and phosphorus polluting and contributing to algae blooms. Also, unusually high levels of chloride are measured in the stream despite receiving no known point-source municipal or industrial discharges. WDNR considers Pheasant Branch Creek’s general condition as poor and classifies the waterbody as impaired due to one or more pollutants and associated water quality impacts. The Pheasant Branch (805900, miles 0 - 8.09) segment of Pheasant Branch Creek has been on the Wisconsin's 303(d) impaired waters list since 1998 for non-compliant measurements of phosphorus and sediment. An additional listing for chloride was added in 2016. Assessments in 2018, 2020, and 2022 confirmed pollutants such as phosphorus, chloride, Total Suspended Solids (TSS)/sediment. Impairments include chronic aquatic toxicity, low dissolved oxygen (DO), degraded biological community, acute aquatic toxicity, and degraded habitat (WDNR 2022b, **Figure 5**). A TMDL Plan for phosphorus and TSS and an overall Water Quality Management Plan for Six Mile and Pheasant Branch Creeks Watershed was developed by WDNR and approved by USEPA in 2011.

The Pheasant Branch Creek basin is underlain by the Mount Simon aquifer. The Mt. Simon aquifer is the most important aquifer in Dane County for high-capacity municipal wells. The aquifer ranges in thickness from about 100 feet to over 700 feet, with an average thickness of 500 feet. This aquifer consists of sandstone in the Mt. Simon and lower Eau Claire Formations. The lower boundary of the aquifer is Precambrian granite which is located about 1,000 feet below the land 's surface. Impermeable shale in the Eau Claire formation forms the upper boundary. This layer is thicker in the western portion of the county. Because the Mt. Simon aquifer is bounded by relatively impermeable layers, it is called a confined aquifer and its contents can be under pressure.

Figure 5: Impaired Waterways



City of Middleton, WI 303 (d) Impaired Waters <https://epa.maps.arcgis.com/apps/webappviewer/>

Pheasant Branch Creek Trail, Bridges, and Streambank Restoration Project
Deming Way to North of Century Avenue
DR-4402-WM Project #88229 PW 593

The WDNR evaluated groundwater pollution sensitivity within the Pheasant Branch Creek watershed and determined that it has a medium susceptibility for groundwater contamination based on WDNR groundwater susceptibility mapping (WDNR 2015a).

Alternative 1 – No Action

Under the No Action alternative, erosion of the creekbanks of Pheasant Branch Creek will continue, causing moderate long-term impacts on water quality because of sedimentation and increased turbidity of the stream and Lake Mendota. Flooding would continue to threaten the structural stability of roadway and pedestrian bridge crossings. Possible failure of roadway and pedestrian bridge crossings and resulting soil disturbance would cause soil and construction debris to wash downstream, further impacting water quality.

The No Action Alternative would have no impact on any surface water pollutant conditions, or groundwater or drinking water resources.

Alternative 2 – Proposed Action

The Proposed Action would have moderate short-term adverse impacts on water quality associated with construction activities and an increased risk of erosion. During construction,

exposed soil is vulnerable to erosion by wind and water. Eroded soil endangers water resources by reducing water quality and causing the siltation of aquatic species habitat. Clearing and grading during construction would cause the temporary loss of vegetation and exposure of soil to the elements. For all in-stream work, construction will occur from upstream to downstream to minimize effects on completed work. Impacts on water resources and water quality from construction runoff would be minimized with the implementation of Best Management Practices (BMPs). In-channel work will be performed in a manner to minimize siltation into the stream by performing heavy equipment operations from outside of the stream as much as feasible. All exposed creekbank grading and re-sloping areas will be revegetated by installation of soil erosion control blankets and seeding with a native seed mix.

To mitigate potential impacts from erosion during construction, the City must apply for and obtain coverage under the WPDES General Permit for Storm Water Associated with Land Disturbing Construction Activity (Permit No. WI-S067831-6) from the WDNR. The general permit requires the permittee to implement BMPs to control storm water runoff in accordance with site-specific erosion control and storm water management plans to reduce sediment and other pollutants from entering waters of the state. Waters of the state include surface waters, groundwater, and wetlands.

The Proposed Action would have moderate long-term benefits to surface water resources and water quality. The stream stabilization and in-channel work would improve water quality in the creek watershed and the downstream watershed by reducing erosion and sedimentation. The City specifically designed the project to incorporate Nature Based Solutions as opposed to hard armoring to improve the water quality and water habitat. Placement of in-channel natural stone vanes and riffle structures will reduce shear stress minimizing the size and volume of the creekbank protection needed. These structures provide benefits for both bank protection and aquatic habitat. Constructed riffles and stone vanes modify stream flow, increasing variability of flow conditions and microhabitats for fish. In-channel stone structures will also improve conditions necessary for colonization by macroinvertebrates and provide benthic habitat for small fish. Additionally, the Proposed Action would reduce the likelihood of failure of roadway and pedestrian bridge crossings, that would result in soil disturbance, and soil and construction debris washing downstream, preventing those potential adverse impacts to water quality.

To support this work, the City applied for authorization from the USACE to permanently discharge fill material below the Ordinary High Water Mark of Pheasant Branch Creek. The St. Paul District authorized the discharge on June 21, 2001, under Nationwide Permit No. 13, Bank Stabilization (File No. MVP-2021-00848-SJW). The regulated activities associated with this project include the permanent discharge of fill material (rock riprap) below the plane of the OHWM along 3,935 linear feet of Pheasant Branch. In addition, the project would include the permanent discharge of fill material below the plane of the OHWM onto 3,200 square feet (0.07 acre) of aquatic bed for the installation of toe wood/root wad structures, five boulder clusters, two cross vane structures, and for repairs to one riffle structure. On June 23, 2021, the Wisconsin DNR issued Individual Permit No. IP-SC-2021-13-01703-04 for the bank stabilization and stream course changes proposed as part of this undertaking.

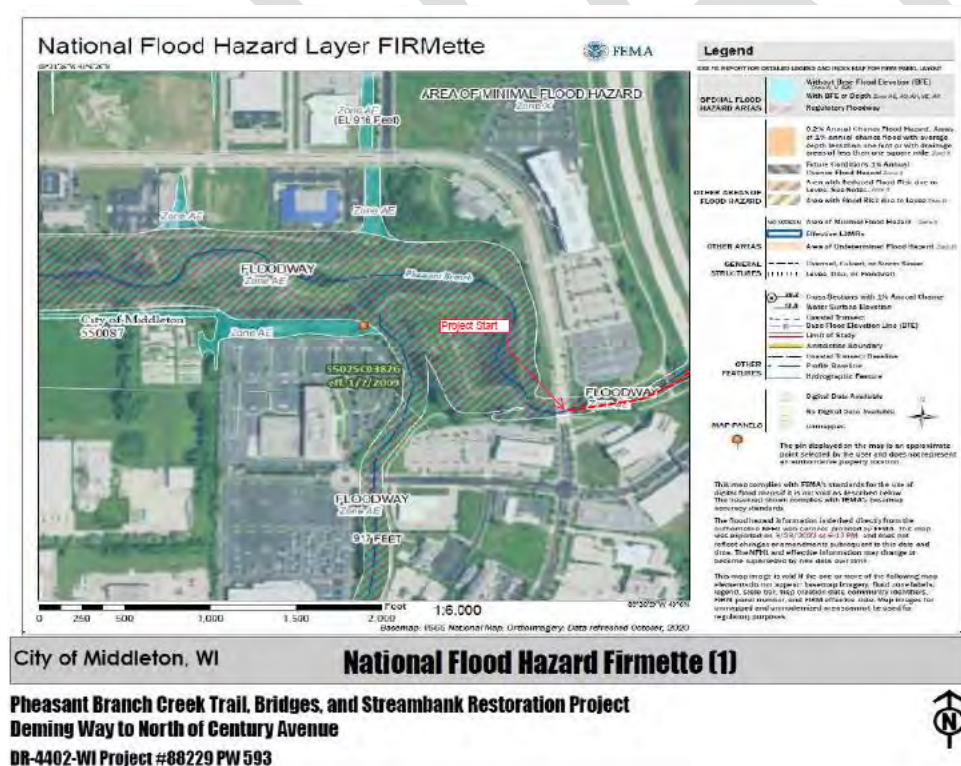
The Proposed Action would have no impact on groundwater or drinking water resources.

3.2.3 Floodplain Management (Executive Order 11988)

Executive Order (EO) 11988, Floodplain Management, requires federal agencies to minimize occupancy and modification of the floodplain. Specifically, EO 11988 prohibits federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 C.F.R Part 9. Based on those regulations, analysis through a Floodplain Management checklist is required. The eight-step decision-making process to ensure compliance with EO 11988 is provided in **Appendix D**.

The bank of Pheasant Branch Creek within the proposed project area has experienced significant erosion due to scouring during storm events and flooding. The current effective Flood Insurance Rate Map (FIRM) panels 55025C0382G and 55025C0401G, effective on 01/02/2009 (**Figures 6-9**) show the location of the proposed work in relation to and within the floodplain. The proposed project is completely located within the Zone AE, which is the designated Special Flood Hazard Area (SFHA) subject to inundation by the 100-year flood. In addition, all of the proposed channel work is located within the FEMA Regulatory Floodway. FEMA defines the Regulatory Floodway as the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Figure 6: Flood Insurance Rate Map 1



[illegible]

Coordination with the local floodplain administrator would be required to ensure compliance with local floodplain ordinances. All necessary floodplain permitting will be the responsibility of the City of Middleton, and any necessary floodplain permits will be obtained prior to construction. Floodplain permit responsibilities and mitigation requirements are detailed in **Section 6, Mitigation Measures and Permits.**

Figure 8: Flood Insurance Rate Map 3

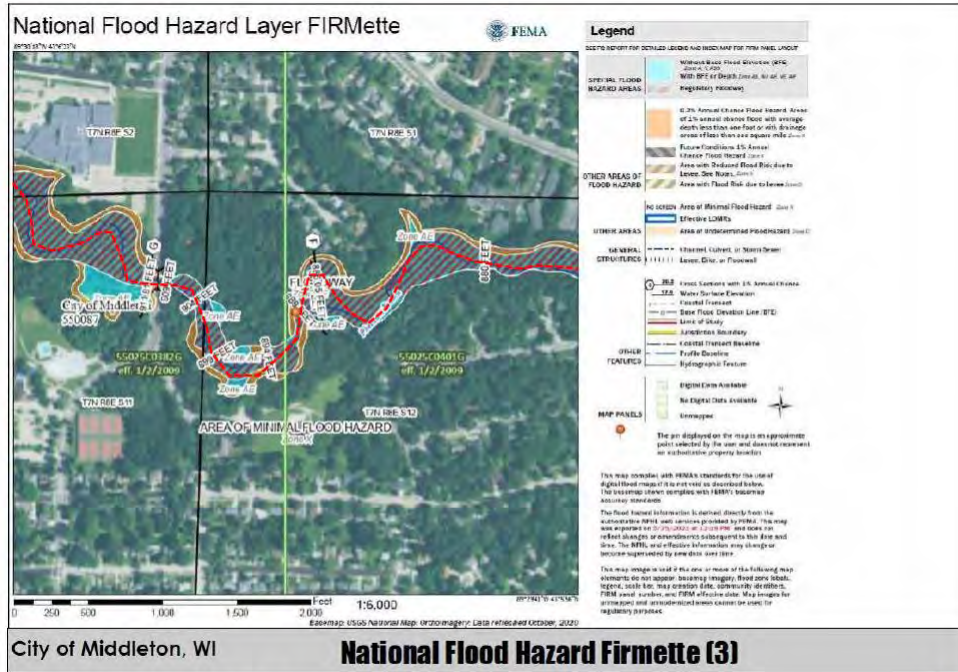


Figure 9: Flood Insurance Rate Map 4



Alternative 1 – No Action

The No Action alternative would cause no short-term impacts to the floodplain because no construction activities or other direct modification of the floodplain would occur. However, moderate long-term impacts to the floodplain from continued erosion, bank destabilization and collapse of additional cutbanks and trees into Pheasant Branch Creek bank will occur.

Action Alternative 2 – Proposed Action

Portions of the construction activities of the Proposed Action will take place within the Regulatory Floodway. Although the project engineer finds that the project itself will not increase Base Flood Elevations, there are locations within the Pheasant Branch where corrected effective BFEs are higher due to an increase in the flow rate. To reduce future damage to the pedestrian bridges within the project area, the following universal measures will occur:

1. The bridges will all now be supported by concrete abutments placed on helical piles.
2. The channel section under each bridge will be excavated to provide additional flow area. This typically includes riprap slopes to the channel bottom. The riprap berm slopes are as steep as standards allow. Areas of excavation as well as the reconstructed bridge abutments are to be protected from erosion by riprap.
3. Bridge deck elevations will be raised to provide one foot of freeboard between the bridge's low chord at the abutment relative to 100-yr headwater elevations. The raising of the bridge decks requires changes to the bridge approaches which were designed at a maximum 12:1 slope (maintaining existing). Collectively this changes the balance between the portion of flood flow that passes under each bridge and the flood flow that passes through the floodplain valley. This typically raises the bridge flow velocity some. However, in certain locations, additional modifications will be necessary with regard to the bridge alignments, but in general these are within a few feet of existing positions.

In addition, the project proposes use of numerous bio-engineering techniques to stabilize the banks to reduce the future risk of flood damage to the existing trail system.

The Proposed Action would result in minor short-term impacts on the floodplain because of soil disturbance by excavation and other heavy equipment and the removal of vegetation in the mapped floodplain. There would be moderate long-term benefits resulting from reduced erosion and improved stability of the creek channel.

3.2.4 Air Quality

The Clean Air Act (CAA), 42 U.S.C. §§ 7401 *et seq.*, requires the USEPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and

buildings. Current criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO₂), ground-level ozone (O₃), lead (Pb), particulate matter (PM), and sulfur dioxide (SO₂).

Federally funded or permitted actions in nonattainment and maintenance areas are subject to USEPA conformity regulations, 40 C.F.R. §§ 51 and 93. The air conformity analysis process ensures that emissions of air pollutants from planned federally funded and permitted activities would not affect the state's ability to achieve the CAA goal of meeting the NAAQS. Section 176(c) of the CAA requires that federally funded or permitted projects must not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone. Activities that would cause emissions to exceed the NAAQS or cause an area to fall out of attainment status would be considered a significant impact. The emissions from construction activities are subject to air conformity review.

Under the general conformity regulations, a determination for federal actions is required for each criteria pollutant or precursor in nonattainment or maintenance areas where the action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at rates equal to or exceeding the prescribed *de minimis* rates for that pollutant. The prescribed annual rates are 50 tons of volatile organic compounds (VOCs) and 100 tons of nitrogen oxides (NO_x) (O₃ precursors), and 100 tons of PM_{2.5}, SO₂, or NO_x (PM_{2.5} and precursors).

An area is classified as nonattainment when it does not meet NAAQS standards. According to USEPA's NAAQS county attainment record, Dane County is in attainment for all NAAQS criteria pollutants (USEPA 2022b).

Alternative 1 – No Action

Construction activities would not occur under the No Action alternative. Public use of existing recreation trails and pedestrian bridges would remain reduced because they have only been repaired to meet minimal safety purposes. This would have a minor long-term negative impact on air quality due to decreased opportunities for commuting by walkers or bicyclists and the resultant increase in emissions from motor vehicles used as a local commuting alternative.

Action Alternative 2 – Proposed Action

The Proposed Action would have minor short-term impacts on air quality because of the use of construction equipment with diesel and gasoline engines. During the construction phase, exposed soil could temporarily increase airborne particulate matter into the project area. Emissions from construction equipment could have minor temporary effects on the levels of some pollutants, including CO, VOCs, NO₂, O₃, and PM. Emissions would be temporary and localized, and only minor impacts to air quality in the project area would occur. BMPs and mitigation measures for air quality impacts are provided in **Section 6.2**.

The returned availability of fully repaired pedestrian trails and bridges to walking and bicycling commuters will reduce emissions from motor vehicles used as a local commuting alternative. Creekbank stabilization of this segment of Pheasant Branch Creek assures that the repaired

pedestrian trail system will remain usable into the future, providing minor long-term benefits to air quality through a continuing reduction of local commuting motor vehicle emissions.

The Proposed Action will have no long-term adverse impacts on air quality, and an air permit will not be required.

3.3 Biological Environment

3.3.1 Terrestrial and Aquatic Environment

Most of the land (approximately 76 percent) in Dane County consists of agricultural land uses. However, the proposed project area is located within the urban portion of the City of Middleton. While the area surrounding the proposed project area is predominantly developed urban space comprised of streets and commercial and residential structures, areas along Pheasant Branch Creek include riverine open water, wetlands, shrub/grassland, and forested zones. Most of the Pheasant Branch Creek corridor and floodplain slopes are dominated by forested overstory with a mostly closed tree canopy.

The immediate area of the proposed project is zoned for conservation and are public lands owned by the City of Middleton. The proposed project area is managed to maintain or improve natural vegetation, habitat, water quality, and passive recreation.

Aquatic habitat in the project area includes Pheasant Branch Creek and creekbank areas, and adjacent lowland/wetland areas subject to periodic flooding. Pheasant Branch Creek is a spring and run-off fed 7-mi.-long stream that drains 22.7 square mi. of west-central Dane County. Downstream of the confluence of the North and South forks at the western edge of the City of Middleton, the stream passes through the city and project area with a fairly steep gradient until it enters Pheasant Branch Marsh just upstream of its mouth at Lake Mendota. Much of the creek has been straightened and most adjacent wetlands have been drained for agricultural and residential development (WDNR 2022b). One important wetland that remains largely intact is the 311-ac. Pheasant Branch Marsh just downstream of the proposed project area (Day, et al. 1985). The proposed project area segment of Pheasant Branch has been on the State of Wisconsin's 303(d) impaired waters list since 1998 (WDNR 2022b).

Within the proposed project area, the Pheasant Branch Creek fishery consists of tolerant forage fish upstream of the Pheasant Branch Marsh. Downstream of the proposed project area, from the marsh to Lake Mendota, a diverse warm water fishery exists. Northern pike (*Esox lucius*) have used the marsh as a spawning site, but sediment carried by the proposed project area and upstream is impairing this fishery use (WDNR 2022b). Known fish species in Pheasant Branch Creek include bowfin (*Amia calva*), northern pike, northern pike x muskie (*Esox lucius* x *masquinongy*), common carp (*Cyprinus carpio*), southern redbelly dace (*Chrosomus erythrogaster*), fathead minnow (*Pimephales promelas*), blacknose dace (*Rhinichthys atratulus*), creek chub (*Semotilus atromaculatus*), white sucker (*Catostomus commersonii*), bullhead (unsp.), brook stickleback, crappie (unsp. Ictalurid), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis*

macrochirus), largemouth bass (*Micropterus salmoides*), and walleye (*Sander vitreus*). (Day, et al. 1985).

The majority of the terrestrial habitat of the proposed project area (Parmenter Drive to the project terminus north of Century Drive) consists of river bottom forests with pine and northern hardwood forests along slopes, interspersed with smaller areas of sand prairie and emergent wetland. River bottom forest consists of tree species such as silver maple (*Acer saccharinum*), Tamarack (*Larix laricina*), and cottonwood (*Populus* sect. *Aigeiros*), with subcanopy trees such as willows (*Salix* spp.), green ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*), and boxelder (*Acer negundo*). Pine and northern hardwood land cover includes white pine (*Pinus strobus*) and red pine (*Pinus resinosa*), northern pin oak (*Quercus ellipsoidalis*), black oak (*Quercus velutina*), northern red oak (*Quercus rubra*), white oak (*Quercus alba*), bur oak (*Quercus macrocarpa*), sugar maple (*Acer saccharum*), green ash, black ash (*Fraxinus nigra*), red elm (*Ulmus rubra*), and birch (*Betula* spp.).

The proposed project area from Deming Way to Parmenter Drive is mostly open and surrounded by development and major roads. That segment is dominated by invasive herbaceous plants such as reed canary grass (*Phalaris arundinacea*) and shallow rooted trees such as willow, boxelder and silver maple (CARDNO 2020).

The Pheasant Branch creek corridor is home to a diverse array of mammals, insects, and birds that depend on the variety of habitats present along the creek. The Friends of Pheasant Branch Conservancy guides to Birds, Mammals, and Butterflies were used to match species with habitat types within the project area (UW – Madison 2019, Watermolen et al. 2003, Watermolen et al. 2005, Watermolen 2005).

According to the Birds of Pheasant Branch Conservancy Guide (Watermolen et al. 2003), over 191 bird species have been spotted along the Pheasant Branch Creek corridor and in the Conservancy. Woodpeckers, great-horned owls (*Bubo virginianus*), barred owls (*Strix varia*), and chimney swifts (*Chaetura pelagica*) nest in large cavities of trees. Wood thrushes (*Hylocichla mustelina*) and wood-warblers including Cerulean warblers (*Dendroica cerulea*), common yellowthroat (*Geothlypis trichas*), and Blackburnian warblers (*Dendroica fusca*) utilize forest habitat. The emergent wetlands are used by waterfowl (*Anseriformes*), sandpipers (*Scolopacidae*), and heron (*Ardeidae*).

River bottom forests of the Pheasant Branch Creek corridor provide habitat to a wide array of mammals including bats, coyotes (*Canis latrans*), grey fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), deer (Cervidae), weasels (*Mustela* spp.), beaver (*Castor canadensis*), groundhog (*Marmota monax*), muskrat (*Ondatra zibethicus*), squirrels (*Sciuridae*), and mice (*Dasyuridae*). (Watermolen 2005). Finally, the flowering plants of the river bottom forest provide habitat for dragonflies (*Anisoptera*) and butterflies (*Rhopalocera*). Eastern Tiger Swallowtail (*Papilio polyxenes asterius*) and Spring Azure (*Celastrina ladon*) are examples of butterflies that use habitat in the corridor.

In general, the creek corridor is important for pollinators, with over 58 species of butterflies recorded in the area (Watermolen et al. 2005). Dragonflies and Eastern Tiger Swallowtail, Spring Azure, Monarch (*Danaus plexippus*) and Painted Lady (*Vanessa cardui*) butterflies take advantage of the many flowering plants present from spring until fall.

Alternative 1 – No Action

Under the No Action alternative, there would be moderate long-term, adverse impacts on the terrestrial and aquatic environment resulting from continued erosion of the creekbank adjacent to Pheasant Branch Creek. This is a naturally occurring process which will damage and destroy adjacent terrestrial areas while degrading the aquatic environment because of additional sediment loads contributing to high turbidity.

Alternative 2 – Proposed Action

The Proposed Action would cause minor short-term impacts on terrestrial and aquatic habitat, such as soil disturbance, removal of vegetation, and potential sediment runoff while construction activities are occurring. The Proposed Action will cause minor long-term impacts on terrestrial habitat through the removal of some mature trees and shrubs, and the permanent loss of some forested areas. All disturbed areas where grading and re-sloping would occur will be seeded with a native seed mix, resulting in a moderate long-term benefit.

3.3.2 Wetlands (EO 11990)

EO 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. FEMA regulation 44 C.F.R. Part 9, *Floodplain Management and Protection of Wetlands*, sets forth the policy, procedures, and responsibilities to implement and enforce EO 11990. EO 11990 prohibits FEMA from funding activities in a wetland unless no practicable alternatives are available. The NEPA compliance process requires federal agencies to consider direct and indirect impacts on wetlands which may result from federally funded actions. Based on the requirements of 44 C.F.R. Part 9, a Floodplain Management Checklist to ensure compliance with EO 11990 is required (**Appendix D**).

USACE and USEPA define wetlands as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 C.F.R. § 122.2). In 2008, USEPA and the USACE, through joint rulemaking, expanded the Clean Water Act (CWA) Section 404(b)(1) Guidelines to include more comprehensive standards for compensatory mitigation. The rule addresses the sequence for mitigating unavoidable impacts to aquatic resources that result from work authorized by permits under the Corps’ (USACE) Regulatory Program. Activities that disturb jurisdictional wetlands require a permit from USACE under Section 404 of the CWA of 1977 (33 U.S.C. § 1344). Permit applicants are required to describe how they will avoid, minimize, and compensate for impacts to waters of the United States. Compensatory mitigation for unavoidable impacts is required to replace the loss of wetland, stream, and/or other aquatic resource functions.

The U.S. Fish & Wildlife Service's (USFWS) National Wetlands Inventory (NWI) was reviewed to identify potential wetlands in the project area (USFWS 2022a). The wetlands classifications of Pheasant Branch Creek were reviewed in more detail utilizing the Surface-water Data Viewer of the Wisconsin Department of Natural Resources (WDNR-SWDV 2022) and descriptions of the NWI codes (USFWS 2022a). The NWI classifies the Pheasant Branch Creek as Riverine habitat with applicable codes PEM1A, PEM1C, PFO1A, PFO1B, PFO1Bd, PFO1C, PSS1/EM1Bd, PUBG, PUBKr, and R2UB2H (for NWI Code definitions, see **Appendix D**). **Figure 10**, below, depicts the NWI wetlands within the project area.

Figure 10: Wetlands



This type of forested wetland is dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens. Woody vegetation is 6 m. (19.8 ft.) tall or taller, consisting of woody angiosperms (trees and shrubs) with relatively wide, flat leaves that are shed in the cold or dry season. Surface water is present for brief periods (several days to several weeks) during the growing season, but the water table usually lies well below the ground surface most of the season.

Alternative 1 – No Action

Under the No Action alternative, there would be no project-related short- or long-term impacts on the identified wetlands because there would be no construction activities. Natural erosion would be expected to continue, adding sediment to Pheasant Branch Creek and Lake Mendota, contributing to high turbidity. Some of this material would likely be deposited in wetland areas alongside the river channel.

Alternative 2 – Proposed Action

The Proposed Action would result in minor short-term impacts to project area wetlands. These activities would disturb creekbank soils during removal of damaged infrastructure, grading/re-sloping of creekbanks, and in-channel work. Effective best management practices (BMPs) initiated during construction would decrease construction-related impacts below the level of significance. All disturbed areas will have erosion control blankets installed and be seeded with a native seed mix to stabilize soils. Coordination with the USACE has resulted in the determination that the project will have no permanent impact on wetlands.

3.3.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973, 16 U.S.C. §§ 1531 - 1544, provides a framework for the conservation and protection of threatened and endangered species listed under the act in addition to their habitats. Federal agencies are required to ensure that actions they fund, authorize, permit, or carry out are not likely to jeopardize the continued existence of any listed species (including plant species) or result in the destruction or adverse modification of designated critical habitats for such species. In accordance with Section 7 of the ESA, the proposed project area was evaluated for potential impacts to listed threatened and endangered species.

In May 2021 and April 2022, via the USFWS Information for Planning and Consultation (IPaC) tool, FEMA obtained a list of species with the potential to occur in the project vicinity (**Appendix B**). The official species list included no designated critical habitat in the project area. The species list did identify one listed mammal – the northern long-eared bat (NLEB) (*Myotis septentrionalis*), one listed bird – the whooping crane (*Grus americana*), one listed insect – the rusty patched bumble bee (*Bombus affinis*), and three listed plants – the eastern prairie fringed orchid (*Platanthera leucophaea*), Mead’s milkweed (*Asclepias meadii*), and the prairie bush-clover (*Lespedeza leptostachya*) as potentially occurring in the project area.

Northern Long-Eared Bat (threatened):

The threatened NLEB is a medium-sized bat found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and British Columbia. NLEB are found throughout the state of Wisconsin, but they are never abundant (Jackson 1961, WDNR 2015b). The NLEB has been affected by white-nose syndrome (WNS), a fungal disease known to cause mortality due to increased arousals during torpor, which deplete fat reserves and cause starvation (Reeder et al. 2012) and dehydration

(Cryan et al. 2010). Range wide, population sizes of NLEB have declined by more than 90% at monitored hibernacula within the decade since WNS affected this species (Cheng et al. 2021). As of March 2015, WNS has been confirmed in five counties in Wisconsin, and the fungus that causes WNS (*Pseudogymnoascus destructans*, [Lorch et al. 2011, Minnis and Lindner 2013]) has been discovered in an additional three counties (WDNR 2017a). Additional threats to NLEB include mortality from impacts to hibernacula (caves and mines), loss or degradation of summer roosting and foraging habitat, and wind farm operation.

During summer months, the NLEB often roosts under bark close to the tree trunk, cavities, or in crevices of both live and dead tree species such as maples, oaks, and ashes (Foster and Kurta 1999, WDNR 2015b). NLEB prefer to roost in tall trees with a dynamic forest structure including old growth and some young trees (Foster and Kurta 1999).

Suitable summer habitat for this species is defined by the USFWS as a wide variety of forested/wooded habitats where NLEB roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 3 in. diameter at breast height (dbh) that have exfoliating bark, cracks, crevices, and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. NLEB seem to prefer intact mixed-type forests with small gaps (i.e., forest trails, small roads, or forest-covered creeks) in forest with sparse or medium vegetation for foraging and commuting rather than fragmented habitat or areas that have been clear cut. Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1,000 ft. of other forested/wooded habitat. NLEBs typically occupy their summer habitat from mid-May through mid-August each year and the species may arrive or leave some time before or after this period (USFWS 2022b).

The USFWS listed NLEB as a threatened species under the ESA in April 2015. On January 14, 2016, the USFWS published a final 4(d) rule in the Federal Register, establishing prohibitions that focus on protecting the bat's sensitive life stages in areas affected by WNS which went into effect on February 16, 2016. For all areas within the range of the NLEB, nearly all purposeful take is prohibited with a few specific exceptions. For areas of the country not affected by WNS, there are no prohibitions on incidental take. For areas of the country impacted by WNS (Dane County, WI included), incidental take is prohibited under the following circumstances: if it occurs within a known hibernaculum, if it results from alteration of a known hibernaculum's entrance or interior environment, if it results from tree removal activities and the activity occurs within 0.25 mi. of a known hibernaculum; or, the activity cuts or destroys a known, occupied maternity roost tree or any other trees within a 150-ft. radius from the maternity roost tree during the pup season from June 1 through July 31 (USFWS 2015).

On March 23, 2022, the USFWS published a proposed rule to reclassify the NLEB as an endangered species instead of its current listing as threatened. If the USFWS publishes a final rule listing the NLEB endangered as proposed, the species specific 4(d) rule would be nullified

because 4(d) rules are only allowable for species listed as threatened. However, as of this time the 4(d) rule published in 2016 remains valid (USFWS 2022c).

Whooping Crane (endangered):

A nonessential experimental population of the endangered whooping crane has been established in Wisconsin. For the purposes of ESA section 7(a)(2), if any designated nonessential experimental population is located outside of a National Wildlife Refuge or National Park, they are treated as a species proposed for listing, and the agency is not required to consult with the USFWS.

Rusty Patched Bumble Bee (endangered):

The endangered Rusty Patched Bumble Bee (RPBB) is a social species that experienced a widespread and steep decline since its listing in 2017. Historically, the RPBB was broadly distributed across the eastern United States and the upper Midwest as well as southern Quebec and Ontario, Canada. The exact cause of the decline is unknown, but evidence suggests a synergistic interaction between an introduced pathogen and exposure to pesticides, specifically insecticides and fungicides. Remaining populations are exposed to several interacting stressors, including pathogens, pesticides, habitat loss and degradation, non-native and managed bees, the effects of climate change and small population biology. These stressors likely operate independently and synergistically. For example, dietary stress due to insufficient floral resources may reduce an individual's resiliency to pathogens and pesticides, exposure to insecticides can reduce resistance to disease and exposure to fungicides can increase insecticide toxicity. Survival and successful recruitment require floral resources (for food) from early spring through fall, undisturbed nest sites in proximity to foraging resources, and overwintering sites for the next year's queens (USFWS 2016).

The RPBB has been observed and collected in a variety of habitats, including prairies, woodlands, marshes, agricultural landscapes, and residential parks and gardens (Colla and Packer 2008, Colla and Dumesh 2010). RPBB requires areas that support sufficient food (nectar and pollen from diverse and abundant flowers), undisturbed nesting sites in proximity to floral resources, and overwintering sites for hibernating queens (Goulson et al. 2015, Potts et al. 2010).

RPBB suitable habitat can be divided into nesting and wintering based on the species life cycle and availability of nectar and pollen resources. The former corresponds to the RPBB active season and the latter to RPBB winter hibernation period. Nesting habitat can include upland grassland and shrublands with presence of forage and as far as 30 meters into the edges of forest and woodlands where they interface with upland grassland and shrublands (USFWS 2019b). Typically, bumble bees forage within a few hundred meters of their nest with maximum forage distance of about one kilometer (Knight et al. 2005). Wintering habitat can include upland forest and woodlands with undisturbed soil (USFWS 2019b).

Eastern Prairie Fringed Orchid (threatened):

The threatened Eastern Prairie Fringed Orchid (EPFO) is a showy orchid species with populations in Illinois, Indiana, Iowa, Maine, Michigan, Missouri, Ohio, Virginia, and Wisconsin (USFWS 2021a). As of 2020, ninety-six populations were known to exist throughout the entire range of the species; seventeen populations (six are highly viable) are located within fourteen counties of Wisconsin, including Dane County. (USFWS 2021a, WDNR 2022c). The main threats to the EPFO are the lack of land management of high-quality wetland habitats on which this species depends, including increased development, spread of exotic species, and fire suppression.

In Wisconsin, EPFO are found in moist, undisturbed, deep-soiled and/or calcareous prairies and rarely in tamarack fens (WDNR 2022c). This species is associated with Bog Relict or more commonly Wet-mesic Prairie natural communities in Wisconsin which sometimes occurred in large wetland complexes with wet prairies, southern sedge meadows, calcareous fens, and emergent marshes (WDNR 2022c). Wet-mesic Prairies are most abundant on level or gently rolling glacial moraine or outwash landforms where there are few natural barriers to wildfire, and where the upland vegetation is composed mostly of fire-dependent communities such as Mesic Prairies and oak openings (WDNR 2022c). EPFO requires full sun for optimum growth and flowering along with a grassy habitat with little or no woody encroachment.

Mead's Milkweed (threatened):

The threatened Mead's Milkweed is long-lived perennial herb with an 8-16 in. tall single stalked plant topped with a solitary umbel of 6-15 greenish, cream-colored flowers. This species is threatened by habitat fragmentation and destruction by historic conversion to agriculture and current land development.

Mead's milkweed requires a moderately wet (mesic) to moderately dry (dry mesic) upland tallgrass prairie or glad/barren habitat characterized by vegetation adapted for drought and fire, and the plant will persist in stable late-successional prairie (USFWS 2003). As of 2003, Mead's milkweed had been extirpated from Wisconsin, with restoration and reintroduction efforts being underway (USFWS 2003). All Mead's milkweed sites in Wisconsin are reintroduction attempts and occur on protected conservation lands (WDNR 2015b).

Prairie Bush-Clover (threatened):

The threatened prairie bush-clover is a long-lived, dry-prairie plant that can grow to 3 ft. in height. Main threats to the species include the conversion of remnant prairie to cropland or developed sites, spread of non-native invasive plant species, the encroachment of dominant vegetation, prolonged drought, and hybridization. (USFWS 1988, USFWS 2021b).

Prairie bush-clover occurs on remnant prairie sites and disturbed sites, or prairie habitats that have been previously mowed, burned, cultivated, or grazed (USFWS, 1988). In Wisconsin, the prairie-bush clover can be found in gravelly or sandy hillside prairies and has a significant association with Dry Prairie and Dry-mesic Prairie natural communities, and a moderate association with Mesic Prairie natural communities (WDNR 2020).

State Listed Species:

In June 2022, the Wisconsin DNR Endangered Resource Review (ERR) results recommended additional conservation measures for state-listed species. The measures listed below are voluntary, and FEMA will encourage the applicant to consider these measures. In order to best facilitate compliance with these measures, FEMA will provide the applicant a copy of the ERR.

- Natural Communities:
 - Stream – fast, hard, warm
Implement erosion control measures; implement invasive species BMPs.
 - Springs and spring runs
Implement erosion control measures; implement invasive species BMPs.
- State Special Concern:
 - Swamp Darner (*Epiaschna heros*)
It is recommended to implement erosion and runoff prevention measures and to minimize shoreline disturbance during the flight period, early-June to late-July.
 - Lake sturgeon (*Acipenser fulvescens*)
It is recommended to implement erosion and runoff prevention measures throughout the duration of the project.
 - Blanding's turtle (*Emydoidea blandingii*)
Minimize the disturbance to water bodies with standing water at least three feet deep at all times. For wetlands / water bodies shallower than three feet at the deepest point, conduct work outside of the March 5 – November 15. Avoid work in sandy and/or well-drained soils within 275 m (900 ft) of a wetland or water body from May 20 – October 15.

The installation and maintenance of exclusion fencing using the WDNR Amphibian and Reptile Exclusion Fencing Protocol is an avoidance option that can be used during this period as long as the exclusion fencing is installed between October 16 and May 19. Work can then be conducted within the fenced area at any time of year as long as the fencing is maintained.

If avoidance dates and fencing cannot be implemented, it is recommended to walk through or gently disturb the project area immediately prior to disturbance. While this will not protect nests, it may allow turtles to move out of the area and avoid take. If a turtle is found, please carefully move it to suitable habitat outside the project area.
 - Pickerel Frog (*Lithobates palustris*)
Recommended avoidance and minimization efforts include 1) conducting work when the pickerel frog is active and not breeding (September 1 - October 31), 2) conducting site surveys to confirm presence/absence of the species or 3)

avoiding/minimizing impacts to areas of suitable habitat. It is also recommended to implement erosion and runoff prevention measures.

- State Threatened:
 - Little brown bat (*Myotis lucifugus*)
Avoid tree removal from June 1 – August 15.

Alternative 1 – No Action

Under the No Action alternative, no construction or habitat modification would occur; therefore, that alternative would not directly impact federally listed threatened or endangered species.

Alternative 2 – Proposed Action

Tree-clearing would occur to allow workspace for creekbank stabilization work, and some felled trees from that work will be used as log material for toewood-sod mat and root wad structures. NLEB are known to make use of tree roosts during the summer, especially near water sources. Loose bark, broken tree limbs, cavities, and cracks in a tree can all be used by bats as roosting sites. The removal of upland trees could remove existing or potential bat summer roosting sites. This would be considered a minor, permanent impact to a threatened species.

On June 3, 2022, FEMA submitted the NLEB 4(d) IPaC key. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO).

The June 3, 2022, verification letter (Appendix B) states in part, this Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 C.F.R. §17.40(o). Therefore, the PBO satisfies the subrecipient's responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat

This Proposed Action is not located within a National Wildlife Refuge or National Park; therefore, FEMA has no requirement to consult with the USFWS on potential project impacts to whooping cranes under section 7(a)(2).

The proposed project area overlaps the RPBB High Potential Zone (HPZ). Therefore, the RPBB can be assumed present in suitable habitat. FEMA does not anticipate any work to occur within RPBB nesting habitat as work will primarily be concentrated to streambanks, recreational trails, or maintained park areas. The Proposed Action would take place within bottomland and sloped upland forest, but areas proposed for repair are already disturbed recreational trails and creekbanks that have been previously bioengineered with the most recent work being completed in 2015 and 2018. During those previously completed projects, the creekbanks were cleared, grubbed, graded, and seeded. The goal of this project is to reduce overbank flooding and erosion to ensure long-term sustainability of the project area. USFWS has provided concurrence with FEMA's determination that the Proposed Action is not likely to adversely affect the RPBB (**Appendix B**). FEMA will require certain conservation measures as outlined in the

Conservation Management Guidelines for the Rusty Patched Bumble Bee (*Bombus affinis*) document.

(https://www.fws.gov/midwest/endangered/insects/rpbb/pdf/ConservationGuidanceRPBBv1_27Feb2018.pdf).

These conservation measures include but are not limited to:

- Implement best management practices (BMPs), especially those that serve to minimize the spread of invasive species and to avoid or minimize soil compaction.
- Avoid or minimize soil disturbance and heavy equipment operation during overwintering (mid October- mid March).
- Avoid or minimize forest management that may destroy spring blooming flowers during their bloom periods.
- Consider thinning or single tree selection and dense invasive shrub removal that may improve overwintering and spring foraging habitat.
- Use native trees, shrubs, and flowering plants in landscaping.
- Provide plants that bloom from spring through fall (refer to the USFWS RPBB Midwest Plant Guide).
- Remove and control invasive plants in any habitat used for foraging, nesting, or overwintering.

Because the Proposed Action will occur along the Pheasant Branch Creek corridor on creekbanks or existing asphalt and gravel pedestrian trails, that work would be outside of suitable habitat of the EPFO, Mead's Milkweed and the prairie bush-clover. Furthermore, review of site conditions following the 2018 flooding event show eroded soil and disturbed vegetation, reducing the likelihood that intact plant communities would remain established in the action area; therefore, the Proposed Action will have no effect on the EPFO, Mead's milkweed, and prairie bush-clover.

3.3.4 Migratory Birds

A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. The Migratory Bird Treaty Act (MBTA) of 1918, as amended, 16 U.S.C. §§ 703–712, prohibits unpermitted killing, capturing, selling, trading, and transport of migratory birds and their nests, eggs, and body parts. Almost all native birds, including common species such as American robin (*Turdus migratorius*) and American crow (*Corvus brachyrhynchos*) are protected by the MBTA. The proposed project area would support protected migratory birds.

The Bald and Golden Eagle Protection Act (BGEPA) of 1940, 16 U.S.C. §§ 668 *et seq.*, prohibits the unpermitted take (defined as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb), possession, sale, purchase, barter, offer to sell, transport, export, or import any golden (*Aquila chrysaetos*) or bald eagle (*Haliaeetus leucocephalus*), alive or dead, including any part, nest, or egg (16 U.S.C. § 668(a)). As of 2019, 13 occupied eagle nests (observed as repaired, an incubating adult, eggs or young present) were observed throughout

Dane County but no known occupied bald eagle nests occur within one mi. of the Proposed Action area. (WDNR 2019).

The Wisconsin Breeding Bird Atlas (2022) lists 131 bird species identified within Dane County. The proposed project is located in the Pheasant Branch Creek corridor and river corridors are important habitat for many birds. USFWS's IPaC review (2021, 2022d) of the proposed project area identified the following 20 USFWS Birds of Conservation Concern (BCC) or species that warrant attention for legal or susceptibility to development impacts that could occur in this portion of the Pheasant Branch Creek corridor (**Table 3-3**). In Wisconsin, the bald eagle would be potentially present or breeding/fledging young from December through August, while the other migratory birds will be potentially present and/or breeding approximately late April through October (see **Appendix B** for related USFWS correspondence and IPaC results).

Table 3-3: USFWS Birds of Conservation Concern or That Warrant Attention Identified by IPaC That May Utilize the Proposed Project Area. Source: USFWS IPaC, 2021.

Common Name	Scientific Name	Estimated Breeding Season
• American Golden-plover	• <i>Pluvialis dominica</i>	• Breeds Elsewhere
• Bald Eagle	• <i>Haliaeetus leucocephalus</i>	• Dec. 1 – Aug. 31
• Black Tern	• <i>Chlidonias niger</i>	• May 15 – Aug. 20
• Black-billed Cuckoo	• <i>Coccyus erythrophthalmus</i>	• May 15 – Oct. 10
• Bobolink	• <i>Dolichonyx oryzivorus</i>	• May 20 - Jul. 31
• Canada Warbler	• <i>Cardellina canadensis</i>	• May 20 – Aug. 10
• Cerulean Warbler	• <i>Dendroica cerulea</i>	• Apr. 22 – Jul. 20
• Eastern Whip-poor-will	• <i>Antrostomus vociferus</i>	• May 1 – Aug. 20
• Golden Eagle	• <i>Aquila chrysaetos</i>	• Breeds Elsewhere
• Golden-winged Warbler	• <i>Vermivora chrysoptera</i>	• May 1 – Jul. 20
• Henslow's Sparrow	• <i>Ammodramus henslowii</i>	• May 1 – Aug. 31
• Le Conte's Sparrow	• <i>Ammodramus leconteii</i>	• Jun. 1 – Aug. 15
• Lesser Yellowlegs	• <i>Tringa flavipes</i>	• Breeds Elsewhere
• Long-eared Owl	• <i>Asio otus</i>	• Mar. 1 – Jul. 15
• Marbled Godwit	• <i>Limosa fedoa</i>	• May 1 – Jul. 31
• Red-headed Woodpecker	• <i>Melanerpes erythrocephalus</i>	• May 10 – Sep. 10
• Ruddy Turnstone	• <i>Arenaria interpres morinella</i>	• Breeds Elsewhere

Common Name	Scientific Name	Estimated Breeding Season
• Rusty Blackbird	• <i>Euphagus carolinus</i>	• Breeds Elsewhere
• Short-billed Dowitcher	• <i>Limnodromus griseus</i>	• Breeds Elsewhere
• Wood Thrush	• <i>Hylocichla mustelina</i>	• May 10 – Aug. 31

Alternative 1 – No Action

The No Action alternative would not directly impact migratory birds because there would be no construction. Continued erosion of the creekbank would potentially cause undermining of adjacent tree root systems that could cause increased tree fall throughout the Pheasant Branch Creek corridor, affecting migratory bird habitat.

Alternative 2 – Proposed Action

The Proposed Action would have minor permanent impacts on migratory bird species through the removal of trees within the proposed work areas needed for creekbank stabilization and creek realignment which could serve as habitat for migratory birds. The native species seeding of all disturbed and graded areas could result in some benefit of expanded migratory bird habitat and native seed production.

There would be minor short-term impacts from construction activities that disturb birds within the project area. A BMP to avoid and minimize impacts on migratory birds is provided in **Section 6.2**.

3.3.5 Invasive Species

Executive Order 13112, Invasive Species, requires federal agencies to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health impacts caused by invasive species. The State of Wisconsin has also created a law authorizing the WDNR to establish a statewide program to control the spread of invasive species and promulgate rules to identify, classify, and control invasive species through a statewide management plan (Wisconsin Statutes § 23.22 (2) (a, b) (2022)). The Invasive Species Identification, Classification, and Control Rule (WAC, Chapter NR 40 2022) creates a comprehensive, science-based system with criteria to classify invasive species in Wisconsin into two categories: “prohibited” and “restricted.” With certain exceptions, the transport, possession, transfer, and introduction of prohibited species is banned. Restricted species are also subject to a ban on transport, transfer, and introduction, but possession is allowed, except for fish and crayfish.

Per the WDNR and Dane County, many invasive plants and animals are present in Dane County, most notably Eurasian water-milfoil (*Myriophyllum spicatum*), curly-leaf pondweed (*Potamogeton crispus*), purple loosestrife (*Lythrum salicaria*), zebra mussel (*Dreissena polymorpha*), rusty crayfish (*Orconectes rusticus*), Cylindro (*Cylindrospermopsis raciborski*), common carp (*Cyprinus carpio*), Phragmites (*Phragmites australis*), Japanese knotweed

(*Polygonum cuspidatum*), narrow-leaf cattail (*Typha angustifolia*), hybrid cattail (*Typha x glauca*), watercress (*Nasturtium officinale*), water lettuce (*Pistia stratiotes*), and reed canary grass (*Phalaris arundinacea*) (WDNR, 2022; Dane County, 2009). Other aquatic invasive species of special concern that may be already present in the Great Lakes and their tributaries, other parts of Wisconsin or neighboring states that could invade Dane County but are not yet confirmed to be present include Hydrilla (*Hydrilla verticillate*), water hyacinth (*Eichornia crassipes*), Quagga mussels (*Dreissena bugensis*), New Zealand mud snails (*Potamopyrgus antipodarum*), spiny water fleas (*Bythotrephes cederstroemi*), fishhook water fleas (*Cercopagis pengoi*), water flea (*Daphnia lumholtzi*), bloody red shrimp (*Hemimysis anomala*), Chinese mystery snail (*Cipangopaludina chinensis*), gizzard shad (*Dorosoma cepedianum*), round gobies (*Neogobius melanostomus*), ruffe (*Gymnocephalus cernuus*), northern snakehead (*Channa argus*), bighead carp (*Hypophthalmichthys nobilis*), silver carp (*Hypophthalmichthys molitrix*), and viral hemorrhagic Septicemia (an infectious disease of fish).

Lake Mendota, into which Pheasant Branch Creek drains, has observations of curly-leaf pondweed, Eurasian water-milfoil, spiny water flea, water lettuce, and zebra mussel (WDNR 2022d). Invasive species observed specifically in Pheasant Branch Creek are curly-leaf pondweed and narrow-leaf cattail (WDNR, 2022b). Curly-leaf pondweed is known to occur at various study sites within the proposed project area, but narrow-leaf cattail has only been observed just upstream of, but outside of the work area (WDNR 2022e).

Alternative 1 – No Action

The No Action alternative would have no project-related impacts because construction would not occur. However, adverse impacts on the proposed project area from invasive plant species, including known populations of curly-leaf pondweed, would continue to persist in Pheasant Branch Creek.

Action Alternative 2 – Proposed Action

Proposed in-channel work such as creek bottom excavation, installation of stone riffle structures, and creek realignment, would provide a minor short-term benefit through direct destruction of known populations of the invasive curly-leaf pondweed if it occurs at the specific locations of those types of proposed work. However, the Proposed Action could have minor short-term negative impacts from the potential spread of invasive species caused by construction activities. The transport of curly-leaf pondweed, known to be present in Pheasant Branch Creek within the proposed project area, to non-infested work areas or other off-site waterbodies may occur if that aquatic invasive species remains viable on vehicles or heavy equipment removed from in-channel work areas and not properly drained of all water and decontaminated. Construction activities on land could result in the transport of reed canary grass, purple loosestrife, or other terrestrial invasive plant species from outside of the project area if attached to vehicles or heavy equipment not properly decontaminated prior to entry into the work area. Disturbed soils associated with both creekbank stabilization and the repair of recreational trails and pedestrian bridges present invasive plant seeds with an opportunity to germinate and become established. Permanent or temporary soil stabilization must be applied to all exposed areas within five days

after final grade is completed. Soil stabilization that could include native vegetative establishment and mulching will be applied to denuded areas which may not be at final grade but will remain dormant (undisturbed) for longer than seven days.

BMPs to avoid and minimize the spread of invasive species to or from the proposed project area are provided in **Section 6.2**.

3.4 Hazardous Materials

Hazardous materials are any items or agents (biological, chemical, radiological, or physical) that have the potential to cause harm to humans, animals, or the environment either by itself or through interaction with other factors. Sites within or adjacent to the project area, regulated by federal hazardous materials laws such as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601 - 9675, and the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 *et seq.*, were identified using the USEPA Enviro facts and NEPA assist websites (USEPA 2022c, USEPA 2022d).

Envirofacts and NEPAassist did not identify any regulated hazardous material sites within 0.5 miles of the project area.

Alternative 1 – No Action

The No Action alternative would have no effect on hazardous materials because no construction activities would occur.

Action Alternative 2 – Proposed Action

The Proposed Action would involve the use of construction equipment and creating a potential risk for minor short-term impacts from leaks of oils, fuels, and lubricants. The use of equipment in good condition and construction site hygiene and best practices, in accordance with state and local ordinances, would reduce any potential effects to an insignificant level. Other than hazardous materials associated with construction equipment, the Proposed Action would not involve the addition of any hazardous facilities, operations, materials, or chemicals to the site, nor would it increase the overall risk of hazardous materials known to already exist in the environment. However, potential for exposure of previously unknown contaminated materials within the project area exists because of excavation and removal of soil and construction debris.

Hazardous materials are not known to be present at concentrations that pose a risk to human health or the environment. The possibility exists that unknown source material at the site could be encountered or released. Such encounters, for example, could pose moderate short-term impacts to onsite workers through direct, dermal contact and inhalation of VOCs emanating from any potential source material, or a potential minor impact to the public near the site through inhalation of VOCs. One potential area for such contacts might be a landfill uncovered by the flooding, sited across the creek from work proposed on the north bank (43.103281, -89.508123). In May of 2022, the DNR and City finalized an investigation that found no additional

work near the landfill was required beyond the streambank stabilization occurring in the area. A permit exemption package will be sent from the City to the DNR in June of 2022.

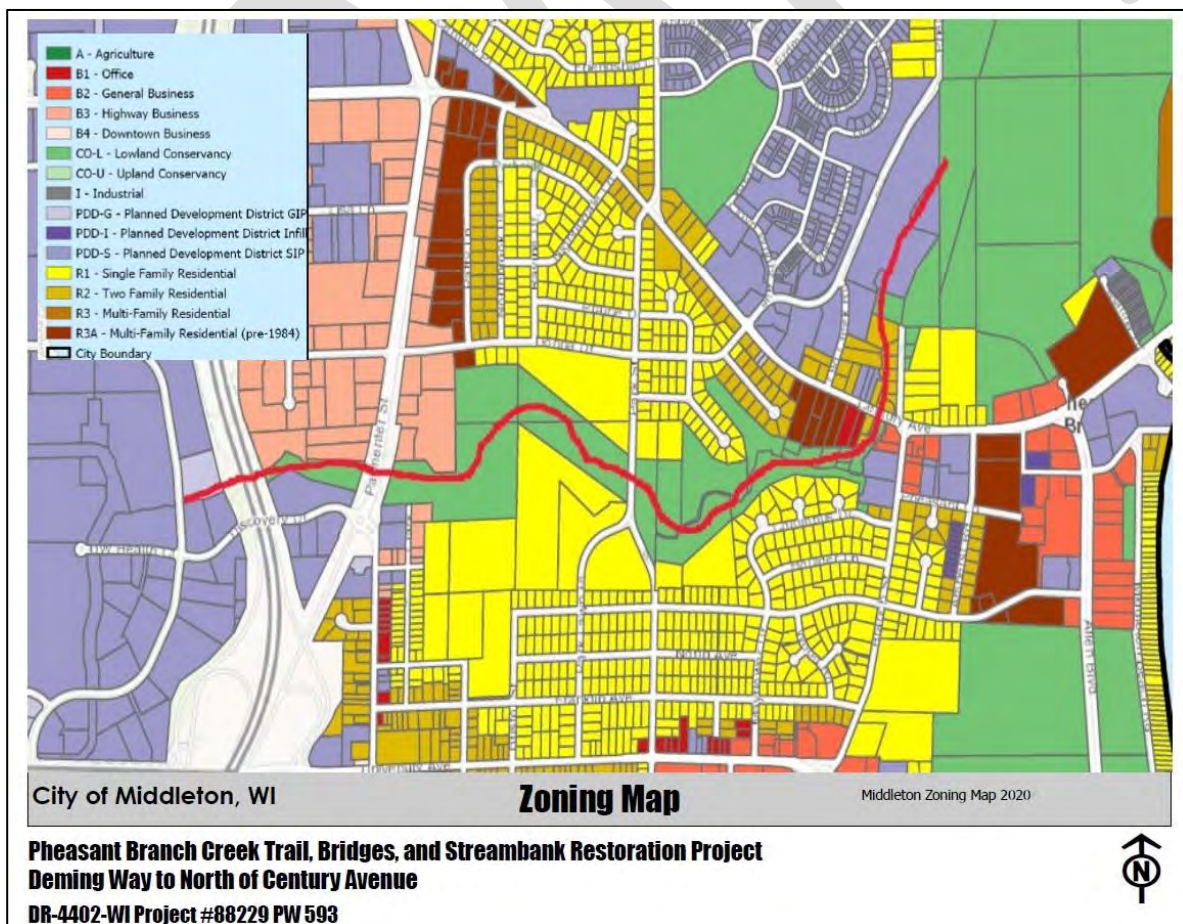
Contingency plans, in the form of design specifications, would be prepared if source material is encountered in any part of the project area and submitted to WDNR for approval. These specifications would detail the procedures that would be implemented by the subrecipient to identify, manage, and dispose of source material in accordance with applicable local, state, and federal regulations. If source material is encountered and removed, its removal would positively impact the project area by removing a source of contaminant loading to surface water or groundwater.

3.5 Socioeconomics

3.5.1 Zoning and Land Use

The Project Area is in the incorporated city limits of Middleton, Dane County, Wisconsin and is subject to the City of Middleton Comprehensive Plan (Land Use chapter), Dane County Comprehensive Plan (Chapter 8: Land Use), City of Middleton Zoning Ordinance, and City of Middleton Zoning Map (**Figure 11**). The Middleton Zoning Ordinance and Map specify the

Figure 11: City of Middleton Zoning Map



permitted and conditional land uses within the project area, while the Land Use chapter of the Middleton Comprehensive Plan guides policy decisions about the physical development of the city. These documents were used to evaluate the project's consistency with local zoning and land use.

According to the Middleton Zoning Map, the parcels north of Century Avenue and west of U.S. Highway 12 are a mix of residential and planned development districts where work is being done to the trails to provide connectivity to the main stem of Pheasant Branch Creek. The majority of the proposed project is located within parcels zoned as Lowland Conservancy (CO-L). The Middleton Zoning Ordinance specifies that this district encompasses lowland wetlands, combined with lands on the edge or fringe of wetlands, permitted to be public or private parks and recreation areas, open space areas, outdoor education areas, historic, natural, and scientific areas, game refuges, fish and wildlife habitat improvement projects, game farms and wildlife preserves and temporary water storage facilities (City of Middleton 1984).

The City of Middleton Comprehensive Plan (2021) describes the analysis, priorities, future projections, goals, and strategies that the City of Middleton developed to guide how decisions will be made over the next two decades. The Plan set objectives and strategies for land use, transportation, housing, economic development, character, "green city," governance and partnerships, and implementation. The Land Use chapter proposes the establishment of a land use pattern that promotes compact development, protection of natural resources, a range of housing options, mobility, and economic growth to maintain an exceptional quality of life.

The City of Middleton has developed a guidance document, the Conservancy Lands Plan 2018-2023, to direct land stewardship activities on its Conservancy-zoned lands. Conservancy lands are public lands managed for natural vegetation, habitat, water quality and passive recreation. Although conservancy lands vary in size, use, vegetative communities, landscape features, and management priorities, most conservancies share some or all the following characteristics:

- Unique plant communities, wildlife, and/or geology.
- Ecological function, such as protecting water quality or preserving wildlife habitat.
- Maintained as natural area and restored to the native plant community.
- Provide opportunities for passive recreation, education, and volunteering.

Alternative 1 – No Action

The No Action alternative would have a moderate long-term adverse effect on conformity with the city's Land Use chapter of the Comprehensive Plan and Conservation Lands Plan because recreational trails and pedestrian bridges would remain damaged and provide limited recreational and transportation services to the public. Achievement of the plans' goals for lands zoned as Lowland Conservancy to provide an area managed for water quality, restoration of the native plant community, and passive recreation would not occur. However, the proposed project area would remain managed to support existing natural vegetation, education, volunteering, and wildlife habitat in their current state. The parcels would remain zoned as they currently are.

Action Alternative 2 – Proposed Action

The Proposed Action would provide long-term conformity with the city's Land Use chapter of the Comprehensive Plan and Conservation Lands Plan because recreational trails and pedestrian bridges would be returned to safe public use, providing long-term recreational and transportation services to the public. The Proposed Action would restore the Pheasant Branch Creek corridor to its public recreational function, reduce creek sedimentation by improving flood-protection and erosion reduction, and re-vegetate exposed soils with a native seed mix. Therefore, the Proposed Action achieves the goals of the city's plans and zoning because it restores native plant communities and improves water quality, passive recreation opportunities and transportation services. The parcels would remain zoned as they currently are.

3.5.2 Noise

The Noise Control Act of 1972 (42 U.S.C. §§ 4901, *et seq.*) defines "noise" as an undesirable sound which is regulated at the federal level through that Act. Noise standards developed by USEPA (USEPA 1974) provide a basis for state and local government decision-making in setting local noise standards. Park, municipal, and residential areas are defined as noise-sensitive land uses using Federal Highway Administration (FHA) noise abatement criteria (23 C.F.R. § 772.5).

The Wisconsin Department of Transportation (WisDOT) determines noise impacts and evaluates possible mitigation measures, such as noise barriers in areas adjacent to principal highways. U.S. Highway 12 bisects the project area where it crosses Pheasant Branch Creek. Through municipal regulation, construction equipment may only operate "between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday, except Federal and State holidays, unless such operation is not plainly audible at any time from within any occupied residential structure" (MCO 16.05(2)(e)).

Alternative 1 – No Action

The No Action alternative would not change ambient noise levels in the project area. No short- or long-term changes in noise levels would occur without construction activities.

Action Alternative 2 – Proposed Action

The Proposed Action would cause minor short-term increases in the ambient noise levels in the area associated with construction activities. Short-term impacts related to removal of damaged infrastructure and construction activities would include trucks hauling materials to and from the site, the operation of equipment such as excavators for creekbank grading and fill activities, and asphalt paving equipment when rebuilding recreational trails. Minor traffic noise would also be expected from construction vehicles and haul trucks arriving and departing from the project area. It is anticipated that damaged infrastructure demolition and construction activities will take place during the less noise-sensitive daylight hours. Because the project area is a mostly natural landscape located within an urban area currently used by the public, traffic is not anticipated to increase notably after project completion; therefore, no long-term change in noise levels will occur.

3.5.3 Public Services and Utilities

Municipal services provided by the City of Middleton include the Middleton Police Department, Middleton Fire Department, and Middleton-Cross Plains Area School District. There are three hospitals located together approximately 4 mi. southeast of the project area: University of Wisconsin's University Hospital, American Family Children's Hospital, and William S. Middleton Memorial VA Medical Center. The City of Middleton Police Department is approximately 0.6 mi. to the south of the proposed project area and another police station is located 0.2 mi. north. The closest fire station of the Middleton Fire Department is located approximately 0.5 mi. to the south. Public schools such as E.G. Kromrey Middle School, Middleton High School, and Clark Street Community School are located adjacent or in the vicinity of the project area (Dane County, 2022). The City of Madison Metro Transit (MMT) has two bus stops located adjacent to the project area. The bus stops are #6146 Park & Pheasant Branch (Southbound) and the bus stop #6635 Park & Pheasant Branch (Northbound) (City of Madison 2022a).

The wastewater collection system of the Middleton Sewer Department is designed and built to collect and convey wastewater from homes, businesses, and industries to the Nine Springs Wastewater Treatment Plant in south Madison (City of Madison 2022b). The closest pumping stations to the project area are approximately 1 mi. each, pumping station #15 is to the southeast and #16 is to the south of the proposed project area.

The City of Middleton Parks and Recreation Department oversees management and maintenance of the proposed project area and bordering areas. Several public utilities including existing water, sewer, telecommunication, and electric utilities bisect the project area, typically where street-level bridges cross Pheasant Branch Creek.

Alternative 1 – No Action

The No Action alternative would have minor short-term and moderate long-term impacts on public services in the project area. Because the proposed project area serves the citizens of the City of Middleton as a recreation area, damages from flooding and erosion from Pheasant Branch Creek could cause closures of the area, eliminating public recreational use. Without repair of the recreational trails and pedestrian bridges, public recreational use will remain limited. Emergency vehicles or public utility vehicles would eventually not be able to serve public needs within the project area.

Action Alternative 2 – Proposed Action

The Proposed Action would have a minor short-term impact on public services during construction activities. Current water, sewer, telecommunication, and electric utilities are not expected to be shut down during construction; therefore, the Proposed Action would likely not cause any short- or long-term impacts on utility services in the area. If utilities do need to be temporarily shut off during construction, the subrecipient would follow local ordinances regarding shut down procedures and notification.

The Proposed Action would provide moderate long-term benefits to public services by returning the project area to a safe, useable public recreation area. Creekbank stabilization would increase the likelihood that the existing and repaired recreational infrastructure will not be damaged by flood events in the future. Furthermore, after project completion, more reliable access to public services (i.e.: adjacent public schools, public transportation, etc.) on foot or by bicycle through the project area will return, in addition to improved access for emergency and maintenance services.

3.5.4 Traffic and Circulation

The project area is located within the developed urban area of the City of Middleton and is surrounded and crossed by municipal roads and a U.S. highway. Roads crossing the proposed project area are Discovery Drive, Parmenter Street, Park Street, Century Avenue, and U.S. Highway 12. To the north of the proposed project area is Donna Drive and to the south is U.S. Highway 14. The Pheasant Branch Creek corridor has snowmobile, bike, and pedestrian trails and municipal recreation areas and parks nearby such as Pheasant Branch Conservancy, Parisi Park, and Firemen's Park. The project area is a heavily utilized recreation area for pedestrians, cyclists, and other natural area recreation (birding, etc.).

Alternative 1 – No Action

The No Action alternative would have minor short-term and moderate long-term impacts on traffic and circulation in the area. Recreational trails and pedestrian bridges would remain only partially useable in a temporarily repaired condition and at risk of closure due to safety concerns. Non-motorized commuter use of the area would not be improved. The potential of erosion damage and closure of existing municipal road and highway crossings would continue without creekbank stabilization at those locations.

Action Alternative 2 – Proposed Action

The Proposed Action would result in minor short-term impacts resulting from construction detours, and the operation of construction vehicles and equipment to and from the site. The Proposed Action would have moderate long-term benefits to traffic and circulation in and around the project area would improve reliability of travel through the project area for bicyclists and pedestrians.

3.5.5 Environmental Justice (Executive Order 12898)

EO 12898, Federal Actions to Address Environmental Justice (EJ) in Minority and Low-income Populations, requires federal agencies to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations caused by their actions. Minorities are defined as anyone who identifies as black or African American, American Indian (Native American), or Alaska Native, Asian American, Native Hawaiian or Pacific Islander, Hispanic, or multiracial. Low-income populations are those with incomes at or below the annual statistical federal poverty thresholds determined by the U.S. Census Bureau.

The USEPA’s Environmental Justice Screening and Mapping tool (EJScreen, USEPA 2022e) was used to investigate the presence of readily identifiable low income or minority populations within a 0.25-mi. buffer of the proposed project area. This 0.25-mi. buffer is considered the “affected area” for EJ analysis. Low-income or minority populations in an affected area can be analyzed through either one or both of the following criteria:

- The affected area (e.g., census block group) contains 50 percent or more minority persons or 25 percent or more low-income persons.
- The percentage of minority or low-income persons in an affected area (e.g., census block group) is more than 10 percent greater than the average of the surrounding Comparison Group (City of Middleton).

To evaluate impacts on vulnerable population groups of concern, information needs to be presented in relation to another group, a Comparison Group (USEPA 2016). The City of Middleton, as a whole, was defined as a Comparison Group to the affected area to determine if a disproportionate population of vulnerable socioeconomic characteristics of concern would be impacted. The project area is located within a very small portion of census block group ID# 550250109042, but is mostly within groups ID# 550250111011, ID# 550250111013, and ID# 550250111024. EJScreen provided data at the census block level and for the 0.25-mi.-buffer affected area. American Community Survey (ACS) 2015-2019 data were used by EJScreen to estimate population data relative to low-income composition (*Source: EJScreen, USEPA 2022e*) (**Table 3-4**). EJScreen used 2010 Census data to calculate racial composition for the affected area and the City of Middleton (*Source: U.S. Census Bureau 2010*) (**Table 3-5**).

Table 3-4: Low-Income Populations, 2022 Estimate

	Affected Area		City of Middleton	
	Population	Percentage	Population	Percentage
Total Population	3,908	--	18,384	--
Low Income	820	21	2,941	16

Table 3-5: Minority Populations, Census 2010

Race	Affected Area		City of Middleton	
	Population	Percentage	Population	Percentage
Total Population	3,725	--	17,442	--
White	3,042	82	13,884	79.6
Black or African American	153	4	889	5.1
Asian	121	3	977	5.6
American Indian and Alaska Native	7	0.2	34	0.2

Race	Affected Area		City of Middleton	
	Population	Percentage	Population	Percentage
Native Hawaiian and Other Pacific Islander	2	0.1	2	0
Some Other Race/Multiracial	109	2.9	714	4.1
Hispanic ²	291	8	942	5.4
Total Minority Population ^{3,4}	683	18	3,558	20.4

Alternative 1 – No Action

The No Action alternative would not have any disproportionate high and adverse effect on EJ vulnerable populations. The affected area does not contain 50 percent or more minority persons or 25 percent or more low-income persons. The percentage of minority or low-income persons in the affected area is 2.4 percent less than the average of the surrounding Comparison Group (City of Middleton), so clearly does not meet the target of being 10 percent greater than the average of the surrounding Comparison Group, indicating disproportionately high effects.

Action Alternative 2 – Proposed Action

The Proposed Action would not have any disproportionately high and adverse effect on EJ vulnerable populations. The affected area does not contain 50 percent or more minority persons or 25 percent or more low-income persons. As noted above, the percentage of minority or low-income persons in the affected area does not meet the threshold for disproportionately high effects.

3.5.6 Safety and Security

The Occupational Safety and Health Act, 29 U.S.C. §§ 651 – 678, requires safe and healthful conditions for workers by setting and enforcing standards through training, outreach, and compliance assistance. The act created the Occupational Safety and Health Administration (OSHA) which established construction standards under 29 C.F.R. Part 1926. In addition, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children to ensure their policies, programs, activities, and standards address those risks. The EO broadly defines environmental health and safety risks as products or substances that a child is likely to encounter or ingest through the air, soil, water, or food. EJSscreen was used to identify the percentage of children who live in the project area based on

² The terms Hispanic and Latino can apply to members of any race, including respondents who self-identified as “White.” The total numbers of Hispanic and Latino residents for each geographic region are tabulated separately from the racial distribution by the U.S. Census Bureau.

³ A minority is defined in CEQ’s environmental justice guidance as a member of the following population groups: American Indian/Alaskan Native, Asian or Pacific Islander, Black (non-Hispanic), or Hispanic (CEQ 1997).

⁴ “Total Minority” includes all people who are not “White alone,” plus Hispanics and Latinos who identify as white alone. This number may capture individuals who identify as both “not white” and those who identify as Hispanic or Latino, essentially counting those individuals twice.

the 2015-2019 ACS. Approximately 509 (21%) of the population within a one mi. radius of the project area are ages 0 to 17 (USEPA 2022e). Public safety risks in the project area include flooding and erosion that damage infrastructure, temporary and partial repair of damaged pedestrian bridges and recreational trails, and tree fall.

Alternative 1 – No Action

Under the No Action alternative, continued erosion and flooding would perpetuate hazardous conditions which would have a moderate long-term impact on safety within the Pheasant Branch Creek corridor. Temporary minor repaired pedestrian bridges and recreational trails would remain public safety hazards and potential tree fall would increase because of continued erosion of soils from root systems. No public safety risks disproportionately affect children.

Action Alternative 2 – Proposed Action

Minor short-term impacts associated with standard construction-related safety risks would occur for construction workers at the project site. During construction, site safety of workers would be ensured by the contractors performing the work following standard industry safety practices.

Post-construction, the Proposed Action would provide moderate long-term safety benefits by reducing erosion and flooding in the project area. Public safety would be improved because of the reduction of risk of flooding and tree fall, in addition to removal of the hazards of damaged recreational trails and pedestrian bridges. No public safety risks disproportionately affect children.

3.6 Historic and Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, 54 U.S.C. §§ 300101 - 307108, requires federal agencies to consider the potential effects on cultural resources of actions it proposes. Cultural resources are defined as prehistoric or historic archaeology sites, historic standing buildings and structures, historic districts, objects, artifacts, and cultural properties of historic or traditional significance—referred to as Traditional Cultural Properties—that may have religious or cultural significance to federally-recognized Native American Tribes (Tribes). Any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons is also considered a cultural resource. The State Historic Preservation Office (SHPO) is the federal agency's primary Section 106 partner, as is the tribal Historic Preservation Officer (THPO) for projects affecting resources on tribal lands.

Cultural resources listed, eligible for listing, or potentially eligible for listing on the National Register of Historic Places (NRHP) are subject to protection from adverse impacts resulting from a federally funded undertaking. To be considered eligible for listing, a cultural resource must meet one or more of the criteria regarding the resource's significance, as well as demonstrate the integrity of physical features or other characteristics that are related to that significance. Eligibility criteria for listing a property in the NRHP are detailed in 36 C.F.R. § 60. Under the implementing regulations for conducting Section 106 consultation under the NHPA at 36 C.F.R. §

800, federal agencies are required to determine whether resources are eligible for listing and obtain concurrence on that finding from the SHPO or THPO as appropriate.

Under 36 C.F.R. § 800.4(a)(1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Within the APE, impacts on cultural resources are evaluated for both historic structures (above-ground cultural resources) and archaeology (below-ground cultural resources).

In addition to the NHPA, FEMA must also comply with the following federal laws that relate to historic and cultural resources:

- The Archaeological and Historic Preservation Act of 1974, 16 U.S.C. §§ 469 - 469c-2, provides for the survey, recovery, and preservation of significant scientific, prehistoric, archeological, or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally licensed, federally funded (in part or whole) project.
- American Indian Religious Freedom Act of 1978 (AIRFA), 42 U.S.C. § 1996, which provides for the protection and preservation of Native American sites, possessions, and ceremonial and traditional rites.
- Archaeological Resources Protection Act of 1979, 16 U.S.C. §§ 470aa–470 mm, which provides for the protection of archaeological resources on public lands and Native American lands.
- Native American Graves Protection and Repatriation Act, 25 U.S.C. §§ 3001–3013, in cases where Native American cultural Items are found on federal and tribal lands.

To comply with the NHPA, an archaeological literature search and technical memorandum was undertaken by an SOI-qualified archaeologist with SERCO contracted by FEMA in February 2022. The investigation defined the APE as the construction limits for the project being evaluated in this EA. Work is not expected to have visual effects beyond the APE and the areas for equipment staging and access will conform to the existing paved trails adjacent to the stream. Following the February 2022 investigation, FEMA initiated consultation with the SHPO to confirm the finding that no historic properties would be affected if the project were implemented. The SHPO concurred with the finding of No Historic Properties Affected on April 11, 2022 (**Appendix B**).

3.6.1 Historic Structures

Historic properties are districts, sites, buildings, structures, and objects that are included in the NRHP or that meet the criteria for the NRHP; they also include records and human remains that are related to and located within such properties. Consideration of effects on historic properties is mandated both by NEPA and by Section 106 of the NHPA of 1966, as amended (16 U.S.C. § 470f). Section 106 requires Federal agencies to consider the effects of their undertakings on historic properties and to afford the SHPO and the Advisory Council on Historic Preservation an opportunity to comment on such undertakings.

No above-ground resources listed in or determined eligible for inclusion in the NRHP per occur within the APE. Therefore, no effects are anticipated for above-ground resources.

Alternative 1 – No Action

The No Action alternative would have no effect on historic properties listed or eligible for listing in the NRHP because none were identified in the APE.

Action Alternative 2 – Proposed Action

The Proposed Action would have no effect on historic structures listed or eligible for listing in the NRHP because none were identified in the APE. Consultation documentation is included in **Appendix B**.

3.6.2 Archaeological Resources

An archaeological literature search and technical memorandum was undertaken by an SOI-qualified archaeologist with SERCO contracted by FEMA in February 2022. Twenty archaeological sites within Sections 1, 2, 11, and 12 of Township 7 Range 8E (T7R8E) were identified. Most sites are pre-contact sites (e.g., Native American mounds and campsites/villages), although several sites also contain historic components. In addition, two historic cemeteries are present within T7R8E. Of the twenty sites, only one site, 47-DA-0815, crosses Pheasant Branch Creek and is within the APE. The site is a precontact campsite/village that has not been evaluated for eligibility for inclusion in the NRHP; however, a prior survey was conducted within the portion of the site within the APE and no archaeological resources were identified. Additionally, no further archaeological investigations are recommended (Settle 2016).

Alternative 1 – No Action

The No Action alternative would have no effect on known archaeological resources as no construction or ground disturbance activities would occur and such resources are not expected to be present.

Action Alternative 2 – Proposed Action

The Proposed Action would have no effect on any known archaeological sites or resources. Consultation documentation is included in **Appendix B**. The following project conditions, also included in **Section 6.2**, would provide additional protection to unknown archaeological sites:

- The subrecipient will monitor all ground disturbance during the construction phase. Should human skeletal remains or historic or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and the City of Middleton will notify the coroner's office (in the case of human remains), the Wisconsin State Police, and FEMA. FEMA will notify the SHPO, the Miami Tribe of Oklahoma, and the Wisconsin Historical Society (WHS, State Archaeologist).
- All borrow or fill material must come from on-site, pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing

prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the City of Middleton must notify FEMA prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.

3.6.3 Tribal Coordination and Religious Sites

EO 13175, Consultation and Coordination with Indian Tribal Governments, directs federal agencies, “to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes....”

Requests for information on the presence or absence of known archaeological and Native American religious sites within the proposed project area were submitted to federally recognized tribal nations with potential interests in the project. On March 29, 2022, FEMA initiated consultation with the following tribal nations:

- Ho-Chunk Nation
- Osage Nation
- Miami Tribe of Oklahoma
- Menominee Indian Tribe of Wisconsin
- Winnebago Tribe of Nebraska

FEMA sent a letter to each tribe with details about the project location and proposed activity and requested comments from each tribal government within 30 days of the date of the letter. FEMA received a response from one tribal nation. The Miami Tribe of Oklahoma responded, asking to be informed of project progress and that “given the Miami Tribe’s deep and enduring relationship to its historic lands and cultural property within present-day Wisconsin, if any human remains or Native American cultural items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) or archaeological evidence is discovered during any phase of this project, the Miami Tribe requests immediate consultation with the entity of jurisdiction for the location of discovery.” Correspondence with the tribal nations is provided in **Appendix C**.

Alternative 1 – No Action

The No Action alternative would have no effect on known Native American archaeological, historic, or religious sites as no construction or ground disturbance activities would occur.

Action Alternative 2 – Proposed Action

The Proposed Action would have no effect on known Native American archaeological, historic, or religious sites. Project conditions noted in Section 3.6.2 and Section 6.2 apply.

3.7 Comparison of Alternatives

Table 3-6: Comparison of Alternatives

No Action Impacts	Proposed Action	Mitigation
Geology, Soils, and Topography		
<ul style="list-style-type: none">• Moderate long-term adverse impacts to soils and topography from continued erosion.	<ul style="list-style-type: none">• Minor short-term impacts to soil and topography from construction activities.• Moderate long-term benefits from reduced soil erosion because of creekbank stabilization and in-channel structures.• No short- or long-term impact to important farmland soil because none will be irreversibly converted.	<ul style="list-style-type: none">• See Section 6.2, Condition 4.
Water Resources and Water Quality		
<ul style="list-style-type: none">• Moderate long-term adverse impacts from sedimentation, soil erosion, and turbidity.• No impact on surface water pollutants or groundwater and drinking water resources.	<ul style="list-style-type: none">• Moderate short-term impact on water quality during construction activities caused by excavators and other heavy equipment for fill and excavation.• Moderate long-term benefits from reduced erosion and turbidity, but additional habitat diversity from stone vanes/riffle structures.• No impact on surface water pollutants or groundwater and drinking water resources.	<ul style="list-style-type: none">• See Section 6.2, Condition 4.
Floodplain Management		
<ul style="list-style-type: none">• Moderate long-term adverse impacts from continued erosion, bank destabilization and collapse of additional cutbanks and trees.	<ul style="list-style-type: none">• Minor short-term adverse impacts from sediment disturbance by excavation and removal of vegetation and trees.• Moderate long-term benefits from reduction of erosion and improved creek channel stability.	<ul style="list-style-type: none">• None
Air Quality		
<ul style="list-style-type: none">• Minor short and long-term adverse impacts from decreased opportunities for the project	<ul style="list-style-type: none">• Minor, short-term adverse impacts from construction equipment emissions and exposed soils.	<ul style="list-style-type: none">• See Section 6.2, Conditions 5 and 6.

No Action Impacts	Proposed Action	Mitigation
area to be used for non-motorized commuting.	<ul style="list-style-type: none"> Minor long-term benefit from repair of recreational infrastructure potentially increasing non-motorized commuting. 	
Terrestrial and Aquatic Environment		
<ul style="list-style-type: none"> Moderate long-term adverse impacts from continued erosion of the creekbank, resulting in soil loss and reduced aquatic habitat quality from increased turbidity. 	<ul style="list-style-type: none"> Minor short-term impacts such as soil disturbance, removal of vegetation and potential sediment runoff from construction activities. Minor long-term impacts from the removal of trees. Moderate long-term benefit from all disturbed areas having native seeding after construction activities. 	<ul style="list-style-type: none"> None
Wetlands		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> Minor short-term adverse impacts to riverine and palustrine wetlands from in-channel and creekbank stabilization work. 	<ul style="list-style-type: none"> See Section 6.2, Condition 4.
Threatened and Endangered Species		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> Not likely to adversely affect the northern long eared bat or rusty patched bumble bee which potentially may be present in the vicinity. No impacts to the EPFO, Mead's milkweed, and the prairie bush-clover. 	<ul style="list-style-type: none"> See Section 6.2, Conditions 10 - 11
Migratory Birds		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> Minor permanent impacts from trees and vegetation removal that may serve as migratory bird habitat. Minor long-term benefit from native vegetative seeding. Minor short-term adverse impact from potential disturbance of nesting migratory birds if present during construction activity. 	<ul style="list-style-type: none"> See Section 6.2, Condition 12.
Invasive Species		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> Minor short-term benefit from destruction of known existing invasives if present at specific work areas 	<ul style="list-style-type: none"> See Section 6.2, Condition 13 - 17.

No Action Impacts	Proposed Action	Mitigation
	<ul style="list-style-type: none"> Minor short-term adverse impact from the potential spread of invasives outside or into the project area as both cuttings and attached to construction equipment and vehicles. 	
Hazardous Materials		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> Minor short-term impact from potential risk of leaks from construction equipment. The Proposed Action would not involve the exposure of any known hazardous materials or chemicals to the site, but would it increase the overall risk of hazardous materials not known to already exist in the environment being released because of excavation, resulting in moderate short-term impacts to onsite workers. 	<ul style="list-style-type: none"> See Section 6.2, Conditions 8 and 9.
Zoning and Land Use		
<ul style="list-style-type: none"> Moderate long-term adverse impact on zoning and land use due to non-conformity with land use plan goals. 	<ul style="list-style-type: none"> Moderate long-term benefit on zoning and land use due to restored conformity with land use plan goals. 	<ul style="list-style-type: none"> None
Noise		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> Minor short-term impacts associated with construction activity. No long-term impact. 	<ul style="list-style-type: none"> See Section 6.2, Condition 7.
Public Services and Utilities		
<ul style="list-style-type: none"> Minor short-term impacts to public services, resources and utilities. Moderate long-term impacts on utilities and public services if the erosion continues and recreational infrastructure not repaired. 	<ul style="list-style-type: none"> Minor short-term impact on public services during the construction. Moderate long-term benefits from the removal of the threat of erosion that could damage public utilities and impact services and returning recreational infrastructure to safe public use. 	<ul style="list-style-type: none"> None
Traffic and Circulation		
<ul style="list-style-type: none"> Minor short-term impacts from temporary repair conditions of recreational infrastructure 	<ul style="list-style-type: none"> Minor short-term impact from the operation of construction vehicles and equipment to and from the site. 	<ul style="list-style-type: none"> None

No Action Impacts	Proposed Action	Mitigation
<ul style="list-style-type: none"> Moderate long-term impacts on traffic and circulation as the risk of erosion damage to road crossings continue. 	<ul style="list-style-type: none"> Moderate long-term benefits from improvement of pedestrian and cycling traffic conditions. 	
Environmental Justice		
<ul style="list-style-type: none"> Negligible effect 	<ul style="list-style-type: none"> Negligible effect, no disproportionate or adverse impacts. 	<ul style="list-style-type: none"> None
Safety and Security		
<ul style="list-style-type: none"> Moderate long-term impact from hazardous conditions and damages to trails and bridges. 	<ul style="list-style-type: none"> Minor short-term impact for construction workers. Moderate long-term positive impact to the public from reduction of potential flooding and injury from damaged recreation infrastructure. 	<ul style="list-style-type: none"> See Section 6.2, Conditions 18 - 21.
Historic Structures		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> None
Archaeological Resources		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> See Section 6.2, Conditions 22 and 23.
Tribal and Religious Sites		
<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> No short- or long-term impacts. 	<ul style="list-style-type: none"> See Section 6.2, Conditions 22 and 23.

4 CUMULATIVE IMPACTS

This section evaluates the potential cumulative impacts associated with the implementation of the Proposed Action. Cumulative impacts are defined in CEQ regulations for implementing NEPA (40 C.F.R. § 1508.7) as:

“The impacts of a proposed action when combined with impacts of past, present, or reasonably foreseeable future actions undertaken by any agency or person.”

CEQ regulations require an assessment of cumulative effects during the decision-making process for federal projects. Cumulative impacts can result from individually minor but collectively significant actions.

The Proposed Action is an effort to repair and mitigate flooding and erosion damages within the Pheasant Branch Creek corridor. However, there are no known recently completed or proposed mitigation or natural restoration projects within one mi. of the project site. Additionally, there

are no other known proposed projects within one mi. of the project area led by the City of Middleton, Dane County or WisDOT. There are no known projects that may cause cumulative impacts.

5 PUBLIC PARTICIPATION

This EA is available for agency and public review and comment for a period of 30 days. The public information process includes a public notice with information about the Proposed Action in the Middleton-Times Tribune (www.middletontimes.com). This EA will be available on FEMA's website at <https://www.fema.gov/about/news-multimedia/events> during the public comment period and the final EA will be archived at <https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository>. The EA is also available on the City of Middleton's Conservancy and Lands website at <https://www.cityofmiddleton.us/171/Conservancy-Lands-Trails> and the City's main website <https://cityofmiddleton.us>.

Those without internet access can review the EA on a computer available to the public during normal business hours at the Middleton Public Library or at Middleton City Hall.

Middleton Public Library
7425 Hubbard Avenue
Middleton, WI 53562

Middleton City Hall
7436 Hubbard Avenue
Middleton, WI 53562

This EA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. The public is invited to submit written comments by emailing fema-r5-environmental@fema.dhs.gov or via mail to:

Duane Castaldi, Regional Environmental Officer
Attn: Pheasant Branch Creek Comments
FEMA Region 5
536 South Clark Street, 6th Floor
Chicago, IL 60605

If FEMA receives no substantive comments from the public and/or agency reviewers, this EA will be adopted as final, and FEMA will issue a FONSI. If FEMA receives substantive comments, it will evaluate and address those comments as part of the FONSI documentation and may consider whether changes to the grant or project implementation are appropriate.

5.1 Subrecipient Outreach

The City of Middleton discussed the damages to the Pheasant Branch Creek corridor, including the path and bridges at several of their meetings in 2019 and 2022. All City meetings are open to the public. Documentation of these meetings is provided in **Appendix E**.

The Pheasant Branch Creek Corridor Restoration and Improvements Master Plan performed a public survey through POLCO, a software company in Middleton, Wisconsin. POLCO provides an online platform for communities' engagement polling with information tools to local government and other public sector leaders. On the online survey, there were 370 participants of which 337 were the city of Middleton residents. The survey consisted of 10 questions. **Table 5-1** summarizes the results of the survey.

Table 5-1: Public Survey Results

Questions	Answers
1. How often do you visit the Pheasant Branch Creek Corridor?	262 of 370 (71%) visit weekly or greater
2. Why do you visit the Corridor?	The majority answered Nature, Exercise, and Relax/Bird Watch.
3. How do you access the Creek Corridor?	309 of 370 (89%) arrive by foot.
4. What activities would you like to occur within the Corridor that currently do not exist? (Please list below)	N/A None, No activities-keep natural, Stormwater/volunteering & seating options, Improved paths & wayfinding
5. What do you feel makes the Corridor a special place in Middleton? (Please select one)	Pheasant Branch Creek (35%) Trail (44%)
6. How important is Creek Corridor access during the winter season?	249 of 370 (67%) felt winter access is important
7. Which benefit of the corridor is most important to you? (Please select one)	Transportation (21%), Access to nature/wellness (61%), Natural Systems (14%)
8. What potential improvements do you consider priorities? (Please select up to your top three)	Natural Systems, Pedestrian Bridge Replacement, Physical Improvement, Trail Maintenance
9. 10. The City is always exploring grant opportunities to supplement city funds. If grants are not available or awarded, do you	Yes (87%)

Questions	Answers
support the city borrowing funds to finance Corridor improvements?	No (13%)

The first public input session was held on June 20, 2019, at 7:00 pm at Kromrey Middle School with the purpose of initial public input regarding uses, concerns, workshop evaluation, and desired improvements. The workshop evaluation indicated that the sessions were informative and provided opportunities for participation. There was interest in continuing discussion about the conservancy and the process.

The second public input session was held on September 10, 2019, at 7:00 pm in the Kromrey Middle School Cafetorium. A presentation of the Pheasant Branch Creek Corridor Restoration and Improvement Master Plan was given as a summary of the first session, objectives, tentative schedule, results, and input of the Draft Master Plan. The public input summary results of the first session were that the community and other users value the corridor, it should be kept as natural as possible, it should accommodate various users and that it is a key place where citizens and families interact. This main plan is an opportunity to replace what was lost and make improvements. Also, comments on trail alignment favored realigning trails and providing split use trails at the four bridges. Most of the participants did not approve of a wide gravel shoulder on the trail, but they supported the ecological restoration. The streambank stabilization and the birding areas were considered a priority.

On March 15, 2022, there was a follow-up meeting at the Middleton City Hall located at 7426 Hubbard Avenue, Middleton, WI 53562. The topics discussed were that Federal Emergency Management Agency (FEMA) was provided Geographic Information files to create necessary maps. Additionally, the period for comments was established, where the document would be located for public comment, and how the document would be finalized.

6 MITIGATION MEASURES AND PERMITS

6.1 Permits

The city must apply for and obtain coverage under the WPDES General Permit for Storm Water Associated with Land Disturbing Construction Activity (Permit No. WI-S067831-6) from the Wisconsin Department of Natural Resources (department). This general permit regulates the discharges of pollutants to waters of the state as provided in s. 283.33, Wis. Stats., and subch. III of ch. NR 216, Wis. Adm. Code. **Table 6-1** summarizes the necessary permits to implement the Proposed Action and their status.

Table 6-1: Permit Summary

Issuing Agency	Resource	Permit Title	Applicable Regulation/Law	Status
WDNR	Soils (Erosion), Water quality	General Permit for Storm Water Associated with Land Disturbing Construction Activity (Permit No. WI-S067831-6)	283.33, Wis. Stats., and subch. III of ch. NR 216, Wis. Adm. Code.	Obtained by the City. WDNR Permit IP-SC-2021-13-01703-04 includes general and project specific conditions for the project. See Section 6.2 and Appendix F .
Corps of Engineers (COE)	Waters of the US including wetlands	Individual or Nationwide Permit as applicable	Section 404 of the Clean Water Act (CWA)	Initial permit obtained by the City. COE Regulatory File No. MVP-2021-00484-SJW is pending revision and includes general and project specific conditions for the project. See Section 6.2 and Appendix F .
City of Middleton	Floodplain	Local Floodplain Development Permit / No Rise Certificate	EO 11988 Floodplain Management	Not Complete. Prior to commencing work, the full project should be approved by the Local Floodplain Administrator accompanied by a no rise certificate.

6.2 Project Conditions

The subrecipient is responsible for compliance with federal, state, and local laws and regulations, including obtaining any necessary permits prior to beginning construction activities, and adhering to any conditions laid out in these permits. Any substantive change to the scope of work will require re-evaluation by FEMA for compliance with NEPA and any other laws or EOs. Failure to comply with FEMA grant conditions may jeopardize federal funding.

General Project Conditions

1. The subrecipient is responsible for obtaining and complying with all required local, state, and federal permits and approvals.
2. Develop and implement erosion control and post-construction storm water management plan to be submitted to WDNR.
3. If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, the subrecipient must contact FEMA so that the revised project scope can be evaluated for compliance with NEPA and other applicable environmental laws.

The following condition address mitigation of impacts to **Water Resources and Water Quality, Wetlands, and Soils**:

4. Prior to beginning work, the subrecipient will prepare for implementation an Erosion and Sediment Control Plan and a Storm Water Management Plan as required in the Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit for Storm Water Associated with Land Disturbing Construction Activity, Permit No. WI-S067831-6.

Air Quality

5. To reduce the emission of criteria pollutants, construction equipment engine idling will be minimized to the extent practicable, and engines will be kept properly maintained.
6. Open construction areas will be minimized and watered as needed to minimize particulates such as fugitive dust.

Noise

7. Substantial use of construction equipment may occur only between the hours of 7:00 am and 6:00 pm Monday through Saturday.

Hazardous Materials

8. Contingency plans will be prepared that detail the procedures that the contractors will follow to identify, manage, and dispose of source materials, or other heavily contaminated materials, in accordance with all local, state, and federal regulations in the event hazardous source materials are encountered during creekbank excavation/re-sloping, creekbank infrastructure removal/replacement, bridge repair/relocation, pedestrian trail removal/replacement, or other construction activities. These specifications sections should include, but are not limited to, procedures that address Safety, Health, and Emergency Response Procedures; Environmental Protection Procedures; Contaminated Soil Excavation; Transportation and Disposal of Contaminated Material; and Contaminated Dewatering and Drainage.
9. WDNR will be notified if source material or other heavily contaminated material is encountered.

Threatened and Endangered Species

10. To minimize effects of the Rusty Patched Bumble Bee, the following (BMPs) should be followed: minimize the spread of invasive species, avoid or minimize soil compaction.; Avoid or minimize soil disturbance and heavy equipment operation during overwintering (mid October-mid March); avoid or minimize forest management that may destroy spring blooming flowers during their bloom periods; consider thinning or single tree selection and dense invasive shrub removal that may improve overwintering and spring foraging habitat; use native trees, shrubs and flowering plants in landscaping, provide plants that bloom from spring through fall; remove and control invasive plants in any habitat used for foraging, nesting, or overwintering
11. To minimize impacts to state listed species the City will provide the construction contractor a copy of the May 27, 2022, Wisconsin Department of Natural Resource Endangered Resource Review so that voluntary conservation measures may be incorporated into the project construction as appropriate.

Migratory Birds

12. Tree removal should be avoided during the migratory bird nesting season (approximately March 1 to October 10) to the extent practicable.

Invasive Species

13. Graded areas will be revegetated with native grasses and forbs, or native seed mixes.
14. All equipment should be inspected and cleaned (including but not limited to heavy equipment, vehicles, clothing, and gear) prior to entering the worksite. All soil, aggregate material, mulch, terrestrial or aquatic vegetation, seeds, animals, etc. must be removed using a hand tool, brush, compressed air, pressure washer, or otherwise.
15. If equipment is not disinfected prior to arriving at the project site, then equipment will be cleaned in the parking or staging area where equipment is loaded and unloaded, ensuring no material is deposited at the worksite or carried away to a new site. Material cleaned from equipment should be disposed of legally.
16. All equipment that enters the waters of Pheasant Branch Creek will be thoroughly drained of all water before moving to another site.

Safety and Security

17. To minimize risks to safety and human health, construction activities will be performed using qualified personnel trained to use the required equipment properly.
18. The construction site will be secured from public access.
19. All construction activities will be conducted in accordance with the standards specified in the Occupational Safety and Health Administration (OSHA) regulations.
20. All conditions of the project Health and Safety Plan will be adhered to.

Archaeological, Tribal, and Religious Sites

21. The subrecipient will monitor all ground disturbance during the construction phase. Should human skeletal remains or historic or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and

the City of Middleton will notify the coroner's office (in the case of human remains), the Wisconsin State Police, and FEMA. FEMA will notify the SHPO, the Miami Tribe of Oklahoma, and the Wisconsin Historical Society (WHS, State Archaeologist).

22. All borrow or fill material must come from on-site, pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the City of Middleton must notify FEMA prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.

7 CONSULTATIONS AND REFERENCES

The following agencies were consulted during the preparation of this EA:

7.1 Federal, State, and Local Agencies

- Wisconsin Department of Natural Resources, Bureau of Natural Heritage Conservation
- Wisconsin State Historic Preservation Office
- U.S. Fish and Wildlife Service, Minnesota-Wisconsin Ecological Services Field Office
- U.S. Environmental Protection Agency Region V, NEPA Implementation Section
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers, St. Paul District

7.2 Tribal Nations

- Ho-Chunk Nation
- Osage Nation
- Miami Tribe of Oklahoma
- Menominee Indian Tribe of Wisconsin
- Winnebago Tribe of Nebraska

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8 LIST OF PREPARERS

Table 8-1: Federal Emergency Management Agency Preparers

Reviewers	Experience and Expertise	Role in Preparation
Pamela Ruble	Public Assistance Task Force Lead	PA Program Monitor
Roger Ammons	Program Delivery Manager	PA Project Lead
Duane Castaldi	Regional Environmental Officer (REO)	Project Monitor
Karie Roach	Environmental Protection Specialist	Technical Monitor
Nicholas Dorochoff	Deputy REO	Technical Editor
Daniel Galan-Kercado	Senior Environmental Planner	NEPA Documentation Project Lead
Michael Sealy	Environmental Planner	NEPA Documentation
Varna Boyd, MA, RPA	Senior Archaeologist	Archaeological Research / Compliance
Eugene Fowler, Jr.	GIS Specialist	GIS/Graphics

APPENDICES

Appendix A: Projects Plans

Appendix B: Agency Consultation

Appendix C: Tribal Nation Consultation

Appendix D: Floodplain / Wetlands Management

Appendix E: City of Middleton Meeting Notes

Appendix F: Public Notice and Comments

Appendix G: Permits

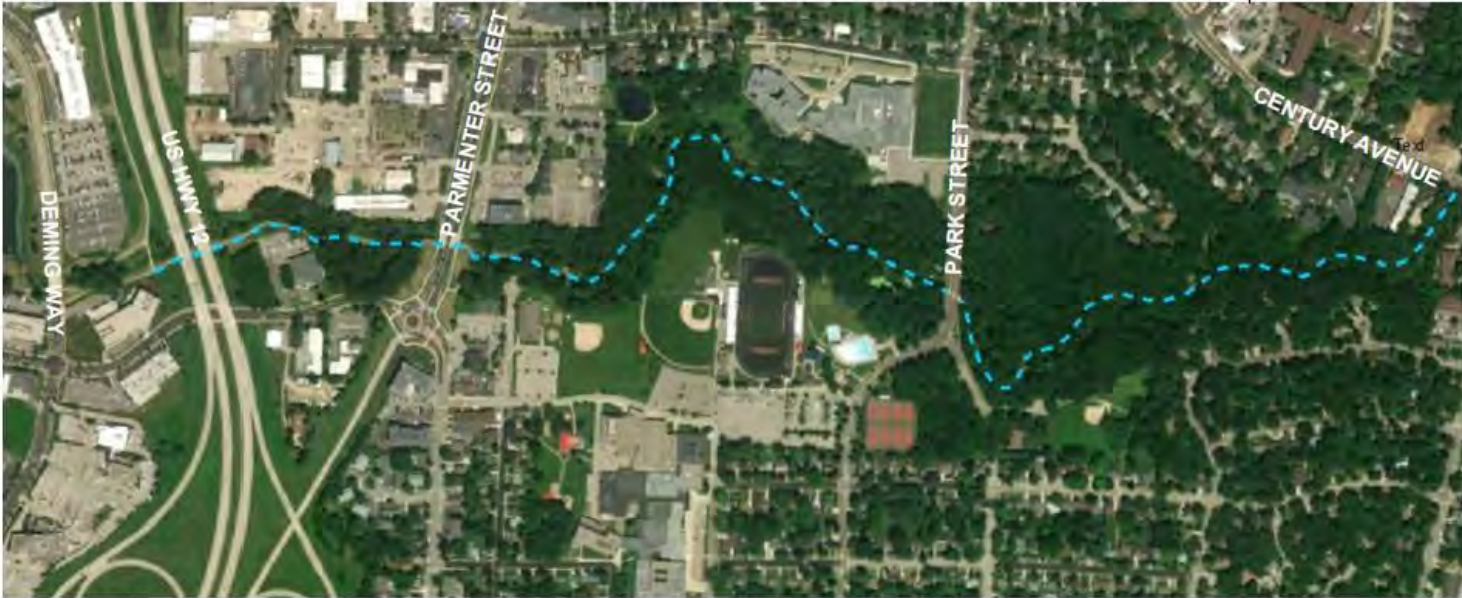
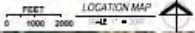
Appendix A: Project Plans

PHEASANT BRANCH STREAMBANK STABILIZATION MAINSTEM POND TO CENTURY AVENUE

CITY PROJECT 18-125n
CITY OF MIDDLETON

Sheet Number	Sheet Title
1	TITLE SHEET AND SHEET INDEX
2	PROJECT OVERVIEW MAINSTEM POND TO PARMENTER STREET
3	PROJECT OVERVIEW TO PARMENTER TO PARK STREET
4	PROJECT OVERVIEW PARK STREET TO CENTURY AVENUE
5	PROPOSED PLAN 0+00 TO 6+50
6	PROPOSED PLAN 6+50 TO 12+00
7	PROPOSED PLAN 12+00 TO 15+50
8	PROPOSED PLAN 15+50 TO 23+50
9	PROPOSED PLAN 23+50 TO 29+00
10	PROPOSED PLAN 29+00 TO 36+50
11	PROPOSED PLAN 36+50 TO 41+50
12	PROPOSED PLAN 41+50 TO 47+50
13	PROPOSED PLAN 47+50 TO 51+50
14	PROPOSED PLAN 51+50 TO 59+50
15	PROPOSED PLAN 59+50 TO 67+50
16	PROPOSED PLAN 67+50 TO 73+00

17	PROPOSED PLAN 73+00 TO 80+00
18	PROPOSED PLAN 80+00 TO 86+00
19	PROPOSED PLAN 86+00 TO 92+50
20	PROPOSED PLAN 92+50 TO 98+50
21	PROPOSED PLAN 98+50 TO 105+00
22-28	EXISTING CROSS SECTIONS
29-33	PROPOSED CROSS SECTIONS
34-36	EROSION CONTROL / PLANTING PLAN
37-40	DETAILS



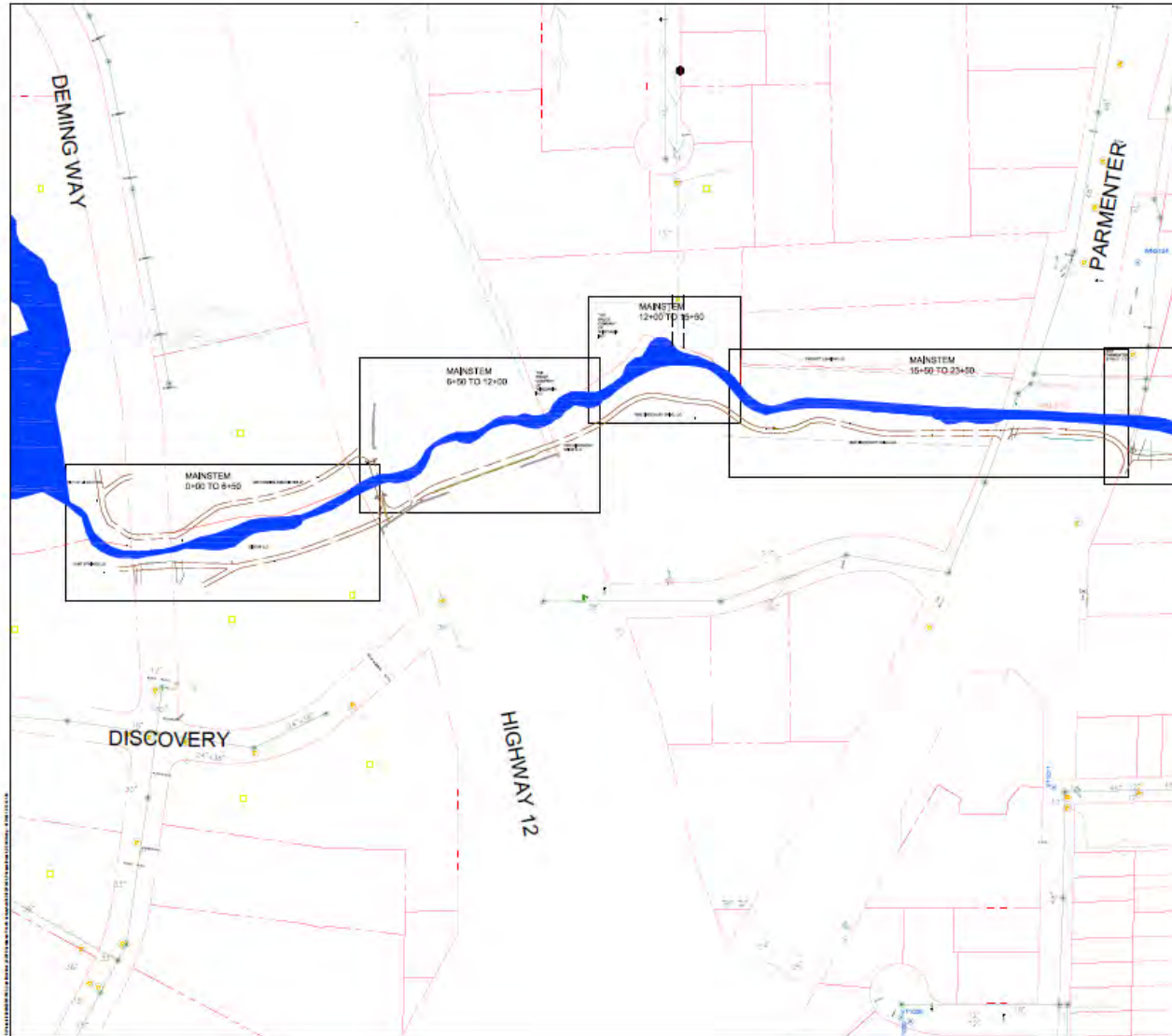
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MAINSTEM POND TO CENTURY AVENUE
TITLE SHEET AND SHEET INDEX
DAKE COUNTY, WISCONSIN

NO.	DATE	DESCRIPTION
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DATE	REVISION
DESIGNED	BY
CHECKED	BY
APPROVED	BY

TITLE SHEET
1

FINAL DESIGN



LEGEND

- EXISTING GRADE
- PHEASANT BRANCH CHANNEL
- EXISTING SANITARY SEWER LINE
- EXISTING STORM WATER LINE
- EXISTING TRAIL
- PROPERTY LINE

Construction Sequencing Notes:

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLETING ALL ACTIVITIES IN A SAFE MANNER. PROVIDE APPROPRIATE MEASURES TO ENSURE THAT PERSONS WORKING IN OR NEAR THE WORK AREA ARE PROTECTED.
2. CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITIES IN ADVANCE OF CONSTRUCTION TO DETERMINE LOCATION OF ALL FACILITIES AND TO PROVIDE ADEQUATE PROTECTION DURING CONSTRUCTION.
3. CONTRACTOR SHALL PROTECT SITE ACCESS POINTS TO PREVENT TRACKING SOIL AND/OR OTHER CONSTRUCTION RELATED MATERIALS ONTO THE EXISTING ROADWAY DURING CONSTRUCTION.
4. CONSTRUCTION WILL BEGIN ON THE UPSTREAM PROJECT AREA AND PROGRESS DOWNSTREAM. INSTREAM WORK SHALL BE COMPLETED DURING LOW FLOW CONDITIONS.
5. TREES REMOVED AND EXCESS SOILS FROM BANK GRADING OPERATIONS SHALL BE STOCKPILED ON-SITE FOR INCORPORATION IN ROOTWAD COMPOSITE AND TOWARD AREAS.
6. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

FINAL DESIGN

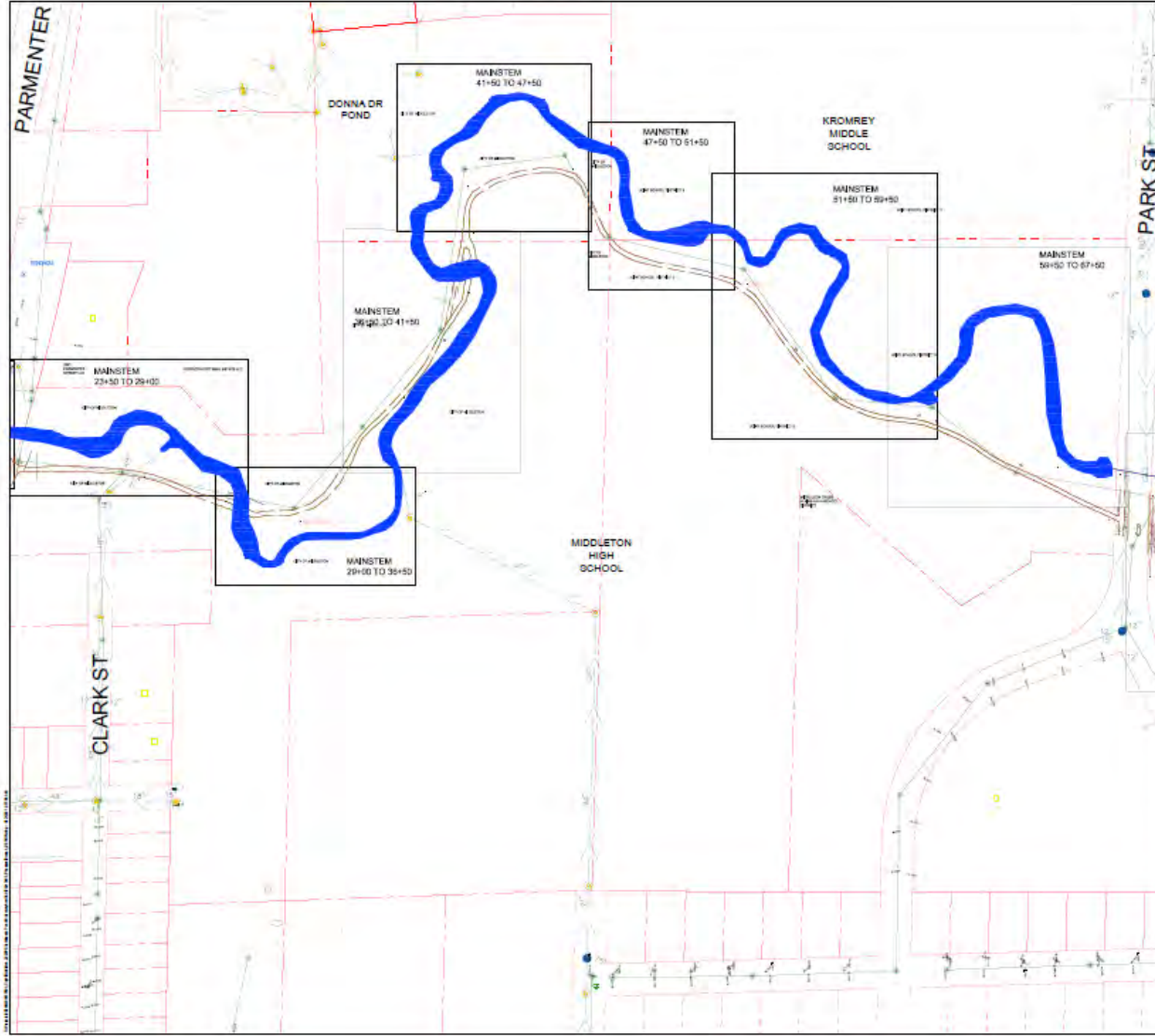
Cardno
CONSULTING ENGINEERS
1000 WEST WISCONSIN AVENUE
SUITE 200
MILWAUKEE, WISCONSIN 53233

PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
MAINSTEM POND TO PARMENTER
DANE COUNTY, WISCONSIN

NO.	DATE	DESCRIPTION
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DATE: 1/20/2020
DRAWN: JCH
CHECKED: JCH
PROJECT: POND TO PARMENTER

2



Cardno
ANALYST/DESIGN
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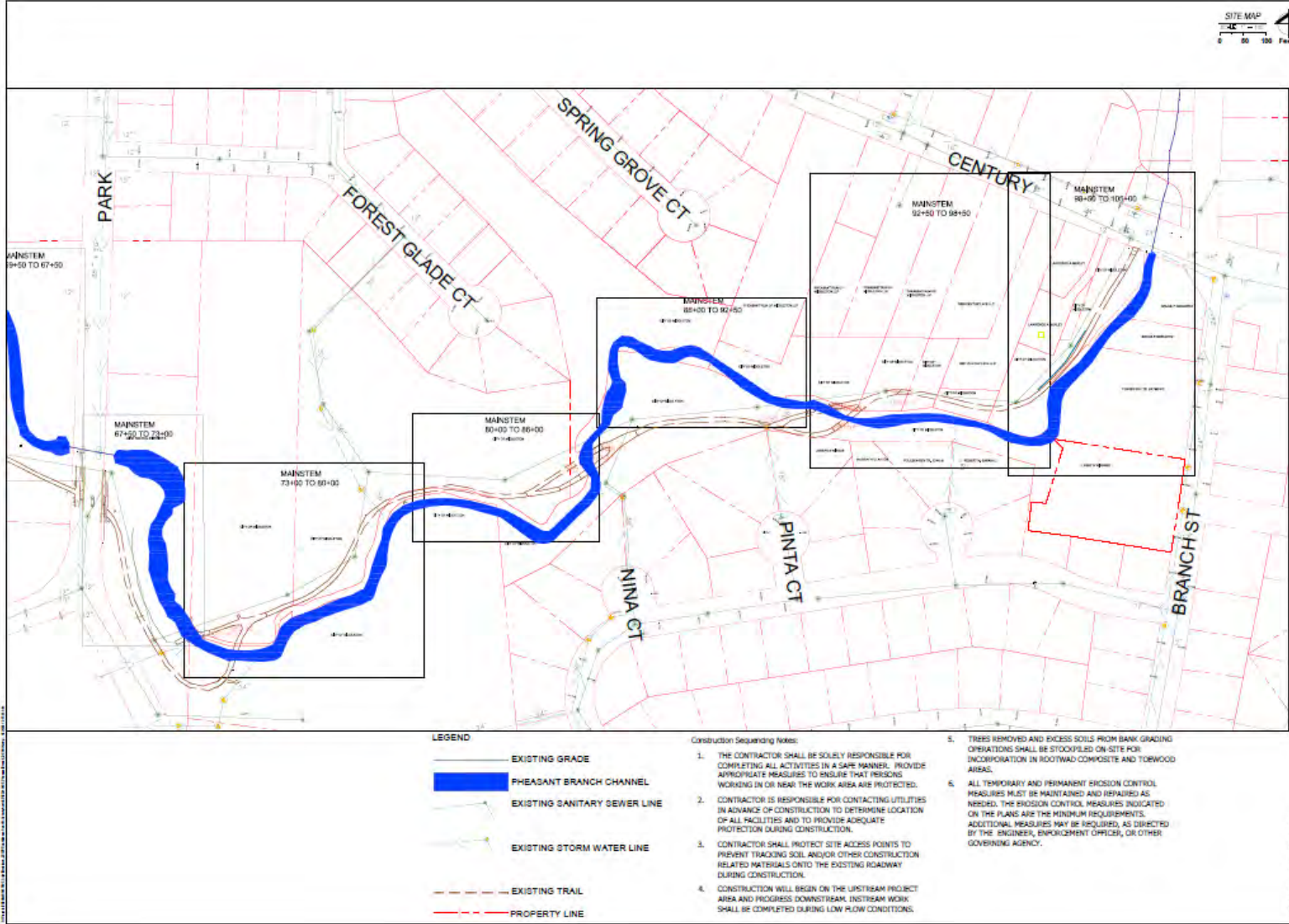
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MAINSTEM POND TO CENTURY AVENUE
PARAMETER TO PARK STREET
DANE COUNTY, WISCONSIN

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08/11/2020	FINAL DESIGN		

FINAL DESIGN

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PROJECT LOCATION: PHEASANT BRANCH STREAMBANK STABILIZATION
PROJECT STATUS: [blank]

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PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
PARK TO CENTURY
DANE COUNTY, WISCONSIN

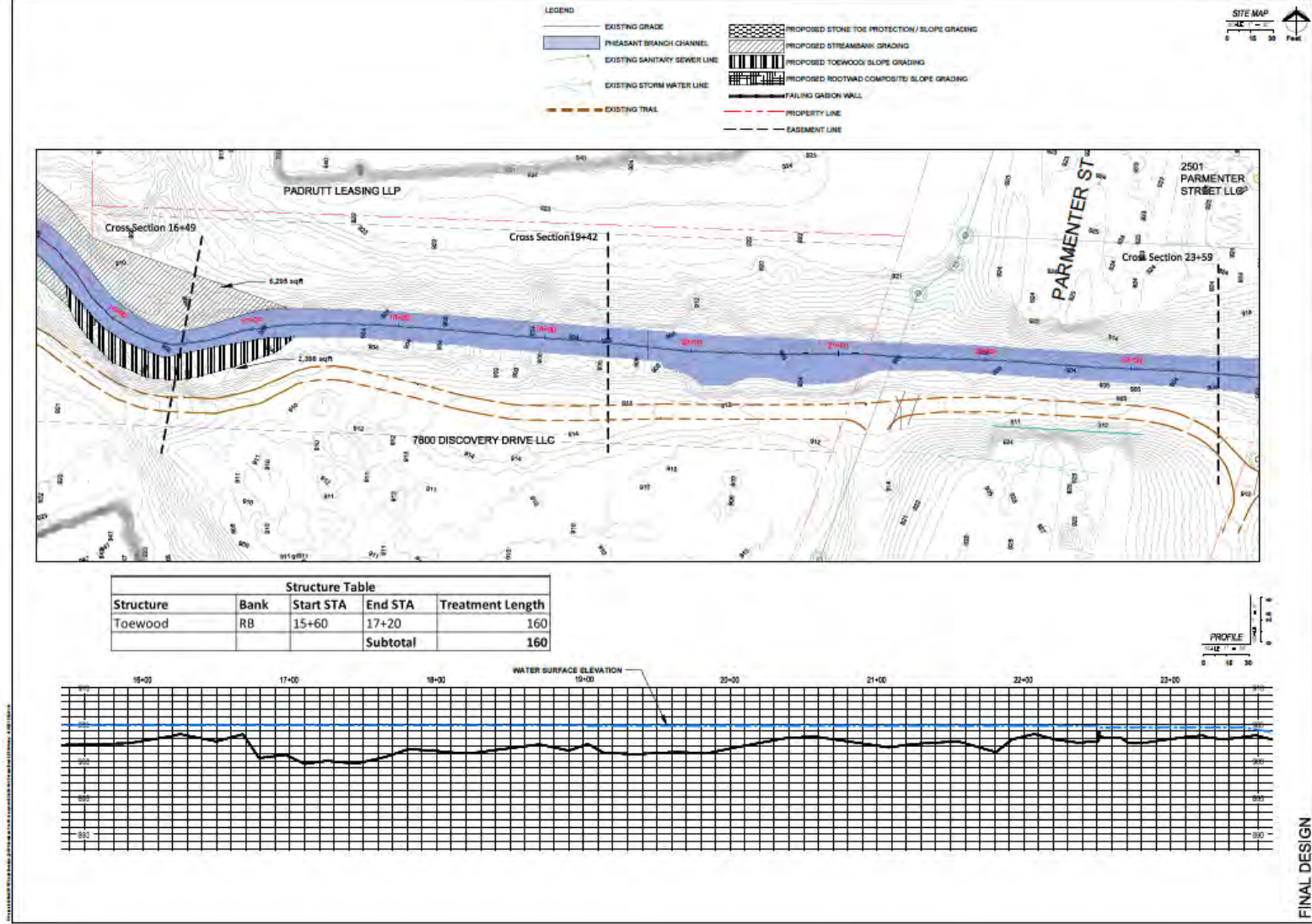
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CHECKED	1/21/21
PROJECT	1/21/21

PARK TO CENTURY
4

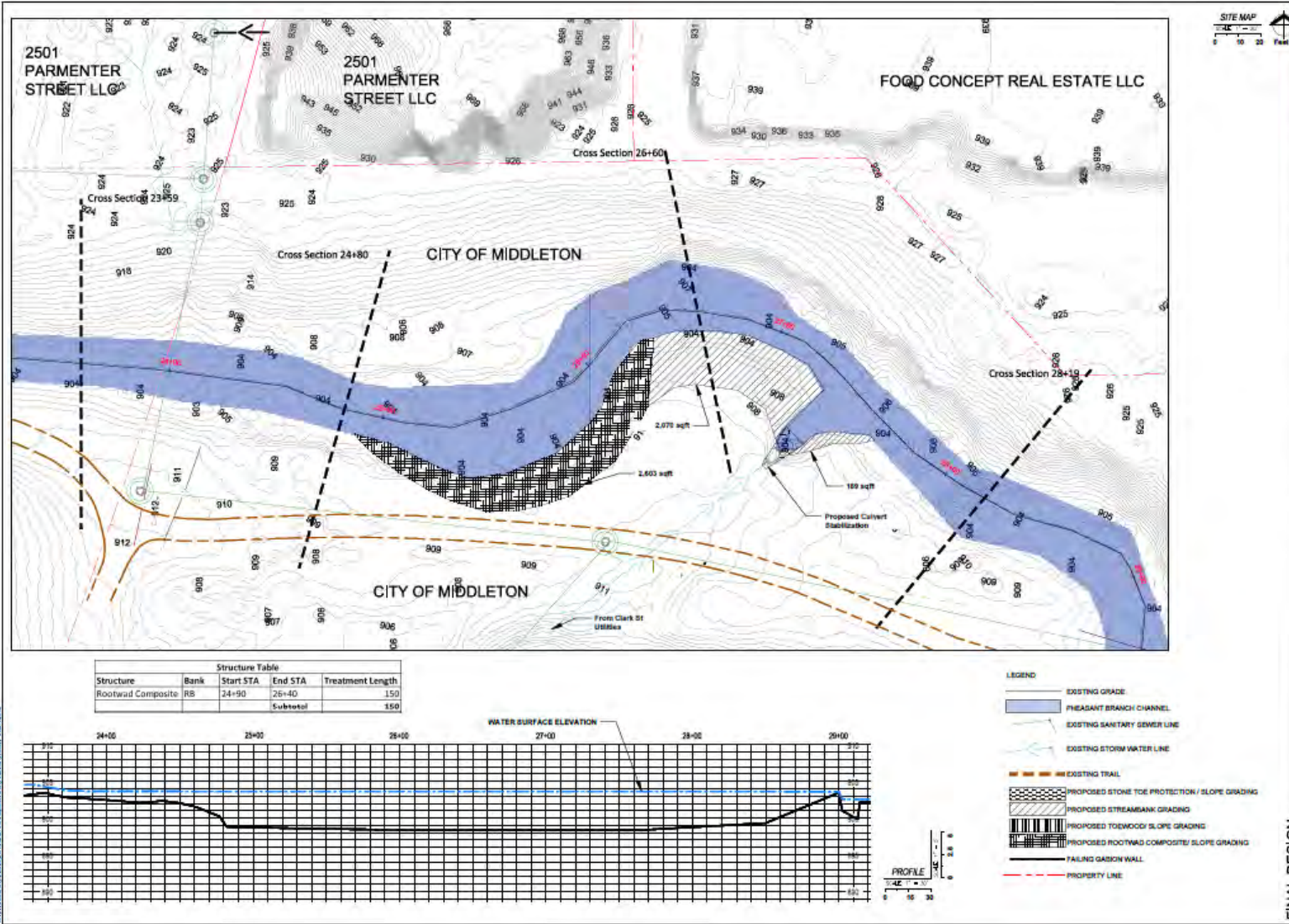
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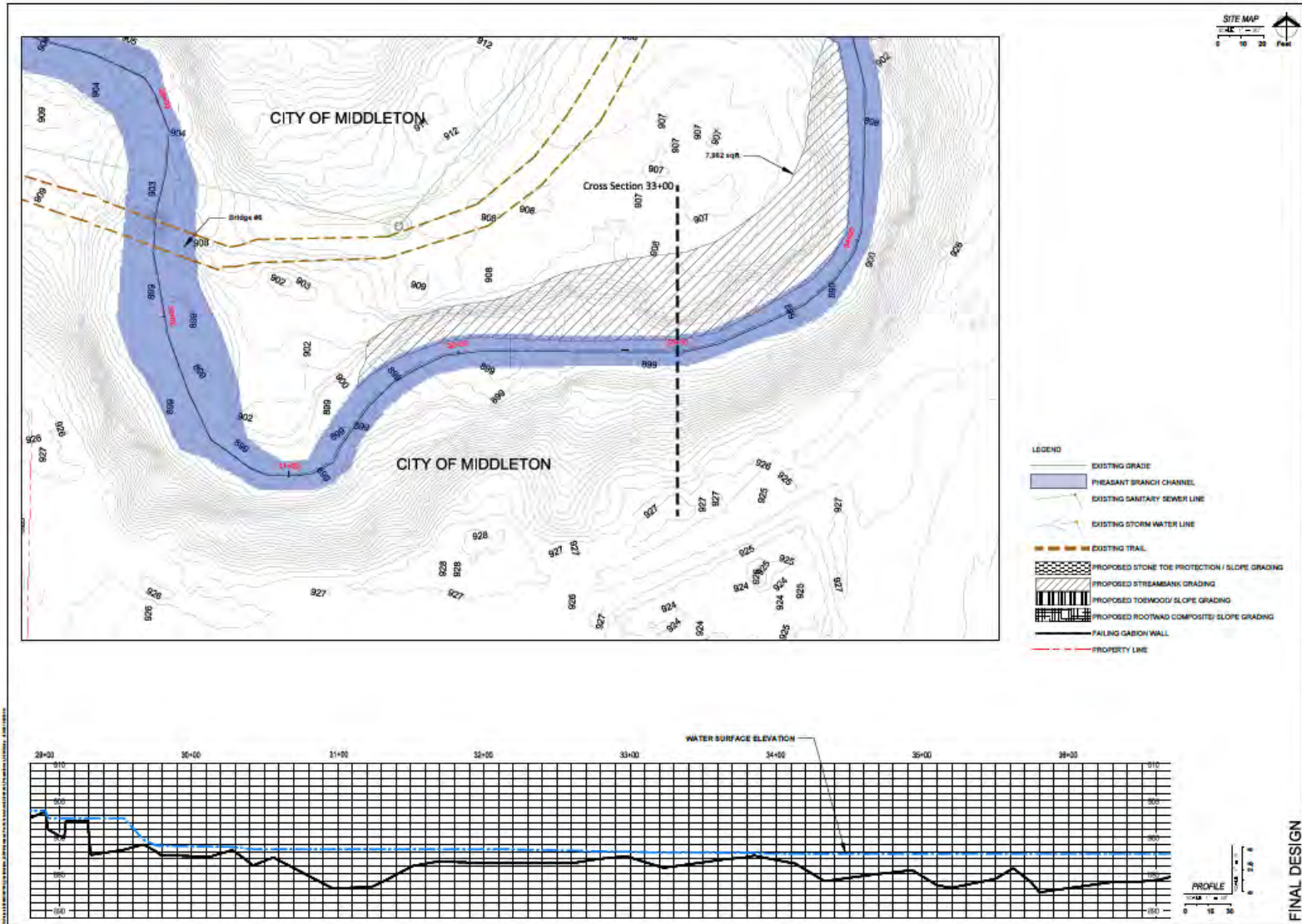




PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
15+50 TO 23+50
DANE COUNTY, WISCONSIN

15+50 TO 23+50
 8





Cardno
CONSULTING ENGINEERS
1000 W. KILBUCK RD.
MIDDLETON, WI 53598
(608) 833-1100

FINAL DESIGN

PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
29+00 TO 36+50
DANE COUNTY, WISCONSIN

NO.	DATE	REVISION

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DRAWN BY: J. H. H. (JHH)

CHECKED BY: J. H. H. (JHH)

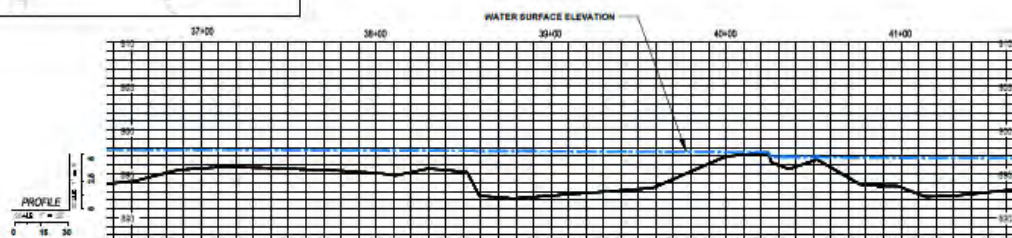
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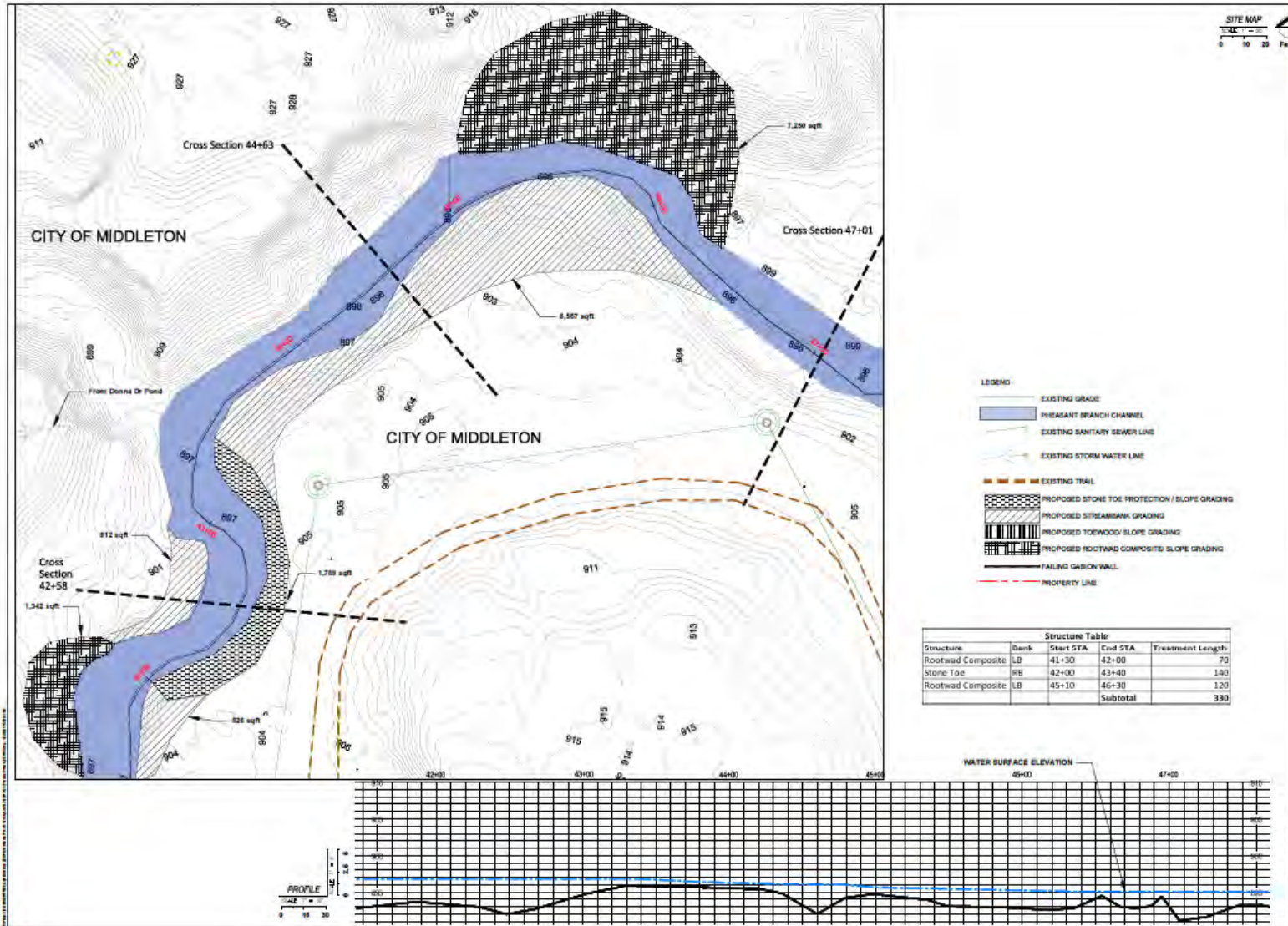
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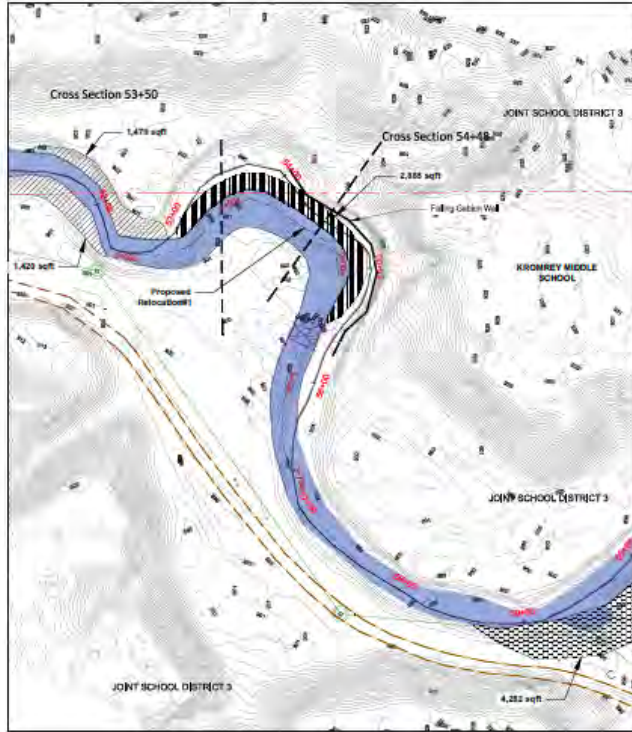
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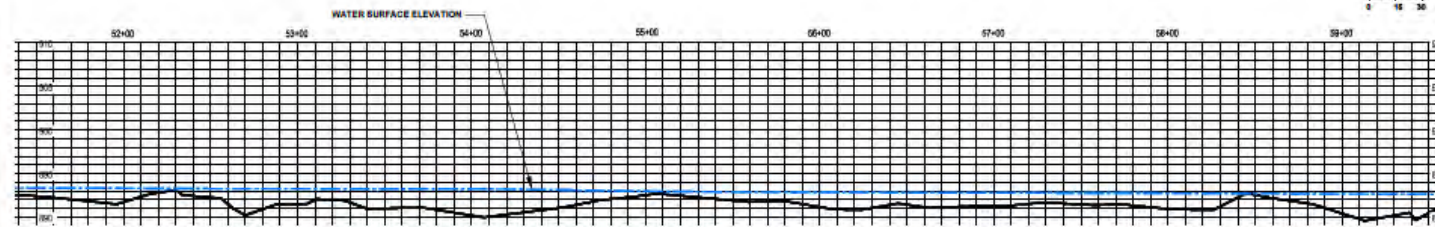
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Structure	Bank	Start STA	End STA	Treatment Length
Stone Toe	RB	34+90	39+50	460
			Subtotal	460







Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Toewood	LB	0+40a	2+50a	210
Boulder Cluster	NA	2+45a	2+70a	25
Subtotal				235



FINAL DESIGN

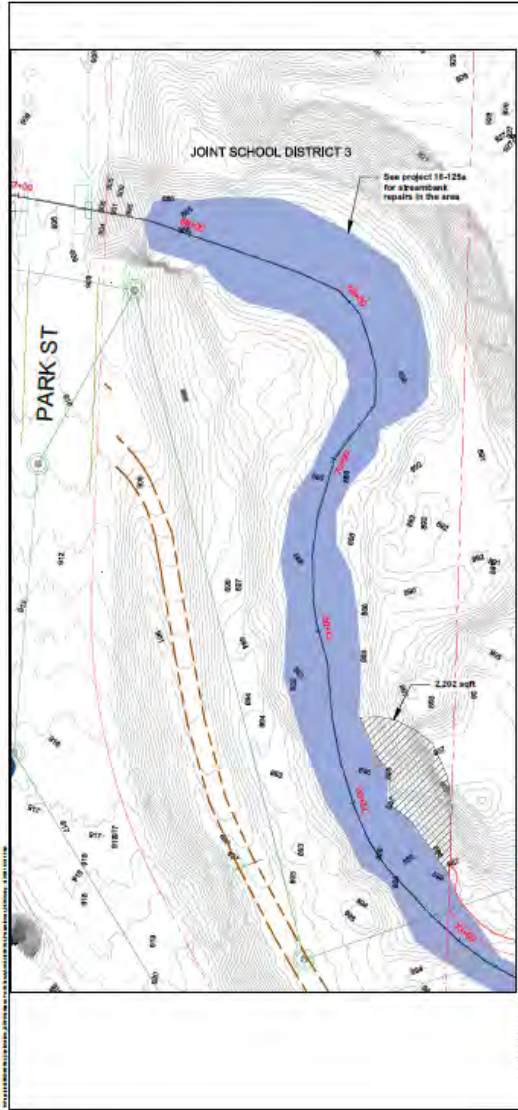


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MAINSTEM POND TO CENTURY AVENUE
51+50 TO 59+50
DANE COUNTY, WISCONSIN

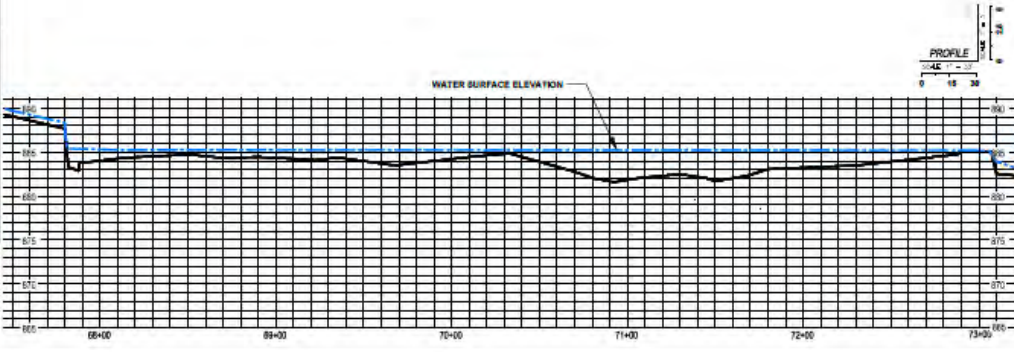
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DESIGNED BY	JOHN H. HARRIS
CHECKED BY	JOHN H. HARRIS
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SCALE: 1"=20'
PROJECT: 100000000

14



- LEGEND
- EXISTING GRADE
 - PHEASANT BRANCH CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - EXISTING TRAIL
 - PROPOSED STONE TOE PROTECTION / SLOPE GRADING
 - PROPOSED STREAMBANK GRADING
 - PROPOSED TOEWOOD/ SLOPE GRADING
 - PROPOSED ROOTWAD COMPOSITE/ SLOPE GRADING
 - FAILING GABION WALL
 - PROPERTY LINE



FINAL DESIGN



PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
67+50 TO 73+00
DANE COUNTY, WISCONSIN

DATE	REVISION

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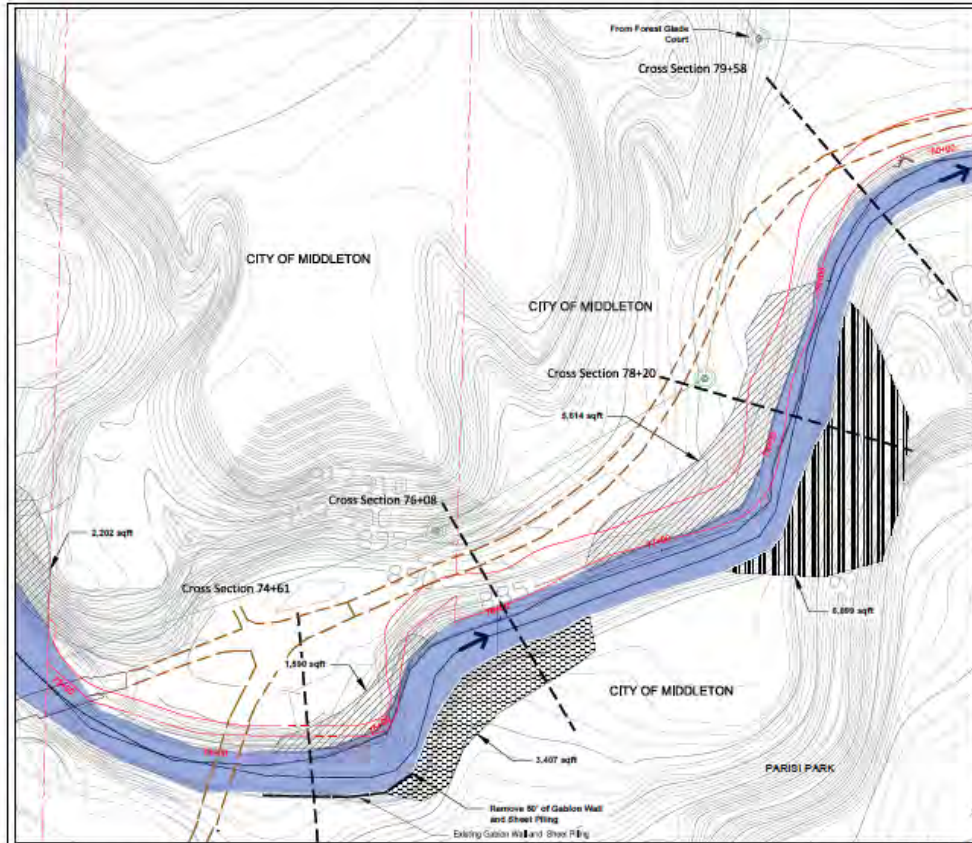
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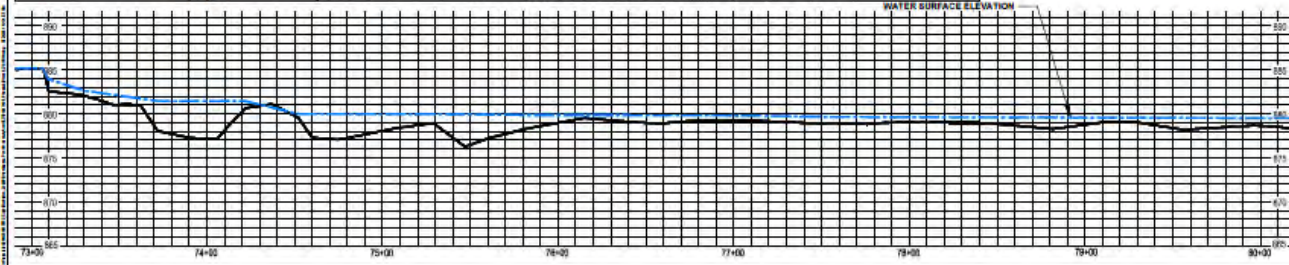
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16



- LEGEND**
- EXISTING GRADE
 - PHEASANT BRANCH CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - EXISTING TRAIL
 - PROPOSED STONE TOE PROTECTION / SLOPE GRADING
 - PROPOSED STREAMBANK GRADING
 - PROPOSED TOEWOOD SLOPE GRADING
 - PROPOSED ROCKWALL COMPOSITE SLOPE GRADING
 - FAILING GABION WALL
 - PROPERTY LINE

STRUCTURE TABLE				
Structure	Bank	Start STA	End STA	Treatment Length
Stone Toe	RB	74+90	76+40	150
Toewood	RB	77+20	79+00	180
		Subtotal		330



FINAL DESIGN

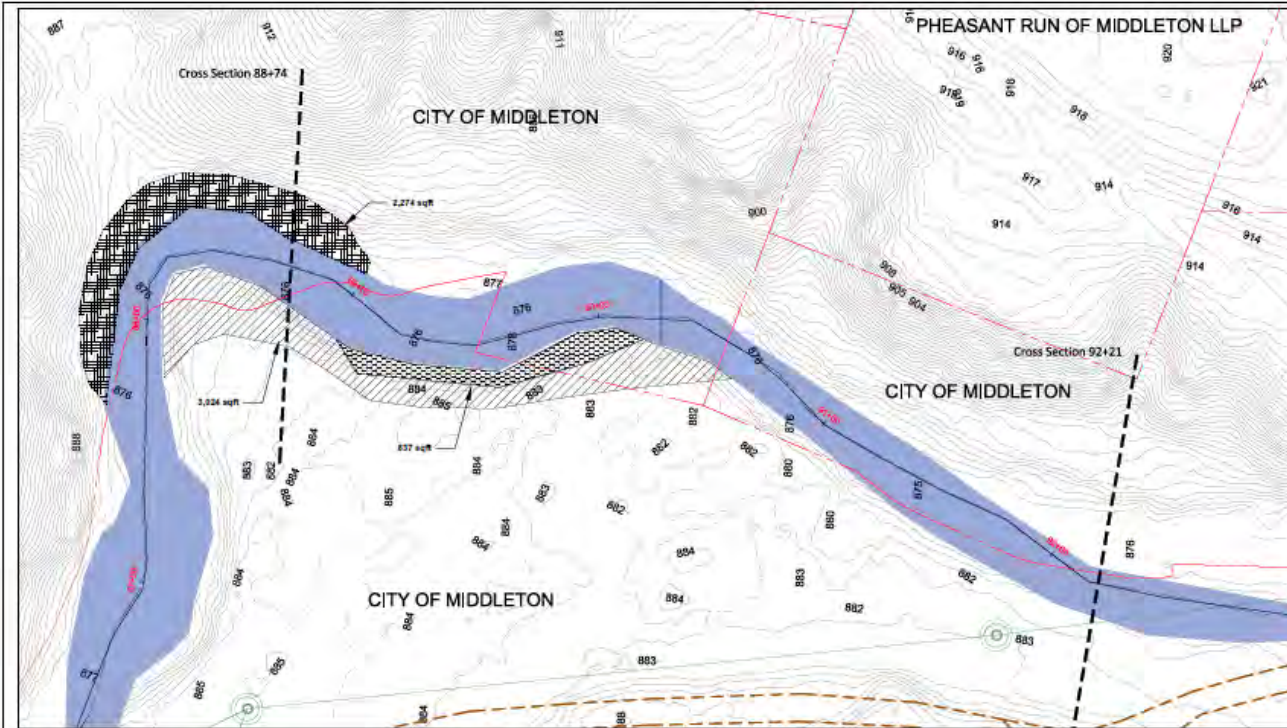


PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
73+00 TO 80+00
 DANE COUNTY, WISCONSIN

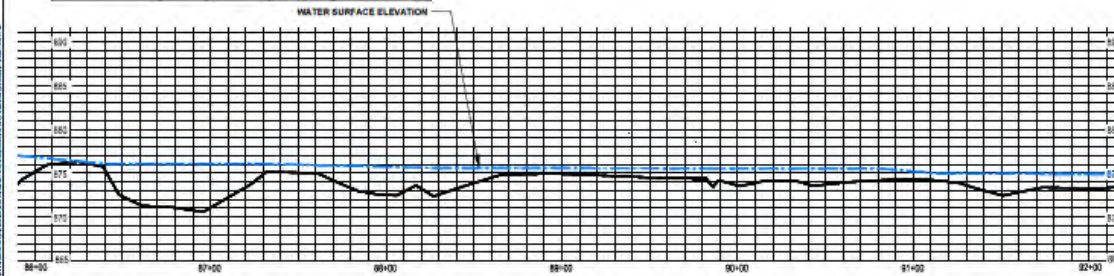
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 DRAWN: J. CO.
 CHECKED: J. CO.
 DESIGNED: J. CO.
 PROJECT NO.: 17-0000000

PROJECT: 73+00 TO 80+00
 SHEET: 17



Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Rootwad Composite	LB	87+60	89+00	140
Stone Toe	RB	89+00	90+10	110
Subtotal				250



- LEGEND**
- EXISTING GRADE
 - PHEASANT BRANCH CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - EXISTING TRAIL
 - PROPOSED STONE TOE PROTECTION / SLOPE GRADING
 - PROPOSED STREAMBANK GRADING
 - PROPOSED TORMWOOD SLOPE GRADING
 - PROPOSED ROOTWAD COMPOSITE SLOPE GRADING
 - FAILING GABION WALL
 - PROPERTY LINE

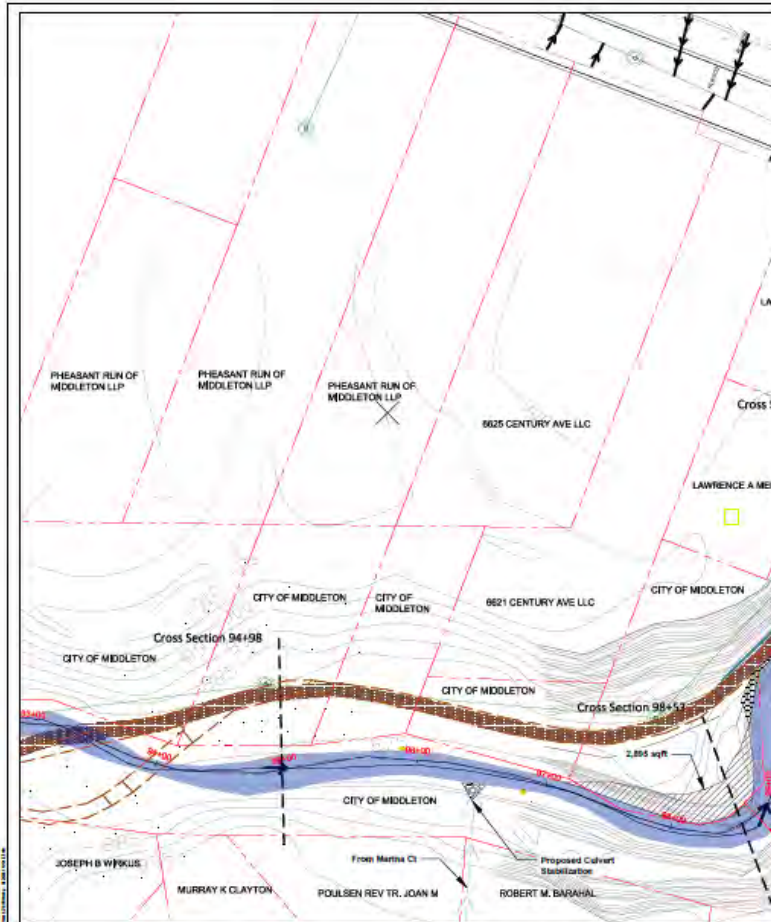


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MAINSTEM POND TO CENTURY AVENUE
88+00 TO 92+50
DANE COUNTY, WISCONSIN

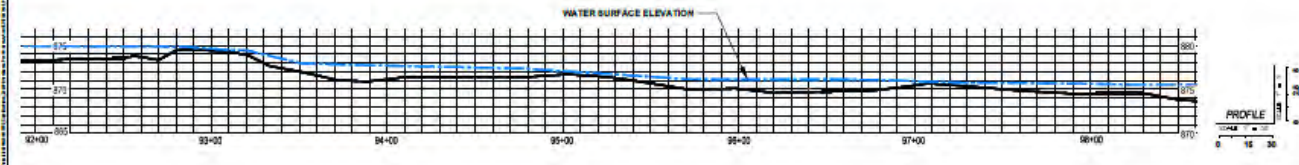
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CHECKED	1	1/10
APPROVED	1	1/10
PROJECT	1	1/10

88+00 TO 92+50



- LEGEND
- EXISTING GRADE
 - PHEASANT BRANCH CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - EXISTING TRAIL
 - PROPOSED STONE TOE PROTECTION / SLOPE GRADING
 - PROPOSED STREAMBANK GRADING
 - PROPOSED TOWARD SLOPE GRADING
 - PROPOSED ROOTWAD COMPOSITE SLOPE GRADING
 - FAILING GABION WALL
 - PROPERTY LINE



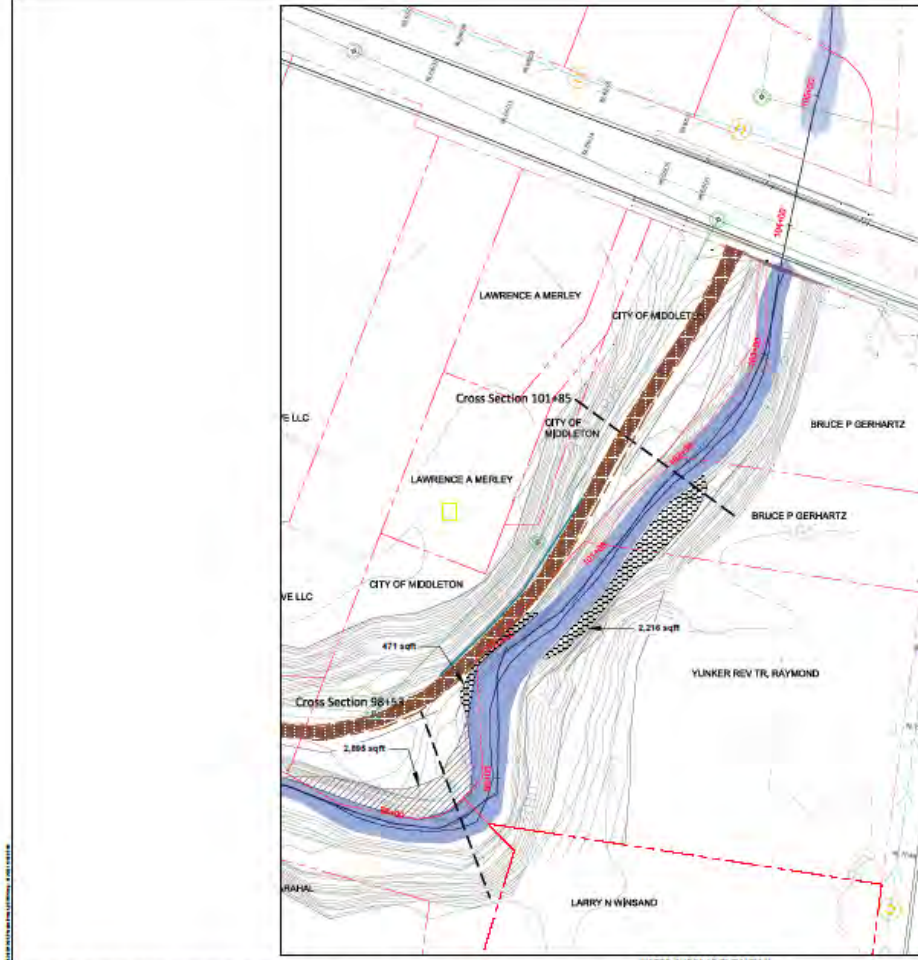
PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
92+50 TO 98+50
DANE COUNTY, WISCONSIN

DATE	10/20/2018
DESIGNED BY	J. J. JONES
CHECKED BY	J. J. JONES
APPROVED BY	J. J. JONES
DATE	10/20/2018
DESIGNED BY	J. J. JONES
CHECKED BY	J. J. JONES
APPROVED BY	J. J. JONES

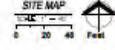
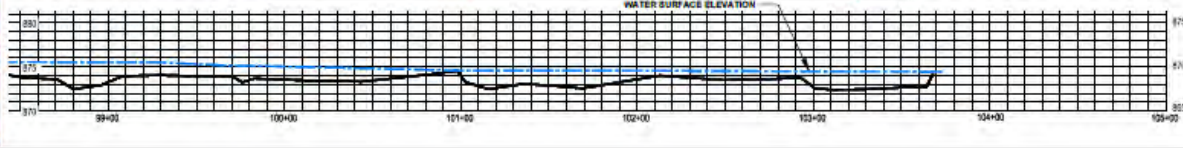
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APPROVED BY	J. J. JONES
DATE	10/20/2018
DESIGNED BY	J. J. JONES
CHECKED BY	J. J. JONES
APPROVED BY	J. J. JONES

82+50 TO 98+50
 20

FINAL DESIGN



Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Stone Toe	LB	99+50	100+50	100
Stone Toe	RB	100+25	102+00	175
		Subtotal		275



- LEGEND
- EXISTING GRADE
 - PHEASANT BRANCH CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - EXISTING TRAIL
 - PROPOSED STONE TOE PROTECTION / SLOPE GRADING
 - PROPOSED STREAMBANK GRADING
 - PROPOSED TOEWOODS/ SLOPE GRADING
 - PROPOSED ROOTWAD COMPOSITE/ SLOPE GRADING
 - EXISTING GABION WALL
 - PROPERTY LINE

FINAL DESIGN

PHEASANT BRANCH STREAMBANK STABILIZATION

MAINSTEM POND TO CENTURY AVENUE

98+50 TO 105+00

DANE COUNTY, WISCONSIN

Cardno

CONSULTING ENGINEERS

1000 W. KILBURN AVE.

MADISON, WI 53703

TEL: 608/261-1111

FAX: 608/261-1112

WWW.CARDNO.COM

DATE: 10/10/2014

BY: J. J. J.

CHECKED: J. J. J.

PROJECT: 98+50 TO 105+00

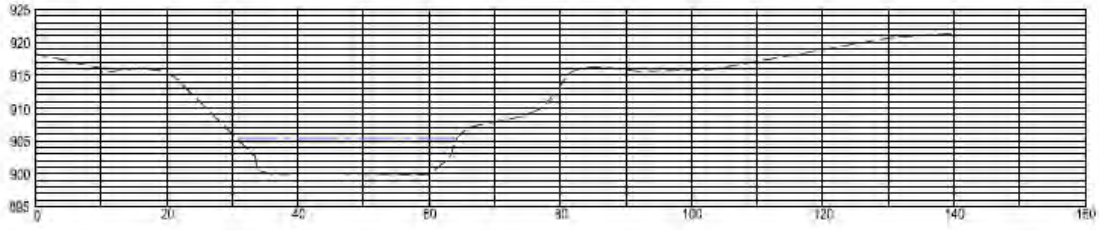
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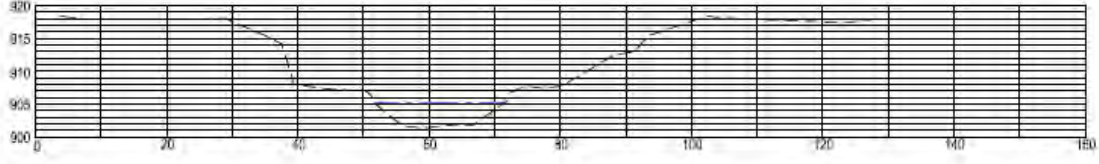
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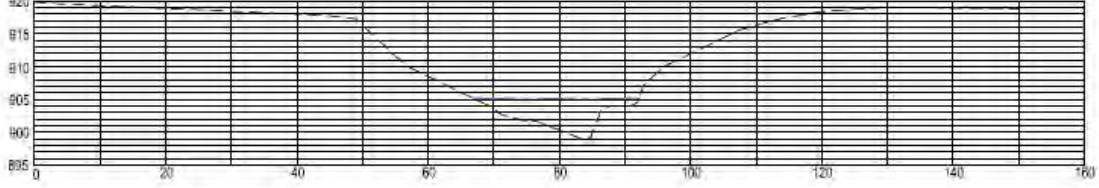
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3+06



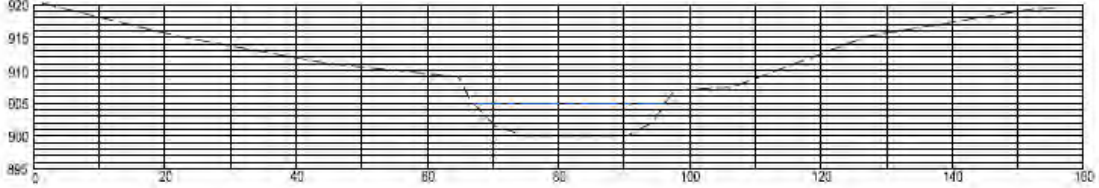
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3+98



Cross
Section
5+84



Cross
Section
11+60



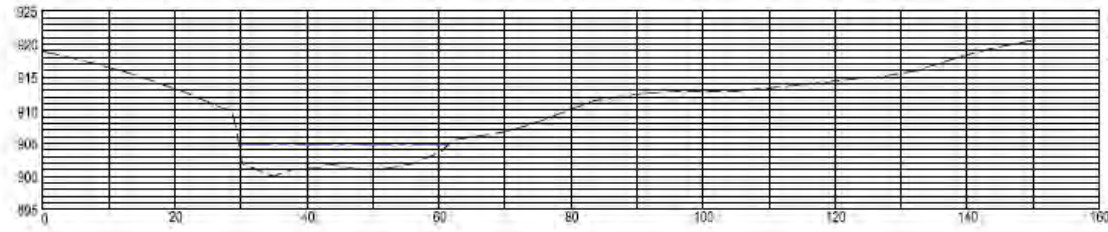
PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
EXISTING CROSS SECTIONS
DANE COUNTY, WISCONSIN

Station	Left Bank	Right Bank
0+50		
3+06		
3+98		
5+84		
11+60		

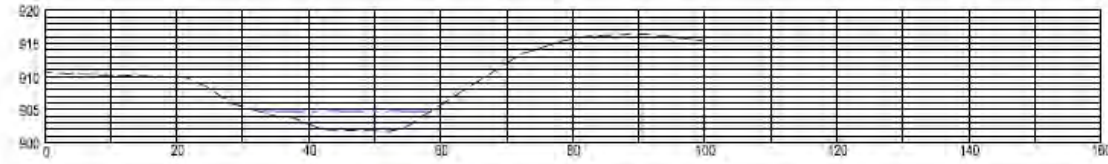
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APPROVED	J. J. J.

CROSS SECTIONS

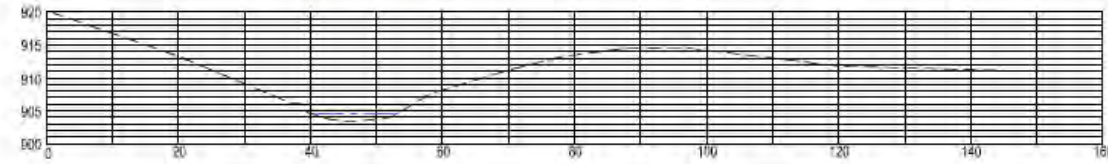
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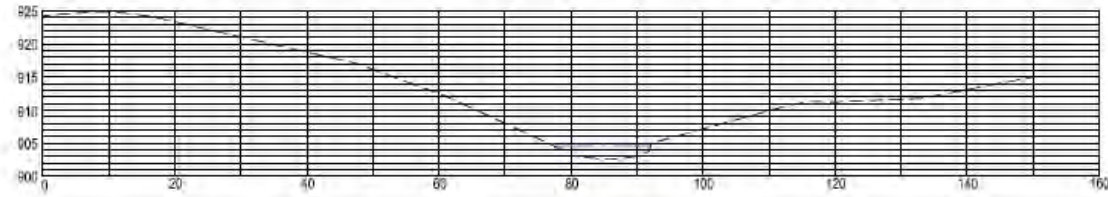
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16+49



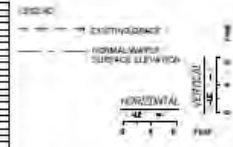
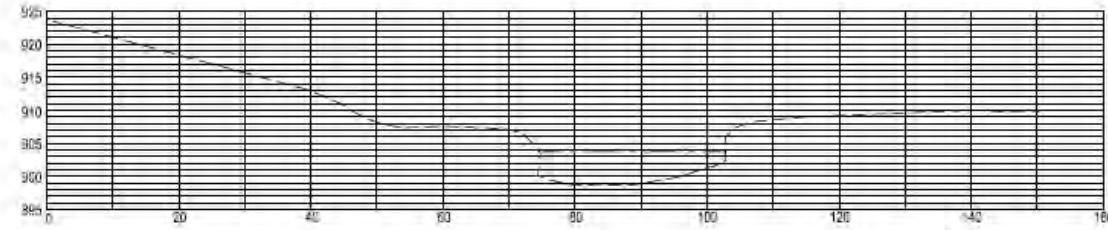
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19+42



Cross
Section
23+59



Cross
Section
24+80



FINAL DESIGN

Cardno
CONSULTING ENGINEERS

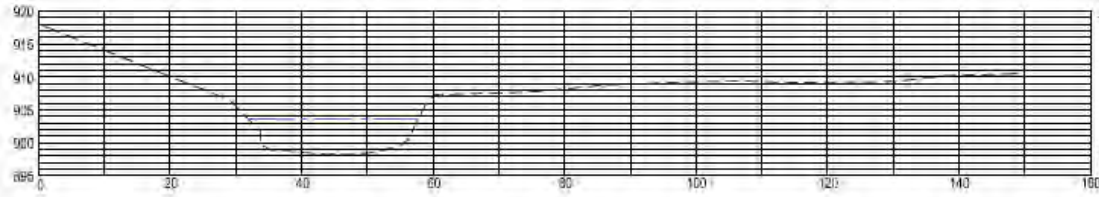
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MAINSTEM POND TO CENTURY AVENUE
EXISTING CROSS SECTIONS
DANE COUNTY, WISCONSIN

STATION	DATE	BY	CHECKED
13+99			
16+49			
19+42			
23+59			
24+80			

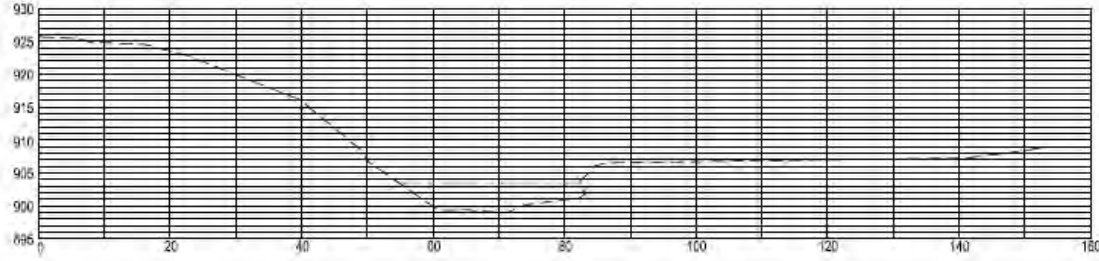
CROSS SECTIONS

23

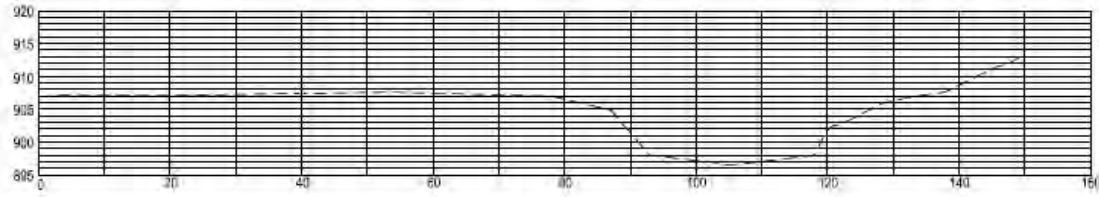
Cross
Section
26+60



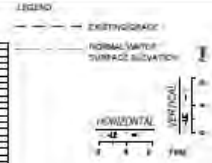
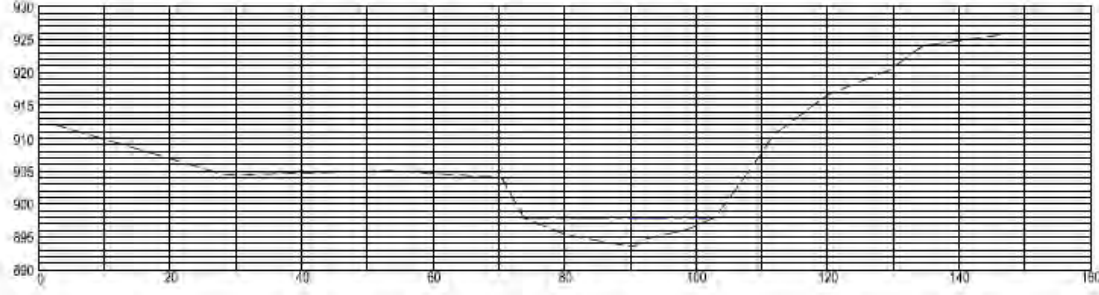
Cross
Section
28+19



Cross
Section
33+00



Cross
Section
35+82



FINAL DESIGN



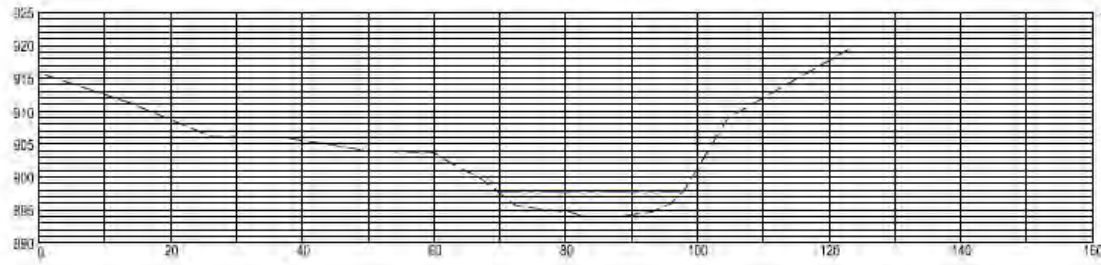
PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
EXISTING CROSS SECTIONS
DANE COUNTY, WISCONSIN

SECTION	DATE	BY	CHKD
26+60			
28+19			
33+00			
35+82			

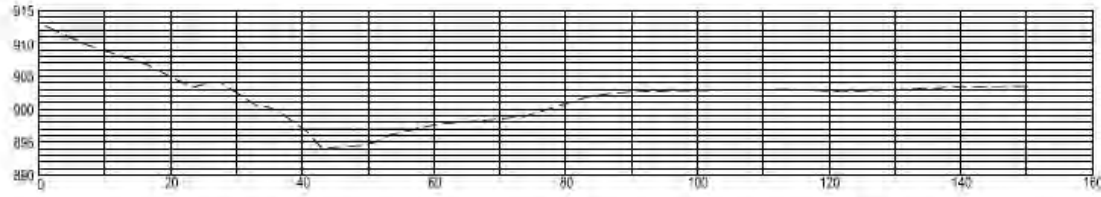
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BY	J. J. J.
CHKD	J. J. J.
APP'D	J. J. J.

CROSS SECTIONS
24

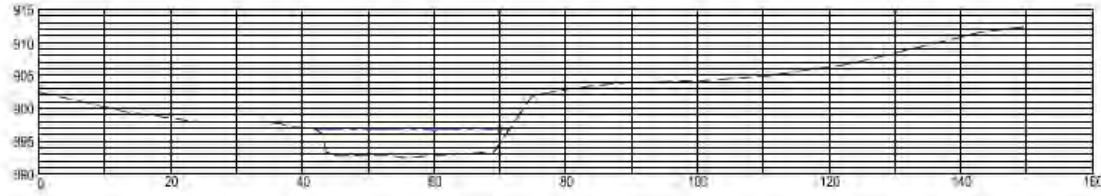
Cross
Section
37+63



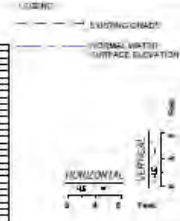
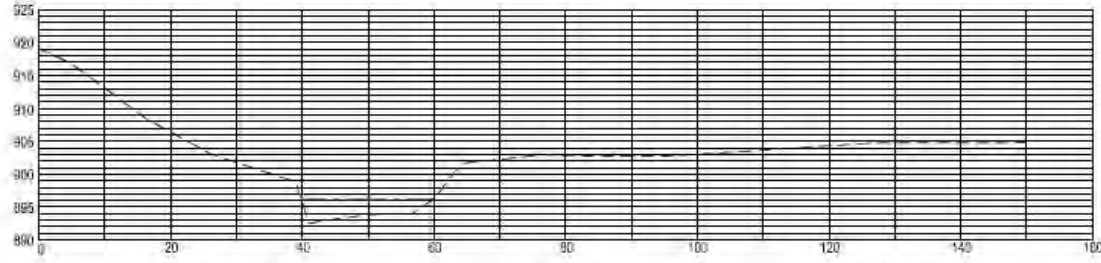
Cross
Section
40+90



Cross
Section
42+58



Cross
Section
44+63



FINAL DESIGN

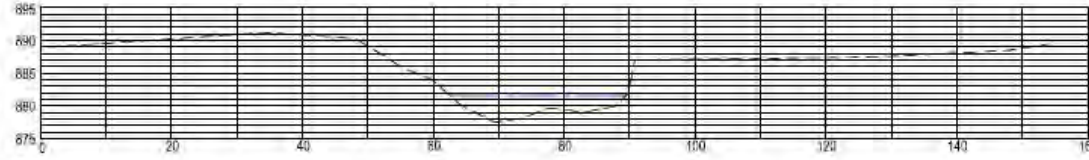


PHEASANT BRANCH STREAMBANK STABILIZATION
 MAINSTEM POND TO CENTURY AVENUE
 EXISTING CROSS SECTIONS
 DANE COUNTY, WISCONSIN

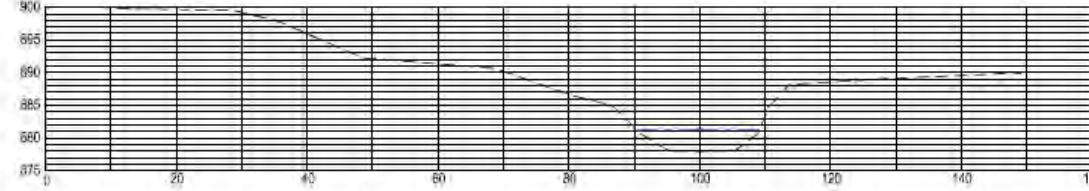
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CROSS SECTIONS

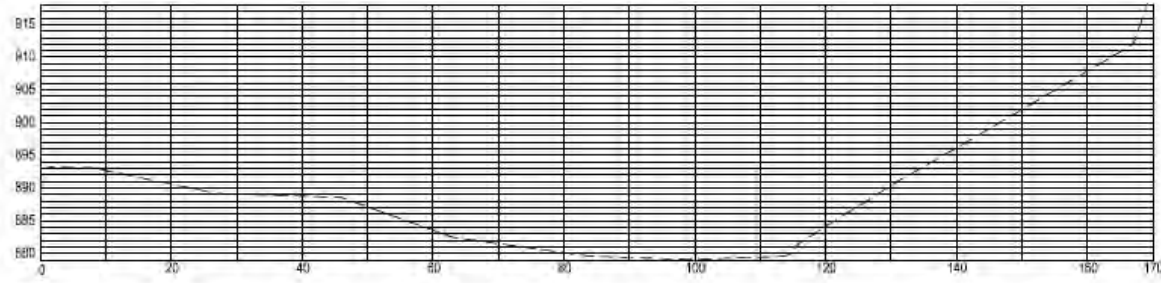
Cross
Section
74+61



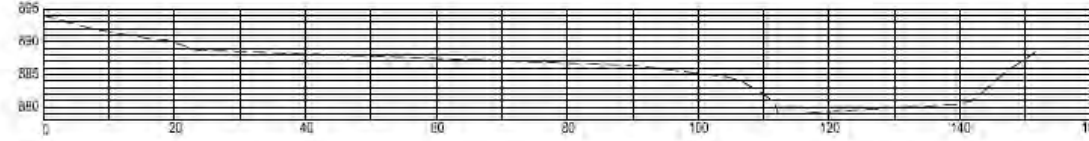
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Section
76+08



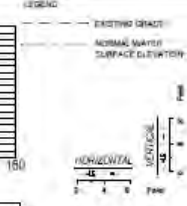
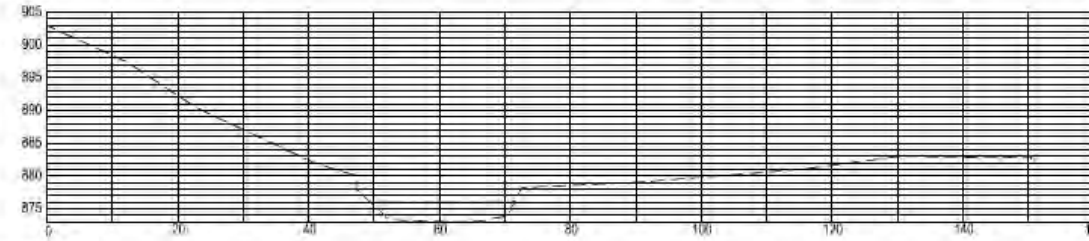
Cross
Section
78+20



Cross
Section
79+58



Cross
Section
88+74



FINAL DESIGN



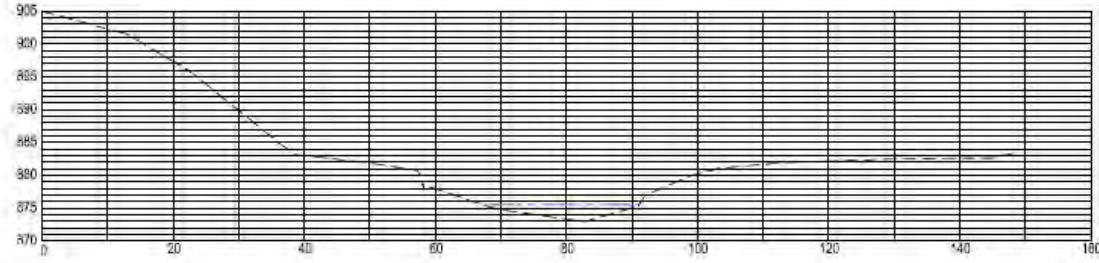
PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
EXISTING CROSS SECTIONS
DAVE COUNTY, WISCONSIN

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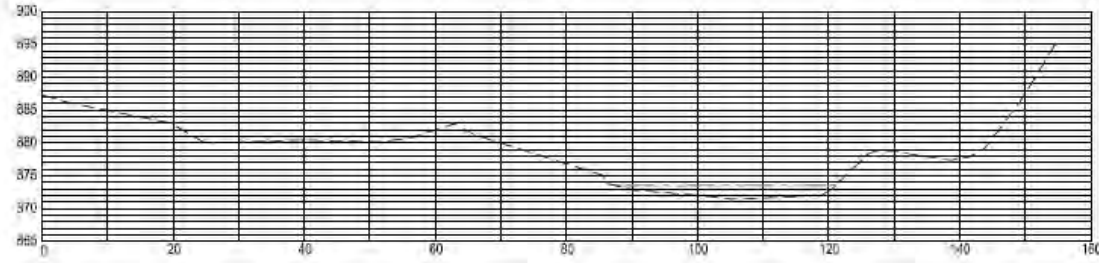
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SCALE	1" = 40'
PROJECT	1/1/2014
DESIGNER	1/1/2014
CHECKED	1/1/2014

CROSS SECTIONS

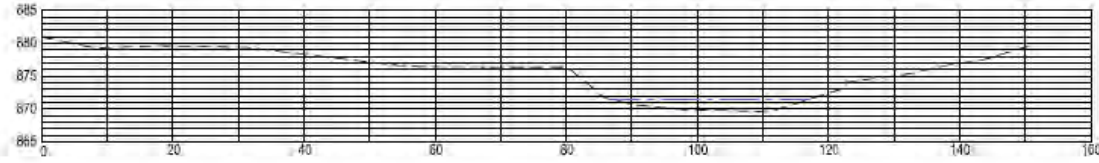
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Section
92+21



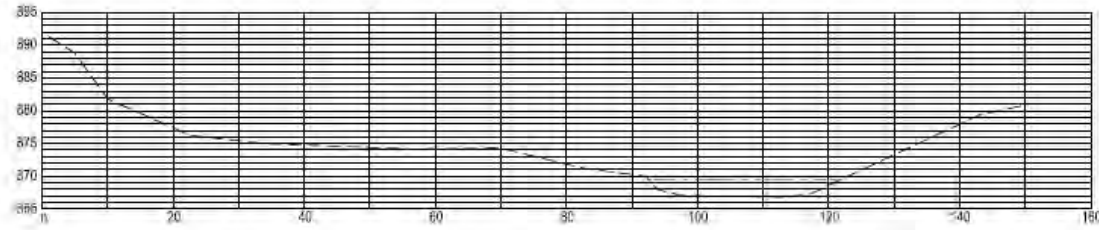
Cross
Section
94+98



Cross
Section
98+53



Cross
Section
101+85



FINAL DESIGN

PHEASANT BRANCH STREAMBANK STABILIZATION

MAINSTEM POND TO CENTURY AVENUE

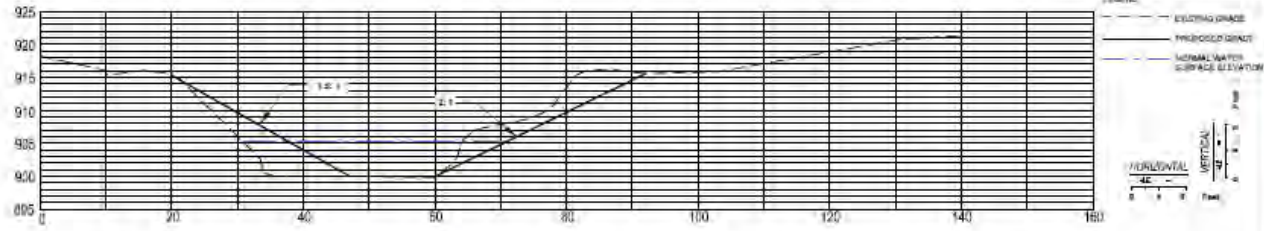
EXISTING CROSS SECTIONS

DANE COUNTY, WISCONSIN

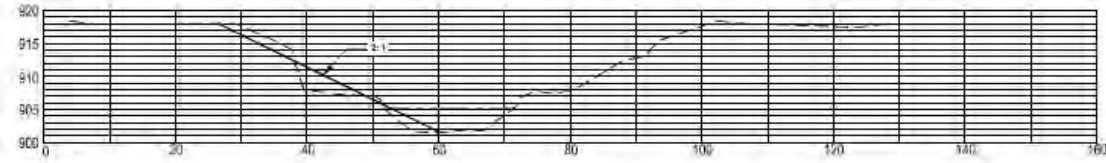


CROSS SECTIONS

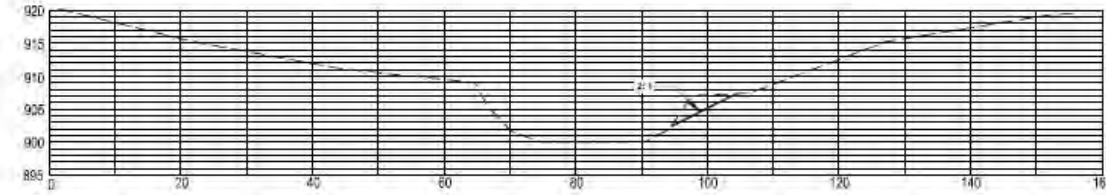
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3+06



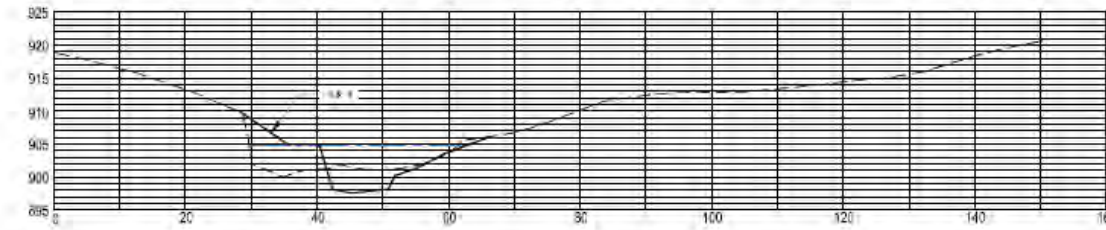
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Section
3+98



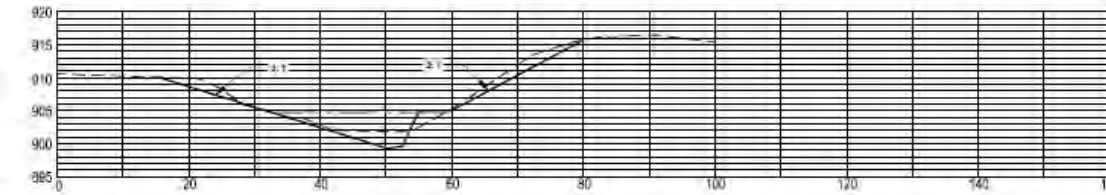
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Section
11+60



Cross
Section
13+99



Cross
Section
16+49



FINAL DESIGN

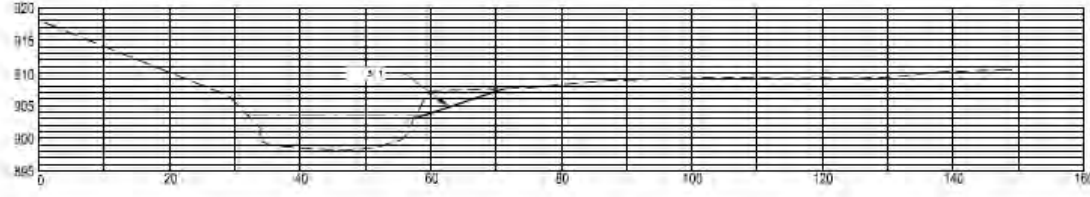


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3	10/1/2014	J. H. HARRIS	J. H. HARRIS	DESIGN
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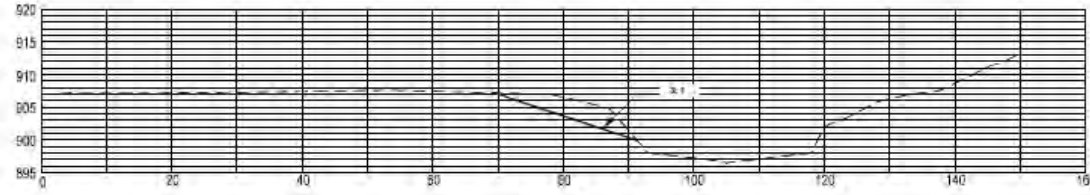
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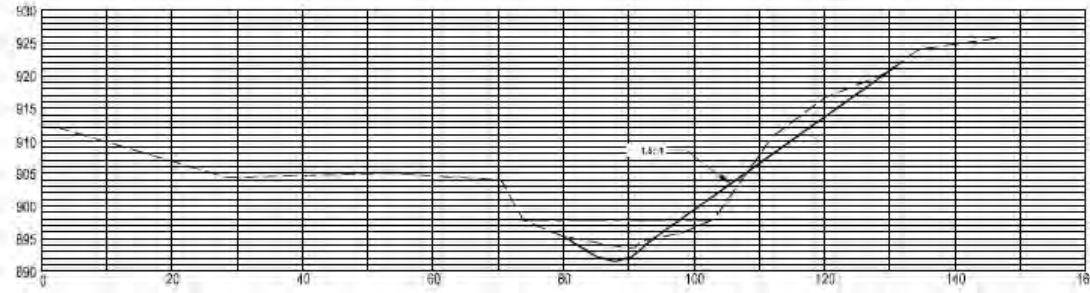
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26+60



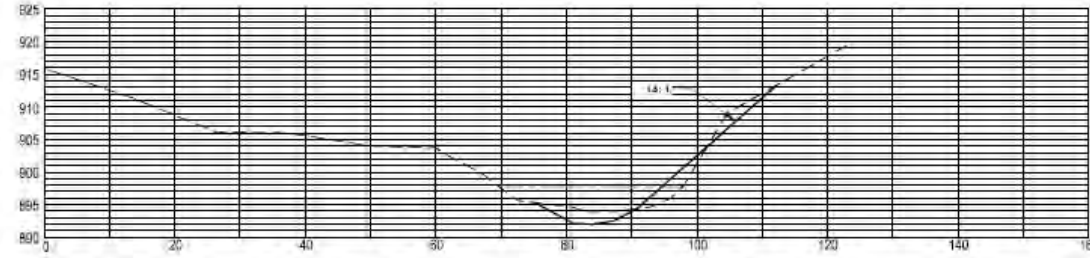
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33+00



Cross
Section
35+82



Cross
Section
37+63



FINAL DESIGN

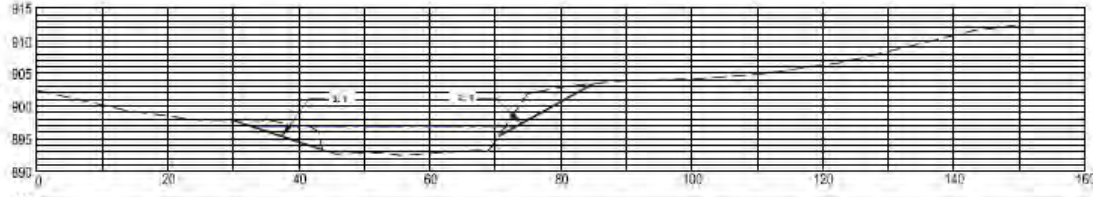


PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
PROPOSED CROSS SECTIONS
DANE COUNTY, WISCONSIN

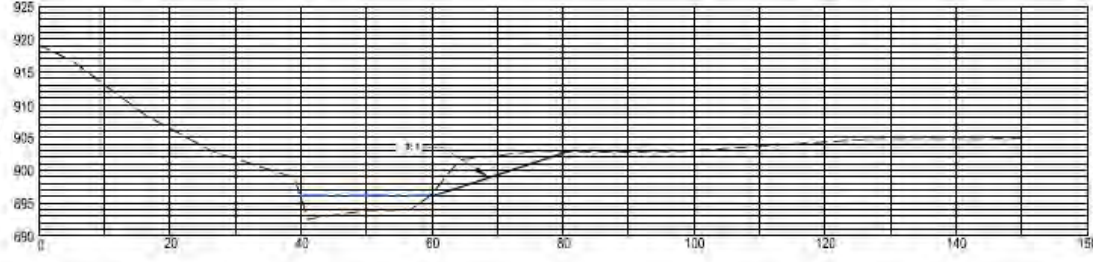
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BY	JG
CHECKED	JG
APPROVED	JG
DATE	1/23/16

CROSS SECTIONS
30

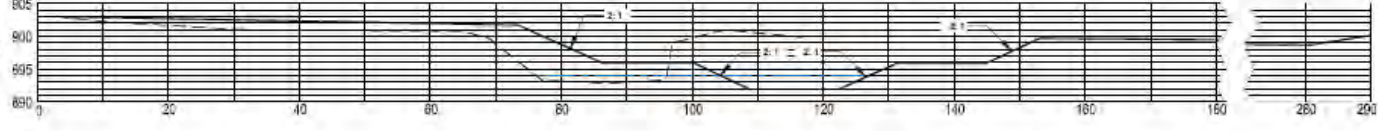
Cross
Section
42+58



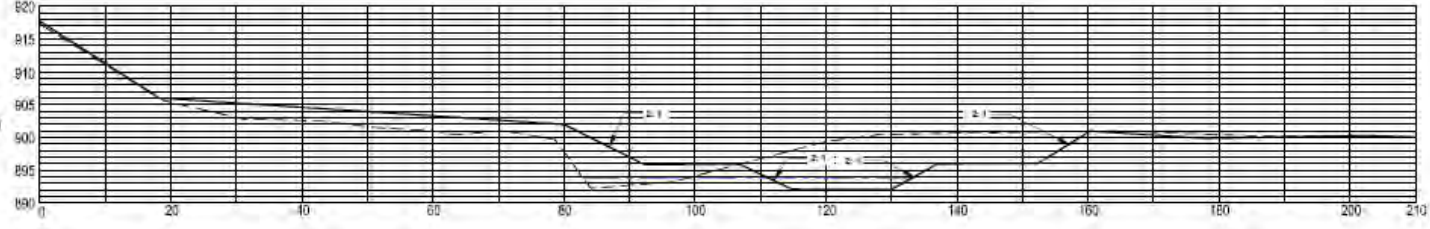
Cross
Section
44+63



Cross
Section
53+50



Cross
Section
54+48



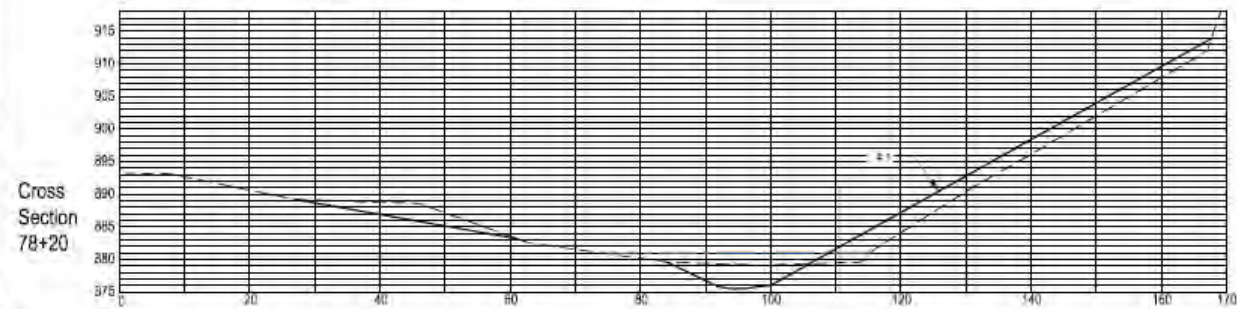
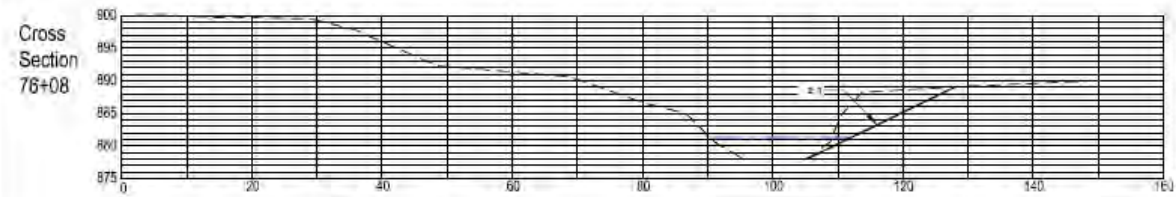
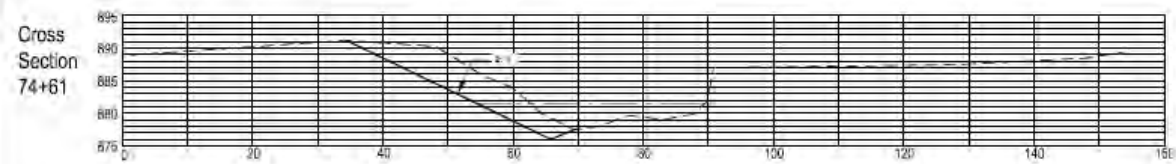
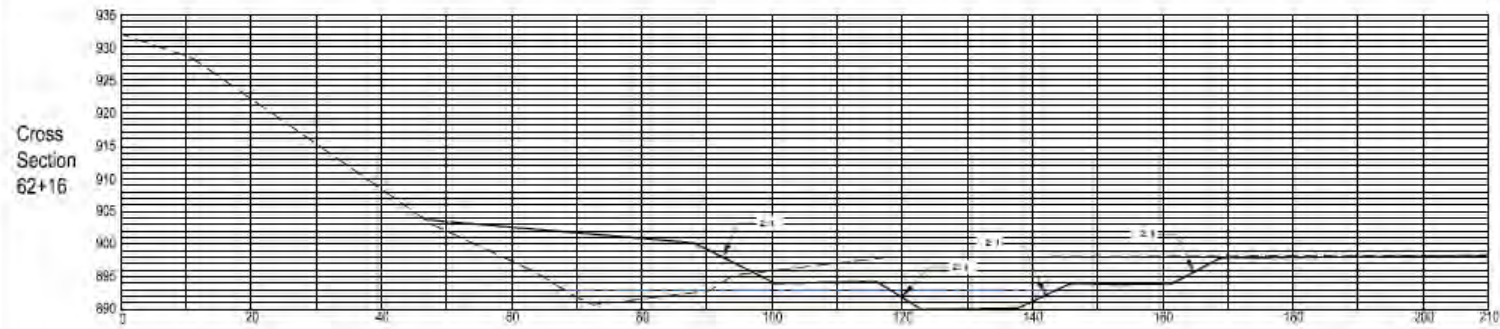
FINAL DESIGN



PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
PROPOSED CROSS SECTIONS
DANE COUNTY, WISCONSIN

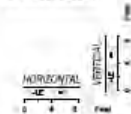
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CROSS SECTIONS



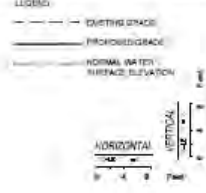
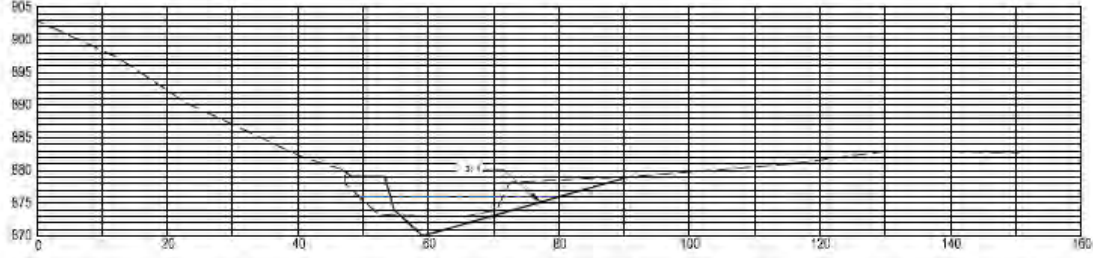
LEGEND

- CHYTHING GRADE
- THROUFAST GRADE
- NORMAL WATER SURFACE ELEVATION

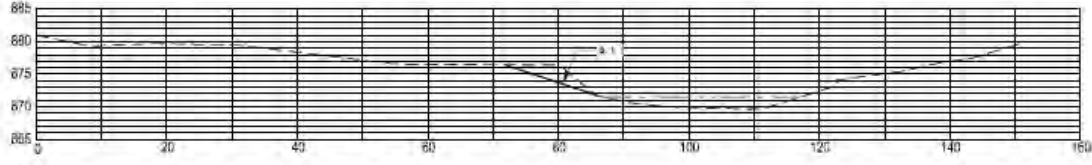


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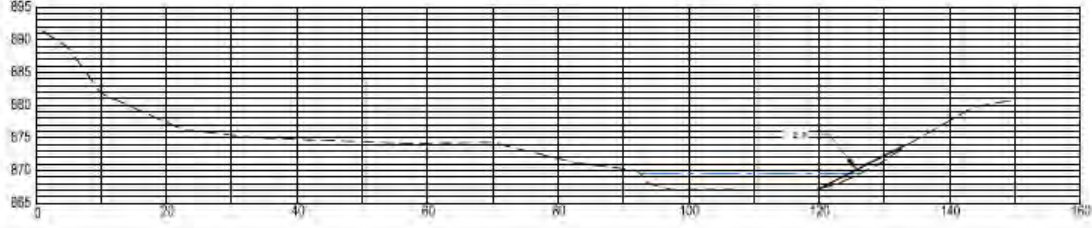
Cross
Section
88+74



Cross
Section
98+53



Cross
Section
101+85



FINAL DESIGN

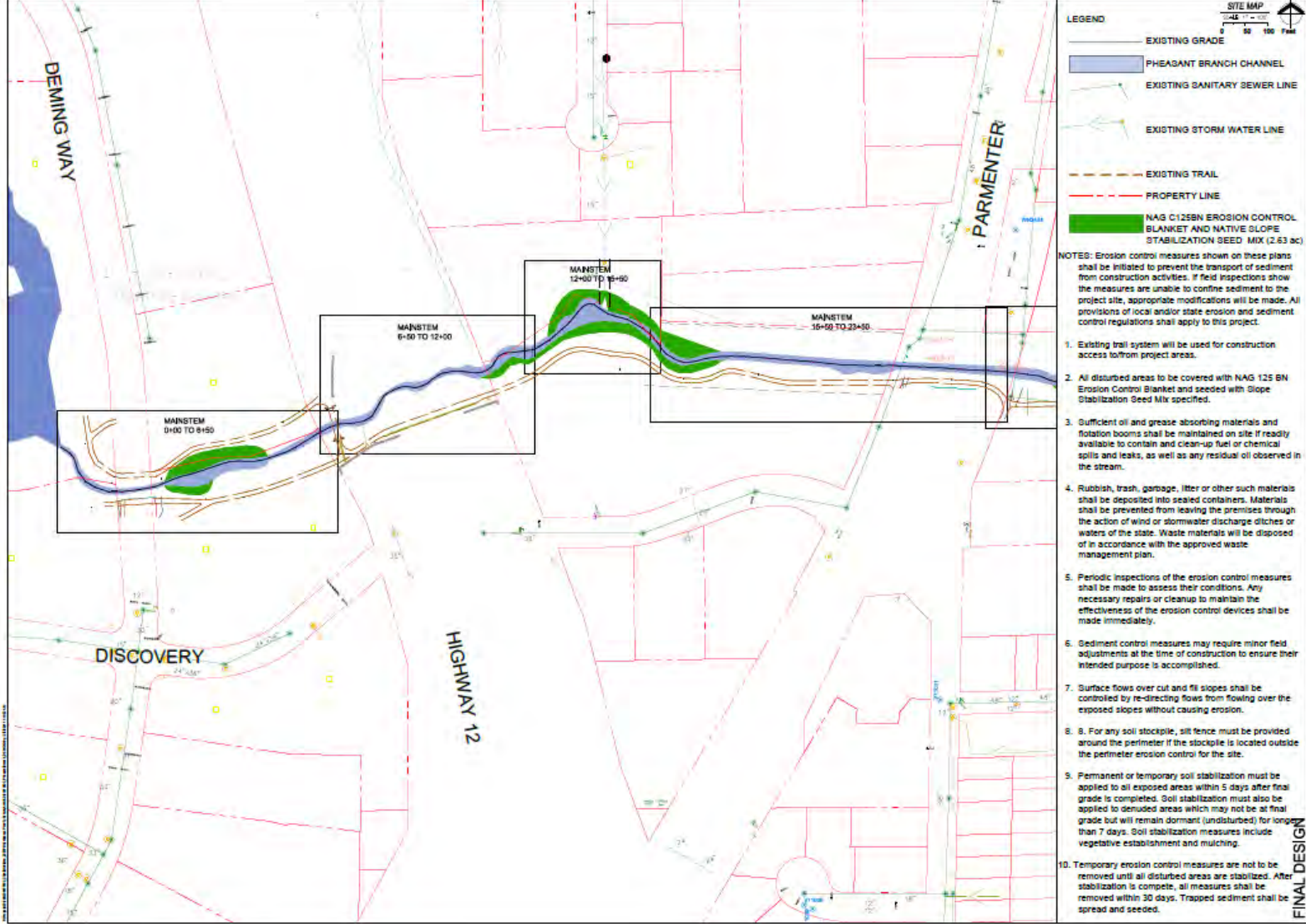


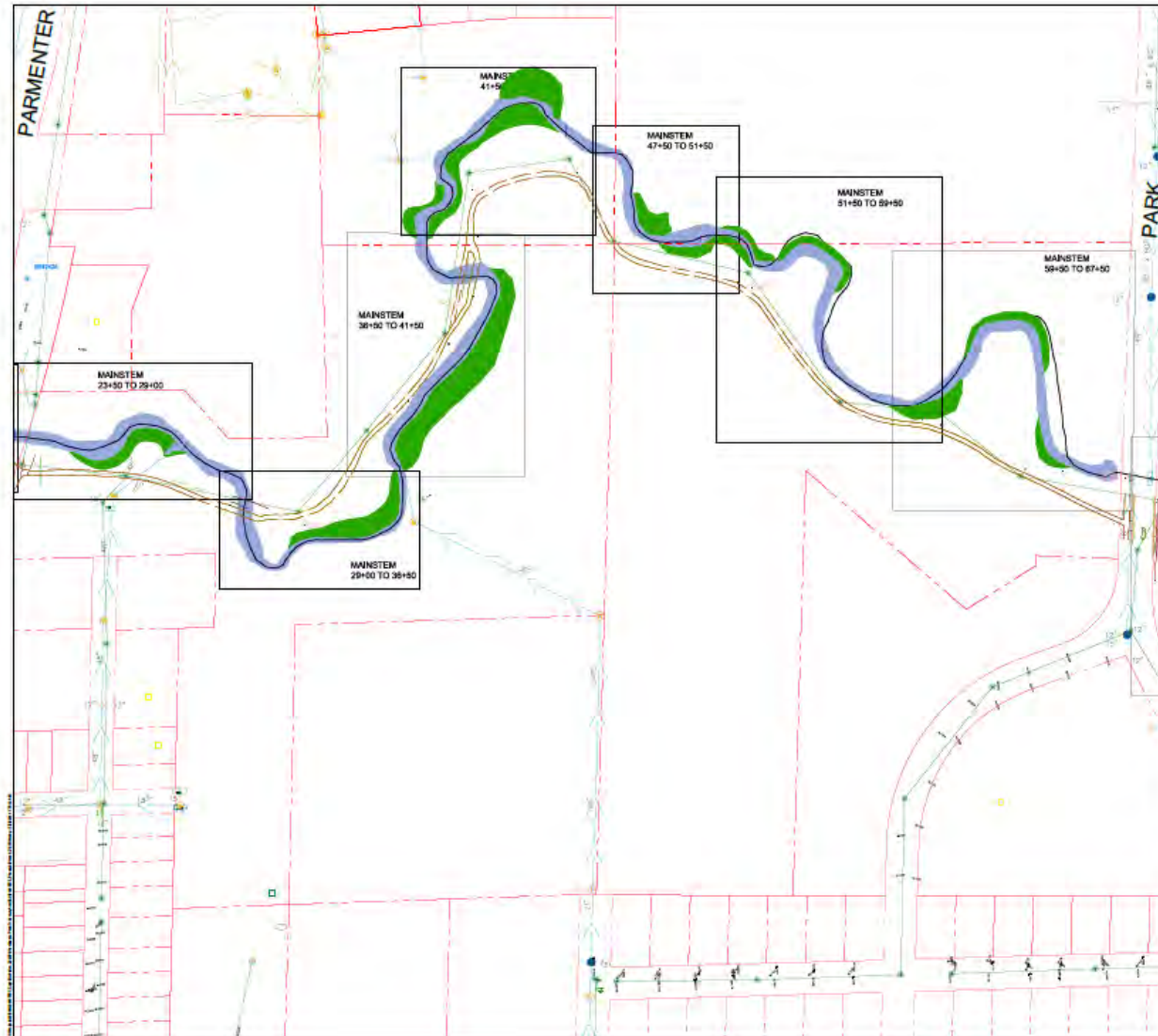
PHEASANT BRANCH STREAMBANK STABILIZATION
 MAINSTEM POND TO CENTURY AVENUE
 PROPOSED CROSS SECTIONS
 DANE COUNTY, WISCONSIN

DATE	DESCRIPTION	BY	CHKD

DATE	DESCRIPTION

CROSS SECTIONS
 33





- LEGEND**
- EXISTING GRADE
 - PHEASANT BRANCH CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - EXISTING TRAIL
 - PROPERTY LINE
 - NAG C125BN EROSION CONTROL BLANKET AND NATIVE SLOPE STABILIZATION SEED MIX (2.63 ac)

NOTES: Erosion control measures shown on these plans shall be initiated to prevent the transport of sediment from construction activities. If field inspections show the measures are unable to confine sediment to the project site, appropriate modifications will be made. All provisions of local and/or state erosion and sediment control regulations shall apply to this project.

- Existing trail system will be used for construction access to/from project areas.
- All disturbed areas to be covered with NAG 125 BN Erosion Control Blanket and seeded with Slope Stabilization Seed Mix specified.
- Sufficient oil and grease absorbing materials and flotation booms shall be maintained on site if readily available to contain and clean-up fuel or chemical spills and leaks, as well as any residual oil observed in the stream.
- Rubbish, trash, garbage, litter or other such materials shall be deposited into sealed containers. Materials shall be prevented from leaving the premises through the action of wind or stormwater discharge ditches or waters of the state. Waste materials will be disposed of in accordance with the approved waste management plan.
- Periodic inspections of the erosion control measures shall be made to assess their conditions. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.
- Sediment control measures may require minor field adjustments at the time of construction to ensure their intended purpose is accomplished.
- Surface flows over cut and fill slopes shall be controlled by re-directing flows from flowing over the exposed slopes without causing erosion.
- For any soil stockpile, silt fence must be provided around the perimeter if the stockpile is located outside the perimeter erosion control for the site.
- Permanent or temporary soil stabilization must be applied to all exposed areas within 5 days after final grade is completed. Soil stabilization must also be applied to denuded areas which may not be at final grade but will remain dormant (undisturbed) for longer than 7 days. Soil stabilization measures include vegetative establishment and mulching.
- Temporary erosion control measures are not to be removed until all disturbed areas are stabilized. After stabilization is complete, all measures shall be removed within 30 days. Trapped sediment shall be spread and seeded.

FINAL DESIGN

DATE: 11/11/2014

BY: [Signature]

PROJECT: PHEASANT BRANCH STREAMBANK STABILIZATION

LOCATION: MAINSTEM POND TO CENTURY AVENUE

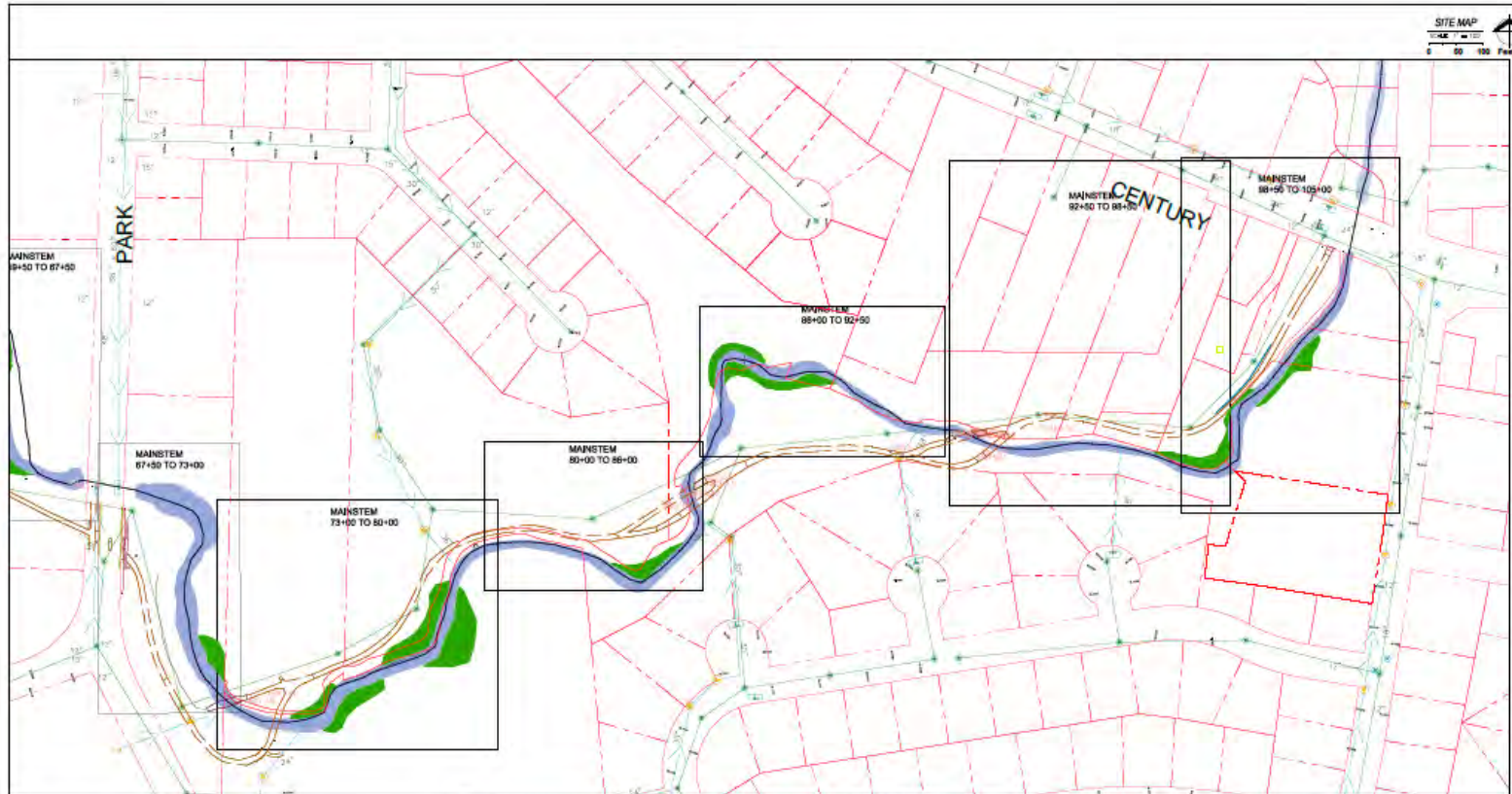
PLAN: EROSION CONTROL / PLANTING PLAN 2 of 3

CITY: DANE COUNTY, WISCONSIN

Revision Table

NO.	DATE	DESCRIPTION
1	11/11/2014	FINAL DESIGN

35



LEGEND

- EXISTING GRADE
- PHEASANT BRANCH CHANNEL
- EXISTING SANITARY SEWER LINE
- EXISTING STORM WATER LINE
- EXISTING TRAIL
- PROPERTY LINE
- NAG C125BN EROSION CONTROL BLANKET AND NATIVE SLOPE STABILIZATION SEED MIX (2.63 ac)

NOTES: Erosion control measures shown on these plans shall be initiated to prevent the transport of sediment from construction activities. If field inspections show the measures are unable to confine sediment to the project site, appropriate modifications will be made. All provisions of local and/or state erosion and sediment control regulations shall apply to this project.

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3. Sufficient oil and grease absorbing materials and flotation booms shall be maintained on site if readily available to contain and clean-up fuel or chemical spills and leaks, as well as any residual oil observed in the stream.

4. Rubbish, trash, garbage, litter or other such materials shall be deposited into sealed containers. Materials shall be prevented from leaving the premises through the action of wind or stormwater discharge ditches or waters of the state. Waste materials will be disposed of in accordance with the approved waste management plan.

5. Periodic inspections of the erosion control measures shall be made to assess their conditions. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

6. Sediment control measures may require minor field adjustments at the time of construction to ensure their intended purpose is accomplished.

7. Surface flows over cut and fill slopes shall be controlled by re-directing flows from flowing over the exposed slopes without causing erosion.

8. For any soil stockpile, silt fence must be provided around the perimeter if the stockpile is located outside the perimeter erosion control for the site.

9. Permanent or temporary soil stabilization must be applied to all exposed areas within 5 days after final grade is completed. Soil stabilization must also be applied to denuded areas which may not be at final grade but will remain dormant (undisturbed) for longer than 7 days. Soil stabilization measures include vegetative establishment and mulching.

10. Temporary erosion control measures are not to be removed until all disturbed areas are stabilized. After stabilization is complete, all measures shall be removed within 30 days. Trapped sediment shall be spread and seeded.



FINAL DESIGN

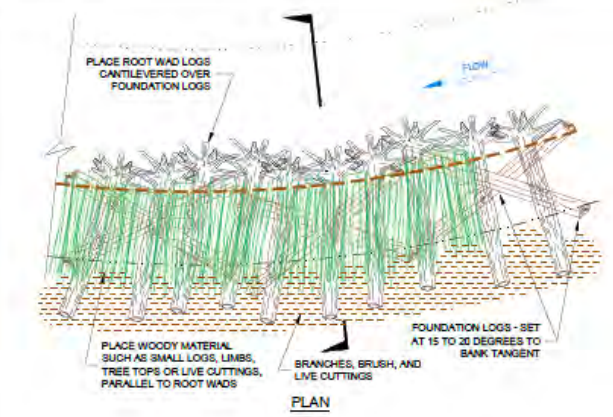
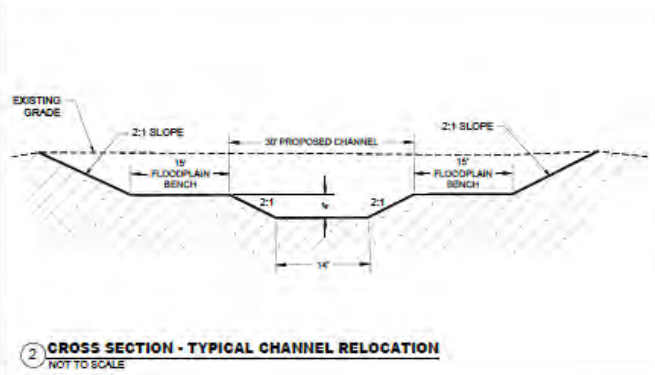
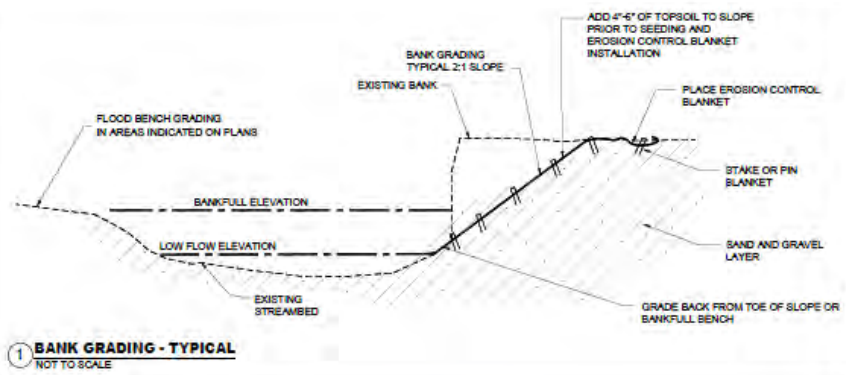


PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
EROSION CONTROL / PLANTING PLAN 3 of 3
DADE COUNTY, WISCONSIN

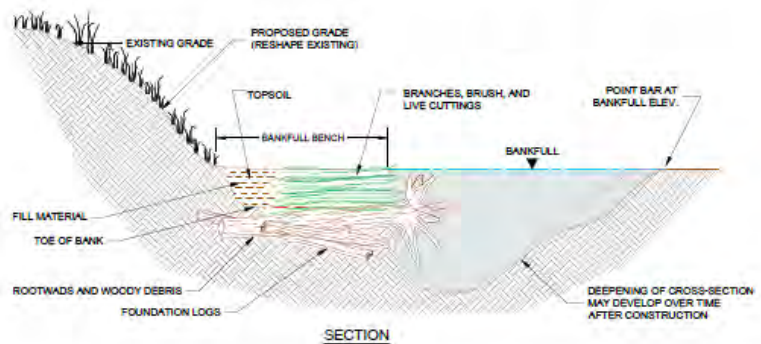
NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

DATE	1 MAR 2021
DRAWN	J. DUC
CHECKED	J. DUC
DESIGNED	J. DUC
PROJECT	200000000
PROJECT	200000000

EROSION CONTROL 3045
36



- 1.) Work shall be completed at periods of low flow.
- 2.) All equipment working in and around the stream channel shall be free of fluid leaks.
- 3.) Care shall be taken to minimize equipment access to stream channel and riparian areas to prevent unnecessary damage or impacts.
- 4.) All materials shall be inspected prior to installation and free of any damage or defects.
- 5.) Slope surface shall be free of rocks, clods, sticks and grass. Mats and blankets shall have good soil contact.
- 6.) Bank grading shall be performed in a manner to minimize siltation into the stream.
- 7.) Lay erosion control blankets per details.
- 8.) Key footer logs into bank and arrange in an interlocking pattern as shown for reinforcement.
- 9.) A layer of rootwads, limbs and coarse woody material shall be placed above the footer logs and interwoven into footers where possible to serve as revetment for live brush layer.
- 10.) Live brush to be applied and staked with willow posts or other species approved by the project designer.
- 11.) It is the Contractor's responsibility to become familiar with the site conditions prior to commencing grading operations.
- 12.) Excavated material to be spread on site and stabilized in a manner that maintains pre-construction drainage patterns.
- 13.) Final orientation and placement of structures may be adjusted in the field by project designer.





Cardno
CONSTRUCTION
MANAGEMENT
SOLUTIONS

PHEASANT BRANCH STREAMBANK STABILIZATION

MAINSTEM POND TO CENTURY AVENUE

DETAILS

DANE COUNTY, WISCONSIN

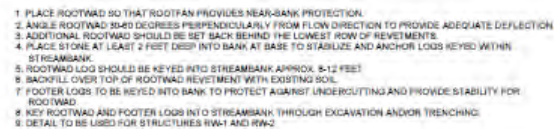
REV.	DESCRIPTION	DATE	BY	CHKD	APP'D	DATE

FINAL DESIGN

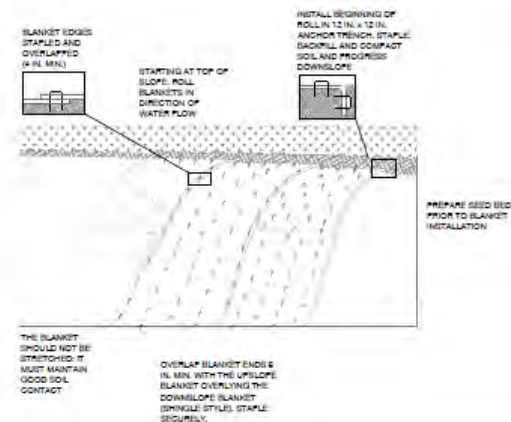
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 DRAWN: J. CO.
 CHECKED: J. CO.
 APPROVED: J. CO.
 PROJECT: 11-0000000

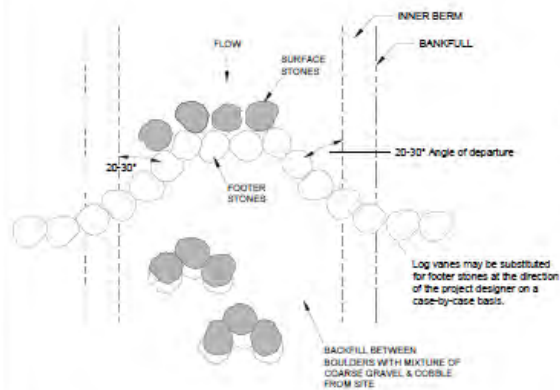
DETAILS

37

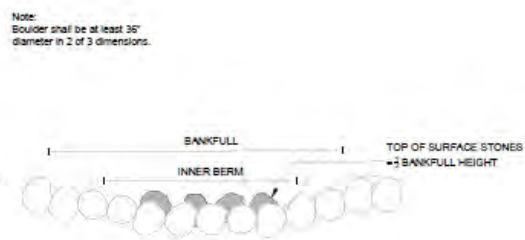


5 EROSION CONTROL BLANKET DETAIL
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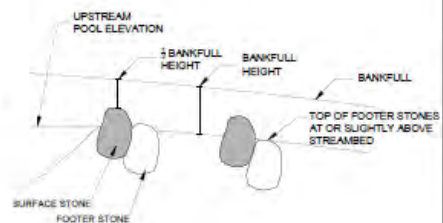
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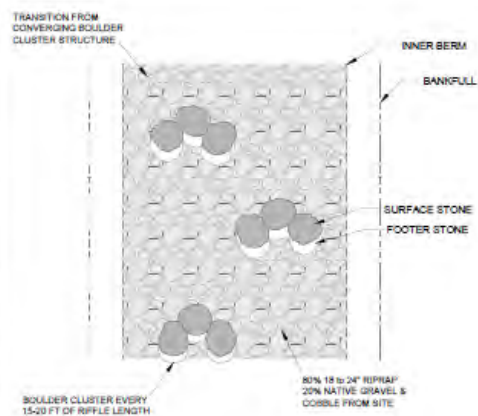
6 CONVERGING BOULDER CLUSTER - PLANVIEW
NOT TO SCALE



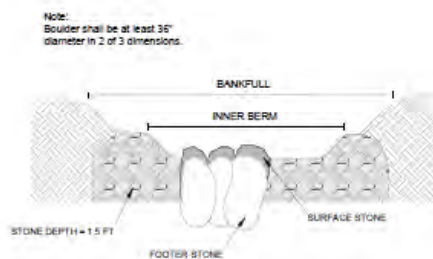
7 CONVERGING BOULDER CLUSTER - CROSS SECTION
NOT TO SCALE



8 CONVERGING BOULDER CLUSTER - PROFILE
NOT TO SCALE

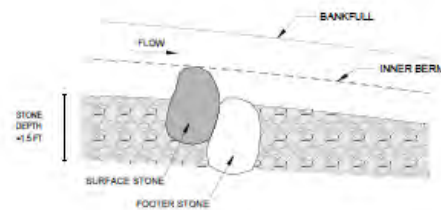


9 CONSTRUCTED RIFFLE - PLANVIEW
NOT TO SCALE



NOTES:
1. EXTEND STONE AT INNER BERM TO BANKFULL WIDTH

10 CONSTRUCTED RIFFLE - CROSS SECTION
NOT TO SCALE



11 CONSTRUCTED RIFFLE - PROFILE
NOT TO SCALE

FINAL DESIGN

NO.	DATE	DESCRIPTION
1	01/11/2017	ISSUED FOR PERMIT
2	02/01/2017	ISSUED FOR CONSTRUCTION
3	03/01/2017	ISSUED FOR CONSTRUCTION
4	04/01/2017	ISSUED FOR CONSTRUCTION
5	05/01/2017	ISSUED FOR CONSTRUCTION
6	06/01/2017	ISSUED FOR CONSTRUCTION
7	07/01/2017	ISSUED FOR CONSTRUCTION
8	08/01/2017	ISSUED FOR CONSTRUCTION
9	09/01/2017	ISSUED FOR CONSTRUCTION
10	10/01/2017	ISSUED FOR CONSTRUCTION
11	11/01/2017	ISSUED FOR CONSTRUCTION
12	12/01/2017	ISSUED FOR CONSTRUCTION

DATE	11/01/2017
DESIGNER	J. C. J.
CHECKED	J. C. J.
INCHES	1/4"
PROJECT	100000000

DETAILS

Slope Stabilization Seed Mix

Scientific Name	Common Name	Qt/Acre
<i>Anemone patens</i>	Big bluestem grass	20.00
<i>Andropogon scoparius</i>	Little bluestem grass	20.00
<i>Aster multiflorus</i>	Common Aster	100.00
<i>Bouteloua curtipendula</i>	Side-oats grama	15.00
<i>Carex multiflora</i>	Sand dune sedge	3.00
<i>Carex pensylvanica</i>	Common sedge	3.00
<i>Elymus canadensis</i>	Canada wild rye	12.00
<i>Elymus repens</i>	Winged rye	12.00
<i>Eryngium yuccifolium</i>	Spiny cholla	1.00
<i>Lactuca scariola</i>	Annual Rye	100.00
<i>Panicum capillare</i>	Switch grass	8.00
<i>Scirpus americanus</i>	Hard grass	12.00
<i>Setaria viridis</i>	Green foxtail	12.00
Total		750.00

Scientific Name	Common Name	Qt/Acre
<i>Aster multiflorus</i>	Common milkweed	3.00
<i>Aster multiflorus</i>	Slender milkweed	10.00
<i>Aster multiflorus</i>	Side-flowering aster	0.30
<i>Chamaecrista fasciculata</i>	Common bush clover	0.30
<i>Chamaecrista fasciculata</i>	Purple prairie clover	4.00
<i>Chamaecrista fasciculata</i>	Small purple clover	6.00
<i>Chamaecrista fasciculata</i>	Purple prairie clover	1.00
<i>Chamaecrista fasciculata</i>	Purple prairie clover	0.00
<i>Chamaecrista fasciculata</i>	Purple prairie clover	0.30
<i>Chamaecrista fasciculata</i>	Western sunflower	1.00
<i>Chamaecrista fasciculata</i>	Joint grass	1.00
<i>Chamaecrista fasciculata</i>	Great blue lobelia	0.25
<i>Chamaecrista fasciculata</i>	Wild yam	1.00
<i>Chamaecrista fasciculata</i>	Wild yam	5.00
<i>Chamaecrista fasciculata</i>	Wetland sunflower	0.30
<i>Chamaecrista fasciculata</i>	Black-eyed susan	7.00
<i>Chamaecrista fasciculata</i>	Self-seedling	1.00
<i>Chamaecrista fasciculata</i>	Rough goldenrod	0.50
<i>Chamaecrista fasciculata</i>	Blind-betel goldenrod	1.00
Total		41.45

12 SEED MIX

FINAL DESIGN



PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
DETAILS
DADE COUNTY, WISCONSIN

日期	姓名	性别	年龄	职业	住址	电话	备注

Pheasant Branch Streambank Restoration and Habitat Enhancement Project
North of Century Avenue
City of Middleton, Dane County, Wisconsin
City Project 18-125k

April 2021

SHEET INDEX

SHEET	DESCRIPTION		PROPOSED CONDITIONS 15+00 - 20+00
1	TITLE SHEET AND SHEET INDEX	11	
2	EXISTING CONDITIONS 0+00 THROUGH 30+00	12	DETAILS
3	EXISTING CONDITIONS 0+00 THROUGH 5+00	13	DETAILS
4	EXISTING CONDITIONS 5+00 THROUGH 10+00	14	DETAILS
5	EXISTING CONDITIONS 10+00 THROUGH 15+00	15	DETAILS
6	EXISTING CONDITIONS 15+00 THROUGH 22+00	16	PLANTING AND EROSION CONTROL PLAN
7	CROSS SECTIONS		
8	PROPOSED CONDITIONS 0+00 - 5+00		
9	PROPOSED CONDITIONS 5+00 - 10+00		
10	PROPOSED CONDITIONS 10+00 - 15+00		



WISCONSIN STATE MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE



SITE LOCATION MAP
NOT TO SCALE

[illegible]

TITLE SHEET AND SHEET INDEX
Pheasant Branch:
North of Century Avenue
City of Middleton, Dane County, Wisconsin

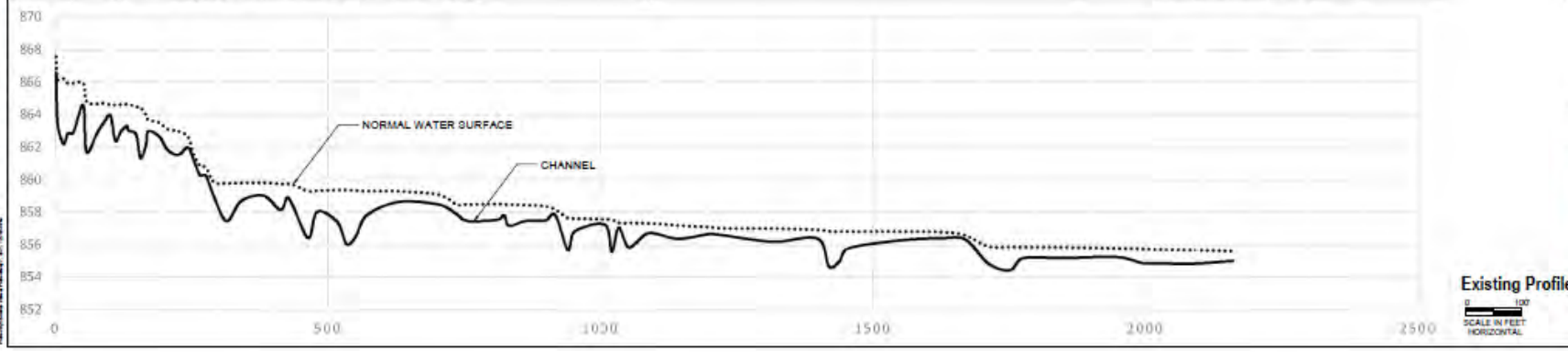
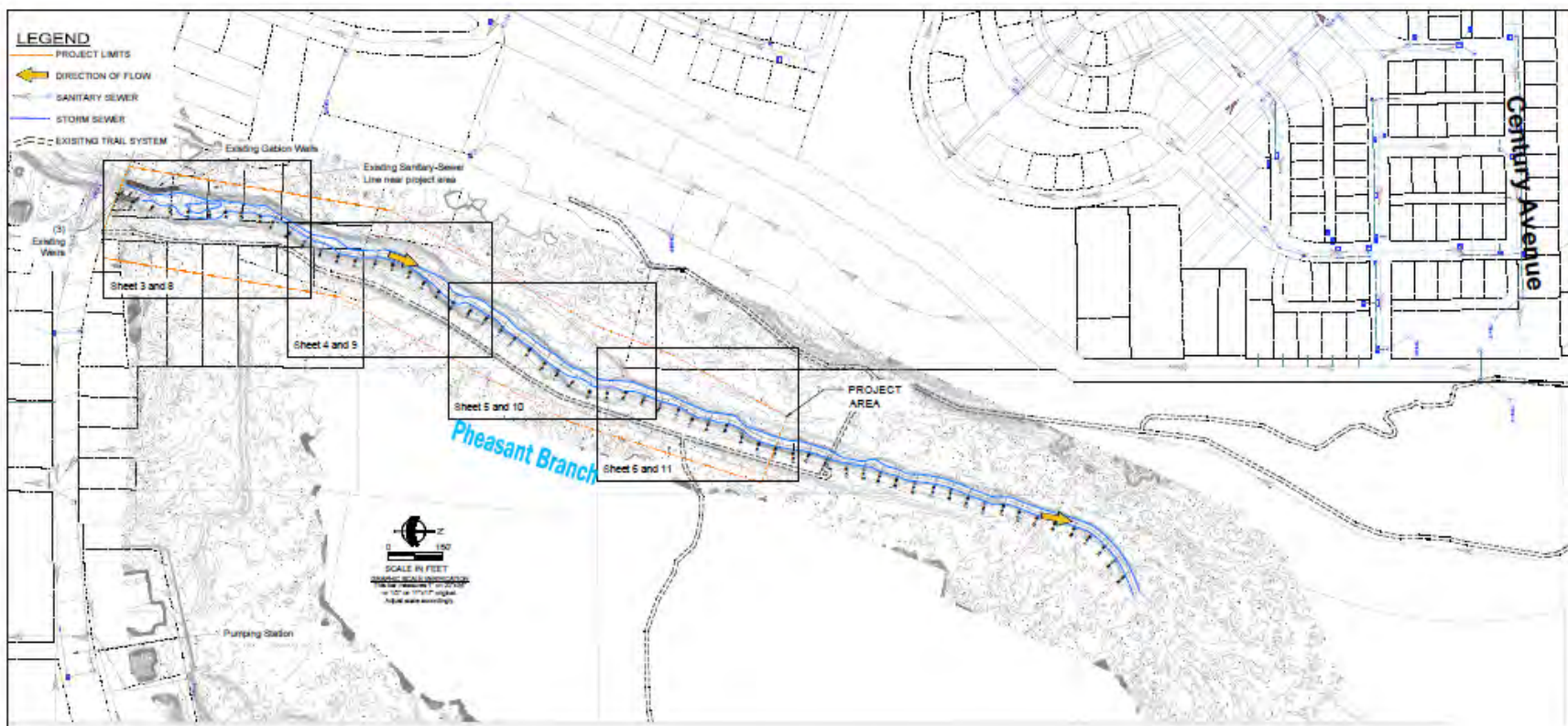
DRAWN BY:	ODD
DESIGNED BY:	MTP/ACS
DATE:	MARCH 2001
JOB NO:	JH9357800

FINAL

DRAWING NO.

1

1 of 16



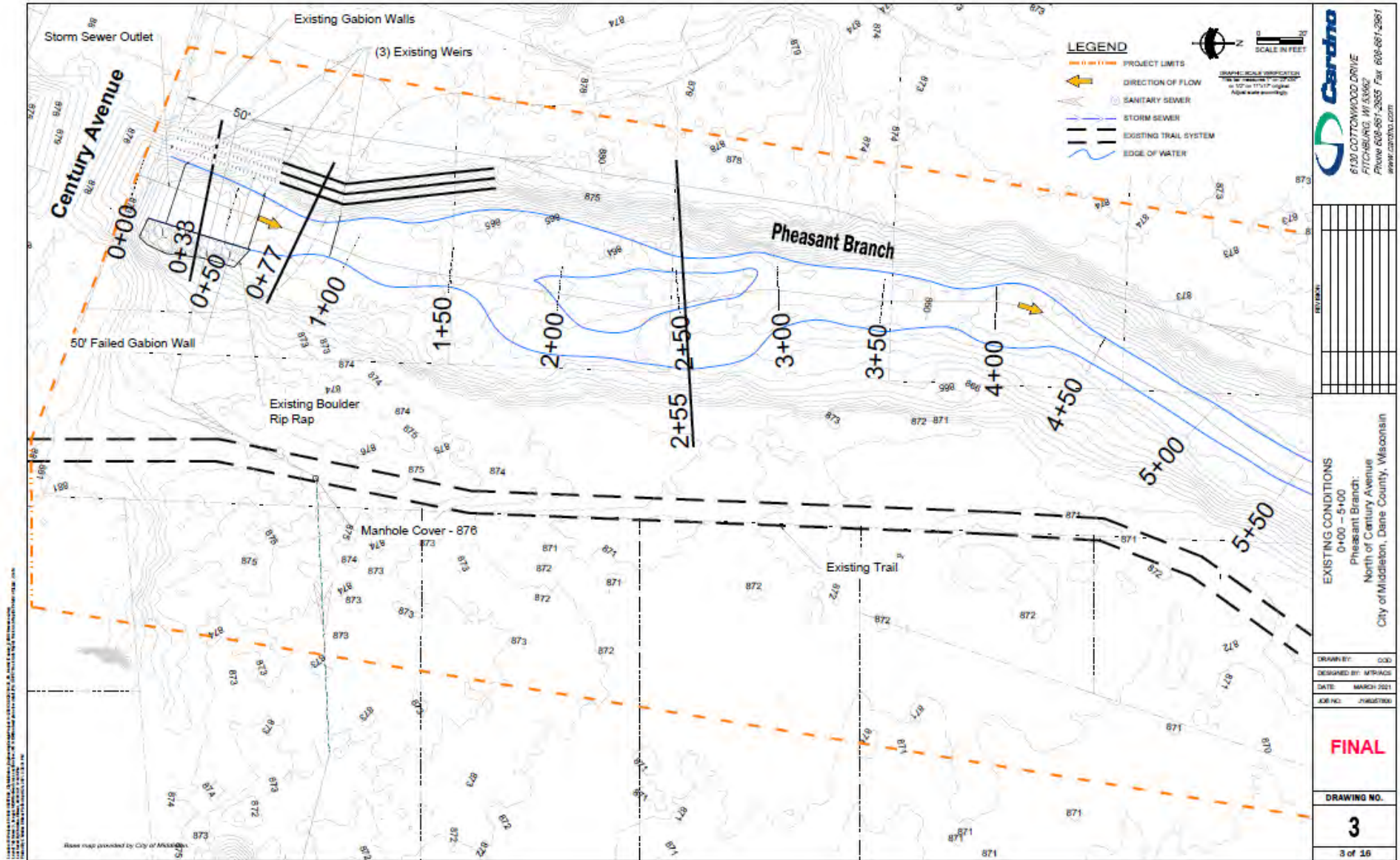
Cardno
6130 COTTAGEWOOD DRIVE
FITCHBURG, WI 53532
Phone: 608-661-2800 Fax: 608-661-2801
www.cardno.com

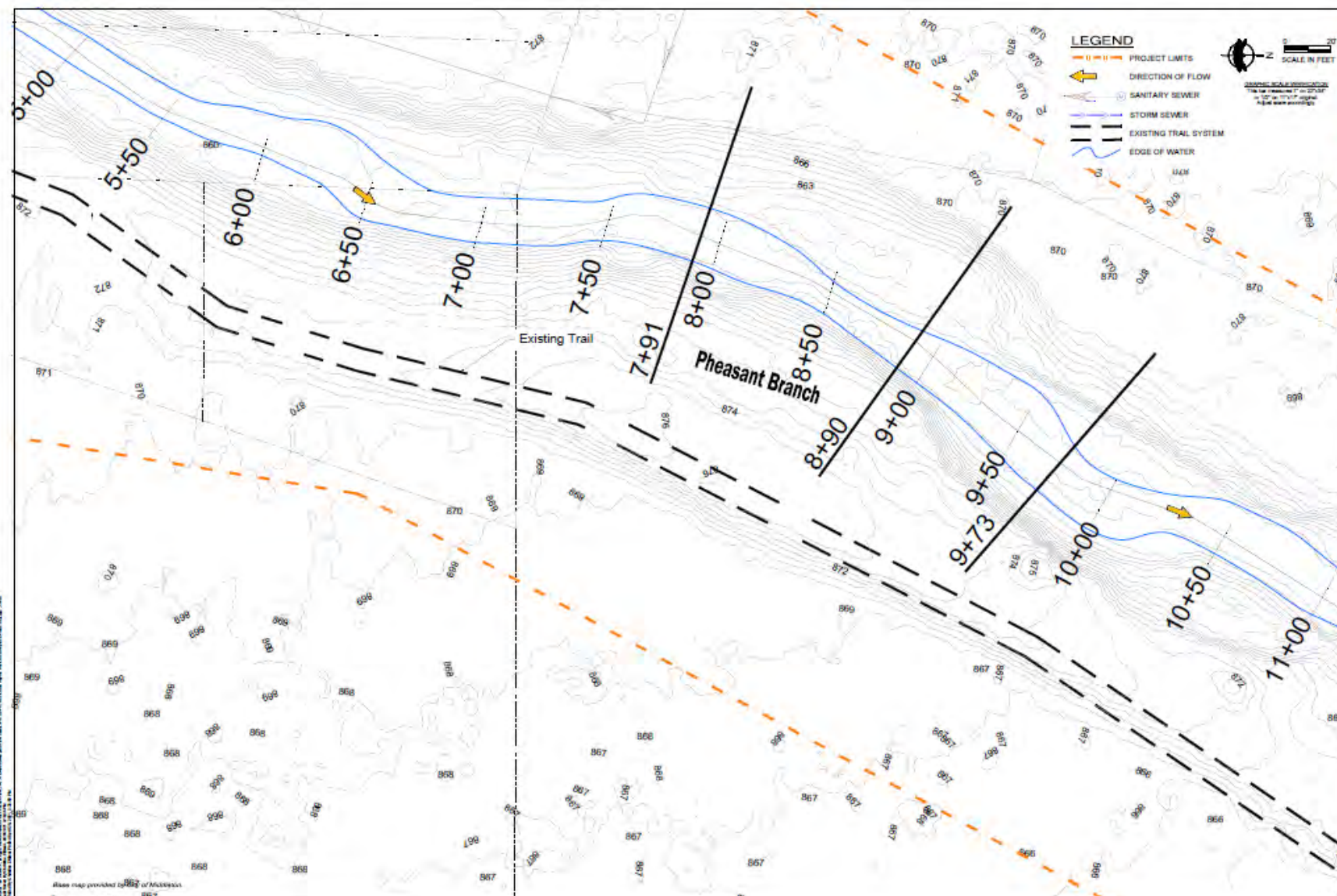
EXISTING CONDITIONS
Pheasant Branch:
North of Century Avenue
City of Middleton, Dane County, Wisconsin


DRAWN BY: CDD	
DESIGNED BY: MTRACS	
DATE: MARCH 2021	
JOB NO: J16UST880	

FINAL

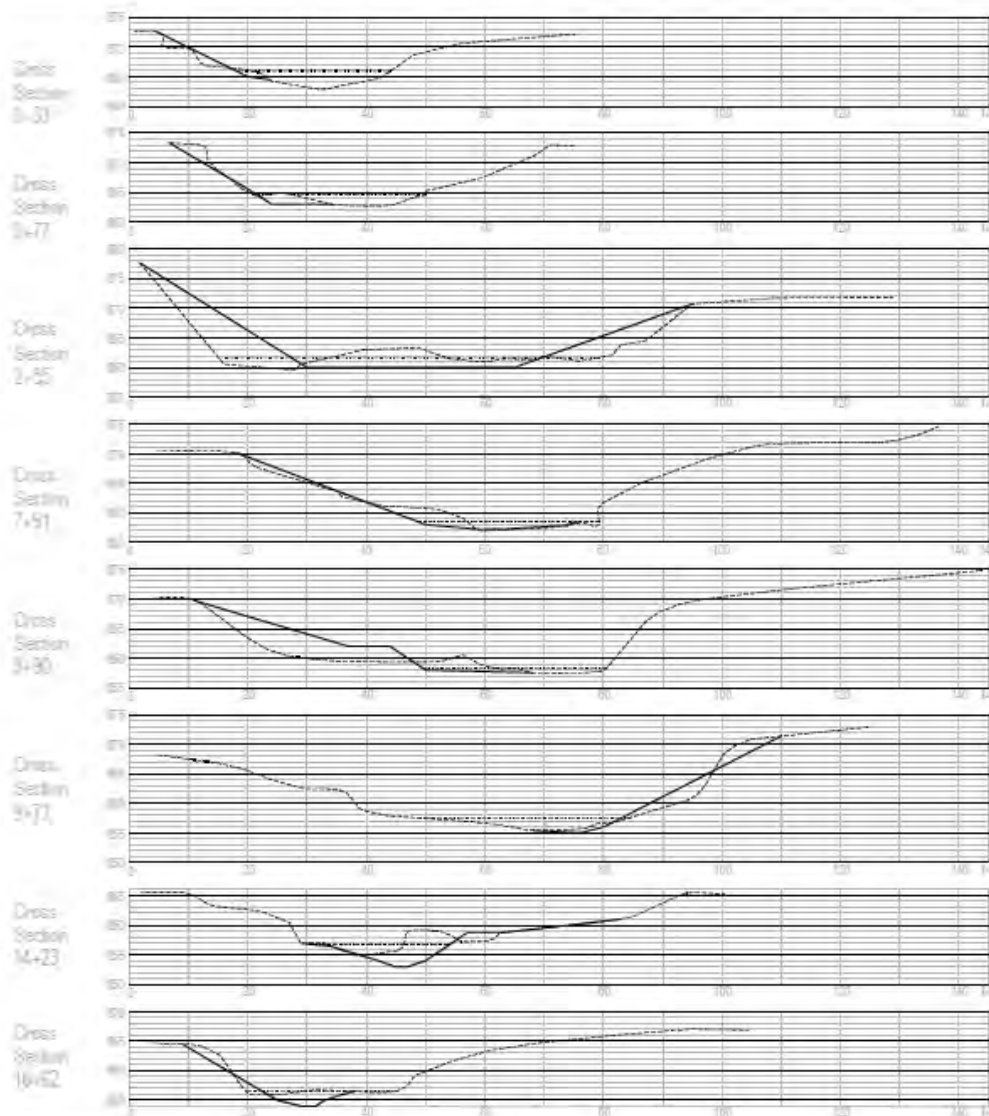
DRAWING NO.	
2	
2 of 16	






EXISTING	<p>EXISTING CONDITIONS 5'00" – 10'00" Pleasant Branch: North of Century Avenue City of Middleton, Dane County, Wisconsin</p>	<p>DRAWN BY: COD DESIGNED BY: MTP/ACS DATE: APR/MAY 2021 JOB NO.: JWBEST008</p>	FINAL	<p>DRAWING NO.</p> <p style="font-size: 2em; font-weight: bold;">4</p>	 <p>Cardno 8130 COTTONWOOD DRIVE FITCHBURG, WI 53506 Phone 608-861-2855 Fax 608-861-2851 www.cardno.com</p>
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6130 COTTONWOOD DRIVE
FITCHBURG, WI 53542
Phone 608-851-3655 Fax 608-851-3657
www.cardno.com

CROSS SECTIONS
Pleasant Branch
North of Century Avenue
City of Middleton, Dane County, Wisconsin

<p>FINAL</p>	<p>DRAWING NO.</p> <p style="font-size: 2em;">7</p> <p style="font-size: 0.8em;">7 of 16</p>
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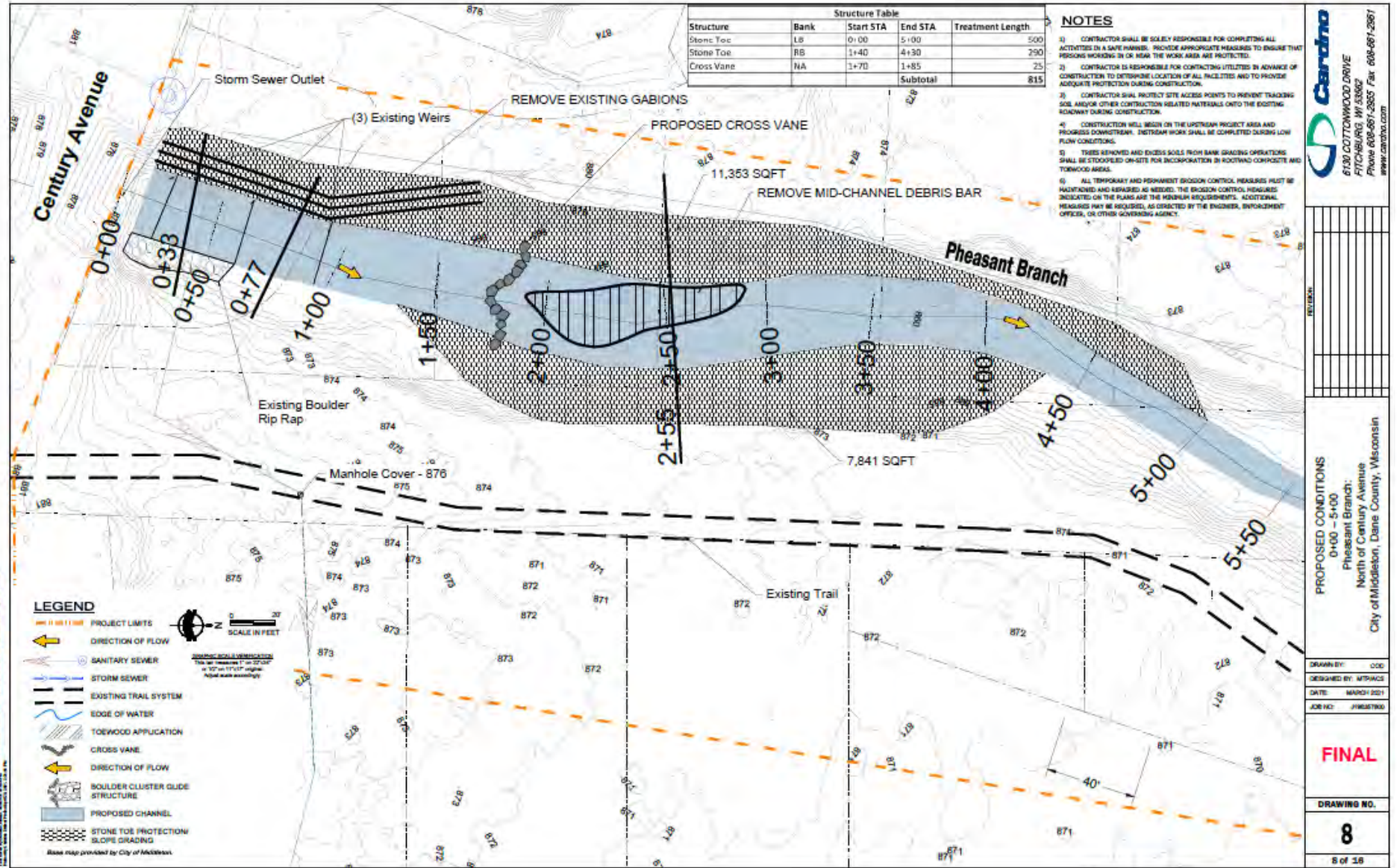
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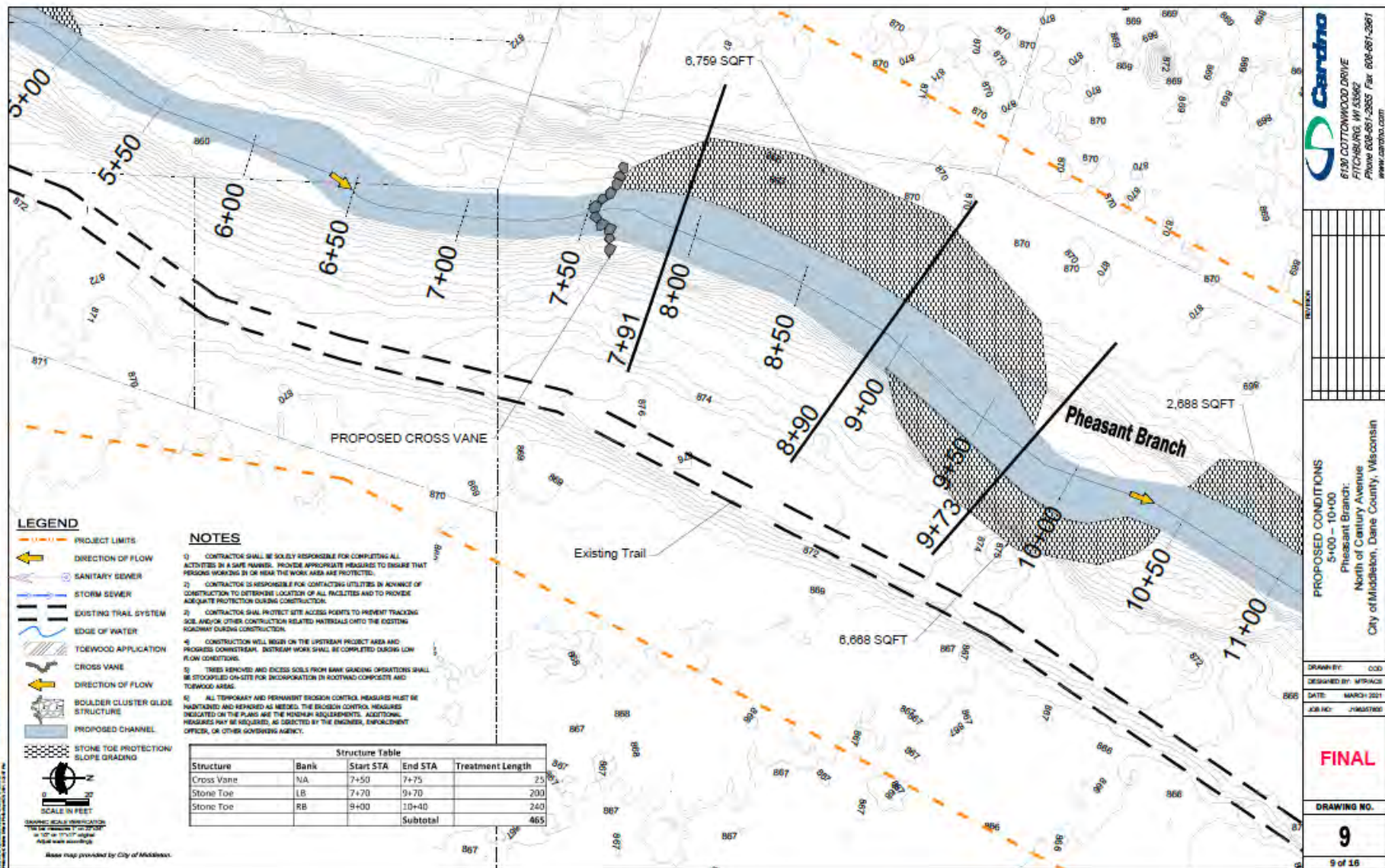
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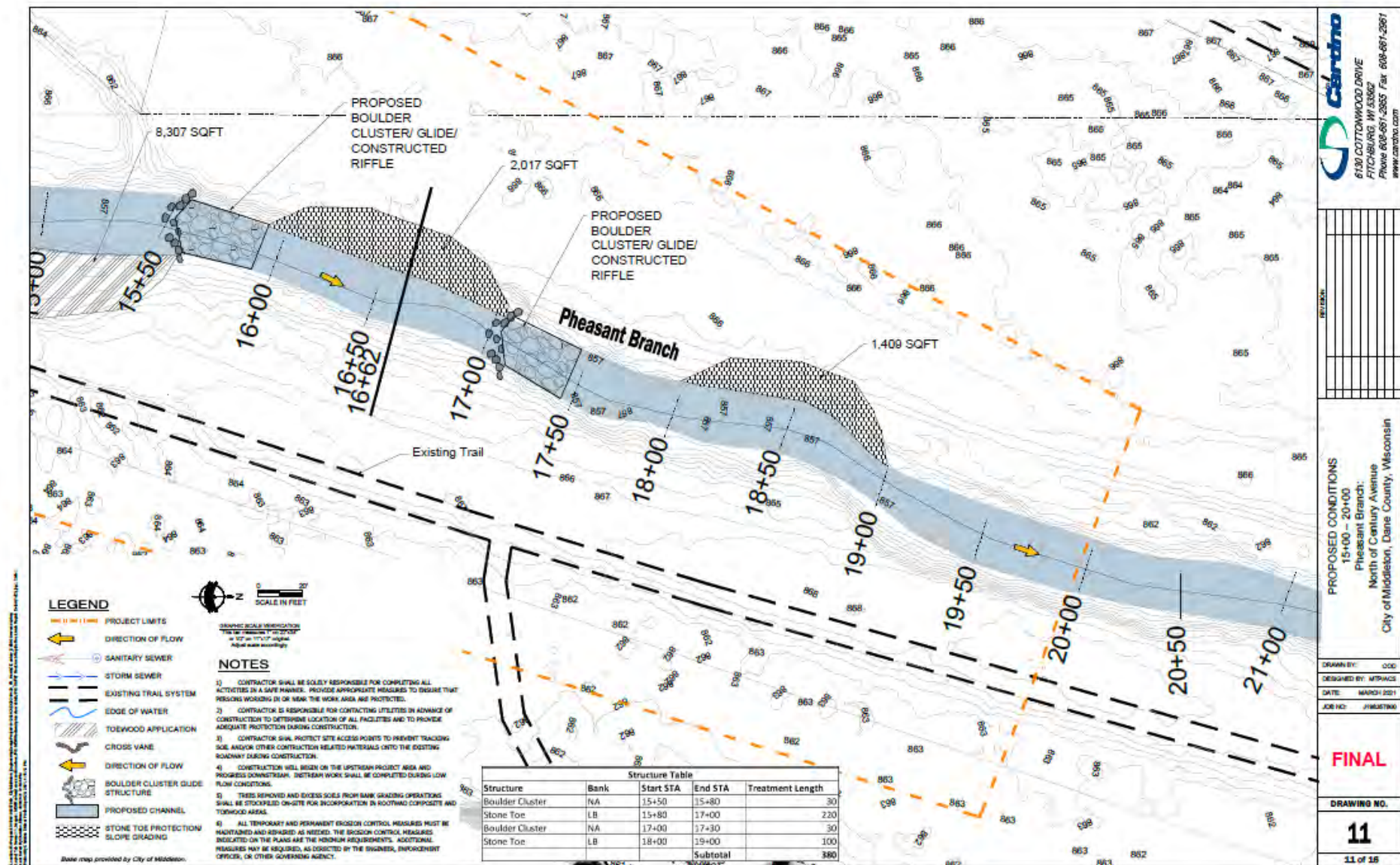
DATE: MARCH 2021

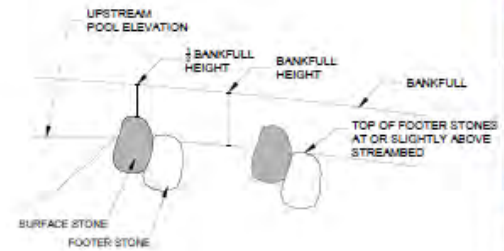
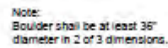
JOB NO.: 21051804

16/03/21

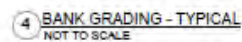


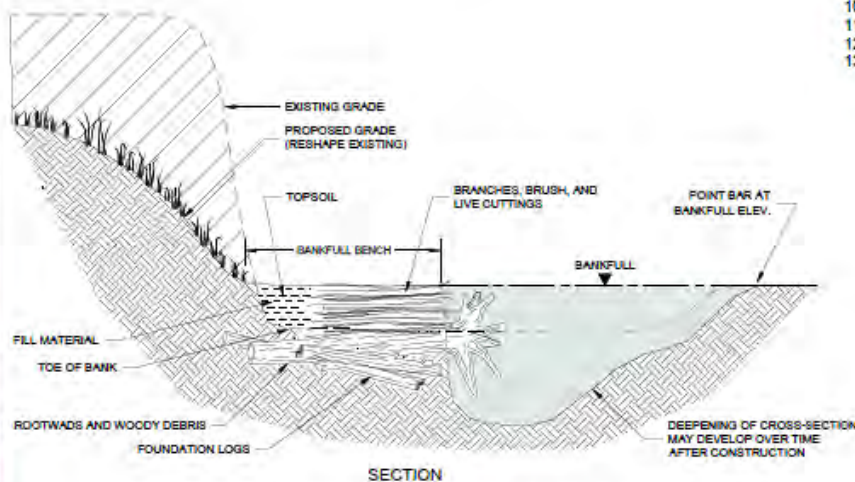
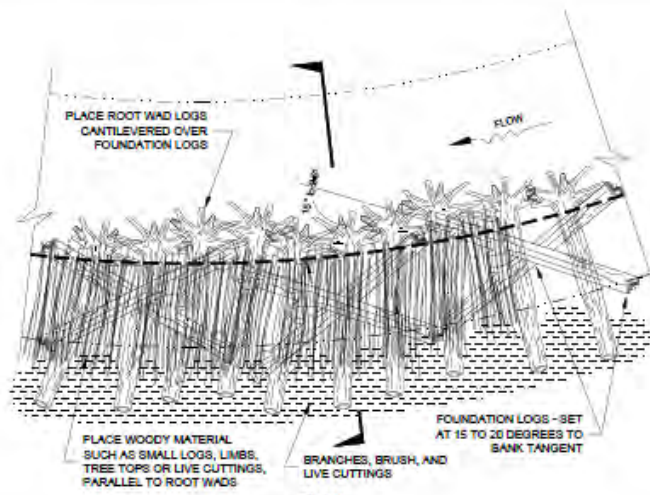






3 CONVERGING BOULDER CLUSTER - PROFILE
NOT TO SCALE





5 TYPICAL TOE WOOD - SOD MAT BANK RESTORATION
NOT TO SCALE

TOE WOOD DETAIL CONSTRUCTION NOTES

- 1.) Work shall be completed at periods of low flow.
- 2.) All equipment working in and around the stream channel shall be free of fluid leaks.
- 3.) Care shall be taken to minimize equipment access to stream channel and riparian areas to prevent unnecessary damage or impacts.
- 4.) All materials shall be inspected prior to installation and free of any damage or defects.
- 5.) Slope surface shall be free of rocks, clods, sticks and grass. Mats and blankets shall have good soil contact.
- 6.) Bank grading shall be performed in a manner to minimize siltation into the stream.
- 7.) Lay erosion control blankets per details.
- 8.) Key footer logs into bank and arrange in an interlocking pattern as shown for reinforcement.
- 9.) A layer of rootwads, limbs and coarse woody material shall be placed above the footer logs and interwoven into footers where possible to serve as revetment for live brush layer.
- 10.) Live brush to be applied and staked with willow posts or other species approved by the project designer.
- 11.) It is the Contractor's responsibility to become familiar with the site conditions prior to commencing grading operations.
- 12.) Excavated material to be spread on site and stabilized in a manner that maintains pre-construction drainage patterns.
- 13.) Final orientation and placement of structures may be adjusted in the field by project designer.

REVISION	

DETAILS
Pleasant Branch
North of Century Avenue
City of Middleton, Dane County, Wisconsin

DRAWN BY: CYS
DESIGNED BY: ATRACD
DATE: MAR-21-2011
JOB NO: 11061794

FINAL

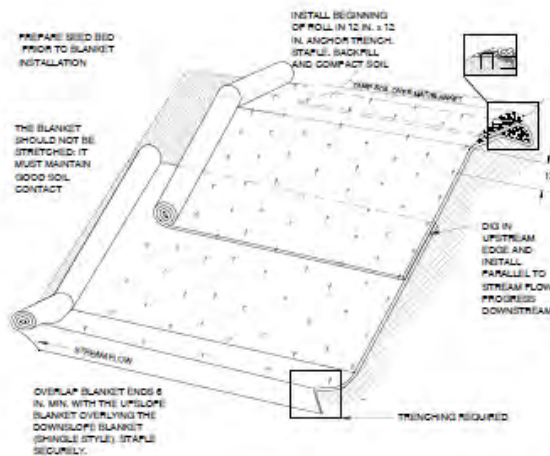
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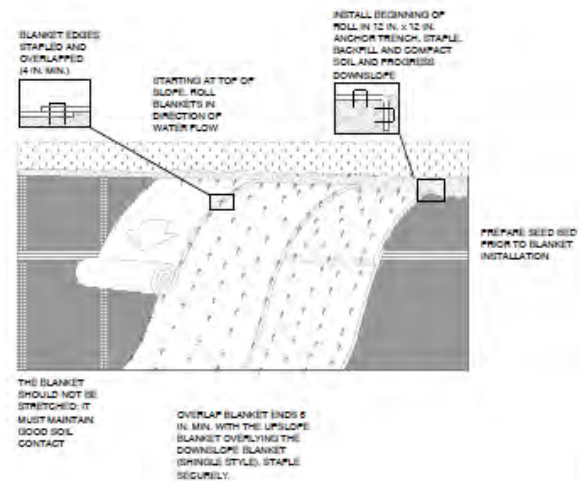
13 of 18

EROSION CONTROL BLANKET NOTES

1. Work shall be completed at periods of low flow.
2. All equipment working in and around the stream channel shall be free of fluid leaks.
3. Care shall be taken to minimize equipment access to stream channel and riparian areas to prevent unnecessary damage or impacts.
4. All materials shall be inspected prior to installation and free of any damage or defects.
5. Streambank areas shall be stabilized immediately following correct installation. Slope areas shall be installed after stabilization of the streambank.
6. Clear vegetation and grade existing steep upper edges of slope to a minimum 1:1 slope or flatter.
7. Seed slope area using Dry Sandy Slope Mix specified.
8. Install NAO C-125BN or equivalent (coi based, long-term) in all sandy areas requiring erosion control blanketing.
9. Due to the sandy nature of the soil on the site use 16 inch or larger wooden stakes to anchor blankets.



8 EROSION CONTROL BLANKET DETAIL
NOT TO SCALE



REVISION	

DETAILS
Pheasant Branch
North of Century Avenue
City of Middleton, Dane County, Wisconsin

DRAWN BY: CJD
DESIGNED BY: MTRAC
DATE: MARCH 2021
JOB NO: 21055709

FINAL

DRAWING NO.

14

14 of 16

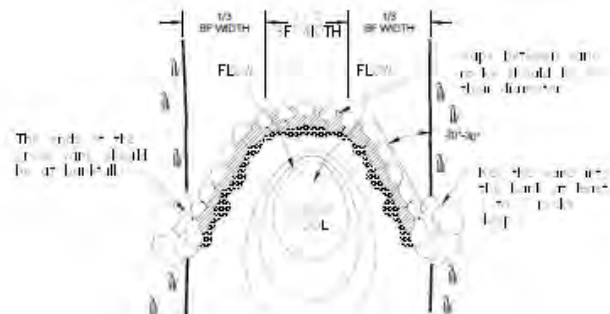


Top of vane apex should be at bankfull

FILE 1E

CROSS VANE APPLICATION NOTES

Bank orientation and placement of structure may be adjusted in the field by project engineer.

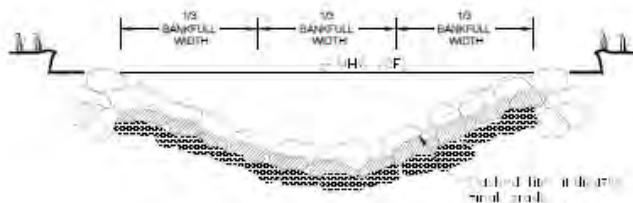


The top of the vane apex should be at bankfull

Top of vane apex should be at bankfull

Place the vane in the channel

FILE 1E



Place the vane in the channel

FILE 1E

7 CROSS VANE DETAIL

NOT TO SCALE

REVISION	

DETAILS
Pleasant Branch
North of Century Avenue
City of Madison, Dane County, Wisconsin

DRAWN BY: JGD
DESIGNED BY: WPM/MS
DATE: MARCH 2011
JOB NO: 29620000

FINAL

DRAWING NO.

15

15 of 16

PHEASANT BRANCH CREEK TRAIL AND BRIDGES RECONSTRUCTION

CITY OF MIDDLETON
DANE COUNTY, WISCONSIN
CITY PROJECT 18-125N



LOCATION MAP
NOT TO SCALE

SHEET INDEX

D - GENERAL SHEETS	
D 1	TITLE SHEET
D 2	PROJECT OVERVIEW AND CONTROL POINT TABLE
D 3	TYPICAL SECTIONS
D 4	SECTION CONTROL DETAILS
D 5	RAILING DETAILS
D 6	SECTION CONTROL PLANS
D 7	TRAFFIC CONTROL PLANS
D 8	TRAFFIC CONTROL PLANS
A - ALIGNMENT PLAN	
A 1-7	PHEASANT BRANCH CREEK TRAIL ALIGNMENT PLAN
A 8	PHEASANT BRANCH CREEK TRAIL ALIGNMENT PLAN
A 9	NORTH FORK TRAIL ALIGNMENT PLAN
A 10	BRIDGE 4 TRAIL ALIGNMENT PLAN
PP - PLAN & PROFILE SHEETS	
PP 1-15	PHEASANT CREEK TRAIL PLAN & PROFILE SHEETS
PP 16	NORTH FORK TRAIL PLAN & PROFILE SHEET
PP 17	BRIDGE 4 TRAIL PLAN & PROFILE SHEET
B - BRIDGE PLANS	
GENERAL NOTES	
B 1	BRIDGE 1 8-13-02 GENERAL PLAN
B 2	BRIDGE 2 8-13-02 GENERAL PLAN
B 3	BRIDGE 3 8-13-02 GENERAL PLAN
B 4	BRIDGE 4 8-13-02 GENERAL PLAN
B 5	BRIDGE 5 8-13-02 GENERAL PLAN
B 6	BRIDGE 6 8-13-02 GENERAL PLAN
B 7	BRIDGE 7 8-13-02 GENERAL PLAN
B 8	ADJUSTMENT DETAILS BRIDGE 1, 2, 3, 4, 5, 6
B 9	ADJUSTMENT DETAILS BRIDGE 4
B 10	WING DETAILS BRIDGE 1, 2, 3, 4, 5, 6
CS - CROSS SECTION SHEETS	
CS 1-50	PHEASANT CREEK TRAIL CROSS SECTIONS
CS 51-55	NORTH FORK TRAIL CROSS SECTIONS
CS 56-61	BRIDGE 4 TRAIL CROSS SECTIONS

LEGEND

	EXISTING WATER MAIN
	EXISTING WATER MAIN, VALVE & HYDRANT
	EXISTING WATER SERVICE & CURB STOP
	PROPOSED WATER MAIN, VALVE & HYDRANT
	PROPOSED WATER SERVICE & CURB STOP
	EXISTING SANITARY SEWER & MANHOLE
	PROPOSED SANITARY SEWER & MANHOLE
	EXISTING FORCE MAIN
	EXISTING STORM SEWER & INLET
	PROPOSED STORM SEWER & INLET
	PROPOSED STORM SEWER & MANHOLE
	BURIED ELECTRIC
	BURIED GAS & VALVE
	BURIED CABLE TELEVISION
	BURIED TELEPHONE
	BURIED FIBER OPTIC
	OVERHEAD UTILITY
	RAILROAD TRACKS
	EXISTING CURB & GUTTER
	PROPOSED CURB & GUTTER
	EXISTING SIDEWALK
	PROPOSED SIDEWALK
	EXISTING CULVERT PIPE
	PROPOSED CULVERT PIPE
	FENCE LINE
	DRAINAGE ARROW
	BELT FENCE
	RIGHT-OF-WAY
	EASEMENT
	PROPERTY LINE
	TREE LINE
	BENCH MARK
	IRON PIPE
	IRON ROD
	CONTROL POINT
	UTILITY POLE & GUY
	STEEL BORING
	LIGHT POLE
	RESIDENTIAL
	STREET SIGN
	GARAGE
	FLAGPOLE
	TREE - DECIDUOUS
	TREE - CONIFEROUS
	TREE TO BE REMOVED

UTILITIES

GAS	
MADISON GAS & ELECTRIC	
CONTACT: SHAWN ENDRES	
P.O. BOX 1231	
MADISON, WI 53701	
(608) 254-2224	
SENDING@MGE.COM	
WORKPLANS@MGE.COM	
ELECTRIC	
MADISON GAS & ELECTRIC	
CONTACT: TONY SANFATELLO	
P.O. BOX 1231	
MADISON, WI 53701	
(608) 254-2224	
ASAP@MGE.COM	
WORKPLANS@MGE.COM	
PUBLIC WORKS / CITY ENGINEERS	
CITY OF MIDDLETON	
CONTACT: SHAWN STAUSKE - PUBLIC WORKS DIRECTOR/CITY ENGINEER	
7428 HUBBARD AVE.	
MIDDLETON, WI 53692	
(608) 821-6561	
STAUSKE@CITYOFMIDDLETON.WI.GOV	
SEWER & WATER	
CITY OF MIDDLETON	
CONTACT: DAVE BARBACKER - UTILITY MANAGER	
7428 HUBBARD AVE.	
MIDDLETON, WI 53692	
(608) 821-6576	
DBARBACKER@CITYOFMIDDLETON.WI.GOV	
TELEPHONE & CATV	
TC&M PLANS TELEPHONE	
CONTACT: JERRY MYERS	
525 JUNCTION ROAD	
MADISON, WI 53717	
(608) 275-7104	
JERRY.MYERS@TOSTELECOM.COM	
CHARTER COMMUNICATIONS	
CONTACT: NEIL HUNTAMER	
2701 DANIELS STREET	
MADISON, WI 53718	
(608) 251-1321	
NEIL.HUNTAMER@CHARTER.COM	

DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

NOTE: UTILITY LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND CONTRACTOR SHALL HAVE APPROPRIATE UTILITY MARKS EXACT LOCATIONS PRIOR TO CONSTRUCTION.

HORIZONTAL PORTIONS SHOWN ON THE PLAN ARE VERTICAL CURVE COORDINATE REFERENCE POINTS (VPC), DANE COUNTY, WISCONSIN. IN A SURVEY FIRST VALUES ARE COORDINATES, CURVE BEGINS, AND END OF CURVE. AND DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD83 (1983) AND THIS TO THE BENCHMARK 3301 (P.C. 3301) WITH A PUBLISHED ELEVATION OF 802.46. REVERSE BENCHMARK AT THE PROJECT SITE ARE NOT BY THE CONSULTANT. USE OF GPS TECHNOLOGY.



Sheets 84 - 150

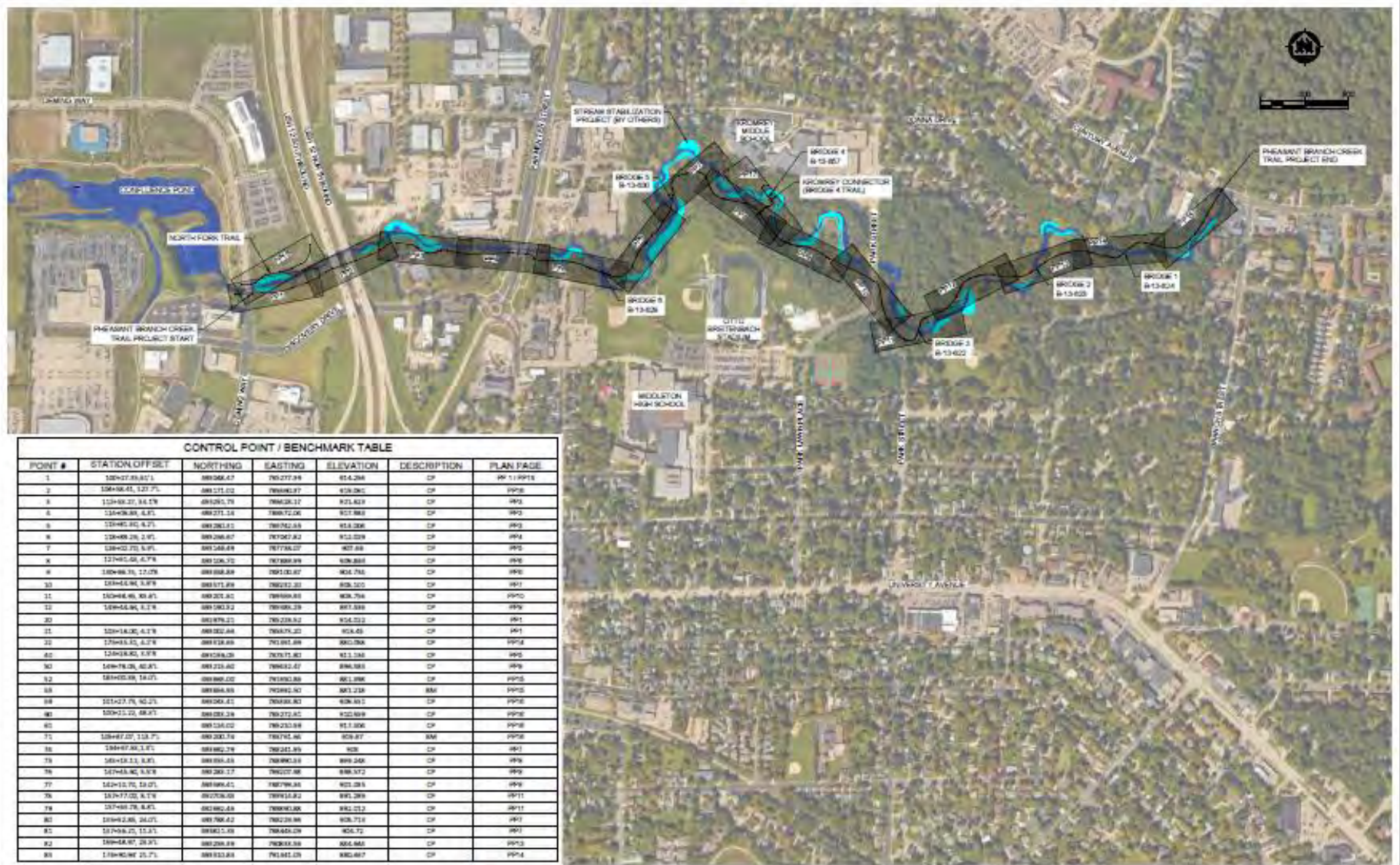
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DESIGNED BY	CHECKED BY	DATE
LEAH J. RHODES	LEAH J. RHODES	01/01/2021
DRAWN BY	CHECKED BY	DATE
LEAH J. RHODES	LEAH J. RHODES	01/01/2021



PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MIDDLETON
DANE COUNTY, WISCONSIN

TITLE PAGE

DATE: 01/01/2021
PAGE: 01



CONTROL POINT / BENCHMARK TABLE

POINT #	STATION/OFFSET	NORTHING	EASTING	ELEVATION	DESCRIPTION	PLAN PAGE
1	108+30.85/1	888368.47	765277.88	814.288	CP	PP1
2	108+30.85/1	888371.02	765280.97	814.285	CP	PP2
3	110+30.21/3.478	888325.79	766283.17	821.823	CP	PP3
4	110+30.21/3.478	888271.18	766272.06	827.883	CP	PP4
5	110+30.21/3.478	888283.10	766242.88	818.288	CP	PP5
6	110+30.21/3.478	888286.87	767047.82	812.028	CP	PP6
7	110+30.21/3.478	888286.89	767788.07	807.88	CP	PP7
8	112+30.51/6.778	888286.70	767888.89	808.888	CP	PP8
9	110+30.21/3.478	888286.89	767188.87	808.788	CP	PP9
10	110+30.21/3.478	888271.89	768212.33	808.103	CP	PP10
11	110+30.21/3.478	888271.81	768188.81	808.708	CP	PP11
12	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP12
13	110+30.21/3.478	888271.10	768212.33	808.103	CP	PP13
14	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP14
15	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP15
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32	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP32
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36	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP36
37	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP37
38	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP38
39	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP39
40	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP40
41	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP41
42	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP42
43	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP43
44	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP44
45	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP45
46	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP46
47	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP47
48	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP48
49	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP49
50	110+30.21/3.478	888283.12	768188.18	807.888	CP	PP50

PROJECT CODE	DATE	BY	CHK
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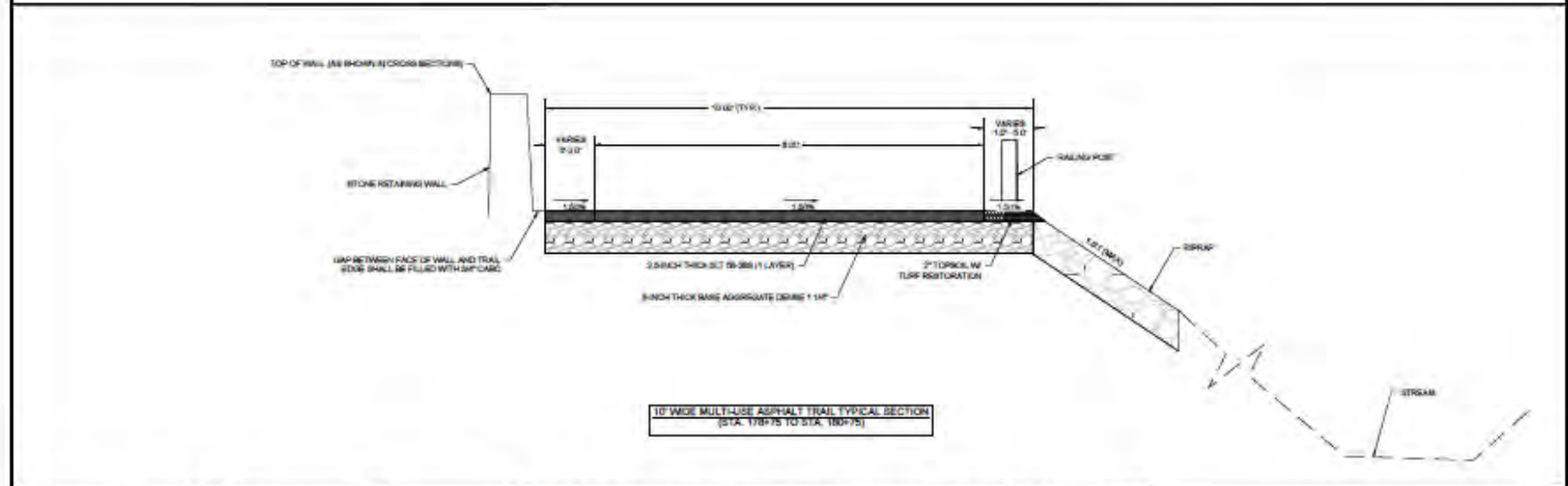
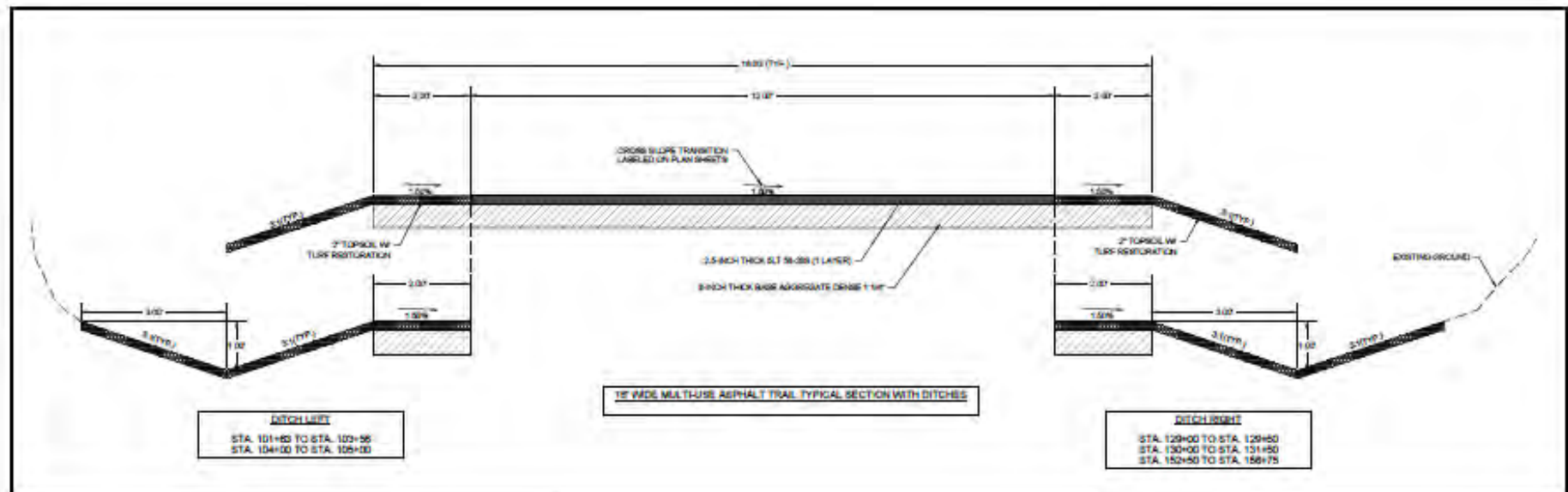


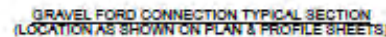
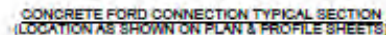
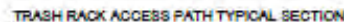
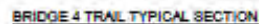
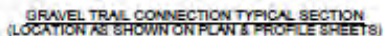
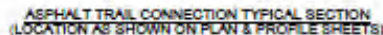
DESIGNER : ARCHITECTURE / CIVIL ENGINEERING
PLANNING / PLANNING / ENVIRONMENTAL
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Madison, WI 53713
608.241.7776 www.msa.com

PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MIDDLETON
DANE COUNTY, WISCONSIN

PROJECT OVERVIEW AND CONTROL POINT TABLE

DATE
04/20/2024
PAGE
03





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PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MIDDLETON
DADE COUNTY, WISCONSIN

TRAIL TYPICAL SECTIONS

04220084

CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS

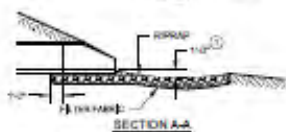
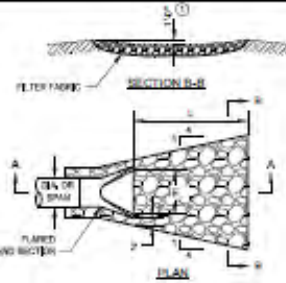
- SECTION 100.01 OF THE WISCONSIN STATE ADMINISTRATIVE CODE IDENTIFIES REQUIREMENTS FOR CONSTRUCTION SITE AND POST CONSTRUCTION EROSION CONTROL. IT IS THE INTENT OF THESE PLANS TO SATISFY THESE REQUIREMENTS. THE METHODS AND STRUCTURES USED TO CONTROL EROSION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL MAINTAIN AN APPROPRIATE MEANS OF CONTROLLING EROSION DURING SITE OPERATION AND UNTIL THE VEGETATION IS RE-ESTABLISHED. ADJUSTMENTS TO THE CONTROL SYSTEM SHALL BE MADE AS REQUIRED.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE WISCONSIN DNR CONSERVATION PRACTICE STANDARDS. THESE STANDARDS ARE PERIODICALLY UPDATED AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REFERENCE THE MOST RECENTLY RELEASED STANDARD.
- THIS INFORMATION IS ONLY ONE PART OF THE OVERALL EROSION CONTROL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY ALSO BE SHOWN ON THE CONTRACT DRAWINGS AND IN THE ACCOMPANYING SPECIFICATIONS.
- ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTOR, OR THE OWNER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.
- THE AREA OF EROSION MUST EXPOSED TO THE ELEMENTS BY GRUBBING, EXCAVATION, TRENCHING, BORROW AND FILL OPERATIONS AT ANY ONE TIME SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. FOR ANY DISTURBED AREA THAT REMAINS EXPOSED FOR GREATER THAN 7 WORKING DAYS, OR WHERE GRADING WORK EXTENDS BEYOND THE PERMANENT GRADING DATELINE, THE SITE MUST BE TREATED WITH TEMPORARY STABILIZATION MEASURES SUCH AS SOIL TREATMENT, TEMPORARY SEEDING AND MULCHING. ALL DISTURBED AREAS SHALL BE TREATED WITH PERMANENT STABILIZATION MEASURES WITHIN 30 WORKING DAYS OF FINAL GRADING.
- ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF THE TIME OF EACH OF ANY HAS OCCURRED. ALL NECESSARY REPAIR AND MAINTENANCE WILL BE DONE AT THIS INSPECTION TIME.
- ALL EROSION CONTROL DEVICES AND STRUCTURES SHALL BE PROPERLY INSTALLED PRIOR TO CLEARING AND GRADING OPERATIONS WITHIN THEIR RESPECTIVE DRAINAGE AREAS. THESE SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS RE-ESTABLISHED.
- ALL EROSION CONTROL DEVICES SHALL BE PROPERLY INSTALLED PRIOR TO ANY SOIL DISTURBANCE.
- ANY SLOPE STEEPER THAN 3:1 V:1 H SHALL BE STOKED WITH EROSION CONTROL FABRIC UNLESS INDICATED ON THE PLAN.
- ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTE, WASTEWATER, TOXIC MATERIALS, OR HAZARDOUS MATERIALS) SHALL BE PROPERLY DISPOSED OF AND NOT ALLOWED TO BE CARRIED OFF-SITE BY RUNOFF OR WIND.
- WIND EROSION SHALL BE KEPT TO A MINIMUM DURING CONSTRUCTION. WASTES, MULCH, OR A FALLOUT MUST BE REQUIRED TO PROTECT NEARBY RESIDENCES AND WATER RESOURCES.
- CHANNELIZED RUNOFF ENTERING THE PROJECT SITE FROM ADJACENT LANDS SHALL BE DIVERTED THROUGH NATURALLY OR ARTIFICIALLY EROSION RESISTANT CONVEYANCES. IF CHANNELIZED RUNOFF CANNOT BE DIVERTED, SITE BEST MANAGEMENT PRACTICES MUST ACCOUNT FOR THE ADDITIONAL FLOW RATES AND EROSION POTENTIAL THAT SUCH RUNOFF PRESENTS.
- THE CONTRACTOR SHALL TAKE ALL POSSIBLE PRECAUTIONS TO PREVENT SOILS FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. PAVED SURFACES ADJACENT TO CONSTRUCTION SITE VEHICLES AND EQUIPMENT SHALL BE WASHED AND RINSED (NOT FLOODED) PERIODICALLY TO REMOVE SOIL, GRIT, AND/OR DIRT.
- EROSION CONTROL SHALL BE INSTALLED ON THE DOWNSTREAM SIDE OF TEMPORARY STOCKPILES. ANY SOIL STOCKPILE THAT REMAINS FOR MORE THAN 30 DAYS SHALL BE COVERED OR TREATED WITH STABILIZATION PRACTICES SUCH AS TEMPORARY SEEDING AND MULCHING. ALL STOCK PILES SHALL BE PLACED AT LEAST 75 FEET FROM STREAMS OR WETLANDS.
- ADDITIONAL EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.) SHALL INCLUDE THE FOLLOWING:
A. PLACE INDICATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
B. BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
C. DRAINAGE OF TRENCH WATER OR OVERFLOWING EFFLUENT MUST BE PROPERLY TREATED TO REMOVE SEDIMENT IN ACCORDANCE WITH THE WISCONSIN CONSERVATION PRACTICE STANDARD 1001 - DRAINAGE OR A SUBSEQUENT WISCONSIN DRAINAGE STANDARD PRIOR TO DISCHARGE INTO A STORM SEWER, DITCH, DRAINAGEWAY, OR WETLAND OR LAKE.
D. ALL DRAINAGE CULVERTS, STORM DRAIN INLETS, MANHOLES, OR ANY OTHER EXISTING STRUCTURES THAT COULD BE DAMAGED BY SEDIMENTATION SHALL BE PROTECTED ACCORDING TO THE VARIOUS METHODS PROVIDED IN THE PREVENT CONSERVATION PRACTICE STANDARDS.
- ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR STABILIZATION MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
- THE FIRST 30 WORKING DAYS AFTER INITIAL STABILIZATION, ALL NEWLY SEEDS AND MULCHED AREAS SHALL WATERED WHENEVER 7 DAYS ELAPSE WITHOUT A RAIN EVENT.
- WHEN THE DISTURBED AREA HAS BEEN STABILIZED BY PERMANENT VEGETATION OR OTHER MEANS, TEMPORARY BARRIERS SUCH AS SILT FENCES, STRAW BALS, AND SEDIMENT TRAPS SHALL BE REMOVED AND THESE AREAS STABILIZED.
- ALL TEMPORARY BEST MANAGEMENT PRACTICES SHALL BE MAINTAINED UNTIL THE SITE IS STABILIZED.
- ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITH SEED AND MULCHING, UNLESS OTHERWISE SPECIFIED. A MINIMUM OF FOUR INCHES OF TOPSOIL SHALL BE APPLIED TO ALL AREAS TO BE SEEDS OR MULCHED.

TABLE OF QUANTITIES
RIPRAP AT RIP-OUTS

INCHES OF RIPRAP	12"	18"	24"
DEPTH (FEET)	DEPTH (FEET)	DEPTH (FEET)	DEPTH (FEET)
12"	12"	12"	12"
18"	18"	18"	18"
24"	24"	24"	24"
30"	30"	30"	30"
36"	36"	36"	36"
42"	42"	42"	42"
48"	48"	48"	48"

TABLE OF QUANTITIES
RIPRAP AT RIP-OUTS
OR RIDGES OF EQUIVALENT BROWN WIDTH

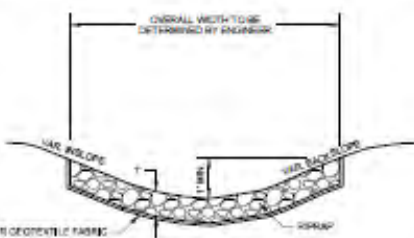
BRAN OF RIPRAP	12"	18"	24"
INCHES OF RIPRAP	INCHES OF RIPRAP	INCHES OF RIPRAP	INCHES OF RIPRAP
12"	12"	12"	12"
18"	18"	18"	18"
24"	24"	24"	24"
30"	30"	30"	30"
36"	36"	36"	36"
42"	42"	42"	42"
48"	48"	48"	48"



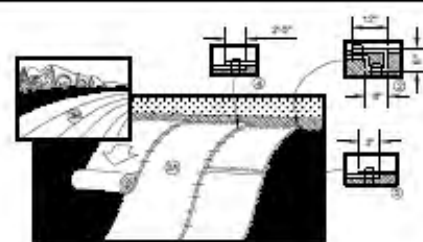
NOTES:
RIPRAP SHALL BE INSTALLED WITHIN 24 HOURS OF THE TIME OF EACH OF ANY HAS OCCURRED.
ALL NECESSARY REPAIR AND MAINTENANCE WILL BE DONE AT THIS INSPECTION TIME.
ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF THE TIME OF EACH OF ANY HAS OCCURRED.

GENERAL NOTES - INLET PROTECTION

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DISCRETION OF THE ENGINEER. WHEN REMOVED OR MAINTAINED INLET PROTECTION, CARE SHALL BE TAKEN TO SO THAT THE SEDIMENT TRAPPED ON THE OBJECTS FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY. REFER TO THE CITY OF MIDDLETON STANDARD DETAIL FOR INLET PROTECTION TYPE D AND EROSION TREATMENT IN APPENDIX A.



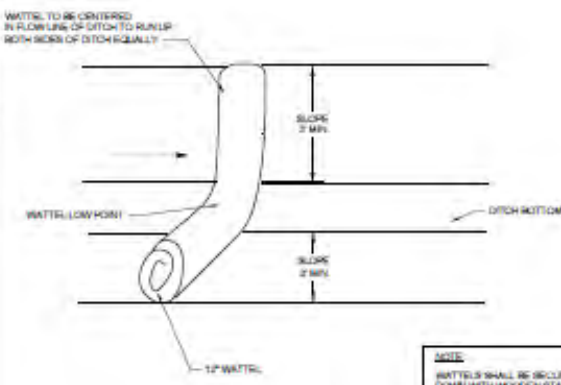
TYPICAL RIPRAP INSTALLATION



- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- SEED AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP 3.1" (7.5 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF BLANKET EXTENDING BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAPLES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND HOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACT TO SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAPLES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROXIMATE 2" (5 CM) OVERLAP. STAPLES THROUGH OVERLAP AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" (5 CM) OVERLAP. STAPLING OR BLANKET TYPE.
- CONSECUTIVE BLANKETS SPUN DOWN THE SLOPE MUST BE PLACED AND OVER SEED (SEEDS & STAPLES) WITH AN APPROXIMATE 2" (5 CM) OVERLAP. STAPLES THROUGH OVERLAP AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLES OR STAPLE LENGTHS GREATER THAN 1.5" (3.8 CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

EROSION CONTROL BLANKET DETAIL



EROSION CONTROL WATTLE DETAIL

WATTLE TO BE CENTERED IN FLOW LINE OF DITCH TO RUNUP BOTH SIDES OF DITCH EQUALLY.

NOTE:
WATTLE SHALL BE SECURED DOWN WITH WOODEN STAKES TO ENSURE ALL LOGS STAY IN PLACE THROUGHOUT CONSTRUCTION.

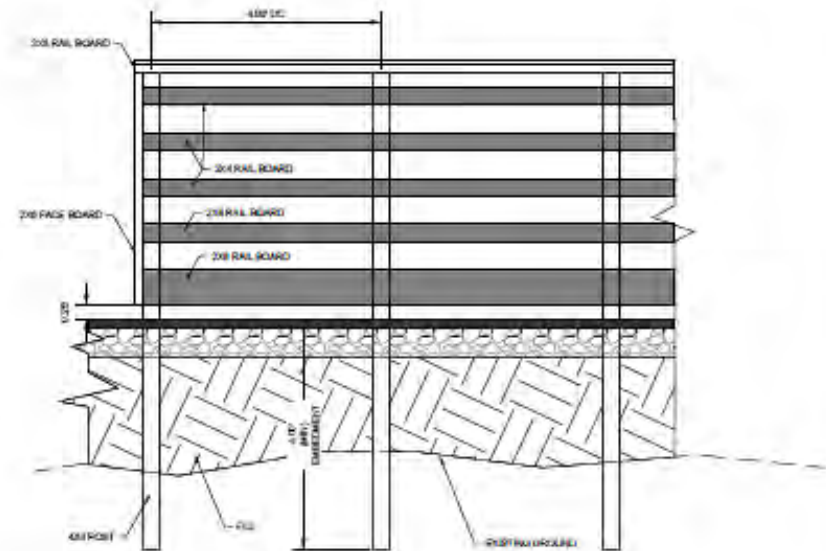
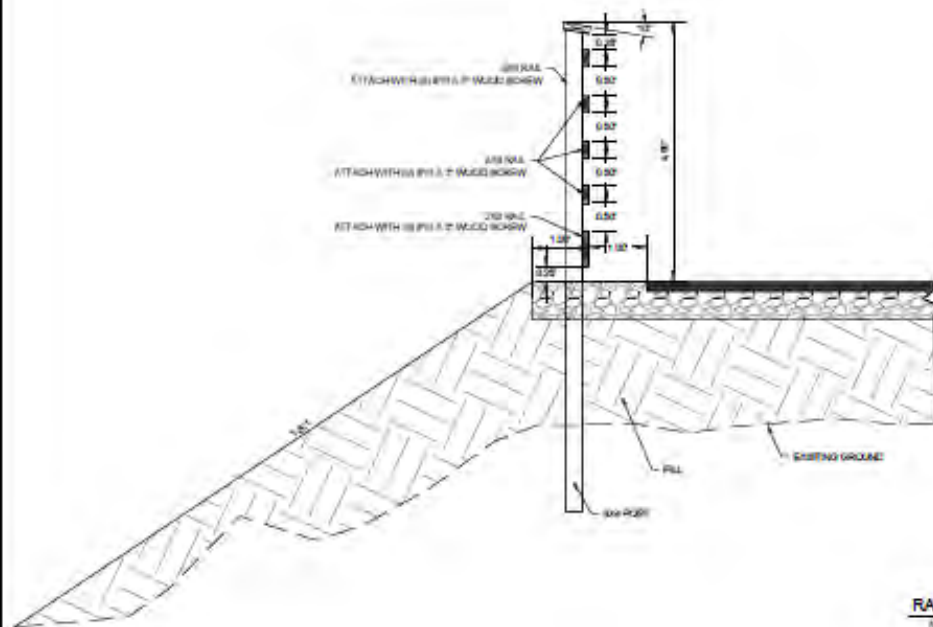


PREPARED BY: ARCHITECTURE / ENGINEERING
DESIGNED BY: PLANNING / ENGINEERING
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WWW.CITYOFMIDDLETON.WI.GOV

PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MIDDLETON
DANE COUNTY, WISCONSIN

EROSION CONTROL DETAILS

DATE: 04/20/2024
BY: GS



RAILING DETAIL
NO SCALE

PROJECT NO.	2024-001	DATE	01/15/2024
DESIGNED BY	MSA	CHECKED BY	MSA
DRAWN BY	MSA	DATE	01/15/2024

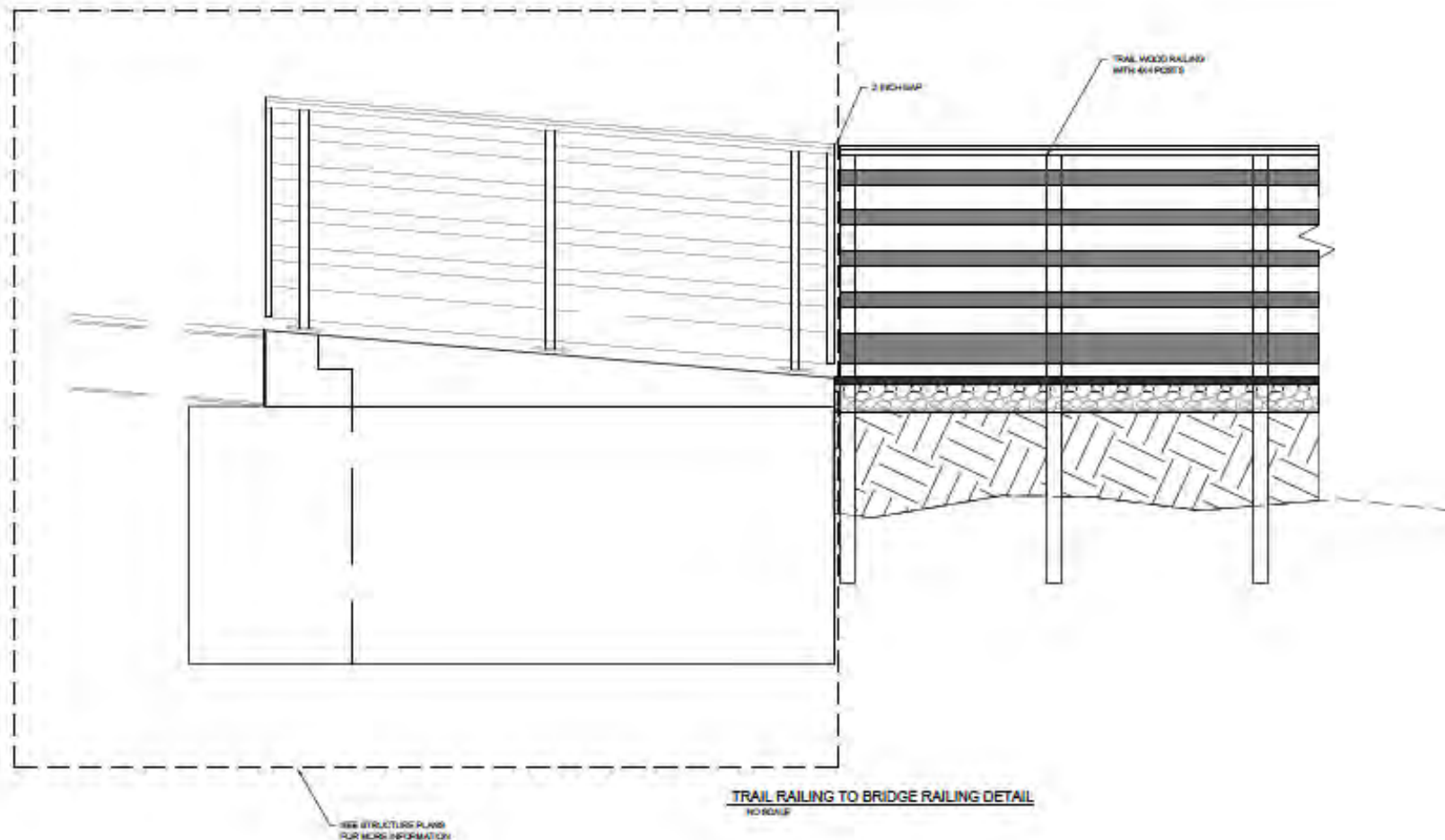


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BENTLEY, MI 49515
www.msa-engineers.com

PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MIDDLETON
DANE COUNTY, WISCONSIN

WOOD RAILING DETAIL

PROJECT NO.	2024-001
DATE	01/15/2024



DATE	BY	REVISION
01/15/2024	MSA	ISSUED FOR PERMIT
01/15/2024	MSA	ISSUED FOR PERMIT
01/15/2024	MSA	ISSUED FOR PERMIT

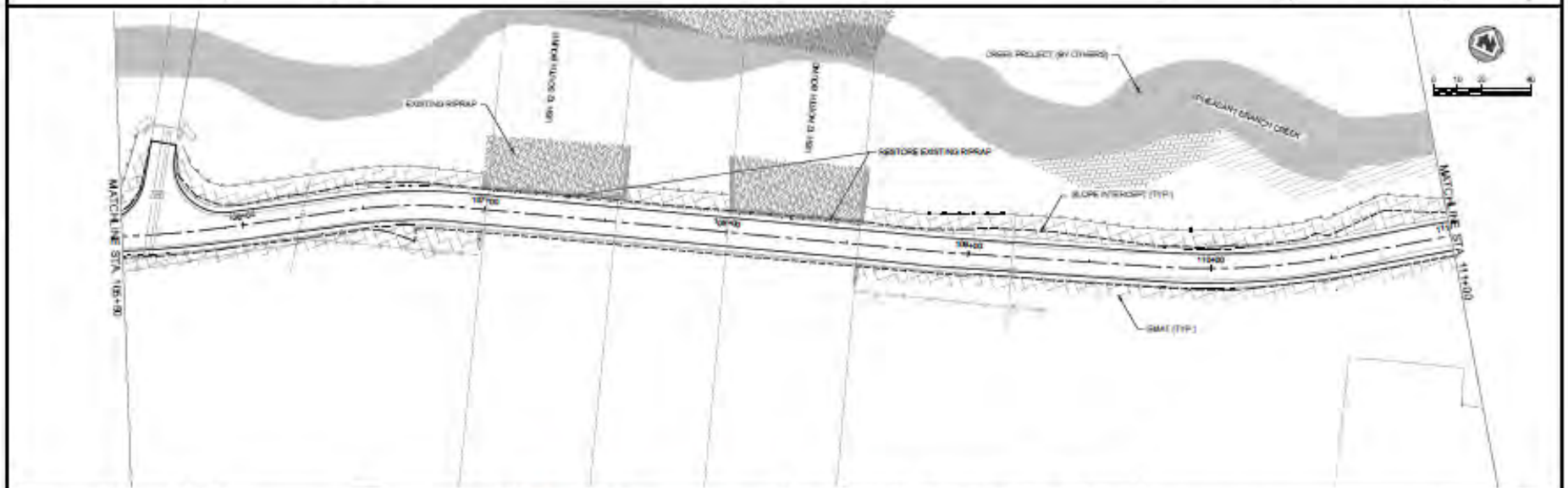
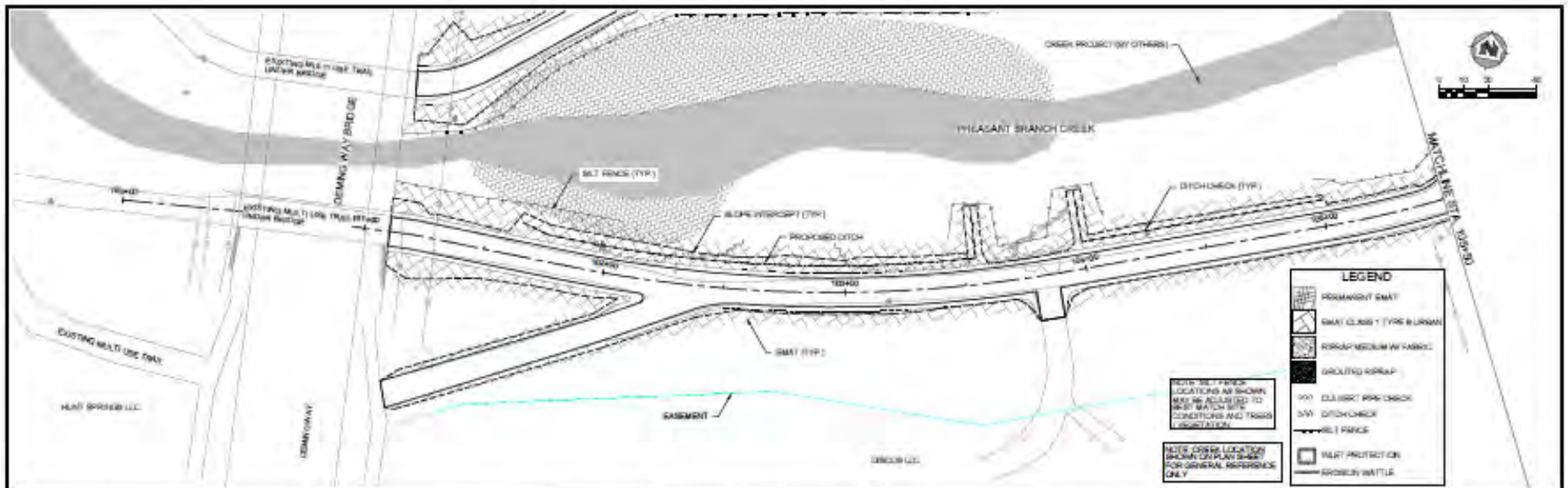


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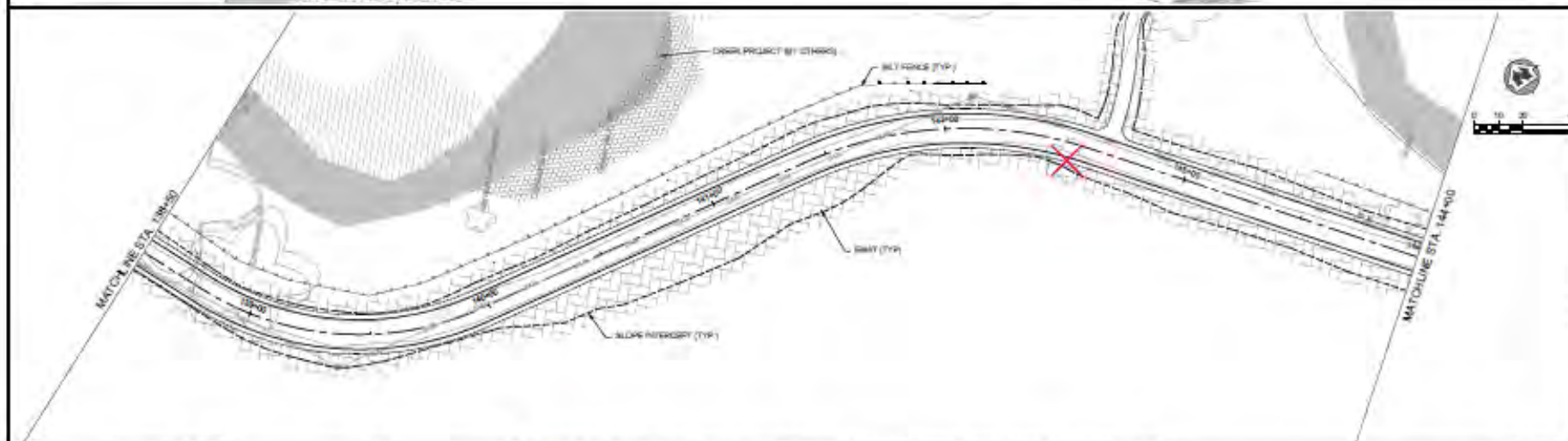
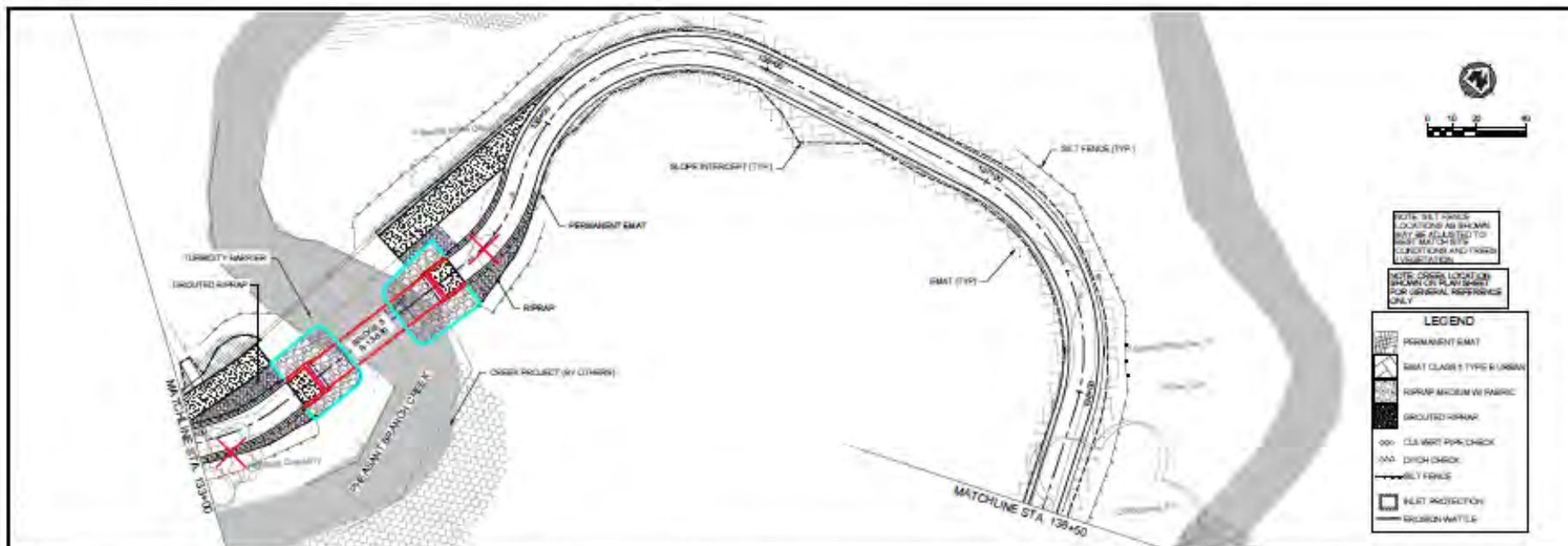
PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MADISON
DAKE COUNTY, WISCONSIN

TRAIL RAILING TO BRIDGE RAILING CONNECTION DETAIL

DATE: 01/15/2024
BY: JLB



PROJECT SHEET SHEET NO. 1 SHEET TOTAL 1	DRAWN BY: JAC CHECKED BY: JAC DATE: 10/20/2024	DATE: 10/20/2024 SCALE: AS SHOWN PROJECT: PHEASANT BRANCH CREEK EROSION CONTROL PLAN	CITY OF MIDDLETON DANE COUNTY, WISCONSIN	MSA ENGINEERING ARCHITECTURE SURVEYING PLANNING LANDSCAPE ARCHITECTURE 1500 American Road, Suite 200 Madison, WI 53704 (608) 261-7777 www.msa-inc.com	PHEASANT BRANCH CREEK TRAIL & BRIDGES CITY OF MIDDLETON DANE COUNTY, WISCONSIN	PHEASANT BRANCH CREEK EROSION CONTROL PLAN	SHEET NO. 1 DATE: 10/20/2024 BY: JAC
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PROJECT NAME	PROJECT NO.	DATE	BY	FOR	BY
PHEASANT BRANCH CREEK TRAIL & BRIDGES	138	10/10/2018	J. J. J.	W. J.	J. J. J.
DESIGNED BY	CHECKED BY	DATE	BY	FOR	BY
J. J. J.	J. J. J.	10/10/2018	J. J. J.	W. J.	J. J. J.

M&A

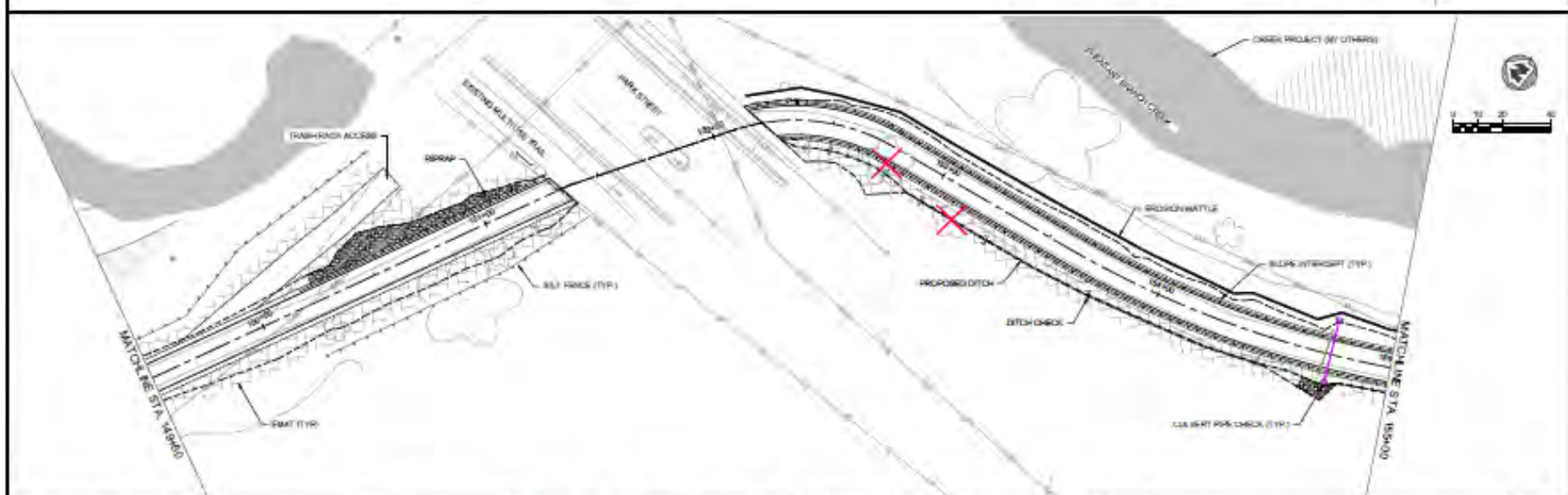
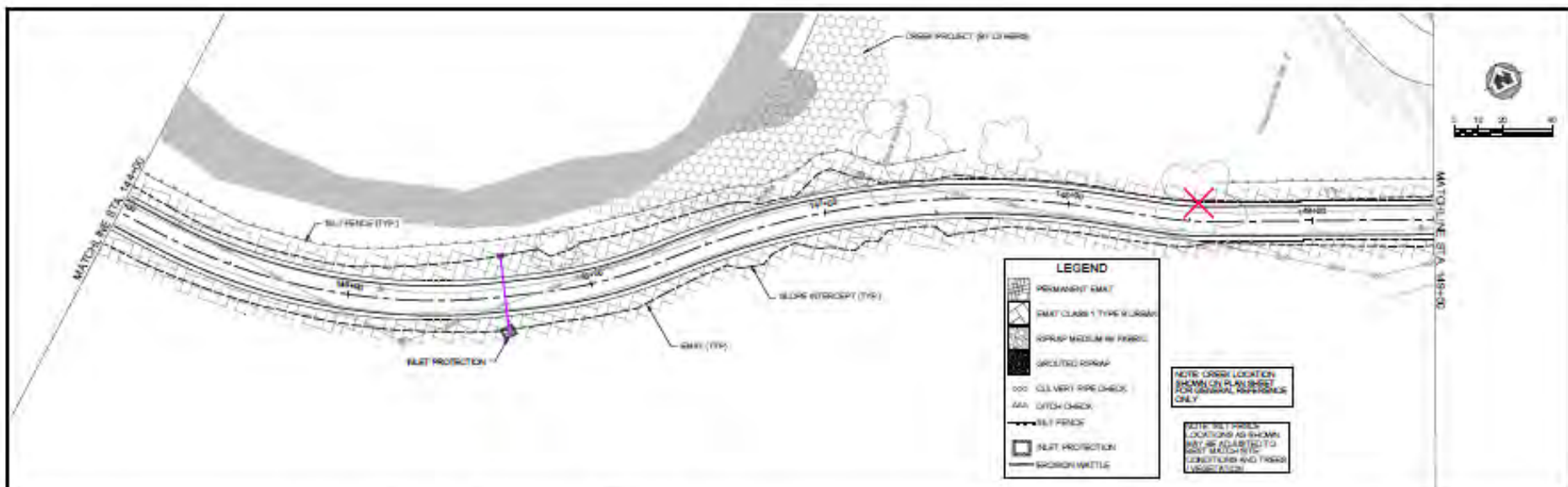
ENGINEERING ARCHITECTURE LANDSCAPE
PLANNING - PLANNING - ENVIRONMENTAL
1000 Parkview Dr. Middleton, WI 53598
PH: 608.770.1100 FAX: 608.770.1101

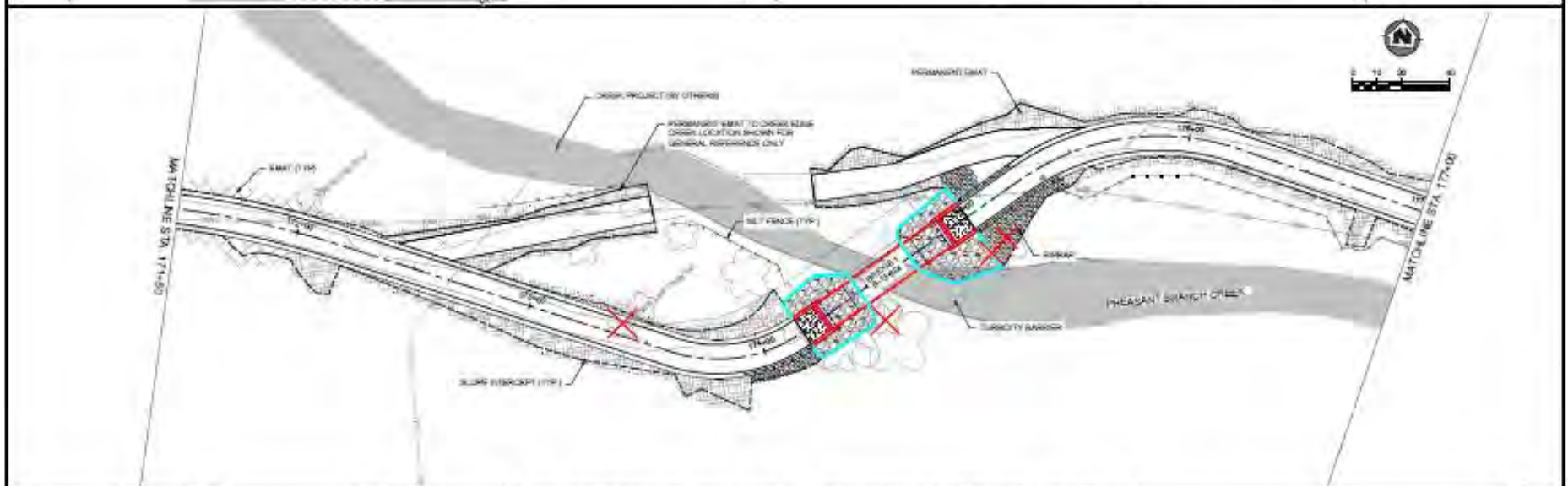
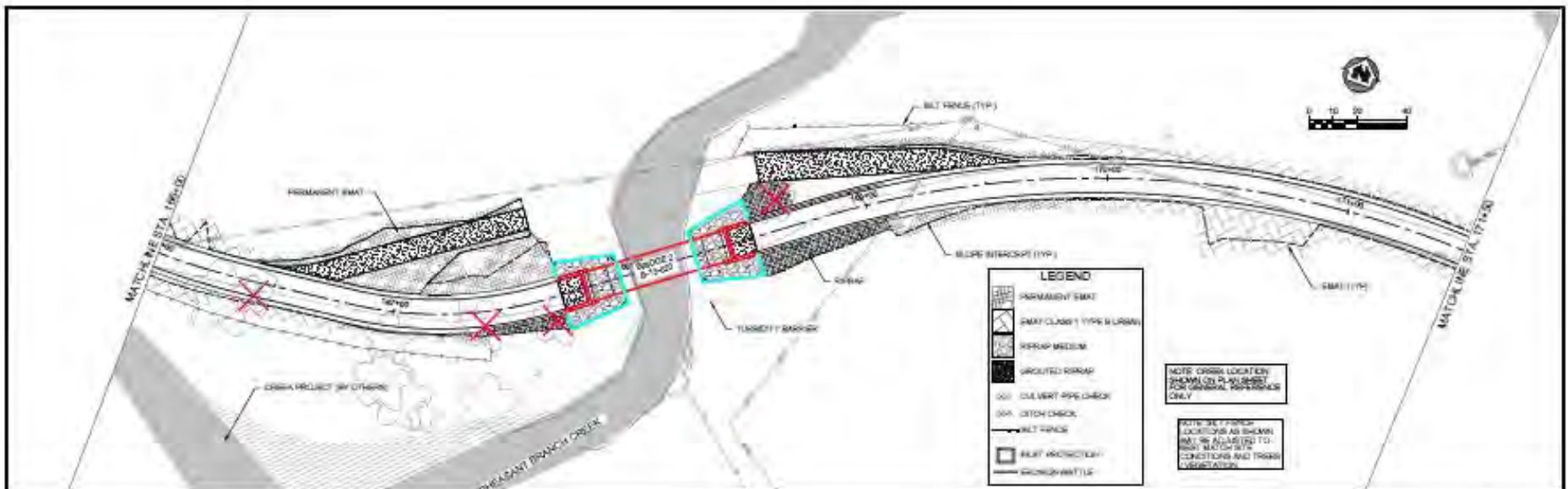
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CITY OF MIDDLETON
DADE COUNTY, WISCONSIN

PHEASANT BRANCH CREEK EROSION CONTROL PLAN

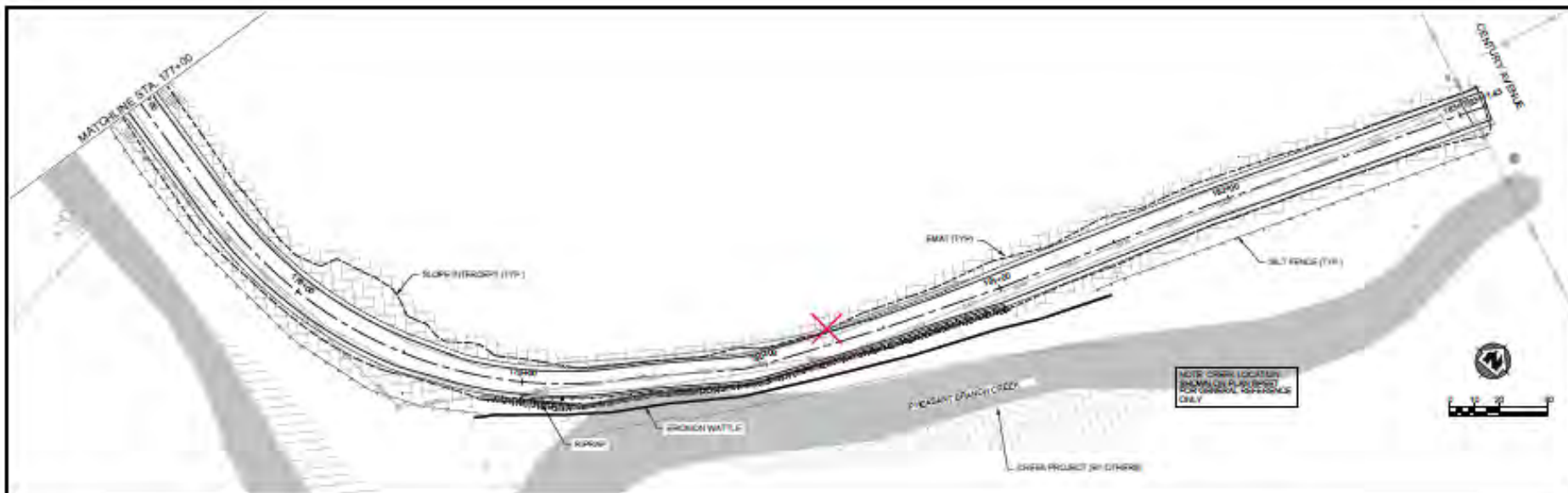
PROJECT NO. 138

DATE 10/10/2018





<p>PROJECT NO. 04923004</p> <p>DATE 04/20/2024</p> <p>DESIGNED BY J. J. JENSEN</p> <p>CHECKED BY J. J. JENSEN</p> <p>APPROVED BY J. J. JENSEN</p>	<p>PROJECT NO. 04923004</p> <p>DATE 04/20/2024</p> <p>DESIGNED BY J. J. JENSEN</p> <p>CHECKED BY J. J. JENSEN</p> <p>APPROVED BY J. J. JENSEN</p>	<p>MSA</p> <p>PROFESSIONAL ARCHITECTURAL FIRM</p> <p>2122 Avenue D, Madison, WI 53704</p> <p>608.261.7700</p>	<p>PHEASANT BRANCH CREEK TRAIL & BRIDGES</p> <p>CITY OF MCCLISTON</p> <p>DADE COUNTY, WISCONSIN</p>	<p>PHEASANT BRANCH CREEK EROSION CONTROL PLAN</p>	<p>04923004</p> <p>04/20/2024</p>
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LEGEND	
	PERMANENT EMAT
	EMAT CLASS 1 TYPE B J-RAP
	RIPPRAP MEDIUM
	GRAVELLED RIPRAP
	CU: CULVERT PIPE CHECK
	DC: DITCH CHECK
	SILT FENCE
	SILT PROTECTION
	PROPOSED WATERLINE

NOTE: SILT FENCE LOCATION AS SHOWN MAY BE ADJUSTED TO BEST MATCH SITE CONDITIONS AND TREES (SCALE 1:100)

PROJECT NAME	PROJECT NO.	DATE	REVISION
PHEASANT BRANCH CREEK TRAIL & BRIDGES	04020004	04/20/2024	1



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ALSO: PLANNING / ENGINEERING
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608.261.7770 www.msa-inc.com

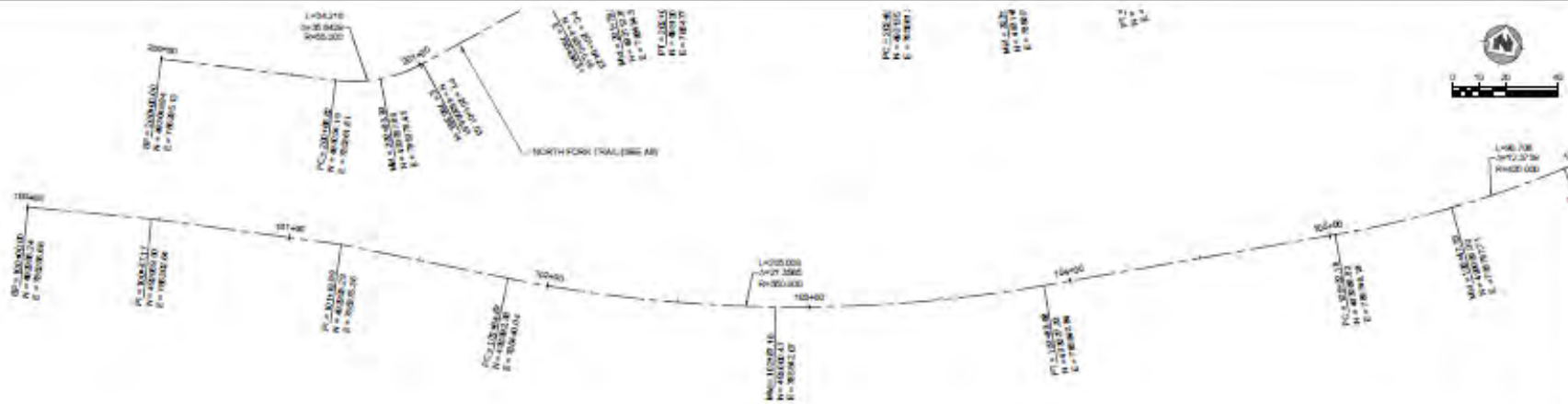
PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MADISON
DADE COUNTY, WISCONSIN

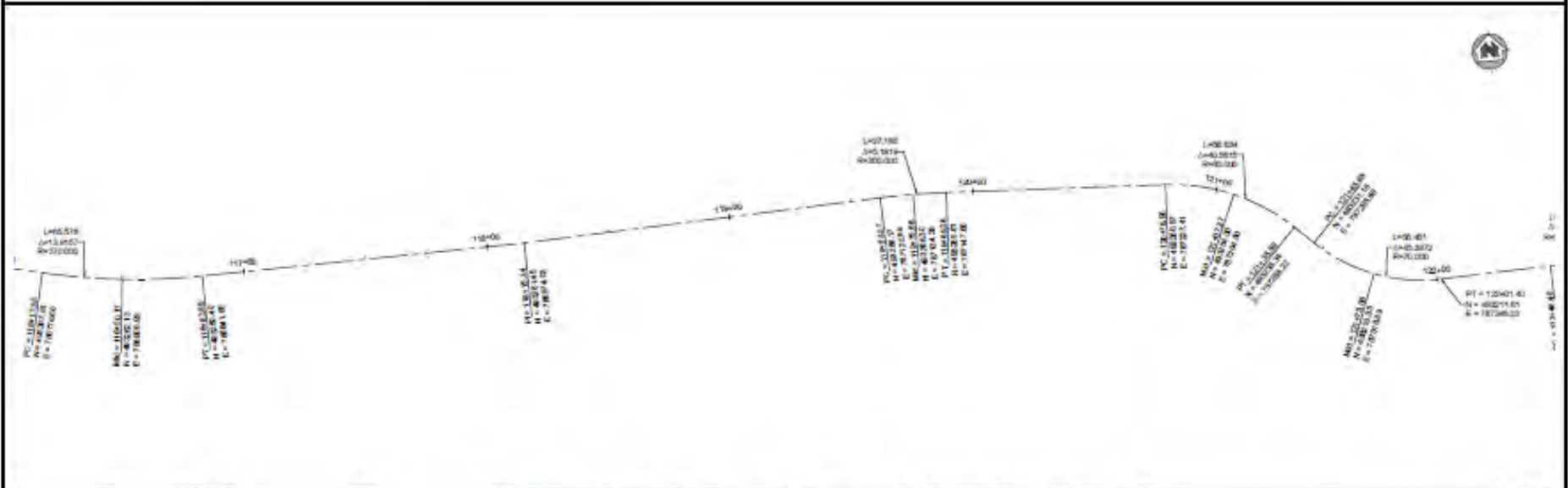
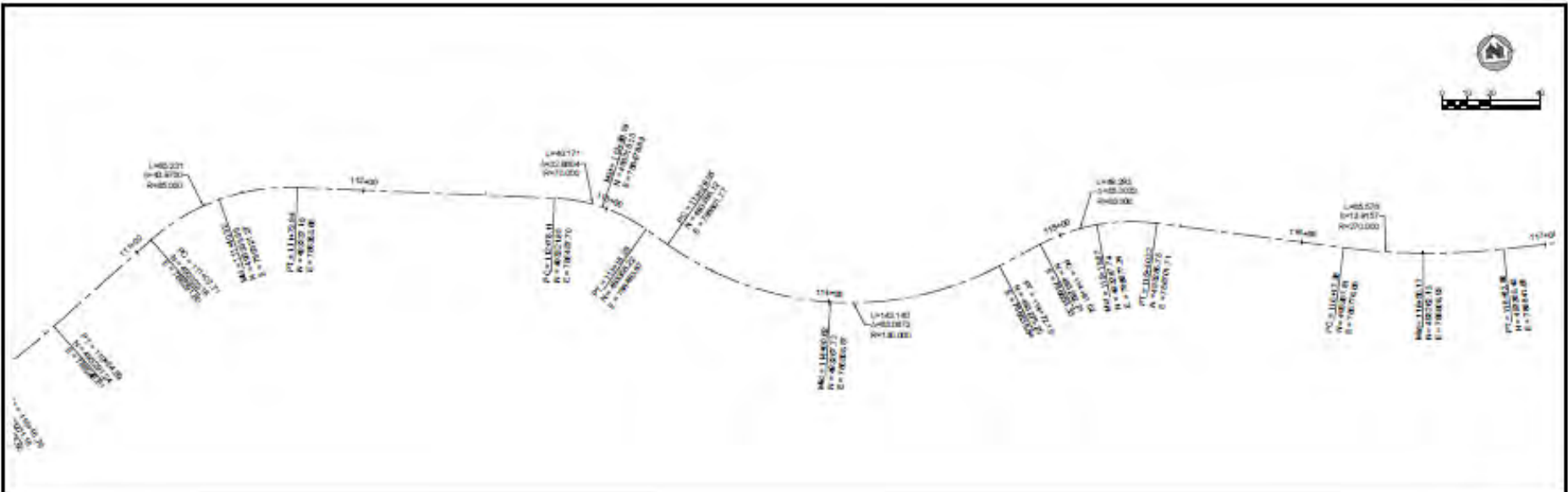
PHEASANT BRANCH CREEK EROSION CONTROL PLAN

04020004
Sheet
02 of 02

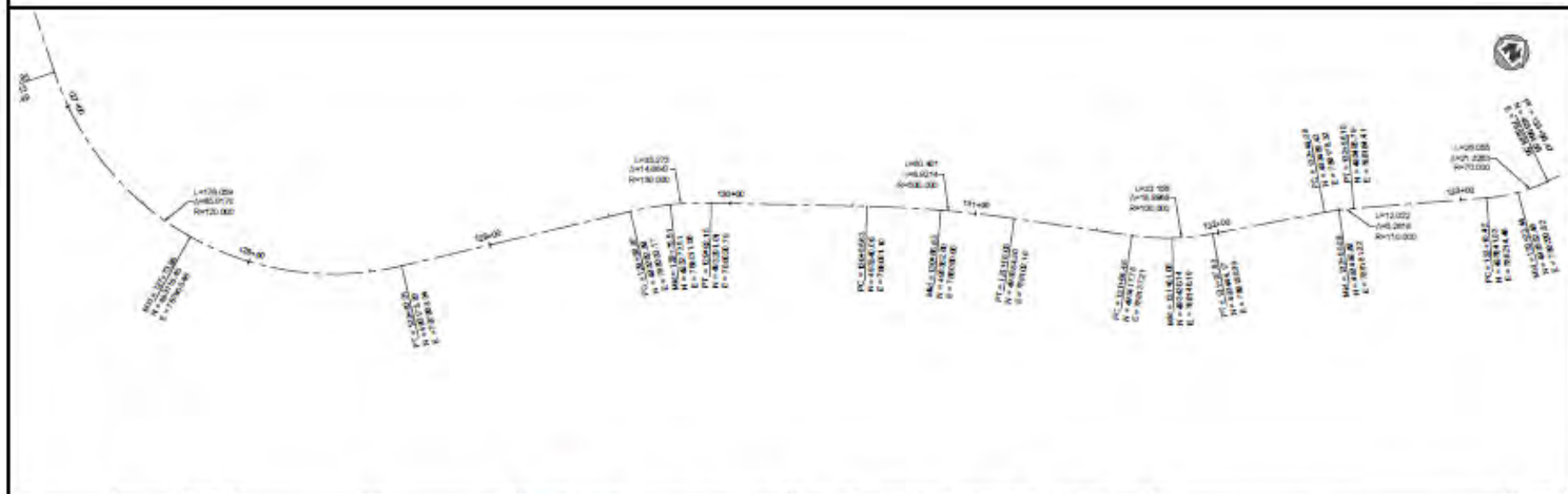
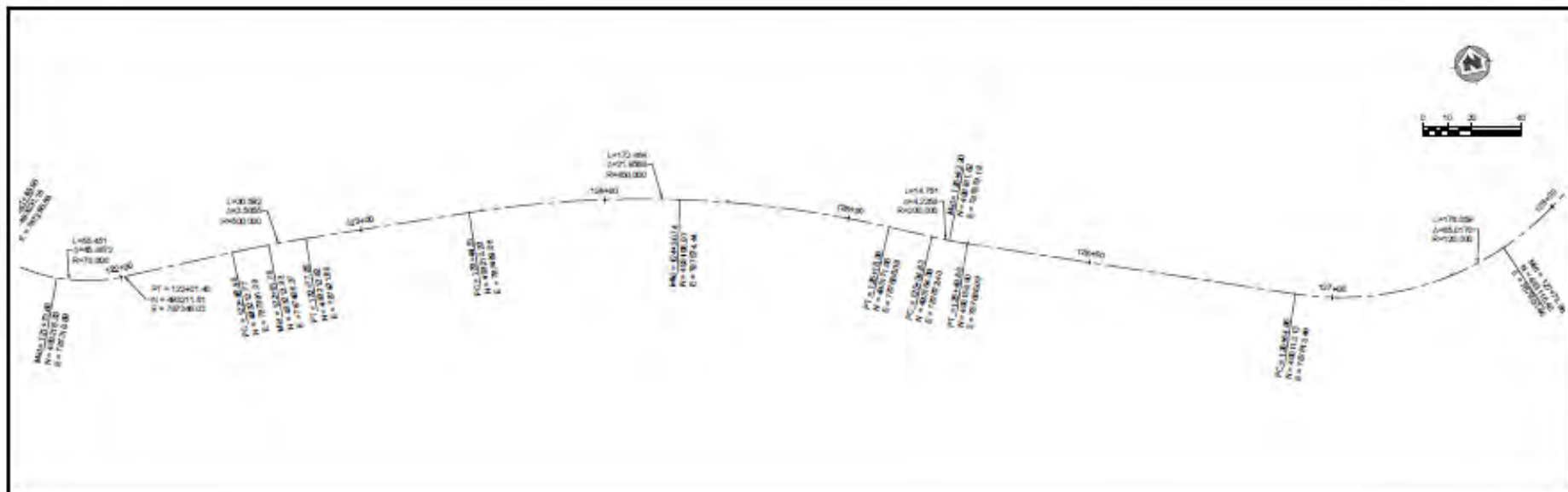


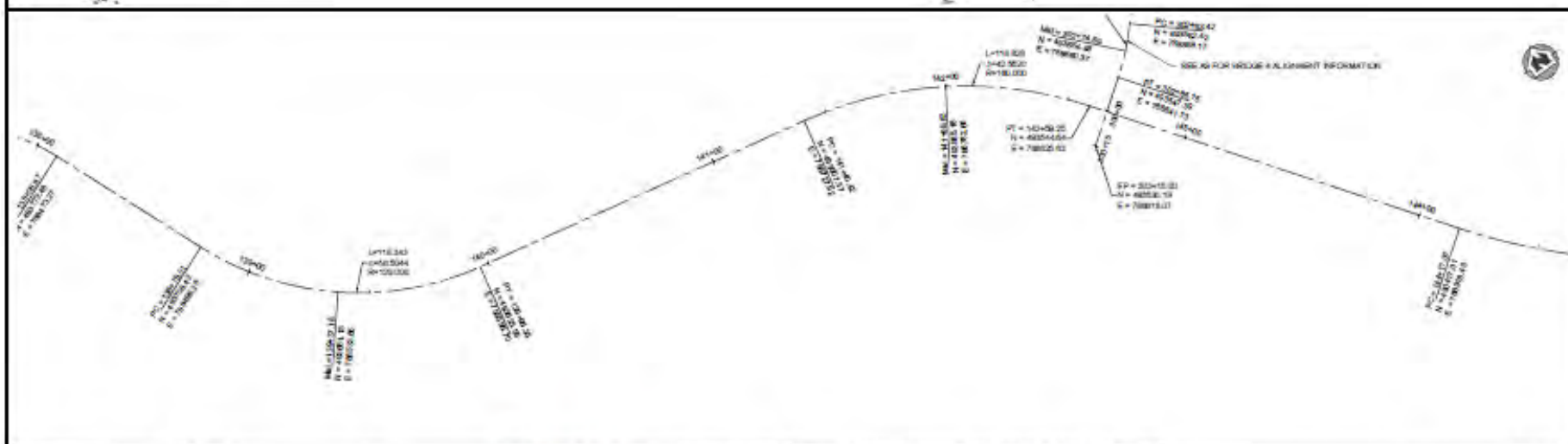
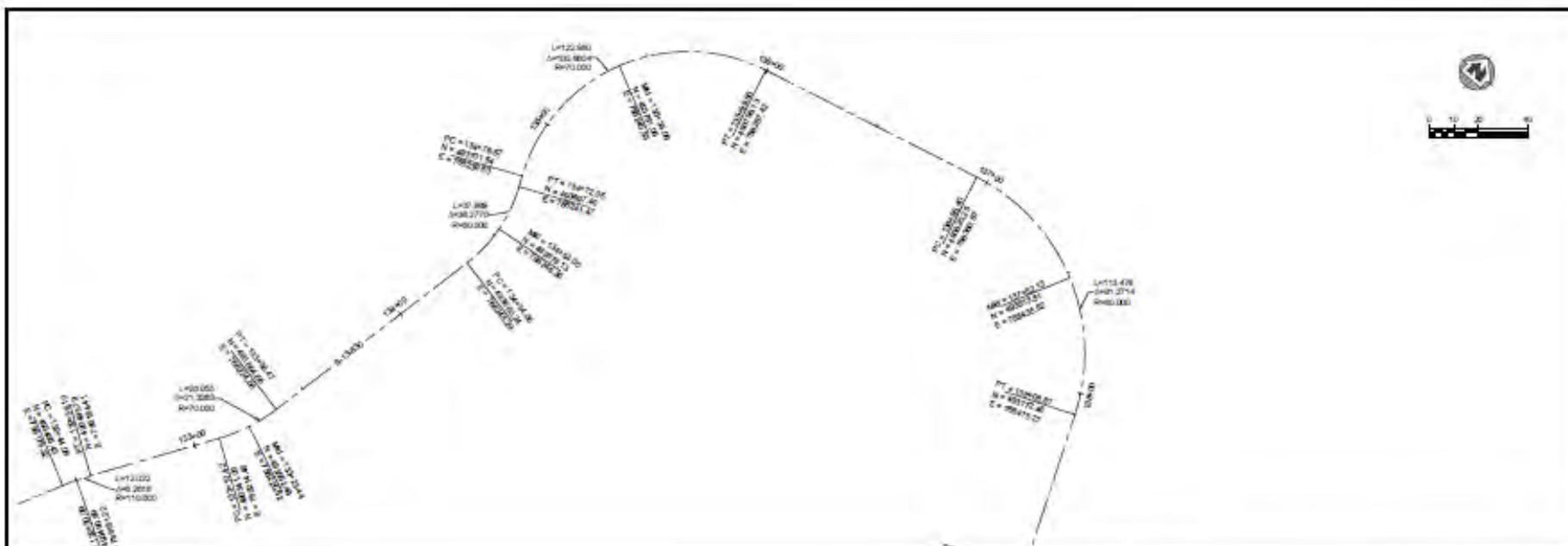
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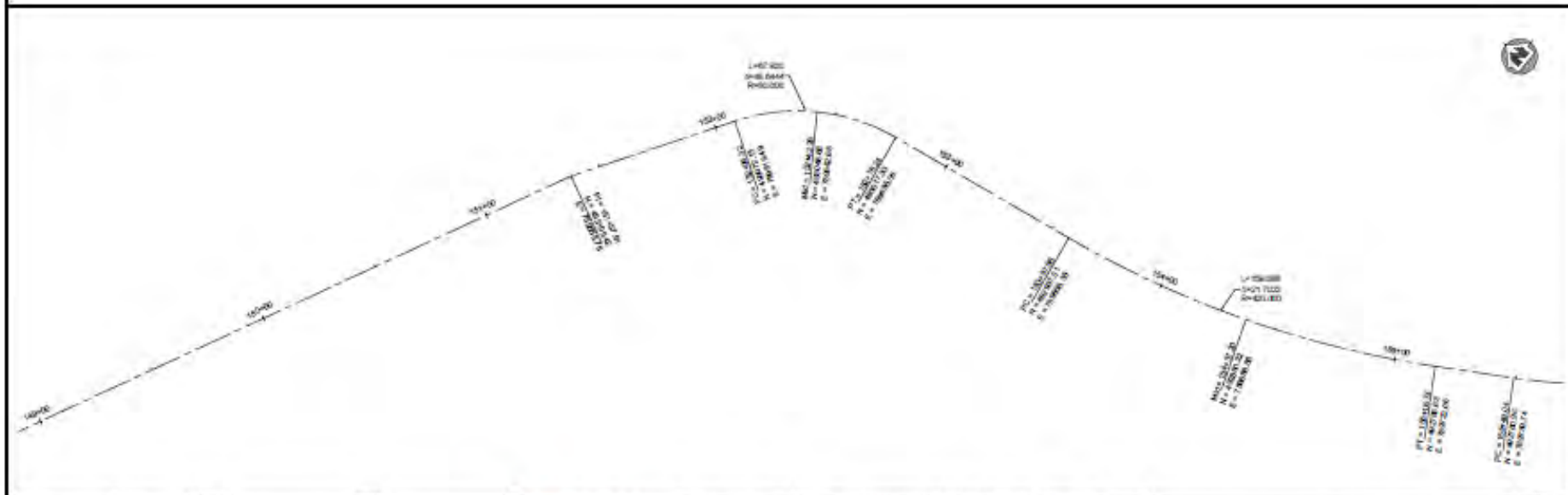
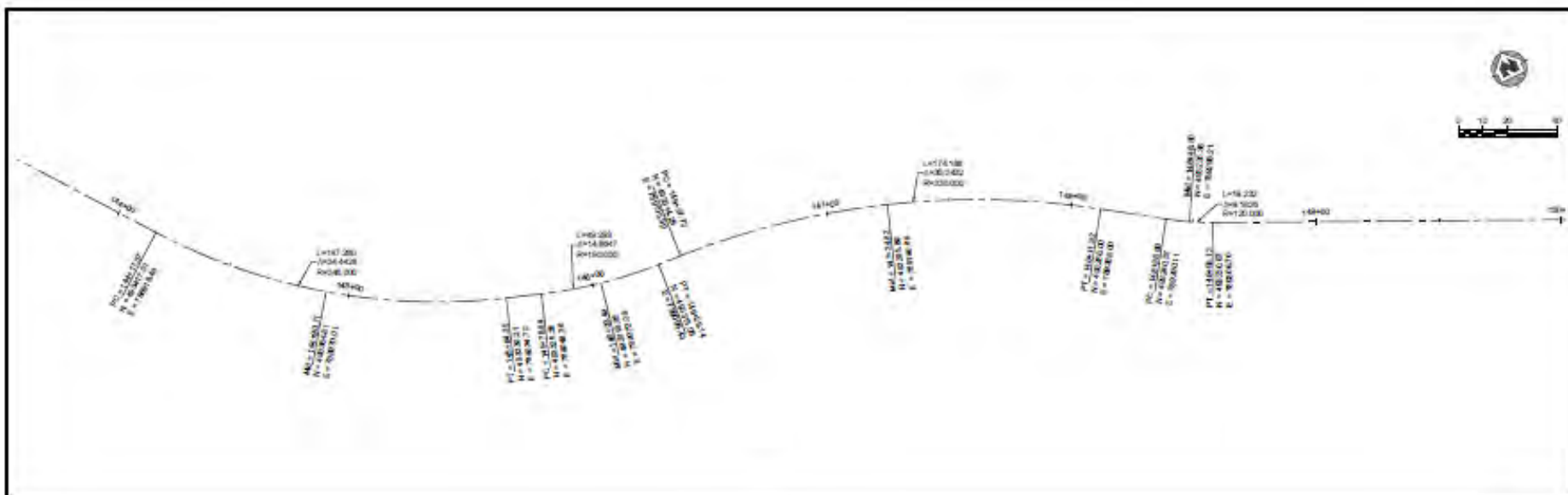


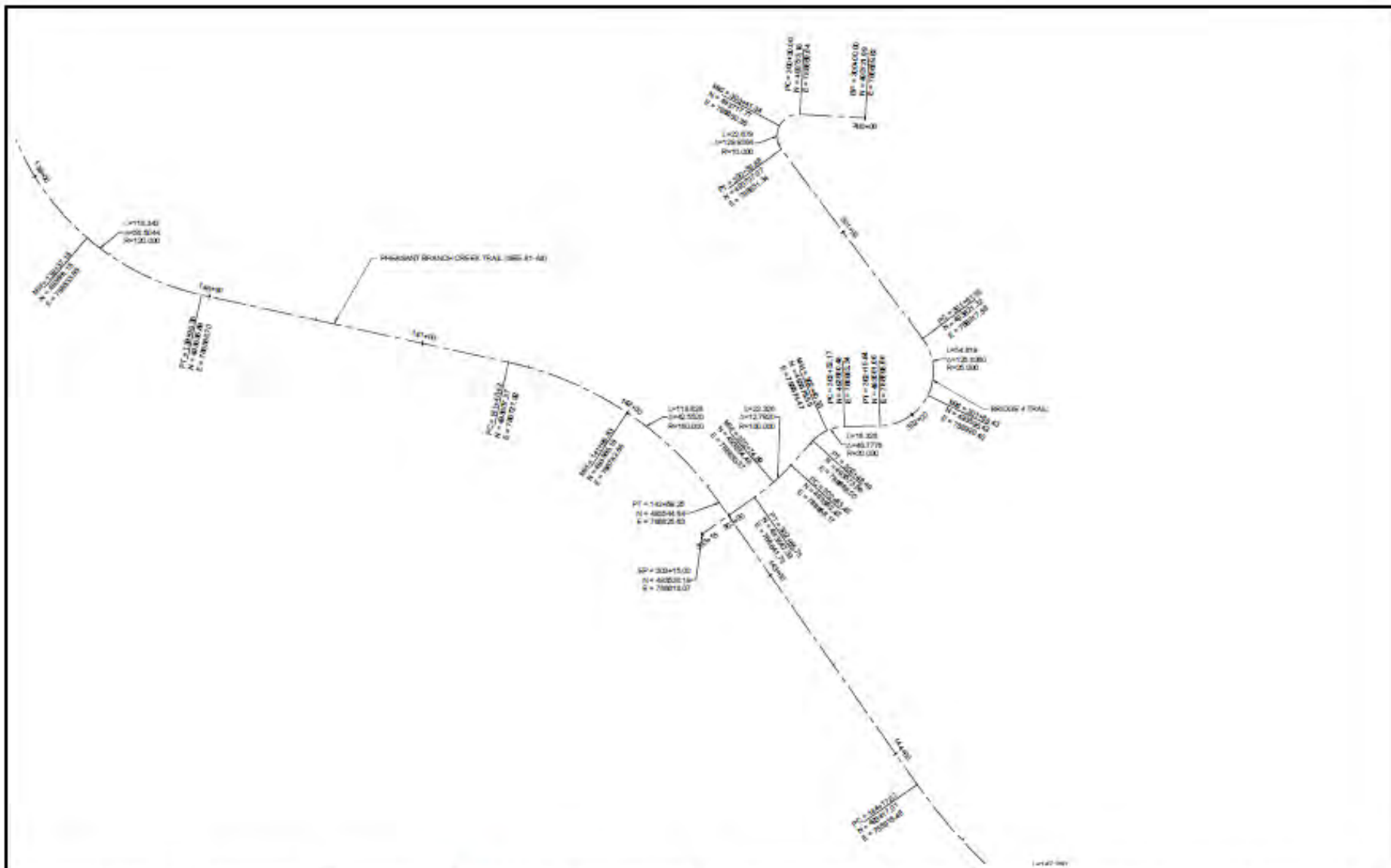
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PROJECT NO.	DATE	BY	CHKD	REVISION										



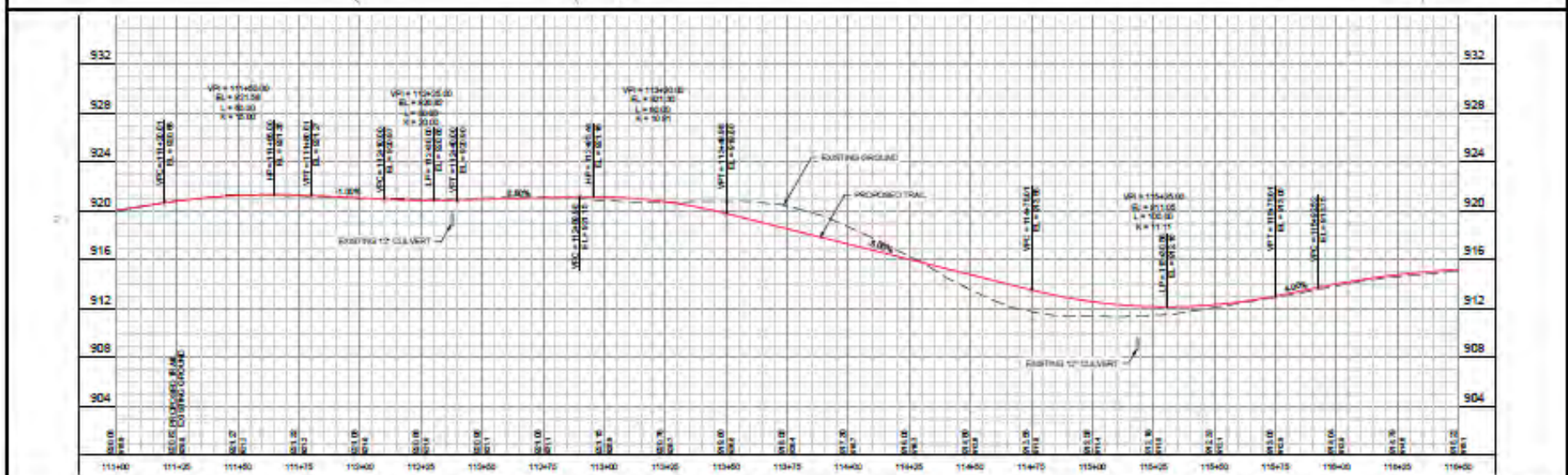
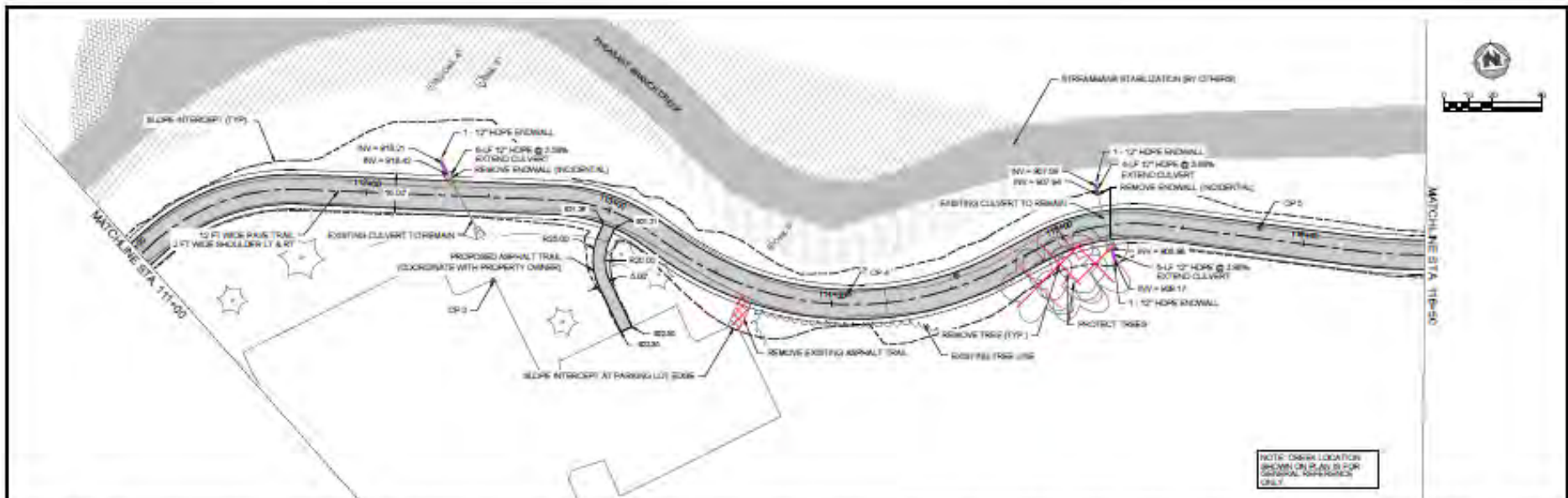


DATE		BY	CHKD	APPD	 MSA ENGINEERING ARCHITECTURE SURVEYING PLANNING PLANNING ENVIRONMENTAL 2700 Lincoln Drive, Suite 100 Madison, WI 53719 (608) 261-7779 www.msa.com	PHEASANT BRANCH CREEK TRAIL & BRIDGES CITY OF MIDDLETON DANE COUNTY, WISCONSIN	PHEASANT BRANCH CREEK TRAIL ALIGNMENT PLAN	SHEET NO. 14 10/1/14 JL
DESIGNED BY		DATE	BY	CHKD				
CHECKED BY		DATE	BY	CHKD				
APPROVED BY		DATE	BY	CHKD				





PROJECT NO. 04520004	SHEET NO. 10	DATE 10/10/10	REVISION 1.0	 MSA ENGINEERING / ARCHITECTURE / SURVEYING 2751 Lawrence St. Madison, WI 53704 608.261.7770 www.msa-inc.com	PHEASANT BRANCH CREEK TRAIL & BRIDGES CITY OF MIDDLETON DANE COUNTY, WISCONSIN	BRIDGE 4 ALIGNMENT PLAN	PROJECT NO. 04520004 SHEET 10
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PROJECT CITY:	MUNICIPALITY OF PHEASANT BRANCH	SHEET NO.:	1	DATE:	04/20/2024
DESIGNED BY:	JL	CHECKED BY:	JL	DATE:	04/20/2024
DRAWN BY:	JL	DATE:	04/20/2024	SCALE:	AS SHOWN

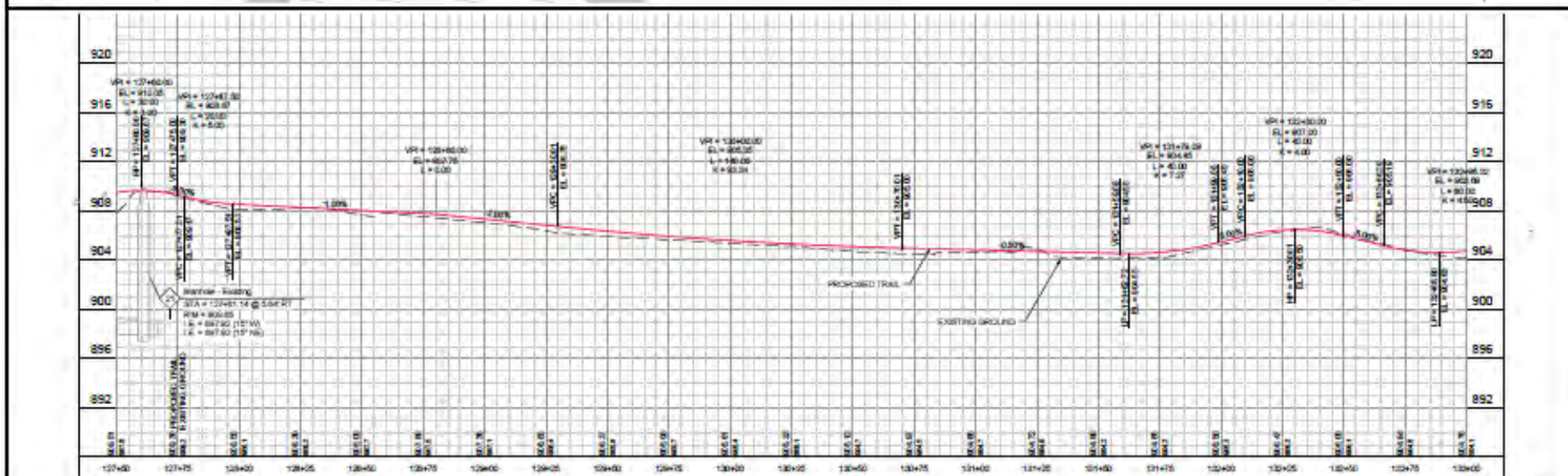
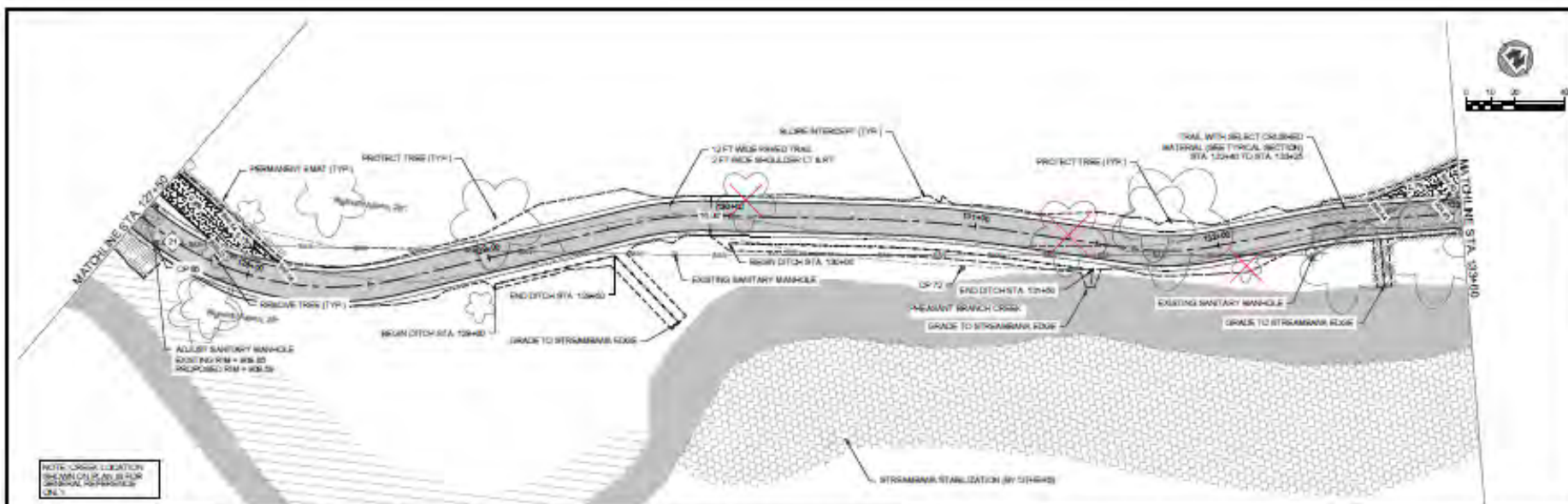


ENGINEERING ARCHITECTURE SURVEYING
PLANNING LANDSCAPE ARCHITECTURE
2024 Pheasant Branch, WI 53216
PHONE: 414-770-1100 FAX: 414-770-1101

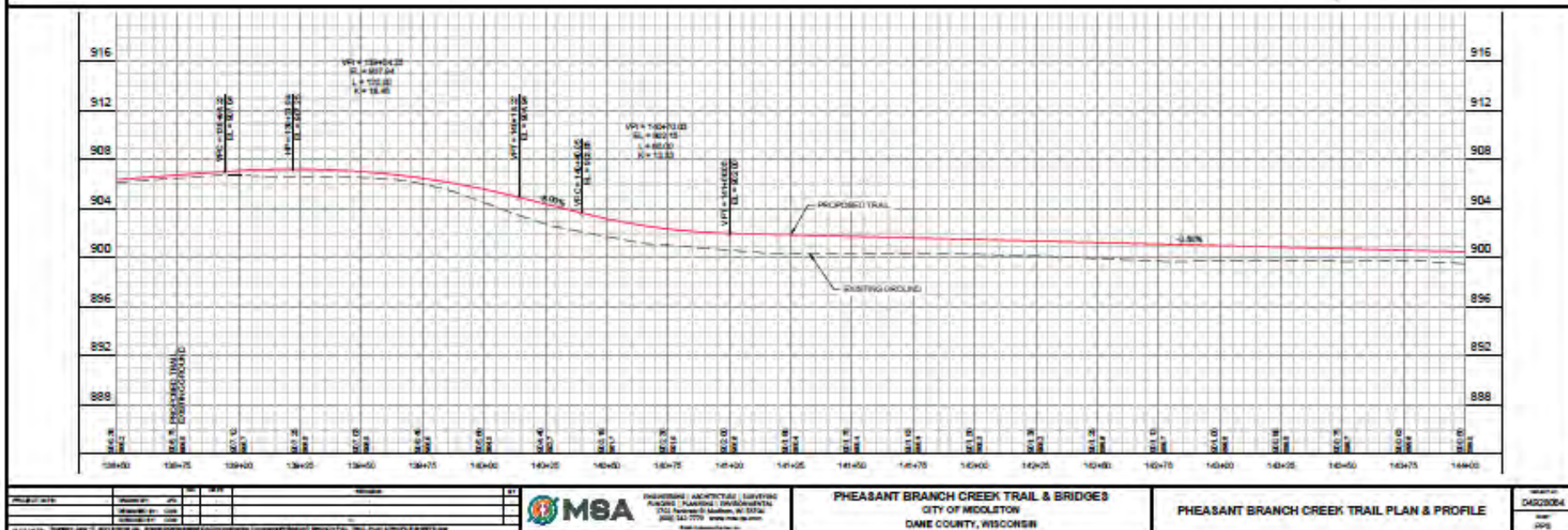
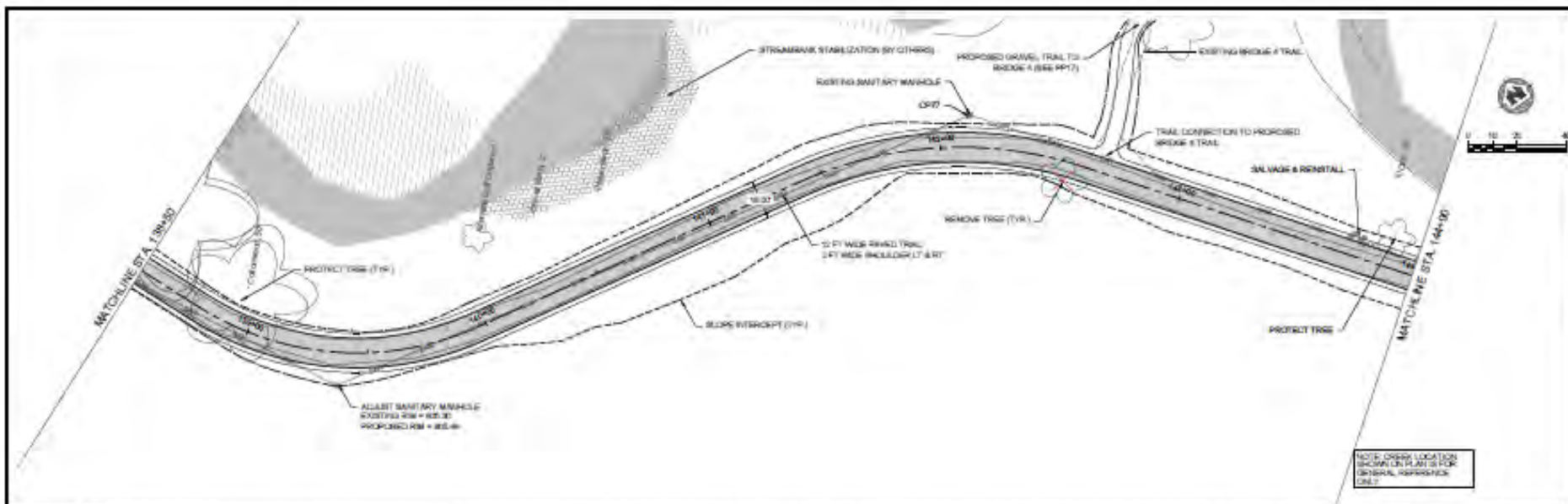
PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MCLESTON
DADE COUNTY, WISCONSIN

PHEASANT BRANCH CREEK TRAIL PLAN & PROFILE

DATE: 04/20/2024
BY: JPL



MSA ENGINEERING ARCHITECTURAL CONSULTING 1000 North Main Street, Suite 100 Madison, WI 53703 (608) 261-7777 msa@msa.com		PHEASANT BRANCH CREEK TRAIL & BRIDGES CITY OF MIDDLETON DANE COUNTY, WISCONSIN		PHEASANT BRANCH CREEK TRAIL PLAN & PROFILE 04/20/2014 04/20/2014	
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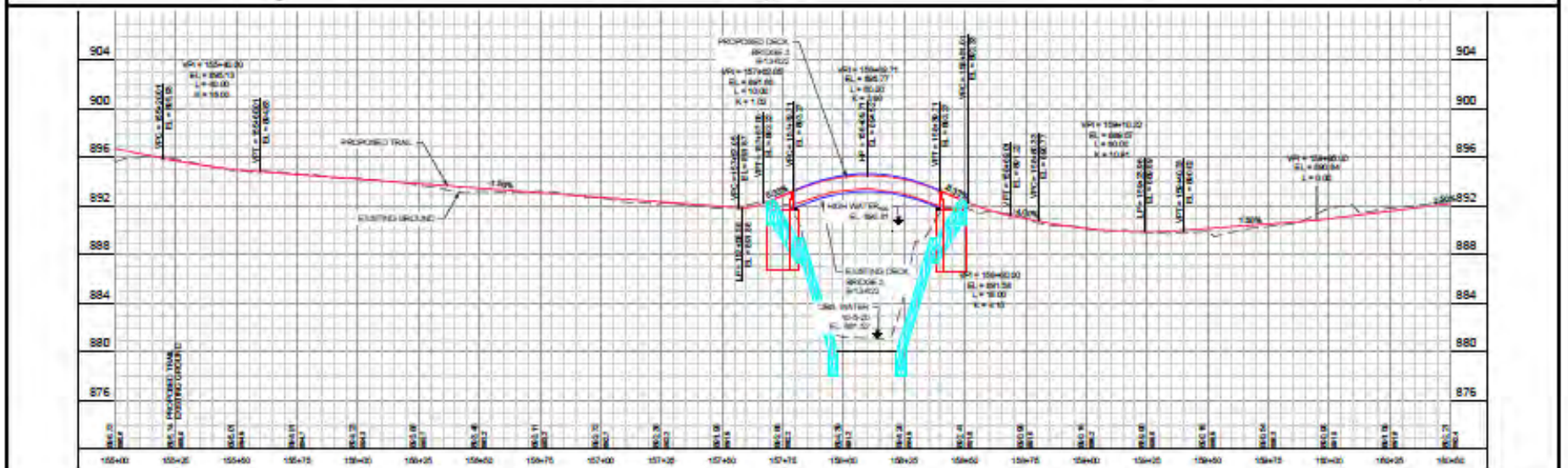
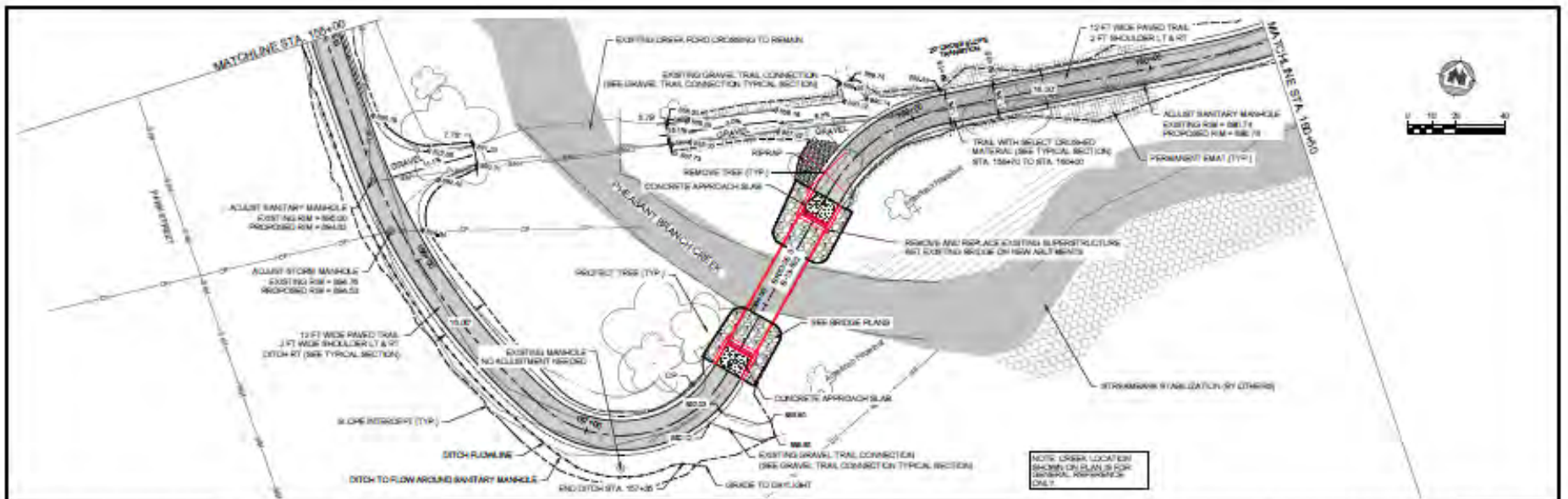


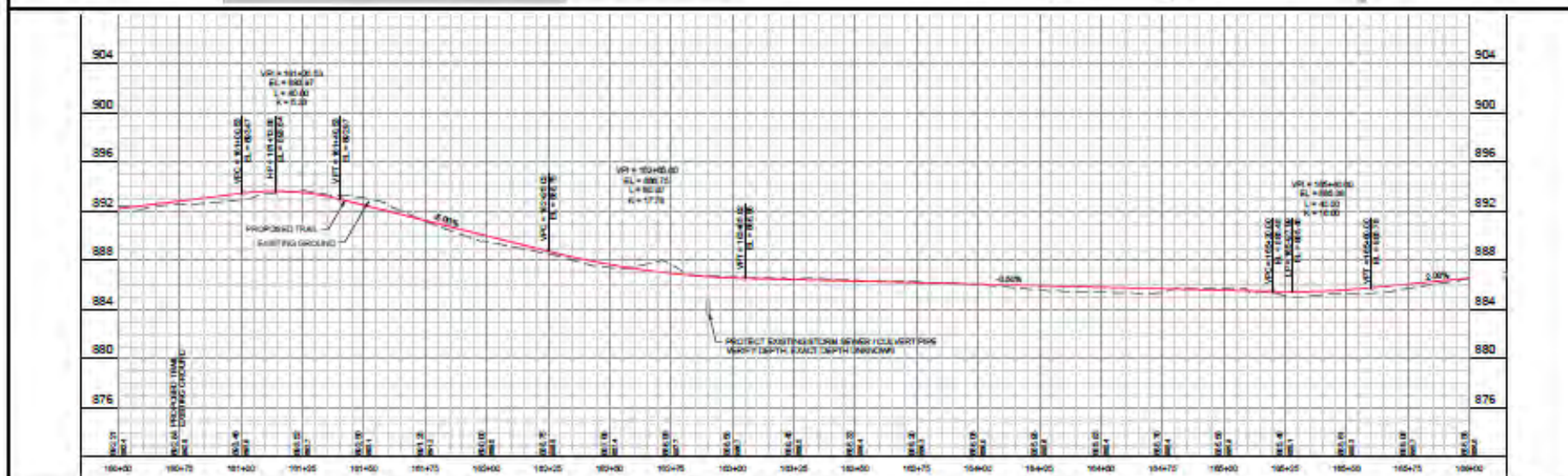
ENGINEERS / ARCHITECTS / SURVEYORS
PLANNING / DESIGN/CONSTRUCTION
1701 Broadway St. Madison, WI 53704
(608) 241-7779 www.msa-inc.com

PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MIDDLETON
DADE COUNTY, WISCONSIN

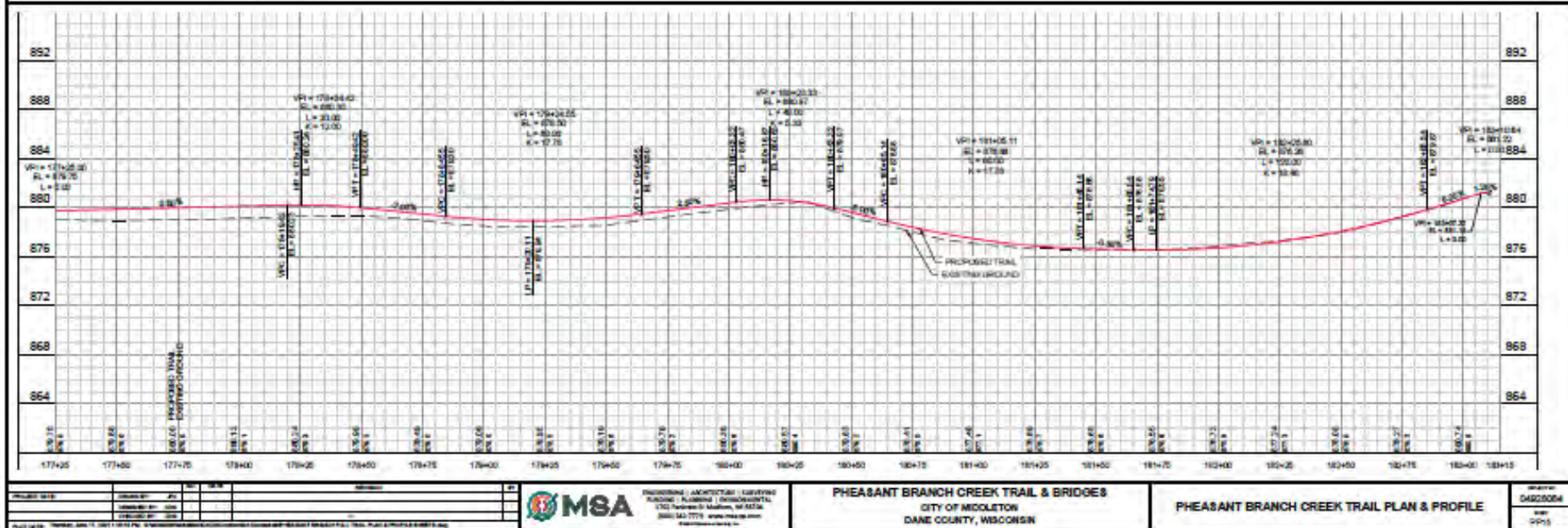
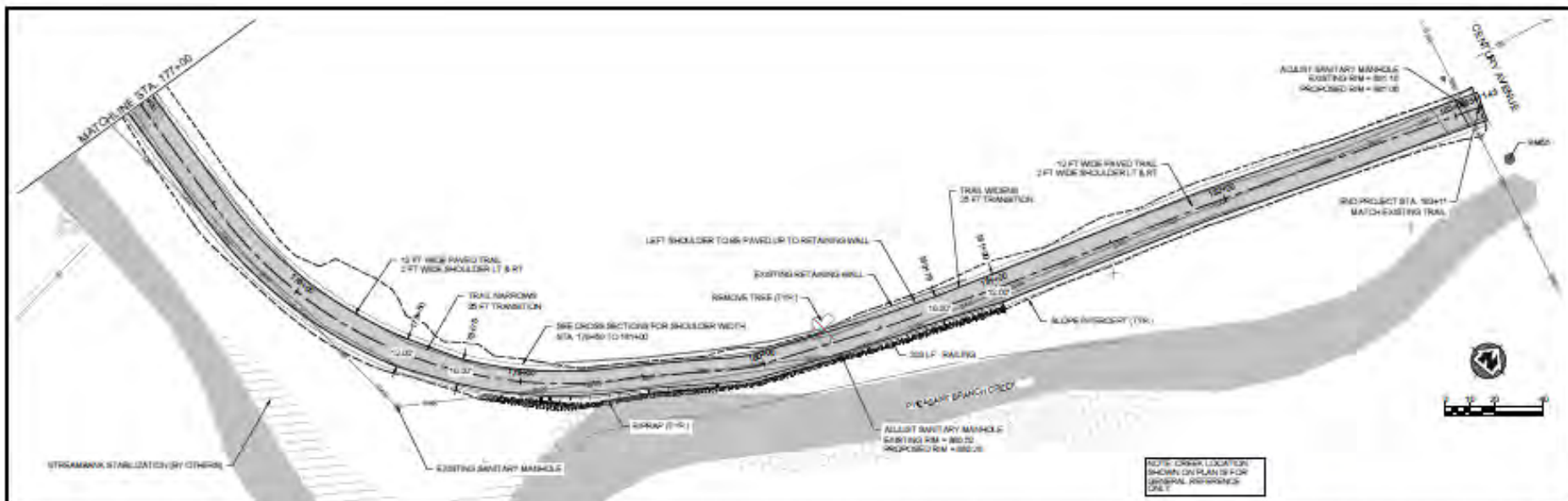
PHEASANT BRANCH CREEK TRAIL PLAN & PROFILE

DATE: 04/22/2024
DRAWN: JPS





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PROJECT DATE		DATE		REVISION																															
1	2	3	4	5	6																														

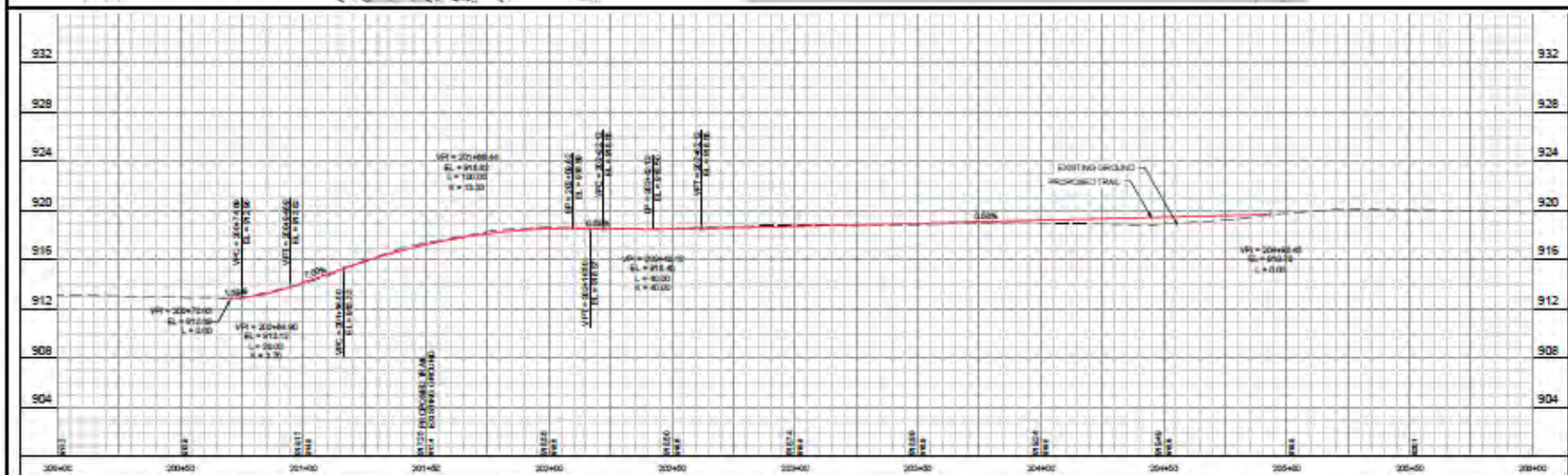


PROFESSIONAL LANDSCAPE ARCHITECTURE
LANDSCAPE ARCHITECTURE
3102 Wisconsin Avenue, Suite 100
Madison, WI 53706
608.261.1111 www.msa.com

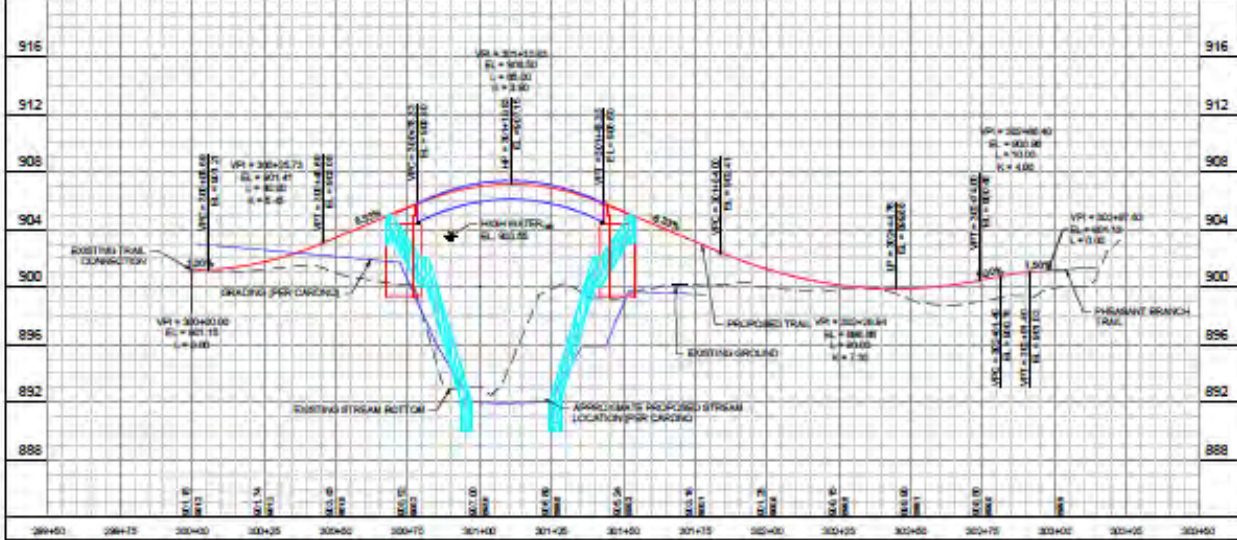
PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MADISON
DANE COUNTY, WISCONSIN

PHEASANT BRANCH CREEK TRAIL PLAN & PROFILE

DATE: 04/20/2024
BY: JVS



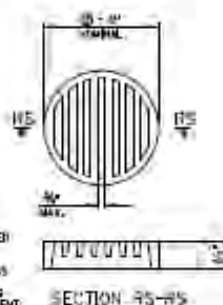
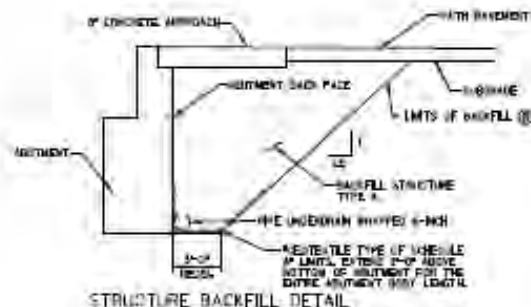
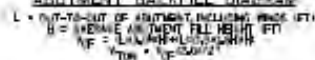
PROJECT NAME: _____ DRAWING NO.: _____ SHEET NO.: _____ DATE: _____		 MSA ENGINEERING • ARCHITECTURE • SURVEYING PLANNING • ENVIRONMENTAL 1700 Parkside in Madison, WI 53718 (608) 261-5770 • www.msa-inc.com		PHEASANT BRANCH CREEK TRAIL & BRIDGES CITY OF MIDDLETON DANE COUNTY, WISCONSIN		NORTH FORK TRAIL PLAN & PROFILE SHEET NO.: D4320004	
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BUILDING • PLANNING • ENVIRONMENTAL
1701 Ardmore Dr. Monterey, CA 93704
(805) 543-7774 www.msa-ga.com
Sustainable Solutions • MSA


BRIDGE 4 PLAN & PROFILE

04500004
00000000

[illegible]

② - DIMENSIONS ARE APPROXIMATE, THE CHUTE IS DESIGNED TO FIT INTO A 1/2" COMPACT.

BEVEL FINISHED EDGE OF CONCRETE 1/4" MAX. CHIPPING AWAY

		MSA				 MSA CITY OF MARIETTA DANE COUNTY, WISCONSIN		GENERAL NOTES: 1. SEE SHEET 1. 2. SEE SHEET 2. 3. SEE SHEET 3. 4. SEE SHEET 4. 5. SEE SHEET 5. 6. SEE SHEET 6. 7. SEE SHEET 7. 8. SEE SHEET 8. 9. SEE SHEET 9. 10. SEE SHEET 10. 11. SEE SHEET 11. 12. SEE SHEET 12. 13. SEE SHEET 13. 14. SEE SHEET 14. 15. SEE SHEET 15. 16. SEE SHEET 16. 17. SEE SHEET 17. 18. SEE SHEET 18. 19. SEE SHEET 19. 20. SEE SHEET 20. 21. SEE SHEET 21. 22. SEE SHEET 22. 23. SEE SHEET 23. 24. SEE SHEET 24. 25. SEE SHEET 25. 26. SEE SHEET 26. 27. SEE SHEET 27. 28. SEE SHEET 28. 29. SEE SHEET 29. 30. SEE SHEET 30. 31. SEE SHEET 31. 32. SEE SHEET 32. 33. SEE SHEET 33. 34. SEE SHEET 34. 35. SEE SHEET 35. 36. SEE SHEET 36. 37. SEE SHEET 37. 38. SEE SHEET 38. 39. SEE SHEET 39. 40. SEE SHEET 40. 41. SEE SHEET 41. 42. SEE SHEET 42. 43. SEE SHEET 43. 44. SEE SHEET 44. 45. SEE SHEET 45. 46. SEE SHEET 46. 47. SEE SHEET 47. 48. SEE SHEET 48. 49. SEE SHEET 49. 50. SEE SHEET 50. 51. SEE SHEET 51. 52. SEE SHEET 52. 53. SEE SHEET 53. 54. SEE SHEET 54. 55. SEE SHEET 55. 56. SEE SHEET 56. 57. SEE SHEET 57. 58. SEE SHEET 58. 59. SEE SHEET 59. 60. SEE SHEET 60. 61. SEE SHEET 61. 62. SEE SHEET 62. 63. SEE SHEET 63. 64. SEE SHEET 64. 65. SEE SHEET 65. 66. SEE SHEET 66. 67. SEE SHEET 67. 68. SEE SHEET 68. 69. SEE SHEET 69. 70. SEE SHEET 70. 71. SEE SHEET 71. 72. SEE SHEET 72. 73. SEE SHEET 73. 74. SEE SHEET 74. 75. SEE SHEET 75. 76. SEE SHEET 76. 77. SEE SHEET 77. 78. SEE SHEET 78. 79. SEE SHEET 79. 80. SEE SHEET 80. 81. SEE SHEET 81. 82. SEE SHEET 82. 83. SEE SHEET 83. 84. SEE SHEET 84. 85. SEE SHEET 85. 86. SEE SHEET 86. 87. SEE SHEET 87. 88. SEE SHEET 88. 89. SEE SHEET 89. 90. SEE SHEET 90. 91. SEE SHEET 91. 92. SEE SHEET 92. 93. SEE SHEET 93. 94. SEE SHEET 94. 95. SEE SHEET 95. 96. SEE SHEET 96. 97. SEE SHEET 97. 98. SEE SHEET 98. 99. SEE SHEET 99. 100. SEE SHEET 100.	
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DESIGN DATA

LOADS

DESIGN LOADS: 10-K

PEDESTRIAN LIVE LOAD: 80 PSF

LIVE LOAD IS FOR PROPOSED ABUTMENTS. SEE EXISTING DRAWINGS FOR SUPERSTRUCTURE CAPACITY.

MATERIAL SPECIFICATIONS

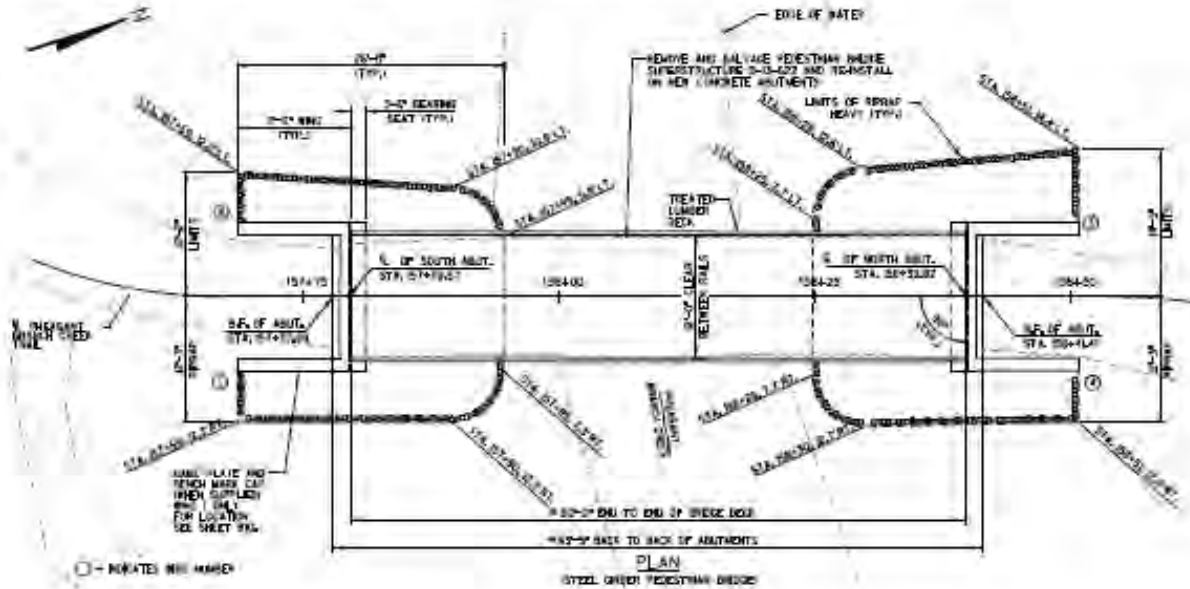
CONCRETE: MAXIMUM STRENGTH 4000 PSI
MINIMUM STRENGTH 3500 PSI
REINFORCEMENT: GRADE 60

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HELICAL PILES WITH A MINIMUM SOUND SHAFT DIAMETER OF 24" AND A REQUIRED FACTORED BEARING VALUE OF 40 KIPS PER PILE. ESTIMATED LENGTH 28'-0".
ESTIMATED LENGTHS ARE BASED ON USE OF W-10X49 HELICAL.

HYDRAULIC DATA

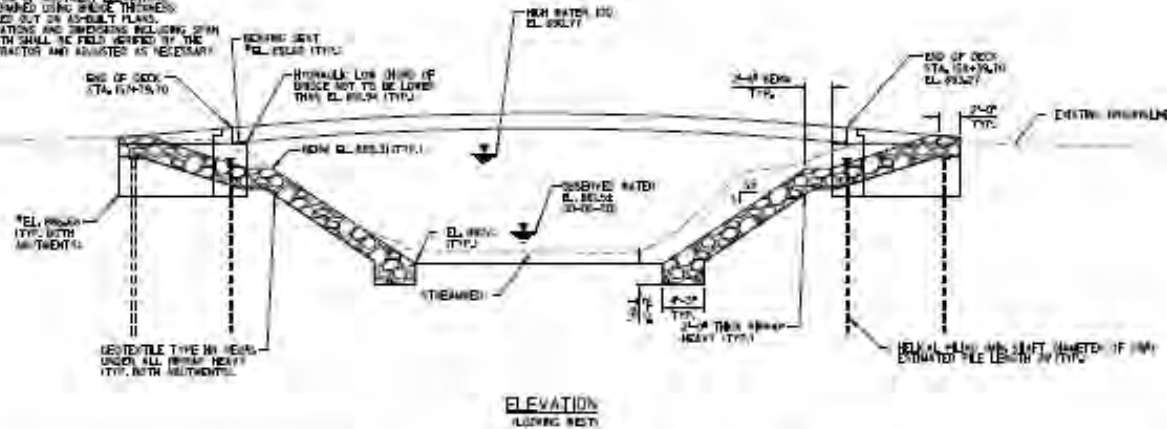
DESIGN FLOW: 175 CFS
ROADWAY OVERTOPPING: 3 CFS
THROUGH BRIDGE: 175 CFS
VELOCITY: 1.5 FT/SEC
WATERWAY AREA: 164 SQ. FT.
HIGH WATER ELEVATION: 894.77
DESIGN ELEVATION: 893.00
DESIGN VELOCITY: 1.5 FT/SEC
WATERWAY FREQUENCY: 10% CFS
WATERWAY FREQUENCY: 10% CFS



□ - INDICATES NEW MATERIAL

PLAN
STEEL GIRDER PEDESTRIAN BRIDGE

* BOTTOM OF ABUTMENT ELEVATIONS DETERMINED USING BASIC THEORY. CALLS OUT ON ADJUTANT PLANS. ELEVATIONS AND DIMENSIONS INCLUDING SPAN LENGTH SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND ADJUSTED AS NECESSARY.



ELEVATION
ALONG WITH

CONSULTANT DESIGN CONTACT:
LENN R. BROWN
(608) 755-8845

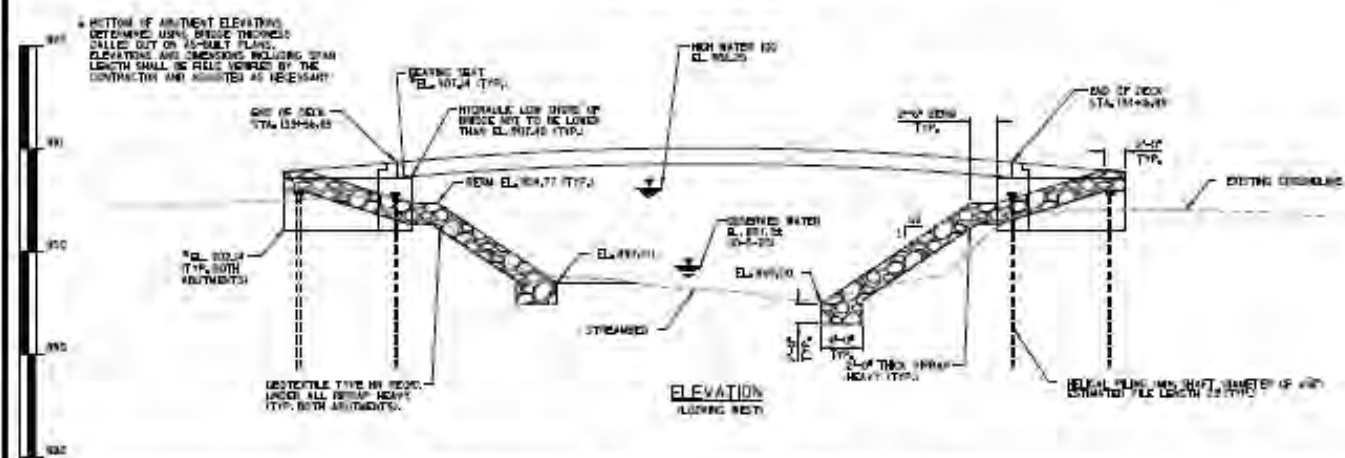
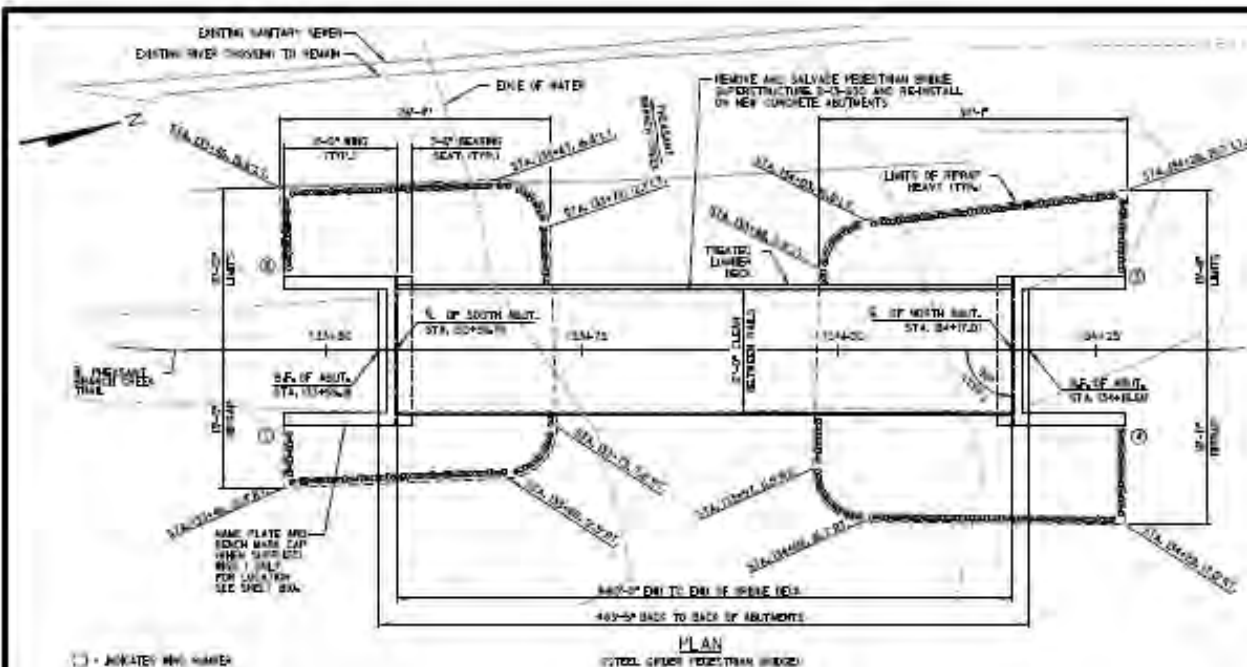
NO.	DATE	BY	CHKD.	DESCRIPTION
1	10/1/22	LENN BROWN	LENN BROWN	DESIGN
2	10/1/22	LENN BROWN	LENN BROWN	REVISION



PRESENT BRANCH CREEK TRAIL & BRIDGES
1011-09-001-010
DADE COUNTY, WISCONSIN

5-13-22 GENERAL PLAN
(SHEET 1)

04



DESIGN DATA

LOADS

DESIGN LOADING 10-K
PEDESTRIAN LIVE LOAD 850 PSF
LIVE LOAD IS FOR PROPOSED ABUTMENTS. SEE EXISTING DRAWINGS FOR SUPERSTRUCTURE CAPACITY.

MATERIAL SPECIFICATIONS

CONCRETE MASSURE 1 x 8500 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 1 x 85000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HELICAL PILING WITH A MINIMUM SOUND SHAFT DIAMETER OF 24" AND A REQUIRED FACTORED BEARING VALUE OF 47 KIP PER PILE. ESTIMATED LENGTH 32'-6".
ESTIMATED LENGTHS ARE BASED ON USE OF 10'-0" UP-UP HELICAL.

HYDRAULIC DATA

100 YEAR FREQUENCY
WIND ROADWAY OVERTOPPING 2404 C.F.S.
ROADWAY OVERTOPPING 88 C.F.S.
THROUGH BRIDGE 200 C.F.S.
VELOCITY 3.21 FT./SEC.
WATERWAY AREA 427 SQ. FT.
HIGH WATER 100 ELEVATION 100.00
100 ELEVATION 97.5 C.F.S.
100 VELOCITY 7.07 FT./SEC.
100 OVERFLOW DESIGN FREQUENCY
OVERTOPPING FREQUENCY (100 C.F.S.) 10 YEARS

CONSULTANT DESIGN CONTACT:
LEAH PHOENIX
(608) 755-8945

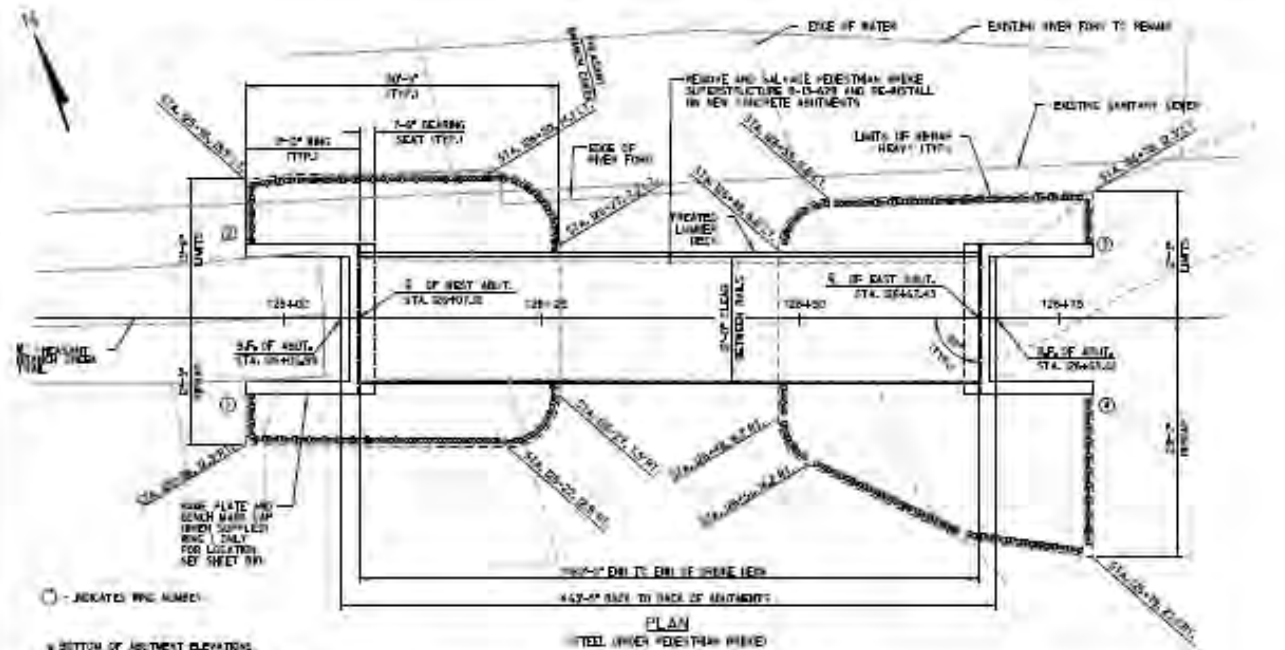
NO.	DESCRIPTION	DATE	BY	CHKD.
1	DESIGN	10/1/20	LEAH PHOENIX	LEAH PHOENIX
2	REVISION	10/1/20	LEAH PHOENIX	LEAH PHOENIX



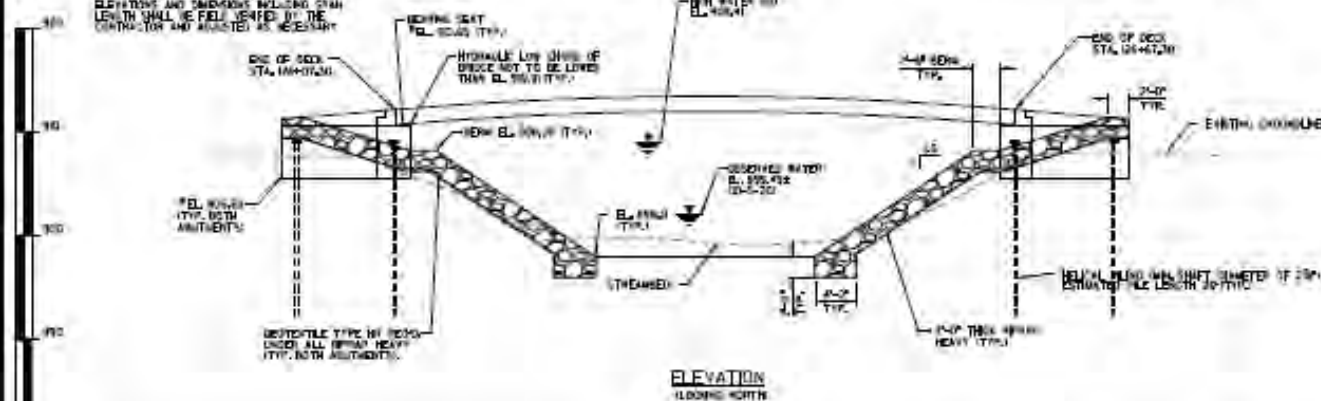
PRESAUNT BRANCH CREEK TRAIL & BRIDGES
CITY OF MILWAUKEE
DAVE COUNTY, WISCONSIN

S-13-200 - GENERAL PLAN
(SHEET 5)

DATE	10/1/20
BY	LEAH PHOENIX



SECTION OF ABUTMENT ELEVATIONS
DETERMINED USING BRIDGE THICKNESS
CALLED OUT ON 10'-0" GUT PLANS.
ELEVATIONS AND DIMENSIONS INCLUDING CHAIN
LENGTH SHALL BE FIELD VERIFIED BY THE
CONTRACTOR AND ADJUSTED AS NECESSARY.



DESIGN DATA

LIVE LOAD

DESIGN LOADING: HS-20
PEDESTRIAN LIVE LOAD: 80 PSF
LIVE LOAD IS FOR PROPOSED ABUTMENTS (SEE EXISTING DRAWING FOR SUPERSTRUCTURE CAPACITY)

MATERIALS

CONCRETE: MASONRY
HIGH-STRENGTH BAR STEEL
REINFORCEMENT: GRADE 60

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HELICAL PILING WITH A MINIMUM
ROUND SHAFT DIAMETER OF 24" AND A RELEASE FACTOR
BEARING VALUE OF 4T KIPS PER PILE. ESTIMATED LENGTH 20'-0"
ESTIMATED LENGTHS ARE BASED ON USE OF 14'-0" X 14'-0" HELICAL

HYDRAULIC DATA

100 YEAR FLOODING
ROADWAY OVERSPRING: 2004 C.F.S.
THROUGH BRIDGE: 0 C.F.S.
VELOCITY: 4.55 FT./SEC.
WATERWAY AREA: 405 SQ. FT.
HIGH WATER (20) ELEVATION: 408.41
25 ELEVATION (40) C.F.S.: 402.88
25 VELOCITY: 3.18 FT./SEC.
LITH: SUPERIOR DESIGN REQUIREMENTS
OVERSPRING FREQUENCY: 1404 C.F.S.: 402.88

CONSULTANT DESIGN CONTACTS:
LEW: 402-155-2545

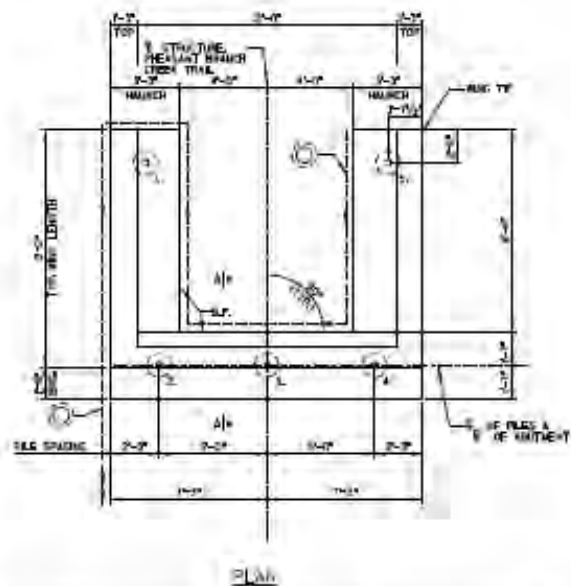
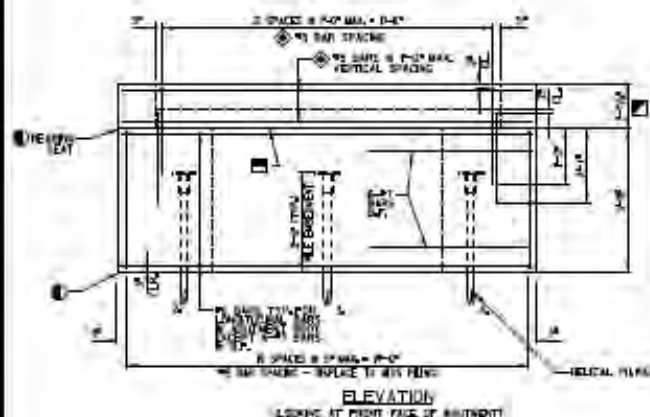
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2	REVISION	10/1/20	LEW	LEW
3	REVISION	10/1/20	LEW	LEW



PLEASANT BRANCH CREEK BRIDGE
2017-08-08
DADE COUNTY, FLORIDA

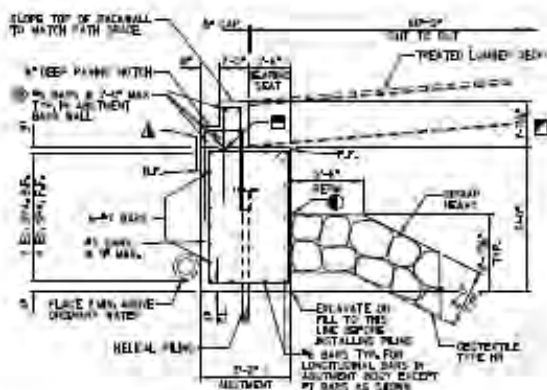
B-13-420 - GENERAL PLAN
(OVERLAY)

10/1/20

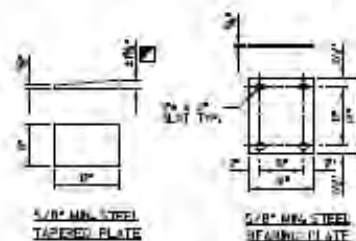


NOTES:
REPLACE STIRRUPS IN BACKWALL
TO MEET REBAR AS SHOWN

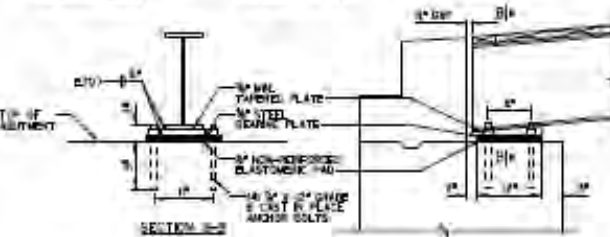
SEE SHEET 101 FOR
REINFORCEMENT DETAILS



SECTION A-A THRU ABUTMENT



NOTES:
REINFORCEMENT SHALL BE PLACED IN
THEM TO MEET TAPERED PLATE
AND FIELD VELD TAPERED
PLATE TO STEEL BEARING PLATE
WITH 12" X 12" WELD.
CONTRACTOR TO FIELD
VERIFY ALL DIMENSIONS

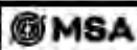


BEARING CONNECTION DETAIL

LEGEND

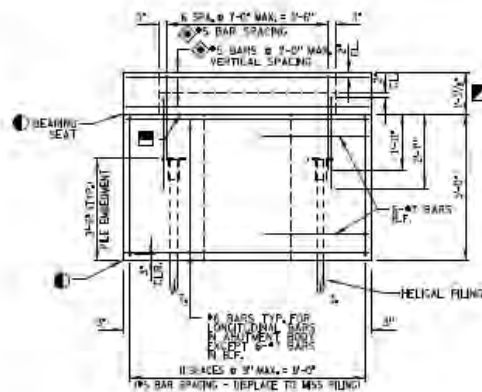
- 1. DIMENSIONS DETERMINED BY AS-BUILT PLANS. ACTUAL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND ADJUSTED AS NECESSARY.
- 2. #5 BARS IN BACKWALL TO BE COATED.
- 3. HORIZONTAL #5 BARS SPACED NEARLY 12" ON CENTER. PLACE IN TOP OF CONCRETE JOINT AT 12" MAX.
- 4. TYPE DIMENSION SHOWN IN 12" ON CENTER. SHALL BE FIELD VERIFIED. SLOPE USE MIN. TO SUSTAIN DRAINAGE. PROVIDE SLOPE PROTECTION AT ENDS OF PIPE. SEE PROJECT SHEET 101 FOR DETAILS.

F/F - FRONT FACE B/B - BACK FACE C/L - CLEAR

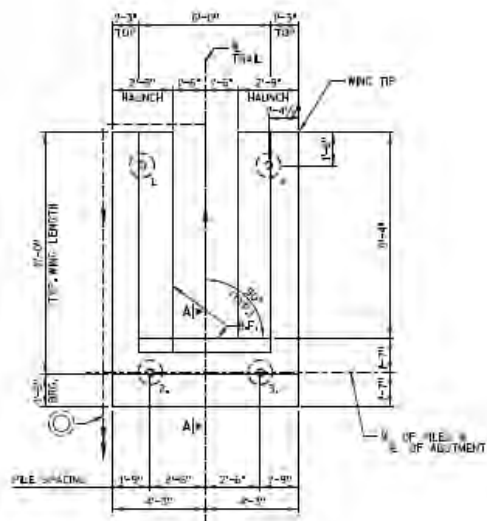


PROBABLY BRANCH CREEK TRAIL & BRIDGES
CITY OF MINNEAPOLIS
DANE COUNTY, WISCONSIN

ABUTMENT DETAILS
REVISIONS: 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

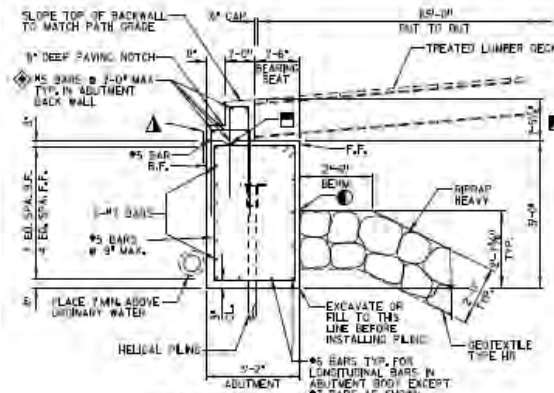


ELEVATION
(LOOKING AT FRONT FACE OF ABUTMENT)



PLAN

NOTES:
REPLACE STIRRUPS IN BACKWALL
TO MATCH PILING AS NEEDED
SEE SHEET BR FOR BEARING
CONNECTION DETAIL

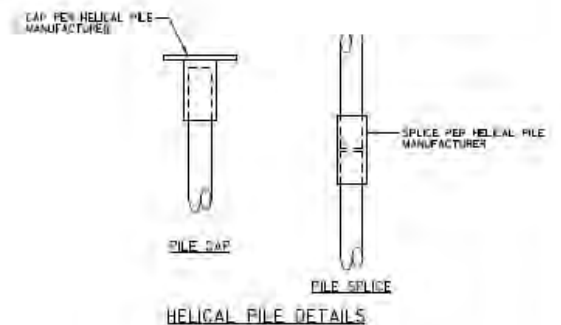


SECTION A-A THRU ABUTMENT

LEGEND

- CONSTRUCTION JOINT FORMED BY BEVELED 2X12 PLATE
W/ BEVEL ON F.F. OF WING.
- ① SEE GENERAL PLAN FOR ELEVATION
- DIMENSION DETERMINED BY AS-BUILT PLANS. ACTUAL
DIMENSIONS SHALL BE FIELD VERIFIED BY THE
CONTRACTOR AND ADJUSTED AS NECESSARY
- ⊙ #5 BARS IN BACKWALL TO BE COATED
- ▲ HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE
WATERPROOFING. PLACE ON R.F. OF CONST. JOINT AS
SHOWN.
- PIPE UNDERDRAIN WRAPPED 8-INCH. EXTEND THRU
CENTRILE AT FACE OF BRAP HEAVY. SLOPE 0.5%
W/ TO SUITABLE DRAINAGE. PROVIDE ROBERT
PROTECTION AT ENDS OF PIPE. SEE ROBERT SHIELD
DETAIL, SHEET BR.

F.F. - FRONT FACE B.F. - BACK FACE (L) - CLEAN



HELICAL PILE DETAILS

REVISION	DATE	BY	CHKD	DESCRIPTION
1	01/11/2011	J. M. M.	J. M. M.	ISSUED FOR PERMIT
2	01/11/2011	J. M. M.	J. M. M.	ISSUED FOR CONSTRUCTION
3	01/11/2011	J. M. M.	J. M. M.	ISSUED FOR AS-BUILT

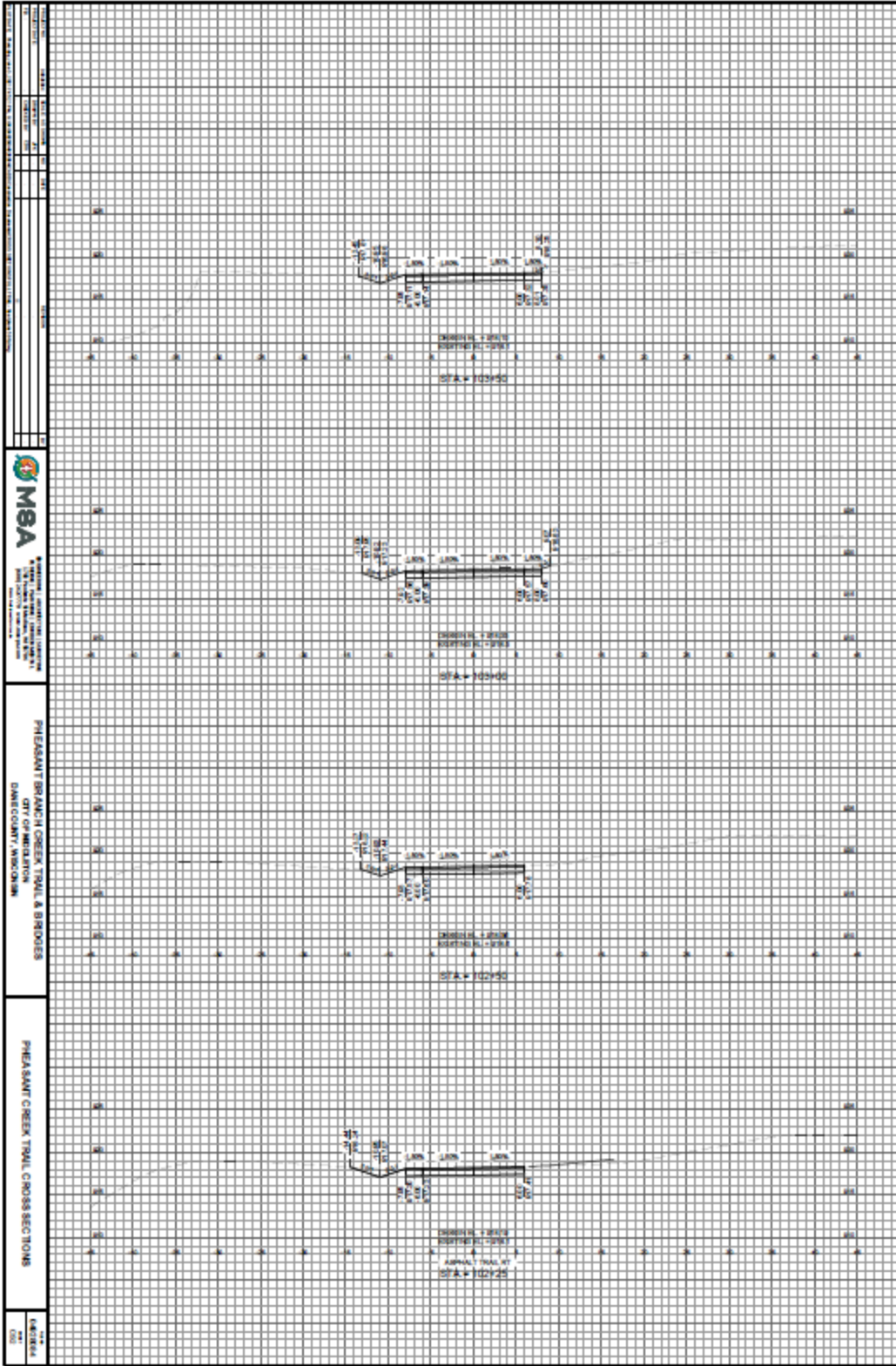


MANUFACTURED BY MSA
10000 WISCONSIN AVE
MILWAUKEE, WI 53217
TEL: 414.224.2000 FAX: 414.224.2001
WWW.MSA-CORP.COM

PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MIDDLETON
DANE COUNTY, WISCONSIN

ABUTMENT DETAILS
B-73-457 (BRIDGE 4)

DATE: 04/20/2014
BY: [signature]



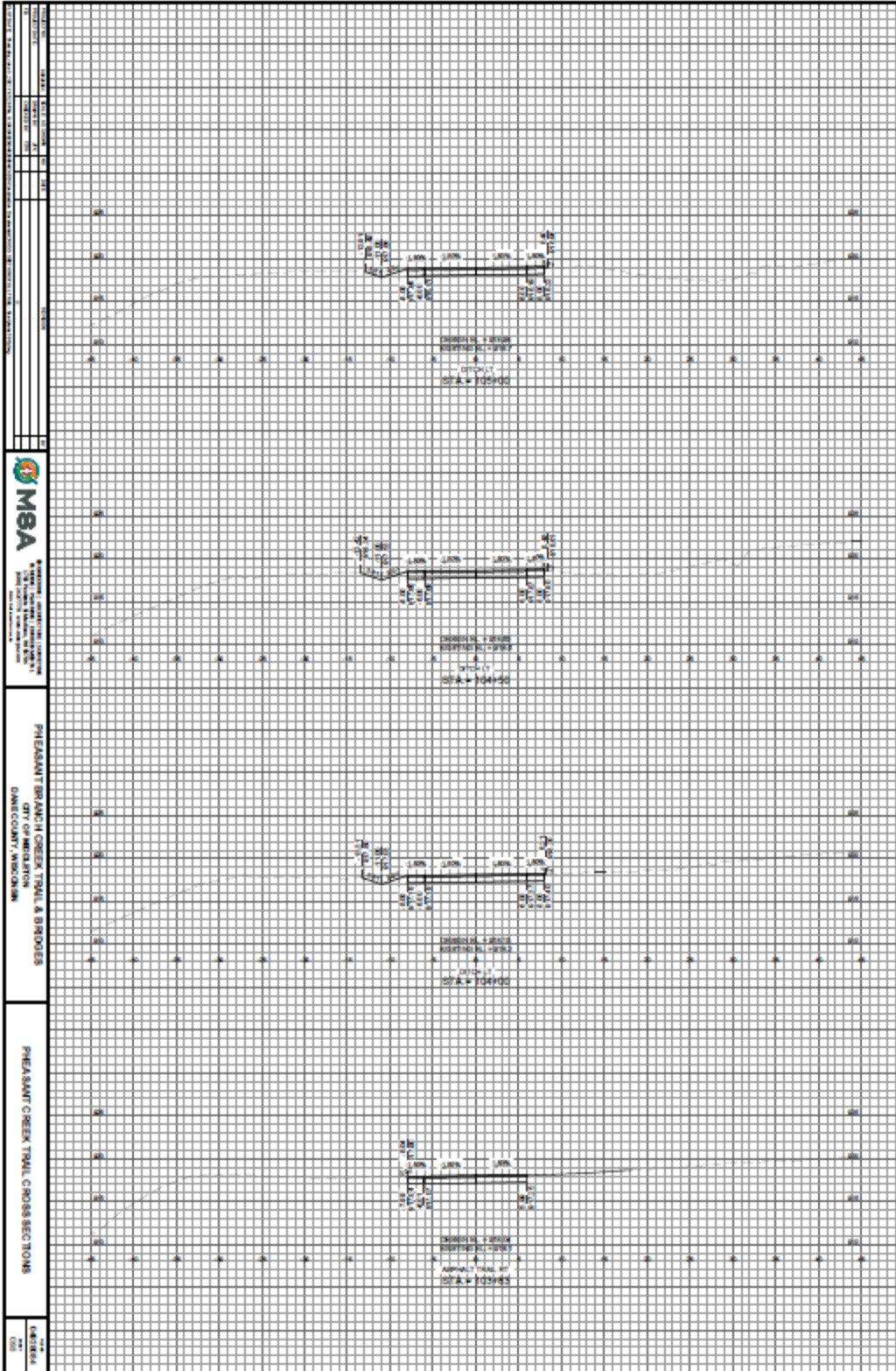
DATE: 10/1/2010	TIME: 10:00 AM	BY: J. L. BROWN
PROJECT: 101	SHEET: 101	OF: 101
PROJECT: PLEASANT CREEK TRAIL & BRIDGES		
SUBJECT: TRAIL CROSS SECTIONS		
DRAWN BY: J. L. BROWN		
CHECKED BY: J. L. BROWN		
DATE: 10/1/2010		



PLEASANT CREEK TRAIL & BRIDGES
TRAIL CROSS SECTIONS
DRAWN BY: J. L. BROWN

PLEASANT CREEK TRAIL CROSS SECTIONS

CHECKED BY: J. L. BROWN



MSA
Municipal Services
A Division of
The City of
Pleasanton, California

PLEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF PLEASANTON
DAVIS COUNTY, INDIANA

PLEASANT CREEK TRAIL CROSS SECTIONS

11/11/2011
W. J. HARRIS

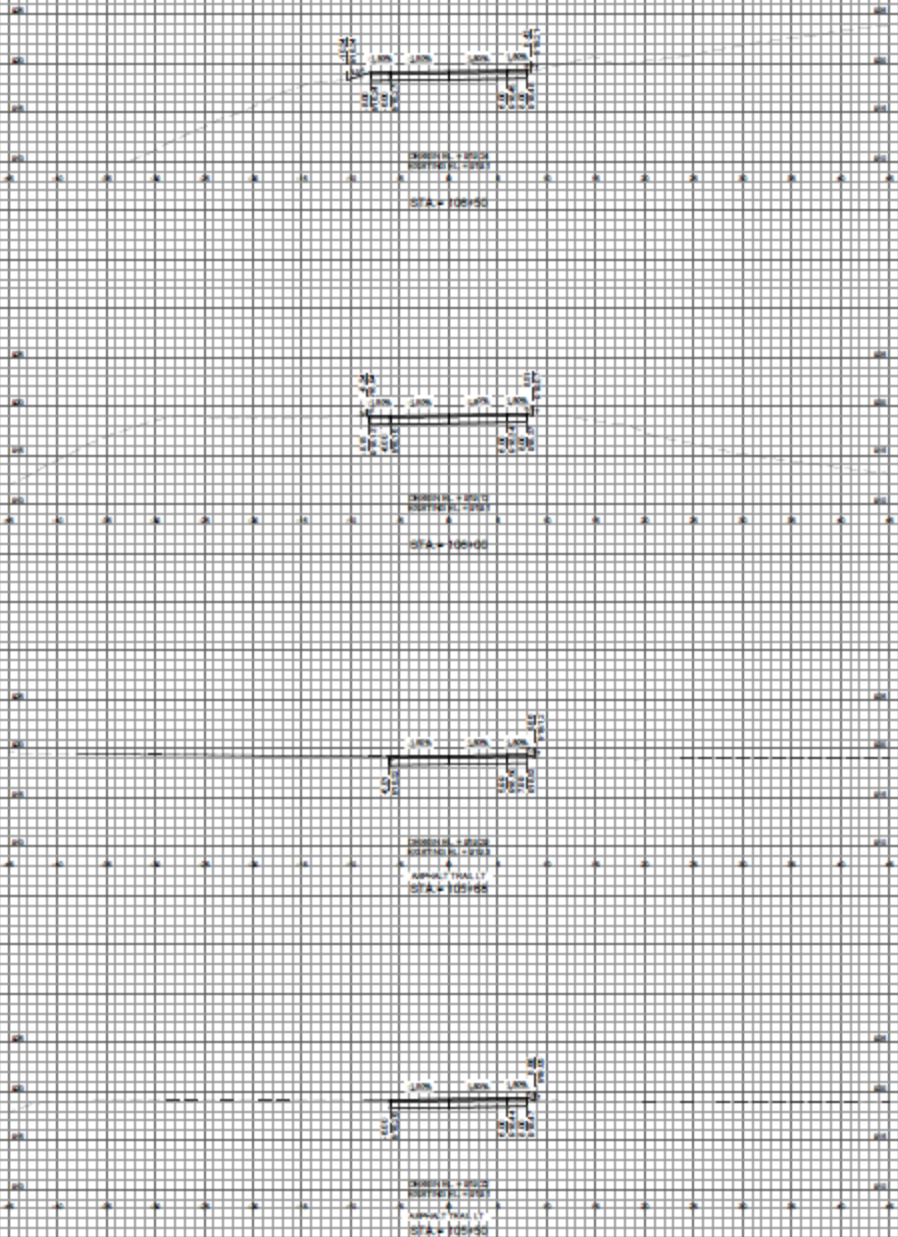
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DATE	10/1/2010
BY	10/1/2010
CHECKED BY	10/1/2010
APPROVED BY	10/1/2010
DESIGNED BY	10/1/2010
DRAWN BY	10/1/2010
SCALE	1"=100'

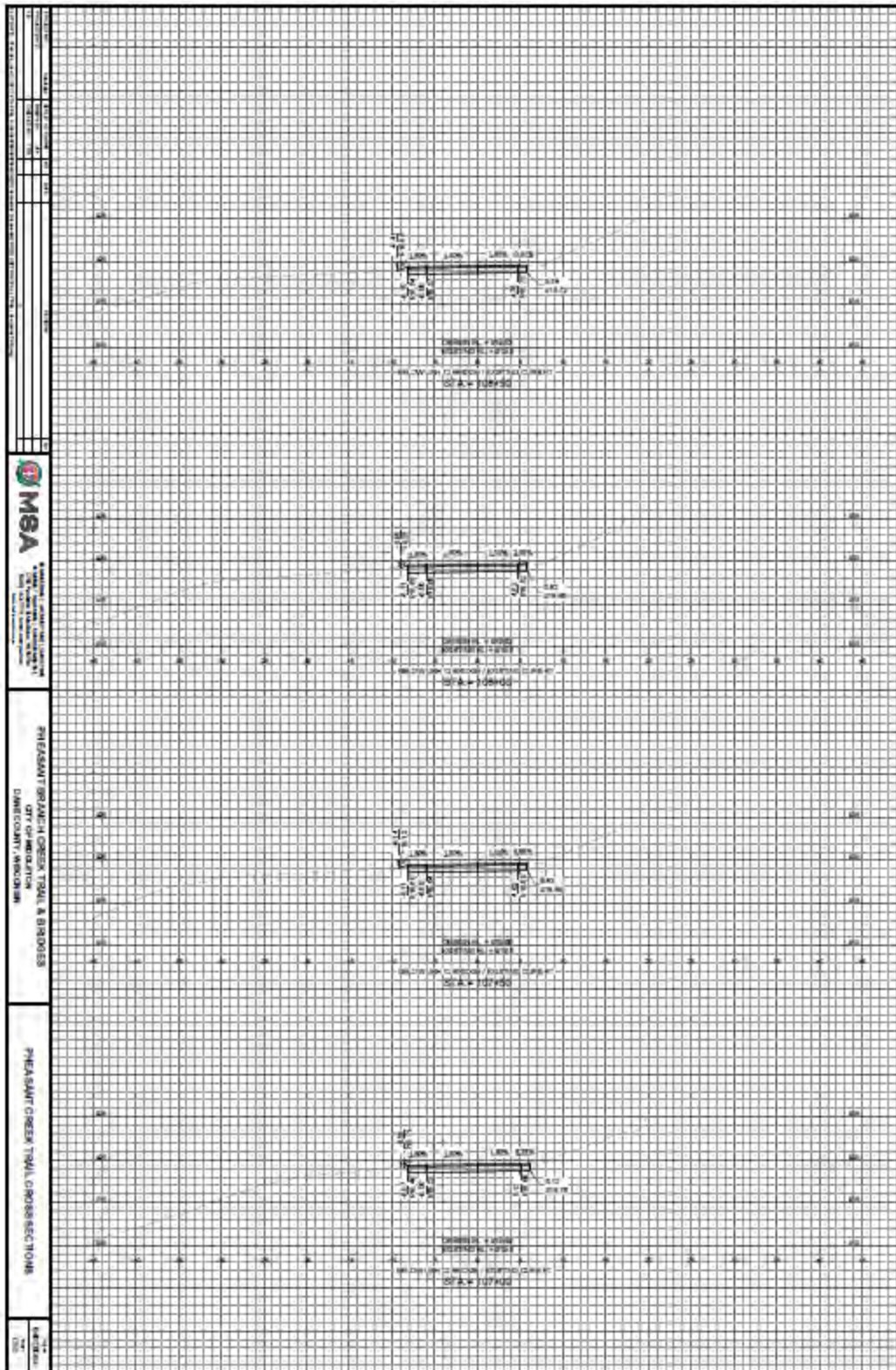


PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MILWAUKEE
DAN COVATY, ARCHITECT

PHEASANT CREEK TRAIL CROSS SECTIONS

10/1/2010
10/1/2010
10/1/2010



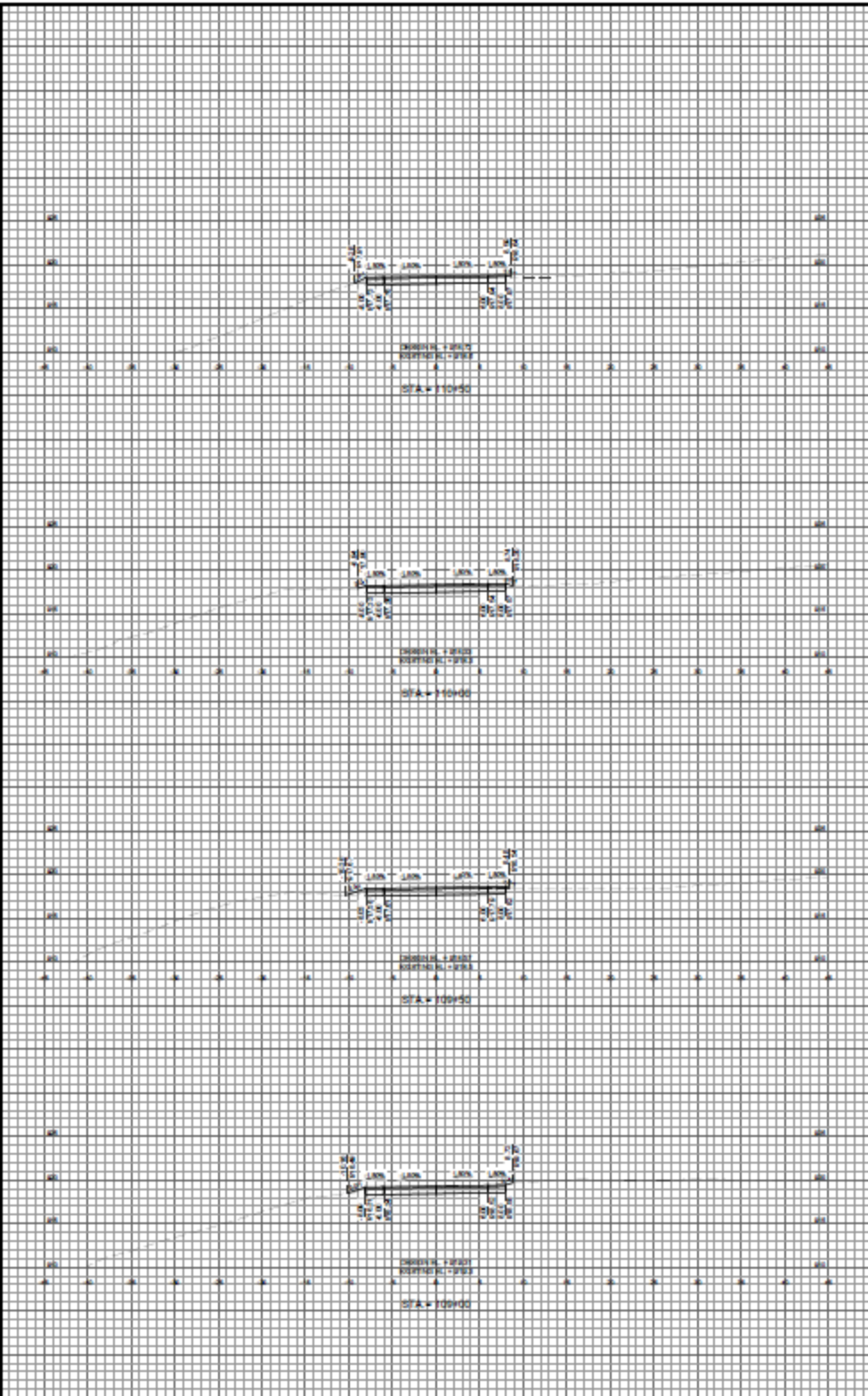


PROJECT NO.	2024-001
DATE	10/26/2024
BY	J. Smith
CHECKED BY	
SCALE	1" = 100'
PROJECT NAME	PHEASANT CREEK TRAIL CROSS SECTIONS
SECTION	1



PHEASANT CREEK TRAIL CROSS SECTIONS
 DIVISION OF HIGHWAYS
 ALBUQUERQUE, NM

PHEASANT CREEK TRAIL CROSS SECTIONS
 DIVISION OF HIGHWAYS
 ALBUQUERQUE, NM



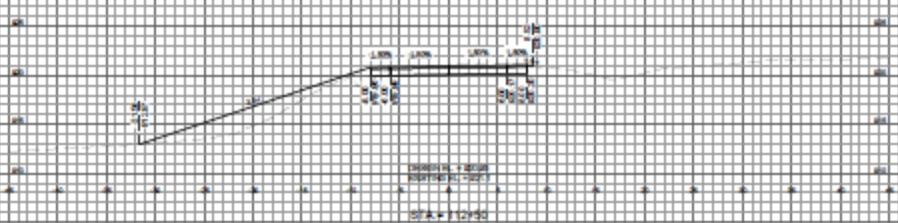
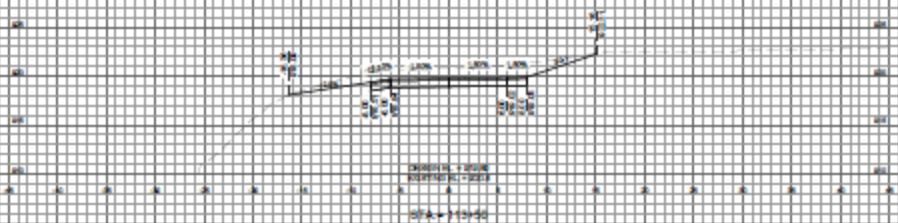
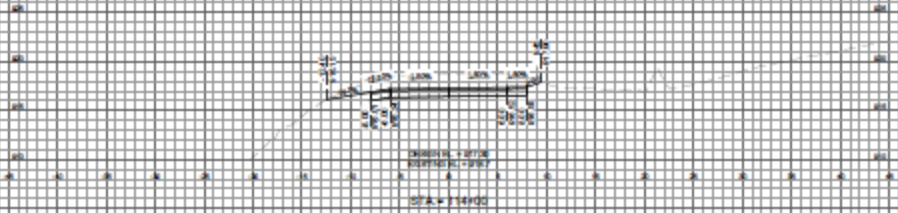
PROJECT NO.	2024-001
DATE	10/20/2024
BY	J. Smith
CHECKED BY	M. Jones
SCALE	1" = 10'
PROJECT NAME	PHEASANT CREEK TRAIL & BRIDGES
CITY OF ORIGIN	DADE COUNTY, ARIZONA



PHEASANT CREEK TRAIL & BRIDGES
CITY OF ORIGIN
DADE COUNTY, ARIZONA

PHEASANT CREEK TRAIL CROSS SECTIONS

1/8" = 1' H
1" = 10' V



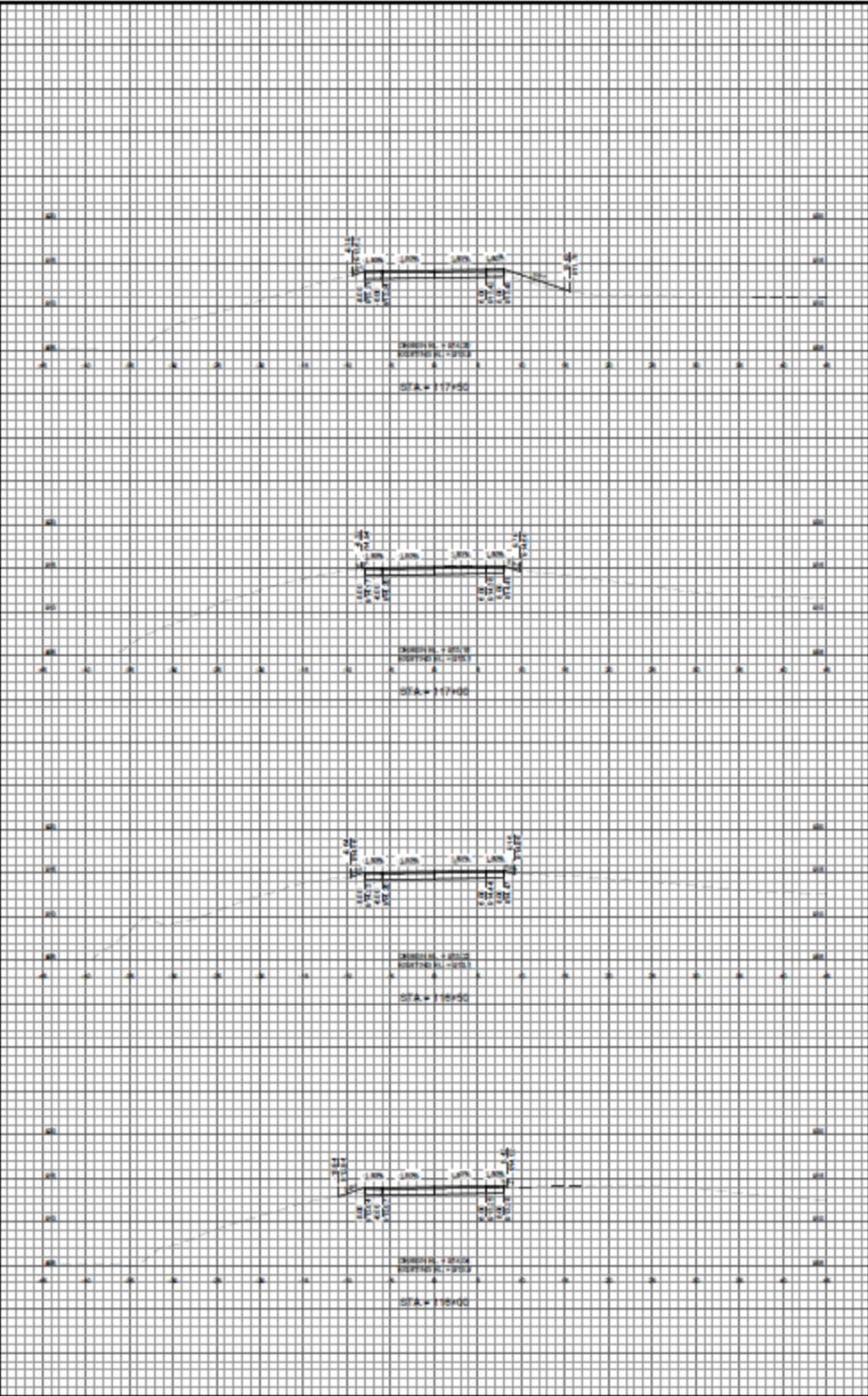
PROJECT NO.	2024-001
SHEET NO.	10
TITLE	
DATE	
BY	
CHECKED	
APPROVED	

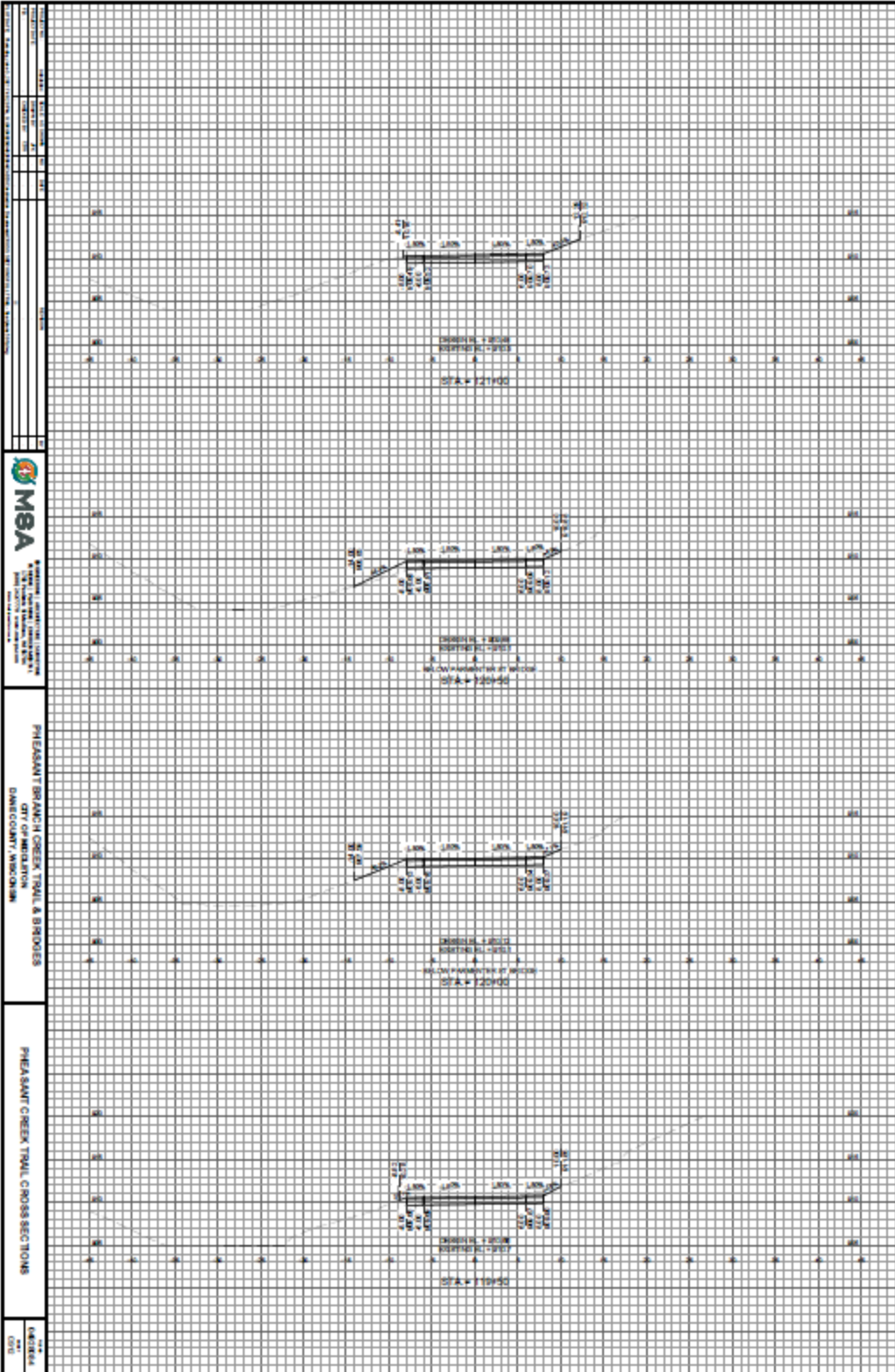


PINEBLANK CREEK TRAIL & BRIDGES
DTF OPERATIONS
DANIELSON, WISCONSIN

PINEBLANK CREEK TRAIL CROSS SECTIONS

DATE	03/20/24
BY	CS



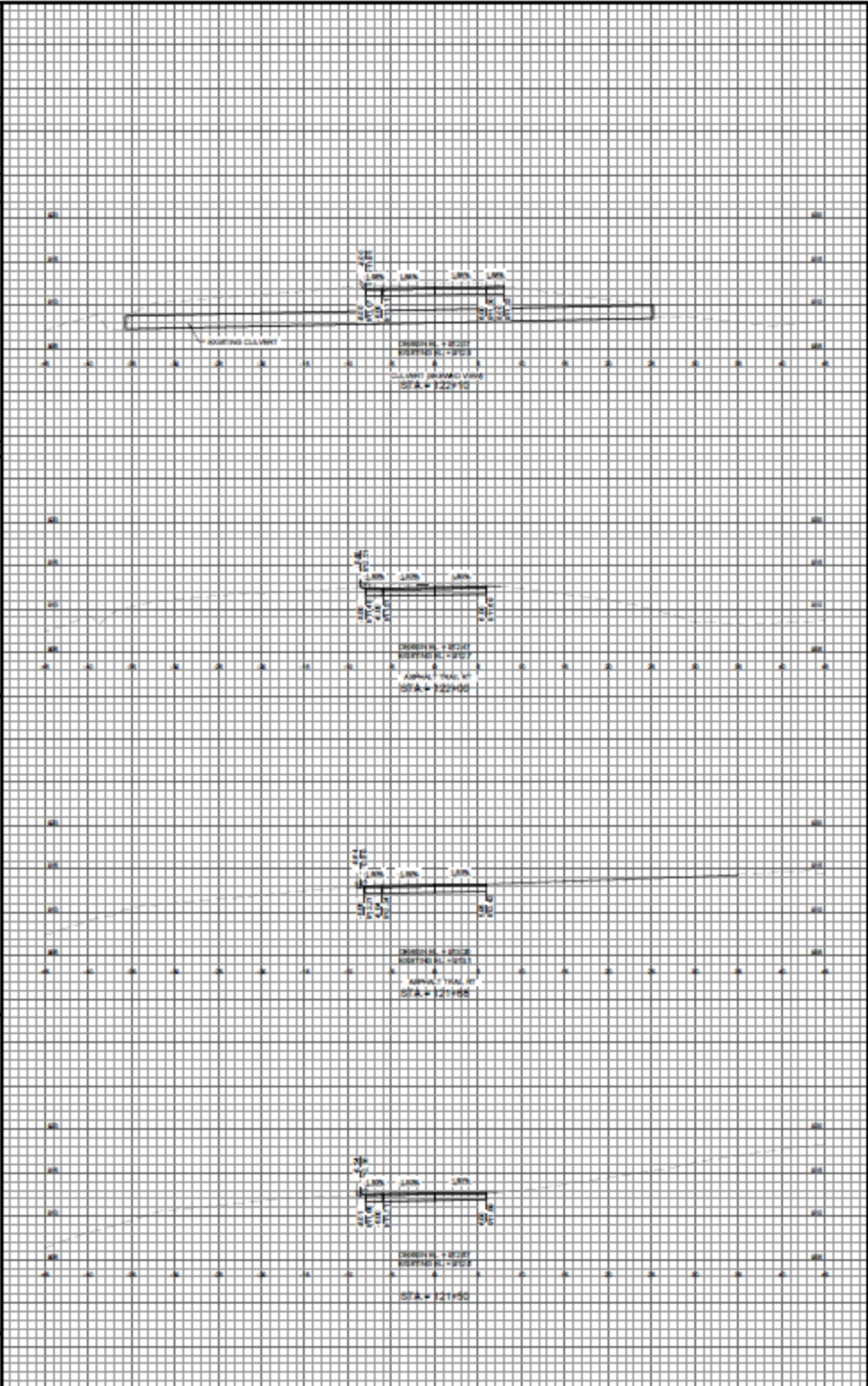


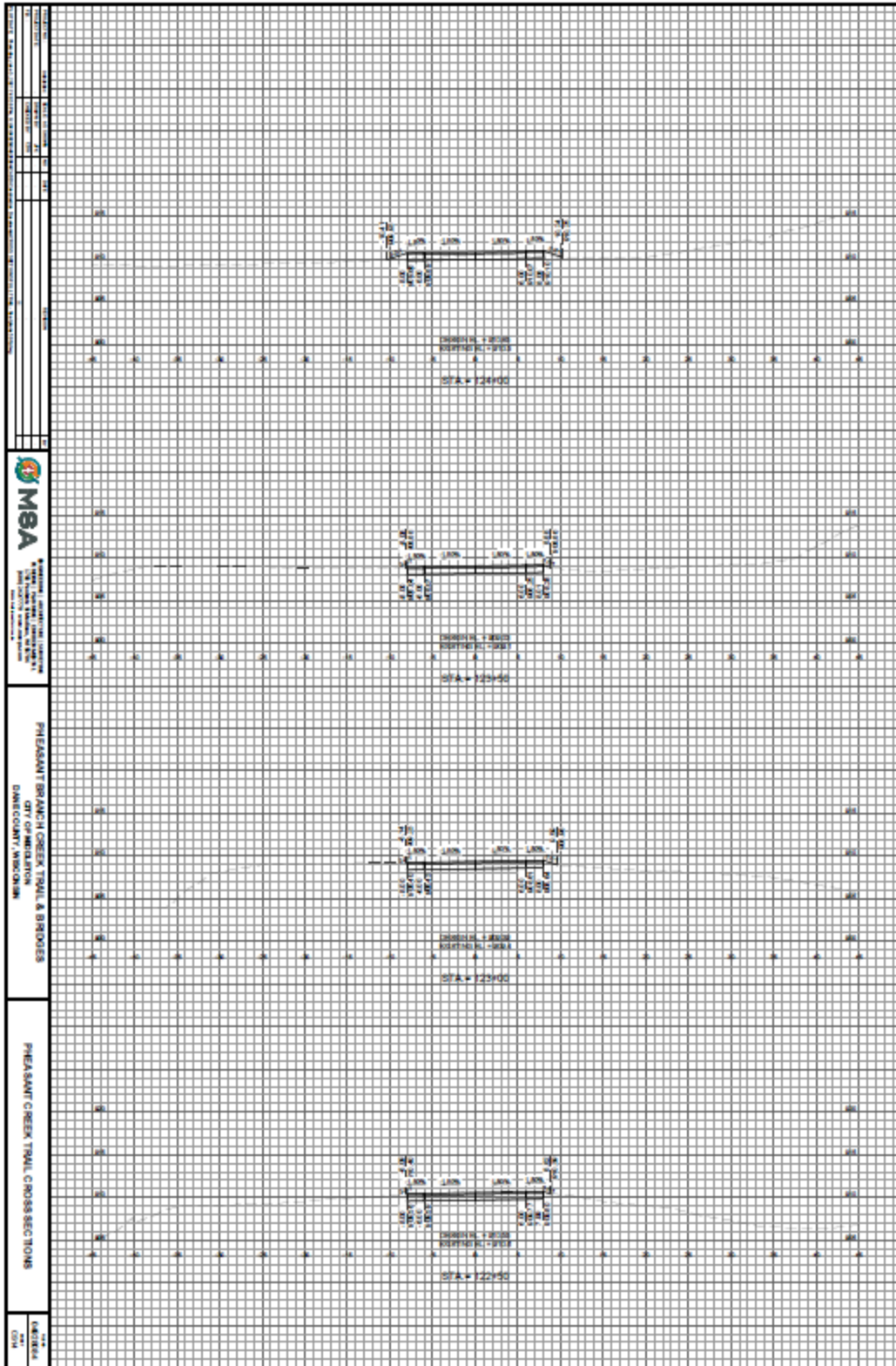
PROJECT NO.	1000
DATE	10/1/00
BY	WJ
CHECKED BY	WJ
DATE	10/1/00
PROJECT NAME	PLEASANT CREEK TRAIL CROSS SECTION
LOCATION	PLEASANT CREEK TRAIL CROSS SECTION
SCALE	1" = 10'



PLEASANT CREEK TRAIL CROSS SECTION
CITY OF OREM
DANIELSON, WARDEN

PLEASANT CREEK TRAIL CROSS SECTION
CITY OF OREM
DANIELSON, WARDEN





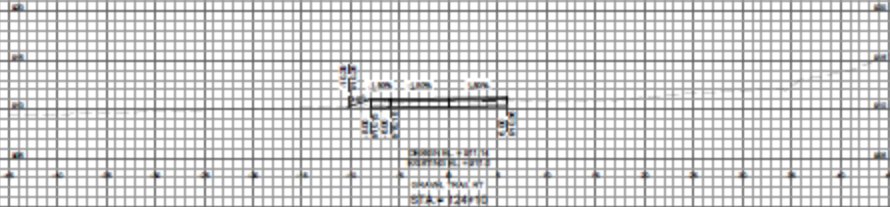
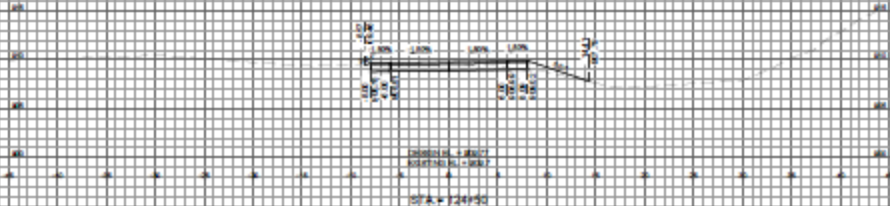
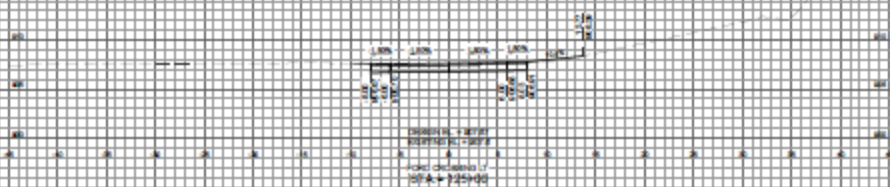
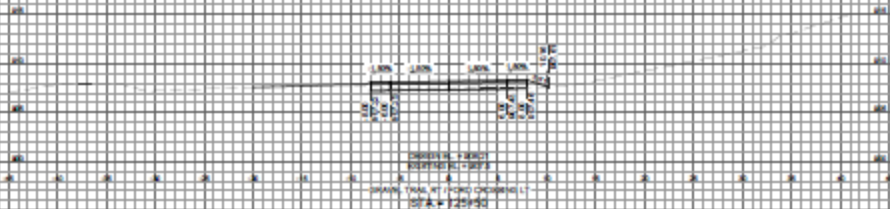
PROJECT NO.	2024-001
DATE	10/20/2024
BY	J. Smith
CHECKED BY	M. Jones
SCALE	AS SHOWN
TITLE	SECTION 1



PLEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MILWAUKEE
DANE COUNTY, WISCONSIN

PLEASANT CREEK TRAIL CROSS SECTIONS

DATE: 10/20/2024
BY: J. Smith

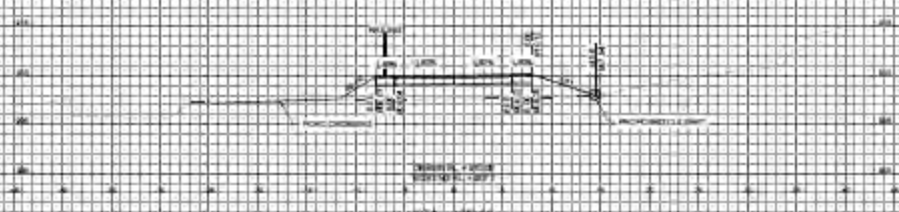
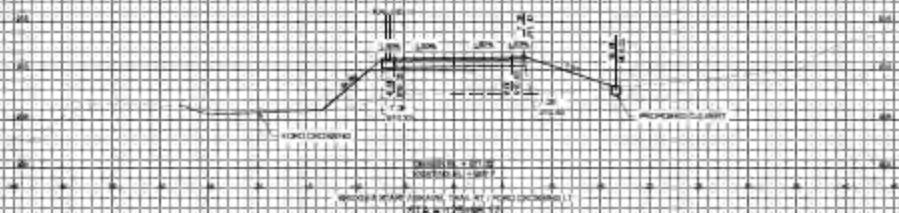
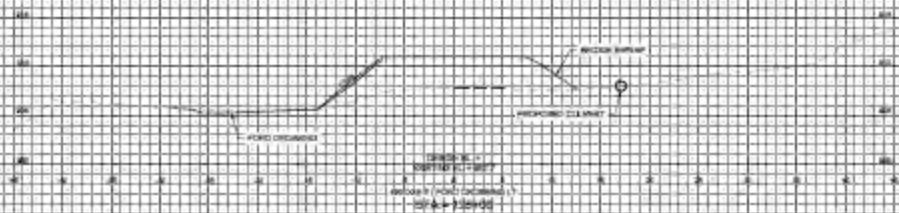
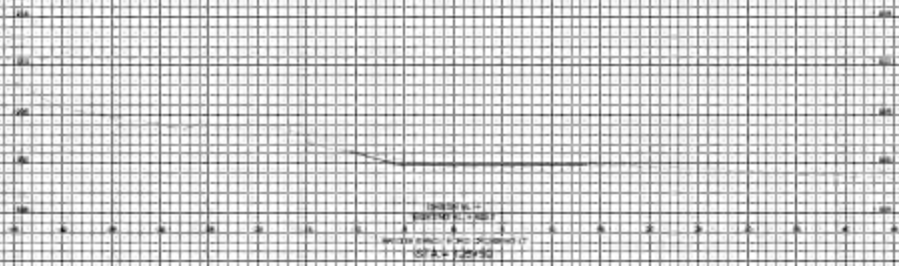


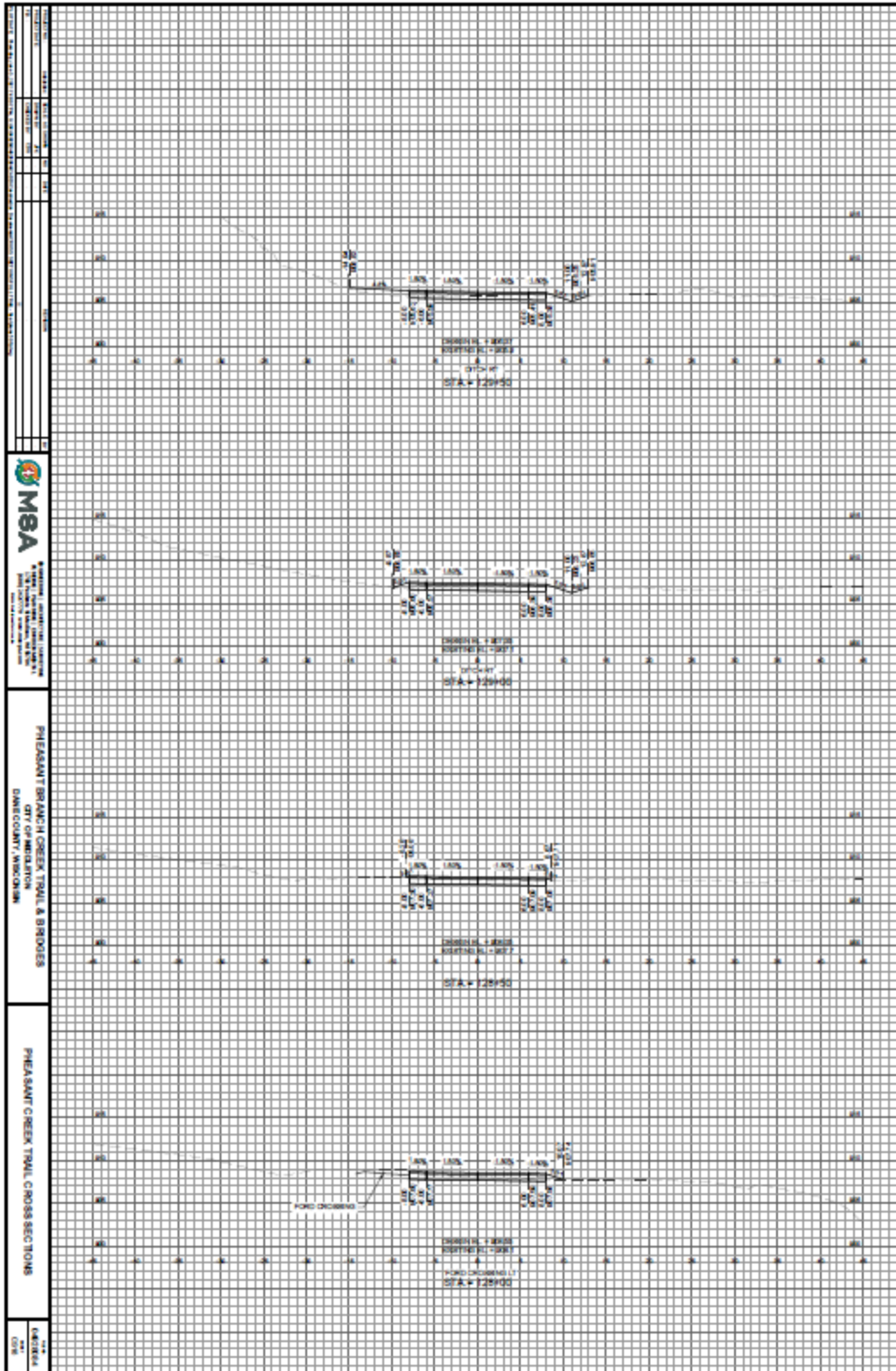
PROJECT NO.	10-0000
DATE	10/1/00
BY	10/1/00
CHECKED BY	10/1/00
APPROVED BY	10/1/00
DESIGNED BY	10/1/00
PLANNED BY	10/1/00
CONSTRUCTION BY	10/1/00
MAINTENANCE BY	10/1/00
OPERATION BY	10/1/00
SALES BY	10/1/00
ADMINISTRATIVE BY	10/1/00
ACCOUNTING BY	10/1/00
LEGAL BY	10/1/00
RECORDS BY	10/1/00
TRAINING BY	10/1/00
SAFETY BY	10/1/00
QUALITY BY	10/1/00
ENVIRONMENTAL BY	10/1/00
COMMUNITY BY	10/1/00
OTHER BY	10/1/00



PHILIPPIAN BRIDGE OVER TRAIL & BRIDGES
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PHILIPPIAN BRIDGE TRAIL CROSS SECTION
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Fax: 801.224.1112
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PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF BRIDGEMONT
DADE COUNTY, ARIZONA

PHEASANT CREEK TRAIL CROSS SECTIONS

10/11/11
W. J. BROWN
10/11/11

The figure displays four cross-sections of a bridge deck, labeled 1 through 4, arranged vertically. Each cross-section shows the layout of the bridge deck, including the main span and the approach spans. The diagrams are oriented with the bridge axis running horizontally. The cross-sections are labeled as follows:

- Cross Section 1:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.
- Cross Section 2:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.
- Cross Section 3:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.
- Cross Section 4:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.

Each cross-section diagram includes a title block with the following information:

- PROJECT NO. 100.00
- BRIDGE NO. 100.00
- SCALE = 1" = 100.00'

The diagrams are oriented with the bridge axis running horizontally. The cross-sections are labeled as follows:

- Cross Section 1:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.
- Cross Section 2:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.
- Cross Section 3:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.
- Cross Section 4:** Shows the bridge deck with a main span of 100.00' and approach spans of 50.00' and 50.00'. The total length is 200.00'. The bridge is supported by two piers. The title block indicates: PROJECT NO. 100.00, BRIDGE NO. 100.00, and SCALE = 1" = 100.00'.

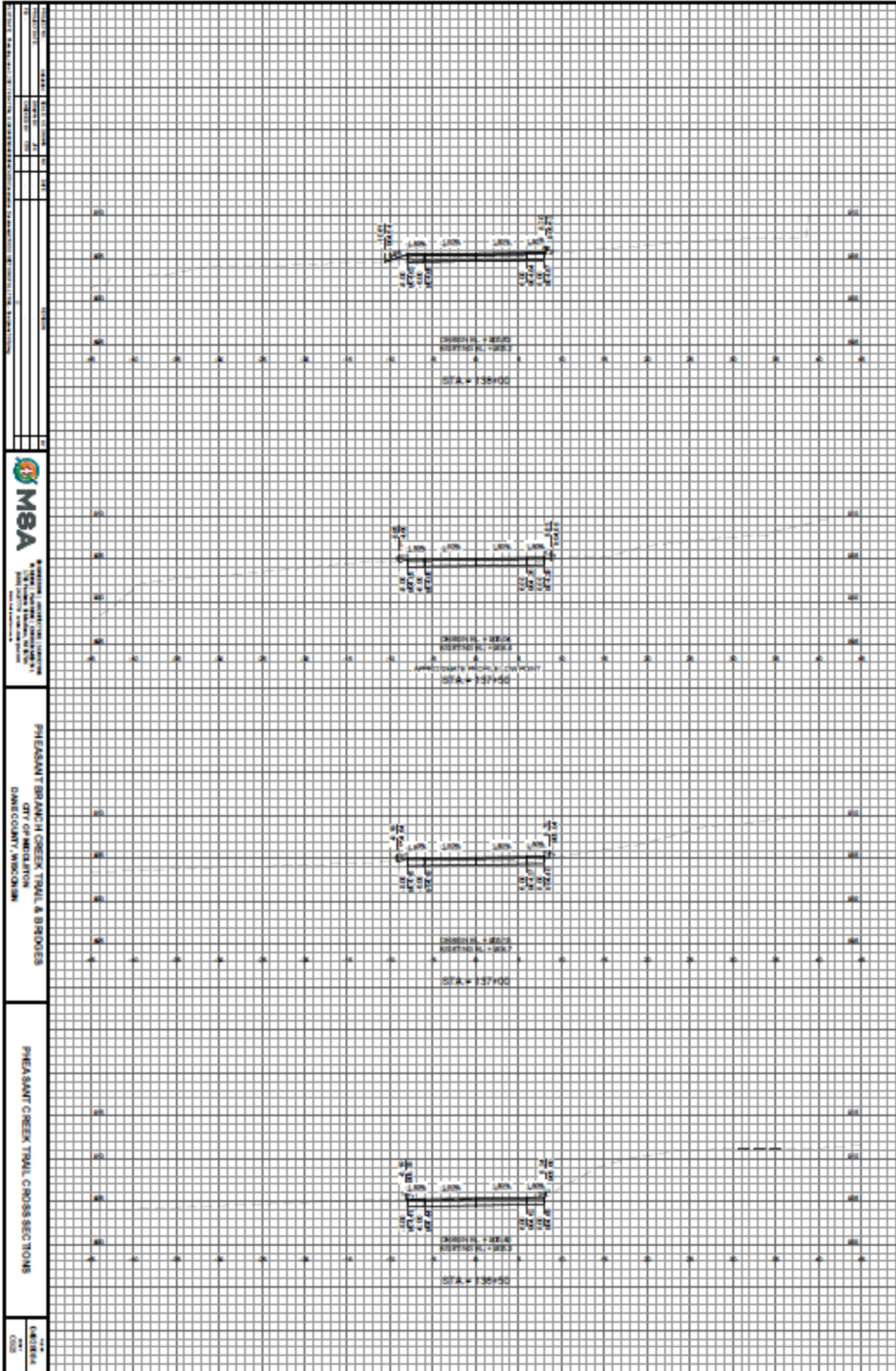
The figure consists of four cross-section diagrams of a 12-foot wide road, arranged vertically. Each diagram shows a cross-section with a 12-foot width and a 4-foot depth. The diagrams are labeled with their respective stationing and elevations.

Diagram 1 (Top): Stationing: 12+00.00. Elevation: 1200.00. The cross-section shows a 12-foot wide road with a 4-foot depth. The title block indicates: PROJECT: PLEASANT CREEK TRAIL & BRIDGES, DRAWING: CROSS SECTION, SCALE: 1" = 10', DATE: 10/10/10, DRAWN BY: J. L. HARRIS, CHECKED BY: J. L. HARRIS.

Diagram 2: Stationing: 12+00.00. Elevation: 1200.00. The cross-section shows a 12-foot wide road with a 4-foot depth. The title block indicates: PROJECT: PLEASANT CREEK TRAIL & BRIDGES, DRAWING: CROSS SECTION, SCALE: 1" = 10', DATE: 10/10/10, DRAWN BY: J. L. HARRIS, CHECKED BY: J. L. HARRIS.

Diagram 3: Stationing: 12+00.00. Elevation: 1200.00. The cross-section shows a 12-foot wide road with a 4-foot depth. The title block indicates: PROJECT: PLEASANT CREEK TRAIL & BRIDGES, DRAWING: CROSS SECTION, SCALE: 1" = 10', DATE: 10/10/10, DRAWN BY: J. L. HARRIS, CHECKED BY: J. L. HARRIS.

Diagram 4 (Bottom): Stationing: 12+00.00. Elevation: 1200.00. The cross-section shows a 12-foot wide road with a 4-foot depth. The title block indicates: PROJECT: PLEASANT CREEK TRAIL & BRIDGES, DRAWING: CROSS SECTION, SCALE: 1" = 10', DATE: 10/10/10, DRAWN BY: J. L. HARRIS, CHECKED BY: J. L. HARRIS.

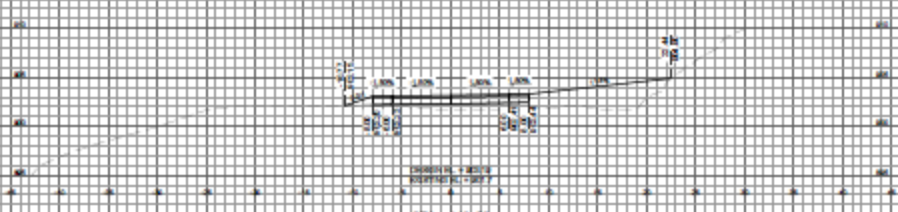
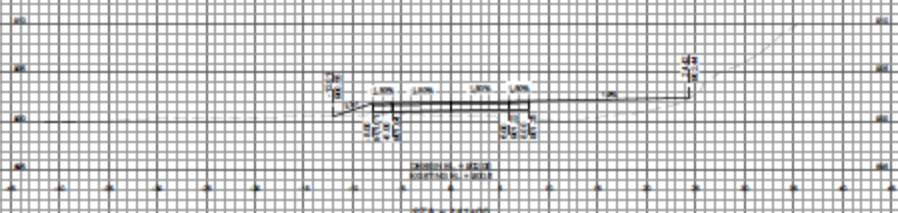
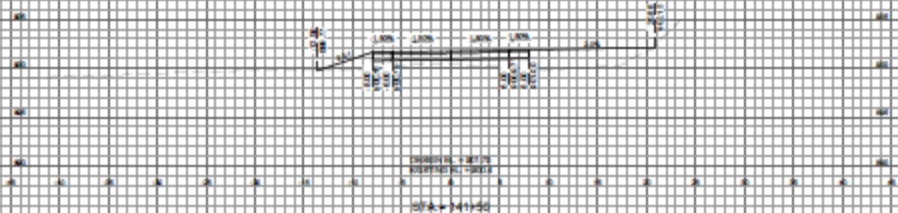
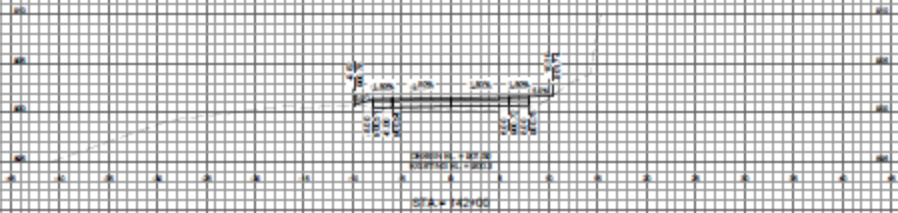


PROJECT NO.	2024-001
DATE	10/20/2024
BY	J. Smith
CHECKED BY	M. Jones
SCALE	AS SHOWN
PROJECT NAME	PHEASANT CREEK TRAIL & BRIDGES
LOCATION	DAWSON COUNTY, MINNESOTA



PHEASANT CREEK TRAIL & BRIDGES
CITY OF PHEASANT
DAWSON COUNTY, MINNESOTA

PHEASANT CREEK TRAIL CROSS SECTIONS
DATE: 10/20/2024
BY: J. Smith



PROJECT TITLE		SHEET NO.	
PHEASANT BRANCH CREEK TRAIL & BRIDGES		10	
CITY OF MILWAUKEE		DATE	
DESIGNED BY		DRAWN BY	
CHECKED BY		APPROVED BY	

MBA

MANAGEMENT & BUSINESS ASSOCIATES

1000 N. MICHIGAN AVE., SUITE 1000
MILWAUKEE, WI 53233
TEL: 414.224.1000 FAX: 414.224.1001

PHEASANT BRANCH CREEK TRAIL & BRIDGES

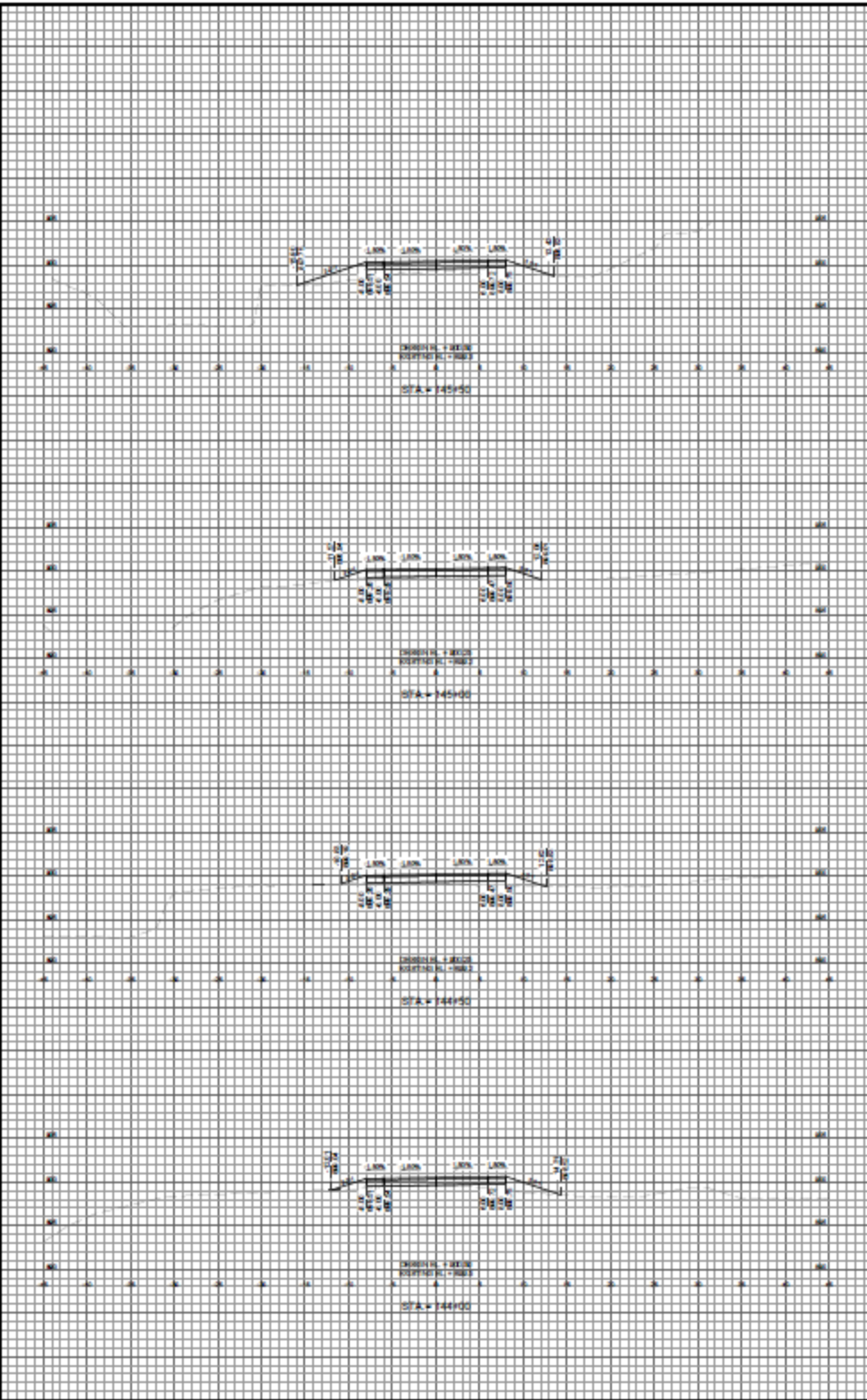
CITY OF MILWAUKEE

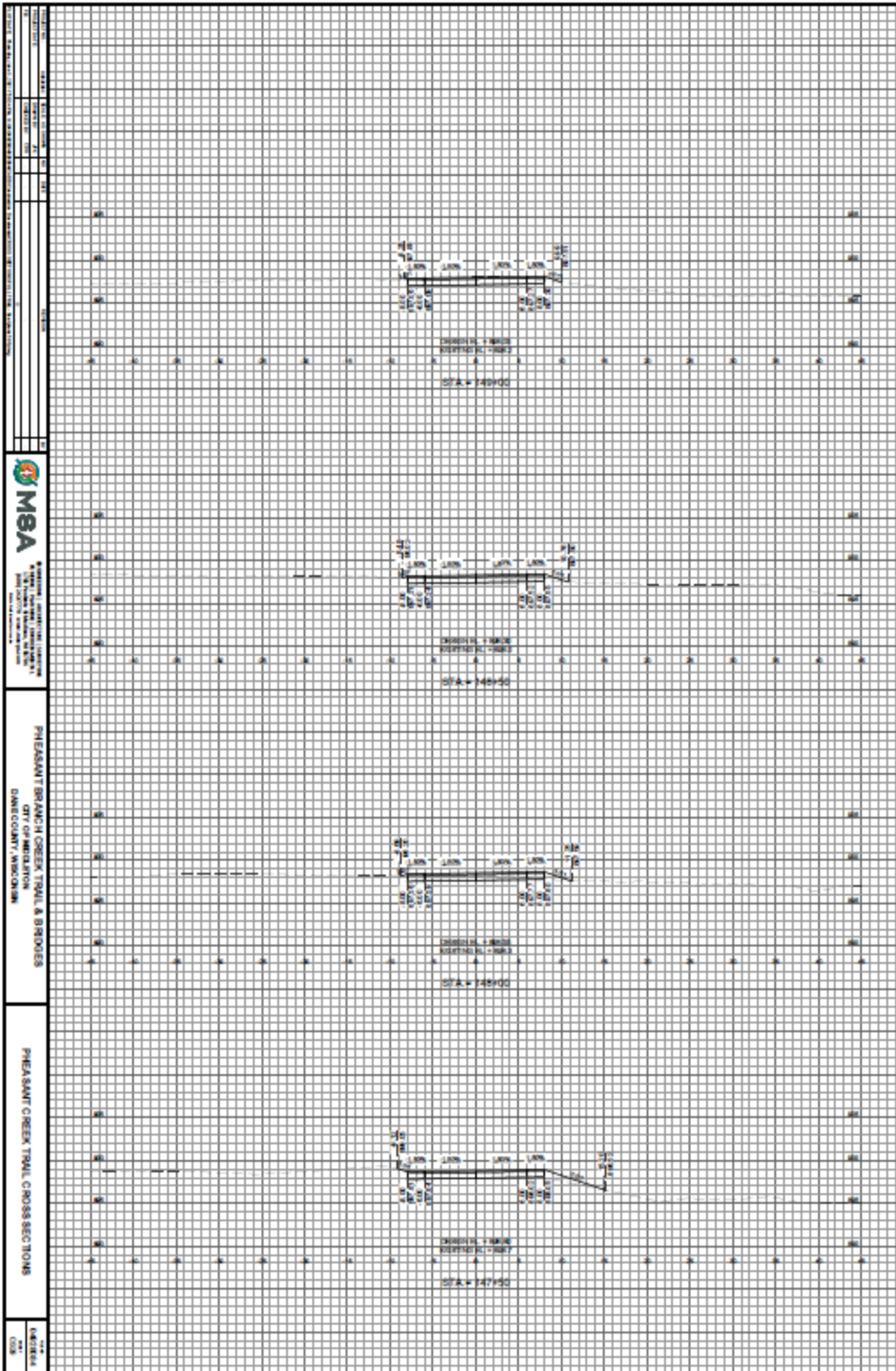
DANE COUNTY, WISCONSIN

PHEASANT CREEK TRAIL CROSS SECTIONS

SCALE: 1" = 100'

DATE: 10/20/2010

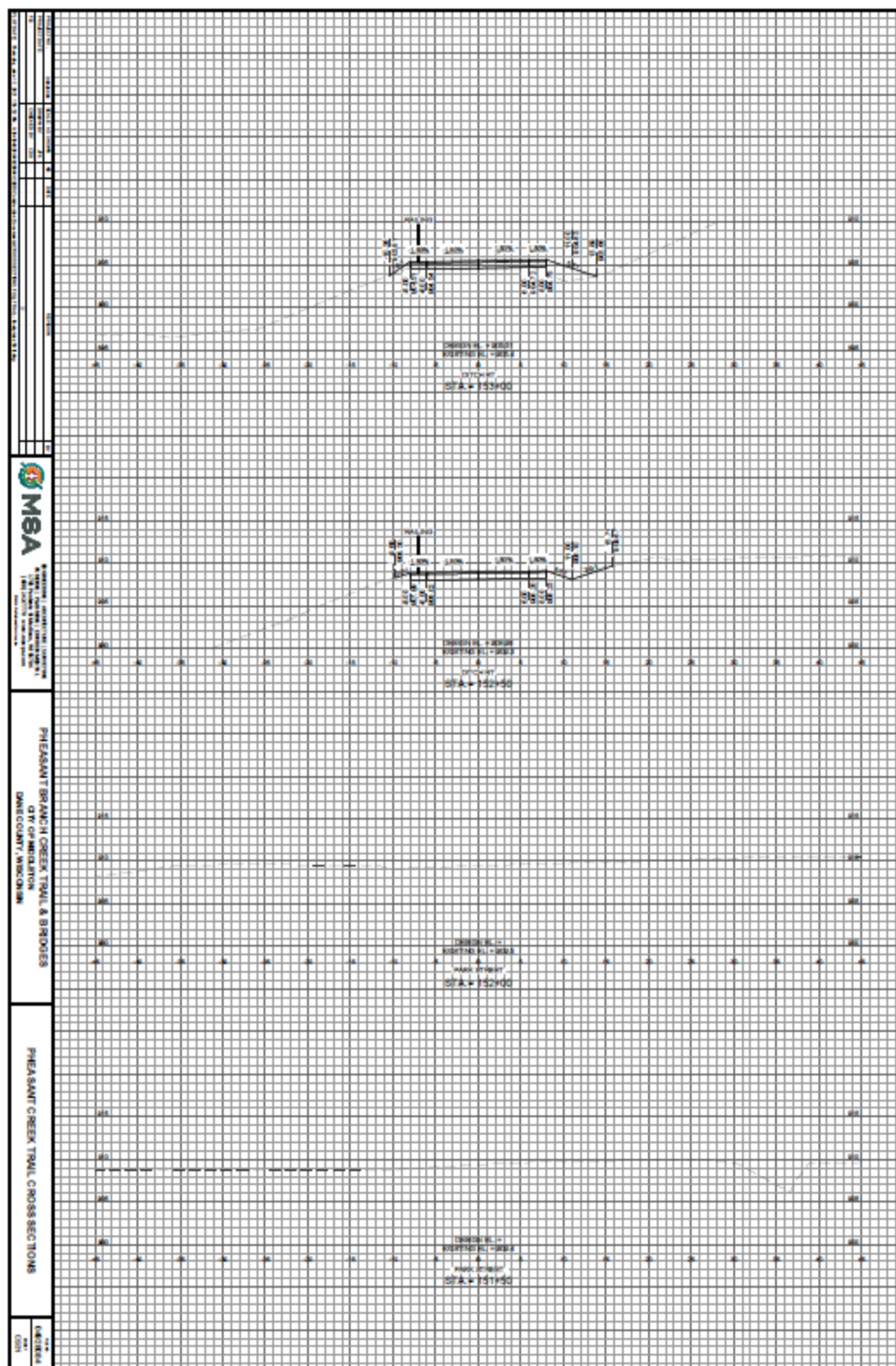




PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MILWAUKEE
DANE COUNTY, WISCONSIN

PHEASANT CREEK TRAIL CROSS SECTION

11/11/11
WJ



PROJECT NO.	2024-001
DATE	10/20/2024
DESIGNED BY	J. Smith
CHECKED BY	M. Jones
SCALE	1" = 100'
STATIONING	0+00 TO 0+100

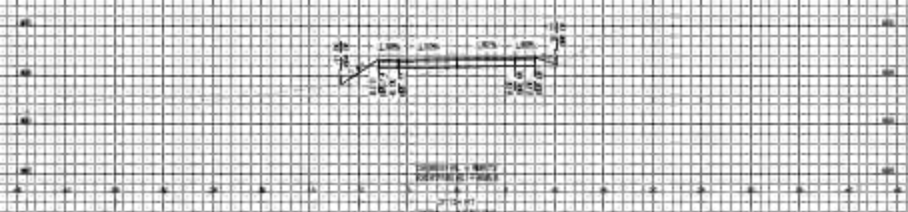
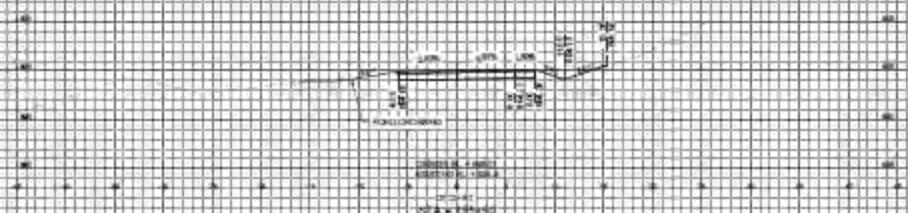
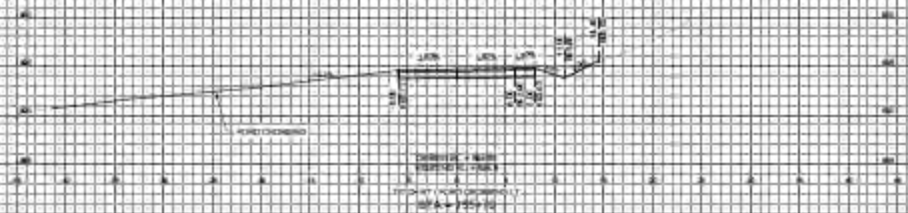
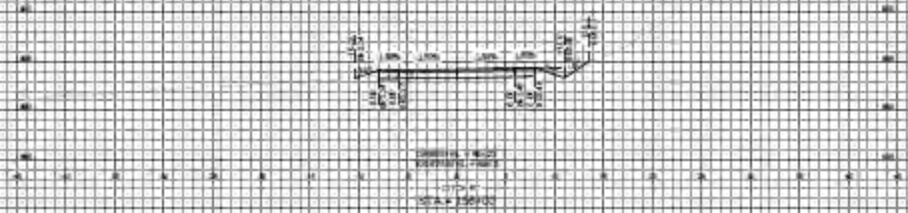


MBA
Municipal & Business Associates
1000 N. Lincoln Ave., Suite 200
Oshkosh, WI 54901
Phone: (920) 231-1234
Fax: (920) 231-5678
www.mba-wi.com

PLEASANT BEACH CREEK TRAIL & BRIDGES
OFF OF HIGHWAY 10
LINCOLN COUNTY, WISCONSIN

PLEASANT CREEK TRAIL CROSS SECTIONS

10/20/24
J. Smith



The figure consists of four cross-section diagrams of the Pleasant Branch Creek Trail & Bridges, arranged vertically. Each diagram shows a bridge deck with a central span and two side spans, supported by abutments. The diagrams include labels for the bridge deck, abutments, and surrounding terrain. The diagrams are labeled with the following information:

- Diagram 1 (Top):**
 - PROJECT: PLEASANT BRANCH CREEK TRAIL & BRIDGES
 - DATE: 10/10/2018
 - DESIGNER: MSA
 - PROJECT NO: 18-0011
 - CROSSING NO: 1-NET 10
 - ABUTMENT NO: 1-7001.1
 - SECTION: 101
 - STA: 1517+50
- Diagram 2:**
 - PROJECT: PLEASANT BRANCH CREEK TRAIL & BRIDGES
 - DATE: 10/10/2018
 - DESIGNER: MSA
 - PROJECT NO: 18-0011
 - CROSSING NO: 1-NET 10
 - ABUTMENT NO: 1-7001.2
 - SECTION: 102
 - STA: 1517+50
- Diagram 3:**
 - PROJECT: PLEASANT BRANCH CREEK TRAIL & BRIDGES
 - DATE: 10/10/2018
 - DESIGNER: MSA
 - PROJECT NO: 18-0011
 - CROSSING NO: 1-NET 10
 - ABUTMENT NO: 1-7001.3
 - SECTION: 103
 - STA: 1517+50
- Diagram 4 (Bottom):**
 - PROJECT: PLEASANT BRANCH CREEK TRAIL & BRIDGES
 - DATE: 10/10/2018
 - DESIGNER: MSA
 - PROJECT NO: 18-0011
 - CROSSING NO: 1-NET 10
 - ABUTMENT NO: 1-7001.4
 - SECTION: 104
 - STA: 1517+50

The figure displays four cross-sections of a road bridge at different stationing points. Each cross-section is plotted on a grid with a vertical axis labeled 'ELEVATION' and a horizontal axis labeled 'STATION'. The cross-sections are labeled with their respective stationing: STA = 750+00, STA = 750+25, STA = 750+50, and STA = 750+75. Each diagram shows a cross-section of a road with a central median and two side lanes. The diagrams include labels for 'ROADWAY', 'SIDEWALK', 'DRAINAGE', and 'CROSSING'. The diagrams are plotted on a grid with a vertical axis labeled 'ELEVATION' and a horizontal axis labeled 'STATION'.

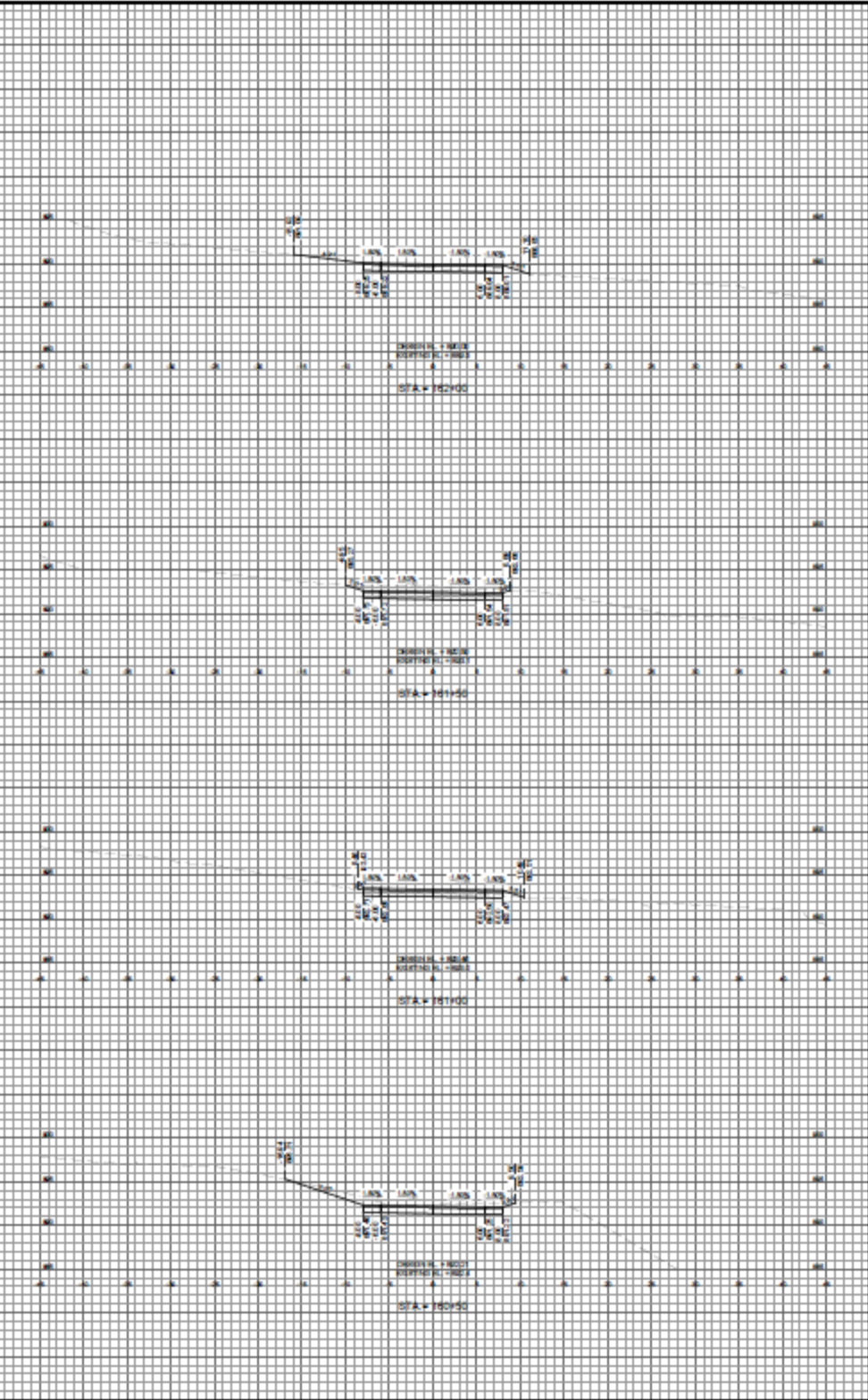
DATE	2/24/2016
TIME	10:00 AM
BY	W. J. B. / J. B. B.
PROJECT	PLEASANT CREEK TRAIL & BRIDGES
LOCATION	CITY OF PLEASANT CREEK, ARIZONA
SCALE	1" = 100'
DATE	2/24/2016
TIME	10:00 AM
BY	W. J. B. / J. B. B.
PROJECT	PLEASANT CREEK TRAIL & BRIDGES
LOCATION	CITY OF PLEASANT CREEK, ARIZONA
SCALE	1" = 100'

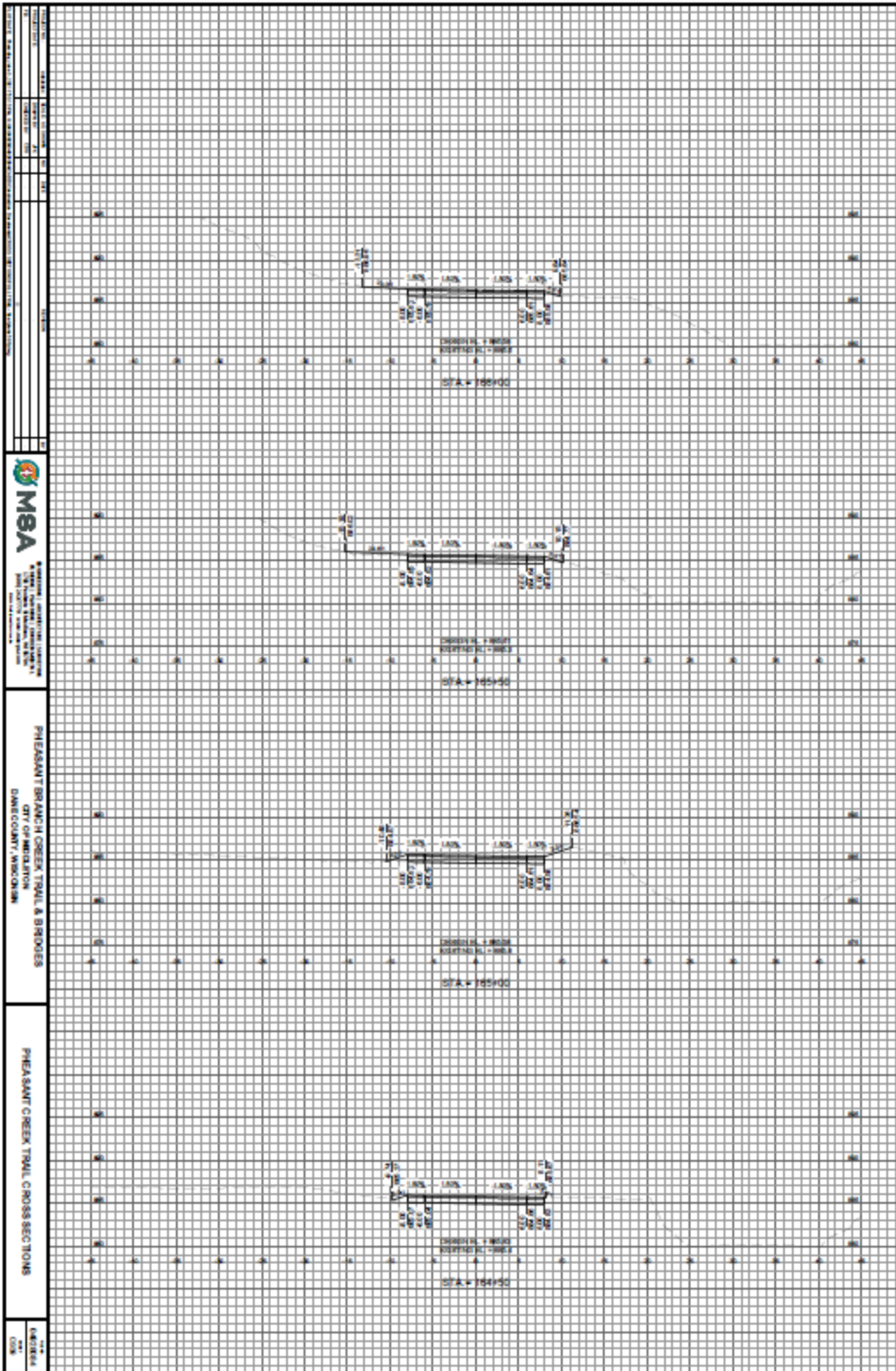


PLEASANT CREEK TRAIL & BRIDGES
CITY OF PLEASANT CREEK
DAVE COUNTY, ARIZONA

PLEASANT CREEK TRAIL CROSS SECTION

1/2" = 100'

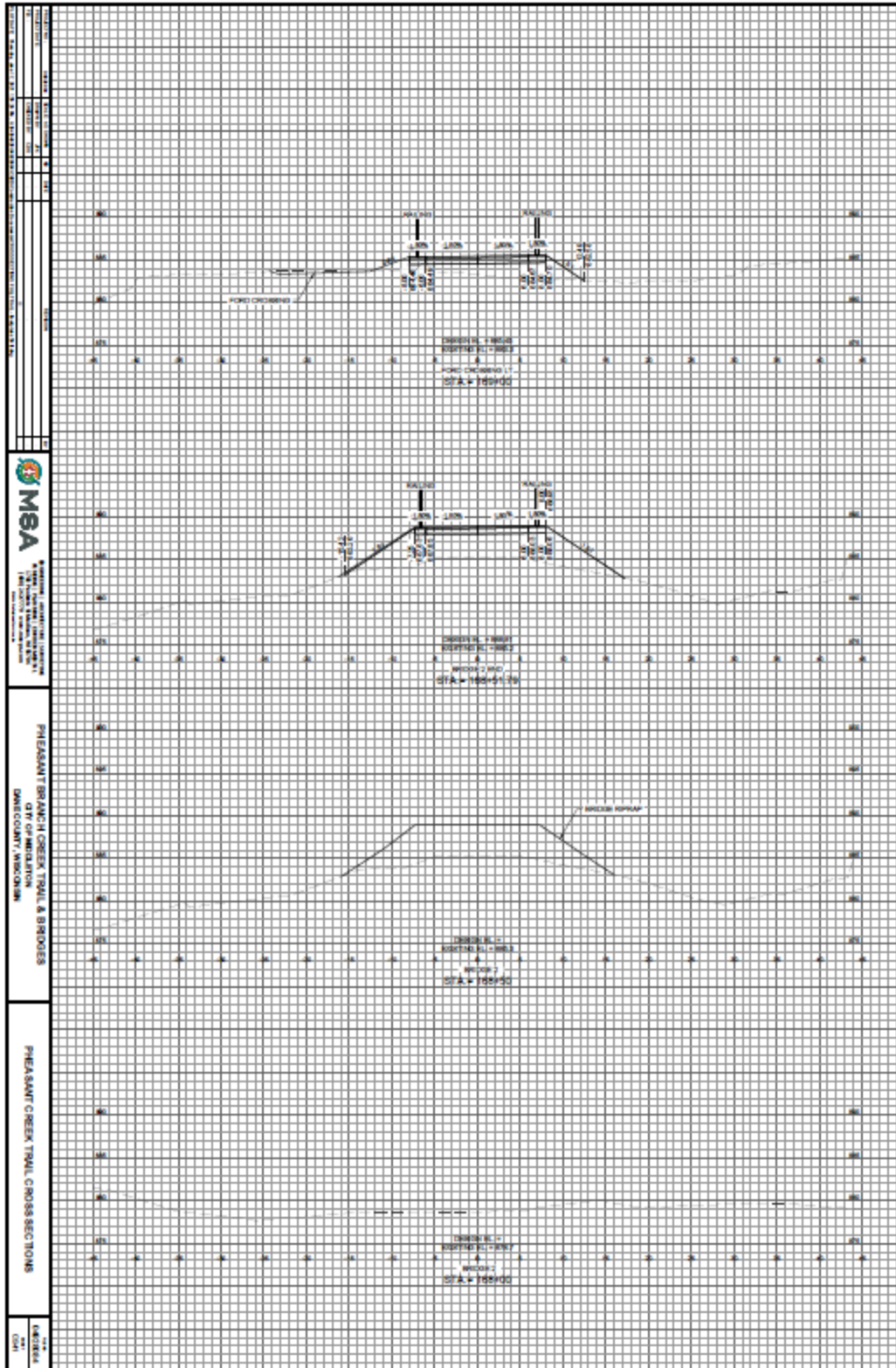




PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF PHEASANT
DADE COUNTY, ARIZONA

PHEASANT CREEK TRAIL CROSS SECTION

11/11/2011
W. J. HARRIS



DATE	10/1/2010
TIME	10:00 AM
BY	MSA
FOR	MSA
PROJECT	MSA
DESCRIPTION	MSA
LOCATION	MSA
SCALE	MSA
REVISIONS	MSA
APPROVED	MSA
CHECKED	MSA
DESIGNED	MSA
DRAWN	MSA
FILED	MSA



PLEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF INDEPENDENCE
DADE COUNTY, MISSOURI

PLEASANT CREEK TRAIL CROSS SECTIONS

DATE	10/1/2010
TIME	10:00 AM
BY	MSA
FOR	MSA
PROJECT	MSA
DESCRIPTION	MSA
LOCATION	MSA
SCALE	MSA
REVISIONS	MSA
APPROVED	MSA
CHECKED	MSA
DESIGNED	MSA
DRAWN	MSA
FILED	MSA

PROJECT NO.	2024-001	DATE	01/15/2024
PROJECT NAME	PNEASANT CREEK TRAIL & BRIDGES		
CLIENT	CITY OF WASHINGTON		
LOCATION	DANE COUNTY, WISCONSIN		
SCALE	AS SHOWN		
DESIGNED BY	MBA		
CHECKED BY	MBA		
DATE	01/15/2024		

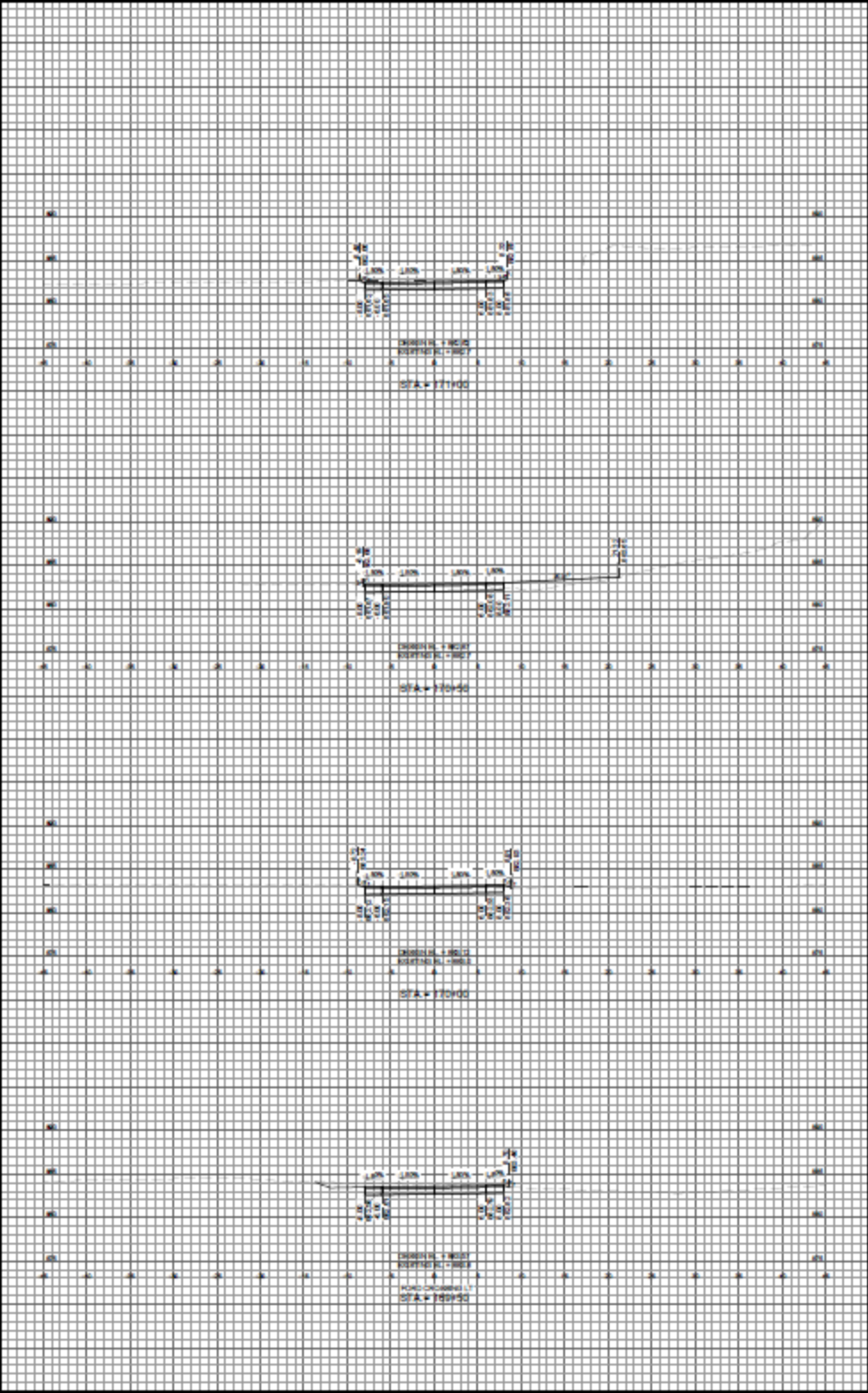


MBA
MANAGEMENT & BUSINESS ASSOCIATES
1000 W. WISCONSIN AVENUE
SUITE 200
MILWAUKEE, WI 53233

PNEASANT CREEK TRAIL & BRIDGES
CITY OF WASHINGTON
DANE COUNTY, WISCONSIN

PNEASANT CREEK TRAIL CROSS SECTIONS

DATE
01/15/2024



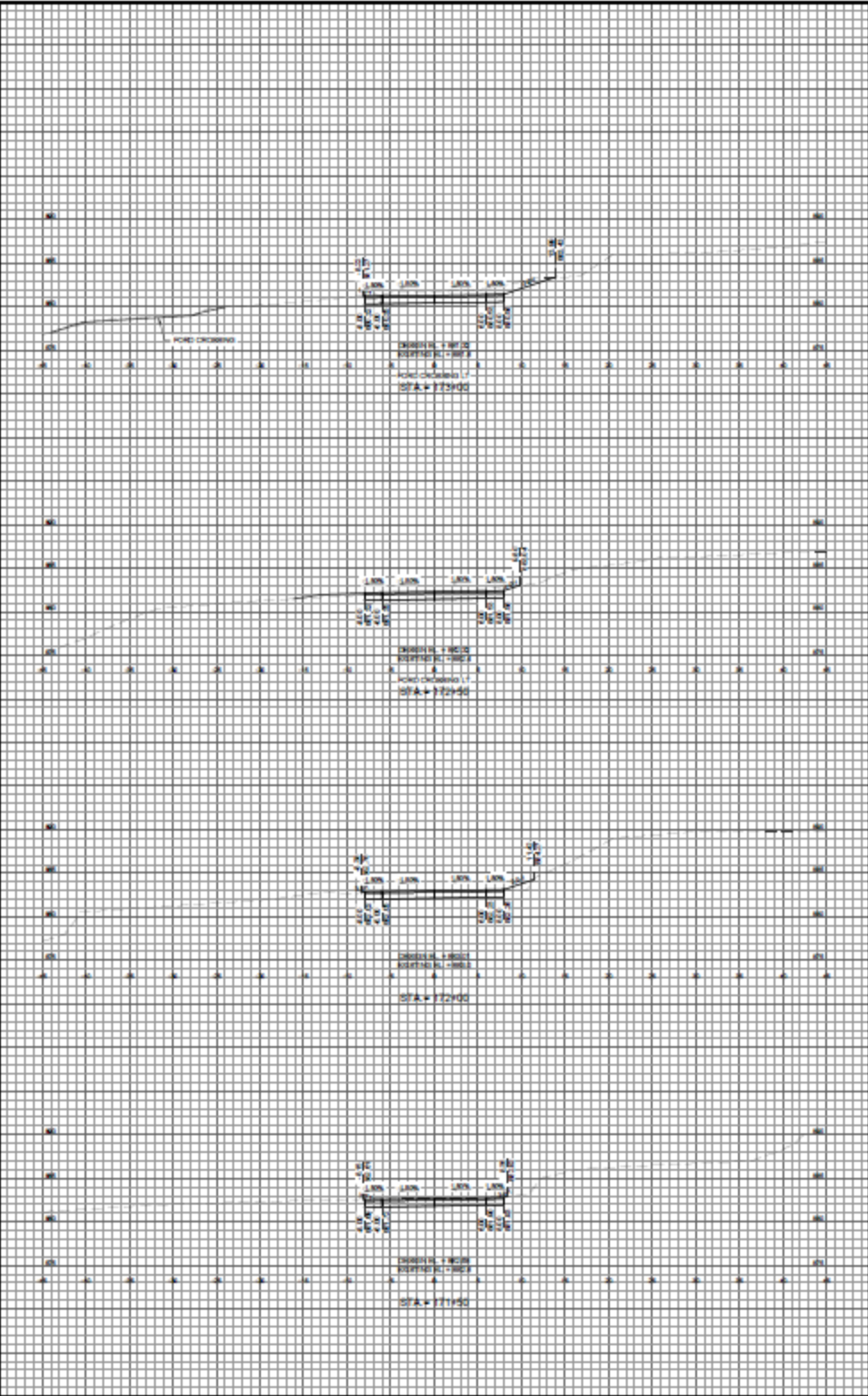
PROJECT NO.	2024-001
DATE	10/20/2024
BY	J. Smith
CHECKED BY	M. Jones
SCALE	AS SHOWN
PROJECT NAME	PLEASANT CREEK TRAIL & BRIDGES
CITY OF PLEASANT	
PLANNING & DESIGN	
ENGINEERING	
CONSTRUCTION	



PLEASANT CREEK TRAIL & BRIDGES
CITY OF PLEASANT
PLANNING & DESIGN
ENGINEERING
CONSTRUCTION

PLEASANT CREEK TRAIL CROSS SECTIONS

DATE	10/20/2024
BY	J. Smith
CHECKED BY	M. Jones

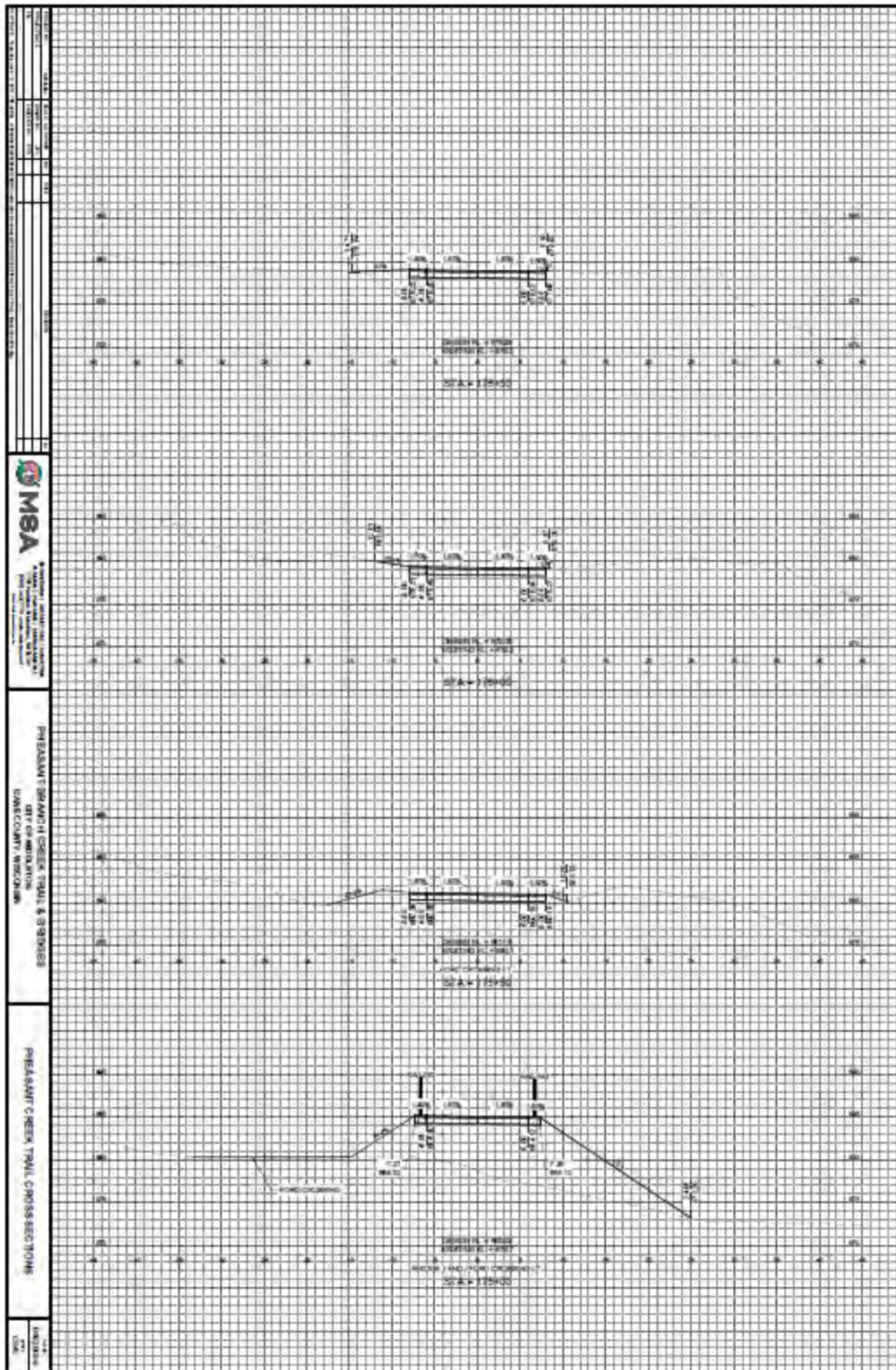


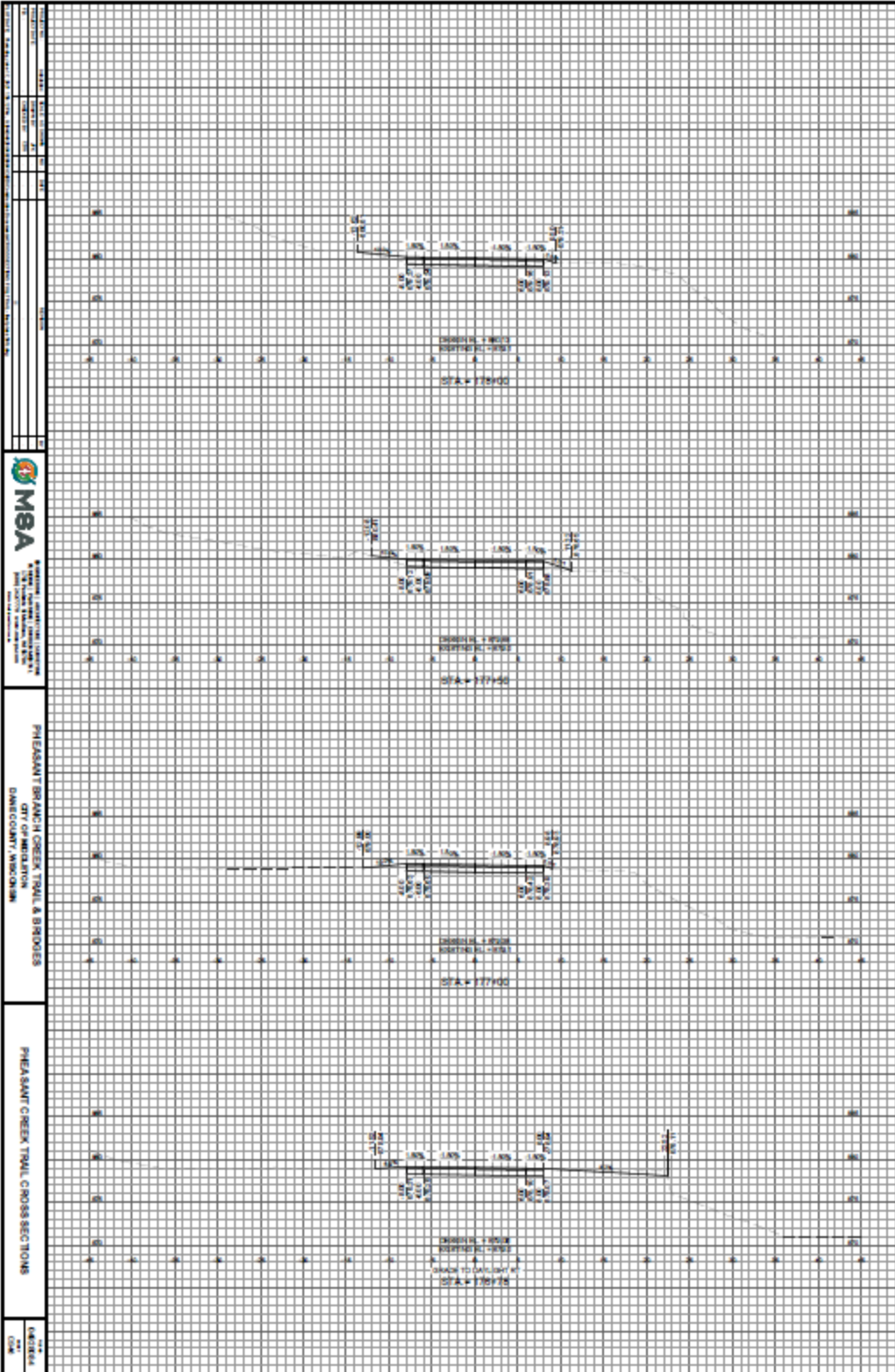
The figure displays three cross-sections of a bridge structure, labeled 1, 2, and 3, showing the bridge deck, piers, and abutments. Each diagram includes dimensions and labels for various components.

Section 1: Shows a cross-section of the bridge deck with a central pier. The deck width is 174'50". The pier width is 10'00". The deck thickness is 1'00". The pier height is 1'00". The abutment height is 1'00". The deck is supported by the pier and abutments.

Section 2: Shows a cross-section of the bridge deck with a central pier. The deck width is 174'50". The pier width is 10'00". The deck thickness is 1'00". The pier height is 1'00". The abutment height is 1'00". The deck is supported by the pier and abutments.

Section 3: Shows a cross-section of the bridge deck with a central pier. The deck width is 174'50". The pier width is 10'00". The deck thickness is 1'00". The pier height is 1'00". The abutment height is 1'00". The deck is supported by the pier and abutments.





PLEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MILWAUKEE
DANE COUNTY, WISCONSIN

PLEASANT CREEK TRAIL CROSS SECTIONS

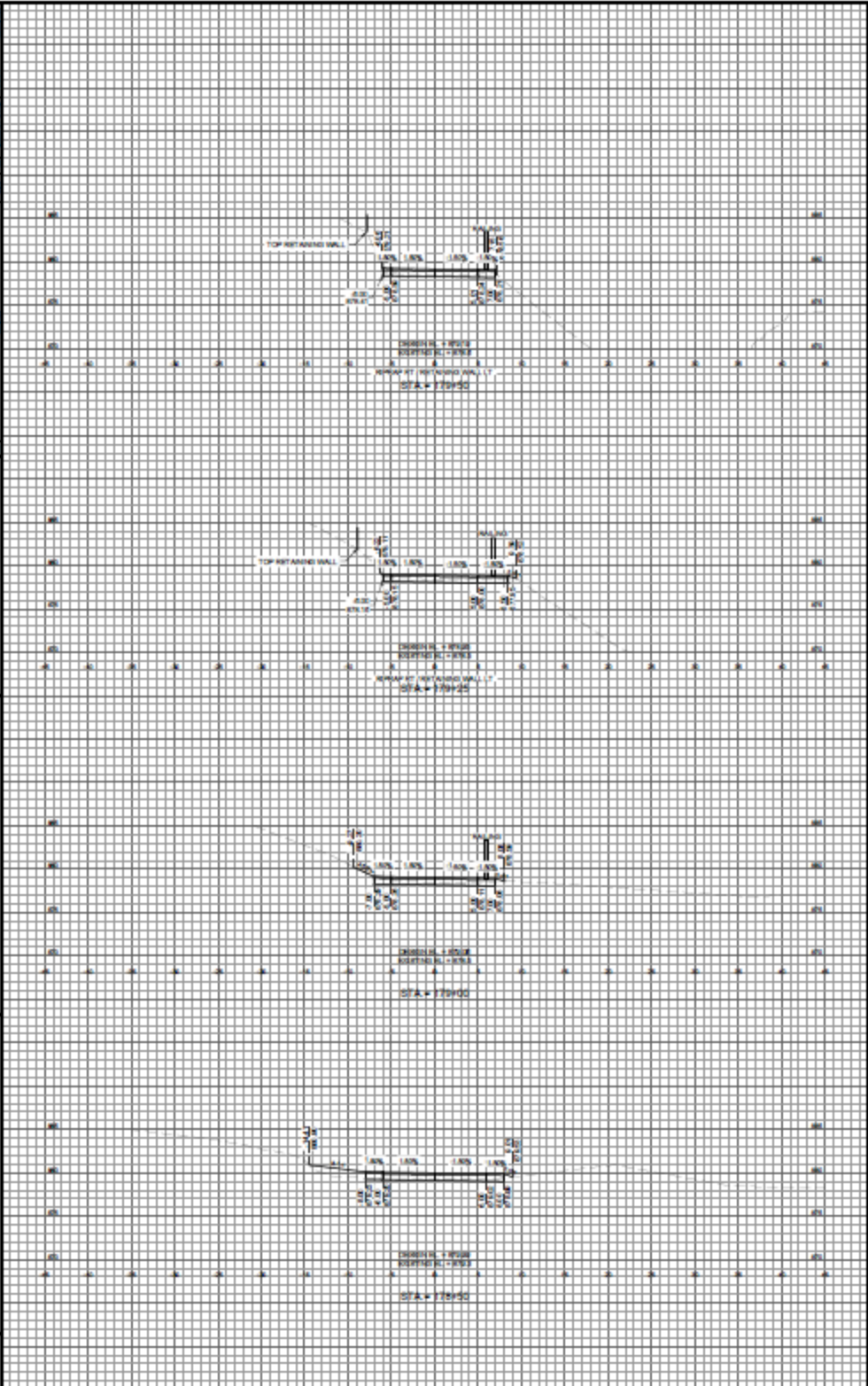
11/11/11
W. J. BROWN

PROJECT NO.	2024-01-001
DATE	01/01/2024
BY	J. Smith
CHECKED BY	M. Jones
SCALE	1" = 10'
STATIONING	0+00 TO 0+100
PROJECT NAME	PLEASANT CREEK TRAIL CROSS SECTION
LOCATION	PLEASANT CREEK TRAIL, CROSS SECTION
DATE	01/01/2024
BY	J. Smith
CHECKED BY	M. Jones
SCALE	1" = 10'
STATIONING	0+00 TO 0+100
PROJECT NAME	PLEASANT CREEK TRAIL CROSS SECTION
LOCATION	PLEASANT CREEK TRAIL, CROSS SECTION



PLEASANT CREEK TRAIL CROSS SECTION
CITY OF AMERSON
DANFORTH, WISCONSIN

PLEASANT CREEK TRAIL CROSS SECTION
CITY OF AMERSON
DANFORTH, WISCONSIN



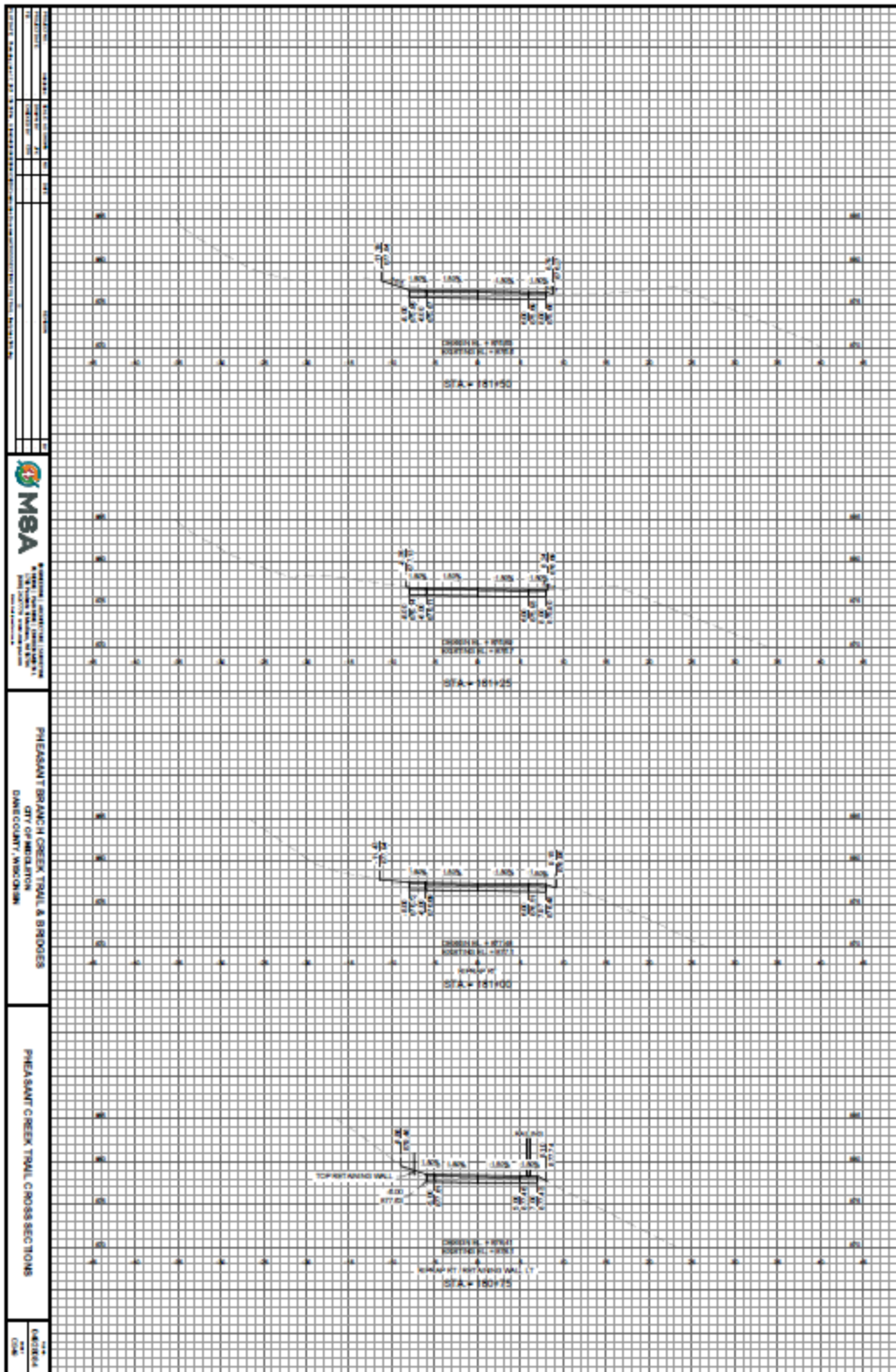


Diagram 1: Cross-section of a bridge with a 12-foot wide deck and a 12-foot wide base. The deck has a 10% slope on the left and a 2% slope on the right. The base has a 10% slope on the left and a 2% slope on the right. The diagram is labeled with "12" and "10%" and "2%".

Diagram 2: Cross-section of a bridge with a 12-foot wide deck and a 12-foot wide base. The deck has a 10% slope on the left and a 2% slope on the right. The base has a 10% slope on the left and a 2% slope on the right. The diagram is labeled with "12" and "10%" and "2%".

Diagram 3: Cross-section of a bridge with a 12-foot wide deck and a 12-foot wide base. The deck has a 10% slope on the left and a 2% slope on the right. The base has a 10% slope on the left and a 2% slope on the right. The diagram is labeled with "12" and "10%" and "2%".

Diagram 4: Cross-section of a bridge with a 12-foot wide deck and a 12-foot wide base. The deck has a 10% slope on the left and a 2% slope on the right. The base has a 10% slope on the left and a 2% slope on the right. The diagram is labeled with "12" and "10%" and "2%".

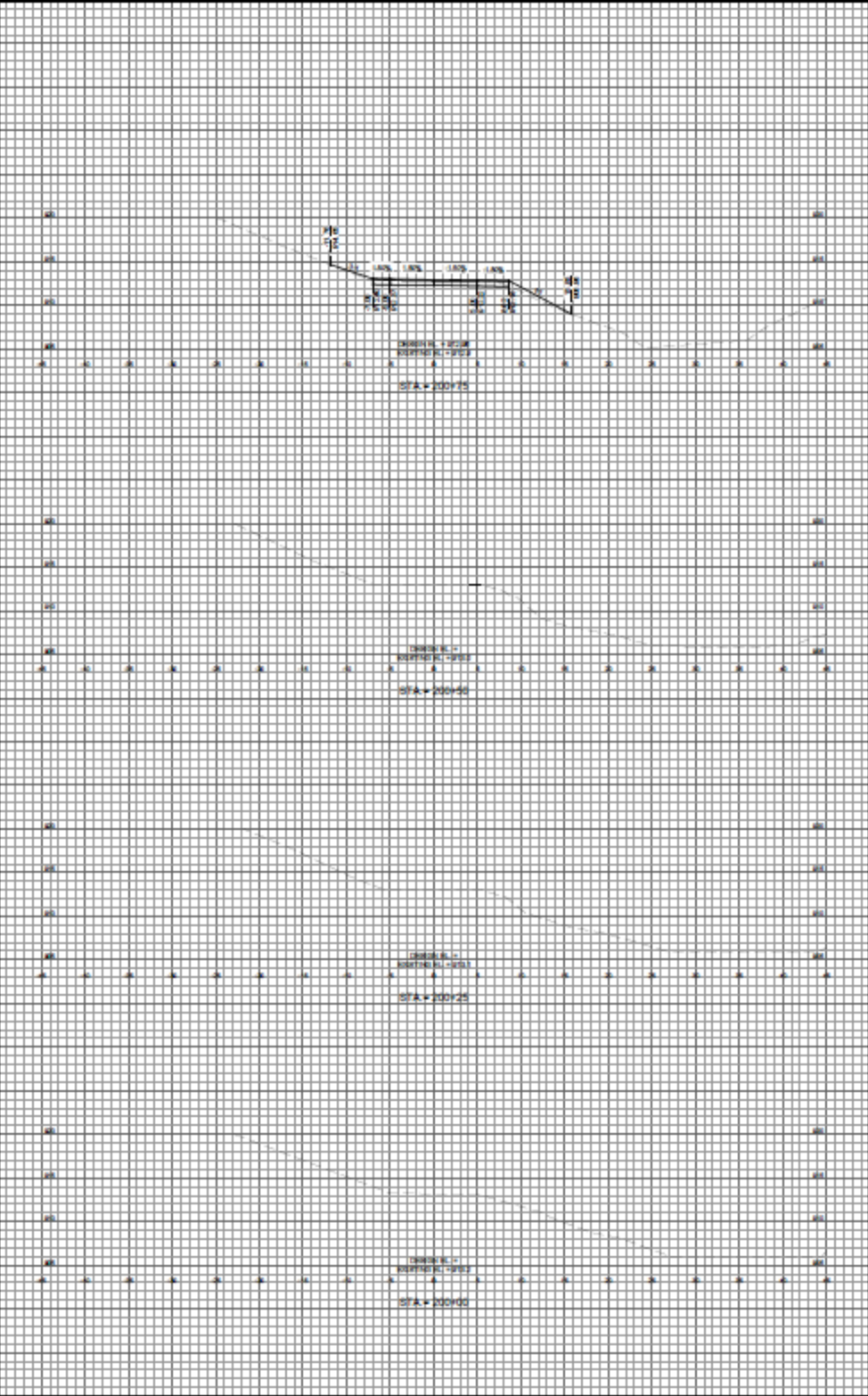
PROJECT NO.	2024-001
DATE	10/25/2024
BY	J. Smith
CHECKED BY	M. Jones
SCALE	1" = 40'
PROJECT NAME	PHILASANT BRANCH CREEK TRAIL & BRIDGES
LOCATION	DADE COUNTY, FLORIDA



PHILASANT BRANCH CREEK TRAIL & BRIDGES
OFF OF BRIDGES
DADE COUNTY, FLORIDA

NORTH FORK TRAIL CROSS SECTIONS

DATE: 10/25/2024
BY: J. Smith



PROJECT NO.	2011-001
DATE	10/1/11
BY	WMA
CHECKED BY	WMA
APPROVED BY	WMA
DATE	10/1/11
PROJECT NAME	PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF ORIGIN	DANIEL COUNTY, WISCONSIN
PROJECT LOCATION	NORTH FORK TRAIL CROSS SECTIONS
SCALE	1" = 100'

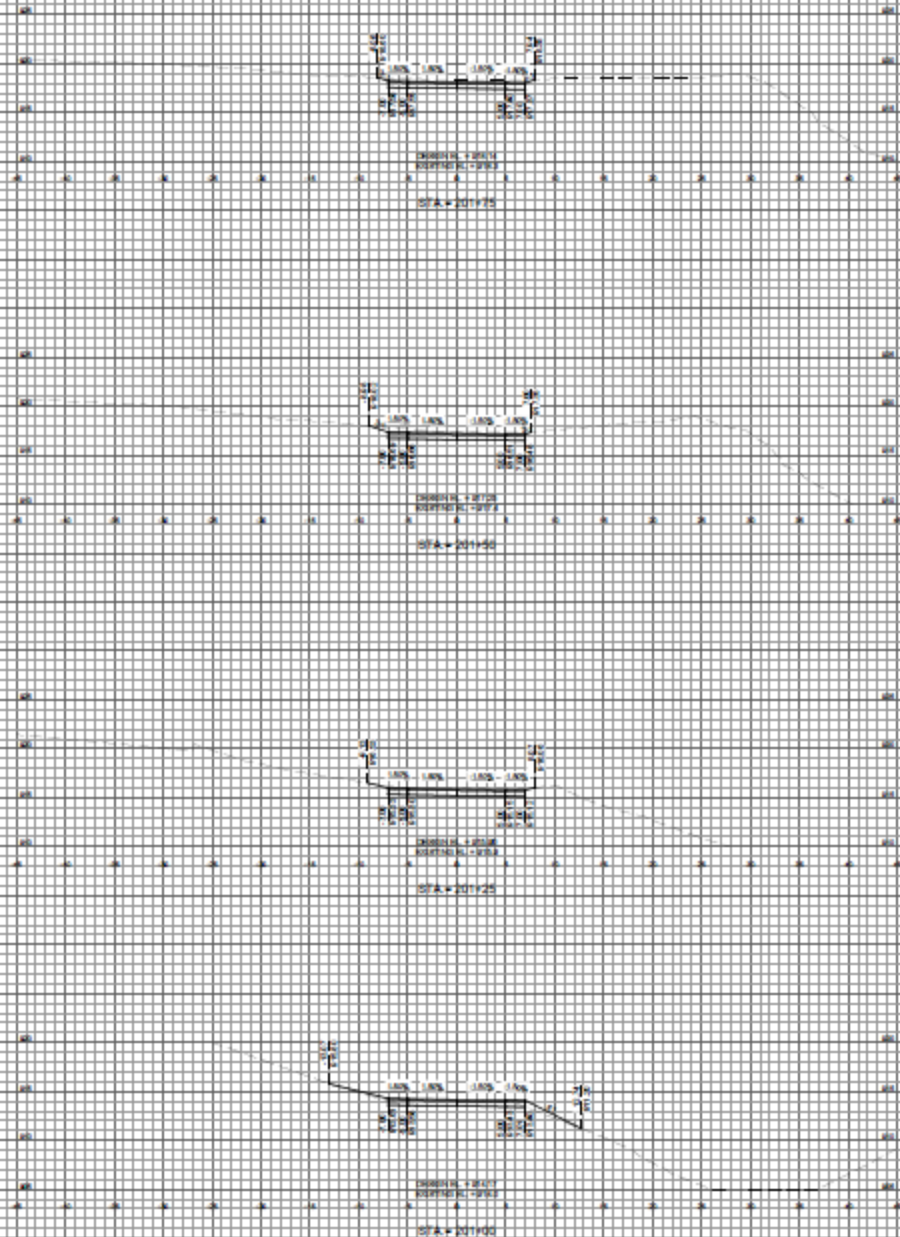


WMA
WISCONSIN
MUNICIPAL
ASSOCIATION

PHEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF ORIGIN
DANIEL COUNTY, WISCONSIN

NORTH FORK TRAIL CROSS SECTIONS

SCALE
1" = 100'



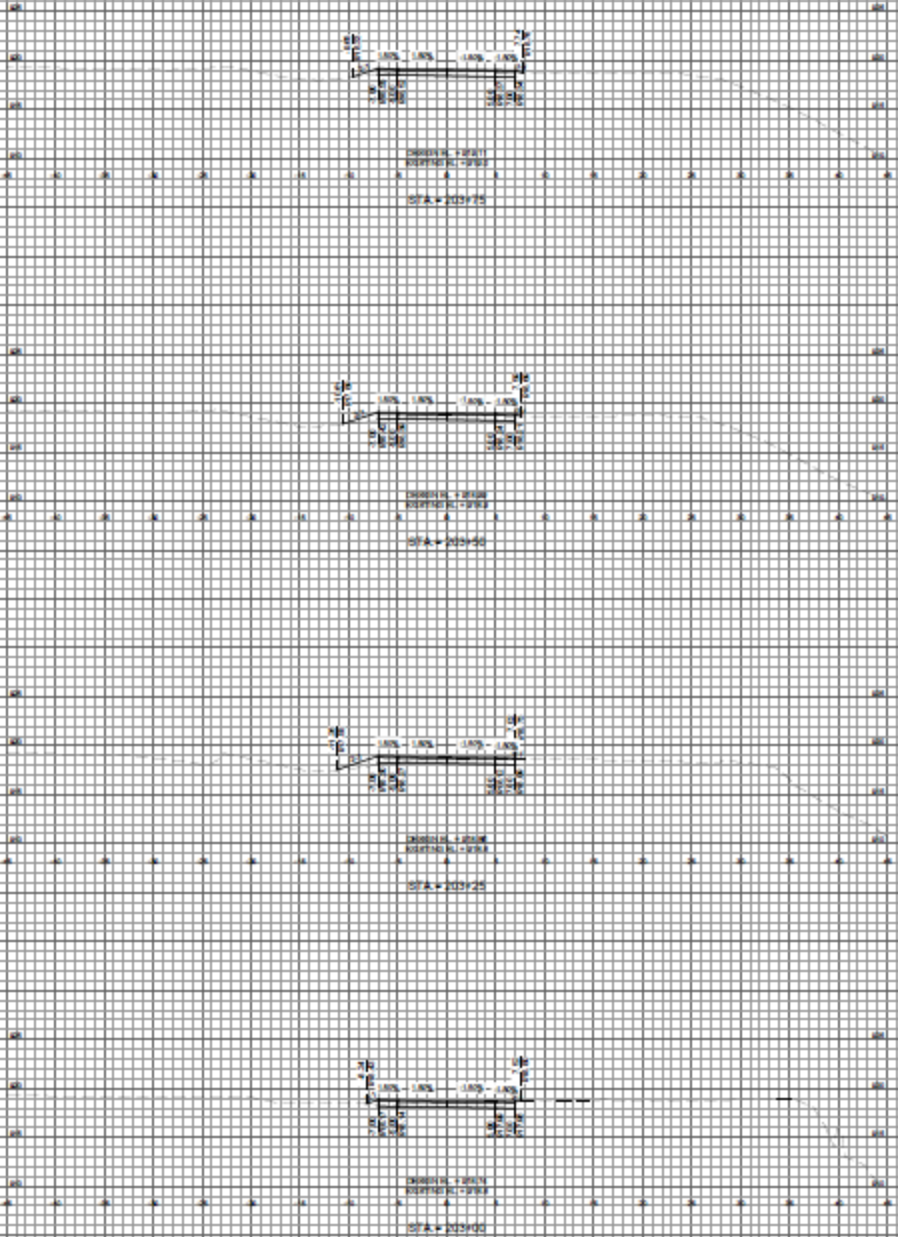
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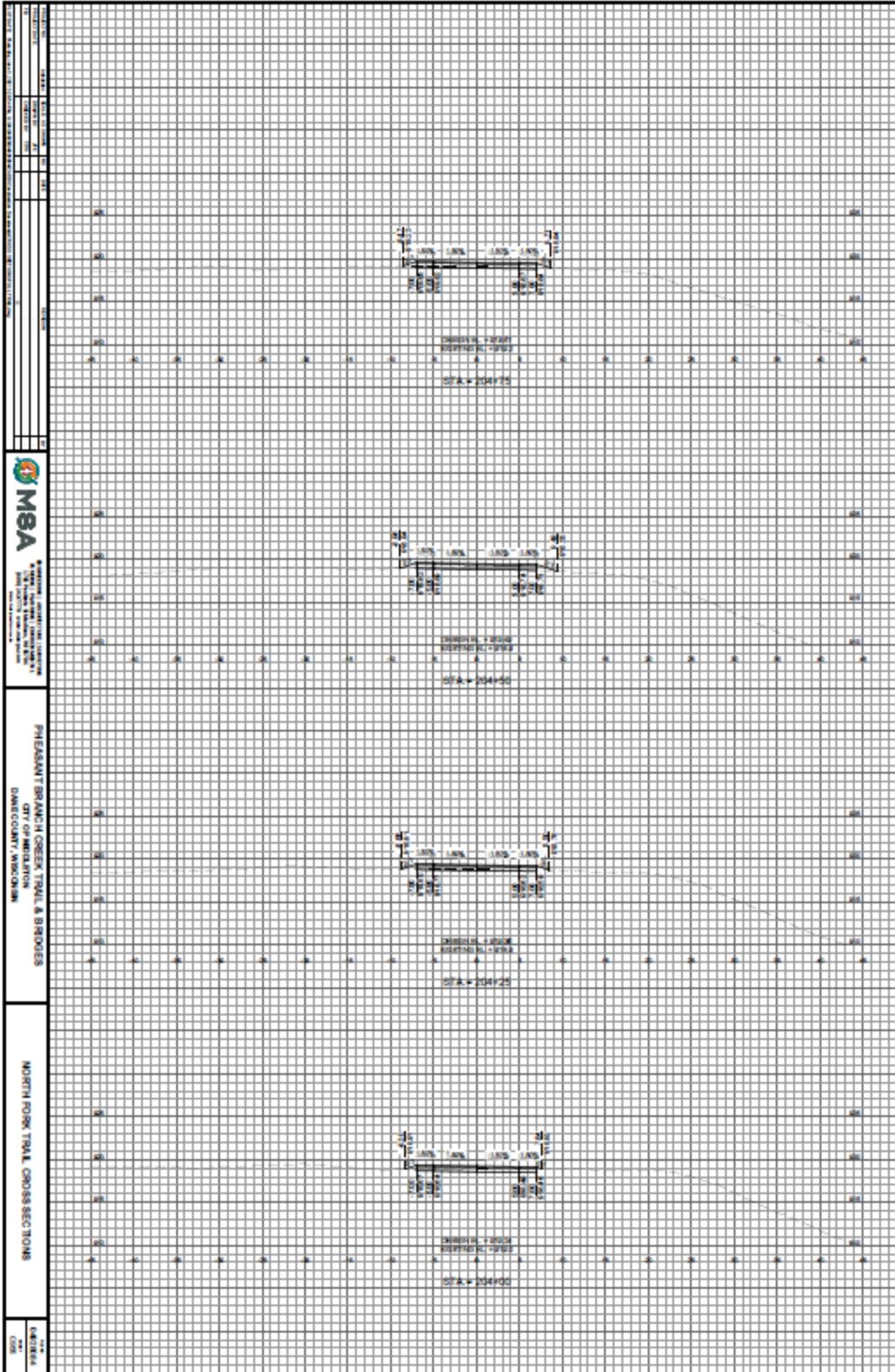
PROJECT NO.	2024-001	DATE	01/15/2024
PROJECT NAME	Pleasant Branch Creek Trail & Bridges		
CLIENT	City of Medford		
DESIGNER	MBA Engineering, Inc.		
SCALE	1" = 20'		
PROJECT LOCATION	Pleasant Branch Creek Trail, Medford, Oregon		
PROJECT DESCRIPTION	North Fork Trail Cross Sections		
DATE	01/15/2024		
BY	[Signature]		
CHECKED	[Signature]		



PLEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MEDFORD
DANIEL COUNTY, OREGON

NORTH FORK TRAIL CROSS SECTIONS





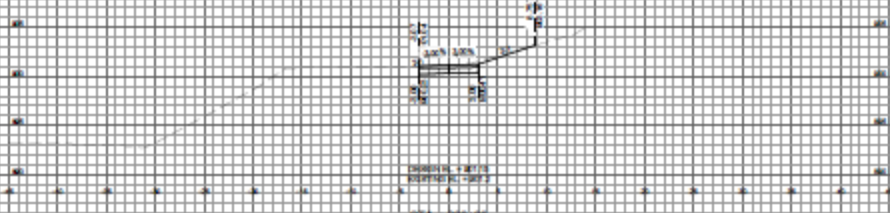
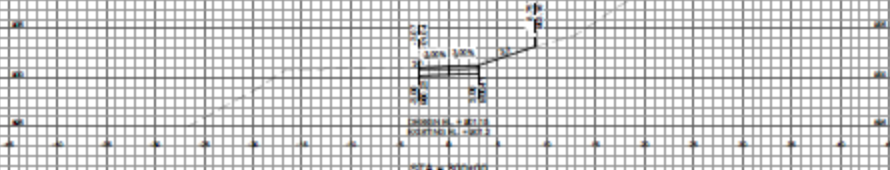
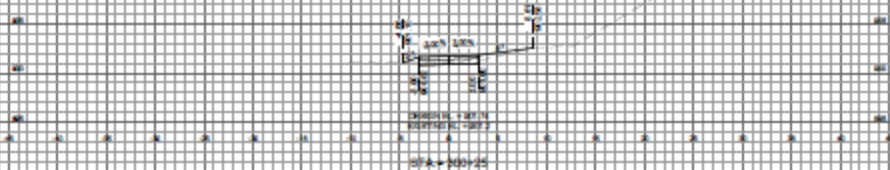
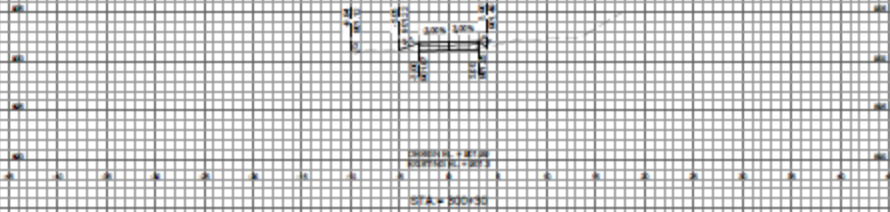
PROJECT NO.	2024-001
SHEET NO.	10
TOTAL SHEETS	12
DATE	10/26/2024
BY	J. Smith
CHECKED BY	M. Jones
APPROVED BY	

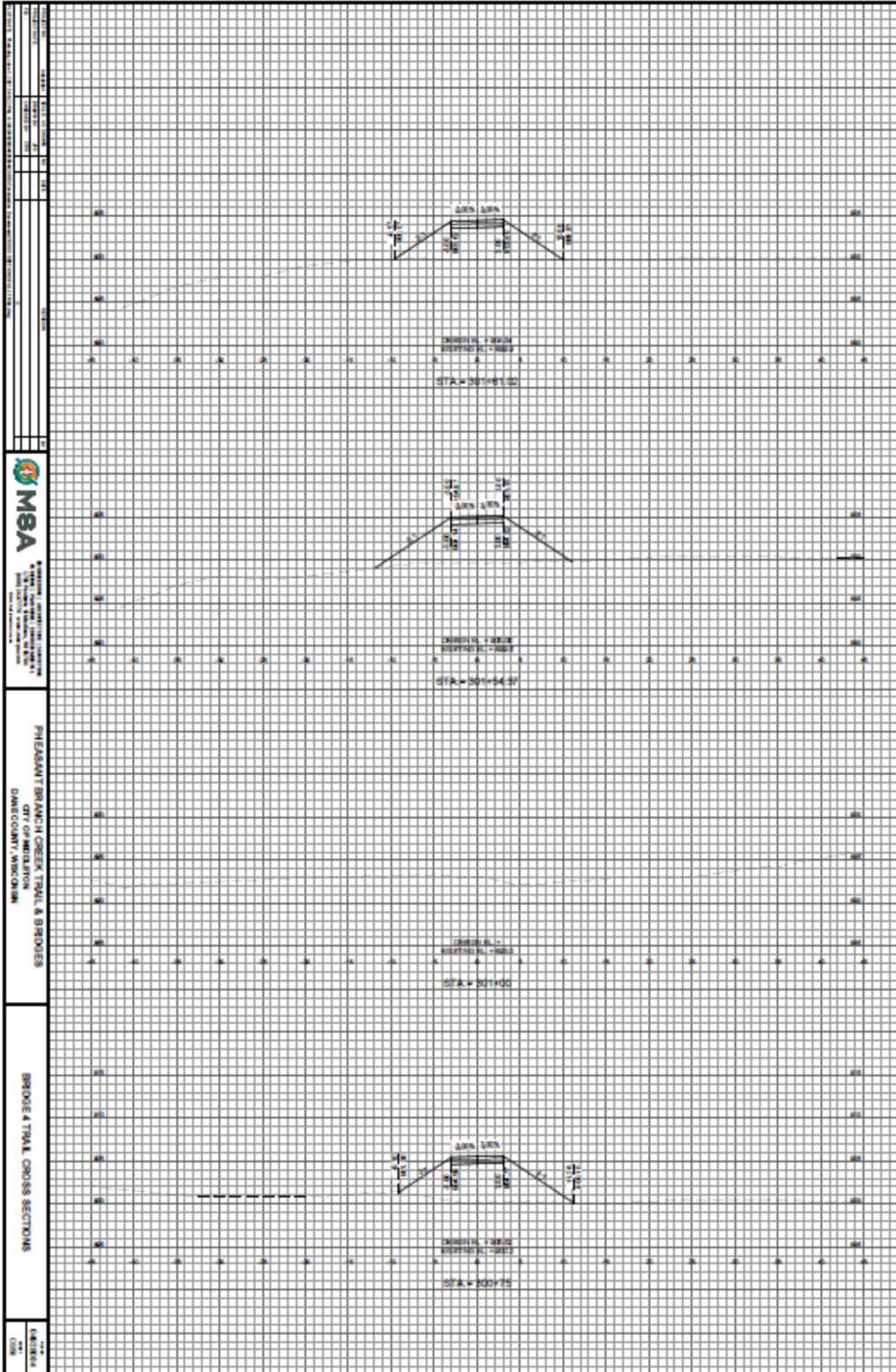


PLEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF PLEASANT
DADE COUNTY, FLORIDA

BRIDGE & TRAIL CROSS SECTIONS

LEGEND
DATE
CROSS





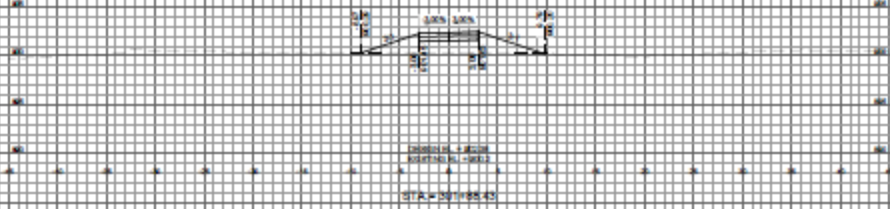
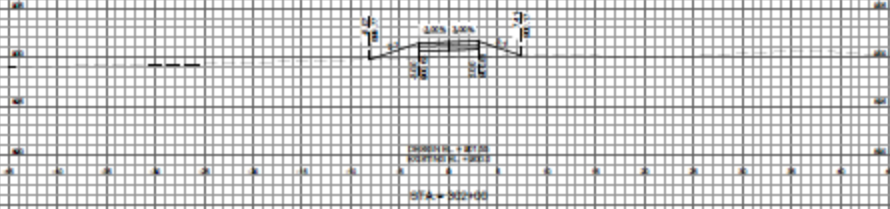
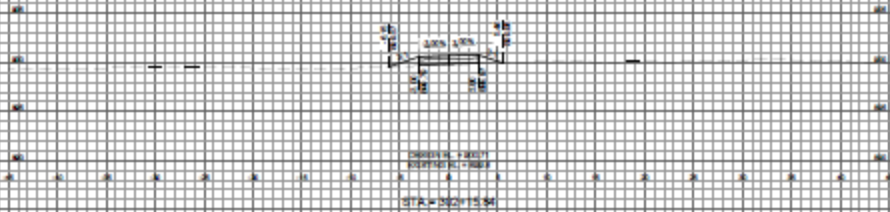
PROJECT NO.	2024-001
DATE	10/20/2024
BY	JL
CHECKED BY	ML
SCALE	1" = 20'
PROJECT LOCATION	BRIDGE # 199A, CROSS SECTIONS

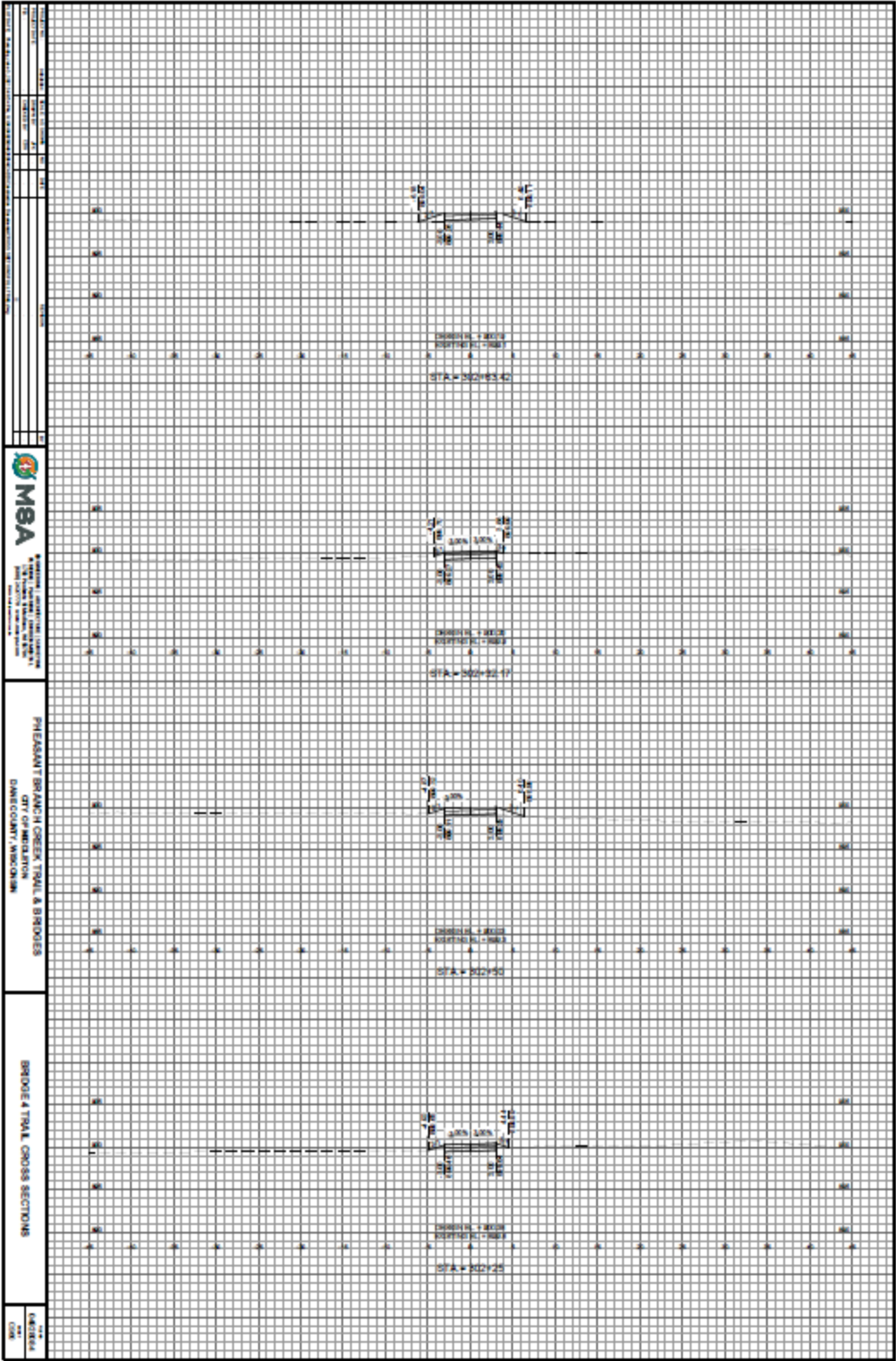


PLEASANT BRANCH CREEK TRAIL & BRIDGES
CITY OF MEDICINE
DANIEL COUNTY, MONTANA

BRIDGE # 199A, CROSS SECTIONS

DATE	10/20/2024
BY	JL





The figure displays four cross-sections of bridge piers, labeled 1 through 4, arranged vertically. Each section shows a central pier structure with various dimensions and elevations.

- Section 1:** Shows a pier with a top width of 10.0m and a base width of 10.0m. The height from the base to the top is 10.0m. The elevation at the top is 100.00m. The elevation at the base is 90.00m. The total length is 100.00m.
- Section 2:** Shows a pier with a top width of 10.0m and a base width of 10.0m. The height from the base to the top is 10.0m. The elevation at the top is 100.00m. The elevation at the base is 90.00m. The total length is 100.00m.
- Section 3:** Shows a pier with a top width of 10.0m and a base width of 10.0m. The height from the base to the top is 10.0m. The elevation at the top is 100.00m. The elevation at the base is 90.00m. The total length is 100.00m.
- Section 4:** Shows a pier with a top width of 10.0m and a base width of 10.0m. The height from the base to the top is 10.0m. The elevation at the top is 100.00m. The elevation at the base is 90.00m. The total length is 100.00m.

Appendix B: Agency Consultation



State of Wisconsin / DEPARTMENT OF NATURAL RESOURCES

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

101 S. Webster St.
Box 7921
Madison, WI 53707-7921

May 27, 2022

Eric Learn
Wisconsin Emergency Management
PO Box 7865
Madison, WI 53707

SUBJECT: Endangered Resources Review (ERR Log # 22-369)

Proposed Pheasant Branch Creek Bridges, Trails and Stream Stabilization, Dane County, WI (T07N R08E S12, T07N R08E S01, T07N R08E S11, T07N R08E S02)

Dear Eric Learn,

The Bureau of Natural Heritage Conservation has reviewed the proposed project described in the Endangered Resources (ER) Review Request received May 6, 2022. The complete ER Review for this proposed project is attached and follow-up actions are summarized below:

Required Actions: 2 species

Recommended Actions: 7 species

No Follow-Up Actions: 8 species

Additional Recommendations Specified: Yes

This ER Review may contain Natural Heritage Inventory data (<http://dnr.wi.gov/topic/NHI>), including specific locations of endangered resources, which are considered sensitive and are not subject to Wisconsin's Open Records Law. Information contained in this ER Review may be shared with individuals who need this information in order to carry out specific roles in the planning, permitting, and implementation of the proposed project. **Specific locations of endangered resources may not be released or reproduced in any publicly disseminated documents.**

The attached ER Review is for informational purposes and only addresses endangered resources issues. **This ER Review does not constitute DNR authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the DNR and/or other permitting authorities.** Please contact the ER Review Program whenever the project plans change, new details become available, or more than a year has passed to confirm if results of this ER Review are still valid.

Please contact me at 608-264-8968 or via email at anna.rossler@wi.gov if you have any questions about this ER Review.

Sincerely,

Anna Rossler

Endangered Resources Review Program

cc:

The information from this report is being shared with individuals who need this information in order to carry out specific roles in the planning, permitting, and implementation of the proposed project.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873



In Reply Refer To:

June 03, 2022

Project code: 2022-0035393

Project Name: DR-4402-WI City of Middleton, Pheasant Branch Creek

Subject: Verification letter for the 'DR-4402-WI City of Middleton, Pheasant Branch Creek' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Karie Roach:

The U.S. Fish and Wildlife Service (Service) received on June 03, 2022 your effects determination for the 'DR-4402-WI City of Middleton, Pheasant Branch Creek' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"^{[\[1\]](#)} prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Eastern Prairie Fringed Orchid *Platanthera leucophaea* Threatened
- Mead's Milkweed *Asclepias meadii* Threatened
- Monarch Butterfly *Danaus plexippus* Candidate
- Prairie Bush-clover *Lespedeza leptostachya* Threatened
- Rusty Patched Bumble Bee *Bombus affinis* Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

DR-4402-WI City of Middleton, Pheasant Branch Creek

2. Description

The following description was provided for the project 'DR-4402-WI City of Middleton, Pheasant Branch Creek':

Severe storms, tornadoes, straight-line winds, flooding, and landslides affected areas of the State of Wisconsin in the late summer and fall of 2018. President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) funding.

The disaster event caused severe damage to infrastructure along the Mainstem of Pheasant Branch Creek Corridor, that portion of the streambank east of the Mainstem Pond at Deming Way and continuing eastward past Park Street to Century Avenue in Middleton, Wisconsin (GPS Start: 43.10301, -89.51901 End: 43.10436, -89.49332); approximately two miles in total. The disaster event also damaged the "North of Century" portion of the streambank within the Pheasant Branch Conservancy (GPS Start: 43.104548, -89.493209 End: 43.108189, -89.491021), approximately 1,500 linear feet in total, beginning at the Century Avenue bridge over Pheasant Branch). The heavy rains, high flooding water levels, and overbank flow of the Pheasant Branch Creek caused slope failure and severe erosion to engineered and non-engineered creekbanks and damaged existing creekbank-stabilization infrastructure. Additionally, several existing maintenance-access trails, adjacent asphalt and gravel recreational trails, stormwater outfall structures, and pedestrian bridges over Pheasant Branch Creek were severely damaged from erosion caused by flooding.

The City is requesting PA funding for restoration of the Pheasant Branch Corridor by making (1) repairs and improvements to recreational trails and pedestrian bridges, (2) stream stabilization, and (3) channel work including stream realignment and associated bank stabilization. All work will be conducted in and adjacent to Pheasant Branch Creek, within the City of Middleton, between the Deming Way bridge and an area approximately 0.4 mi. downstream (north) of the Century Avenue bridge. Worksites and staging areas will be accessed using existing recreational trails and maintenance-access roads within developed rights-of-way.

The scope includes grading and reshaping of stream banks, replacement of rip rap and gabion baskets, installation of root wads, and redirecting portions of the creek to reduce erosion. Additionally, six pedestrian bridges and associated limestone,

gravel, and asphalt recreational trails will be repaired. Each bridge will have the railing repaired and be elevated between 3 and 6 feet above its current location on new concrete abutments. Two of the bridges (43.104287, -89.505070 and 43.103350, -89.495906) will be relocated downstream from original locations 10 linear feet and 14 linear feet respectively.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.10544204999999,-89.49309992279943,14z>



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(0). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")
No
3. Will your activity purposefully **Take** northern long-eared bats?
No
4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?
Automatically answered
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/media/nleb-roost-tree-and-hibernacula-state-specific-data-links-0.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?
No
7. Will the action involve Tree Removal?
Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

0

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

IPaC User Contact Information

Agency: Federal Emergency Management Agency

Name: Karie Roach

Address: 536 S Clark Street, 6th Floor

City: Chicago

State: IL

Zip: 60605

Email: karie.roach@fema.dhs.gov

Phone: 3126188516



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873
<http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html>



In Reply Refer To:

April 25, 2022

Project Code: 2022-0035393

Project Name: DR-4402-WI City of Middleton, Pheasant Branch Creek

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

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Please refer to our [Section 7 website](#) for guidance and technical assistance, including [step-by-step instructions](#) for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain [Life History Information for Listed and Candidate Species](#) on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats

Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

This species hibernates in caves or mines only during the winter. In Minnesota and Wisconsin, the hibernation season is considered to be November 1 to March 31. During the active season (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),

- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

If any of the above activities are proposed, please use the northern long-eared bat determination key in IPaC. This tool streamlines consultation under the 2016 rangewide programmatic biological opinion for the 4(d) rule. The key helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. No further review by us is necessary.

Please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the bat by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of northern long-eared bats after the new listing goes into effect this will first need to be addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

Whooping Crane

Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review [“Establishment of a Nonessential Experimental Population of](#)

[Whooping Cranes in the Eastern United States.”](#)

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of [recommendations that minimize potential impacts to migratory birds](#). Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed [voluntary guidelines for minimizing impacts](#).

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to [guidelines](#) developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's [Wind Energy Guidelines](#). In addition, please refer to the Service's [Eagle Conservation Plan Guidance](#), which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination

While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.

Minnesota

[Minnesota Department of Natural Resources - Endangered Resources Review Homepage](#)

Email: Review.NHIS@state.mn.us

Wisconsin

[Wisconsin Department of Natural Resources - Endangered Resources Review Homepage](#)

Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

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

Official Species List

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

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office

4101 American Blvd E
Bloomington, MN 55425-1665
(952) 252-0092

Project Summary

Project Code: 2022-0035393
Event Code: None
Project Name: DR-4402-WI City of Middleton, Pheasant Branch Creek
Project Type: Stream Preservation
Project Description: Severe storms, tornadoes, straight-line winds, flooding, and landslides affected areas of the State of Wisconsin in the late summer and fall of 2018. President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) funding.

The disaster event caused severe damage to infrastructure along the Mainstem of Pheasant Branch Creek Corridor, that portion of the streambank east of the Mainstem Pond at Deming Way and continuing eastward past Park Street to Century Avenue in Middleton, Wisconsin (GPS Start: 43.10301, -89.51901 End: 43.10436, -89.49332); approximately two miles in total. The disaster event also damaged the "North of Century" portion of the streambank within the Pheasant Branch Conservancy (GPS Start: 43.104548, -89.493209 End: 43.108189, -89.491021), approximately 1,500 linear feet in total, beginning at the Century Avenue bridge over Pheasant Branch). The heavy rains, high flooding water levels, and overbank flow of the Pheasant Branch Creek caused slope failure and severe erosion to engineered and non-engineered creekbanks and damaged existing creekbank-stabilization infrastructure. Additionally, several existing maintenance-access trails, adjacent asphalt and gravel recreational trails, stormwater outfall structures, and pedestrian bridges over Pheasant Branch Creek were severely damaged from erosion caused by flooding.

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elevated between 3 and 6 feet above its current location on new concrete abutments. Two of the bridges (43.104287, -89.505070 and 43.103350, -89.495906) will be relocated downstream from original locations 10 linear feet and 14 linear feet respectively.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.105379549999995,-89.49311066792683,14z>



Counties: Dane County, Wisconsin

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Whooping Crane <i>Grus americana</i> Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non- Essential

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Rusty Patched Bumble Bee <i>Bombus affinis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9383 General project design guidelines: https://ipac.ecosphere.fws.gov/project/YTADKGGGEWNHHP04MRYN6PRJUM/documents/generated/5967.pdf	Endangered

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/601	Threatened
Mead's Milkweed <i>Asclepias meadii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8204	Threatened
Prairie Bush-clover <i>Lespedeza leptostachya</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4458	Threatened

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

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

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

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

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

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

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

NAME	BREEDING SEASON
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Black Tern <i>Chlidonias niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 22 to Jul 20
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Golden-winged Warbler <i>Vermivora chrysoptera</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Henslow's Sparrow <i>Ammodramus henslowii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Le Conte's Sparrow <i>Ammodramus leconteii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 15
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere

NAME	BREEDING SEASON
Long-eared Owl <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds May 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Ruddy Turnstone <i>Arenaria interpres morinella</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (🟡)

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

Survey Effort (l)

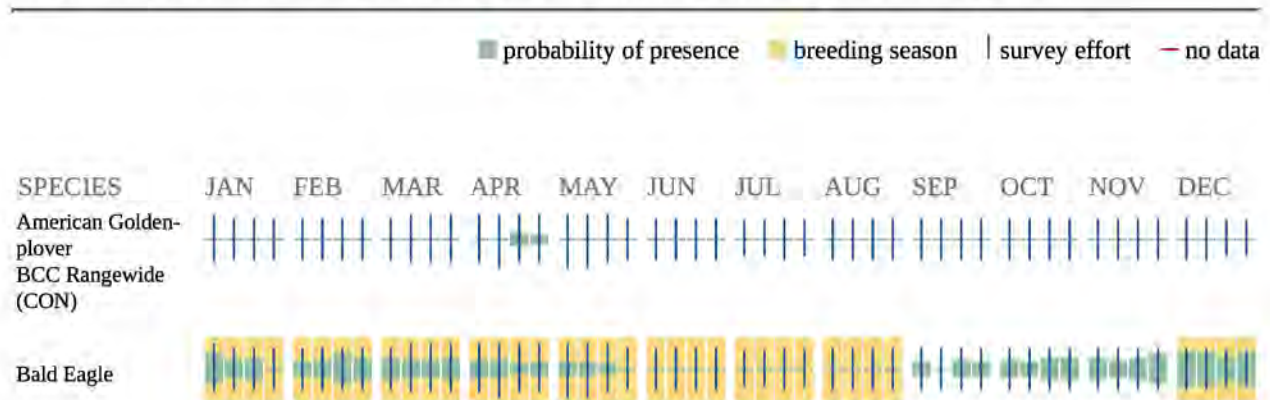
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

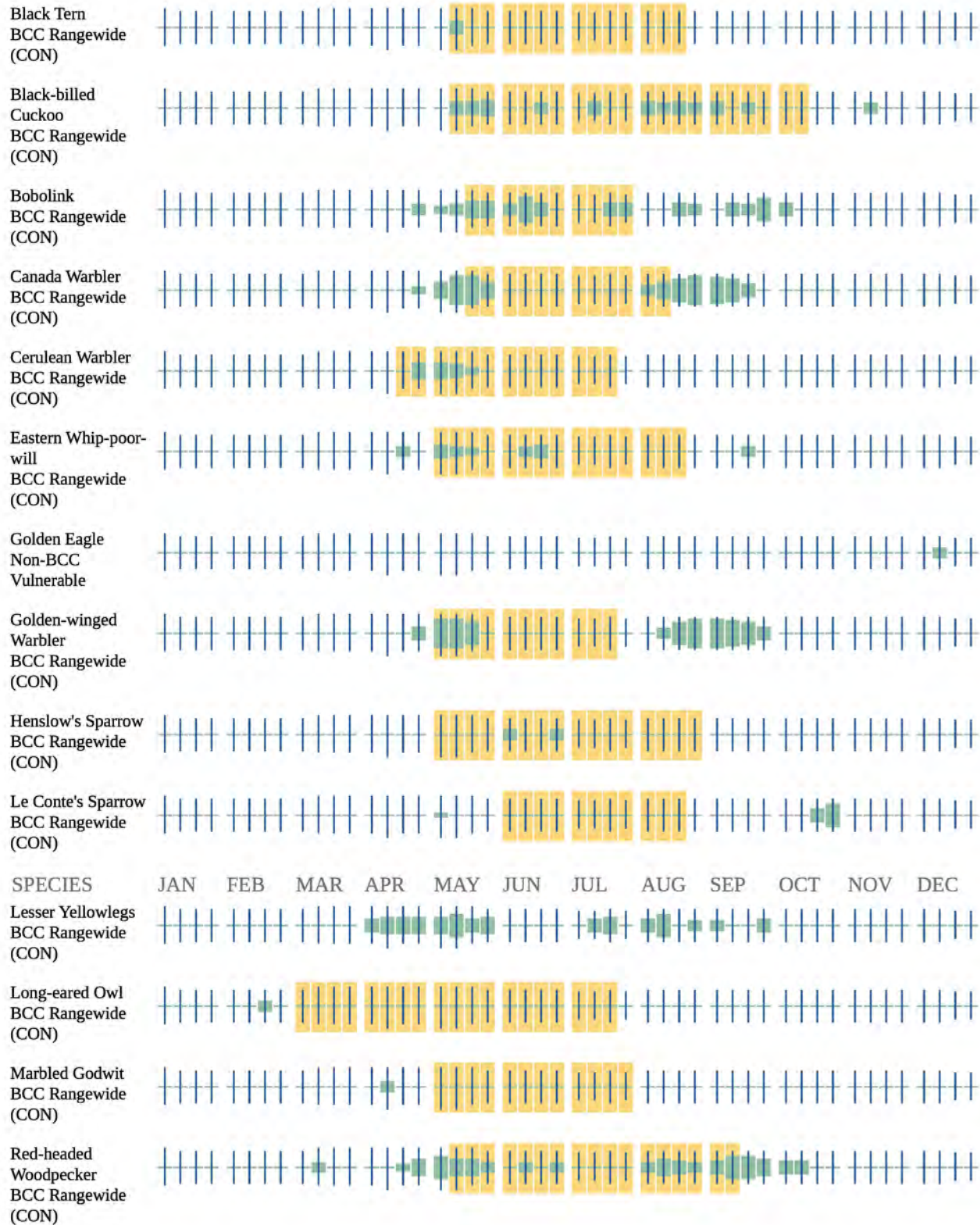
A week is marked as having no data if there were no survey events for that week.

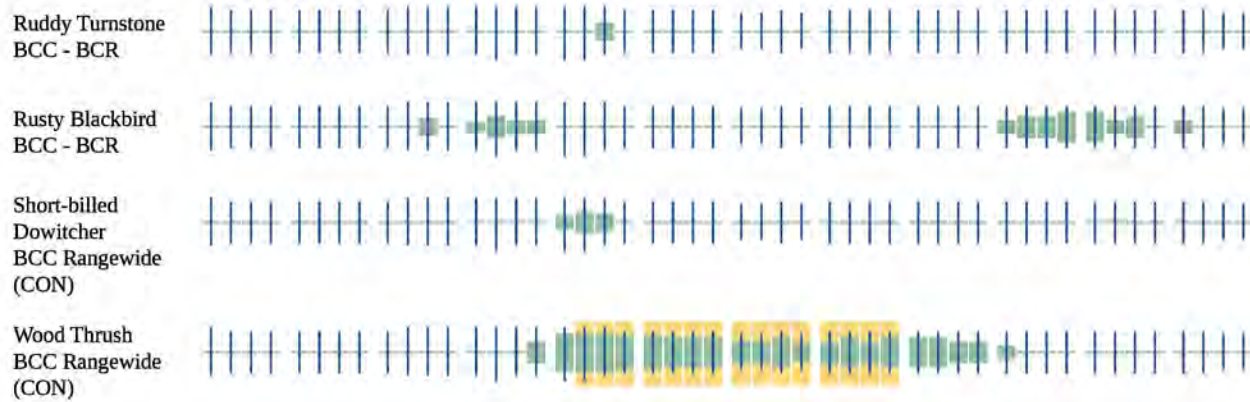
Survey Timeframe

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



Non-BCC
Vulnerable





Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory Birds FAQ

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

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

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

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

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

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

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

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

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

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

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

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides

birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

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

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

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

Wetlands

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

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

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE VISIT [HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML](https://www.fws.gov/wetlands/data/mapper.html) OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

Agency: Federal Emergency Management Agency
Name: Karie Roach
Address: 536 S Clark Street, 6th Floor
City: Chicago
State: IL
Zip: 60605
Email: karie.roach@fema.dhs.gov
Phone: 3126188516

From: [Utrup, Nick J](#)
To: [FEMA-R5-Environmental](#)
Subject: Re: [EXTERNAL] FEMA - Section 7 Informal Consultation - Pheasant Branch Conservancy - All Remaining Sites, Middleton, WI
Date: Thursday, May 20, 2021 10:23:23 AM
Attachments: [image001.png](#)

This email is in response to your request for our concurrence with your determination that the Pheasant Branch Corridor project **may affect, but is not likely to adversely affect the rusty patched bumble bee**.

We concur with your determination that the permitted activities may affect, but are not likely to adversely affect rusty patched bumble bee in the action area indicated in the materials provided by you.

This email response concludes your consultation requirements with our office. Please let me know if you have any further questions.

Thanks,

Nick

Nick Utrup
U.S. Fish and Wildlife Service
4101 American Boulevard East
Bloomington, MN 55425

Mobile: (612) 600-6122 (preferred)

Office: (952) 252-0092 ext. 204

Email: Nick_Utrup@fws.gov

From: FEMA-R5-Environmental <fema-r5-environmental@fema.dhs.gov>
Sent: Thursday, May 20, 2021 9:52 AM
To: Utrup, Nick J <nick_utrup@fws.gov>
Cc: Dapo, Jack <jack.dapo@fema.dhs.gov>
Subject: [EXTERNAL] FEMA - Section 7 Informal Consultation - Pheasant Branch Conservancy - All Remaining Sites, Middleton, WI

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi Nick,

Please find attached consultation documentation for the captioned project. FEMA had previously sent your office an informal consultation for the Pheasant Branch Conservancy South Fork. This informal consultation covers the remaining sites in the RPBB High Potential Zone. Please let me know if any issues opening documents and please don't hesitate to reach out with any questions.

Thanks,

Region V Environmental and Historic Preservation Team

Office: 312.408.5549 | fema-r5-environmental@fema.dhs.gov

536 South Clark Street, 6th Floor, Chicago, IL 60605

Federal Emergency Management Agency

[fema.gov](https://www.fema.gov)





FEMA

May 20, 2021

Nick Utrup
Minnesota/Wisconsin Ecological Services Field Office
U.S Fish and Wildlife Service
4101 American Boulevard East
Bloomington, MN 55425

Re: Pheasant Branch Conservancy, Continued
City of Middleton, Dane County, Wisconsin
DR-4402-WI, Projects 79137, 79139, and 88229
Various Locations

Dear Mr. Utrup:

Pursuant to Section 7 of the Endangered Species Act (ESA), I am writing this letter to initiate and conclude informal consultation between the Federal Emergency Management Agency (FEMA) and your office regarding the captioned project under FEMA's Public Assistance Grant Program.

FEMA recently sent your office an informal consultation for Pheasant Branch Conservancy South Fork. Your office concurred with our determination of "may affect, not likely to adversely affect" the rusty patched bumble bee. FEMA is sending this informal consultation to cover the remaining work in the Conservancy following flooding damage and erosion to the Pheasant Branch Stream Corridor and other surrounding areas. FEMA concludes that the proposed work on the remaining sites is not likely to adversely affect the rusty patched bumble bee with implementation of recommended conservation measures. FEMA is determining "no effect" for the eastern prairie fringed orchid, Mead's milkweed, northern long-eared bat, and prairie bush clover. Additionally, the whooping crane is listed as a nonessential experimental population and is not being considered under Section 7 of the ESA. The official species list is attached, along with documentation supporting FEMA's conclusions. FEMA requests concurrence with this determination and any additional input from your office. Please send your response to Duane Castaldi, FEMA Region V Environmental Officer, 536 S. Clark St., Suite 600, Chicago IL 60605 or fema-r5-environmental@fema.dhs.gov. Any questions can be directed to 312-408-5549.

Sincerely,

Duane Castaldi
Regional Environmental Officer
FEMA Region V

Enclosures



FEMA

***Pheasant Branch Conservancy and Pheasant Branch Corridor, All Remaining Sites
City of Middleton, Dane County, Wisconsin
DR-4402-WI, Projects 79137, 79139, and 88229
Various Locations***

PROJECT DESCRIPTION:

Background:

The Pheasant Branch Conservancy and Pheasant Branch Corridor covers approximately 550 acres of diverse topography on the northern edge of the City of Middleton in Dane County, Wisconsin. The Conservancy contains open-water marsh areas, springs, prairies, meadows, lowland forest, and wooded areas as well as the Pheasant Branch Creek that runs through its center. The Corridor includes the stream with steep banks and meanders before reaching its outlet into Lake Mendota.

Historically, the City of Middleton performed work within the Conservancy and Corridor to reduce erosion and ensure long-term sustainability of the area. They performed streambed relocation and streambank stabilization projects (most recently in 2007, 2008, 2009, 2010, 2012, 2015 and 2018), incorporating a variety of construction methods including sheet pile retaining walls, gabion baskets, toe wood and root wad, and rip-rap toe protection. The City cleared, grubbed, graded and seeded the banks as part of these efforts.

Streambank Repair and Stabilization - Pheasant Branch Conservancy and Corridor:

Severe storms, tornadoes, straight-line winds, flooding, and landslides affected areas of the State of Wisconsin in the late summer and fall of 2018. President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) funding.

The disaster event caused severe damage to infrastructure along the Mainstem of the Pheasant Branch Creek Corridor, that portion of the streambank east of the Mainstem Pond at Deming Way and continuing eastward past Park Street to Century Avenue in Middleton, Wisconsin (GPS Start: 43.10301, -89.51901 End: 43.10436, -89.49332); approximately two miles in total. The disaster event also damaged the "North of Century" portion of the streambank within the Pheasant Branch Conservancy (GPS Start: 43.104548, -89.493209 End: 43.108189, -89.491021), approximately 1,500 linear feet in total, beginning at the Century Avenue bridge over Pheasant Branch).

The flooding event washed away both engineered and non-engineered portions of the streambanks. The City is requesting PA funding for restoration of the Pheasant Branch Corridor by grading and reshaping of stream banks, replacement of rip rap and gabion baskets, installation of root wads, and redirecting portions of the creek to reduce erosion. However, FEMA is only proposing to fund restoration of areas where previously engineered stream stabilization structures washed out as a result of the disaster event.

Work will be performed in a manner to minimize siltation into the stream. Erosion control blankets will be installed prior to initiating repairs and will be maintained until native vegetation is established. All areas will be revegetated with native seed mix. Where bio-engineered toe protection and streambank stabilization is planned, footer logs provided by the contractor will be placed on the stream bed and used as an anchor point. Root wads will be placed on top of footer logs. Root wads will protrude up to four feet into the creek channel and will provide aquatic habitat to fish and other species as well as stabilize the streambank and prevent erosion. Above root wads there will be placement of bio-mat and one foot of fill

and seed mixed with rip rap. Native seed mix will be spread and monitored until native vegetation is established. In other locations, gabion baskets, sheet pile walls, or rip-rap toe protection will be replaced where they washed out at eroded streambanks. This work is expected to commence in 2021.

Park Street:

Damage at Park Street (GPS Start: 43.103024, -89.502220 End: 43.102802, -89.501125) was severe. The floodwaters were constricted by the Park Street culverts and the resulting higher velocity caused washout of the existing gabion baskets and erosion of over 8,000 cubic yards of the streambank, resulting in a new 90-foot-high slope 75 feet north of the former streambank. Trees downed by the slope failure and flooding, were removed directly after the event. At the crest of the slope, leaning trees were removed in a 15-foot-wide and 100-foot-long area; the stumps were not removed. Some of the trees were 3 inches diameter at breast height or greater. Those trees were in threat of falling due to the displaced slope and exposed roots. Because of the proximity to the Park Street culverts, sidewalk, and roadway, and the instability of the sheer slope, the City prioritized repairs at Park Street to address public safety. Work completed to stabilize the slope and streambank included installation of gabion baskets, grading of the slope, removal of downed trees and a section of leaning trees at the crest of the slope, root wad installation, extension of the culvert apron, and re-vegetation of the area. Work at Park Street was completed between July and October 2019.

Recreational Trails and Pedestrian Bridges:

Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as several timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated within nearby parks also experienced erosion damage. City forces repaired the adjacent trail and pedestrian bridges in late April 2019, and also repaired storm sewer inlets. These areas were repaired to pre-disaster condition using previously established trails for access with all work occurring within the previous facility footprint. No impacts to species were anticipated at these locations.

Rusty Patched Bumble Bee (RPBB) High Potential Zone (HPZ):

This consultation covers sites that occur within the RPBB HPZ. This portion of the HPZ covers a large area of the City of Middleton and extends to the surrounding cities. Portions of this HPZ contain

developed areas where the RPBB is not likely to be present such as lawns, open water, cultivated croplands, or unvegetated areas.

Some project areas within the Corridor may include wintering habitat. However, due to previous engineered streambank stabilization and frequent flooding of the Pheasant Branch Creek, it is unlikely these areas would contain undisturbed soils suitable for RPBB wintering.

Project Locations within the RPBB HPZ:

South Fork:

Site 1 South Fork Trail Site 11 (Bridge south of Market St) (43.09109, -89.53173)	<ul style="list-style-type: none"> Project #79139 - reset pedestrian bridge on new abutment and center support adjacent to previous bridge location. Work was completed in July 2020.
Site 2 South Park Fork Trail Site 10 (at Market Street underpass) (43.09257, -89.53106)	<ul style="list-style-type: none"> Project #79139 - resurface asphalt trail under Market Street bridge. Work was completed in July 2020. Rip-rap was replaced on the bridge abutment.

Corridor - Mainstem to Century:

Site 3 Station 0+00 to 6+50 (43.10268, -89.51803)	<ul style="list-style-type: none"> Project #88229 – stone toe projection and slope grading for 91 LF on south bank (Site 5) and 229 LF on north bank (Site 4) east of Deming Way.
Sites 4&5 Station 23+50 to 29+00 (43.10340, -89.51008)	<ul style="list-style-type: none"> Project #88229 – root wad composite installation and slope grading for 160 LF on south bank. Project #79137 DI 253310 – restore rip-rap at the Clark Street stormwater outfall to pre-disaster condition.
Sites 6, 7, & 8 Station 29+00 to 36+50 (43.10264, -89.50896)	<ul style="list-style-type: none"> Project #79139 DI#253354 – replace fill and rip-rap around bridge abutment and replace pedestrian bridge structure including railing, support and deck to pre-disaster condition. Project #79139 DI# 264565 – asphalt trail will be resurfaced to pre-disaster condition for length of 250 LF. Project #88229 – proposed streambank grading for 217 LF intermittently on south bank.

Sites 9 & 10 Station 36+50 to 41+50 (43.10432, -89.50780)	<ul style="list-style-type: none"> • Project #88229 – proposed stone toe protection and slope grading for 366 LF intermittently on east bank. • Project #79139 DI# 264565 – asphalt trail will be resurfaced to pre-disaster condition for length of 189 LF.
Sites 11 & 12 Station 41+50 to 47+50 (43.10476, -89.50767) to (43.10517, -89.50693)	<ul style="list-style-type: none"> • Project #88229 – proposed stone toe protection and slope grading for 50 LF on east bank. • Project #88229 – proposed rootwad composite and slope grading for 209 LF intermittently on west bank.
Site 13 Station 47+50 to 51+50 (43.10446, -89.50564)	<ul style="list-style-type: none"> • Project #88229 – proposed stone toe protection and slope grading for 80 LF on south bank.
Site 14 Station 51+50 to 59+50 (43.10437, -89.50533)	<ul style="list-style-type: none"> • Project #79139 DI #253354 – resurface 15 LF of trail to pre-disaster condition.
Site 15 Station 59+50 to 67+50 (43.10401, -89.50334)	<ul style="list-style-type: none"> • Project #88229 – repair 80 LF of sheet pile damage to pre-disaster condition on north bank.
Site 16 – Park Street 67+50 to 73+00 (43.103024, -89.502220 to (43.102802, -89.501125)	<ul style="list-style-type: none"> • Project #79137 – The floodwaters washed out the existing gabion baskets and eroded over 8,000 cubic yards of the streambank, resulting in a new 90-foot-high slope 75 feet north of the former streambank. Trees downed by the slope failure and flooding, were removed directly after the event. At the crest of the slope, leaning trees were removed in a 15-foot-wide and 100-foot-long area; the stumps were not removed. Some of the trees were 3 inches diameter at breast height or greater. Those trees were in threat of falling due to the displaced slope and exposed roots. Work to stabilize the slope and streambank included installation of gabion baskets, grading of the slope, root wad installation, extension of the culvert apron, and re-vegetation of the area. Work was

	completed between July and October 2019.
Sites 17, 18, & 19 73+00 to 80+00 (43.10190, -89.50077 to 43.10266, -89.49984)	<ul style="list-style-type: none"> • Project #79139 DI #253354 – resurface trail to pre-disaster condition and repair bridge abutment. • Project #79139 DI #264565 – resurface 235 LF of trail to pre-disaster condition. • Project #88229 – proposed toewood and slope grading on east bank for 150 LF.
Sites 20, 21, 22, & 23 80+00 to 86+00 (43.10269, -89.49855)	<ul style="list-style-type: none"> • Project #79139 DI #264565 – resurface trail to pre-disaster condition for 279 LF. • Project #79139 DI#253354 – resurfacing of trail to pre-disaster condition and bridge repair. • Project #79137 DI #253310 – restore rip-rap at the outfall of the storm sewer coming from Nina Court for 123 LF on south bank. • Project #88229 – repair 40 LF gabion wall to pre-disaster condition.
Site 24 86+00 to 92+50 (43.10377, -89.49780)	<ul style="list-style-type: none"> • Project #88229 DI #253597 - proposed rootwad installation and slope grading for 100 LF on west bank and stone toe protection and grading on south bank.
Sites 25 & 26 92+50 to 98+50 (43.10334, -89.49593 to 43.10350, -89.49511)	<ul style="list-style-type: none"> • Project #79139 – trail repair to pre-disaster condition for 250 LF on both sides of bridge (DI #264565 Site 5) and bridge repair (DI #253354 Site 6) • Project #79137 DI 253310 – restore rip-rap at the outfall of the storm sewer on Santa Maria Court for 32 LF on south bank.

North of Century:

Site 27 (W. of Parmenter and N. of Clark St. School) (43.104548, -89.49321 to 43.10819, -89.49102)	<ul style="list-style-type: none"> Project #88229 - replacement of erosion mat, fill, and root wad intermittently on east bank and west bank for approximately 0.40 miles.
Site 28 (43.10826, -89.49010)	<ul style="list-style-type: none"> Project #79139 – Resurface approximately 374 LF of trail to pre-disaster condition.
Site 29 (43.10872, -89.48625 to 43.10915 to -89.48510)	<ul style="list-style-type: none"> Project # 79139 - replace 961 LF of elevated treated wood walking surface boards and edge boards to pre-disaster condition.

South Pond:

Site 30 (43.09473, -89.53109)	<ul style="list-style-type: none"> Project #79137 DI 253310 - replacement of rip-rap surrounding draining outlets on South Pond. Work completed in spring of 2019.
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Tiedeman Pond:

Site 31 (43.08993, -89.50695)	<ul style="list-style-type: none"> Project 79139 DI 253354 – removed concrete steps, walkway and handrail and replaced with a switchback ADA compliant concrete walkway and replaced existing asphalt walkway with a steeply sloping one along with resurfacing 700 LF of granular trail surface. Work began around November 2019 and was completed in August 2020.
Site 32 (43.09125, -89.50216)	<ul style="list-style-type: none"> Project 79139 DI 264562 - replaced damaged boardwalk deck boards to pre-disaster condition. Work is completed.

Lakeview Drive:

Site 33 (43.09464, -89.48773)	<ul style="list-style-type: none"> Project 79137 DI 253310 - replaced scour holes with 7 CY of fill. Work was completed in spring of 2019.
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Baskerville Harbor:

Site 34 (43.10537, -89.48267)	<ul style="list-style-type: none"> Project 79137 DI 253310 - remove and replace 200 LF of steel piling and replace rip-rap shoreline protection in Baskerville Harbor with addition of underwater rip-rap for scour protection at base of bulkhead. Work was completed in the spring of 2020.
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Graber Pond:

Site 35 (43.12049, -89.50520)	<ul style="list-style-type: none"> Project 79139 DI 264563 - pumped water level as emergency action directly following flooding event. Work is completed.
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Donna Pond:

Site 36 (43.10524, -89.50864)	<ul style="list-style-type: none"> Project 79137 DI 253310 - mitigation efforts to prevent future flooding damage to Donna Pond by expanding pond 10 feet east and increasing depth by one foot. Restored 8,500 cy of fill, extended clay liner to top of berm, added concrete to access walkways to maintain ADA accessibility. Work was completed October 2019.
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Airport Road Underpass and Penni Klein Park:

Site 37 (Airport Road Underpass) (43.11126, -89.53614)	<ul style="list-style-type: none"> Project 79139 – replacement of damaged asphalt underpass under Airport Road with a concrete underpass and cheek wall, and heavy rip-rap bank stabilization, with replacement of fence posts.
Site 38 (Penni Klein Park) (43.11237, -89.53926)	<ul style="list-style-type: none"> Project 79139 DI 253354 – replace crushed trail and asphalt surface to pre-disaster condition.

MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT (MANLAA) DETERMINATION:

***Rusty Patched Bumble
Bee (E)***

Species Characteristics:

The sites listed above all overlap the rusty patched bumble bee (RPBB) High Potential Zone (HPZ). Therefore, the RPBB can be assumed present in suitable habitat.

RPBB suitable habitat can be divided into nesting and wintering based on the species life cycle and availability of nectar and pollen resources. The former corresponds to the RPBB active season and the latter to RPBB winter hibernation period. The USFWS assumes that the RPBB is present in nesting habitat between March 16 and October 14 and in wintering habitat from October 15 to March 15 (USFWS 2019).

Nesting habitat can include upland grasslands and shrublands with presence of forage and as far as 30 meters into the edges of adjacent forest and woodland (USFWS, 2019). Typically, bumble bees forage within a few hundred meters of their nest with maximum forage distance of about one kilometer (Knight et al, 2005). FEMA does not anticipate any work to occur within nesting habitat as work will primarily be concentrated to streambanks, recreational trails, or maintained park areas.

Wintering habitat can include upland forest and woodland with undisturbed soil. The federal actions covered by this consultation will take place within upland forest, but areas proposed for repair have been previously bioengineered with the most recent work being completed in 2015 and 2018. The goal of this project is to reduce erosion and ensure long-term sustainability of the Conservancy.

Potential Impacts:

Due to previous engineering and grading of areas, along with frequent flooding, it is likely that soils in the area have already been disturbed. With planting of native vegetation and bioengineering techniques designed to reduce erosion, long-term restoration of the Corridor is expected.

Replacement of shot rock and gabion baskets may result in disturbance of soil supporting and adjacent to structures but work will largely conform to the existing footprint.

The existing trail system will be used for equipment access to and from project areas to reduce ground disturbance. Minor clearing and grubbing of vegetation within wintering habitat and around facilities to be repaired, may affect the RPBB. FEMA will implement a conservation measure to re-vegetate disturbed areas with a native seed mix. This would provide a long-term benefit to the RPBB in the area.

Determination:

FEMA finds that with implementation of conservation measures to re-vegetate disturbed areas, this project may affect but is not likely to adversely affect the rusty patched bumble bee.

NO EFFECT DETERMINATIONS:

***Eastern Prairie Fringed
Orchid (T)***

Support for No Effect Determination

This species occurs in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, and bogs. It requires full sun for optimum growth and flowering along with a grassy habitat with little or no woody encroachment.

Work is expected to occur along the Pheasant Branch Creek Corridor on streambanks and outside of eastern prairie fringed orchid suitable habitat. Furthermore, review of site conditions following the 2018 flooding event show eroded soil and disturbed vegetation, reducing the likelihood that intact plant communities would remain established in the action area; therefore, FEMA determines that actions detailed in this project will have no effect to the eastern prairie fringed orchid.

Mead's Milkweed (T)

Support for No Effect Determination

Mead's milkweed requires a moderately wet (mesic) to moderately dry (dry mesic) upland tallgrass prairie or glad/barren habitat characterized by vegetation adapted for drought and fire, and the plant will persist in stable late-successional prairie (USFWS, 2005). As of 2003, the species had been extirpated from Wisconsin, with restoration and reintroduction efforts being underway (USFWS, 2003).

Work is expected to occur within Pheasant Branch Creek corridor on streambanks and outside of Mead's milkweed suitable habitat. Furthermore, review of site conditions following the 2018 flooding event show eroded soil and disturbed vegetation, reducing the likelihood that intact plant communities would remain established in the action area;

therefore, FEMA determines that actions detailed in this project will have no effect to the Mead's milkweed.

***Northern Long-Eared Bat
(T)***

Species Characteristics:

The northern long-eared bat (NLEB) roosts during summer months underneath bark, cavities, or in crevices of both live and dead trees. Suitable summer habitat for this species may be defined as patches of forest of half an acre in size or greater with potential roost trees that are 3-inches in diameter at breast height (dbh) or greater and containing cavities, loose bark, hollows, or split limbs; or single and small patches of trees of those same characteristics and within 1,000 feet of forested areas. Outside of summer months, this species hibernates in caves and mines or other suitable types of hibernacula.

Potential Impacts:

Minor clearing and grubbing of shrubs, grasses, and plants is expected. As part of the project at Park Street, a 15-foot-wide and 100-foot-long area of trees of which some are 3 inches dbh or greater were removed as they were at the crest of an unstable slope. The center of this area is approximately (GPS:43.103145, -89.501382). Work was completed between July and October 2019.

Determination:

FEMA understands that fallen or leaning trees are not considered suitable habitat; therefore, FEMA determines that this project will have no effect to the northern long-eared bat.

Prairie Bush Clover (E)

Support for No Effect Determination:

In Wisconsin, the prairie bush clover can be found in gravelly or sandy hillside prairies and has a significant association with Dry Prairie and Dry-mesic Prairie natural communities, and a moderate association with Mesic Prairie natural communities (WINDR, 2020). The blooming phenology is from late July through late August with fruiting phenology beginning early August and lasting through early September.

Work is expected to occur within Pheasant Branch Creek corridor on streambanks and outside of prairie bush clover suitable habitat. Furthermore, review of site conditions following the 2018 flooding event show eroded soil and vegetation reducing the likelihood that intact plant communities would remain established in the action area; therefore, FEMA determines that actions detailed in this project will have no effect to the prairie bush clover.

***Whooping Crane
(Experimental)***

For the purposes of the Endangered Species Act Section 7, if any nonessential experimental population (NEP) designated cranes are

located outside of a National Wildlife Refuge or National Park, they are treated as a species proposed for listing, and the agency is not required to consult with the USFWS.

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- Wisconsin Department of Natural Resources (WDNR). 2020. Prairie Bush Clover (*Lespedeza leptostachya*). Retrieved December 09, 2020, from <https://dnr.wi.gov/topic/EndangeredResources/Plants.asp?mode=detail&SpecCode=PDFAB27090>

Figure 2: Sites marked in blue. RPBB HPZ polygon displayed in red. HPZ shapefile downloaded from <https://www.fws.gov/midwest/endangered/insects/rpbb/rpbbmap.html>. Shapefile updated March 17, 2021. Uploaded in Esri ArcGIS Pro.

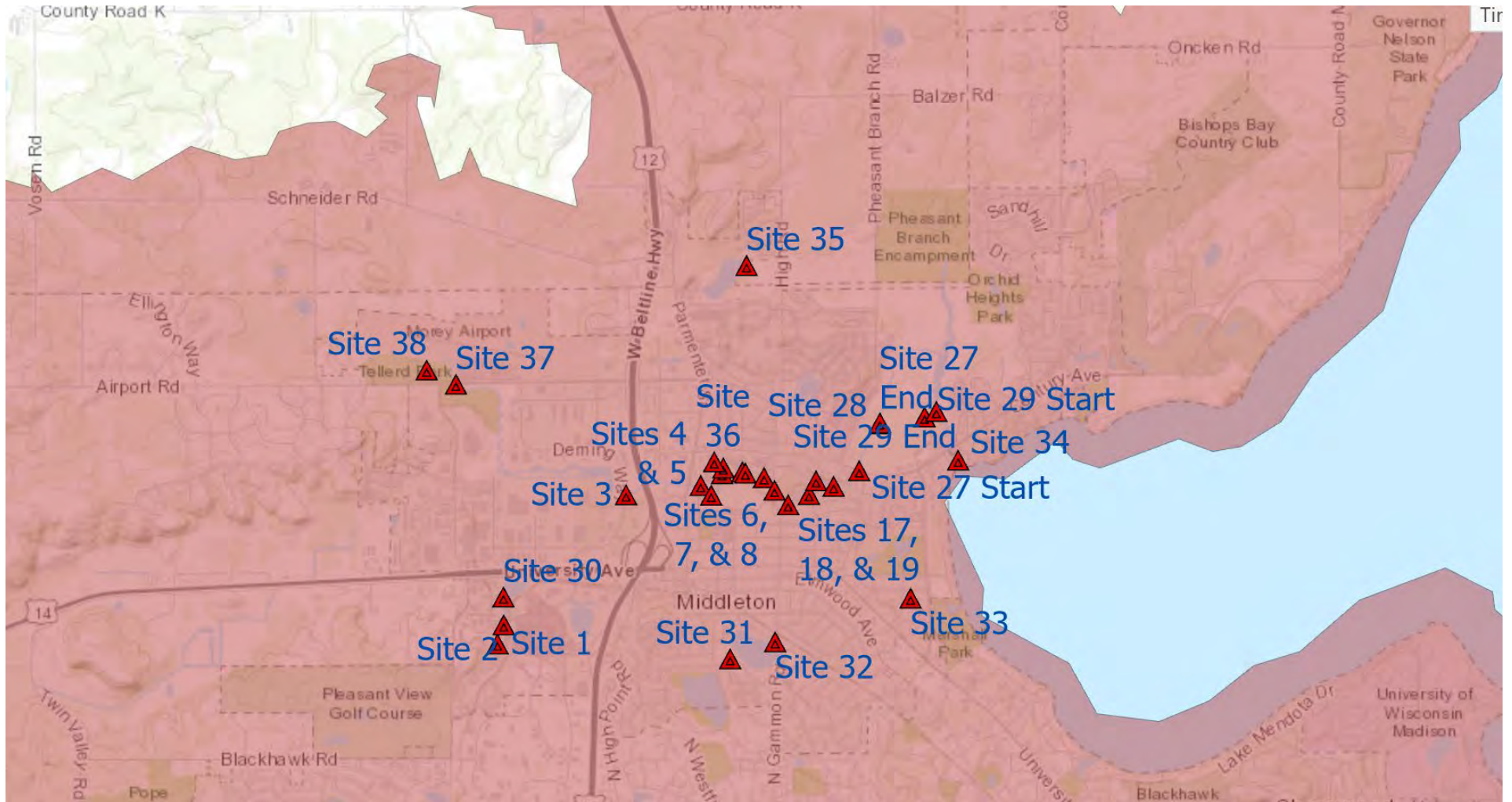


Figure 3: South Fork (Sites 1 & 2). USGS Maps “Middleton” and “Middleton West,” 1:24,000. Enlarged for detail.



Figure 4: Site 1, (43.09109, -89.53173), action area marked in red. Reset pedestrian bridge on new abutment with stone toe protection. Work completed in summer 2020. Google Earth Aerial, 2018 (directly after flooding event) and 2020 (after repairs completed).

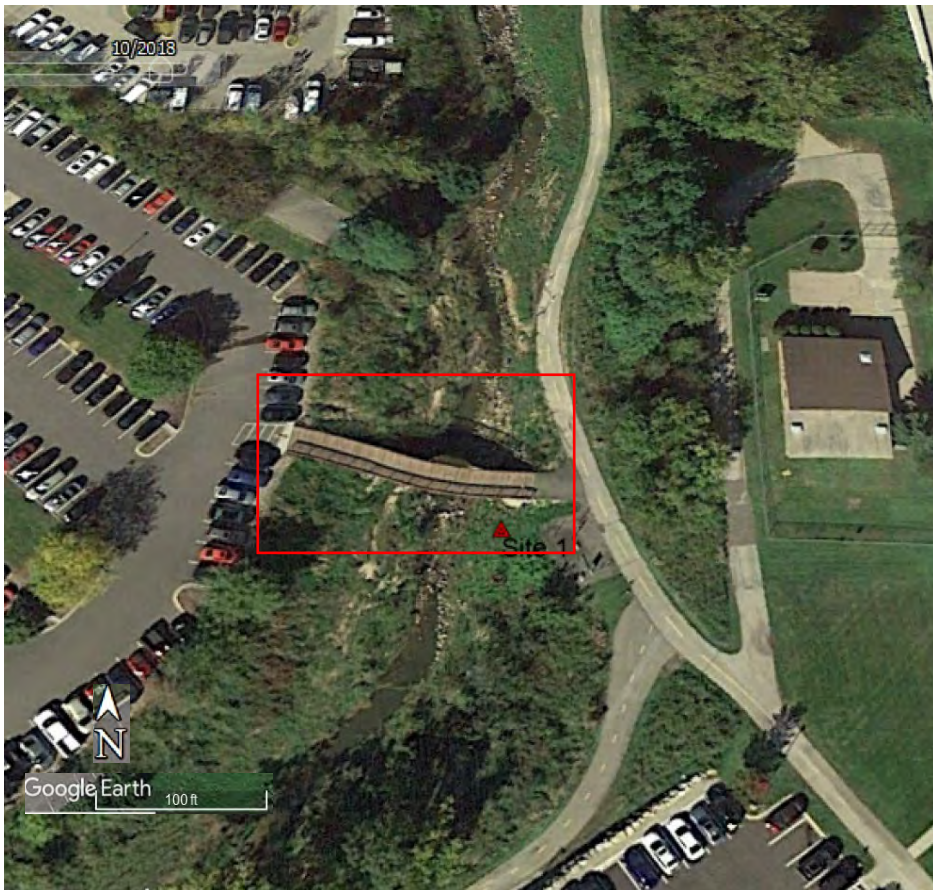


Figure 5: Site 2, (43.09257, -89.53106), action area marked in red. Rip-rap replaced under Market Street bridge. Section of asphalt recreation trail was resurfaced. Work completed in summer 2020. Google Earth Aerial, 2018 (directly after flooding event) and 2020 (after repairs completed).



Figure 6: Main Stem. USGS Maps "Middleton" and "Middleton West," 1:24,000. Enlarged for detail.



Figure 7: Site 3, Station 0+00 to 6+50 (43.10268, -89.51803), action area marked in red. Stone toe protection and slope grading on north and south banks. Google Earth Aerial, 2020 data.



Figure 3: Sites 4&5, Station 23+50 to 29+00 (43.10340, -89.51008) and Sites 6, 7, and 8, Station 29+00 to 36+50 (43.10264, -89.50896), action area marked in red. Stone toe protection and slope grading on south banks. Replacement of pedestrian bridge and asphalt trail. Google Earth Aerial, 2018 data (directly after flooding event).



Figure 9: Sites 9&10, 36+50 to 41+50 (43.10432, -89.50780), Sites 11&12, 41+50 to 47+50 (43.10476, -89.50767) to (43.10517, -89.50693). Action area marked in red. Stone toe protection and slope grading on east bank and proposed root wad composite on west bank. Replacement of asphalt pedestrian trail. Google Earth Aerial, 2020 data.



Figure 10: Site 13, 47+50 to 51+50 (43.10446, -89.50564), Site 14, 51+50 to 59+50 (43.10437, -89.50533), and Site 15 59+50 to 67+50 (43.10401, -89.50334). Action area marked in red. Stone toe protection and slope grading on south bank, replacement of sheet pile on north bank, and replacement of asphalt pedestrian trail. Google Earth Aerial, 2018 data.



Figure 11: Site 16, 67+50 to 73+00 (43.103024, -89.502220 to (43.102802, -89.501125). Action area marked in red. Proposed streambank grading. Google Earth Aerial, 2018 data.

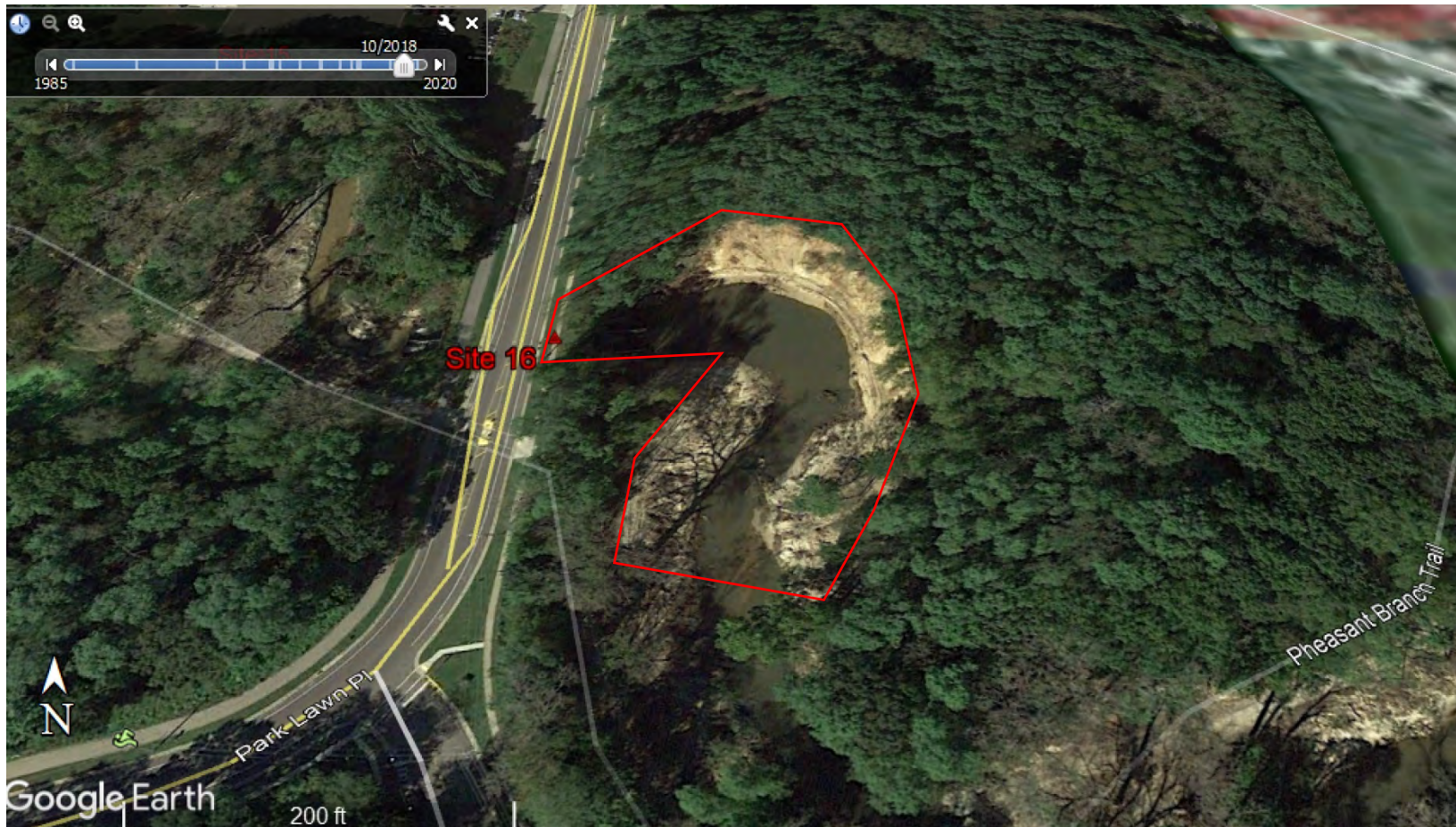


Figure 12: Site 17, 18, & 19, 73+00 to 80+00 (43.10190, -89.50077 to 43.10266, -89.49984). Action area marked in red. Stone toe protection and slope grading on south bank, replacement of sheet pile on north bank, and replacement of asphalt pedestrian trail. Google Earth Aerial, 2014 data.



Figure 13: Site 20, 21, 22, & 23, 80+00 to 86+00 (43.10269, -89.49855) and Site 24 86+00 to 92+50 (43.10377, -89.49780). Action area marked in red. Stone toe protection and slope grading on south bank, replacement of sheet pile on north bank, proposed root wad installation on the west bank, and replacement of asphalt pedestrian trail. Google Earth Aerial, 2018 data.



Figure 14: Sites 25 & 26, 92+50 to 98+50 (43.10334, -89.49593 to 43.10350, -89.49511). Action area marked in red. Replacement of trail to pre-disaster condition and replacement of rip-rap at storm sewer outfall. Google Earth Aerial, 2014 data.

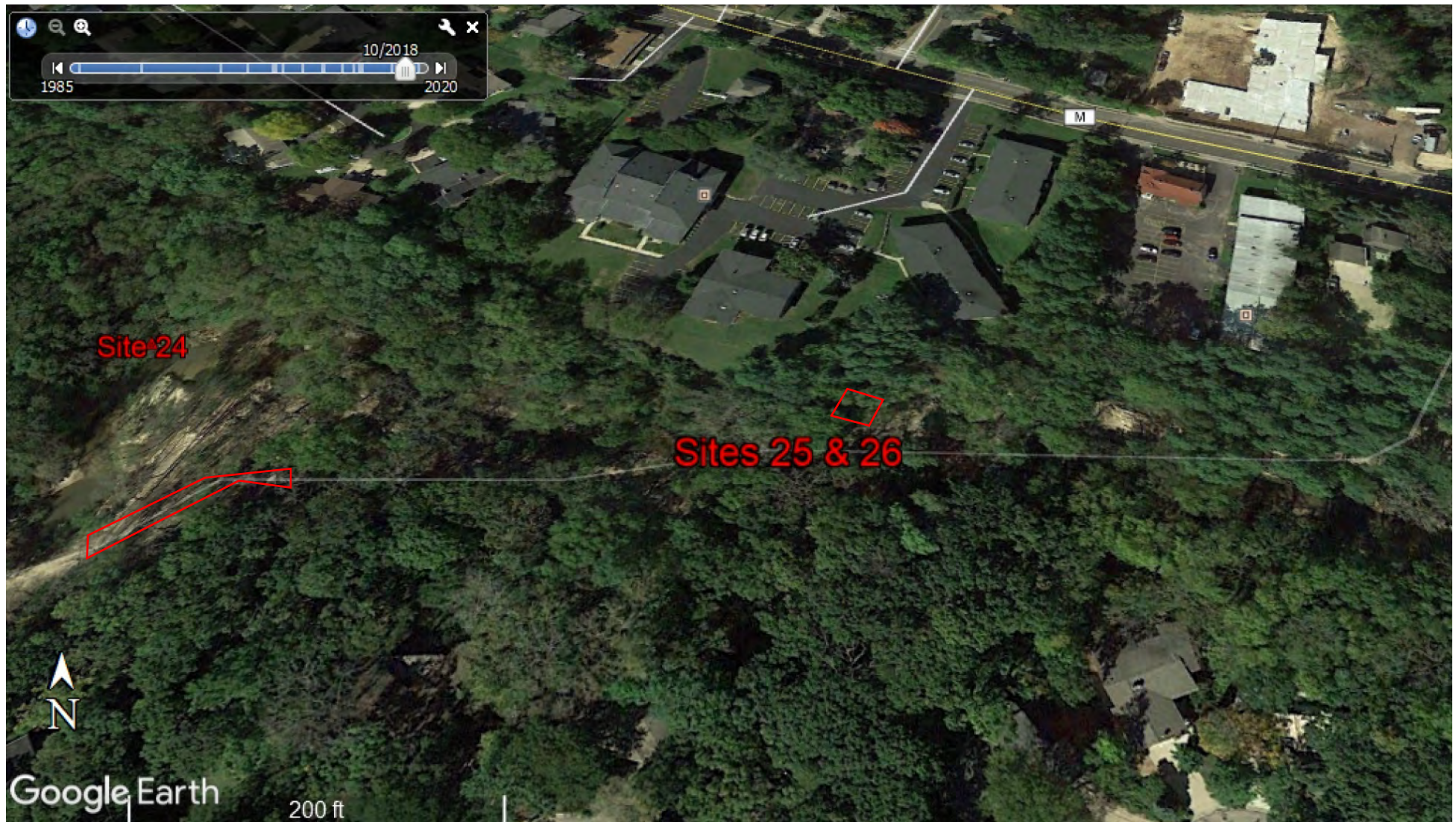


Figure 15: North of Century (Sites 27, 28, and 29). USGS Maps “Middleton” and “Middleton West,” 1:24,000. Enlarged for detail.



Figure 16: Sites 27 and 28 (43.104548, -89.49321 to 43.10819, -89.49102). Action area marked in red. Replacement of erosion mat, fill, and root wad intermittently on east and west bank. Replacement of trail surface and pedestrian bridge. Google Earth Aerial, 2018 data.

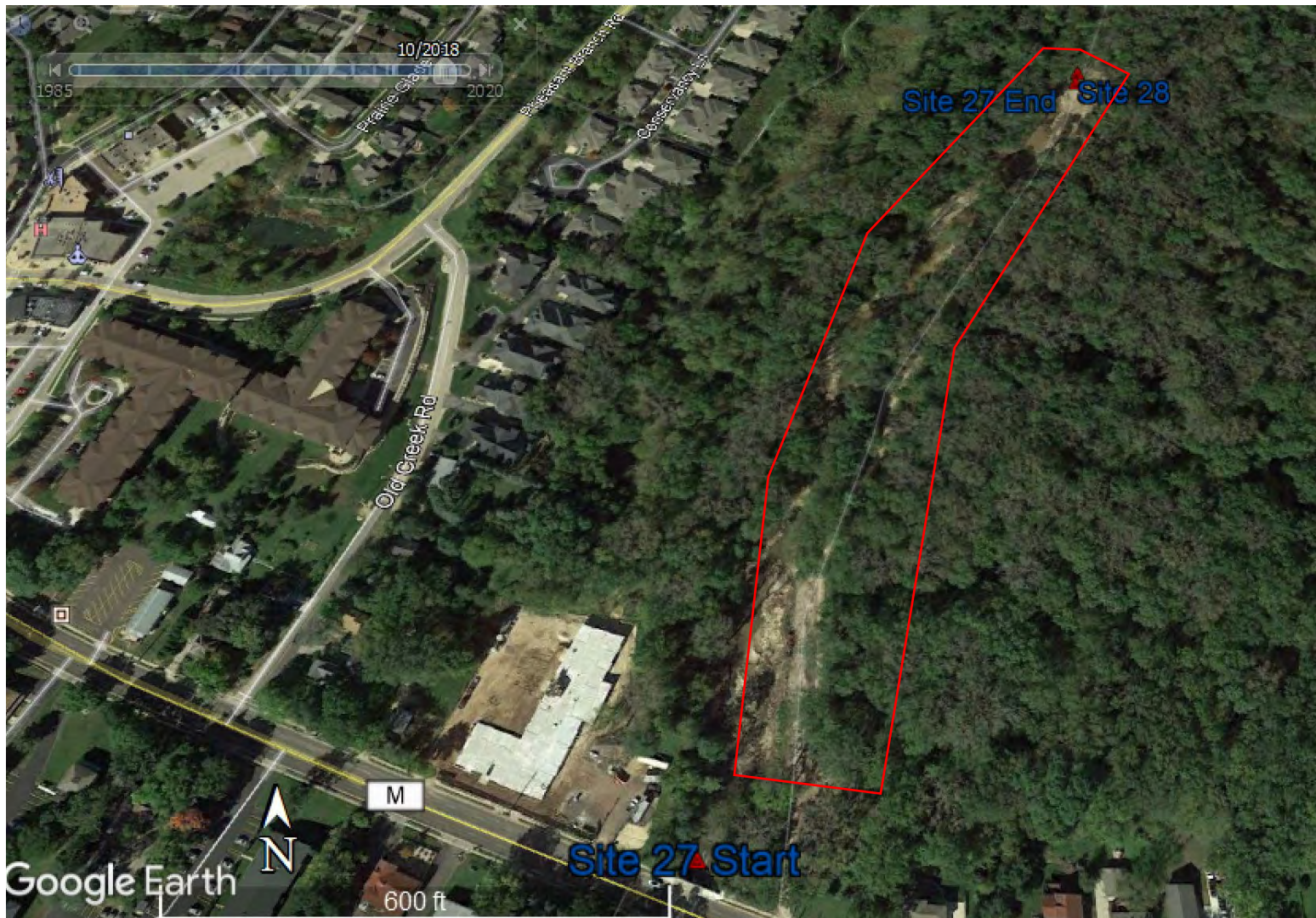


Figure 17: Site 29 (43.10872, -89.48625 to 43.10915, -89.48410). Action area marked in red. Replacement of erosion mat, fill, and root wad intermittently on east and west bank. Replacement of trail surface and pedestrian bridge. Google Earth Aerial, 2020 data.



Figure 18: Site 30 (43.09473, -89.53109). Action area marked in red. Replacement of rip-rap surrounding drainage outlet on South Pond.
Google Earth Aerial, 2020 data.



Figure 19: Sites 31 and 32 (43.08993, -89.50695). Action area marked in red. Replacement of concrete steps and handrails and boardwalk near Tiedeman Pond. Google Earth Aerial, 2020 data.

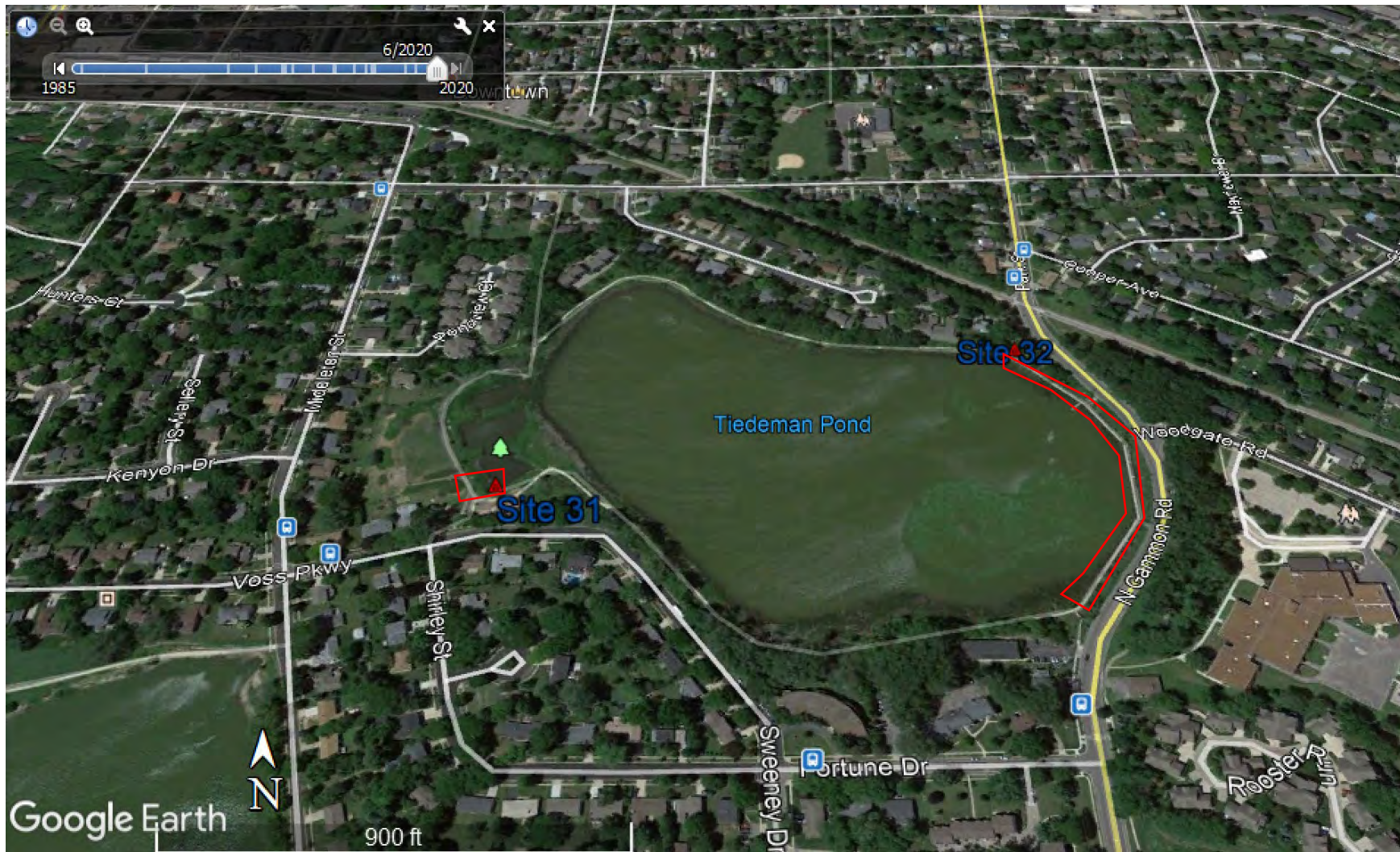


Figure 20: Site 33 (43.09464, -89.48773). Action area marked in red. Replacement of fill in scour holes near Lakeview Drive. Work was completed in spring of 2019. Google Earth Aerial, 2020 data.

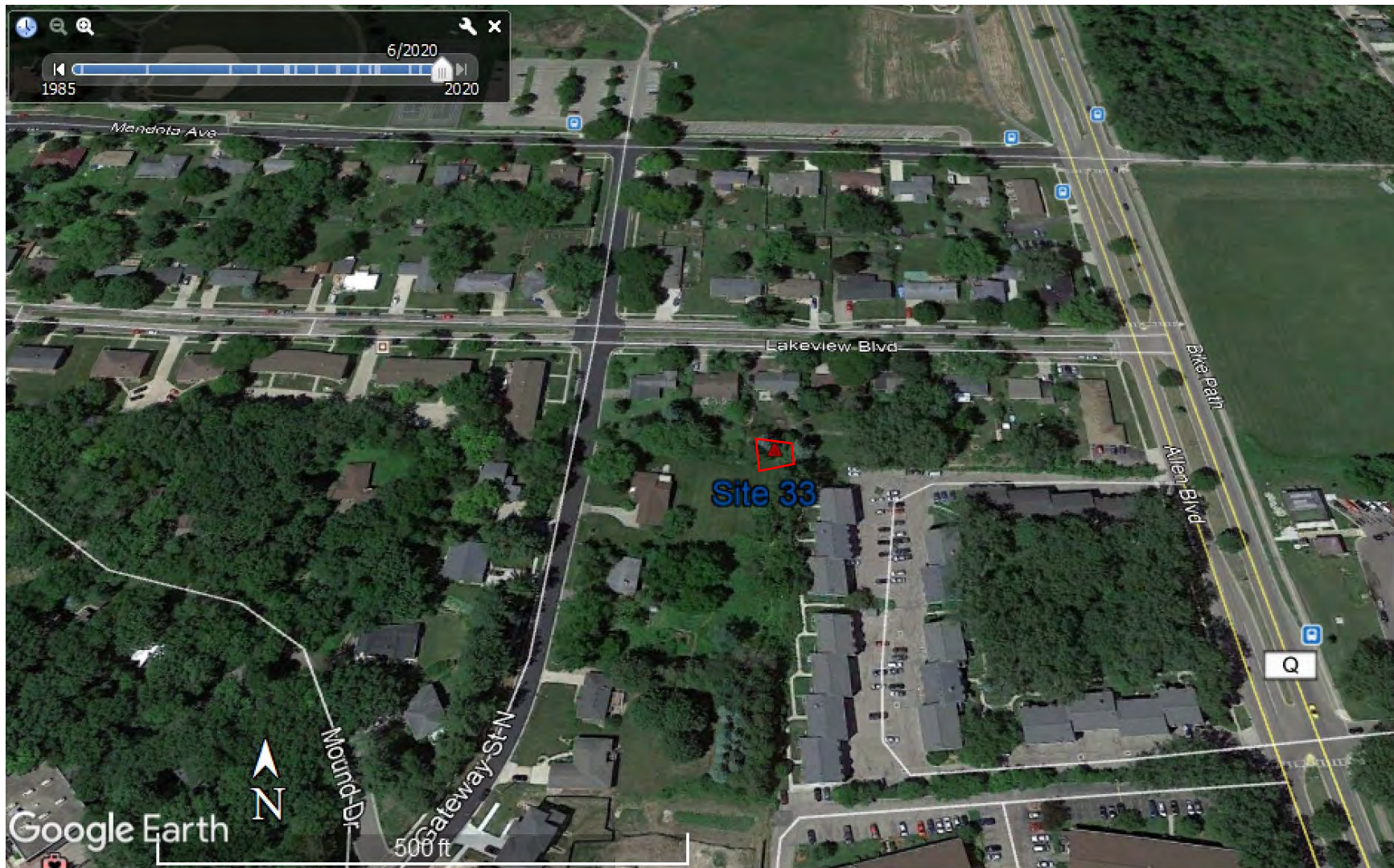


Figure 21: Site 34 (43.10537, -89.48267). Action area marked in red. Remove and replace 200 LF of steel piling in Baskerville Harbor along with addition of rip-rap shoreline protection. Work was completed in the spring of 2020. Google Earth Aerial, 2020 data.

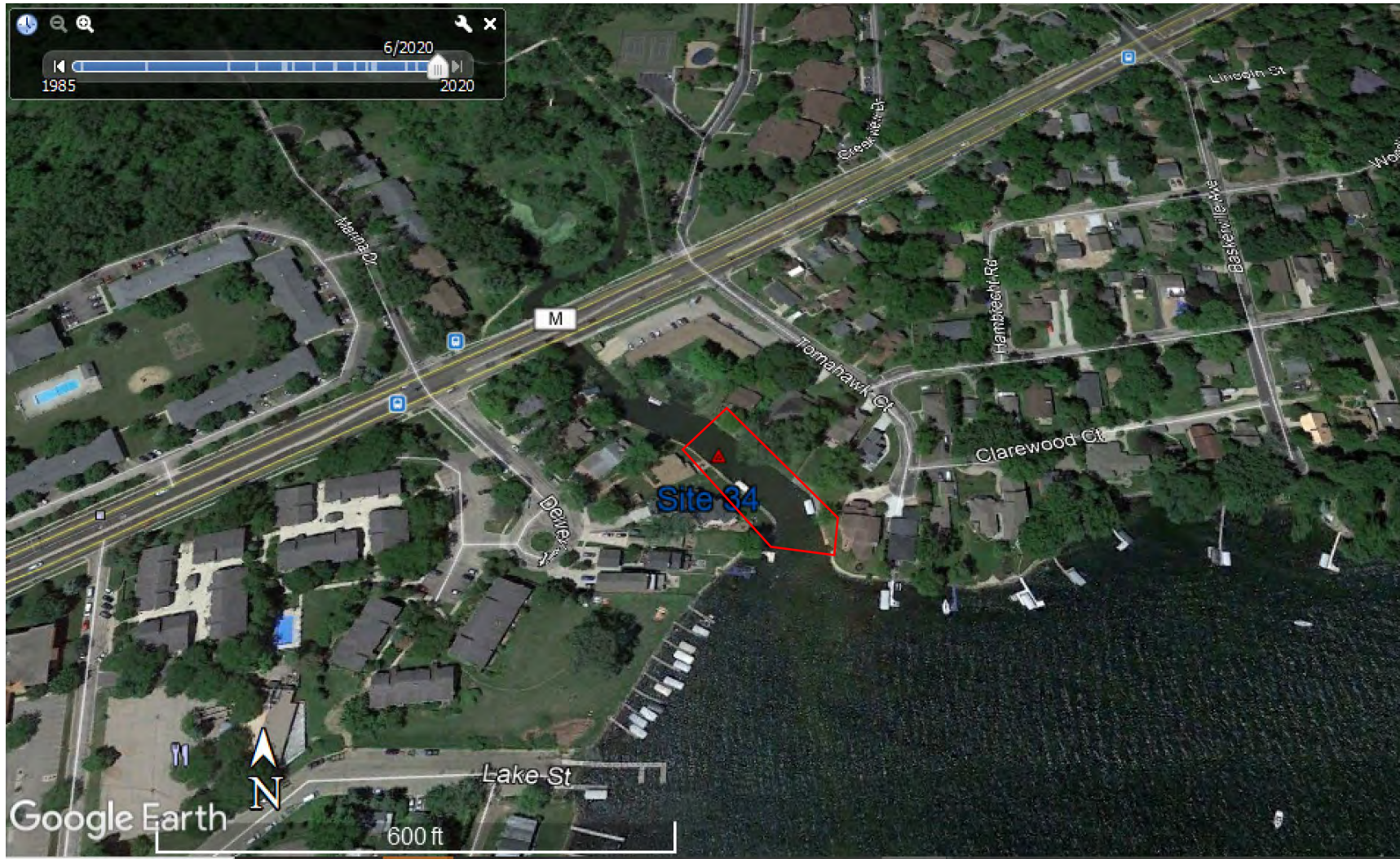


Figure 22: Site 35 (43.12049, -89.5052). Action area marked in red. Pump water level as emergency action directly following flooding event. Work is completed. Google Earth Aerial, 2020 data.

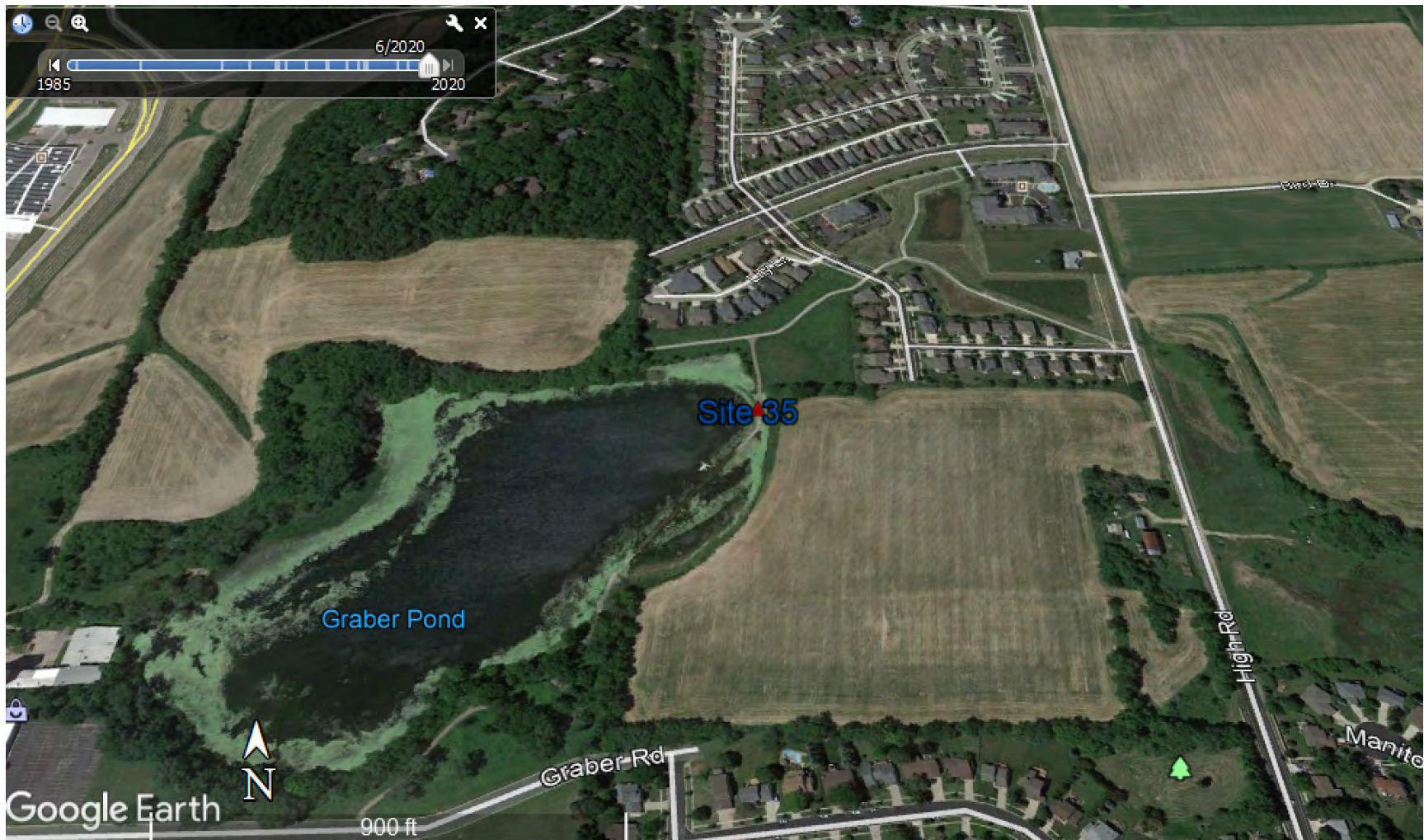


Figure 23: Site 36 (43.10524, -89.50864). Action area marked in red. Mitigation efforts to prevent future flooding damage to Donna Pond by expanding pond 10 feet east and increasing depth by one foot. Work was completed October 2019. Google Earth Aerial, 2018 data.

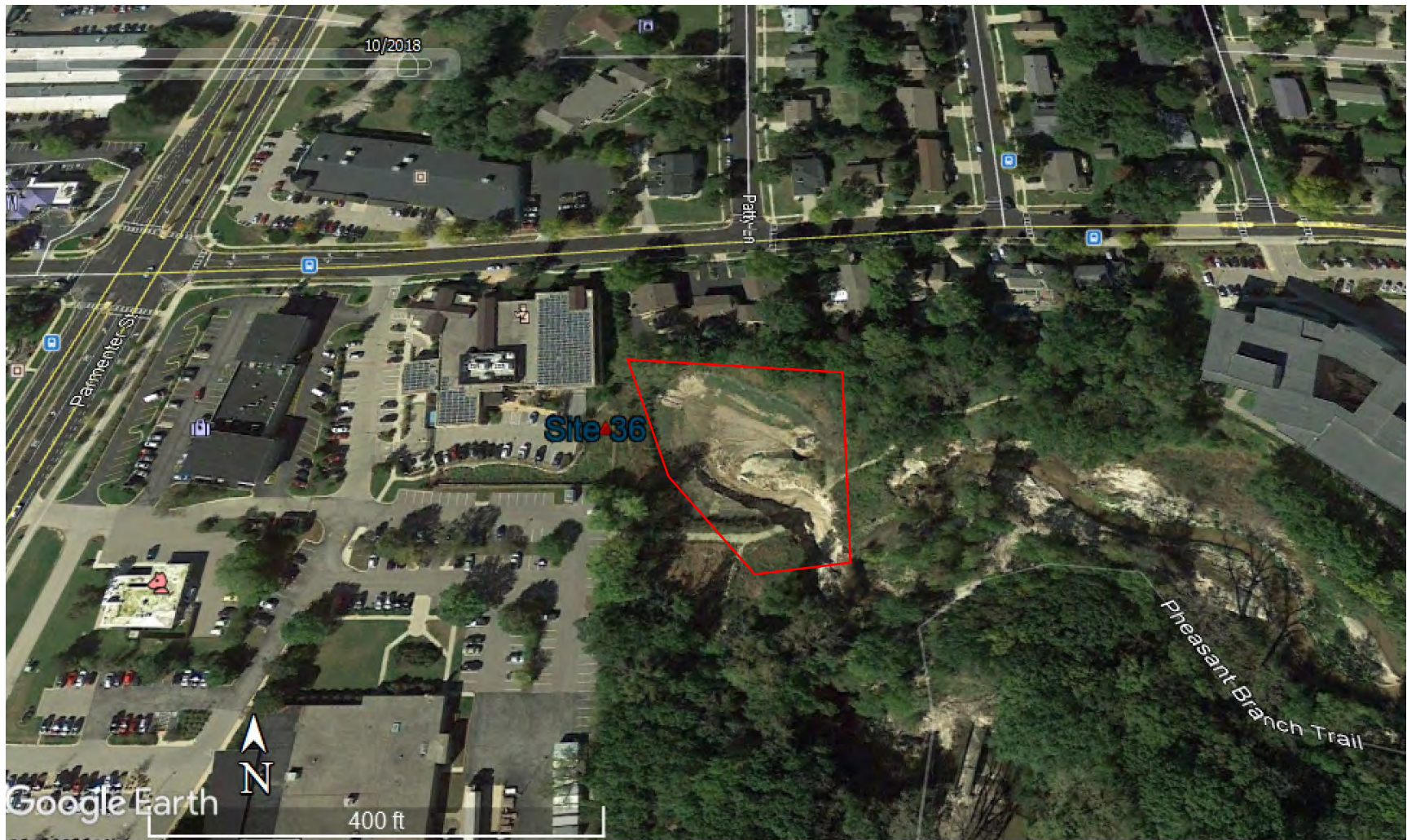


Figure 24: Airport Road Underpass and Penni Klein Park (Sites 37 and 38). USGS Maps “Middleton” and “Middleton West,” 1:24,000.
Enlarged for detail.



Figure 25: Sites 37 (43.11126, -89.53614) & 38 (43.11237, -89.53926). Action area marked in red. Google Earth Aerial, 2020 data.





Photo 1: Site 1 (March 2019) taken at 43.091090, -89.531726. View of eroded pedestrian bridge abutment.



Photo 2: Site 2 (March 2019) taken at 43.092573, -89.531055. View of eroded under pass of Market Street bridge.



Photo 3: Site 3 (June 2019) taken at 43.102573, -89.517960. View of debris on eroded streambank facing South towards Deming Way.



Photo 4: Site 3 (June 2019) taken at 43.102596, -89.517990. View of debris on eroded streambank facing east.



Photo 5: Site 4 (May 2019) taken at 43.10333, -89.50996. View of eroded south streambank facing Parmenter Street.



Photo 6: Site 4 (May 2019) taken at 43.103191, -89.510483. View of eroded south streambank facing east.



Photo 7: Site 4 (May 2019) taken at 43.103390, -89.510002. View of eroded south streambank facing southwest.

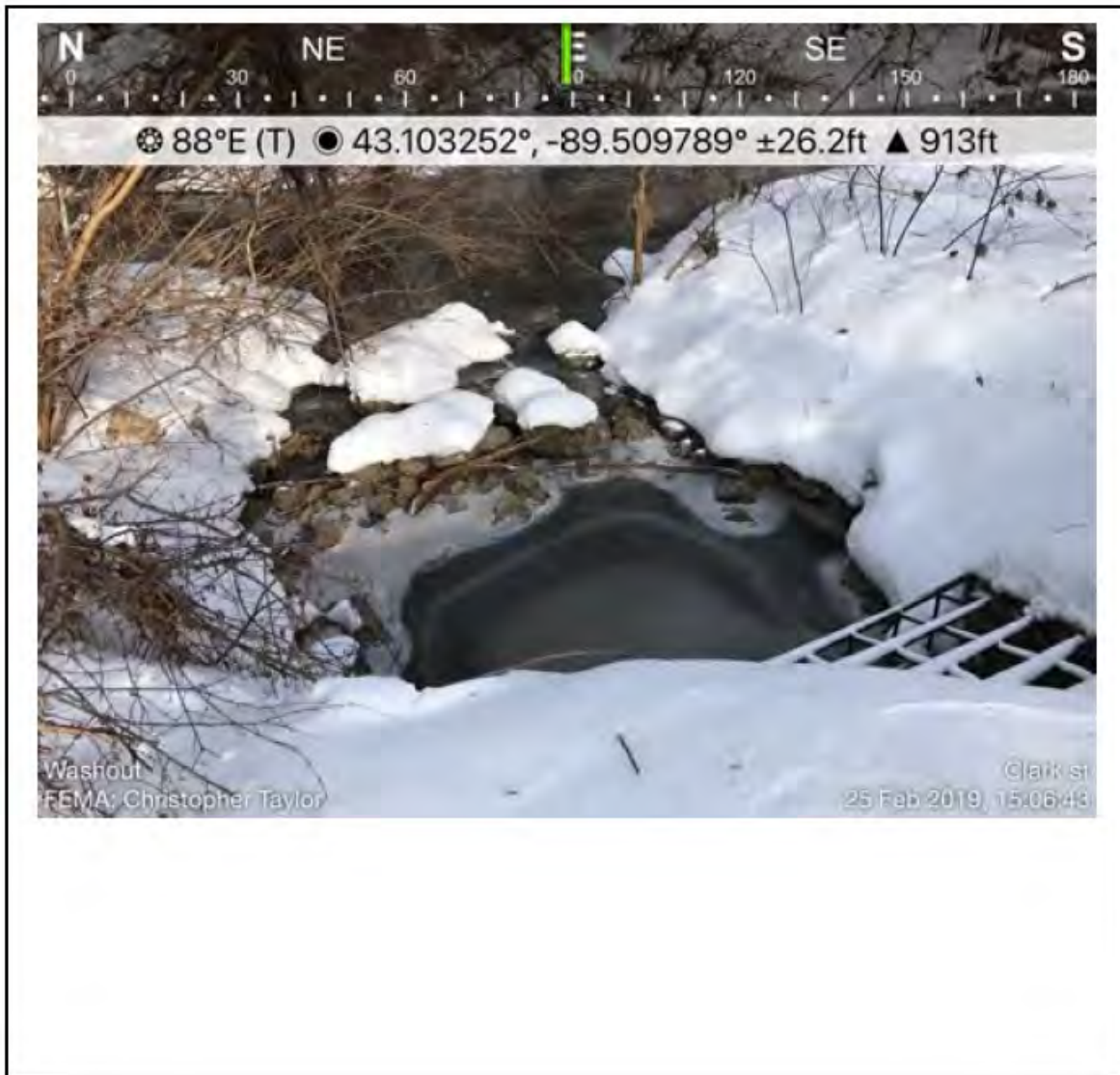


Photo 8: Site 5 (February 2019) taken at 43.103252, -89.509789. View of minor washout of rip-rap surrounding Clark Street stormwater outfall.



Photo 9: Sites 6 & 7 (March 2019) taken at 43.103016, -89.509429. View of damaged pedestrian bridge and eroded rip-rap on abutment. Asphalt path to be resurfaced.



Photo 10: Site 6 (March 2019) taken at 43.103016, -89.509429. View of eroded rip-rap on abutment of damaged pedestrian bridge.



Photo 11: Site 8 (May 2019) taken at 43.102867, -89.509087. View of eroded south streambank facing east.



Photo 12: Site 8 (May 2019) taken at 43.102783, -89.509079. View of eroded south streambank facing west.



Photo 13: Site 8 (May 2019) taken at 43.102787, -89.509117. View of eroded south streambank facing west.



Photo 14: Site 9 (May 2019) taken at 43.104397, -89.507538. View of eroded south streambank facing southeast.



Photo 15: Site 9 (May 2019) taken at 43.104225, -89.507309. View of eroded south streambank facing south.

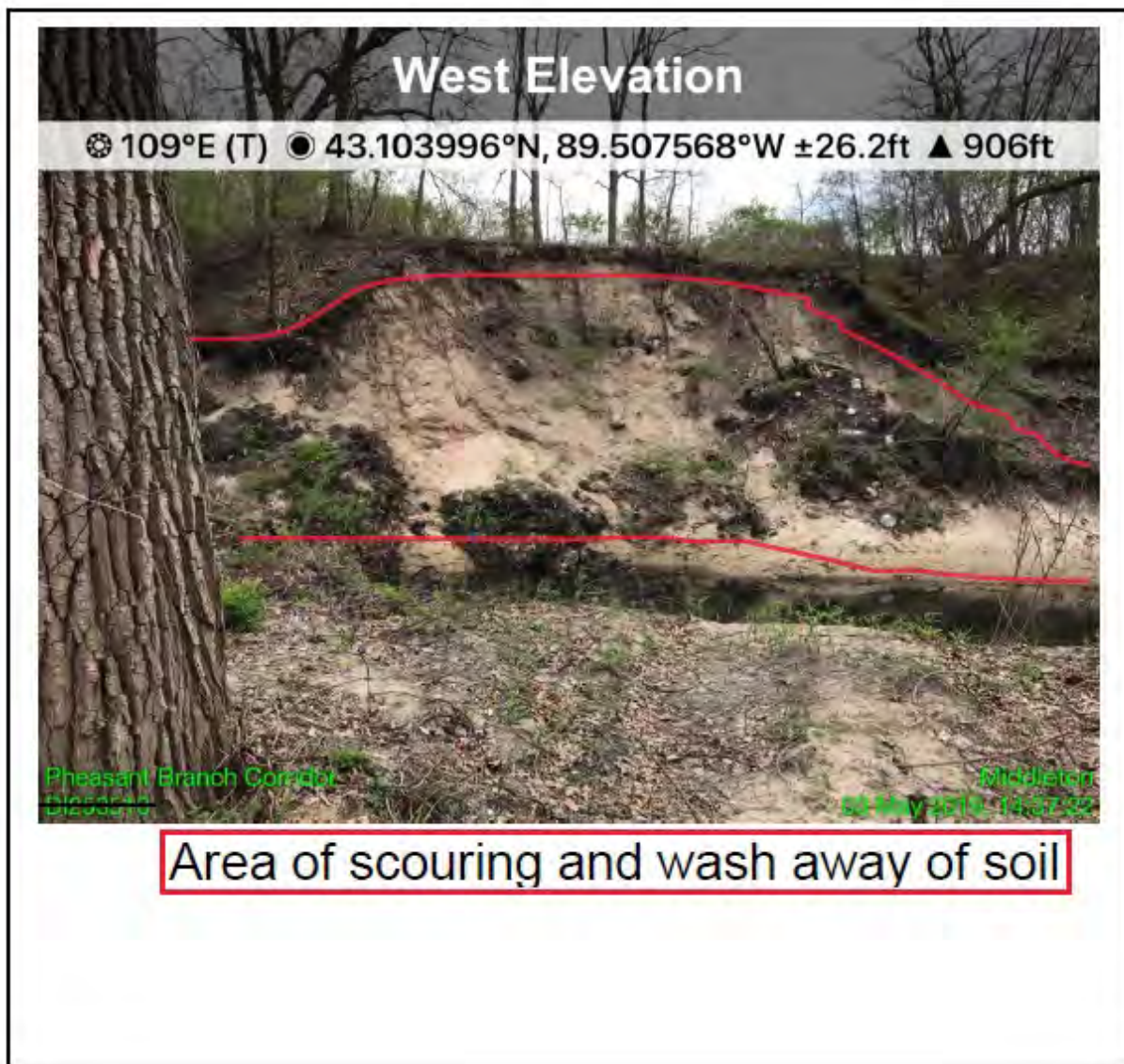


Photo 16: Site 9 (May 2019) taken at 43.103996, -89.507568. View of eroded south streambank facing east.



Photo 17: Site 10 (March 2019) taken at 43.104170, -89.507500. View of damaged asphalt path before and after pedestrian bridge.

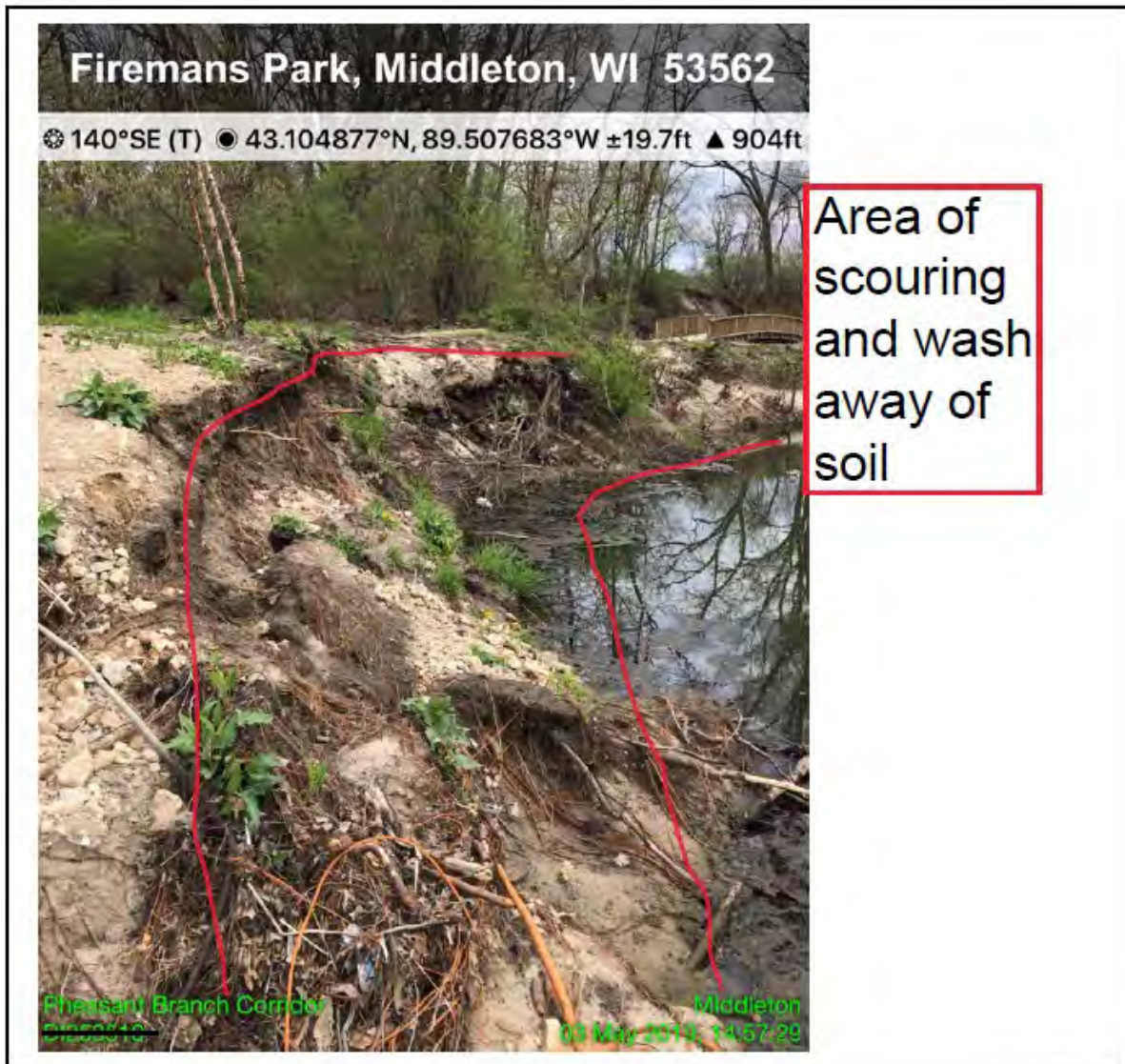


Photo 18: Site 11 (May 2019) taken at 43.104877, -89.507683. View of eroded east streambank.

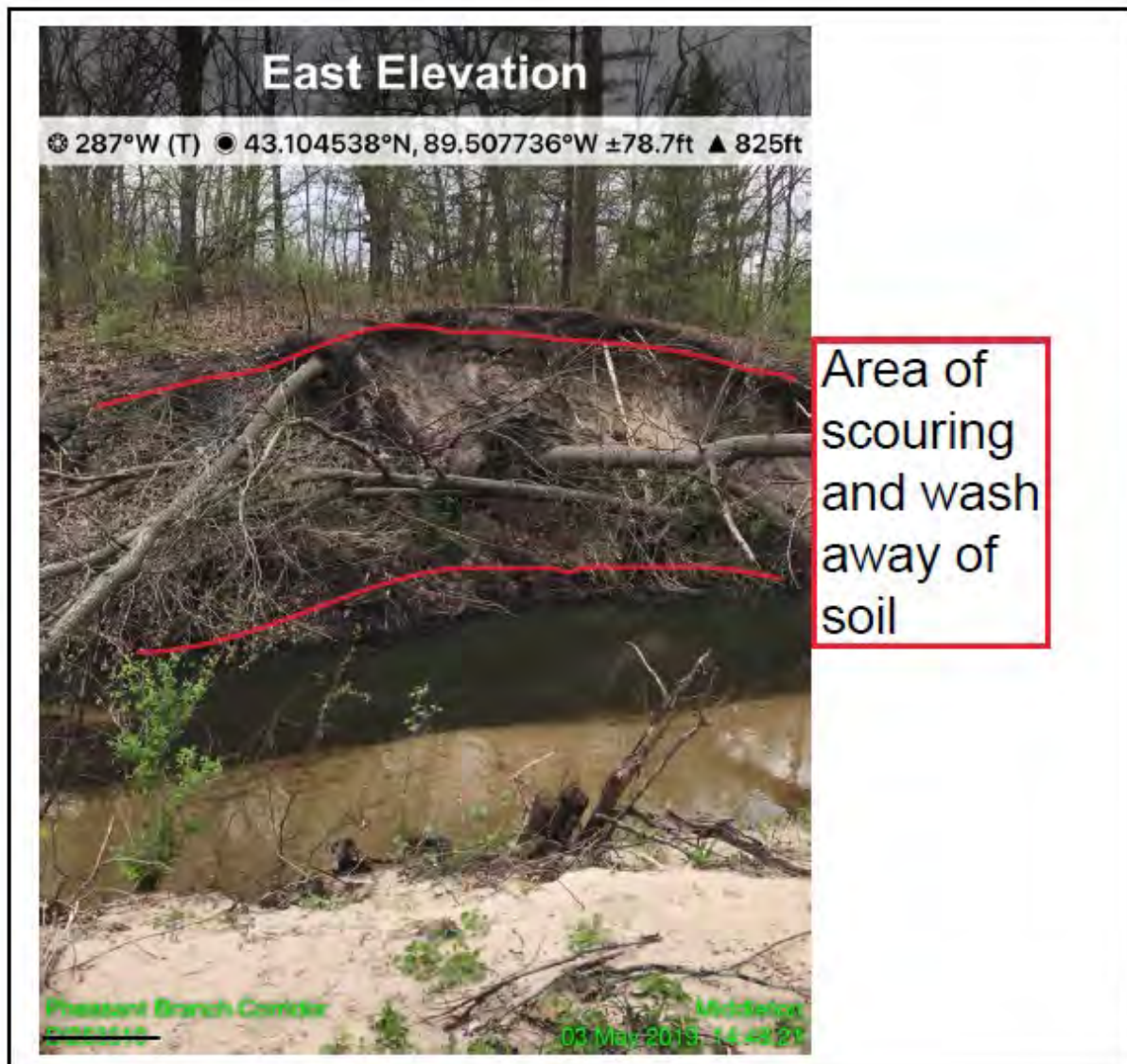


Photo 19: Site 13 (May 2019) taken at 43.104538, -89.507736. View of eroded west streambank.

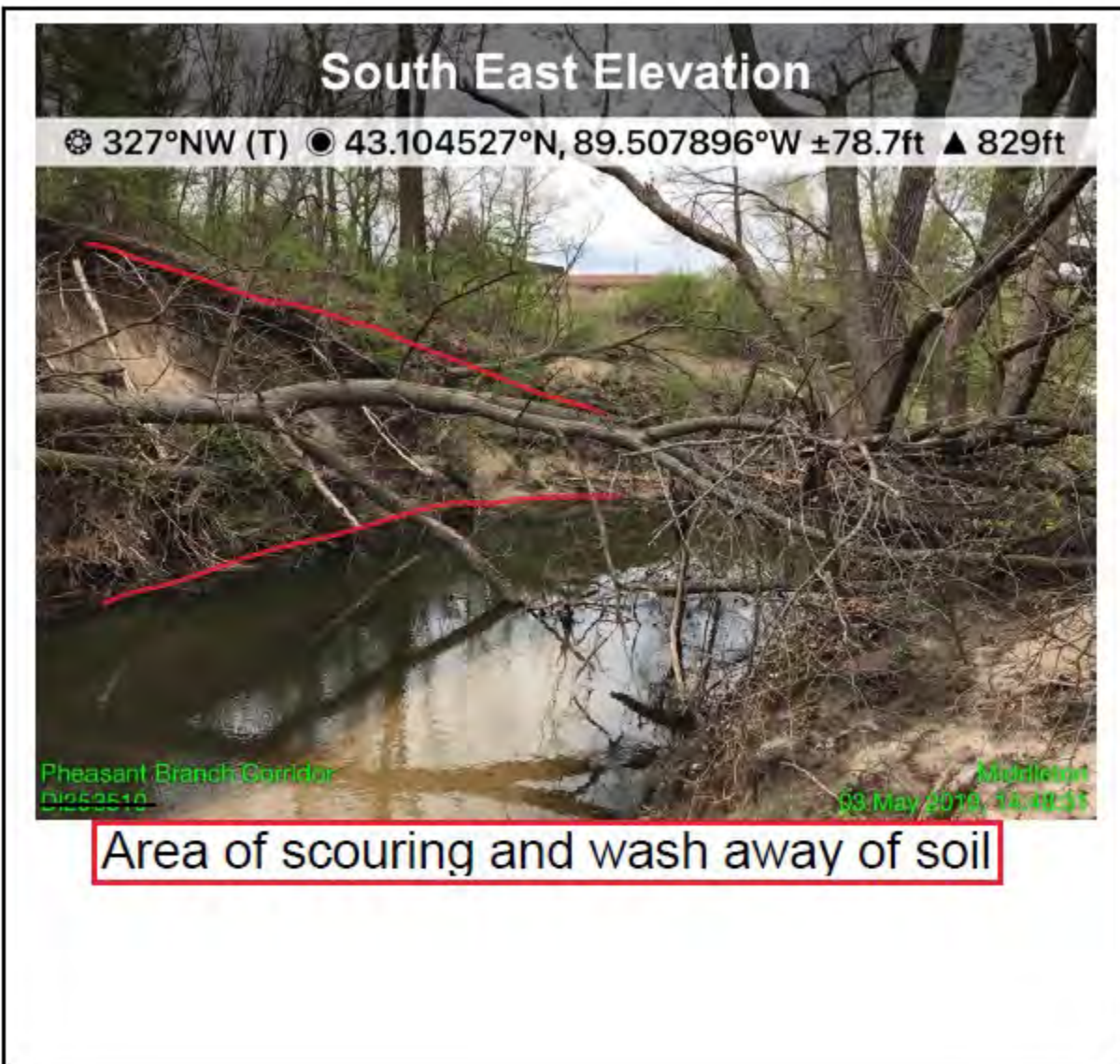


Photo 20: Site 12 (May 2019) taken at 43.104527, -89.507896. View of eroded west streambank.

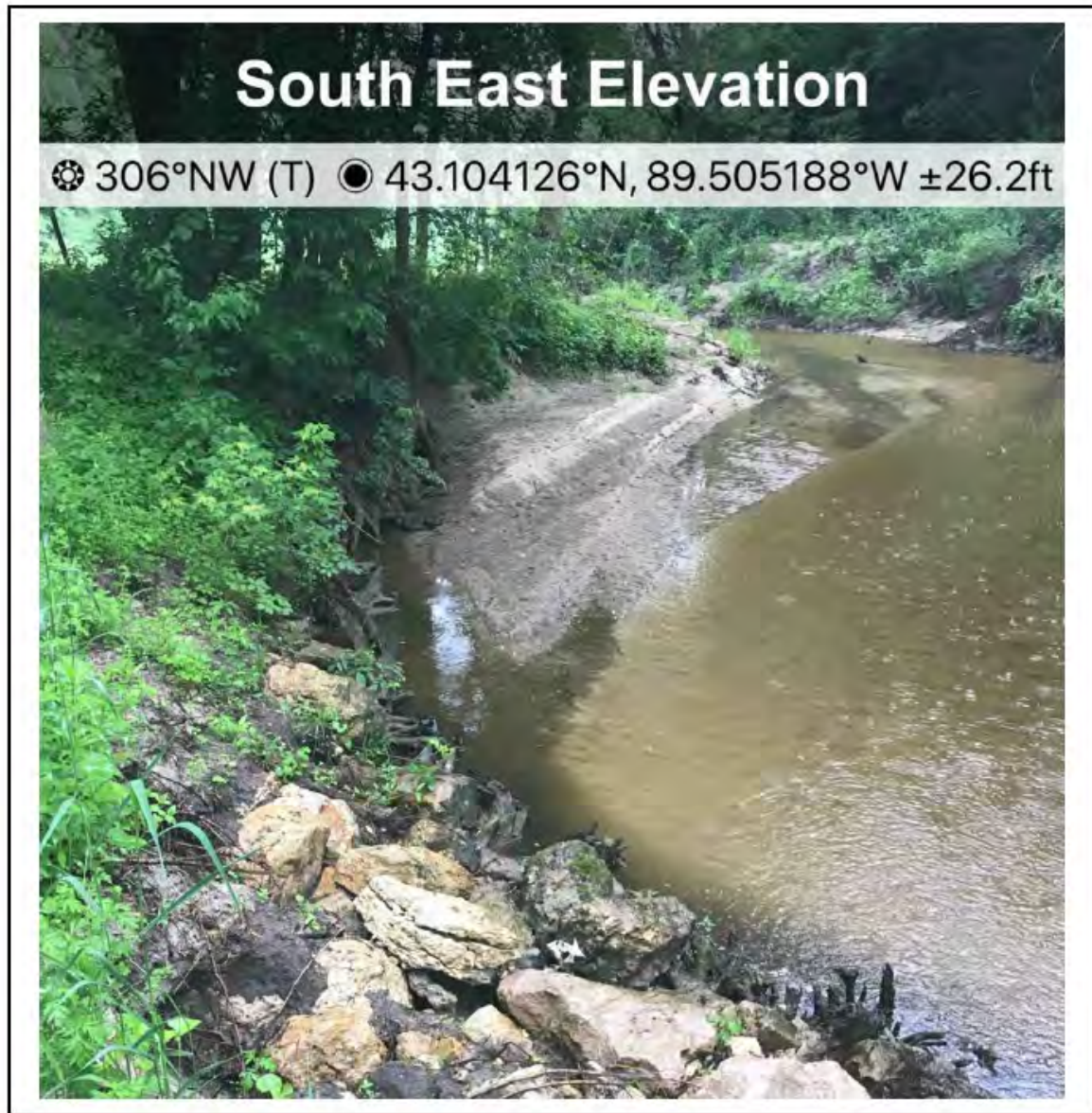


Photo 21: Site 13 (May 2019) taken at 43.104126, -89.505188. View of eroded west streambank.



Photo 22: Site 13 (provided March 2021) taken at 43.10441, -89.50561. View of eroded west streambank.



Photo 23: Site 14 (March 2019) taken at 43.104287, -89.505070. No damage to pedestrian bridge. Recreation path will be resurfaced.

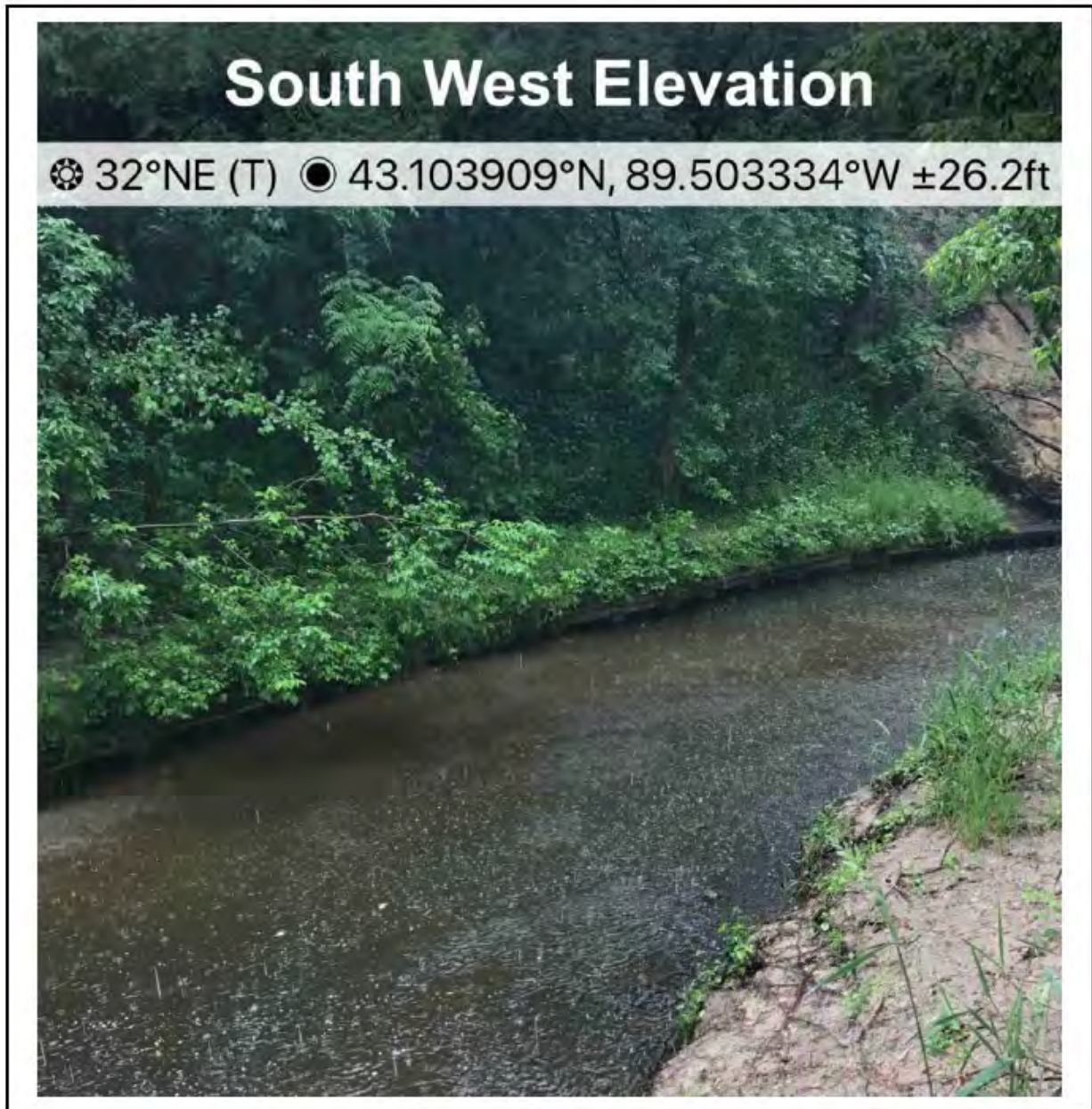


Photo 24: Site 15 (May 2019) taken at 43.103909, -89.503334. View of damaged sheetpile wall on north streambank.



Photo 25: Site 15 (May 2019) taken at 43.103809, -89.503159. View of damaged sheetpile wall on north streambank.



Photo 26: Site 16 (September 2018). Screen capture taken from drone footage. View of damaged north streambank at Park Street.



Photo 27: Site 16 (September 2018) taken at Park Street. View of eroded north streambank after storm.



Photo 28: Site 16 (September 2018). View of culverts under Park Street. Facing west.



Photo 29: Site 16 (December 2019). View of work to extend culvert aprons. Facing west towards Park Street.



Photo 30: Site 16 (December 2019). Photo taken at Park Street facing east. View of repairs to eroded north streambank. Work completed in 2019.



Photo 31: Site 16 (December 2019). Park Street. View of installation of footer logs and root wads to eroded north streambank. Work completed in 2019.



Photo 32: Sites 17 & 18 (March 2019). Photo taken at 43.101879, -89.501156. View of washout of bridge abutment and trail surface.



Photo 33: Site 19 (provided March 2021) taken at 43.10244, -89.49998. View of eroded east streambank.



Photo 34: Site 19 (provided March 2021) taken at 43.10252, -89.49995. View of eroded east streambank.



Photo 35: Sites 20 & 21 (March 2019) taken at 43.103065, -89.498190. View of displaced rip-rap surrounding pedestrian bridge abutment. Trail will be resurfaced to pre-disaster condition.

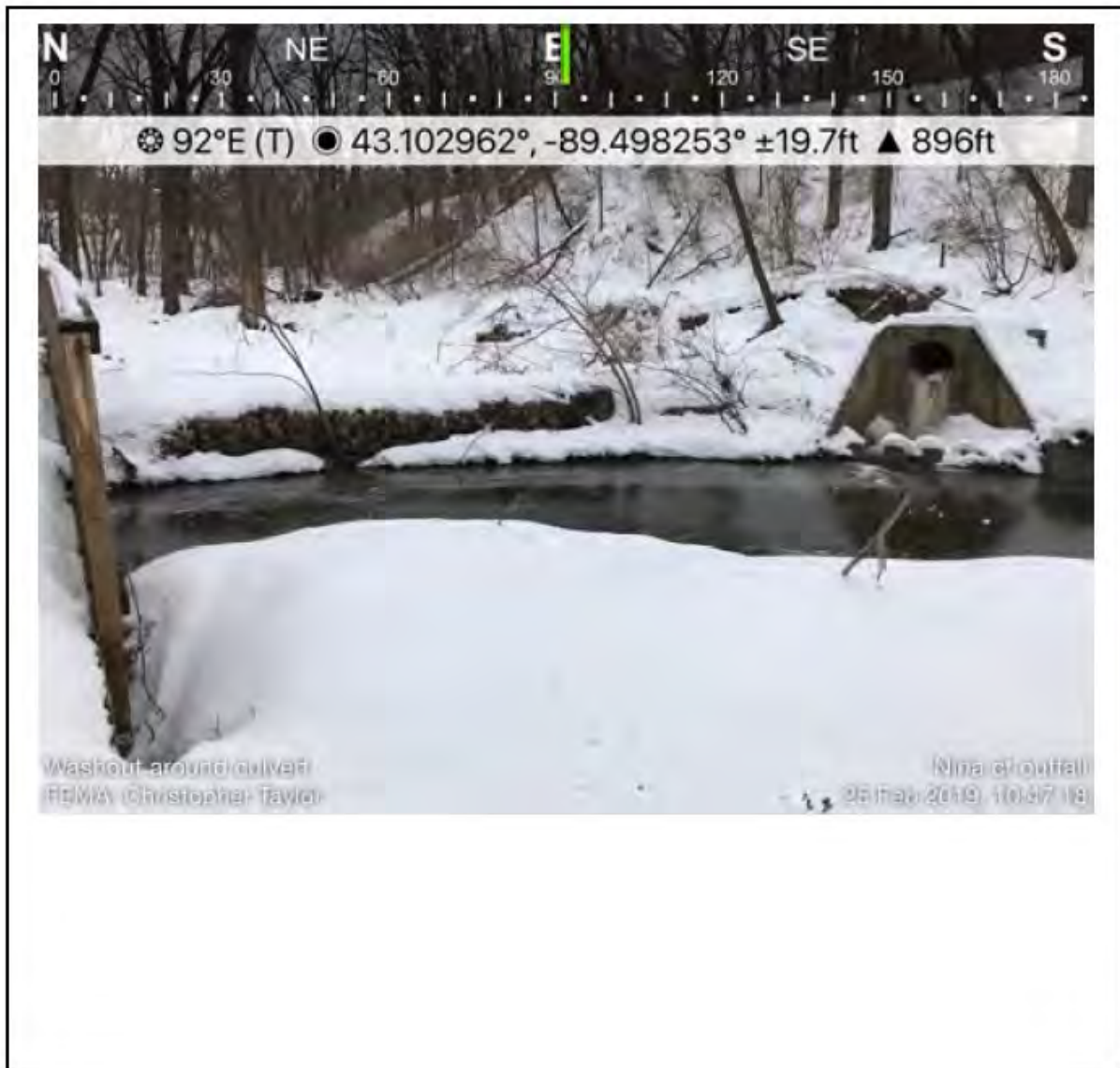


Photo 36: Site 22 (February 2019) taken at 43.102962, -89.498253. View of displaced rip-rap surrounding Nina Court outfall.



Photo 37: Site 23 (May 2019) taken at 43.103050, -89.498055. View of damaged gabion wall.



Photo 38: Site 24 (provided March 2021) taken at 43.10366, -89.49771. View of eroded west streambank.

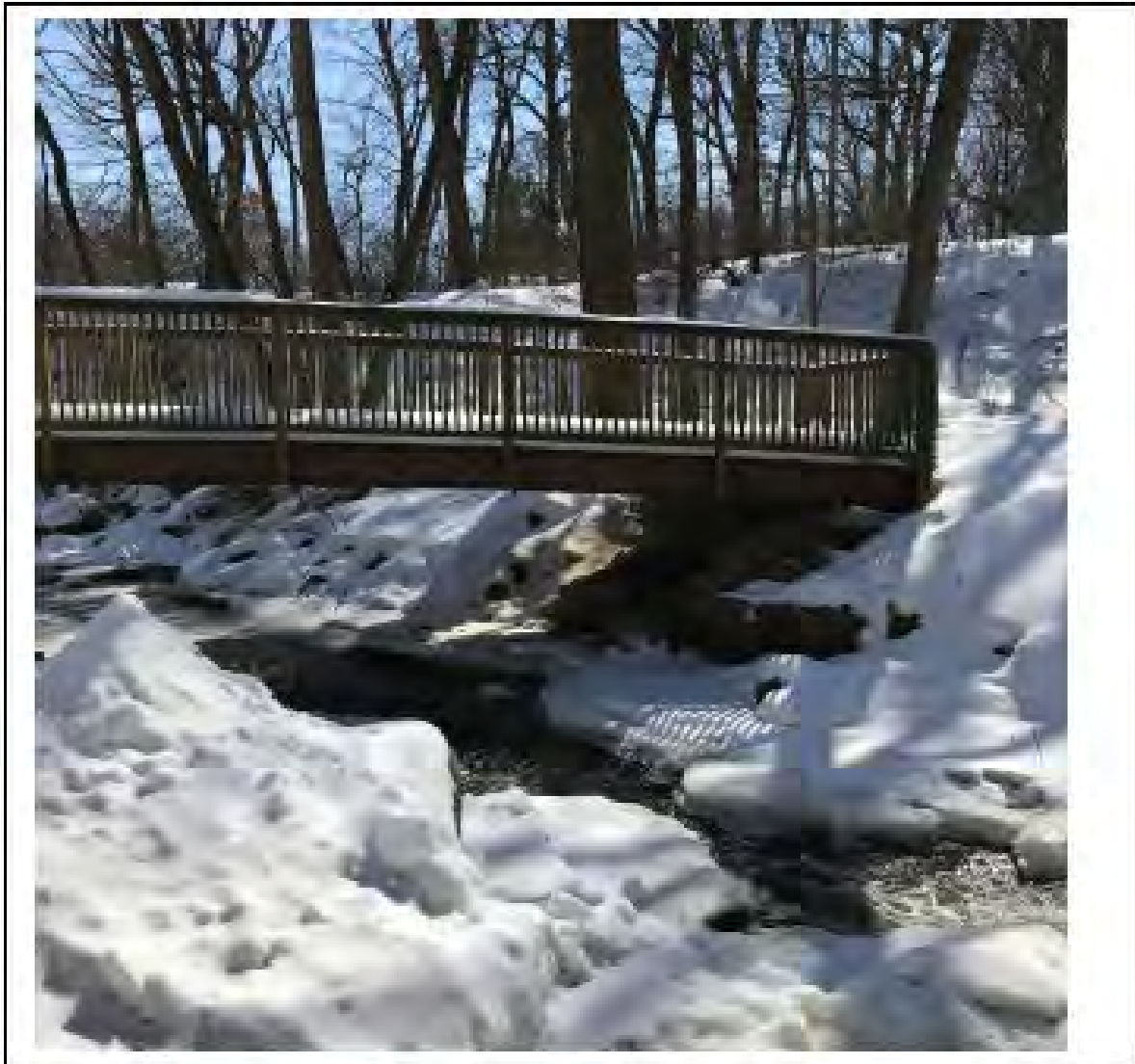


Photo 39: Site 25 (Marc 2019) taken at 43.103350, -89.495906. View of washout around bridge. Recreation trail to be resurfaced.



Photo 40: Site 26 (February 2019) taken at 43.103512, -89.495293. View of washout around culvert at Santa Maria Court.



Photo 41: Site 27 (May 2019) taken at 43.10569, -89.49296. View of eroded streambank.



Photo 42: Site 27 (May 2019) taken at 43.10566, -89.49291. View of eroded streambank.



Photo 43: Site 27 (May 2019) taken at 43.10564, -89.49279. View of eroded west streambank.

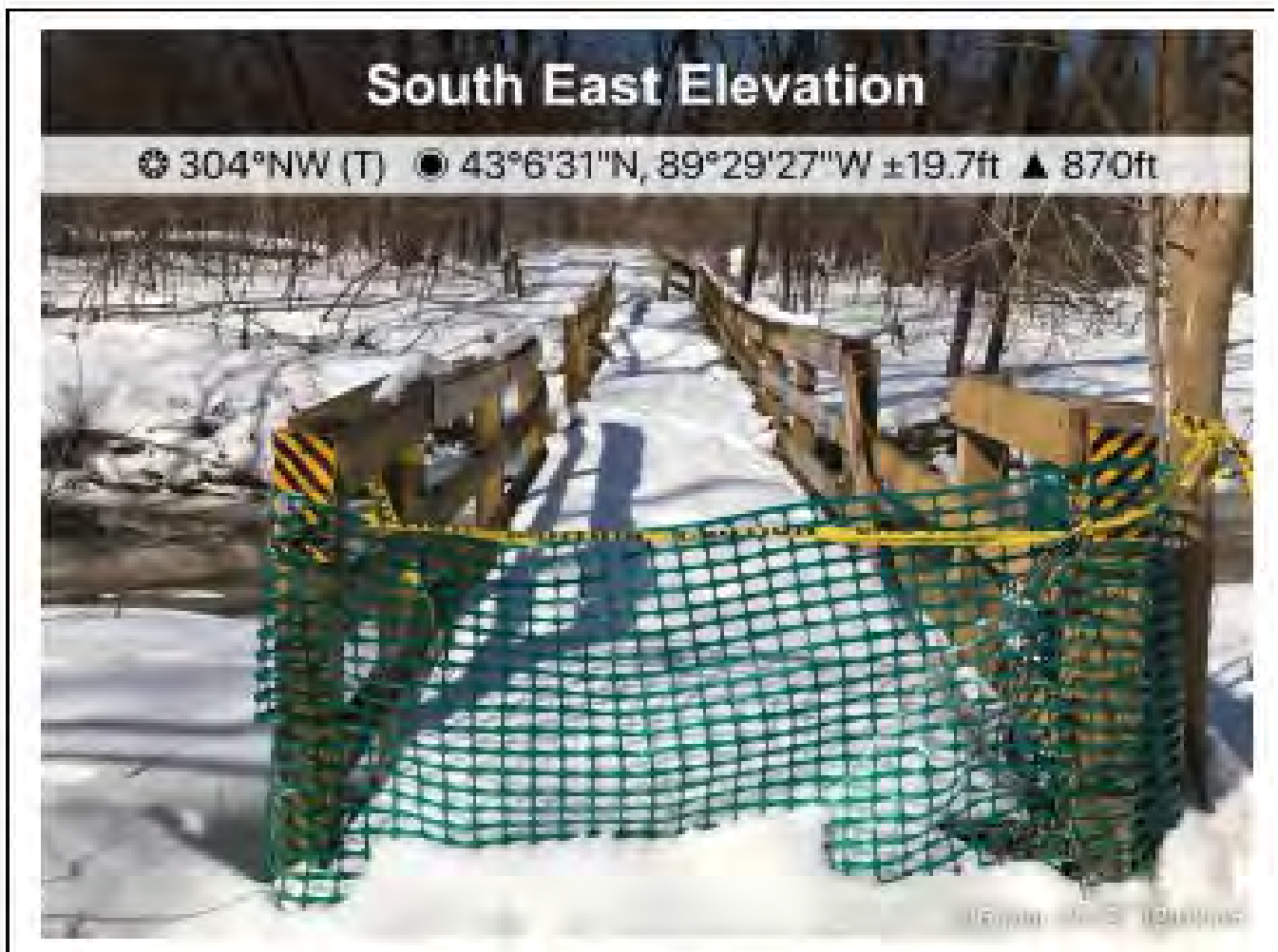


Photo 43: Site 28 (March 2019) taken at 43.10864, -89.49090. View of damaged pedestrian bridge and trail. Bridge repairs are not eligible for FEMA funding. Trail will be resurfaced to pre-disaster condition.



Photo 43: Site 29 (March 2019) taken at 43.10872, -89.48625. View of boardwalk.



Photo 44: Site 31 (date unknown) taken at 43.089930, -89.506948. Damaged stairs.



Photo 44: Site 32 (March 2019) taken at 43.091254, -89.502157. Damaged recreational trail.



Photo 45: Site 33 (February 2019) taken at 43.094688, -89.48758. Lakeview Drive.



Photo 46: Site 34 (May 2019) taken at 43.10543, -89.48278. Baskerville Harbor. View of eroded southwest bank.



Photo 47: Site 35 (May 2019) taken at 43.11905, -89.50619. Graber Pond. View of damaged boardwalk.



Photo 48: Site 36 (August 2018), provided by the applicant. Taken at 43.10524, -89.50864. Donna Pond. View of collapsed embankment.



Photo 49: Site 37. Taken at 43.11126, -89.53614. Airport Road underpass. View of damaged asphalt trail and displaced rip-rap.



Photo 51: Site 37. Taken at 43.11126, -89.53614. Airport Road underpass. View of damaged asphalt trail and displaced rip-rap.



Photo 52: Site 38. Taken at 43.11229, -89.54029. Klein Park. View of damaged asphalt trail.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Green Bay Ecological Services Field Office
2661 Scott Tower Drive
New Franken, WI 54229-9565
Phone: (920) 866-1717 Fax: (920) 866-1710



In Reply Refer To:

May 19, 2021

Consultation Code: 03E17000-2021-SLI-1300

Event Code: 03E17000-2021-E-04376

Project Name: DR-4402-WI City of Middleton, Pheasant Branch Conservancy, All Remaining Sites

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

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS IPaC website at regular intervals during project planning and implementation

for updates to species lists and information. An updated list may be requested through the ECOS IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Please refer to the Midwest Region [S7 Technical Assistance](#) website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain [Life History Information for Listed and Candidate Species](#) through the S7 Technical Assistance website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **No Effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.
3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats

Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

This species hibernates in caves or mines only during the winter. In Minnesota and Wisconsin, the hibernation season is considered to be November 1 to March 31. During the active season (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
 - Any activity in or near the entrance to a cave or mine,
 - Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
 - Construction of one or more wind turbines, or
-

- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.

If any of the above activities are proposed, please use the northern long-eared bat determination key in IPaC. This tool streamlines consultation under the 2016 rangewide programmatic biological opinion for the 4(d) rule. The key helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. No further review by us is necessary. Please visit the links below for additional information about "may affect" determinations for the northern long-eared bat.

[NLEB Section 7 consultation](#)

[Key to the NLEB 4\(d\) rule for federal actions that may affect](#)

[Instructions for the NLEB 4\(d\) assisted d-key](#)

[Maternity tree and hibernaculum locations by state](#)

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed [voluntary guidelines for minimizing impacts](#).

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to [guidelines](#) developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's [Wind Energy Guidelines](#). In addition, please refer to the Service's [Eagle Conservation Plan Guidance](#), which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination

While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.

Minnesota

[Minnesota Department of Natural Resources - Endangered Resources Review Homepage](#)

Email: Review.NHIS@state.mn.us

Wisconsin

[Wisconsin Department of Natural Resources - Endangered Resources Review Homepage](#)

Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Green Bay Ecological Services Field Office

2661 Scott Tower Drive

New Franken, WI 54229-9565

(920) 866-1717

Project Summary

Consultation Code: 03E17000-2021-SLI-1300

Event Code: 03E17000-2021-E-04376

Project Name: DR-4402-WI City of Middleton, Pheasant Branch Conservancy, All Remaining Sites

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: Severe storms, tornadoes, straight-line winds, flooding, and landslides affected areas of the State of Wisconsin in the late summer and fall of 2018. President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) funding.

The disaster event caused severe damage to infrastructure along the Mainstem of Pheasant Branch Creek Corridor, that portion of the streambank east of the Mainstem Pond at Deming Way and continuing eastward past Park Street to Century Avenue in Middleton, Wisconsin (GPS Start: 43.10301, -89.51901 End: 43.10436, -89.49332); approximately two miles in total. The disaster event also damaged the "North of Century" portion of the streambank within the Pheasant Branch Conservancy (GPS Start: 43.104548, -89.493209 End: 43.108189, -89.491021), approximately 1,500 linear feet in total, beginning at the Century Avenue bridge over Pheasant Branch).

The flooding event washed away both engineered and non-engineered portions of the streambanks. The City is requesting PA funding for restoration of the Pheasant Branch Corridor by grading and reshaping of stream banks, replacement of rip rap and gabion baskets, installation of root wads, and redirecting portions of the creek to reduce erosion. However, FEMA is only proposing to fund restoration of areas where previously engineered stream stabilization structures washed out as a result of the disaster event.

Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as several timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated within nearby parks also experienced erosion damage. City forces repaired the adjacent trail and pedestrian bridges in late April 2019, and also repaired storm sewer inlets. These areas were repaired to pre-disaster condition using previously established trails for access with all work occurring within the previous facility footprint. No impacts to species were anticipated at these trail and bridge locations.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.104213200000004,-89.51327386736948,14z>



Counties: Dane County, Wisconsin

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Whooping Crane <i>Grus americana</i> Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

Insects

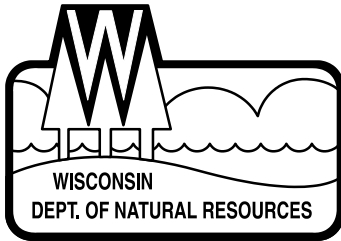
NAME	STATUS
Rusty Patched Bumble Bee <i>Bombus affinis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9383	Endangered

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/601	Threatened
Mead's Milkweed <i>Asclepias meadii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8204	Threatened
Prairie Bush-clover <i>Lespedeza leptostachya</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4458	Threatened

Critical habitats

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



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tony Evers, Governor
Preston D. Cole, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY 608-267-6897

November 6, 2019

Jacob Webb
Ayres Associates
5201 E. Terrace Drive, Suite 200
Madison, WI 53718

SUBJECT: Endangered Resources Review (ERR Log # 19-768)
Proposed Middleton Trails Flood Damage Repair

Dear Mr. Webb,

The Bureau of Natural Heritage Conservation has reviewed the proposed project described in the Endangered Resources (ER) Review Request received November 1, 2019. The complete ER Review for this proposed project is attached and follow-up actions are summarized below:

Required Actions: 1 species
Recommended Actions: 3 species
No Follow-Up Actions: 4 species
Additional Recommendations Specified: No

This ER Review may contain Natural Heritage Inventory data (<http://dnr.wi.gov/topic/NHI>), including specific locations of endangered resources, which are considered sensitive and are not subject to Wisconsin's Open Records Law. Information contained in this ER Review may be shared with individuals who need this information in order to carry out specific roles in the planning, permitting, and implementation of the proposed project. Specific locations of endangered resources may not be released or reproduced in any publicly disseminated documents.

The attached ER Review is for informational purposes and only addresses endangered resources issues. This ER Review does not constitute DNR authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the DNR and/or other permitting authorities.

Please contact me at (608) 266-5241 or via email at angelal.white@wisconsin.gov if you have any questions about this ER Review.

Sincerely,

Angela White
Endangered Resources Review Program

Endangered Resource Review for the Proposed Middleton Trails Flood Damage Repair Projects

(ERR Log # 19-768)

Section A. Location and brief description of the proposed project

Based on information provided by in the ER Review Request form and attached materials, the proposed project consists of the following:

Timing: November 11, 2019 to June 1, 2020

Location: City of Middleton, Dane County, WI

PROJECT DESCRIPTION

The project consists of repair work at three trail locations along the Pheasant Branch Creek that were damaged by flooding. The project locations are Woodside Heights Park; South Fork Trail: Market St Underpass & Pedestrian Bridge; and North Fork: Airport Road Underpass.

The scope of work at Woodside Heights Park includes the replacement of the damaged stairs with an ADA accessible concrete pathway, asphalt path replacement and the replacement of a drinking fountain within the park. Project elements include, but are not limited to earthwork, demolition, erosion control, paving, concrete, outcropping stonework and site restoration. The scope of work at South Fork Trail: Market St Underpass and Pedestrian Bridge includes the replacement of the damaged asphalt underpass under Market Street with a concrete underpass and cheek wall, asphalt path replacement, and heavy rip rap bank stabilization. Relocation of the existing pedestrian bridge over Pheasant Branch Creek on new concrete substructures with associate asphalt path replacement and concrete bridge approaches is also included in this portion of work. This portion of the project includes removal of asphalt and rip rap debris that was entered the creek due to the flooding damage. The contractor shall remove the debris by means other than allowing equipment to enter the creek bed or waterway. Project elements include, but are not limited to earthwork, demolition, erosion control, paving, concrete, rip rap placement, and site restoration.

The scope of work at North Fork: Airport Road Underpass includes the replacement of the damaged asphalt underpass under Airport Road with a concrete underpass and cheek wall, and heavy rip rap bank stabilization. This portion of the project includes removal of asphalt and rip rap debris that was entered the creek due to the flooding damage. The contractor shall remove the debris by means other than allowing equipment to enter the creek bed or waterway. Project elements include, but are not limited to earthwork, demolition, erosion control, paving, concrete, rip rap and site restoration.

It is best to request ER Reviews early in the project planning process. However, some important project details may not be known at that time. Details related to project location, design, and timing of disturbance are important for determining both the endangered resources that may be impacted by the project and any necessary follow-up actions. Please contact the ER Review Program whenever project plans change or new details become available to confirm if results of this ER Review are still valid.

Section B. Endangered resources recorded from within the project area and surrounding area for the three locations

Middleton Trails Flood Damage Repair - Woodside Heights

Rusty Patched Bumble Bee

Rusty Patched Bumble Bee (*Bombus affinis*), listed as Federally Endangered and State Special Concern, is extremely rare in Wisconsin and is considered both state- and globally-imperiled. This bee relies on diverse and abundant flowering plant species in proximity to suitable overwintering sites for hibernating queens, which include, but are not limited to non-compacted and often sandy soils or woodlands, but does not include wetlands. Suitable active season habitat includes but is not limited to prairies, woodlands, marshes/wetlands, agricultural landscapes, and residential parks and gardens. Nectar plants include Aesculus (buckeye), Agastache (hyssops), Asters, Helianthus (sunflowers), Lonicera (honeysuckles), Monarda (bee balms), Physotegia (obedient plant), Prunus (plums/cherries), Solidago (goldenrods), and Vaccinium (blueberry). Queens emerge from hibernation in April and the colony is active through October. In Wisconsin, recent observations are mostly from the southern half of the state.

The USFWS has created a Rusty Patched Bumble Bee High Potential Zone to show where there is a high likelihood for the species to be present. If a project overlaps with this zone then steps should be taken to determine if suitable habitat is present for the bee and if necessary surveys can be conducted. Shapefiles of the zone can be found on the FWS bee [guidance page](#).

Suitable foraging and nesting habitat (active season, mid-March through mid-October) includes but is not limited to: prairies, woodlands, marshes/wetlands, agricultural landscapes and residential parks and gardens. The RPBB relies on diverse and abundant flowering plant species in proximity to suitable overwintering sites for hibernating queens. **Overwintering habitat** (mid-October through mid-March) may include, but is not limited, to: non-compacted soils or woodlands. Overwintering habitat does not include wetlands.

Rusty Patched Bumble Bee Federal High Potential Zone

Prairie Vole

Prairie Vole (*Microtus ochrogaster*), a state Special Concern species, is found in dry grassy areas along fence lines and in open fields, sandy prairies and slopes, especially if weed or grass grown, abandoned farm fields, and seldom in sparsely wooded areas. Its preferred habitat seems to be native prairie sod, of which there is little left in the State. It avoids marshes and wet places. Semi-colonial, this species breeds throughout the year with a peak in July, August, and September.

Little Brown Bat

Little Brown Bat (*Myotis lucifugus*) is a Threatened species in Wisconsin. Its dorsal fur is a glossy dark-brown to olive-brown color with a lighter ventral side. The little brown bat is insectivorous and feeds on aquatic soft-bodied insects and is found roosting in warm microclimates provided by tree snags, bat houses, and buildings during the summer. It forages primarily over open water and along edge habitat. Little Brown Bats hibernate in caves and mines from October through April. Mating occurs in the fall, and females store sperm until emergence in the spring. Usually one pup is born in early June and matures in six weeks. See the [species guidance document](#) for avoidance measures and management guidance from the Natural Heritage Conservation Program.

Swamp Darner

Swamp Darner (*Epiaschna heros*), a State Special Concern species, has been found in shady ponds, ditches, or sloughs bordering woods. The flight period extends from early-June to late-July.

Lake Sturgeon

Lake Sturgeon (*Acipenser fulvescens*), listed as Special Concern, prefers large rivers and lakes. It also lives in the shoal waters of the Great Lakes. Inland it shows a preference for the deepest mid-river areas and pools. Spawning occurs from late April through early June in cold, shallow fast water.

[Stream--Fast, Hard, Warm](#)

Warmwater streams are flowing waters with maximum water temperatures typically greater than 25 degrees Celsius. Visit the [Warmwater Streams](#) and [Warmwater Rivers](#) community pages for more information.

[Springs and Spring Runs, Hard](#)

A "spring" is a defined point at which groundwater reaches the surface (a spring seepage is less easily localized or defined). The "spring run" is a defined flowing channel (these can be braided) fed by the spring. Usually these are short, and either join other spring runs, a stream, a spring pond, or a spring lake. Total alkalinity is > 50 ppm. Alkalinity can play a role in determining invertebrate composition of a site (e.g., those that make shells are mostly associated with "hard" water springs).

[Blanding's Turtle](#)

Blanding's turtles inhabit a variety of wetland types as well as streams, rivers, lakes and ponds and can migrate long distances between suitable habitat. Nesting typically occurs in well drained or sandy soils in open or semi-open canopy habitat within 900 ft (274 m) of a wetland or waterbody. Egg laying occurs from May 20-July 5 with hatchlings emerging from August 7-October 15. Blanding's turtles typically overwinter in standing water at least 3 ft (0.9 m) deep. Because Blanding's turtles can be found in wetlands and waterbodies throughout the year, take typically cannot be avoided for projects impacting wetlands or waterbodies.

Middleton Trails Flood Damage Repair - Market Street Trail

[Rusty Patched Bumble Bee Federal High Potential Zone](#)

[Prairie Vole](#)

[Little Brown Bat](#)

[Blanding's Turtle](#)

Middleton Trails Flood Damage Repair - Airport Road

[Prairie Vole](#)

[Blanding's Turtle](#)

For additional information on the rare species, high-quality natural communities, and other endangered resources listed above, please visit our [Biodiversity](#) page.

Section C. Follow-up actions below for the three project areas

Actions that need to be taken to comply with state and/or federal endangered species laws:

For the Woodside Heights and Market Street project location:

This project overlaps the **Rusty Patched Bumble Bee (RPBB) High Potential Zone** and occurs within 1 mile of a **RPBB occurrence**. The project area contains suitable habitat for the bee (see section B).

Assume presence and follow one or more of the [USFWS' recommended conservation measures](#) below **(as applicable)**:

- use native trees, shrubs and flowering plants in landscaping,
- provide plants that bloom from spring through fall (refer to the [USFWS RPBB Midwest Plant Guide](#)),
- remove and control invasive plants in any habitat used for foraging, nesting, or overwintering

Actions recommended to help conserve Wisconsin's rare species and high-quality natural communities:

- The **Blanding's turtle** may be overwintering in nearby waterways for all three locations. For the Market Street location try to avoid work within the waterway bed where overwintering may be taking place.

Also, if the project timeline does last until June as stated, then caution should be taken if a turtle is observed in the spring. If a turtle is found, please carefully move it to suitable habitat outside the project area.

Please note, active dates are updated frequently in the spring, starting in early March, and can be checked here: <http://dnr.wi.gov/topic/WildlifeHabitat/Herps.asp#regs>

- **Swamp Darner** (*Epiaschna heros*), a State Special Concern species, has been found in shady ponds, ditches, or sloughs bordering woods. The flight period extends from early-June to late-July. Implement **erosion control** for the Woodside Heights location to prevent runoff into nearby pond.
- The **Prairie Vole** could be present within the three project areas. It is found in dry grassy areas along fence lines and in open fields, sandy prairies and slopes, especially if weed or grass grown, abandoned farm fields, and seldom in sparsely wooded areas. Since this is a special concern species there are no required actions, but actions should be taken to minimize impacts to areas where suitable habitat is present.

Remember that although these actions are not required by state or federal endangered species laws, they may be required by other laws, permits, granting programs, or policies of this or another agency. Examples include the federal Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, State Natural Areas law, DNR Chapter 30 Wetland and Waterway permits, DNR Stormwater permits, and Forest Certification.

No actions are required or recommended for the following endangered resources:

No suitable habitat is available for the following species and communities: **Lake sturgeon, Stream – fast, hard, warm, & Springs and Springs Runs, Hard.**

The **Little Brown Bat** is known to occur within the project area. This nature of this work will not impact any maternity roost sites and there should be no impacts to this species.

Section D. Next Steps

1) Evaluate whether the '**Brief description of the proposed project**' is still accurate. All recommendations in this ER Review are based on the information supplied in the ER Review Request. If the proposed project has changed, please contact the ER Review Program to determine if the information in this ER Review is still valid.

2) Determine whether the project can incorporate and implement the '**Follow-up actions**' identified above:

'Actions that need to be taken to comply with state and/or federal endangered species laws' represent the Department's best available guidance for complying with state and federal endangered species laws based on the project information that you provided and the endangered resources information and data available to us. If the proposed project has not changed from the description that you provided us and you are able to implement all of the 'Actions that need to be taken to comply with state and/or federal endangered species laws', your project should comply with state and federal endangered species laws. Please remember that if a violation occurs, the person responsible for the

taking is the liable party. Generally this is the landowner or project proponent. For questions or concerns about individual responsibilities related to Wisconsin's Endangered Species Law, please contact the ER Review Program.

If the project is unable to incorporate and implement one or more of the 'Actions that need to be taken to comply with state and/or federal endangered species laws' identified above, the project may potentially violate one or more of these laws. Please contact the ER Review Program immediately to assist in identifying potential options that may allow the project to proceed in compliance with state and federal endangered species laws.

'Actions recommended to help conserve Wisconsin's rare species and high-quality natural communities' may be required by another law, a policy of this or another Department, agency or program; or as part of another permitting, approval or granting process. Please make sure to carefully read all permits and approvals for the project to determine whether these or other measures may be required. Even if these actions are not required by another program or entity for the proposed project to proceed, the Department strongly encourages the implementation of these conservation measures on a voluntary basis to help prevent future listings and protect Wisconsin's biodiversity for future generations.

Section E. Endangered resource protections

Species listed as Threatened or Endangered under Wisconsin's Endangered Species Law ([s. 29.604, Wis. Stats.](#)):

- State-listed animals (vertebrate and invertebrate) are protected on all lands and waters of the state
- State-listed plants are protected on public lands and on lands that the person does not own or lease, except in the course of forestry, agriculture, bulk sampling associated with mining or utility actions ([s. 29.604, Wis. Stats.](#)).

Species protected by the [Federal Endangered Species Act of 1973 as amended](#), including those federally-listed as Endangered or Threatened and their or Designated Critical habitats:

- Federally-protected animals are protected on all lands.
- Federally-protected plants are protected on federal lands and in the course of projects that include federal funding. They are also protected on other lands if they are removed, cut, dug up or damaged in knowing violation of any law or regulation of any state or in violation of a criminal trespass law.

Special Concern species, high-quality examples of natural communities (sometimes called High Conservation Value areas), and unique natural features (e.g., caves and animal aggregation sites) are not legally protected by state or federal endangered species laws. However, other laws, policies (e.g., related to Forest Certification or master planning), or granting/permitting processes may require or strongly encourage protection of these resources. The main purpose of the Special Concern classification is to focus attention on species about which some problem of abundance or distribution is suspected before they become endangered or threatened.

State Natural Areas (SNAs) protect outstanding examples of Wisconsin's native landscape of natural communities, and significant geological formations. Endangered species are often found within SNAs. SNAs are protected by law from any use that is inconsistent with or injurious to their natural values ([s. 23.28, Wis. Stats.](#)).

Thank you for helping to protect Wisconsin's endangered resources! Please contact the ER Review Program if you have any questions about this ER Review.



U.S. Department of Homeland Security
FEMA Region 5
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521

FEMA

March 29, 2022

Tyler B. Howe, PhD, Compliance Section Manager
State Historic Preservation Office
Wisconsin Historical Society
816 State Street
Madison, WI 53706

Re: Pheasant Branch Creek Stabilization
Middleton, Dane County, Wisconsin
FEMA Project #88229; PW 593
43.103301, -89.513886 to 43.109433, -89.491877
S1, 2, 11, and 12 T7N R8E

Dear Mr. Howe:

Pursuant to the Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the captioned Public Assistance Grant Program project.

In accordance with 36 CFR §800.11, I am enclosing documentation regarding this undertaking and its effect on historic properties. This documentation provides the justification for FEMA's finding of no historic properties affected; the purpose of this communication is to seek concurrence in that finding.

Due to workplace restrictions in response to COVID-19, we are using email to deliver this Section 106 consultation. Pursuant to 36 CFR 800.4(d)(1), if we receive no response from your office within thirty (30) days, we will consider FEMA's responsibilities under Section 106 fulfilled and will move forward with this undertaking. Because our reliance on digital communications must continue until our offices reopen, we would appreciate a response by email from your office. For your convenience, we have included a response area below. If you have questions, do not hesitate to contact Karie Roach of my staff at 312-408-5549 or at fema-r5-environmental@fema.dhs.gov.

Sincerely,

Duane Castaldi
Regional Environmental Officer
FEMA Region 5

enclosures

+++++++You may email this page to fema-r5-environmental@fema.dhs.gov +++++++

Re: Pheasant Branch Creek Stabilization
Middleton, Dane County, Wisconsin
FEMA Project #88229; PW 593
43.103301, -89.513886 to 43.109433, -89.491877
S1, 2, 11, and 12 T7N R8E

- ☐ Under the authority of the National Historic Preservation Act of 1966, as amended, the Wisconsin State Historic Preservation Office **concurs** with FEMA's finding that the captioned undertaking will result in ***no historic properties affected***.
- ☐ Under the authority of the National Historic Preservation Act of 1966, as amended, the Wisconsin State Historic Preservation Office **objects** to FEMA's finding that the captioned undertaking will result in ***no historic properties affected*** for the reasons noted below:

Wisconsin State Historic Preservation Office

Date

Comments:

REQUEST FOR SHPO COMMENT AND CONSULTATION ON A FEDERAL UNDERTAKING

Submit one copy with each undertaking for which our comment is requested. Please print or type. Return to:
Wisconsin Historical Society, State Historic Preservation Office, 816 State Street, Madison, WI 53706

Please Check All Boxes and Include All of the Following Information, as Applicable.

I. GENERAL INFORMATION

- ☒ This is a new submittal.
☐ This is supplemental information relating to Case #: _____, and title: _____
☐ This project is being undertaken pursuant to the terms and conditions of a programmatic or other interagency agreement. The title of the agreement is _____
- a. Federal Agency Jurisdiction (Agency providing funds, assistance, license, permit): FEMA
- b. Federal Agency Contact Person: Duane Castaldi Phone: 312-408-5549
- c. Project Contact Person: _____ Phone: _____
- d. Return Address: 536 South Clark Street, 6th Floor City: Chicago, IL Zip Code: 60605
- e. Email Address: duane.castaldi@fema.dhs.gov
- f. Project Name: Pheasant Branch Creek Streambank and Trail Restoration
- g. Project Street Address: see continuation sheet
- h. County: Dane City: Middleton Zip Code: 53562
- i. Project Location: Township 7N, Range 8, East ☒ or West ☐, Section 1, 2, 11, 1, Quarter Sections _____
- j. Project Narrative Description—Attach Information as Necessary.
- k. Area of Potential Effect (APE). Attach Copy of U.S.G.S. 7.5 Minute Topographic Quadrangle showing APE.

II. IDENTIFICATION OF HISTORIC PROPERTIES

- ☐ Historic Properties are located within the project APE per 36 CFR 800.4. Attach supporting materials, per 36 CFR 800.11.
☒ Historic Properties are not located within the project APE per 36 CFR 800.4. Attach supporting materials, per CFR 800.11.

III. FINDINGS

- ☒ No historic properties will be affected (i.e., none is present or there are historic properties present but the project will have no effect upon them). Attach necessary documentation, as described at 36 CFR 800.11.
☐ The proposed undertaking will have no adverse effect on one or more historic properties located within the project APE under 36 CFR 800.5. Attach necessary documentation, as described at 36 CFR 800.11.
☐ The proposed undertaking will result in an adverse effect to one or more historic properties and the applicant, or other federally authorized representative, will consult with the SHPO and other consulting parties to resolve the adverse effect per 36 CFR 800.6. Attach supporting documentation as described at 36 CFR 800.11.

Authorized Signature: DUANE D CASTALDI Digitally signed by DUANE D CASTALDI
 Date: 2022.03.29 10:45:30 -05'00' Date: 3/29/2022

Type or print name: Duane Castaldi

IV. STATE HISTORIC PRESERVATION OFFICE COMMENTS

- ☐ Agree with the finding in section III above.
☐ Object to the finding for reasons indicated in attached letter.
☐ Cannot review until information is sent as follows: _____

Authorized Signature: _____ Date: _____



FEMA

March 29, 2022

***Documentation Initiating and Concluding Section 106 Consultation
for a FEMA-Funded Undertaking***

Project Information:

Project ID: #88229; PW 593

Title: Pheasant Branch Creek Stabilization

Address: Pheasant Branch Creek from crossing at Deming Way, eastward to Century Avenue, then northward, parallel to Conservancy Lane

Location: Middleton, Dane County, WI

GPS: 43.102620, -89.51821 to 43.10945, -89.49057

PLSS: S1, 2, 11, and 12 T7N R8E

Description of Undertaking and APE:

As a result of severe storms, tornadoes, straight-line winds, flooding, and landslides affecting areas of the State of Wisconsin, President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) Program funding. The disaster event resulted in damage to infrastructure along the Pheasant Branch Creek Corridor from crossing at Deming Way and continuing eastward to north of Century Avenue in Middleton, Wisconsin (43.10262, -89.51821 to 43.10945, -89.49057).

The City of Middleton performed streambed relocation and streambank stabilization projects (most recently in 2007, 2008, 2009, 2010, 2012, and 2015) intermittently along this stretch of Pheasant Branch Creek, incorporating a variety of construction methods including sheet pile retaining walls, gabion baskets, toewood and rootwad, and rip rap toe protection. The City cleared, grubbed, graded and seeded the banks as part of these efforts. The flooding event washed away both engineered and non-engineered portions of the streambanks. However, only the areas with engineered stream stabilization will be funded by the FEMA PA grant program. Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as six timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated with the parks and creek corridor experienced erosion damage.

The Applicant, the City of Middleton, proposes to use contract services to repair the engineered streambanks in-kind to their pre-disaster design, save for the substitution of rip-rap toe protection and fill instead of rootwad and fill in several locations. Some locations along the bank that were damaged in the event will not be repaired but will be allowed to naturalize. All work is intermittent throughout the proposed construction project bounds.

The six timber and wood pedestrian bridges will be replaced and the recreational trail will be repaired and modified. The streambed will be lowered in a few locations to

accommodate the new bridges and trail modifications. Additionally, the stream itself will be shifted in two locations (43.104399, -89.504811 and 43.104008, -89.503381).

The Pheasant Branch and Pheasant Branch Conservancy

Although assessment of the entire Pheasant Branch waterway and Middleton's parks is beyond the scope of this review, an overview of the larger resource will help describe the APE and provide context for the review and recommendations of this consultation. The Friends of Pheasant Branch compiled a booklet (*Friends of Pheasant Branch, Geology, Cultural History and Ecology of the Pheasant Branch Conservancy and Watershed in Middleton, Wisconsin*, 2005) providing an overview of the area; this document provided the basis for the short history below.

The Ho-Chunk Nation occupied the area where the marshes and Pheasant Branch drain into Lake Mendota. Mounds located approximately one and one-half miles north and also approximately one-half mile east of the eastern edge of the proposed undertaking are associated with Native American occupation.

After an 1832 treaty with the Ho-Chunk Nation involving most of Dane County, European settlement began. The area was platted in 1836 and began to be developed. Beginning in the 1850's, portions of the Pheasant Branch creek west of present-day Park Street and the marshes to the west and north were channelized and drained to facilitate a peat harvesting industry and farming. The Pheasant Branch Creek channels now called North Fork and South Fork were created in the settlement period and increased the original creek watershed and stormwater flows considerably.

A village called Pheasant Branch was established in 1853 and was centered around the current Century Avenue Bridge over Pheasant Branch, near the current Branch Street. The village lost its importance in 1856 when the Milwaukee and Mississippi Railroad routed through Peatville, a village located to the southwest. Peatville eventually became Middleton.

After WWII, the area became a residential suburb of Madison and additional roads, utilities and buildings were built. The City of Middletown built nine storm sewers to drain the developed areas; these emptied into Pheasant Branch. A landfill (roughly between GPS Start: 43.10264, -89.50947 to 43.10329, -89.50777) along the southern edge of the creek east of Clark Street School was abandoned and capped after several creek flows and rain events caused erosion and sedimentation flow into Lake Mendota. In 1965, Middleton residents formed the Middleton Conservation Committee to address erosion and sedimentation issues with Pheasant Branch and Lake Mendota. The committee's efforts resulted in the 1970 rerouting of the main creek channel to flow northward into the marsh to reduce sedimentation flow into the lake. The Conservation Committee also spearheaded the purchase of approximately 340 acres of land by the City of to create the Pheasant Branch Conservancy (PBC) in the 1970s and 1980s. Dane County and the Wisconsin DNR also own lands contiguous to the City's parcels that comprise the total 550-acre conservancy.

The section of the Pheasant Branch stream, known as the Mainstem, flows easterly from the Mainstem Pond near Deming Way, under Parmenter Street to Park Street, then from Park to Century Avenue. The area from Parmenter to Park is called Firemen's Park and the area from Park to Century is called Parisi Park.

Firemen's Park is generally bordered by municipal, multi-and single-family residences, and school buildings; the Middleton Police Station, a multi-family complex, several large

residences and the Kromrey Middle School front onto Donna Drive with Firemen's Park and the Pheasant Branch at their rear. Part of Pheasant Branch was relocated to enable the middle school construction. Middleton High School's athletic campus borders Firemen's Park at the south side.

East of Park Street, Parisi Park is generally bordered by one and two-story single-family residences with a cluster of commercial buildings near Century Avenue and Branch Street that back onto the Conservancy property.

A large portion of the stream (approximately 2,800 linear feet beginning 450 feet north of Century Avenue) flows north-northeast from Century Avenue through a wooded area with post-1992 residential neighborhoods to the west, some commercial and multifamily buildings to the south, and at a distance of over one-quarter mile, a residential neighborhood to the east. To the north, the waterway flows into the Pheasant Branch Marsh, where the flow then passes southward again to Lake Mendota.

The streambank was realigned and straightened in 1970. A review of Historic Aerials' historic maps (<http://www.historicaerials.com>) shows the earlier stream route looping eastward in the late 1800's then looping further northward starting in the early 1900's until the 1970 realignment and straightening. The maps also indicate the current stream route was occasionally identified as an artificial ditch (1975, 1979).

Various other engineering and bank stabilization efforts along the stream banks occurred after this project, including the installation of a stream gage station and a rank of gabion baskets on the west bank immediately north of Century Avenue. The most recent streambank stabilization effort occurred in early 2018 when the Conservancy acted to improve the stream quality and reduce sediment outflow by adding cross vanes, toewood/rootwads, rip rap toes, erosion blankets, fabric, and mats, grading and seeding of banks, and removing log jams. The 2018 project began 100 feet north of Century and continued north for 4,000 linear feet. The disaster event, occurring between August 17 and September 14, 2018, severely damaged the stabilization project.

Construction drawings for the project and maps illustrating the APE are included in this submission. The Area of Potential Effect (APE) is defined as the construction limits as the work is not expected to have visual effects beyond the APE. Areas for equipment staging and access will conform to the existing paved trails adjacent to the stream. The APE is noted on Figure 3.

Steps Taken to Identify Historic Properties and the Description of Historic Properties:

Archaeology

An archaeological literature search and technical memorandum of recommendations was undertaken by an SOI-Qualified archaeologist with SERCO contracted by FEMA (Attachment 4).¹ The literature search and technical memorandum indicates that the APE for the corridor, except for two segments, has been previously surveyed (Figure 32). These two segments were heavily modified during a Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970. A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square

¹ Technical Memorandum Final, Project 88229 Event #4402DR-WI Water Control Facilities PBC Streambank Restoration Archaeological Desktop Assessment, City of Middleton, Dane County, Wisconsin. February 3, 2022.

yards of topsoil and seed. Given the APE, scope of work, and the significant extent and nature of the ground disturbing activities for previous stream relocation, the work within these two segments is not likely to encounter archaeological artifacts or features within their original depositional contexts that yield information important to history or pre-history.

SERCO identified only one archaeological site, 47-DA-0815 as partially within the APE. This site was originally identified in 1936 and partially surveyed in a 2016 archaeological survey conducted for a Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin by Cardno.² The partial survey encompasses the APE for this undertaking. The portions of the site that overlap the boundaries of the APE were not recommended for further investigations (Figure 33). FEMA notes that the prior archaeological investigations extended partially beyond the current APE although the entire boundaries of the site were not investigated. It is noted that the limestone walking path was the eastern most limit of the archaeological investigation and is not within this undertaking's APE.

Photos taken post-disaster within the boundaries of 47-DA-0815 (Figures 24-29) illustrate that the velocity of water within Pheasant Creek eroded, destabilized and washed out the nature-based solutions, soils, root wads as well as rip rap, geotechnical fabric and gabion baskets that were installed as part of the implemented Pheasant Branch Stream restoration project.

Although an evaluation of eligibility of 47-DA-0185 outside of the boundaries of the APE is beyond the scope of this review, within the APE, given the velocity of water, significant disturbance from prior installation of streambank stabilization, and prior archaeological investigations that extended beyond the banks which did not encounter archaeological artifacts or features, it is unlikely that intact soils with archaeological artifacts or features within their original depositional contexts exist.

The two stream relocations, (43.104399, -89.504811 and 43.104008, -89.503381) were within the CARDNO previous archaeological survey and outside of the recorded DA-47-0185 (Figures 15, 16, 17).

Based on the absence of archaeological features or artifacts within the APE, FEMA has determined that there are no below ground properties eligible for listing on the National Register of Historic Places within the APE for this undertaking.

Standing Structures

The nearest NRHP-listed properties and one NRHP historic district are located over three-quarters of a mile from the APE for this undertaking. The Dr. Newman C. Rowley House and the Middletown Depot are both over one mile southwest of the Century Avenue bridge over Pheasant Branch. The eastern end of the East End Historic District is three-quarters of a mile southwest of the Century Avenue bridge.

The closest surveyed property found in the Wisconsin SHPO database is the 1847 Old Stamm House, surveyed in 1977. The two-story fieldstone gabled ell building was constructed as a store and was used as a hotel, tavern, dance hall, supper club and restaurant. The building is on the south side of Century Avenue, approximately 325 feet

² Veronica Parsell, Principal Investigator. Cardno, Phase I Archaeological Reconnaissance Pheasant Branch Stream Restoration, City of Middleton, Dane County, Wisconsin. 2016.

from Pheasant Branch; views into and from the Pheasant Branch are limited by heavy vegetation.

The pedestrian bridges crossing Pheasant Branch within the proposed construction project APE are simple utilitarian timber and wood structures supported on earthen embankments and are not of historic age. No other standing structures exist within the APE for this undertaking.

Preliminary Determination of Eligibility:

Based on the information provided above, FEMA has determined that ***no resources within the APE are eligible for listing on the National Register of Historic Places.***

Finding:

FEMA finds that this undertaking will result in ***no historic properties affected.***

Summary of Views of Consulting Parties or Public:

On March 29, 2022, the following Tribes were provided information regarding this project:

Ho-Chunk Nation

Menominee Indian Tribe of Wisconsin

Miami Tribe of Oklahoma

Osage Nation

Winnebago Tribe of Nebraska

Figures:

Figure 1: Approximate undertaking site marked in blue, not to scale.
GoogleEarth image



Figure 2: Approximate undertaking site marked in blue, not to scale.
USGS Map "Middleton, WI" and "Madison West, WI," 1:24000, enlarged to show detail.

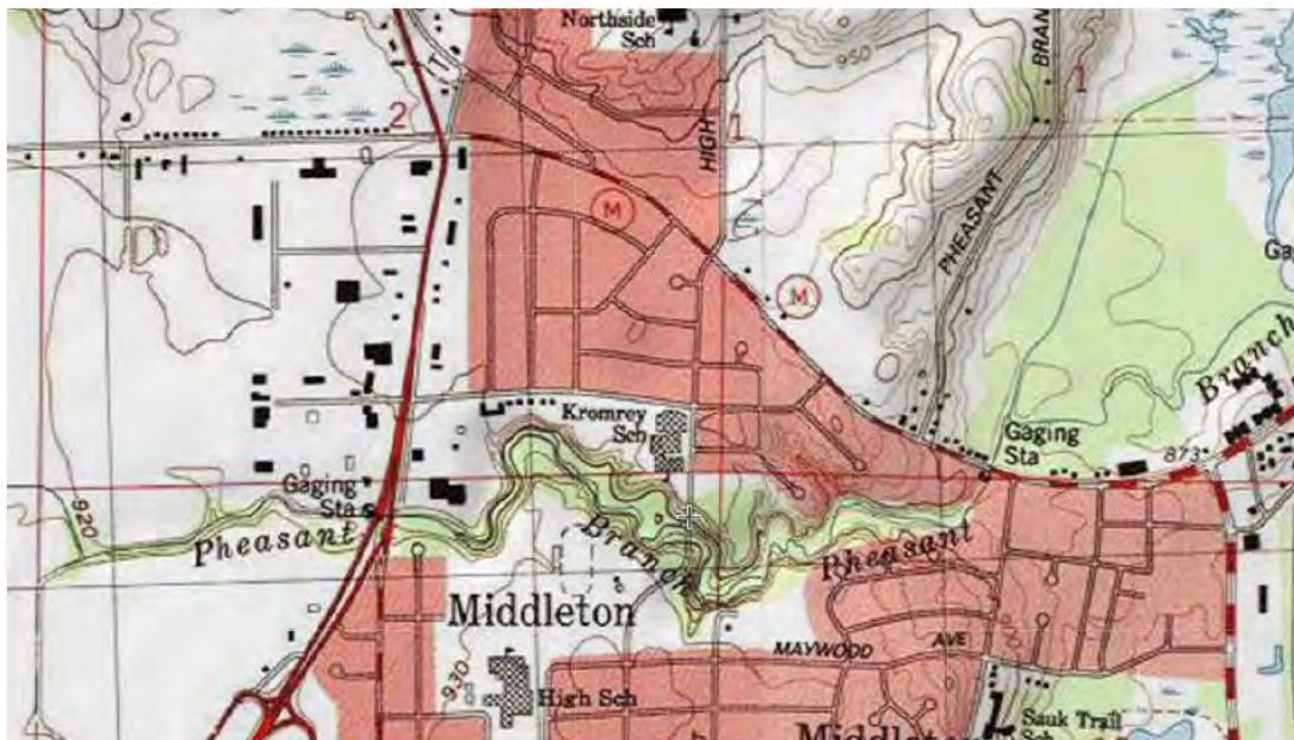


Figure 3: APE in black. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
USGS Map "Middleton, WI" and "Madison West, WI," with WISAHRD overlay.

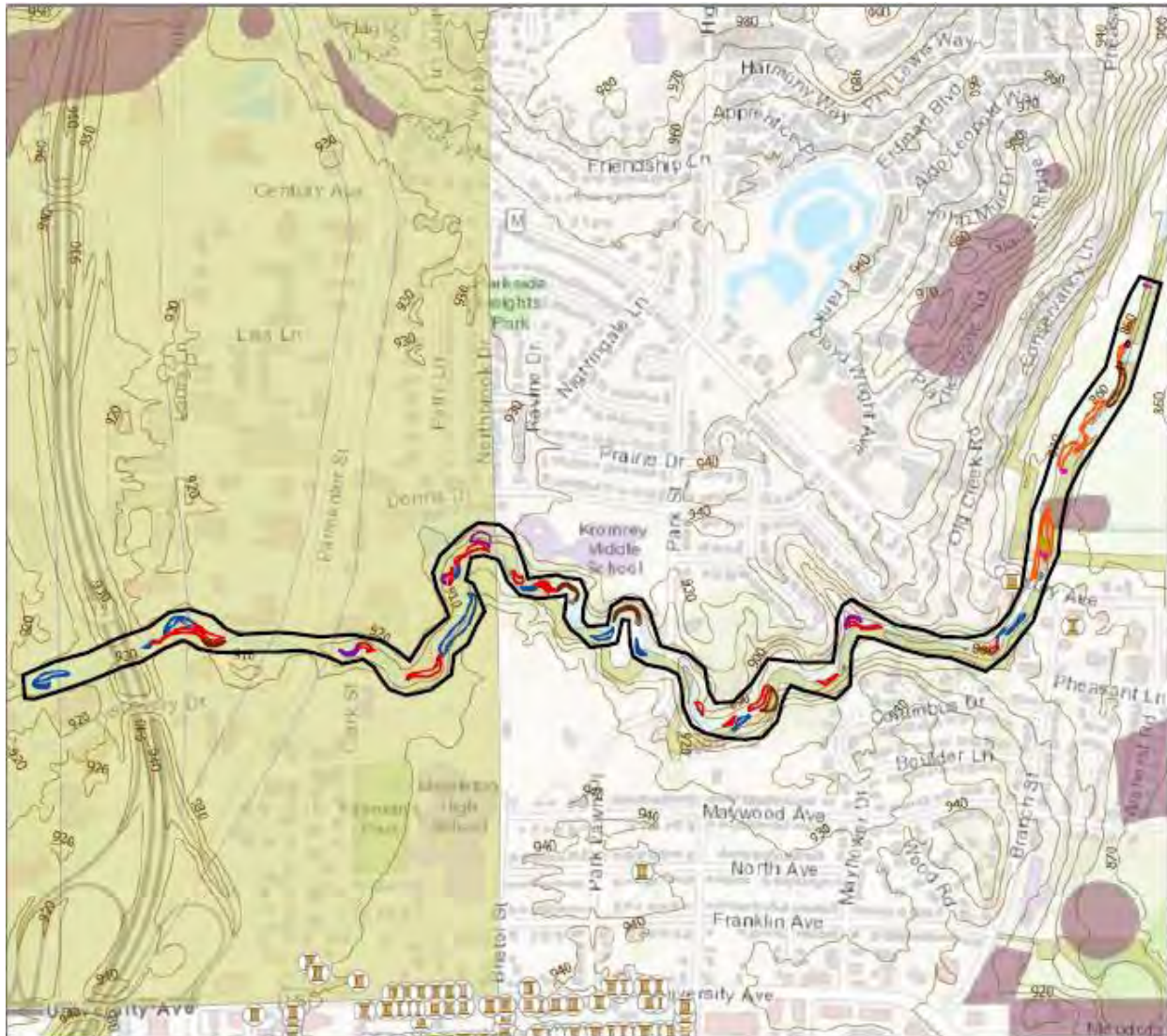


Figure 4: Photo Log. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
GoogleEarth image.



Figure 5: Photo facing east
Project files



Figure 6: Facing east
Project files



Figure 7: Photo facing northeast
Project files

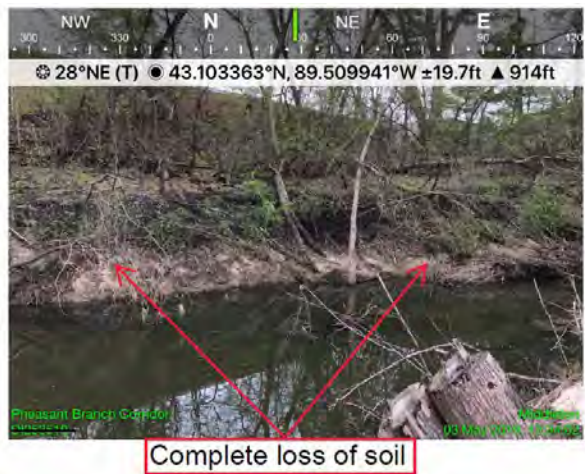


Figure 8: Photo facing east
Project files



Figure 9: Facing west
Project files



Figure 10: Facing south
Project files

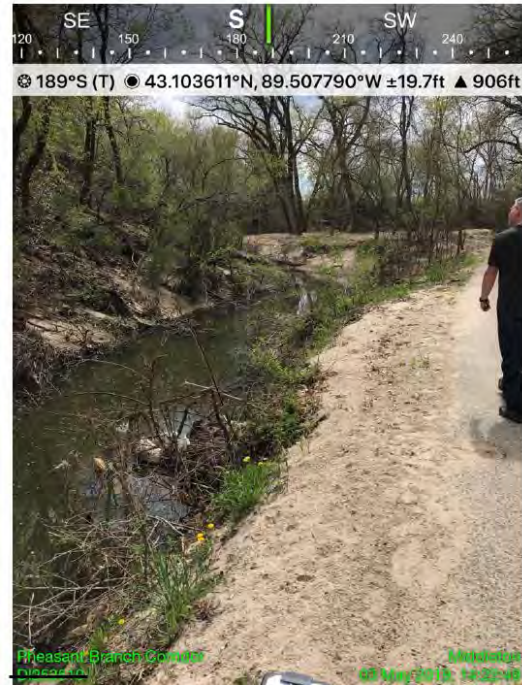


Figure 11: Facing north
Project files



Figure 12: Facing south
Project files



Figure 13: Facing southeast
Project files



Figure 14: Facing north
Project files



Figure 15: Facing southeast, stream relocation
Project files



Figure 16: Facing south, stream relocation
Project files



Figure 17 Facing south, stream relocation
Project files



Figure 18: Facing southwest
Project files



Figure 19: Facing south
Project files



Figure 20: Facing southwest
Project files



Figure 21: Facing southwest
Project files



Figure 22: Facing west
Project files



Figure 23: Facing north
Project files

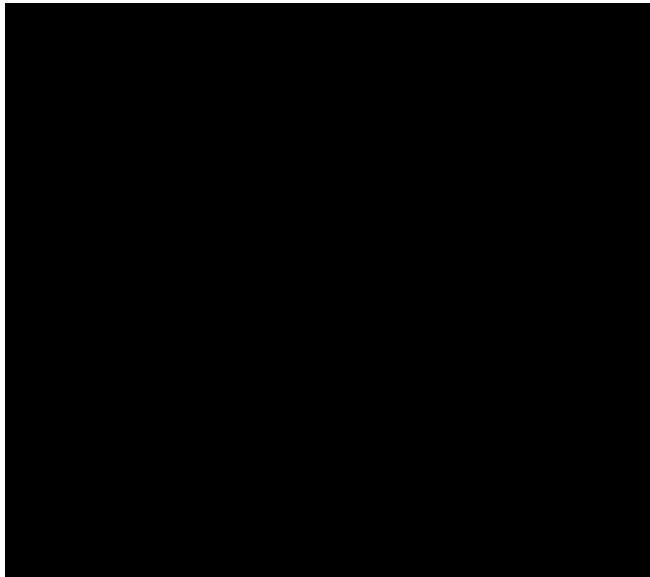


Figure 24: Facing south, 47-DA-0815, FEMA APE
previously surveyed.
Project files

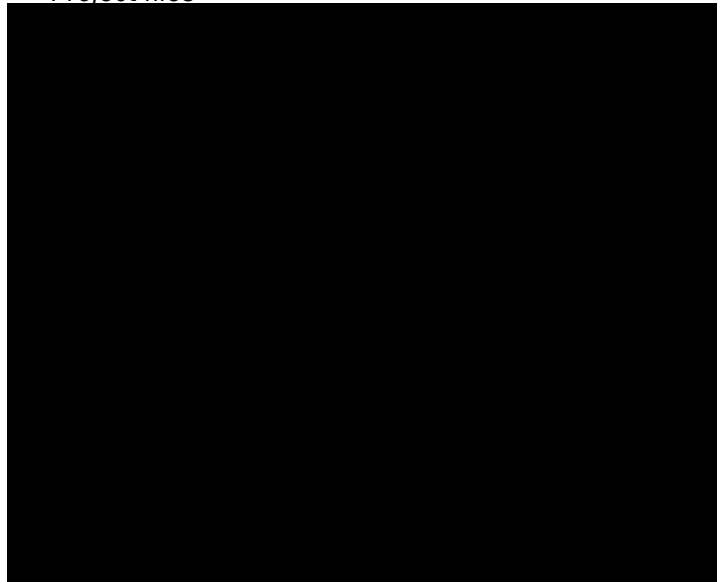


Figure 25: Facing south, 47-DR-0185, FEMA
APE previously surveyed.

Project files



Figure 26: Facing north, 47-DA-0185, FEMA APE
previously surveyed.

Project files



Figure 27: Facing west, 47-DA-0185, FEMA APE
previously surveyed.

Project files

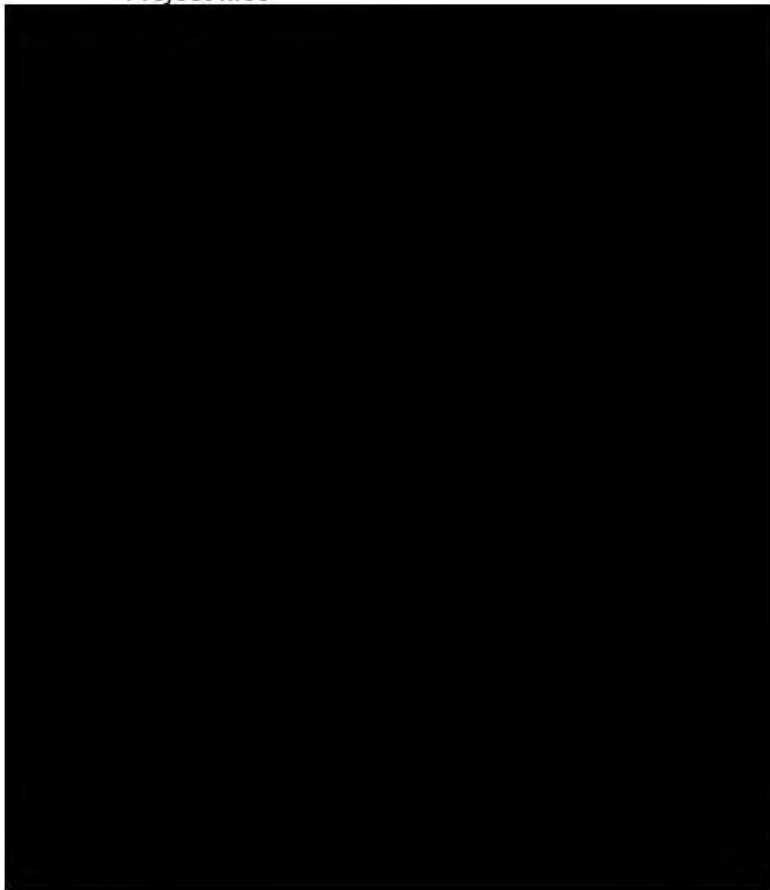


Figure 28: Facing southwest, 47-DA-0185,
FEMA APE previously surveyed.

Project files

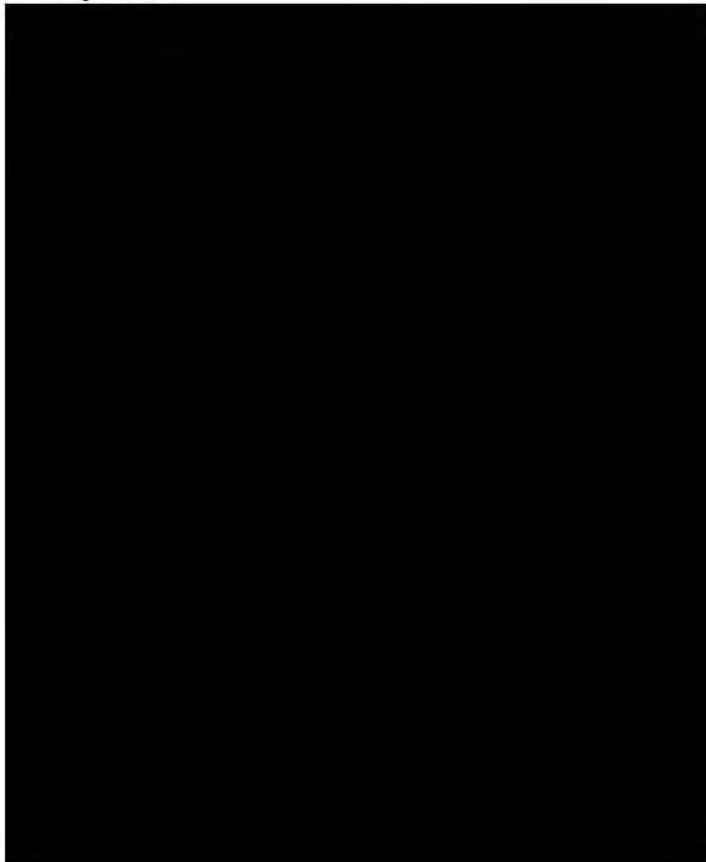


Figure 29: Facing north, 47-DA-0185, FEMA APE
previously surveyed.
Project files

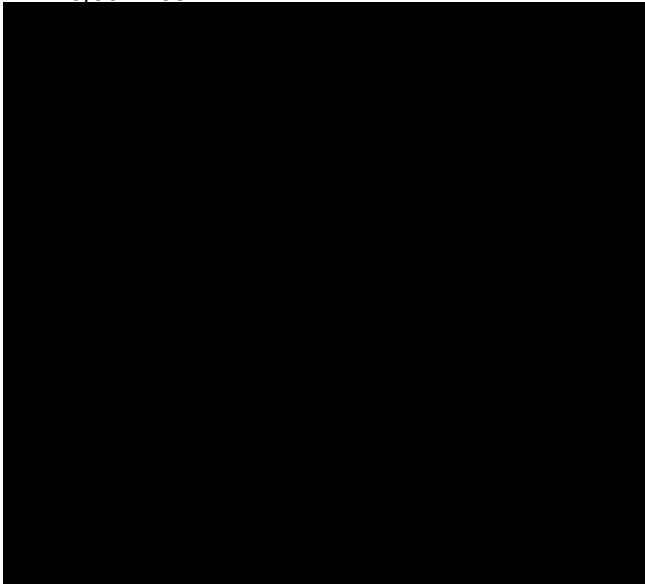


Figure 30: Facing north
Project files

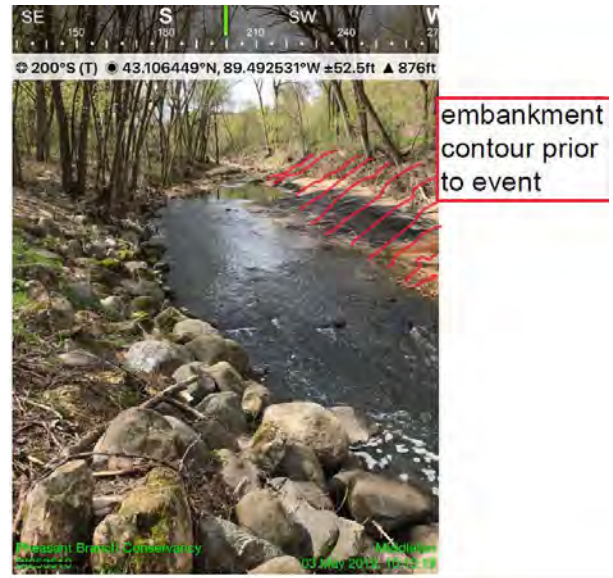


Figure 31: Facing north
Project files



Figure 32: SERCO background literature search identified two unsurveyed segments in yellow.
WHPD image.

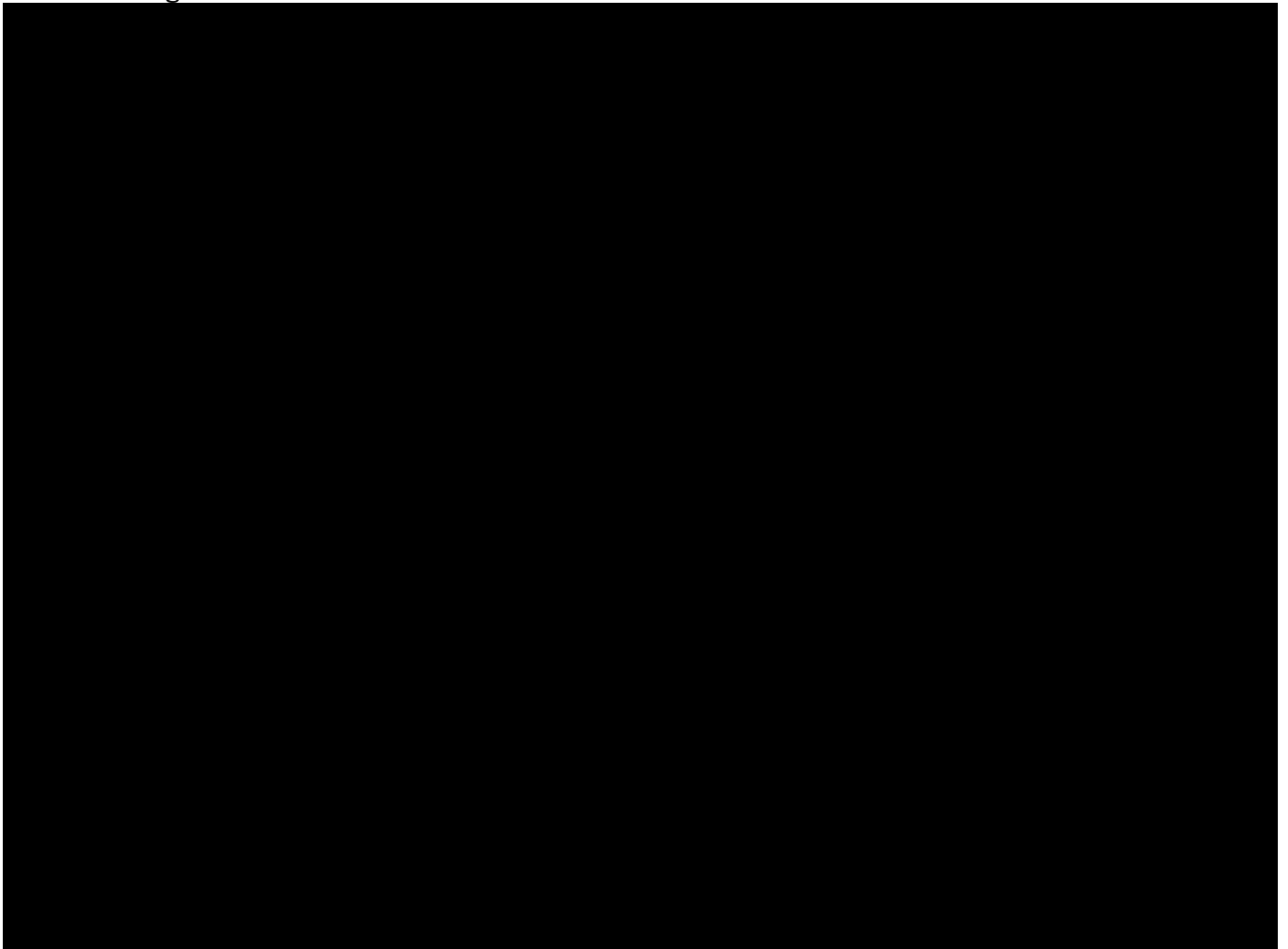
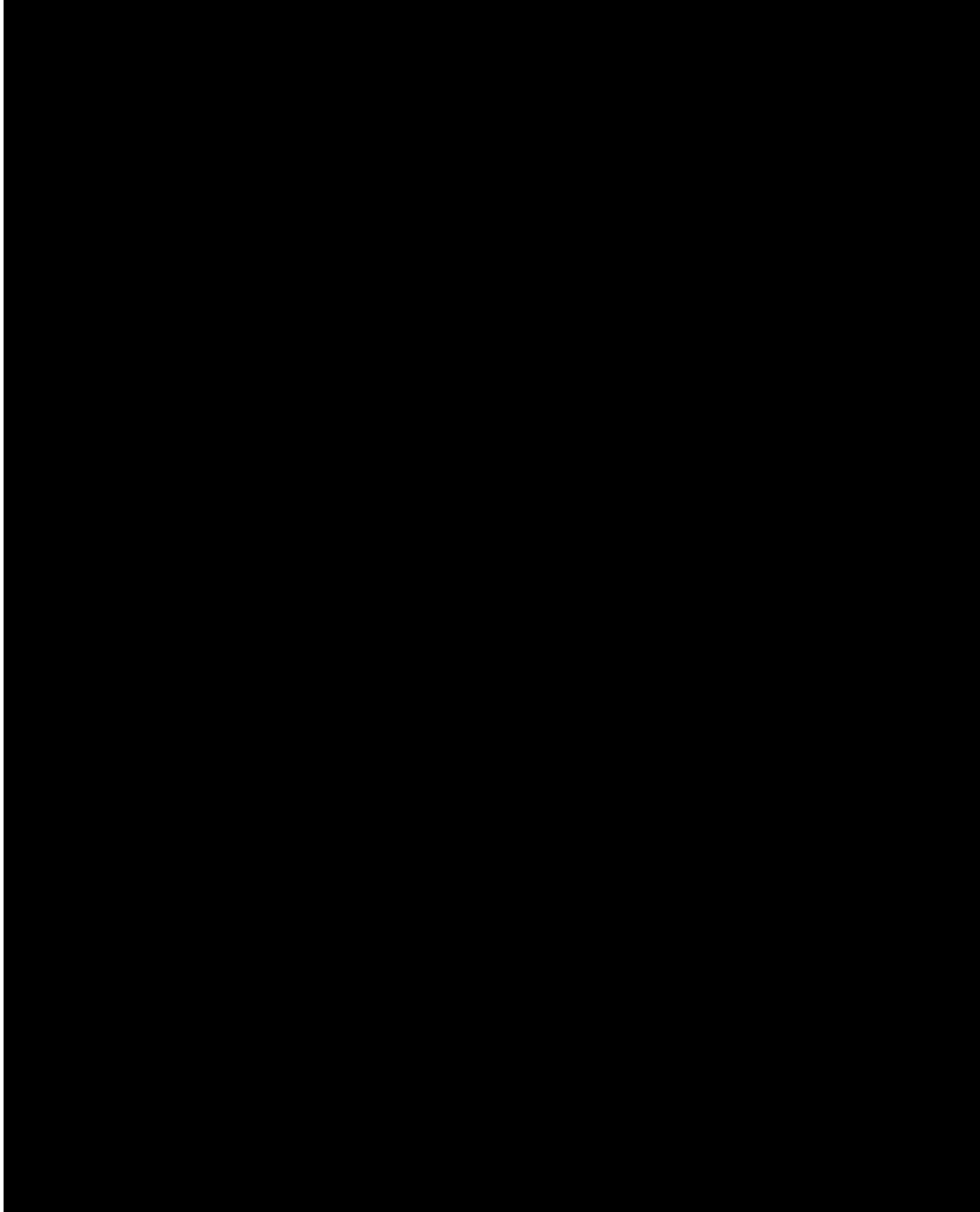


Figure 33: CARDNO 47-DA-0185 Archaeology Shovel Tests, APE previously surveyed. Note buffer extending beyond bank grading areas which extend beyond APE. The eastern limit of the site was only investigated up to and not beyond the existing limestone path.

Cardno aerial.



TECHNICAL MEMORANDUM
FINAL
PROJECT # 88229 EVENT #4402DR-WI
WATER CONTROL FACILITIES PBC STREAMBANK RESTORATION
ARCHAEOLOGICAL DESKTOP ASSESSMENT
CITY OF MIDDLETON, DANE COUNTY, WISCONSIN

SENIOR ARCHAEOLOGIST: Varna Boyd, MA, RPA, Principal Investigator
SUBJECT: Archaeological Desktop Assessment
DATE: February 3, 2022

This technical memorandum details the results of an archaeological desktop assessment in support of the Federal Emergency Management Agency's (FEMA) Public Assistance Grant, 4402DR-WI, for Water Control Facilities PBC Streambank Restoration in the City of Middleton, Wisconsin (Figure 1). The streambank restoration project is a result of Disaster #4402DR-WI (a severe storm with heavy rains) that occurred between August 17 and September 14, 2018. The severe storms and rains caused surface water flooding and high-velocity run-off to the Pheasant Branch drainage channel, which resulted in damage to water control facilities and stream embankments along portions of Pheasant Branch Creek.

The archaeological desktop assessment was conducted in anticipation of consultation with the Wisconsin Historical Society (WHS), which serves as the State Historic Preservation Office (SHPO), and Tribal Historic Preservation Officers (THPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The assessment was performed by a professional archaeologist who exceeds the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44716, September 29, 1983) and who has worked in Wisconsin previously. Portions of this assessment contain sensitive archaeological information (i.e., site location data).

ASSESSMENT GOALS AND METHODS

The goals of the assessment were to determine if previously identified archaeological resources were adjacent to or within the Area of Potential Effect (APE), which has been defined as the proposed limits of ground disturbance; determine what areas, if any, had been previously surveyed within the APE; determine the potential for archaeological resources within any previously unsurveyed areas; and make recommendations for further study, as warranted.



Figure 1: Project Location (Source: City of Middleton, WI).

To accomplish these goals, site file and previous survey research was conducted in the WHS's Wisconsin Historic Preservation Database (WHPD) for Township 7, Region 8E (T7R8E), Sections 1, 2, 11, and 12, which was considered the study area. Environmental data (e.g., soils) that could affect the potential for archaeological resources were reviewed for the APE.

Based on the known presence of archaeological sites in the vicinity, the potential for archaeological sites to be present within the project APE was initially considered to be high. However, it was also known that portions of the APE had been previously disturbed (e.g., graded) and that portions had been previously surveyed (see following section). As a result, the assessment also included a comparison of previous survey areas and project plans to determine if there were unsurveyed areas within the APE and if so, evaluate their potential for archaeological resources. Recommendations were made based on the combined data analysis. No archival research or review of architectural resources or properties was included in this archaeological desktop assessment.

ARCHAEOLOGICAL SITE FILE RESEARCH

Numerous surveys have been conducted in the vicinity, including studies by Archaeological Consulting and Services (Figure 2; Salkin 1992, 1993, and 2008), the WHS-Museum Archaeology Program (Figure 2; Hamilton 2010), and Cardno (Figure 3; Settle 2016) within the project APE. Only two small areas in the North of Century section of the APE have not been surveyed (Figure 4).

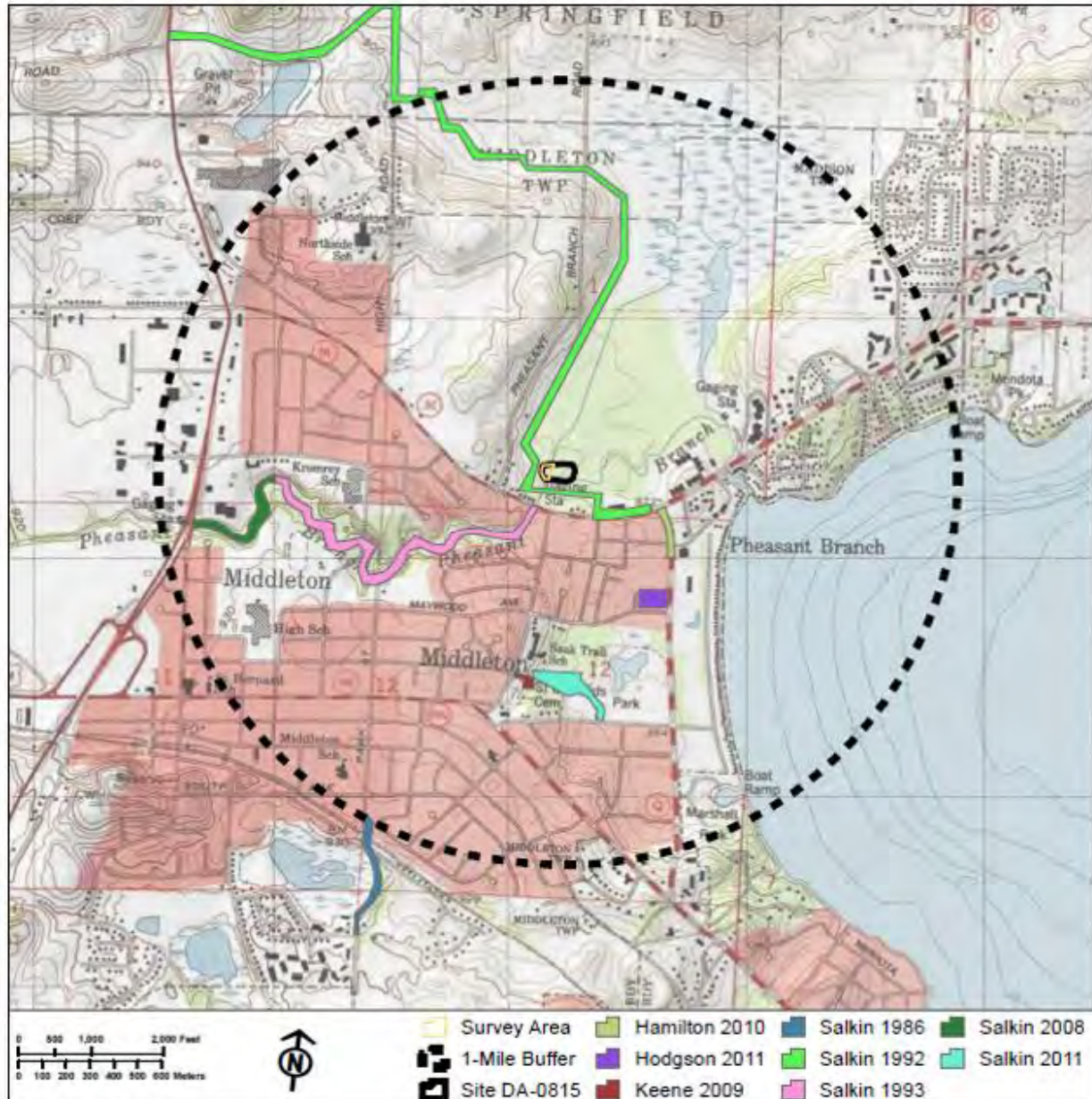
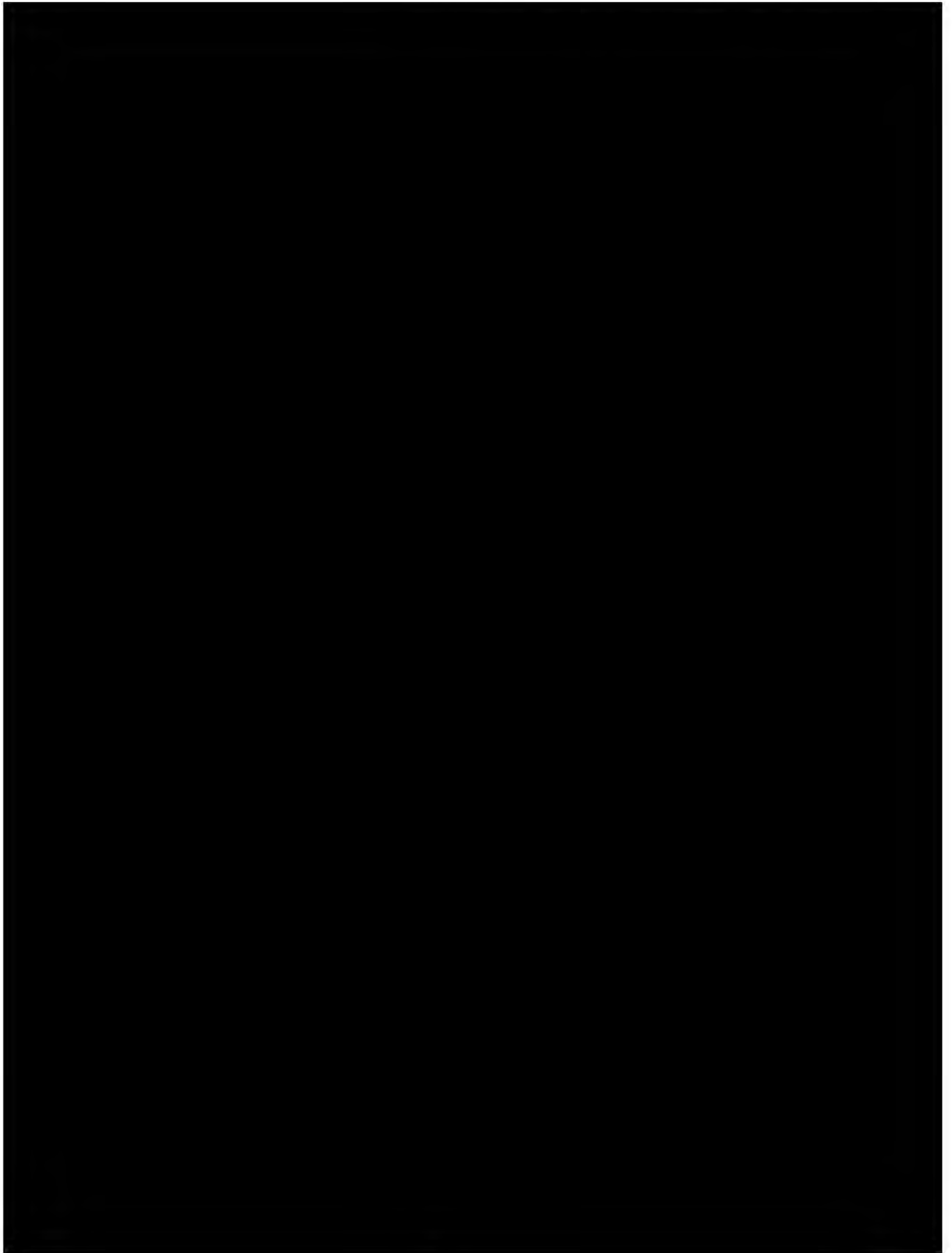


Figure 2: Surveys Prior to 2016 in the Project Vicinity (Source: Settle 2016:15).



Twenty archaeological sites were identified within the four T7R8E sections comprising the study area (Attachment 1). The majority (n=15) are precontact (i.e., Native American) mounds, campsites/villages, lithic workshops (i.e., stone tool manufacture), or lithic scatters (i.e., byproducts of stone tool production). There were also three multicomponent sites, including two precontact and historic Native American sites and one precontact and historic site. Two historic cemeteries, St. Luke's Cemetery and St. Bernard's Cemetery, are also present within the study area. [REDACTED]

[REDACTED] One site, 47-DA-0989 (Pheasant Branch Nature Preserve #1), has been determined not eligible for the NRHP; the remaining sites have not been evaluated for eligibility to the NRHP based on the WHPD site files.

The only site identified within the project APE was 47-DA-0815 (Site B), [REDACTED]. The site was originally identified in 1936 by Charles Brown of the WHS. [REDACTED]

[REDACTED] An archaeological survey of the western third of the site near Pheasant Branch was conducted by Cardno as part of a City of Middleton stream restoration project (Figure 3; Settle 2016). Ten shovel tests were excavated in that study, but none contained artifacts or cultural features. Portions of the east Pheasant Branch streambank and the entire west bank were not tested due to 15 percent or greater slopes (Settle 2016). Ground disturbance related to a limestone walking path was also noted in the eastern portion of Pheasant Branch within the Cardno project area (Settle 2016). Cardno recommended no further archaeological studies in what is now part of the current project APE (Settle 2016). FEMA will provide this technical memorandum as part of the SHPO consultation for this FEMA undertaking.

[REDACTED]

[REDACTED]

[REDACTED]

Two cemeteries are located within the study area. St. Luke's Cemetery is approximately 0.5 miles north and west of the project APE at 7515 Century Place in Middleton. St. Luke's Cemetery dates from approximately 1851 to the present. St. Bernard's Cemetery is approximately 0.4 miles south and southeast of the project APE at 1925 Branch Street in Middleton. It dates from 1897 to the present, but most headstones are from the 1960s to the present.

As the Sauk Mound, Heim Mound, the Murphy site, and the two cemeteries all have human burials, they are protected under the 1985 Wisconsin Act 316 (Wis. Stats. 157.70). While not expected as part of the current project, any effects to these sites require consultation with the WHS.

RESULTS AND RECOMMENDATIONS

The archaeological desktop assessment resulted in the identification of numerous prior surveys in the project APE as well as 20 archaeological sites within the study area. The proposed APE has been previously surveyed except for two small areas in the North of Century portion of the project. According to the City of Middleton, these two areas were part of the Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970 (personal communication between Mr. Roger Ammons, FEMA Program Delivery Manager, and Shawn Stauske, City of Middleton's Director of Public Works June 9, 2020). A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square yards of topsoil and seed. These activities have significantly disturbed the unsurveyed areas of the APE. As a result, no further archaeological survey is recommended within these two areas.

Only one of the 20 archaeological sites, 47-DA-0815 (Site B), is present within the project APE. Prior survey by Cardno was conducted in the portions of the site that overlap the project APE and no artifacts or cultural features were identified. As a result, it is unlikely that further survey would identify other cultural resources. As a result, no further work is recommended within the portion of the site within the proposed APE. However, if plans change and the APE is expanded, additional analysis should be conducted to ensure no unsurveyed areas of the site will be impacted by the proposed project.

Due to the location of the project APE, no effects are anticipated for any of the other archaeological sites or cemeteries, including the Sauk Mound, Heim Mound, and the Murphy site. As a result of the desktop archaeological assessment, it is anticipated that the proposed project will have no effect to known archaeological resources.

REFERENCES CITED

Hamilton, Kelley

2010 CTH Q (Allen Boulevard) Archaeological Monitor, Dane County. Prepared by the Wisconsin Historical Society-Museum Archaeology Program.

Salkin, Philip H.

1992 *An Archaeological Survey of the Proposed Pheasant Branch Interceptor Tributary Route in Middleton, Wisconsin.* Prepared by Archaeological Consulting and Services.

1993 *A Program of Archaeological testing at Two Sites (47DA987 and 47DA989) in Middleton, Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

2008 *WDOT Archaeological Survey Field Report: Pheasant Branch Creek Trail in Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

Settle, Kathleen

2016 *Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin.* Prepared by Cardno.

ATTACHMENT 1

Attachment 1: Archaeological Sites within T7R8E Sections 1, 2, 11, and 12.

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
1	47-DA-0815, Site B		Yes	16-0992	Consultation with SHPO, but no anticipated effect	The site overlaps Pheasant Branch and the APE. A Cardno survey (Settle 2016) in the western third of the site found no artifacts or other cultural resources. The current status of the site is unknown, and the site inventory notes a request for consultation.
1	47-DA-0209, Baskerville Campsite	Precontact Campsite/Village/Workshop	No	N/A	No effect	
1	47-DA-0989, Pheasant Branch Nature Preserve #1	Precontact Campsite/Village	No	92-0421	No effect	Not eligible.
1	47-DA-1249, Middleton Hills	Precontact (Late Paleoindian – Late Woodland) Campsite/Village	No	N/A	No effect	
2	St. Luke's Cemetery	Historic Cemetery	No	N/A	No effect	
2	47-DA-0737, Freeman	Precontact (Middle Archaic and Early Woodland) Lithic Scatter and Historic Periods	No	10-0283 and 89-0646	No effect	
2	47-DA-0966, S. Ziegler III	Precontact Workshop	No	89-0646	No effect	

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
2	47-DA-1422, Murphy Site II	Precontact (Middle and Late Archaic, Late Woodland) Campsite/Village/Burial	No	10-0283	No effect	
11	47-DA-0441, Woodside Heights Park	Precontact (Archaic) Campsite/Village	No	78-1104	No effect	
11	47-DA-0447, Park Shores	Precontact (Late Paleoindian and Archaic) Campsite/Village	No	78-1104	No effect	Most of site was destroyed by development, but a wooded area may still have intact deposits.
12	St. Bernard's Cemetery	Historic Cemetery	No	N/A	No effect	Any work in the park requires monitoring by an archaeologist.
12	47-DA-0381, Miller	Precontact and Historic Native American Campsite/Village	No	N/A	No effect	
12	47-DA-0389, Pheasant Branch	Precontact and Historic Native American Campsite/Village	No	11-9007, 10-7712	No effect	Portions of the site have been heavily disturbed. Site boundaries were amended in 2010.
12	47-DA-0423, Lemcke	Precontact (Late Archaic) Campsite/Village	No	N/A	No effect	
12	47-DA-0433, Sauk Trail School	Precontact (Late Woodland) Isolated Finds	No	11-9012	No effect	
12	47-DA-0495, Iltis Beach	Precontact (Late Woodland) Campsite/Village/Workshop	No	N/A	No effect	
12	47-DA-0816, Heim Farm	Precontact (Late Paleoindian, Late Archaic – Middle Woodland) Campsite/Village	No	11-9012	No effect	
Total Sites	20		1			

60 to 90% complete plans were provided as part of this consultation.

See Appendix A for the most recent project plans.

Appendix C: Tribal Nation Consultation



U.S. Department of Homeland Security
FEMA Region 5
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521

FEMA

March 29, 2022

William Quackenbush, Tribal Historic Preservation Officer
Ho-Chunk Nation
W 9814 Airport Rd P.O. Box 667
Black River Falls, Wisconsin 54615

Re: Pheasant Branch Creek Stabilization
Middleton, Dane County, Wisconsin
FEMA Project #88229; PW 593
43.103301, -89.513886 to 43.109433, -89.491877
S1, 2, 11, and 12 T7N R8E

Dear Mr. Quackenbush:

Pursuant to the Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the captioned Public Assistance Grant Program project. In accord with 36 CFR §800.11, I am enclosing documentation regarding this undertaking and its effect on historic properties, which is being sent concurrently to the Wisconsin State Historic Preservation Office for their review. This documentation provides the justification for FEMA's finding of no historic properties affected.

FEMA is providing these materials to the following federally recognized Indian tribes (Tribes) thought to have interests in the area:

- Ho-Chunk Nation
- Menominee Indian Tribe of Wisconsin
- Miami Tribe of Oklahoma
- Osage Nation
- Winnebago Tribe of Nebraska

In accord with 36 CFR 800.2(c)(2)(ii), FEMA is providing this opportunity for the Ho-Chunk Nation to join the consultation by identifying concerns and providing comments about historic properties that may be affected by this undertaking. FEMA would also appreciate notice of Tribes other than those listed above that may have an interest in this undertaking.

SWe would appreciate a response from your office within 30 days. If you have questions, do not hesitate to contact me at 312-408-5549 or at fema-r5-environmental@fema.dhs.gov. If we do not receive a response within 30 days, FEMA will move forward with this undertaking without comment from the Ho-Chunk Nation.

Sincerely,

Duane Castaldi
Regional Environmental Officer
FEMA Region 5

Sent by email to bill.quackenbush@ho-chunk.com



FEMA

March 29, 2022

***Documentation Initiating and Concluding Section 106 Consultation
for a FEMA-Funded Undertaking***

Project Information:

Project ID: #88229; PW 593

Title: Pheasant Branch Creek Stabilization

Address: Pheasant Branch Creek from crossing at Deming Way, eastward to Century Avenue, then northward, parallel to Conservancy Lane

Location: Middleton, Dane County, WI

GPS: 43.102620, -89.51821 to 43.10945, -89.49057

PLSS: S1, 2, 11, and 12 T7N R8E

Description of Undertaking and APE:

As a result of severe storms, tornadoes, straight-line winds, flooding, and landslides affecting areas of the State of Wisconsin, President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) Program funding. The disaster event resulted in damage to infrastructure along the Pheasant Branch Creek Corridor from crossing at Deming Way and continuing eastward to north of Century Avenue in Middleton, Wisconsin (43.10262, -89.51821 to 43.10945, -89.49057).

The City of Middleton performed streambed relocation and streambank stabilization projects (most recently in 2007, 2008, 2009, 2010, 2012, and 2015) intermittently along this stretch of Pheasant Branch Creek, incorporating a variety of construction methods including sheet pile retaining walls, gabion baskets, toewood and rootwad, and rip rap toe protection. The City cleared, grubbed, graded and seeded the banks as part of these efforts. The flooding event washed away both engineered and non-engineered portions of the streambanks. However, only the areas with engineered stream stabilization will be funded by the FEMA PA grant program. Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as six timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated with the parks and creek corridor experienced erosion damage.

The Applicant, the City of Middleton, proposes to use contract services to repair the engineered streambanks in-kind to their pre-disaster design, save for the substitution of rip-rap toe protection and fill instead of rootwad and fill in several locations. Some locations along the bank that were damaged in the event will not be repaired but will be allowed to naturalize. All work is intermittent throughout the proposed construction project bounds.

The six timber and wood pedestrian bridges will be replaced and the recreational trail will be repaired and modified. The streambed will be lowered in a few locations to

accommodate the new bridges and trail modifications. Additionally, the stream itself will be shifted in two locations (43.104399, -89.504811 and 43.104008, -89.503381).

The Pheasant Branch and Pheasant Branch Conservancy

Although assessment of the entire Pheasant Branch waterway and Middleton's parks is beyond the scope of this review, an overview of the larger resource will help describe the APE and provide context for the review and recommendations of this consultation. The Friends of Pheasant Branch compiled a booklet (*Friends of Pheasant Branch, Geology, Cultural History and Ecology of the Pheasant Branch Conservancy and Watershed in Middleton, Wisconsin*, 2005) providing an overview of the area; this document provided the basis for the short history below.

The Ho-Chunk Nation occupied the area where the marshes and Pheasant Branch drain into Lake Mendota. Mounds located approximately one and one-half miles north and also approximately one-half mile east of the eastern edge of the proposed undertaking are associated with Native American occupation.

After an 1832 treaty with the Ho-Chunk Nation involving most of Dane County, European settlement began. The area was platted in 1836 and began to be developed. Beginning in the 1850's, portions of the Pheasant Branch creek west of present-day Park Street and the marshes to the west and north were channelized and drained to facilitate a peat harvesting industry and farming. The Pheasant Branch Creek channels now called North Fork and South Fork were created in the settlement period and increased the original creek watershed and stormwater flows considerably.

A village called Pheasant Branch was established in 1853 and was centered around the current Century Avenue Bridge over Pheasant Branch, near the current Branch Street. The village lost its importance in 1856 when the Milwaukee and Mississippi Railroad routed through Peatville, a village located to the southwest. Peatville eventually became Middleton.

After WWII, the area became a residential suburb of Madison and additional roads, utilities and buildings were built. The City of Middletown built nine storm sewers to drain the developed areas; these emptied into Pheasant Branch. A landfill (roughly between GPS Start: 43.10264, -89.50947 to 43.10329, -89.50777) along the southern edge of the creek east of Clark Street School was abandoned and capped after several creek flows and rain events caused erosion and sedimentation flow into Lake Mendota. In 1965, Middleton residents formed the Middleton Conservation Committee to address erosion and sedimentation issues with Pheasant Branch and Lake Mendota. The committee's efforts resulted in the 1970 rerouting of the main creek channel to flow northward into the marsh to reduce sedimentation flow into the lake. The Conservation Committee also spearheaded the purchase of approximately 340 acres of land by the City of to create the Pheasant Branch Conservancy (PBC) in the 1970s and 1980s. Dane County and the Wisconsin DNR also own lands contiguous to the City's parcels that comprise the total 550-acre conservancy.

The section of the Pheasant Branch stream, known as the Mainstem, flows easterly from the Mainstem Pond near Deming Way, under Parmenter Street to Park Street, then from Park to Century Avenue. The area from Parmenter to Park is called Firemen's Park and the area from Park to Century is called Parisi Park.

Firemen's Park is generally bordered by municipal, multi-and single-family residences, and school buildings; the Middleton Police Station, a multi-family complex, several large

residences and the Kromrey Middle School front onto Donna Drive with Firemen's Park and the Pheasant Branch at their rear. Part of Pheasant Branch was relocated to enable the middle school construction. Middleton High School's athletic campus borders Firemen's Park at the south side.

East of Park Street, Parisi Park is generally bordered by one and two-story single-family residences with a cluster of commercial buildings near Century Avenue and Branch Street that back onto the Conservancy property.

A large portion of the stream (approximately 2,800 linear feet beginning 450 feet north of Century Avenue) flows north-northeast from Century Avenue through a wooded area with post-1992 residential neighborhoods to the west, some commercial and multifamily buildings to the south, and at a distance of over one-quarter mile, a residential neighborhood to the east. To the north, the waterway flows into the Pheasant Branch Marsh, where the flow then passes southward again to Lake Mendota.

The streambank was realigned and straightened in 1970. A review of Historic Aerials' historic maps (<http://www.historicaerials.com>) shows the earlier stream route looping eastward in the late 1800's then looping further northward starting in the early 1900's until the 1970 realignment and straightening. The maps also indicate the current stream route was occasionally identified as an artificial ditch (1975, 1979).

Various other engineering and bank stabilization efforts along the stream banks occurred after this project, including the installation of a stream gage station and a rank of gabion baskets on the west bank immediately north of Century Avenue. The most recent streambank stabilization effort occurred in early 2018 when the Conservancy acted to improve the stream quality and reduce sediment outflow by adding cross vanes, toewood/rootwads, rip rap toes, erosion blankets, fabric, and mats, grading and seeding of banks, and removing log jams. The 2018 project began 100 feet north of Century and continued north for 4,000 linear feet. The disaster event, occurring between August 17 and September 14, 2018, severely damaged the stabilization project.

Construction drawings for the project and maps illustrating the APE are included in this submission. The Area of Potential Effect (APE) is defined as the construction limits as the work is not expected to have visual effects beyond the APE. Areas for equipment staging and access will conform to the existing paved trails adjacent to the stream. The APE is noted on Figure 3.

Steps Taken to Identify Historic Properties and the Description of Historic Properties:

Archaeology

An archaeological literature search and technical memorandum of recommendations was undertaken by an SOI-Qualified archaeologist with SERCO contracted by FEMA (Attachment 4).¹ The literature search and technical memorandum indicates that the APE for the corridor, except for two segments, has been previously surveyed (Figure 32). These two segments were heavily modified during a Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970. A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square

¹ Technical Memorandum Final, Project 88229 Event #4402DR-WI Water Control Facilities PBC Streambank Restoration Archaeological Desktop Assessment, City of Middleton, Dane County, Wisconsin. February 3, 2022.

yards of topsoil and seed. Given the APE, scope of work, and the significant extent and nature of the ground disturbing activities for previous stream relocation, the work within these two segments is not likely to encounter archaeological artifacts or features within their original depositional contexts that yield information important to history or pre-history.

SERCO identified only one archaeological site, 47-DA-0815 as partially within the APE. This site was originally identified in 1936 and partially surveyed in a 2016 archaeological survey conducted for a Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin by Cardno.² The partial survey encompasses the APE for this undertaking. The portions of the site that overlap the boundaries of the APE were not recommended for further investigations (Figure 33). FEMA notes that the prior archaeological investigations extended partially beyond the current APE although the entire boundaries of the site were not investigated. It is noted that the limestone walking path was the eastern most limit of the archaeological investigation and is not within this undertaking's APE.

Photos taken post-disaster within the boundaries of 47-DA-0815 (Figures 24-29) illustrate that the velocity of water within Pheasant Creek eroded, destabilized and washed out the nature-based solutions, soils, root wads as well as rip rap, geotechnical fabric and gabion baskets that were installed as part of the implemented Pheasant Branch Stream restoration project.

Although an evaluation of eligibility of 47-DA-0185 outside of the boundaries of the APE is beyond the scope of this review, within the APE, given the velocity of water, significant disturbance from prior installation of streambank stabilization, and prior archaeological investigations that extended beyond the banks which did not encounter archaeological artifacts or features, it is unlikely that intact soils with archaeological artifacts or features within their original depositional contexts exist.

The two stream relocations, (43.104399, -89.504811 and 43.104008, -89.503381) were within the CARDNO previous archaeological survey and outside of the recorded DA-47-0185 (Figures 15, 16, 17).

Based on the absence of archaeological features or artifacts within the APE, FEMA has determined that there are no below ground properties eligible for listing on the National Register of Historic Places within the APE for this undertaking.

Standing Structures

The nearest NRHP-listed properties and one NRHP historic district are located over three-quarters of a mile from the APE for this undertaking. The Dr. Newman C. Rowley House and the Middletown Depot are both over one mile southwest of the Century Avenue bridge over Pheasant Branch. The eastern end of the East End Historic District is three-quarters of a mile southwest of the Century Avenue bridge.

The closest surveyed property found in the Wisconsin SHPO database is the 1847 Old Stamm House, surveyed in 1977. The two-story fieldstone gabled ell building was constructed as a store and was used as a hotel, tavern, dance hall, supper club and restaurant. The building is on the south side of Century Avenue, approximately 325 feet

² Veronica Parsell, Principal Investigator. Cardno, Phase I Archaeological Reconnaissance Pheasant Branch Stream Restoration, City of Middleton, Dane County, Wisconsin. 2016.

from Pheasant Branch; views into and from the Pheasant Branch are limited by heavy vegetation.

The pedestrian bridges crossing Pheasant Branch within the proposed construction project APE are simple utilitarian timber and wood structures supported on earthen embankments and are not of historic age. No other standing structures exist within the APE for this undertaking.

Preliminary Determination of Eligibility:

Based on the information provided above, FEMA has determined that ***no resources within the APE are eligible for listing on the National Register of Historic Places.***

Finding:

FEMA finds that this undertaking will result in ***no historic properties affected.***

Summary of Views of Consulting Parties or Public:

On March 29, 2022, the following Tribes were provided information regarding this project:

Ho-Chunk Nation

Menominee Indian Tribe of Wisconsin

Miami Tribe of Oklahoma

Osage Nation

Winnebago Tribe of Nebraska

Figures:

Figure 1: Approximate undertaking site marked in blue, not to scale.
GoogleEarth image



Figure 2: Approximate undertaking site marked in blue, not to scale.
USGS Map "Middleton, WI" and "Madison West, WI," 1:24000, enlarged to show detail.

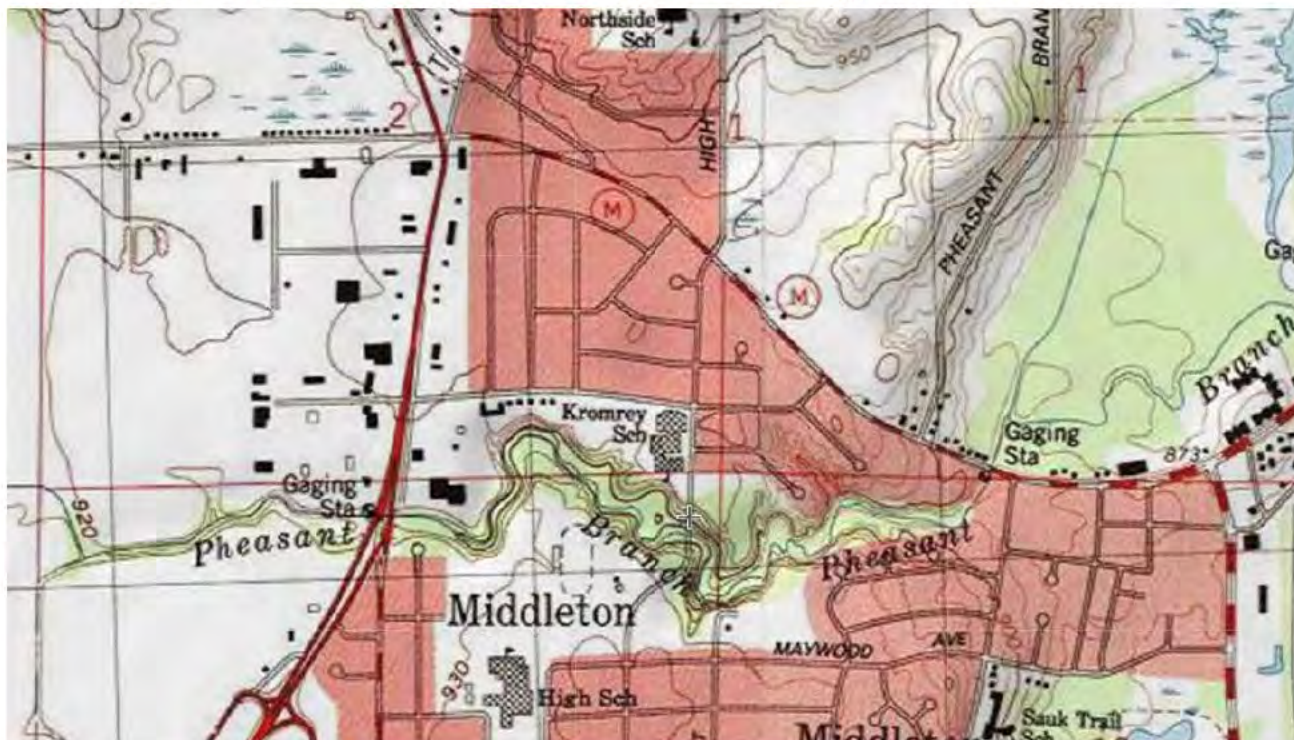


Figure 3: APE in black. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
USGS Map "Middleton, WI" and "Madison West, WI," with WISAHRD overlay.

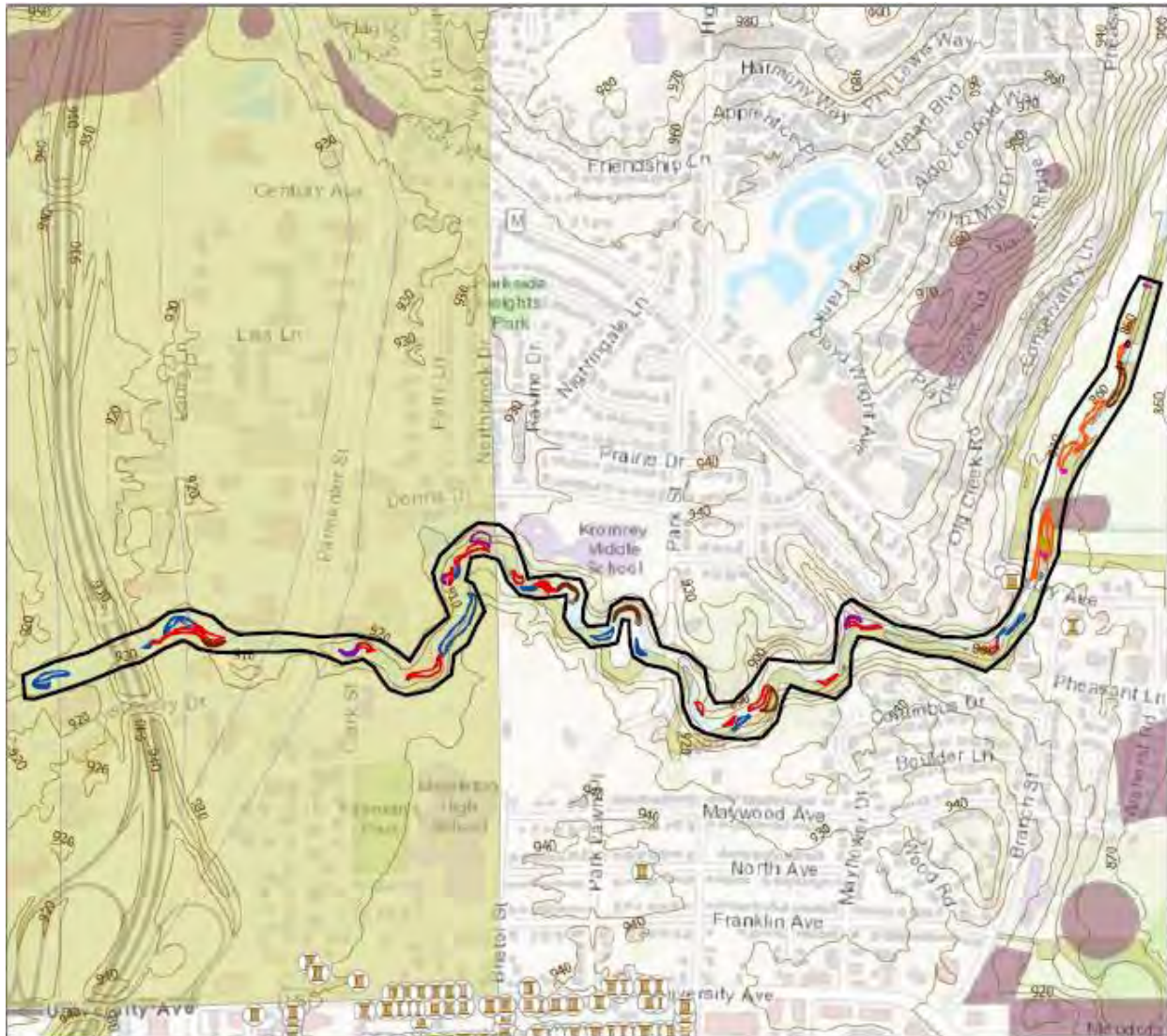


Figure 4: Photo Log. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
GoogleEarth image.

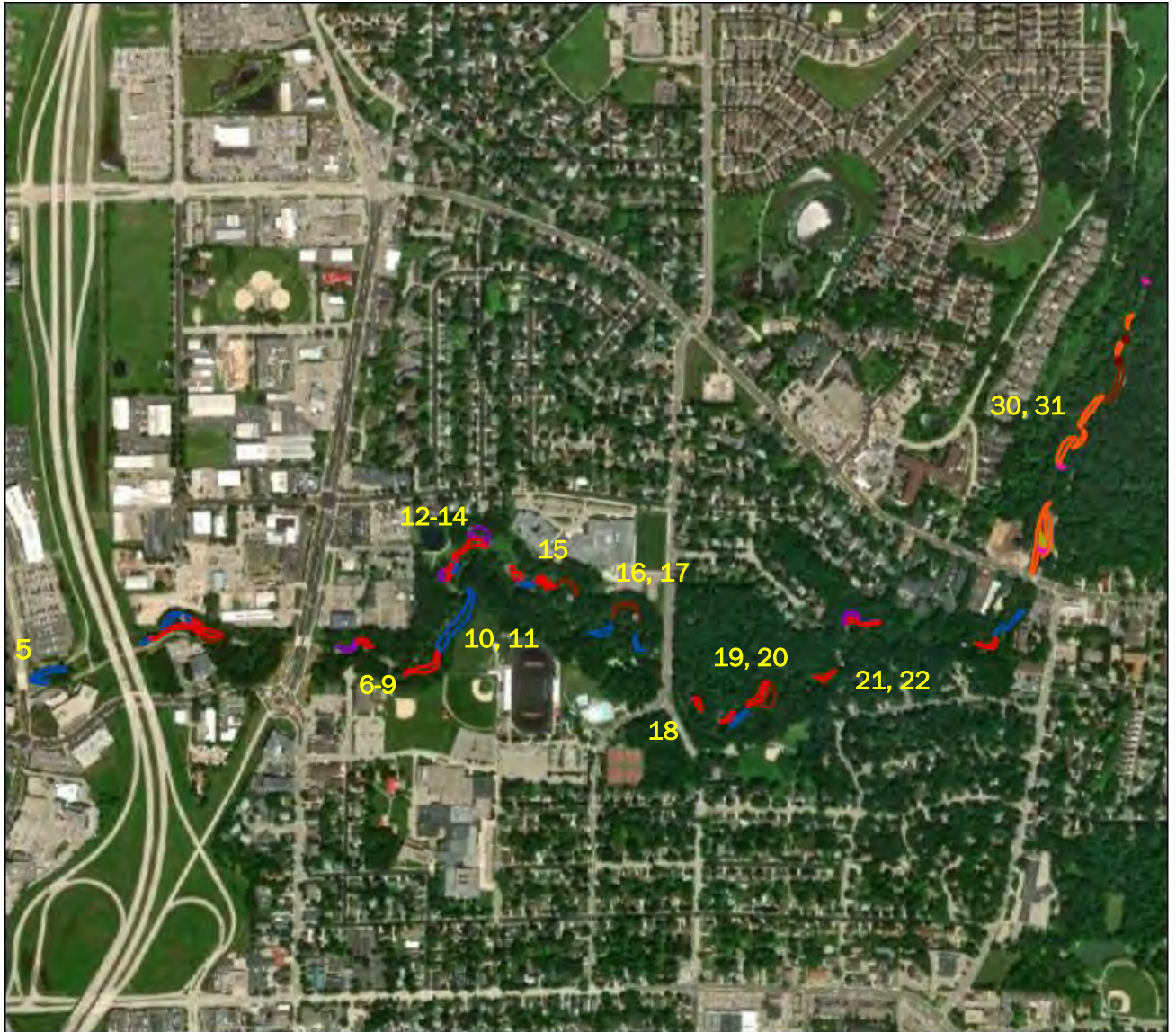


Figure 5: Photo facing east
Project files



Figure 6: Facing east
Project files



Figure 7: Photo facing northeast
Project files

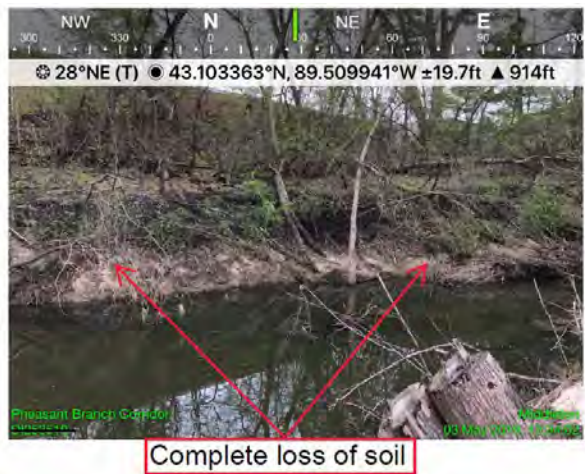


Figure 8: Photo facing east
Project files



Figure 9: Facing west
Project files



Figure 10: Facing south
Project files

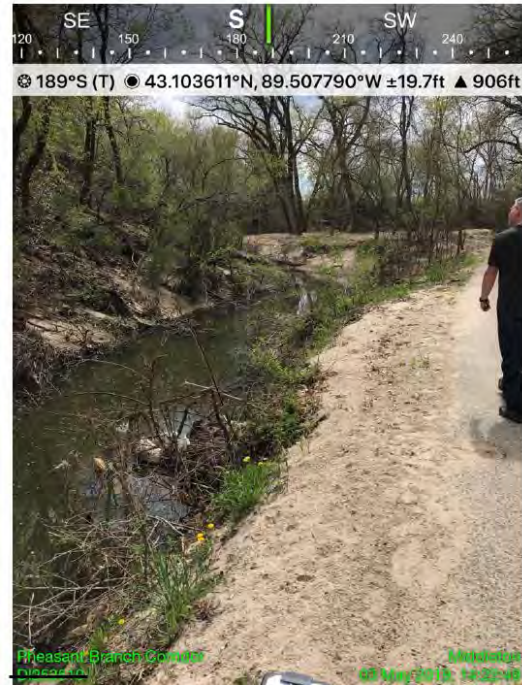


Figure 11: Facing north
Project files



Figure 12: Facing south
Project files



Figure 13: Facing southeast
Project files



Figure 14: Facing north
Project files



Figure 15: Facing southeast, stream relocation
Project files



Figure 16: Facing south, stream relocation
Project files



Figure 17 Facing south, stream relocation
Project files



Figure 18: Facing southwest
Project files



Figure 19: Facing south
Project files



Figure 20: Facing southwest
Project files



Figure 21: Facing southwest
Project files



Figure 22: Facing west
Project files



Figure 23: Facing north
Project files

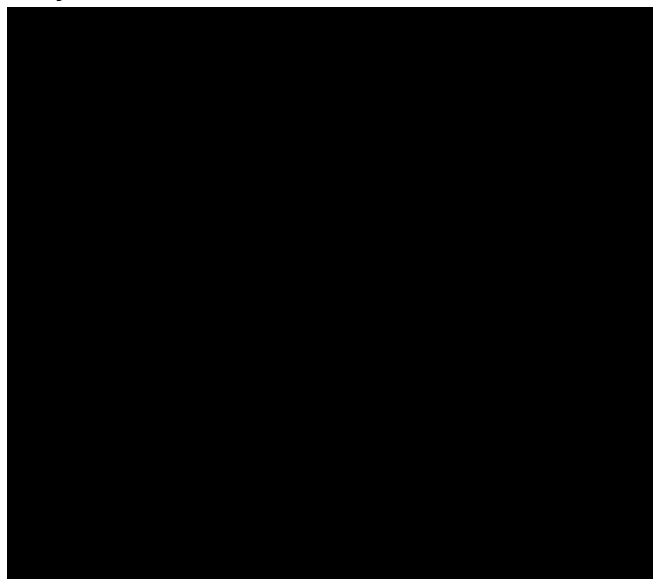


Figure 24: Facing south, 47-DA-0815, FEMA APE
previously surveyed.
Project files



Figure 25: Facing south, 47-DR-0185, FEMA
APE previously surveyed.

Project files



Figure 26: Facing north, 47-DA-0185, FEMA APE
previously surveyed.

Project files

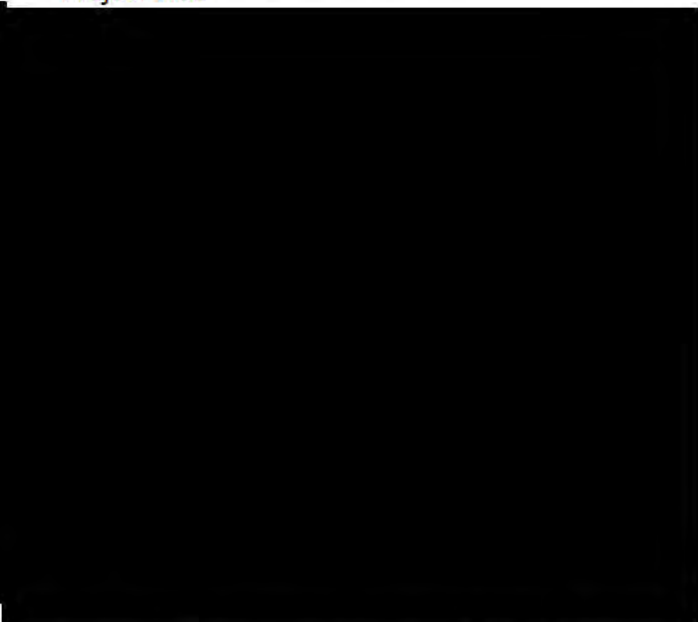


Figure 27: Facing west, 47-DA-0185, FEMA APE
previously surveyed.

Project files

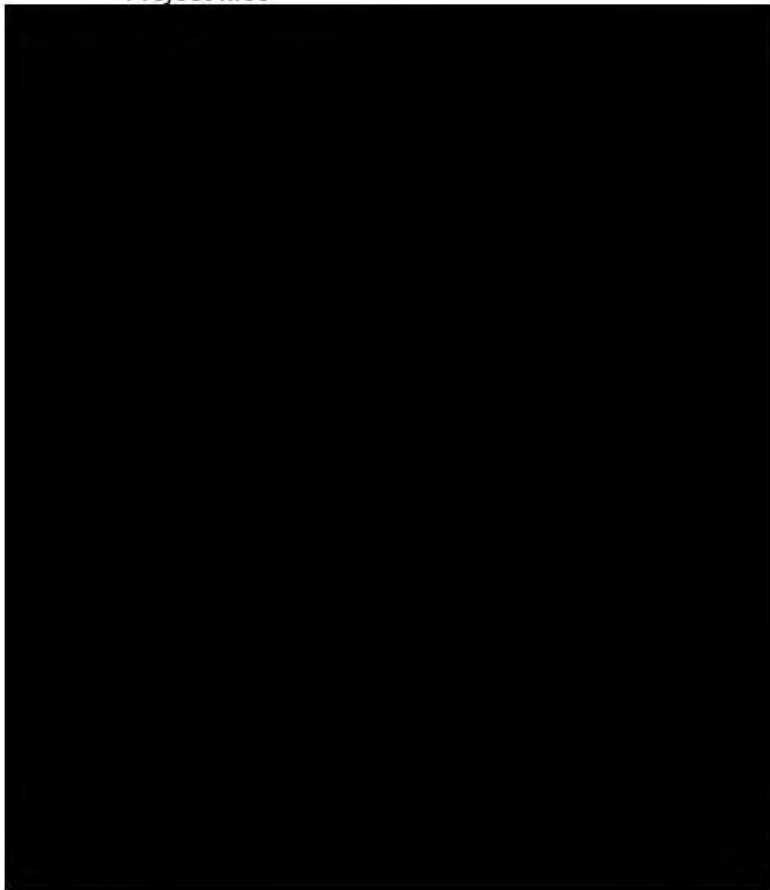


Figure 28: Facing southwest, 47-DA-0185,
FEMA APE previously surveyed.

Project files

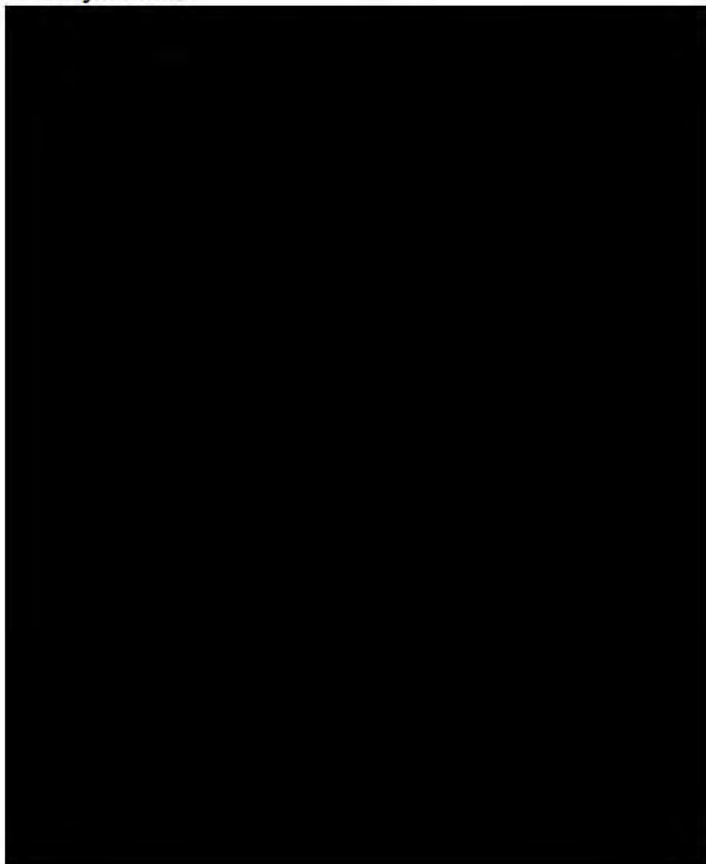


Figure 29: Facing north, 47-DA-0185, FEMA APE
previously surveyed.
Project files

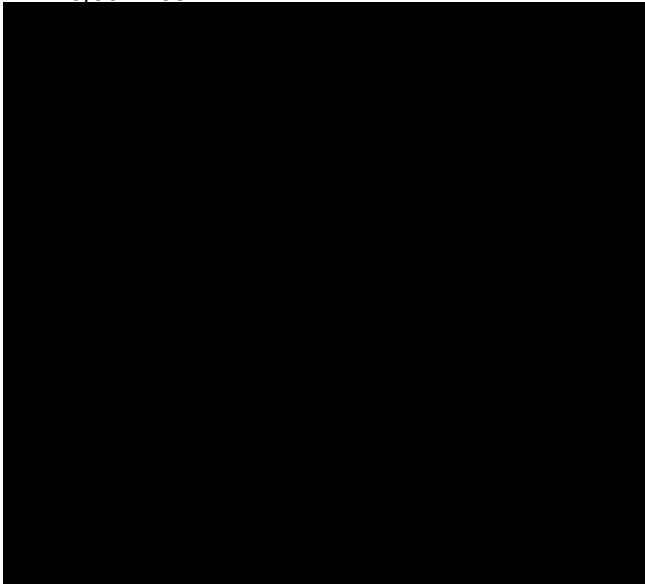


Figure 30: Facing north
Project files

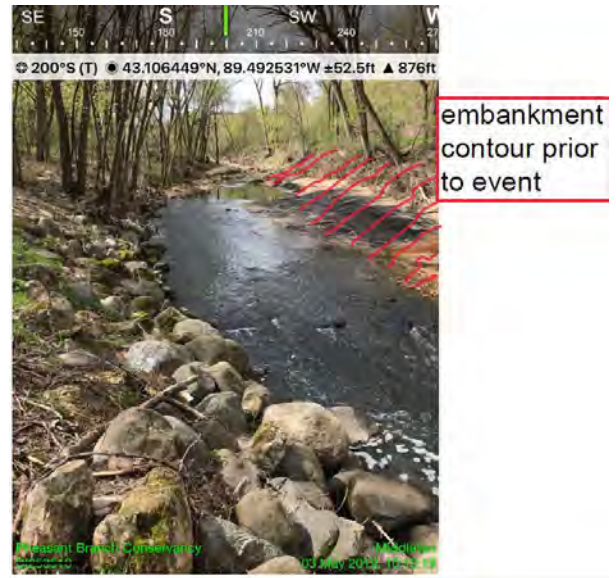


Figure 31: Facing north
Project files



Figure 32: SERCO background literature search identified two unsurveyed segments in yellow.
WHPD image.

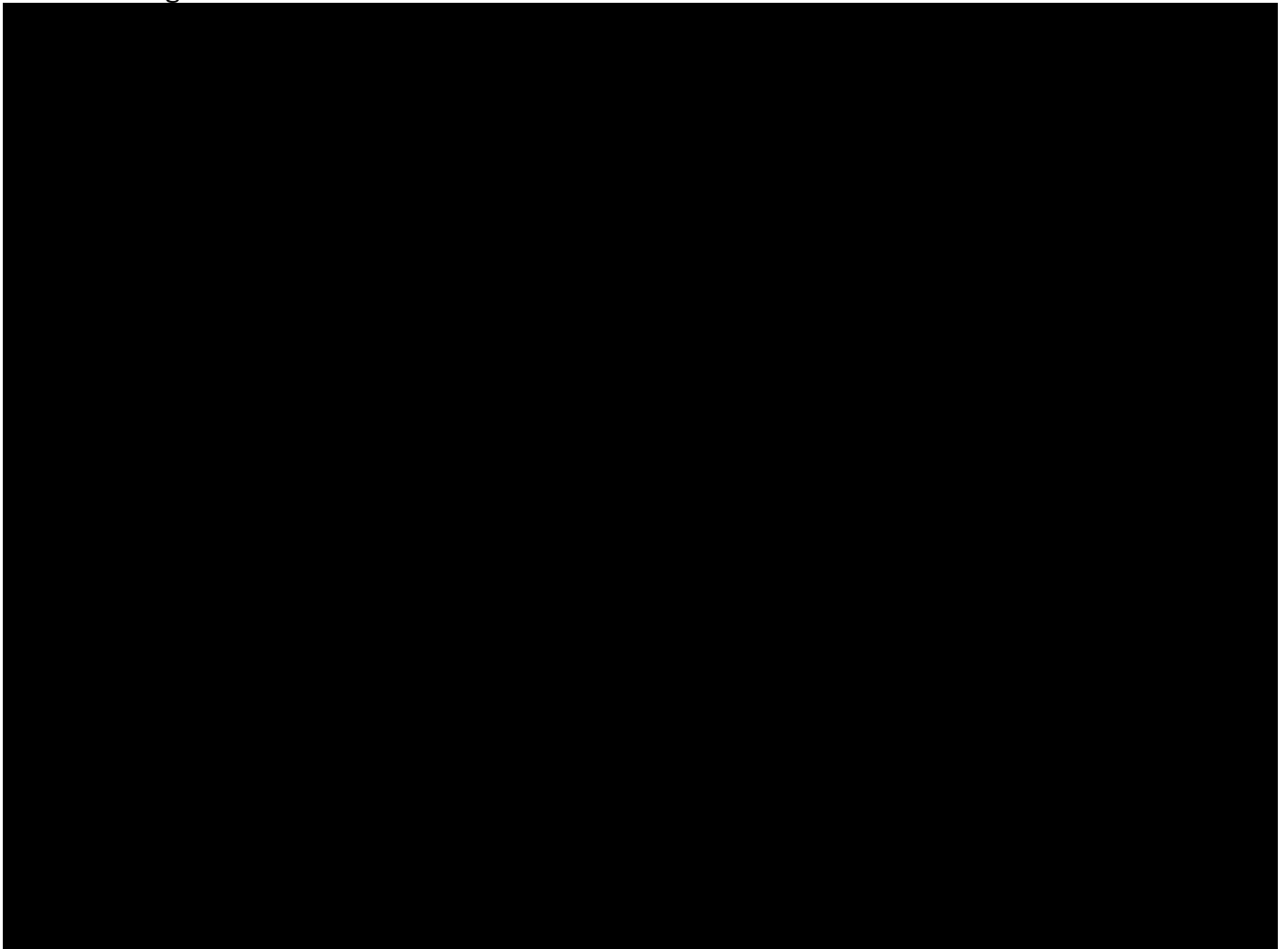
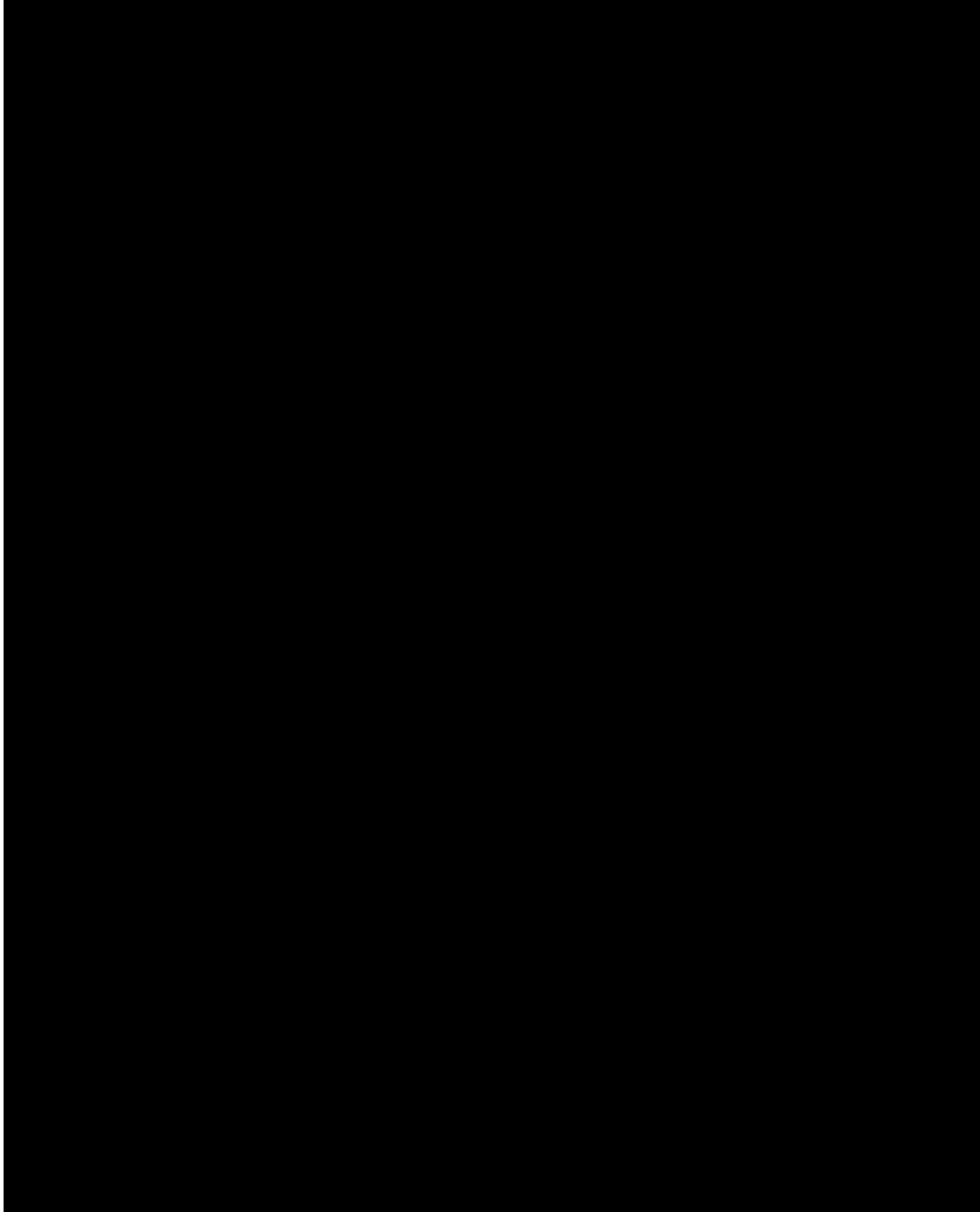


Figure 33: CARDNO 47-DA-0185 Archaeology Shovel Tests, APE previously surveyed. Note buffer extending beyond bank grading areas which extend beyond APE. The eastern limit of the site was only investigated up to and not beyond the existing limestone path.

Cardno aerial.



TECHNICAL MEMORANDUM
FINAL
PROJECT # 88229 EVENT #4402DR-WI
WATER CONTROL FACILITIES PBC STREAMBANK RESTORATION
ARCHAEOLOGICAL DESKTOP ASSESSMENT
CITY OF MIDDLETON, DANE COUNTY, WISCONSIN

SENIOR ARCHAEOLOGIST: Varna Boyd, MA, RPA, Principal Investigator
SUBJECT: Archaeological Desktop Assessment
DATE: February 3, 2022

This technical memorandum details the results of an archaeological desktop assessment in support of the Federal Emergency Management Agency's (FEMA) Public Assistance Grant, 4402DR-WI, for Water Control Facilities PBC Streambank Restoration in the City of Middleton, Wisconsin (Figure 1). The streambank restoration project is a result of Disaster #4402DR-WI (a severe storm with heavy rains) that occurred between August 17 and September 14, 2018. The severe storms and rains caused surface water flooding and high-velocity run-off to the Pheasant Branch drainage channel, which resulted in damage to water control facilities and stream embankments along portions of Pheasant Branch Creek.

The archaeological desktop assessment was conducted in anticipation of consultation with the Wisconsin Historical Society (WHS), which serves as the State Historic Preservation Office (SHPO), and Tribal Historic Preservation Officers (THPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The assessment was performed by a professional archaeologist who exceeds the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44716, September 29, 1983) and who has worked in Wisconsin previously. Portions of this assessment contain sensitive archaeological information (i.e., site location data).

ASSESSMENT GOALS AND METHODS

The goals of the assessment were to determine if previously identified archaeological resources were adjacent to or within the Area of Potential Effect (APE), which has been defined as the proposed limits of ground disturbance; determine what areas, if any, had been previously surveyed within the APE; determine the potential for archaeological resources within any previously unsurveyed areas; and make recommendations for further study, as warranted.



Figure 1: Project Location (Source: City of Middleton, WI).

To accomplish these goals, site file and previous survey research was conducted in the WHS's Wisconsin Historic Preservation Database (WHPD) for Township 7, Region 8E (T7R8E), Sections 1, 2, 11, and 12, which was considered the study area. Environmental data (e.g., soils) that could affect the potential for archaeological resources were reviewed for the APE.

Based on the known presence of archaeological sites in the vicinity, the potential for archaeological sites to be present within the project APE was initially considered to be high. However, it was also known that portions of the APE had been previously disturbed (e.g., graded) and that portions had been previously surveyed (see following section). As a result, the assessment also included a comparison of previous survey areas and project plans to determine if there were unsurveyed areas within the APE and if so, evaluate their potential for archaeological resources. Recommendations were made based on the combined data analysis. No archival research or review of architectural resources or properties was included in this archaeological desktop assessment.

ARCHAEOLOGICAL SITE FILE RESEARCH

Numerous surveys have been conducted in the vicinity, including studies by Archaeological Consulting and Services (Figure 2; Salkin 1992, 1993, and 2008), the WHS-Museum Archaeology Program (Figure 2; Hamilton 2010), and Cardno (Figure 3; Settle 2016) within the project APE. Only two small areas in the North of Century section of the APE have not been surveyed (Figure 4).

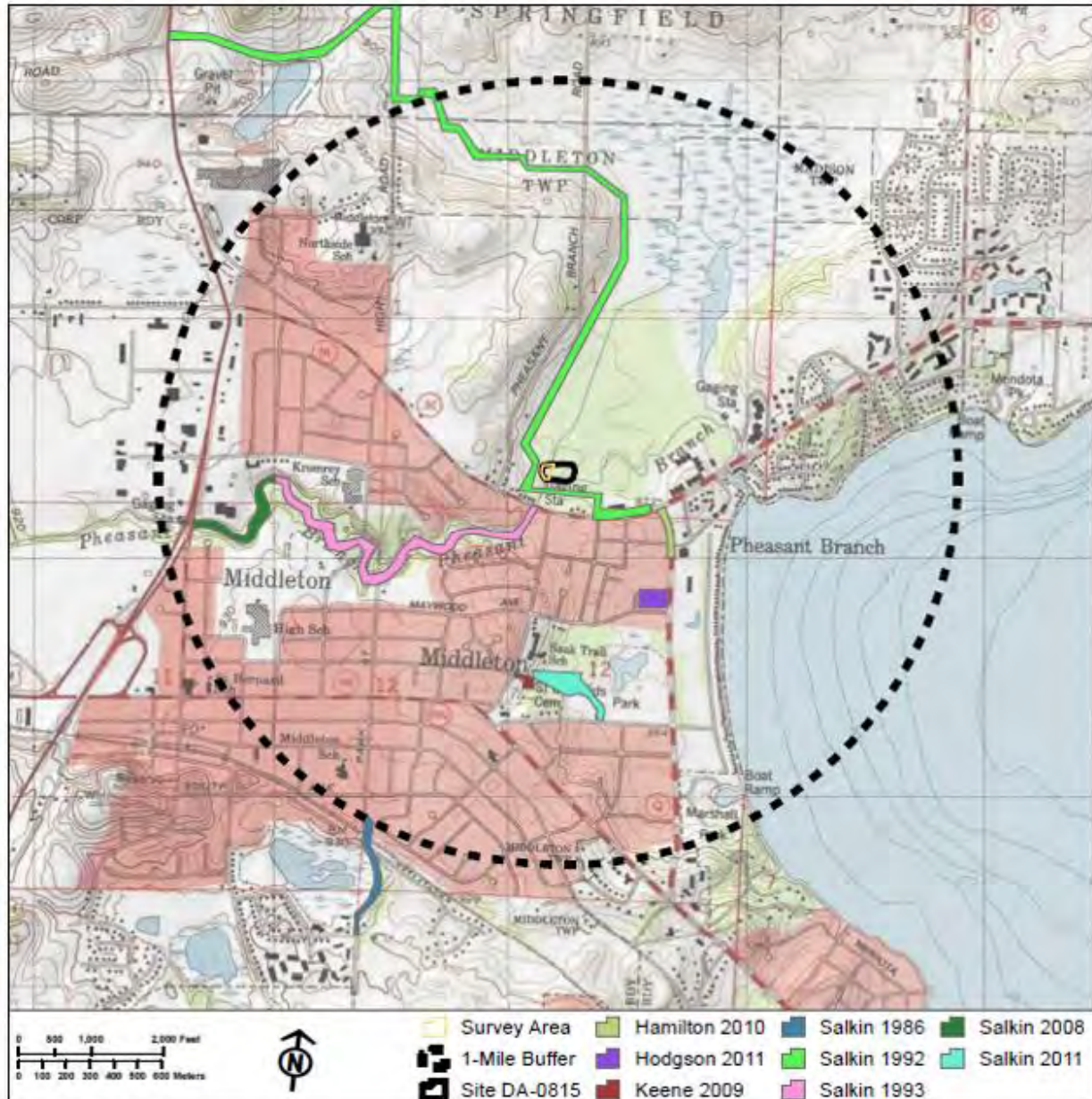
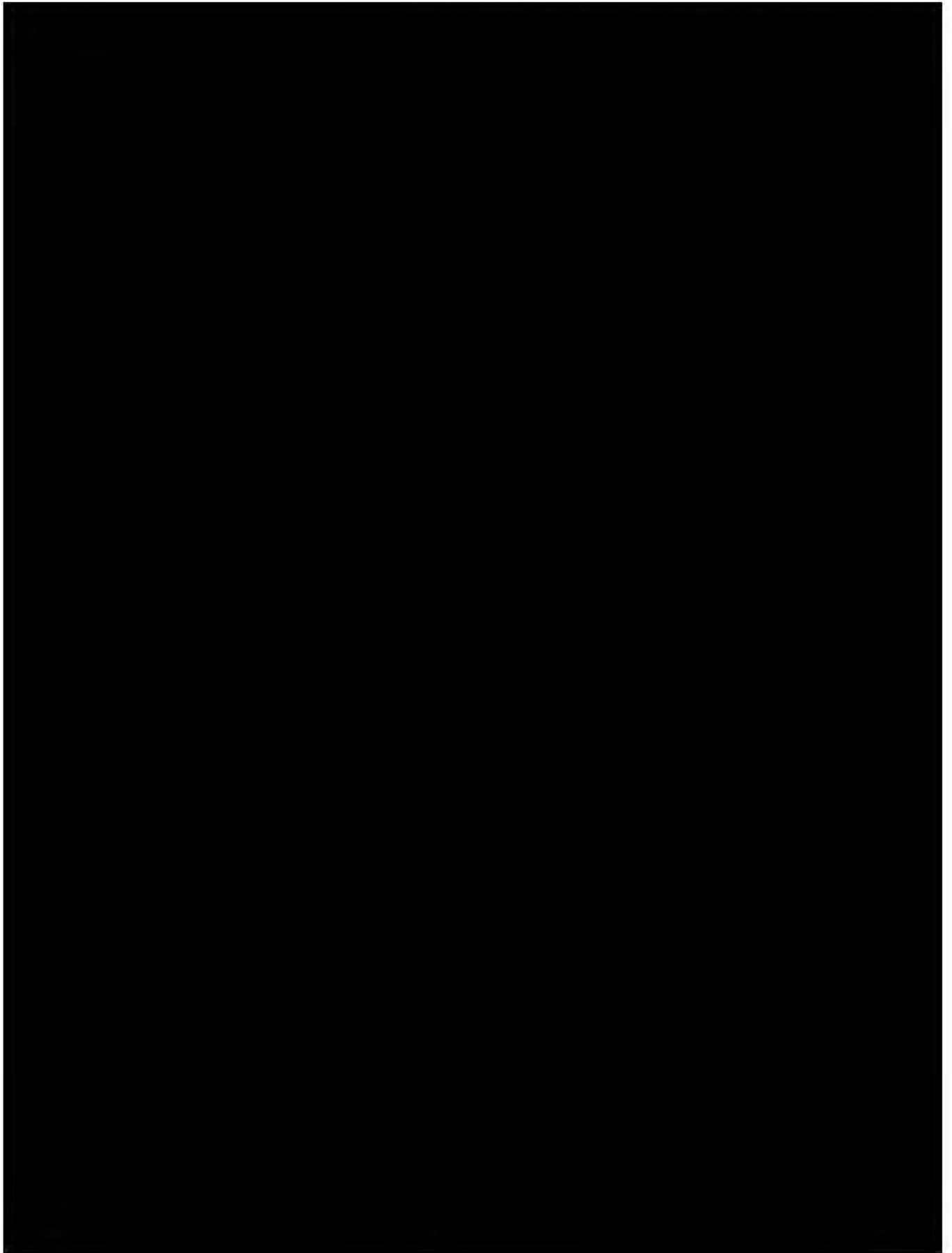


Figure 2: Surveys Prior to 2016 in the Project Vicinity (Source: Settle 2016:15).



Twenty archaeological sites were identified within the four T7R8E sections comprising the study area (Attachment 1). The majority (n=15) are precontact (i.e., Native American) mounds, campsites/villages, lithic workshops (i.e., stone tool manufacture), or lithic scatters (i.e., byproducts of stone tool production). There were also three multicomponent sites, including two precontact and historic Native American sites and one precontact and historic site. Two historic cemeteries, St. Luke's Cemetery and St. Bernard's Cemetery, are also present within the study area. [REDACTED]

[REDACTED] One site, 47-DA-0989 (Pheasant Branch Nature Preserve #1), has been determined not eligible for the NRHP; the remaining sites have not been evaluated for eligibility to the NRHP based on the WHPD site files.

The only site identified within the project APE was 47-DA-0815 (Site B), [REDACTED]. The site was originally identified in 1936 by Charles Brown of the WHS. [REDACTED]

[REDACTED] An archaeological survey of the western third of the site near Pheasant Branch was conducted by Cardno as part of a City of Middleton stream restoration project (Figure 3; Settle 2016). Ten shovel tests were excavated in that study, but none contained artifacts or cultural features. Portions of the east Pheasant Branch streambank and the entire west bank were not tested due to 15 percent or greater slopes (Settle 2016). Ground disturbance related to a limestone walking path was also noted in the eastern portion of Pheasant Branch within the Cardno project area (Settle 2016). Cardno recommended no further archaeological studies in what is now part of the current project APE (Settle 2016). FEMA will provide this technical memorandum as part of the SHPO consultation for this FEMA undertaking.

[REDACTED]

[REDACTED]

[REDACTED]

Two cemeteries are located within the study area. St. Luke's Cemetery is approximately 0.5 miles north and west of the project APE at 7515 Century Place in Middleton. St. Luke's Cemetery dates from approximately 1851 to the present. St. Bernard's Cemetery is approximately 0.4 miles south and southeast of the project APE at 1925 Branch Street in Middleton. It dates from 1897 to the present, but most headstones are from the 1960s to the present.

As the Sauk Mound, Heim Mound, the Murphy site, and the two cemeteries all have human burials, they are protected under the 1985 Wisconsin Act 316 (Wis. Stats. 157.70). While not expected as part of the current project, any effects to these sites require consultation with the WHS.

RESULTS AND RECOMMENDATIONS

The archaeological desktop assessment resulted in the identification of numerous prior surveys in the project APE as well as 20 archaeological sites within the study area. The proposed APE has been previously surveyed except for two small areas in the North of Century portion of the project. According to the City of Middleton, these two areas were part of the Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970 (personal communication between Mr. Roger Ammons, FEMA Program Delivery Manager, and Shawn Stauske, City of Middleton's Director of Public Works June 9, 2020). A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square yards of topsoil and seed. These activities have significantly disturbed the unsurveyed areas of the APE. As a result, no further archaeological survey is recommended within these two areas.

Only one of the 20 archaeological sites, 47-DA-0815 (Site B), is present within the project APE. Prior survey by Cardno was conducted in the portions of the site that overlap the project APE and no artifacts or cultural features were identified. As a result, it is unlikely that further survey would identify other cultural resources. As a result, no further work is recommended within the portion of the site within the proposed APE. However, if plans change and the APE is expanded, additional analysis should be conducted to ensure no unsurveyed areas of the site will be impacted by the proposed project.

Due to the location of the project APE, no effects are anticipated for any of the other archaeological sites or cemeteries, including the Sauk Mound, Heim Mound, and the Murphy site. As a result of the desktop archaeological assessment, it is anticipated that the proposed project will have no effect to known archaeological resources.

REFERENCES CITED

Hamilton, Kelley

2010 CTH Q (Allen Boulevard) Archaeological Monitor, Dane County. Prepared by the Wisconsin Historical Society-Museum Archaeology Program.

Salkin, Philip H.

1992 *An Archaeological Survey of the Proposed Pheasant Branch Interceptor Tributary Route in Middleton, Wisconsin.* Prepared by Archaeological Consulting and Services.

1993 *A Program of Archaeological testing at Two Sites (47DA987 and 47DA989) in Middleton, Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

2008 *WDOT Archaeological Survey Field Report: Pheasant Branch Creek Trail in Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

Settle, Kathleen

2016 *Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin.* Prepared by Cardno.

ATTACHMENT 1

Attachment 1: Archaeological Sites within T7R8E Sections 1, 2, 11, and 12.

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
1	47-DA-0815, Site B		Yes	16-0992	Consultation with SHPO, but no anticipated effect	The site overlaps Pheasant Branch and the APE. A Cardno survey (Settle 2016) in the western third of the site found no artifacts or other cultural resources. The current status of the site is unknown, and the site inventory notes a request for consultation.
1	47-DA-0209, Baskerville Campsite	Precontact Campsite/Village/Workshop	No	N/A	No effect	
1	47-DA-0989, Pheasant Branch Nature Preserve #1	Precontact Campsite/Village	No	92-0421	No effect	Not eligible.
1	47-DA-1249, Middleton Hills	Precontact (Late Paleoindian – Late Woodland) Campsite/Village	No	N/A	No effect	
2	St. Luke's Cemetery	Historic Cemetery	No	N/A	No effect	
2	47-DA-0737, Freeman	Precontact (Middle Archaic and Early Woodland) Lithic Scatter and Historic Periods	No	10-0283 and 89-0646	No effect	
2	47-DA-0966, S. Ziegler III	Precontact Workshop	No	89-0646	No effect	

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
2	47-DA-1422, Murphy Site II	Precontact (Middle and Late Archaic, Late Woodland) Campsite/Village/Burial	No	10-0283	No effect	
11	47-DA-0441, Woodside Heights Park	Precontact (Archaic) Campsite/Village	No	78-1104	No effect	
11	47-DA-0447, Park Shores	Precontact (Late Paleoindian and Archaic) Campsite/Village	No	78-1104	No effect	Most of site was destroyed by development, but a wooded area may still have intact deposits.
12	St. Bernard's Cemetery	Historic Cemetery	No	N/A	No effect	Any work in the park requires monitoring by an archaeologist.
12	47-DA-0381, Miller	Precontact and Historic Native American Campsite/Village	No	N/A	No effect	
12	47-DA-0389, Pheasant Branch	Precontact and Historic Native American Campsite/Village	No	11-9007, 10-7712	No effect	Portions of the site have been heavily disturbed. Site boundaries were amended in 2010.
12	47-DA-0423, Lemcke	Precontact (Late Archaic) Campsite/Village	No	N/A	No effect	
12	47-DA-0433, Sauk Trail School	Precontact (Late Woodland) Isolated Finds	No	11-9012	No effect	
12	47-DA-0495, Iltis Beach	Precontact (Late Woodland) Campsite/Village/Workshop	No	N/A	No effect	
12	47-DA-0816, Heim Farm	Precontact (Late Paleoindian, Late Archaic – Middle Woodland) Campsite/Village	No	11-9012	No effect	
Total Sites	20		1			

60 to 90% complete plans were provided as part of this consultation.

See Appendix A for the most recent project plans.



U.S. Department of Homeland Security
FEMA Region 5
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521

FEMA

March 29, 2022

David Grignon, Tribal Historic Preservation Officer
Menominee Indian Tribe of Wisconsin
W3426 Cty VV West
P.O. Box 910
Keshena, Wisconsin 54135-0910

Re: Pheasant Branch Creek Stabilization
Middleton, Dane County, Wisconsin
FEMA Project #88229; PW 593
43.103301, -89.513886 to 43.109433, -89.491877
S1, 2, 11, and 12 T7N R8E

Dear Mr. Grignon:

Pursuant to the Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the captioned Public Assistance Grant Program project. In accord with 36 CFR §800.11, I am enclosing documentation regarding this undertaking and its effect on historic properties, which is being sent concurrently to the Wisconsin State Historic Preservation Office for their review. This documentation provides the justification for FEMA's finding of no historic properties affected.

FEMA is providing these materials to the following federally recognized Indian tribes (Tribes) thought to have interests in the area:

- Ho-Chunk Nation
- Menominee Indian Tribe of Wisconsin
- Miami Tribe of Oklahoma
- Osage Nation
- Winnebago Tribe of Nebraska

In accord with 36 CFR 800.2(c)(2)(ii), FEMA is providing this opportunity for the Menominee Indian Tribe of Wisconsin to join the consultation by identifying concerns and providing comments about historic properties that may be affected by this undertaking. FEMA would also appreciate notice of Tribes other than those listed above that may have an interest in this undertaking.

SWe would appreciate a response from your office within 30 days. If you have questions, do not hesitate to contact me at 312-408-5549 or at fema-r5-environmental@fema.dhs.gov. If we do not receive a response within 30 days, FEMA will move forward with this undertaking without comment from the Menominee Indian Tribe of Wisconsin.

Sincerely,

Duane Castaldi
Regional Environmental Officer
FEMA Region 5

Sent by email to dgrignon@mitw.org



FEMA

March 29, 2022

***Documentation Initiating and Concluding Section 106 Consultation
for a FEMA-Funded Undertaking***

Project Information:

Project ID: #88229; PW 593

Title: Pheasant Branch Creek Stabilization

Address: Pheasant Branch Creek from crossing at Deming Way, eastward to Century Avenue, then northward, parallel to Conservancy Lane

Location: Middleton, Dane County, WI

GPS: 43.102620, -89.51821 to 43.10945, -89.49057

PLSS: S1, 2, 11, and 12 T7N R8E

Description of Undertaking and APE:

As a result of severe storms, tornadoes, straight-line winds, flooding, and landslides affecting areas of the State of Wisconsin, President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) Program funding. The disaster event resulted in damage to infrastructure along the Pheasant Branch Creek Corridor from crossing at Deming Way and continuing eastward to north of Century Avenue in Middleton, Wisconsin (43.10262, -89.51821 to 43.10945, -89.49057).

The City of Middleton performed streambed relocation and streambank stabilization projects (most recently in 2007, 2008, 2009, 2010, 2012, and 2015) intermittently along this stretch of Pheasant Branch Creek, incorporating a variety of construction methods including sheet pile retaining walls, gabion baskets, toewood and rootwad, and rip rap toe protection. The City cleared, grubbed, graded and seeded the banks as part of these efforts. The flooding event washed away both engineered and non-engineered portions of the streambanks. However, only the areas with engineered stream stabilization will be funded by the FEMA PA grant program. Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as six timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated with the parks and creek corridor experienced erosion damage.

The Applicant, the City of Middleton, proposes to use contract services to repair the engineered streambanks in-kind to their pre-disaster design, save for the substitution of rip-rap toe protection and fill instead of rootwad and fill in several locations. Some locations along the bank that were damaged in the event will not be repaired but will be allowed to naturalize. All work is intermittent throughout the proposed construction project bounds.

The six timber and wood pedestrian bridges will be replaced and the recreational trail will be repaired and modified. The streambed will be lowered in a few locations to

accommodate the new bridges and trail modifications. Additionally, the stream itself will be shifted in two locations (43.104399, -89.504811 and 43.104008, -89.503381).

The Pheasant Branch and Pheasant Branch Conservancy

Although assessment of the entire Pheasant Branch waterway and Middleton's parks is beyond the scope of this review, an overview of the larger resource will help describe the APE and provide context for the review and recommendations of this consultation. The Friends of Pheasant Branch compiled a booklet (*Friends of Pheasant Branch, Geology, Cultural History and Ecology of the Pheasant Branch Conservancy and Watershed in Middleton, Wisconsin*, 2005) providing an overview of the area; this document provided the basis for the short history below.

The Ho-Chunk Nation occupied the area where the marshes and Pheasant Branch drain into Lake Mendota. Mounds located approximately one and one-half miles north and also approximately one-half mile east of the eastern edge of the proposed undertaking are associated with Native American occupation.

After an 1832 treaty with the Ho-Chunk Nation involving most of Dane County, European settlement began. The area was platted in 1836 and began to be developed. Beginning in the 1850's, portions of the Pheasant Branch creek west of present-day Park Street and the marshes to the west and north were channelized and drained to facilitate a peat harvesting industry and farming. The Pheasant Branch Creek channels now called North Fork and South Fork were created in the settlement period and increased the original creek watershed and stormwater flows considerably.

A village called Pheasant Branch was established in 1853 and was centered around the current Century Avenue Bridge over Pheasant Branch, near the current Branch Street. The village lost its importance in 1856 when the Milwaukee and Mississippi Railroad routed through Peatville, a village located to the southwest. Peatville eventually became Middleton.

After WWII, the area became a residential suburb of Madison and additional roads, utilities and buildings were built. The City of Middletown built nine storm sewers to drain the developed areas; these emptied into Pheasant Branch. A landfill (roughly between GPS Start: 43.10264, -89.50947 to 43.10329, -89.50777) along the southern edge of the creek east of Clark Street School was abandoned and capped after several creek flows and rain events caused erosion and sedimentation flow into Lake Mendota. In 1965, Middleton residents formed the Middleton Conservation Committee to address erosion and sedimentation issues with Pheasant Branch and Lake Mendota. The committee's efforts resulted in the 1970 rerouting of the main creek channel to flow northward into the marsh to reduce sedimentation flow into the lake. The Conservation Committee also spearheaded the purchase of approximately 340 acres of land by the City of to create the Pheasant Branch Conservancy (PBC) in the 1970s and 1980s. Dane County and the Wisconsin DNR also own lands contiguous to the City's parcels that comprise the total 550-acre conservancy.

The section of the Pheasant Branch stream, known as the Mainstem, flows easterly from the Mainstem Pond near Deming Way, under Parmenter Street to Park Street, then from Park to Century Avenue. The area from Parmenter to Park is called Firemen's Park and the area from Park to Century is called Parisi Park.

Firemen's Park is generally bordered by municipal, multi-and single-family residences, and school buildings; the Middleton Police Station, a multi-family complex, several large

residences and the Kromrey Middle School front onto Donna Drive with Firemen's Park and the Pheasant Branch at their rear. Part of Pheasant Branch was relocated to enable the middle school construction. Middleton High School's athletic campus borders Firemen's Park at the south side.

East of Park Street, Parisi Park is generally bordered by one and two-story single-family residences with a cluster of commercial buildings near Century Avenue and Branch Street that back onto the Conservancy property.

A large portion of the stream (approximately 2,800 linear feet beginning 450 feet north of Century Avenue) flows north-northeast from Century Avenue through a wooded area with post-1992 residential neighborhoods to the west, some commercial and multifamily buildings to the south, and at a distance of over one-quarter mile, a residential neighborhood to the east. To the north, the waterway flows into the Pheasant Branch Marsh, where the flow then passes southward again to Lake Mendota.

The streambank was realigned and straightened in 1970. A review of Historic Aerials' historic maps (<http://www.historicaerials.com>) shows the earlier stream route looping eastward in the late 1800's then looping further northward starting in the early 1900's until the 1970 realignment and straightening. The maps also indicate the current stream route was occasionally identified as an artificial ditch (1975, 1979).

Various other engineering and bank stabilization efforts along the stream banks occurred after this project, including the installation of a stream gage station and a rank of gabion baskets on the west bank immediately north of Century Avenue. The most recent streambank stabilization effort occurred in early 2018 when the Conservancy acted to improve the stream quality and reduce sediment outflow by adding cross vanes, toewood/rootwads, rip rap toes, erosion blankets, fabric, and mats, grading and seeding of banks, and removing log jams. The 2018 project began 100 feet north of Century and continued north for 4,000 linear feet. The disaster event, occurring between August 17 and September 14, 2018, severely damaged the stabilization project.

Construction drawings for the project and maps illustrating the APE are included in this submission. The Area of Potential Effect (APE) is defined as the construction limits as the work is not expected to have visual effects beyond the APE. Areas for equipment staging and access will conform to the existing paved trails adjacent to the stream. The APE is noted on Figure 3.

Steps Taken to Identify Historic Properties and the Description of Historic Properties:

Archaeology

An archaeological literature search and technical memorandum of recommendations was undertaken by an SOI-Qualified archaeologist with SERCO contracted by FEMA (Attachment 4).¹ The literature search and technical memorandum indicates that the APE for the corridor, except for two segments, has been previously surveyed (Figure 32). These two segments were heavily modified during a Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970. A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square

¹ Technical Memorandum Final, Project 88229 Event #4402DR-WI Water Control Facilities PBC Streambank Restoration Archaeological Desktop Assessment, City of Middleton, Dane County, Wisconsin. February 3, 2022.

yards of topsoil and seed. Given the APE, scope of work, and the significant extent and nature of the ground disturbing activities for previous stream relocation, the work within these two segments is not likely to encounter archaeological artifacts or features within their original depositional contexts that yield information important to history or pre-history.

SERCO identified only one archaeological site, 47-DA-0815 as partially within the APE. This site was originally identified in 1936 and partially surveyed in a 2016 archaeological survey conducted for a Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin by Cardno.² The partial survey encompasses the APE for this undertaking. The portions of the site that overlap the boundaries of the APE were not recommended for further investigations (Figure 33). FEMA notes that the prior archaeological investigations extended partially beyond the current APE although the entire boundaries of the site were not investigated. It is noted that the limestone walking path was the eastern most limit of the archaeological investigation and is not within this undertaking's APE.

Photos taken post-disaster within the boundaries of 47-DA-0815 (Figures 24-29) illustrate that the velocity of water within Pheasant Creek eroded, destabilized and washed out the nature-based solutions, soils, root wads as well as rip rap, geotechnical fabric and gabion baskets that were installed as part of the implemented Pheasant Branch Stream restoration project.

Although an evaluation of eligibility of 47-DA-0185 outside of the boundaries of the APE is beyond the scope of this review, within the APE, given the velocity of water, significant disturbance from prior installation of streambank stabilization, and prior archaeological investigations that extended beyond the banks which did not encounter archaeological artifacts or features, it is unlikely that intact soils with archaeological artifacts or features within their original depositional contexts exist.

The two stream relocations, (43.104399, -89.504811 and 43.104008, -89.503381) were within the CARDNO previous archaeological survey and outside of the recorded DA-47-0185 (Figures 15, 16, 17).

Based on the absence of archaeological features or artifacts within the APE, FEMA has determined that there are no below ground properties eligible for listing on the National Register of Historic Places within the APE for this undertaking.

Standing Structures

The nearest NRHP-listed properties and one NRHP historic district are located over three-quarters of a mile from the APE for this undertaking. The Dr. Newman C. Rowley House and the Middletown Depot are both over one mile southwest of the Century Avenue bridge over Pheasant Branch. The eastern end of the East End Historic District is three-quarters of a mile southwest of the Century Avenue bridge.

The closest surveyed property found in the Wisconsin SHPO database is the 1847 Old Stamm House, surveyed in 1977. The two-story fieldstone gabled ell building was constructed as a store and was used as a hotel, tavern, dance hall, supper club and restaurant. The building is on the south side of Century Avenue, approximately 325 feet

² Veronica Parsell, Principal Investigator. Cardno, Phase I Archaeological Reconnaissance Pheasant Branch Stream Restoration, City of Middleton, Dane County, Wisconsin. 2016.

from Pheasant Branch; views into and from the Pheasant Branch are limited by heavy vegetation.

The pedestrian bridges crossing Pheasant Branch within the proposed construction project APE are simple utilitarian timber and wood structures supported on earthen embankments and are not of historic age. No other standing structures exist within the APE for this undertaking.

Preliminary Determination of Eligibility:

Based on the information provided above, FEMA has determined that ***no resources within the APE are eligible for listing on the National Register of Historic Places.***

Finding:

FEMA finds that this undertaking will result in ***no historic properties affected.***

Summary of Views of Consulting Parties or Public:

On March 29, 2022, the following Tribes were provided information regarding this project:

Ho-Chunk Nation

Menominee Indian Tribe of Wisconsin

Miami Tribe of Oklahoma

Osage Nation

Winnebago Tribe of Nebraska

Figures:

Figure 1: Approximate undertaking site marked in blue, not to scale.
GoogleEarth image



Figure 2: Approximate undertaking site marked in blue, not to scale.
USGS Map "Middleton, WI" and "Madison West, WI," 1:24000, enlarged to show detail.

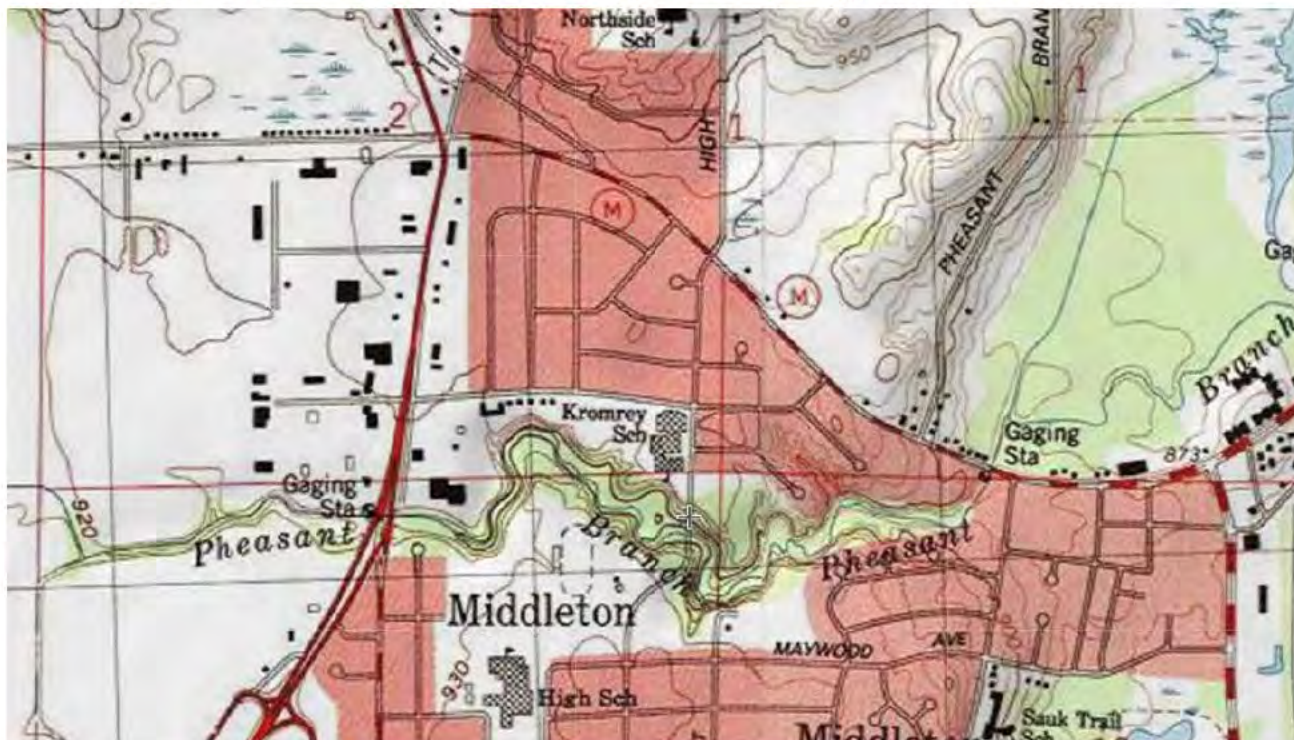


Figure 3: APE in black. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
USGS Map "Middleton, WI" and "Madison West, WI," with WISAHRD overlay.

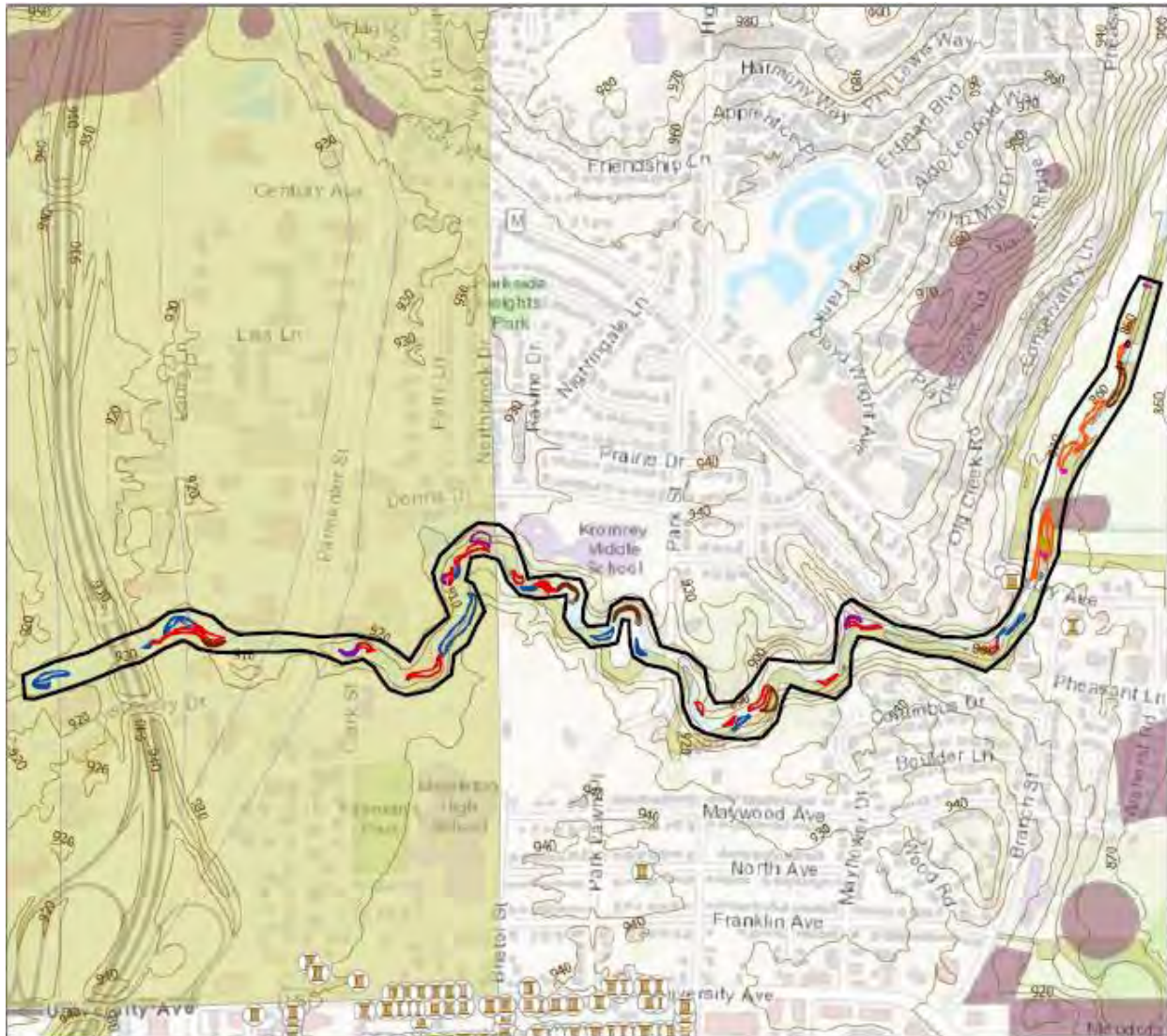


Figure 4: Photo Log. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
GoogleEarth image.



Figure 5: Photo facing east
Project files



Figure 6: Facing east
Project files



Figure 7: Photo facing northeast
Project files

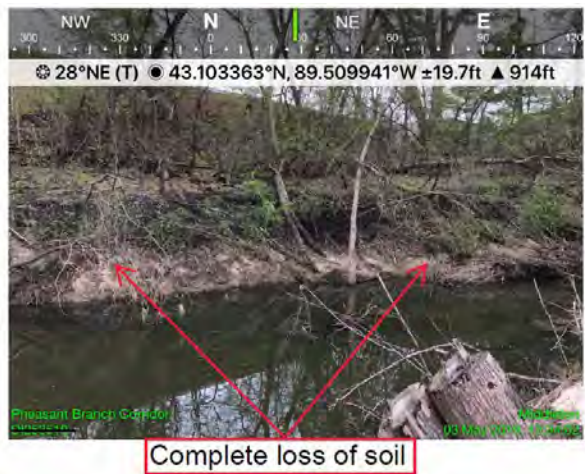


Figure 8: Photo facing east
Project files



Figure 9: Facing west
Project files



Figure 10: Facing south
Project files

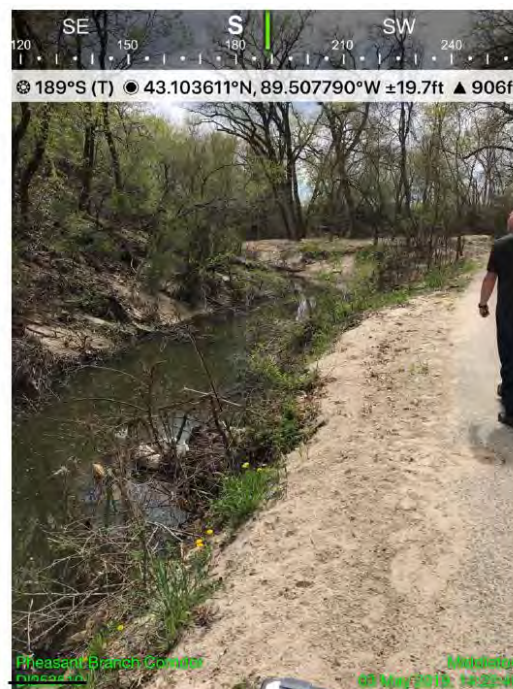


Figure 11: Facing north
Project files



Figure 12: Facing south
Project files



Figure 13: Facing southeast
Project files



Figure 14: Facing north
Project files



Figure 15: Facing southeast, stream relocation
Project files



Figure 16: Facing south, stream relocation
Project files



Figure 17 Facing south, stream relocation
Project files



Figure 18: Facing southwest
Project files



Figure 19: Facing south
Project files



Figure 20: Facing southwest
Project files



Figure 21: Facing southwest
Project files



Figure 22: Facing west
Project files



Figure 23: Facing north
Project files

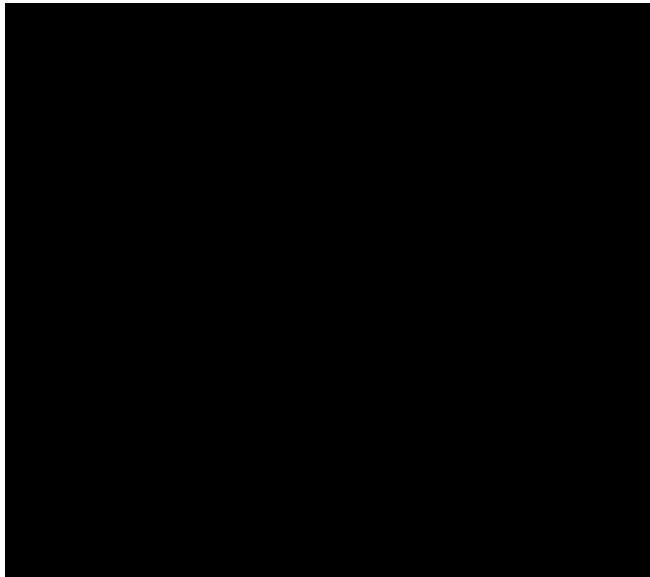


Figure 24: Facing south, 47-DA-0815, FEMA APE
previously surveyed.
Project files

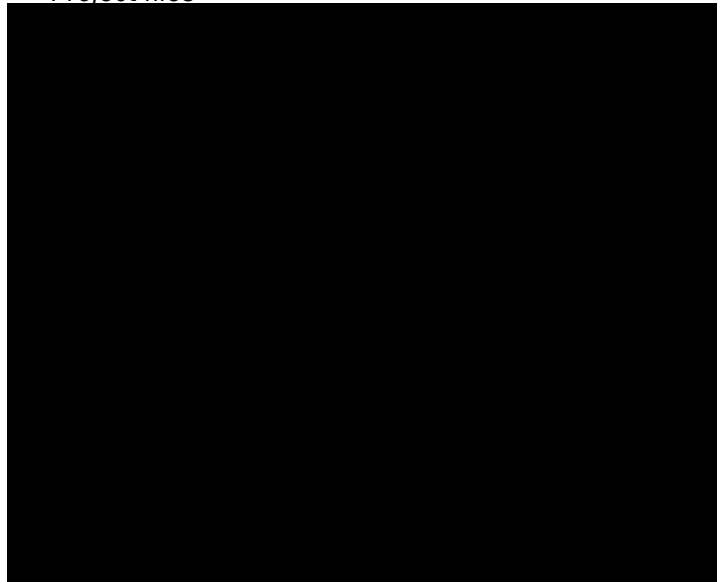


Figure 25: Facing south, 47-DR-0185, FEMA
APE previously surveyed.

Project files



Figure 26: Facing north, 47-DA-0185, FEMA APE
previously surveyed.

Project files



Figure 27: Facing west, 47-DA-0185, FEMA APE
previously surveyed.

Project files

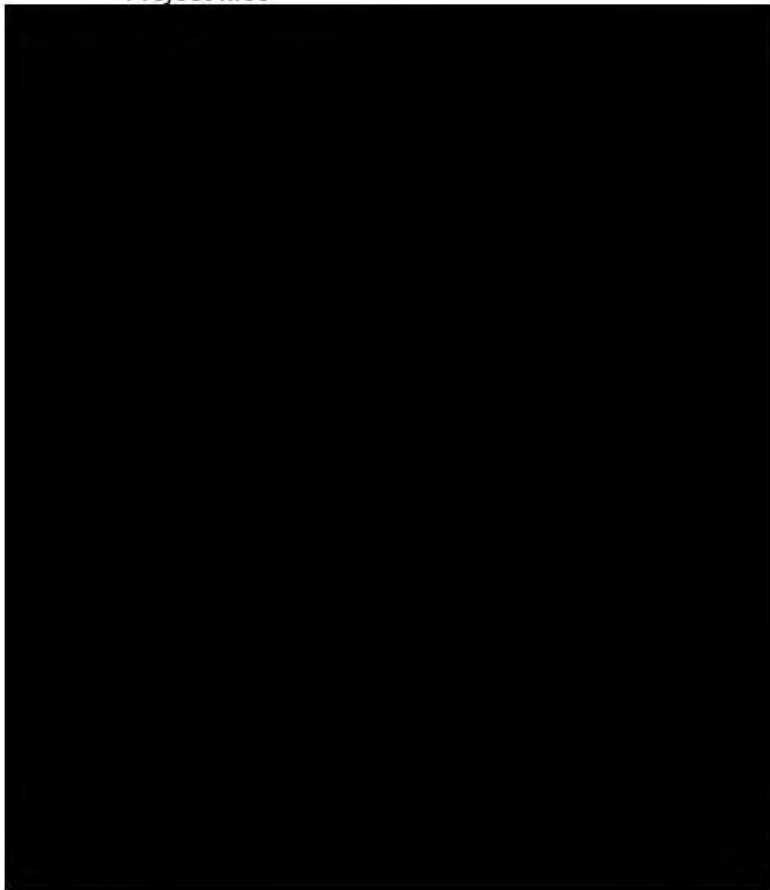


Figure 28: Facing southwest, 47-DA-0185,
FEMA APE previously surveyed.

Project files

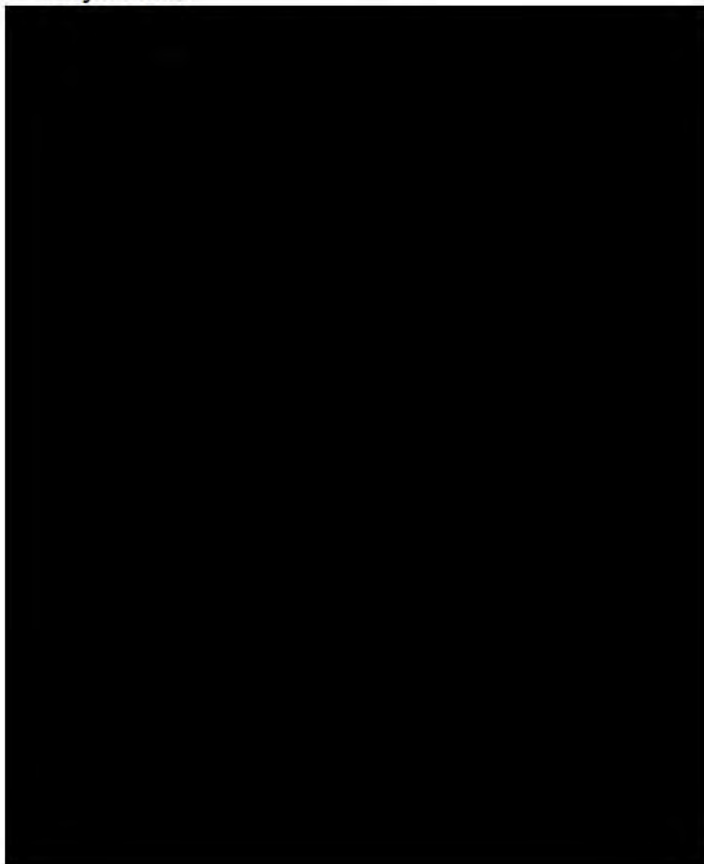


Figure 29: Facing north, 47-DA-0185, FEMA APE
previously surveyed.
Project files

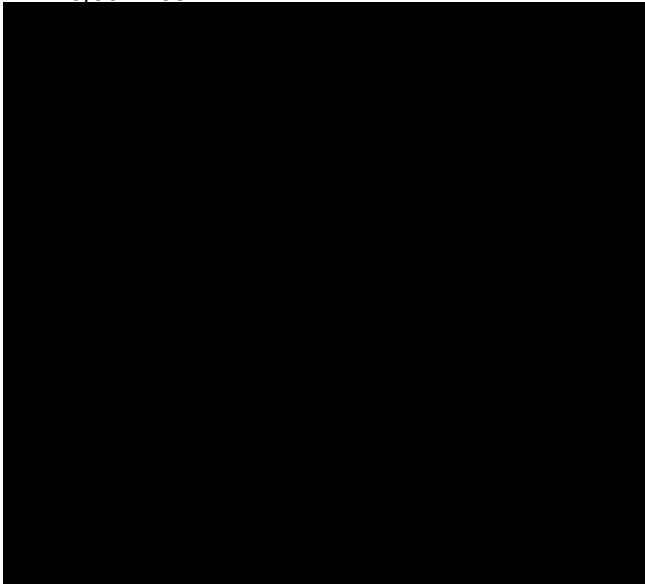


Figure 30: Facing north
Project files

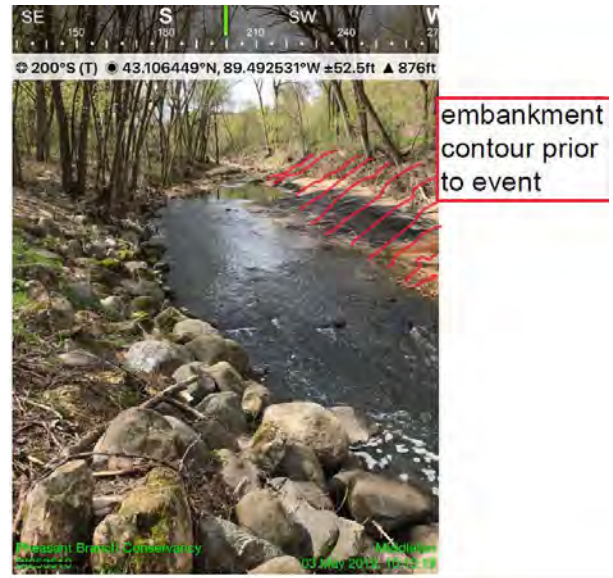


Figure 31: Facing north
Project files



Figure 32: SERCO background literature search identified two unsurveyed segments in yellow.
WHPD image.

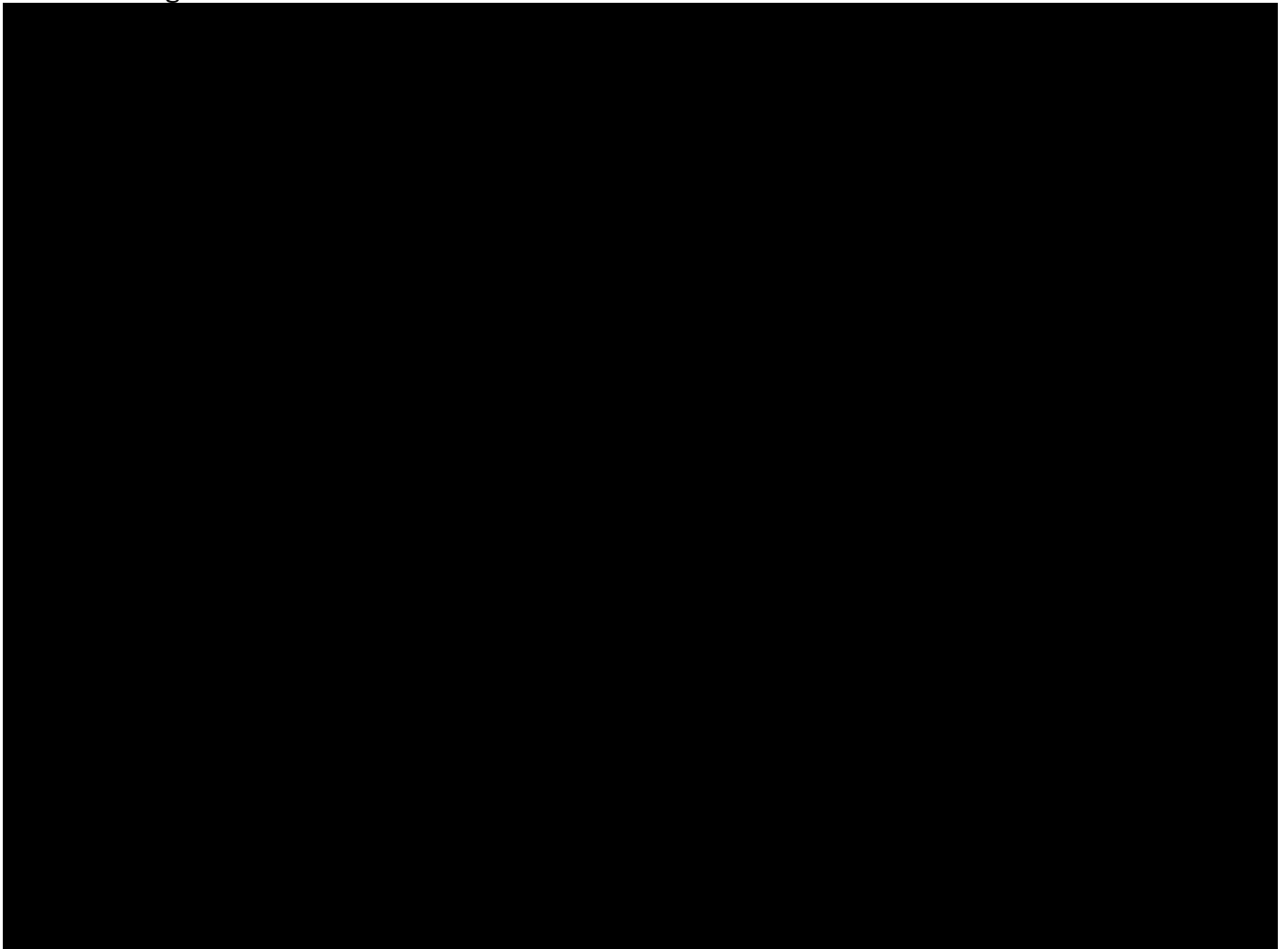
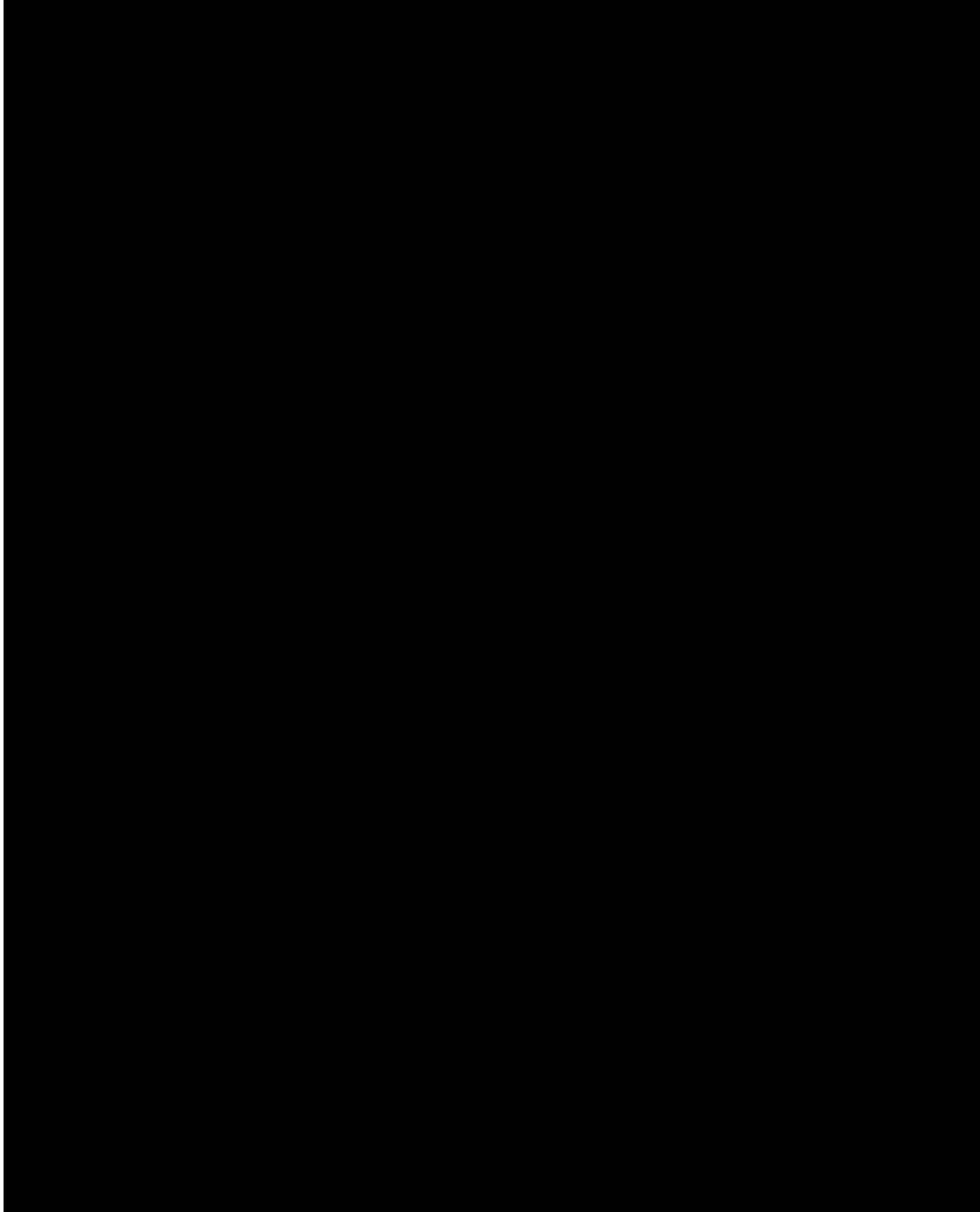


Figure 33: CARDNO 47-DA-0185 Archaeology Shovel Tests, APE previously surveyed. Note buffer extending beyond bank grading areas which extend beyond APE. The eastern limit of the site was only investigated up to and not beyond the existing limestone path.

Cardno aerial.



TECHNICAL MEMORANDUM
FINAL
PROJECT # 88229 EVENT #4402DR-WI
WATER CONTROL FACILITIES PBC STREAMBANK RESTORATION
ARCHAEOLOGICAL DESKTOP ASSESSMENT
CITY OF MIDDLETON, DANE COUNTY, WISCONSIN

SENIOR ARCHAEOLOGIST: Varna Boyd, MA, RPA, Principal Investigator
SUBJECT: Archaeological Desktop Assessment
DATE: February 3, 2022

This technical memorandum details the results of an archaeological desktop assessment in support of the Federal Emergency Management Agency's (FEMA) Public Assistance Grant, 4402DR-WI, for Water Control Facilities PBC Streambank Restoration in the City of Middleton, Wisconsin (Figure 1). The streambank restoration project is a result of Disaster #4402DR-WI (a severe storm with heavy rains) that occurred between August 17 and September 14, 2018. The severe storms and rains caused surface water flooding and high-velocity run-off to the Pheasant Branch drainage channel, which resulted in damage to water control facilities and stream embankments along portions of Pheasant Branch Creek.

The archaeological desktop assessment was conducted in anticipation of consultation with the Wisconsin Historical Society (WHS), which serves as the State Historic Preservation Office (SHPO), and Tribal Historic Preservation Officers (THPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The assessment was performed by a professional archaeologist who exceeds the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44716, September 29, 1983) and who has worked in Wisconsin previously. Portions of this assessment contain sensitive archaeological information (i.e., site location data).

ASSESSMENT GOALS AND METHODS

The goals of the assessment were to determine if previously identified archaeological resources were adjacent to or within the Area of Potential Effect (APE), which has been defined as the proposed limits of ground disturbance; determine what areas, if any, had been previously surveyed within the APE; determine the potential for archaeological resources within any previously unsurveyed areas; and make recommendations for further study, as warranted.



Figure 1: Project Location (Source: City of Middleton, WI).

To accomplish these goals, site file and previous survey research was conducted in the WHS's Wisconsin Historic Preservation Database (WHPD) for Township 7, Region 8E (T7R8E), Sections 1, 2, 11, and 12, which was considered the study area. Environmental data (e.g., soils) that could affect the potential for archaeological resources were reviewed for the APE.

Based on the known presence of archaeological sites in the vicinity, the potential for archaeological sites to be present within the project APE was initially considered to be high. However, it was also known that portions of the APE had been previously disturbed (e.g., graded) and that portions had been previously surveyed (see following section). As a result, the assessment also included a comparison of previous survey areas and project plans to determine if there were unsurveyed areas within the APE and if so, evaluate their potential for archaeological resources. Recommendations were made based on the combined data analysis. No archival research or review of architectural resources or properties was included in this archaeological desktop assessment.

ARCHAEOLOGICAL SITE FILE RESEARCH

Numerous surveys have been conducted in the vicinity, including studies by Archaeological Consulting and Services (Figure 2; Salkin 1992, 1993, and 2008), the WHS-Museum Archaeology Program (Figure 2; Hamilton 2010), and Cardno (Figure 3; Settle 2016) within the project APE. Only two small areas in the North of Century section of the APE have not been surveyed (Figure 4).

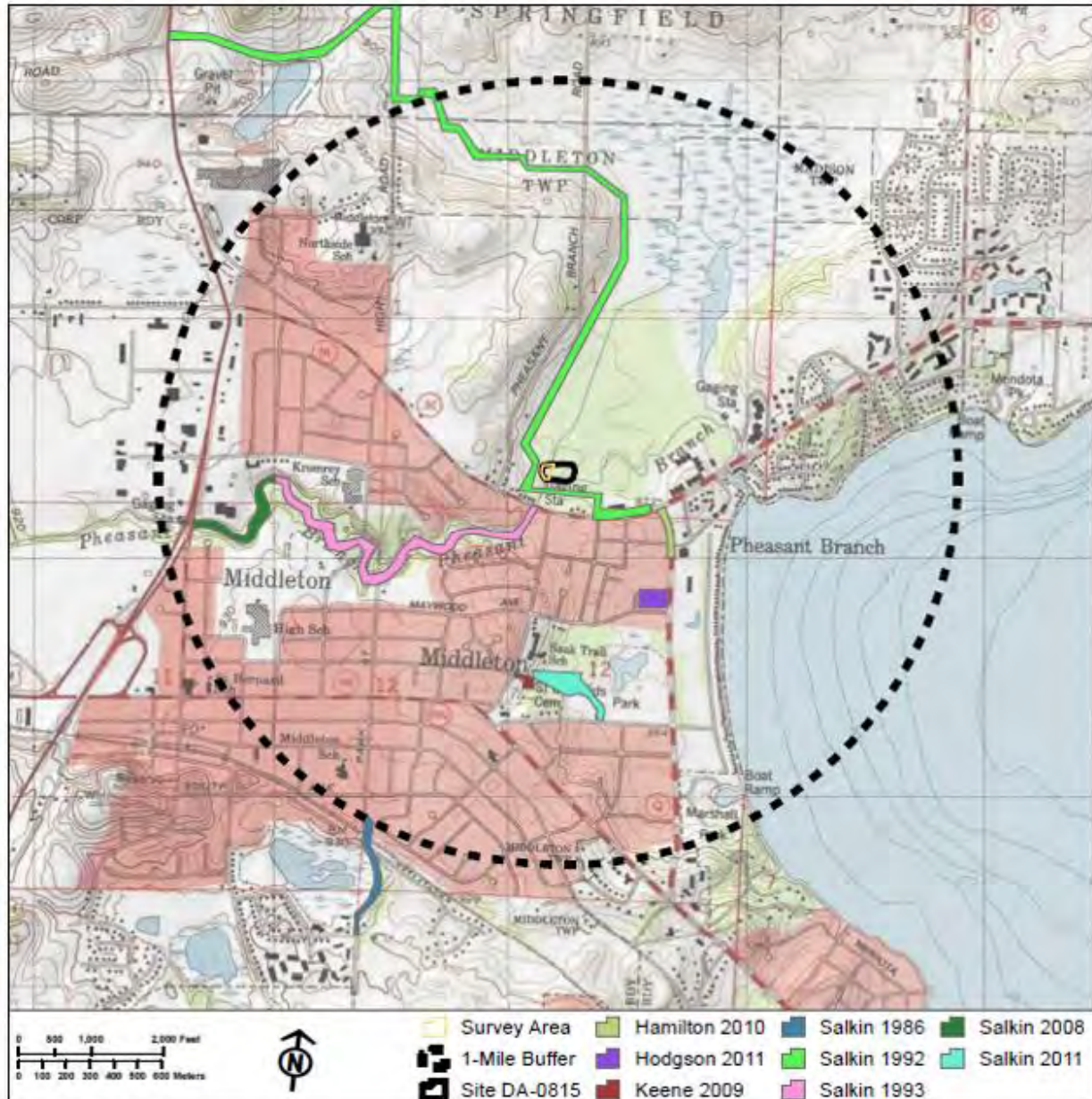
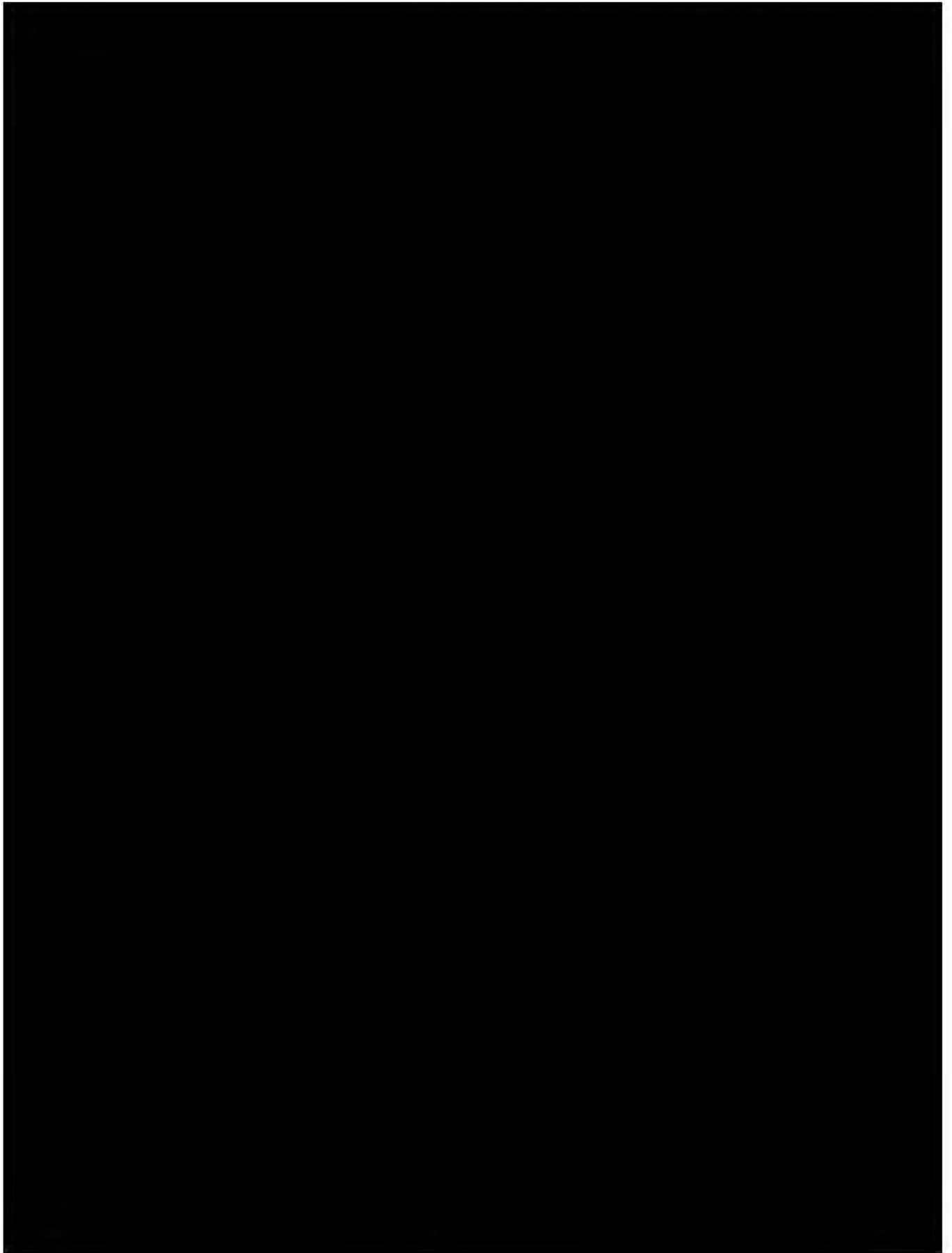


Figure 2: Surveys Prior to 2016 in the Project Vicinity (Source: Settle 2016:15).



Twenty archaeological sites were identified within the four T7R8E sections comprising the study area (Attachment 1). The majority (n=15) are precontact (i.e., Native American) mounds, campsites/villages, lithic workshops (i.e., stone tool manufacture), or lithic scatters (i.e., byproducts of stone tool production). There were also three multicomponent sites, including two precontact and historic Native American sites and one precontact and historic site. Two historic cemeteries, St. Luke's Cemetery and St. Bernard's Cemetery, are also present within the study area. [REDACTED]

[REDACTED] One site, 47-DA-0989 (Pheasant Branch Nature Preserve #1), has been determined not eligible for the NRHP; the remaining sites have not been evaluated for eligibility to the NRHP based on the WHPD site files.

The only site identified within the project APE was 47-DA-0815 (Site B), [REDACTED]. The site was originally identified in 1936 by Charles Brown of the WHS. [REDACTED]

[REDACTED] An archaeological survey of the western third of the site near Pheasant Branch was conducted by Cardno as part of a City of Middleton stream restoration project (Figure 3; Settle 2016). Ten shovel tests were excavated in that study, but none contained artifacts or cultural features. Portions of the east Pheasant Branch streambank and the entire west bank were not tested due to 15 percent or greater slopes (Settle 2016). Ground disturbance related to a limestone walking path was also noted in the eastern portion of Pheasant Branch within the Cardno project area (Settle 2016). Cardno recommended no further archaeological studies in what is now part of the current project APE (Settle 2016). FEMA will provide this technical memorandum as part of the SHPO consultation for this FEMA undertaking.

[REDACTED]

[REDACTED]

[REDACTED]

Two cemeteries are located within the study area. St. Luke's Cemetery is approximately 0.5 miles north and west of the project APE at 7515 Century Place in Middleton. St. Luke's Cemetery dates from approximately 1851 to the present. St. Bernard's Cemetery is approximately 0.4 miles south and southeast of the project APE at 1925 Branch Street in Middleton. It dates from 1897 to the present, but most headstones are from the 1960s to the present.

As the Sauk Mound, Heim Mound, the Murphy site, and the two cemeteries all have human burials, they are protected under the 1985 Wisconsin Act 316 (Wis. Stats. 157.70). While not expected as part of the current project, any effects to these sites require consultation with the WHS.

RESULTS AND RECOMMENDATIONS

The archaeological desktop assessment resulted in the identification of numerous prior surveys in the project APE as well as 20 archaeological sites within the study area. The proposed APE has been previously surveyed except for two small areas in the North of Century portion of the project. According to the City of Middleton, these two areas were part of the Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970 (personal communication between Mr. Roger Ammons, FEMA Program Delivery Manager, and Shawn Stauske, City of Middleton's Director of Public Works June 9, 2020). A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square yards of topsoil and seed. These activities have significantly disturbed the unsurveyed areas of the APE. As a result, no further archaeological survey is recommended within these two areas.

Only one of the 20 archaeological sites, 47-DA-0815 (Site B), is present within the project APE. Prior survey by Cardno was conducted in the portions of the site that overlap the project APE and no artifacts or cultural features were identified. As a result, it is unlikely that further survey would identify other cultural resources. As a result, no further work is recommended within the portion of the site within the proposed APE. However, if plans change and the APE is expanded, additional analysis should be conducted to ensure no unsurveyed areas of the site will be impacted by the proposed project.

Due to the location of the project APE, no effects are anticipated for any of the other archaeological sites or cemeteries, including the Sauk Mound, Heim Mound, and the Murphy site. As a result of the desktop archaeological assessment, it is anticipated that the proposed project will have no effect to known archaeological resources.

REFERENCES CITED

Hamilton, Kelley

2010 CTH Q (Allen Boulevard) Archaeological Monitor, Dane County. Prepared by the Wisconsin Historical Society-Museum Archaeology Program.

Salkin, Philip H.

1992 *An Archaeological Survey of the Proposed Pheasant Branch Interceptor Tributary Route in Middleton, Wisconsin.* Prepared by Archaeological Consulting and Services.

1993 *A Program of Archaeological testing at Two Sites (47DA987 and 47DA989) in Middleton, Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

2008 *WDOT Archaeological Survey Field Report: Pheasant Branch Creek Trail in Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

Settle, Kathleen

2016 *Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin.* Prepared by Cardno.

ATTACHMENT 1

Attachment 1: Archaeological Sites within T7R8E Sections 1, 2, 11, and 12.

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
1	47-DA-0815, Site B		Yes	16-0992	Consultation with SHPO, but no anticipated effect	The site overlaps Pheasant Branch and the APE. A Cardno survey (Settle 2016) in the western third of the site found no artifacts or other cultural resources. The current status of the site is unknown, and the site inventory notes a request for consultation.
1	47-DA-0209, Baskerville Campsite	Precontact Campsite/Village/Workshop	No	N/A	No effect	
1	47-DA-0989, Pheasant Branch Nature Preserve #1	Precontact Campsite/Village	No	92-0421	No effect	Not eligible.
1	47-DA-1249, Middleton Hills	Precontact (Late Paleoindian – Late Woodland) Campsite/Village	No	N/A	No effect	
2	St. Luke's Cemetery	Historic Cemetery	No	N/A	No effect	
2	47-DA-0737, Freeman	Precontact (Middle Archaic and Early Woodland) Lithic Scatter and Historic Periods	No	10-0283 and 89-0646	No effect	
2	47-DA-0966, S. Ziegler III	Precontact Workshop	No	89-0646	No effect	

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
2	47-DA-1422, Murphy Site II	Precontact (Middle and Late Archaic, Late Woodland) Campsite/Village/Burial	No	10-0283	No effect	
11	47-DA-0441, Woodside Heights Park	Precontact (Archaic) Campsite/Village	No	78-1104	No effect	
11	47-DA-0447, Park Shores	Precontact (Late Paleoindian and Archaic) Campsite/Village	No	78-1104	No effect	Most of site was destroyed by development, but a wooded area may still have intact deposits.
12	St. Bernard's Cemetery	Historic Cemetery	No	N/A	No effect	Any work in the park requires monitoring by an archaeologist.
12	47-DA-0381, Miller	Precontact and Historic Native American Campsite/Village	No	N/A	No effect	
12	47-DA-0389, Pheasant Branch	Precontact and Historic Native American Campsite/Village	No	11-9007, 10-7712	No effect	Portions of the site have been heavily disturbed. Site boundaries were amended in 2010.
12	47-DA-0423, Lemcke	Precontact (Late Archaic) Campsite/Village	No	N/A	No effect	
12	47-DA-0433, Sauk Trail School	Precontact (Late Woodland) Isolated Finds	No	11-9012	No effect	
12	47-DA-0495, Iltis Beach	Precontact (Late Woodland) Campsite/Village/Workshop	No	N/A	No effect	
12	47-DA-0816, Heim Farm	Precontact (Late Paleoindian, Late Archaic – Middle Woodland) Campsite/Village	No	11-9012	No effect	
Total Sites	20		1			

60 to 90% complete plans were provided as part of this consultation.

See Appendix A for the most recent project plans.



U.S. Department of Homeland Security
FEMA Region 5
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521

FEMA

March 29, 2022

Diane Hunter, Tribal Historic Preservation Officer
Miami Tribe of Oklahoma
PO Box 1326
Miami, Oklahoma 74355

Re: Pheasant Branch Creek Stabilization
Middleton, Dane County, Wisconsin
FEMA Project #88229; PW 593
43.103301, -89.513886 to 43.109433, -89.491877
S1, 2, 11, and 12 T7N R8E

Dear Ms. Hunter:

Pursuant to the Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the captioned Public Assistance Grant Program project. In accord with 36 CFR §800.11, I am enclosing documentation regarding this undertaking and its effect on historic properties, which is being sent concurrently to the Wisconsin State Historic Preservation Office for their review. This documentation provides the justification for FEMA's finding of no historic properties affected.

FEMA is providing these materials to the following federally recognized Indian tribes (Tribes) thought to have interests in the area:

- Ho-Chunk Nation
- Menominee Indian Tribe of Wisconsin
- Miami Tribe of Oklahoma
- Osage Nation
- Winnebago Tribe of Nebraska

In accord with 36 CFR 800.2(c)(2)(ii), FEMA is providing this opportunity for the Miami Tribe of Oklahoma to join the consultation by identifying concerns and providing comments about historic properties that may be affected by this undertaking. FEMA would also appreciate notice of Tribes other than those listed above that may have an interest in this undertaking.

SWe would appreciate a response from your office within 30 days. If you have questions, do not hesitate to contact me at 312-408-5549 or at fema-r5-environmental@fema.dhs.gov. If we do not receive a response within 30 days, FEMA will move forward with this undertaking without comment from the Miami Tribe of Oklahoma.

Sincerely,

Duane Castaldi
Regional Environmental Officer
FEMA Region 5

Sent by email to dhunter@miamination.com



FEMA

March 29, 2022

***Documentation Initiating and Concluding Section 106 Consultation
for a FEMA-Funded Undertaking***

Project Information:

Project ID: #88229; PW 593
Title: Pheasant Branch Creek Stabilization
Address: Pheasant Branch Creek from crossing at Deming Way, eastward to Century Avenue, then northward, parallel to Conservancy Lane
Location: Middleton, Dane County, WI
GPS: 43.102620, -89.51821 to 43.10945, -89.49057
PLSS: S1, 2, 11, and 12 T7N R8E

Description of Undertaking and APE:

As a result of severe storms, tornadoes, straight-line winds, flooding, and landslides affecting areas of the State of Wisconsin, President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) Program funding. The disaster event resulted in damage to infrastructure along the Pheasant Branch Creek Corridor from crossing at Deming Way and continuing eastward to north of Century Avenue in Middleton, Wisconsin (43.10262, -89.51821 to 43.10945, -89.49057).

The City of Middleton performed streambed relocation and streambank stabilization projects (most recently in 2007, 2008, 2009, 2010, 2012, and 2015) intermittently along this stretch of Pheasant Branch Creek, incorporating a variety of construction methods including sheet pile retaining walls, gabion baskets, toewood and rootwad, and rip rap toe protection. The City cleared, grubbed, graded and seeded the banks as part of these efforts. The flooding event washed away both engineered and non-engineered portions of the streambanks. However, only the areas with engineered stream stabilization will be funded by the FEMA PA grant program. Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as six timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated with the parks and creek corridor experienced erosion damage.

The Applicant, the City of Middleton, proposes to use contract services to repair the engineered streambanks in-kind to their pre-disaster design, save for the substitution of rip-rap toe protection and fill instead of rootwad and fill in several locations. Some locations along the bank that were damaged in the event will not be repaired but will be allowed to naturalize. All work is intermittent throughout the proposed construction project bounds.

The six timber and wood pedestrian bridges will be replaced and the recreational trail will be repaired and modified. The streambed will be lowered in a few locations to

accommodate the new bridges and trail modifications. Additionally, the stream itself will be shifted in two locations (43.104399, -89.504811 and 43.104008, -89.503381).

The Pheasant Branch and Pheasant Branch Conservancy

Although assessment of the entire Pheasant Branch waterway and Middleton's parks is beyond the scope of this review, an overview of the larger resource will help describe the APE and provide context for the review and recommendations of this consultation. The Friends of Pheasant Branch compiled a booklet (*Friends of Pheasant Branch, Geology, Cultural History and Ecology of the Pheasant Branch Conservancy and Watershed in Middleton, Wisconsin*, 2005) providing an overview of the area; this document provided the basis for the short history below.

The Ho-Chunk Nation occupied the area where the marshes and Pheasant Branch drain into Lake Mendota. Mounds located approximately one and one-half miles north and also approximately one-half mile east of the eastern edge of the proposed undertaking are associated with Native American occupation.

After an 1832 treaty with the Ho-Chunk Nation involving most of Dane County, European settlement began. The area was platted in 1836 and began to be developed. Beginning in the 1850's, portions of the Pheasant Branch creek west of present-day Park Street and the marshes to the west and north were channelized and drained to facilitate a peat harvesting industry and farming. The Pheasant Branch Creek channels now called North Fork and South Fork were created in the settlement period and increased the original creek watershed and stormwater flows considerably.

A village called Pheasant Branch was established in 1853 and was centered around the current Century Avenue Bridge over Pheasant Branch, near the current Branch Street. The village lost its importance in 1856 when the Milwaukee and Mississippi Railroad routed through Peatville, a village located to the southwest. Peatville eventually became Middleton.

After WWII, the area became a residential suburb of Madison and additional roads, utilities and buildings were built. The City of Middletown built nine storm sewers to drain the developed areas; these emptied into Pheasant Branch. A landfill (roughly between GPS Start: 43.10264, -89.50947 to 43.10329, -89.50777) along the southern edge of the creek east of Clark Street School was abandoned and capped after several creek flows and rain events caused erosion and sedimentation flow into Lake Mendota. In 1965, Middleton residents formed the Middleton Conservation Committee to address erosion and sedimentation issues with Pheasant Branch and Lake Mendota. The committee's efforts resulted in the 1970 rerouting of the main creek channel to flow northward into the marsh to reduce sedimentation flow into the lake. The Conservation Committee also spearheaded the purchase of approximately 340 acres of land by the City of to create the Pheasant Branch Conservancy (PBC) in the 1970s and 1980s. Dane County and the Wisconsin DNR also own lands contiguous to the City's parcels that comprise the total 550-acre conservancy.

The section of the Pheasant Branch stream, known as the Mainstem, flows easterly from the Mainstem Pond near Deming Way, under Parmenter Street to Park Street, then from Park to Century Avenue. The area from Parmenter to Park is called Firemen's Park and the area from Park to Century is called Parisi Park.

Firemen's Park is generally bordered by municipal, multi-and single-family residences, and school buildings; the Middleton Police Station, a multi-family complex, several large

residences and the Kromrey Middle School front onto Donna Drive with Firemen's Park and the Pheasant Branch at their rear. Part of Pheasant Branch was relocated to enable the middle school construction. Middleton High School's athletic campus borders Firemen's Park at the south side.

East of Park Street, Parisi Park is generally bordered by one and two-story single-family residences with a cluster of commercial buildings near Century Avenue and Branch Street that back onto the Conservancy property.

A large portion of the stream (approximately 2,800 linear feet beginning 450 feet north of Century Avenue) flows north-northeast from Century Avenue through a wooded area with post-1992 residential neighborhoods to the west, some commercial and multifamily buildings to the south, and at a distance of over one-quarter mile, a residential neighborhood to the east. To the north, the waterway flows into the Pheasant Branch Marsh, where the flow then passes southward again to Lake Mendota.

The streambank was realigned and straightened in 1970. A review of Historic Aerials' historic maps (<http://www.historicaerials.com>) shows the earlier stream route looping eastward in the late 1800's then looping further northward starting in the early 1900's until the 1970 realignment and straightening. The maps also indicate the current stream route was occasionally identified as an artificial ditch (1975, 1979).

Various other engineering and bank stabilization efforts along the stream banks occurred after this project, including the installation of a stream gage station and a rank of gabion baskets on the west bank immediately north of Century Avenue. The most recent streambank stabilization effort occurred in early 2018 when the Conservancy acted to improve the stream quality and reduce sediment outflow by adding cross vanes, toewood/rootwads, rip rap toes, erosion blankets, fabric, and mats, grading and seeding of banks, and removing log jams. The 2018 project began 100 feet north of Century and continued north for 4,000 linear feet. The disaster event, occurring between August 17 and September 14, 2018, severely damaged the stabilization project.

Construction drawings for the project and maps illustrating the APE are included in this submission. The Area of Potential Effect (APE) is defined as the construction limits as the work is not expected to have visual effects beyond the APE. Areas for equipment staging and access will conform to the existing paved trails adjacent to the stream. The APE is noted on Figure 3.

Steps Taken to Identify Historic Properties and the Description of Historic Properties:

Archaeology

An archaeological literature search and technical memorandum of recommendations was undertaken by an SOI-Qualified archaeologist with SERCO contracted by FEMA (Attachment 4).¹ The literature search and technical memorandum indicates that the APE for the corridor, except for two segments, has been previously surveyed (Figure 32). These two segments were heavily modified during a Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970. A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square

¹ Technical Memorandum Final, Project 88229 Event #4402DR-WI Water Control Facilities PBC Streambank Restoration Archaeological Desktop Assessment, City of Middleton, Dane County, Wisconsin. February 3, 2022.

yards of topsoil and seed. Given the APE, scope of work, and the significant extent and nature of the ground disturbing activities for previous stream relocation, the work within these two segments is not likely to encounter archaeological artifacts or features within their original depositional contexts that yield information important to history or pre-history.

SERCO identified only one archaeological site, 47-DA-0815 as partially within the APE. This site was originally identified in 1936 and partially surveyed in a 2016 archaeological survey conducted for a Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin by Cardno.² The partial survey encompasses the APE for this undertaking. The portions of the site that overlap the boundaries of the APE were not recommended for further investigations (Figure 33). FEMA notes that the prior archaeological investigations extended partially beyond the current APE although the entire boundaries of the site were not investigated. It is noted that the limestone walking path was the eastern most limit of the archaeological investigation and is not within this undertaking's APE.

Photos taken post-disaster within the boundaries of 47-DA-0815 (Figures 24-29) illustrate that the velocity of water within Pheasant Creek eroded, destabilized and washed out the nature-based solutions, soils, root wads as well as rip rap, geotechnical fabric and gabion baskets that were installed as part of the implemented Pheasant Branch Stream restoration project.

Although an evaluation of eligibility of 47-DA-0185 outside of the boundaries of the APE is beyond the scope of this review, within the APE, given the velocity of water, significant disturbance from prior installation of streambank stabilization, and prior archaeological investigations that extended beyond the banks which did not encounter archaeological artifacts or features, it is unlikely that intact soils with archaeological artifacts or features within their original depositional contexts exist.

The two stream relocations, (43.104399, -89.504811 and 43.104008, -89.503381) were within the CARDNO previous archaeological survey and outside of the recorded DA-47-0185 (Figures 15, 16, 17).

Based on the absence of archaeological features or artifacts within the APE, FEMA has determined that there are no below ground properties eligible for listing on the National Register of Historic Places within the APE for this undertaking.

Standing Structures

The nearest NRHP-listed properties and one NRHP historic district are located over three-quarters of a mile from the APE for this undertaking. The Dr. Newman C. Rowley House and the Middletown Depot are both over one mile southwest of the Century Avenue bridge over Pheasant Branch. The eastern end of the East End Historic District is three-quarters of a mile southwest of the Century Avenue bridge.

The closest surveyed property found in the Wisconsin SHPO database is the 1847 Old Stamm House, surveyed in 1977. The two-story fieldstone gabled ell building was constructed as a store and was used as a hotel, tavern, dance hall, supper club and restaurant. The building is on the south side of Century Avenue, approximately 325 feet

² Veronica Parsell, Principal Investigator. Cardno, Phase I Archaeological Reconnaissance Pheasant Branch Stream Restoration, City of Middleton, Dane County, Wisconsin. 2016.

from Pheasant Branch; views into and from the Pheasant Branch are limited by heavy vegetation.

The pedestrian bridges crossing Pheasant Branch within the proposed construction project APE are simple utilitarian timber and wood structures supported on earthen embankments and are not of historic age. No other standing structures exist within the APE for this undertaking.

Preliminary Determination of Eligibility:

Based on the information provided above, FEMA has determined that ***no resources within the APE are eligible for listing on the National Register of Historic Places.***

Finding:

FEMA finds that this undertaking will result in ***no historic properties affected.***

Summary of Views of Consulting Parties or Public:

On March 29, 2022, the following Tribes were provided information regarding this project:

Ho-Chunk Nation

Menominee Indian Tribe of Wisconsin

Miami Tribe of Oklahoma

Osage Nation

Winnebago Tribe of Nebraska

Figures:

Figure 1: Approximate undertaking site marked in blue, not to scale.
GoogleEarth image



Figure 2: Approximate undertaking site marked in blue, not to scale.
USGS Map "Middleton, WI" and "Madison West, WI," 1:24000, enlarged to show detail.

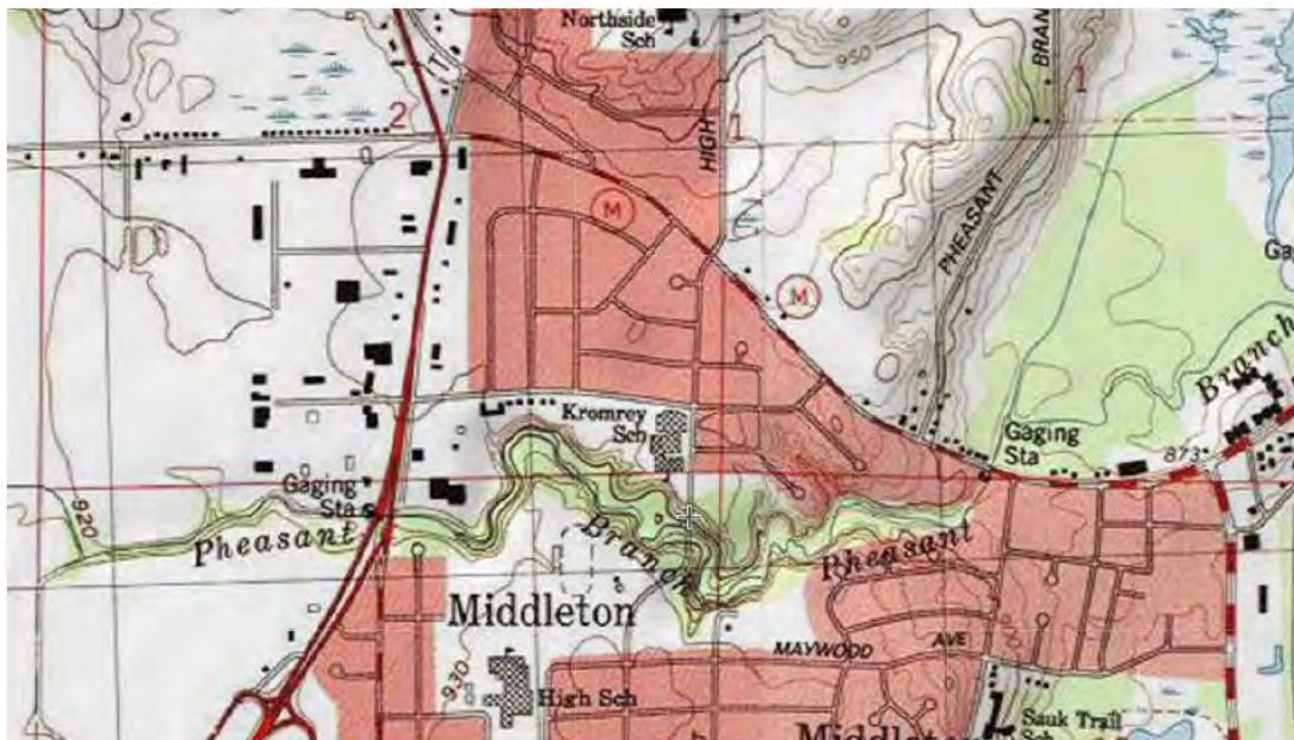


Figure 3: APE in black. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
USGS Map "Middleton, WI" and "Madison West, WI," with WISAHRD overlay.

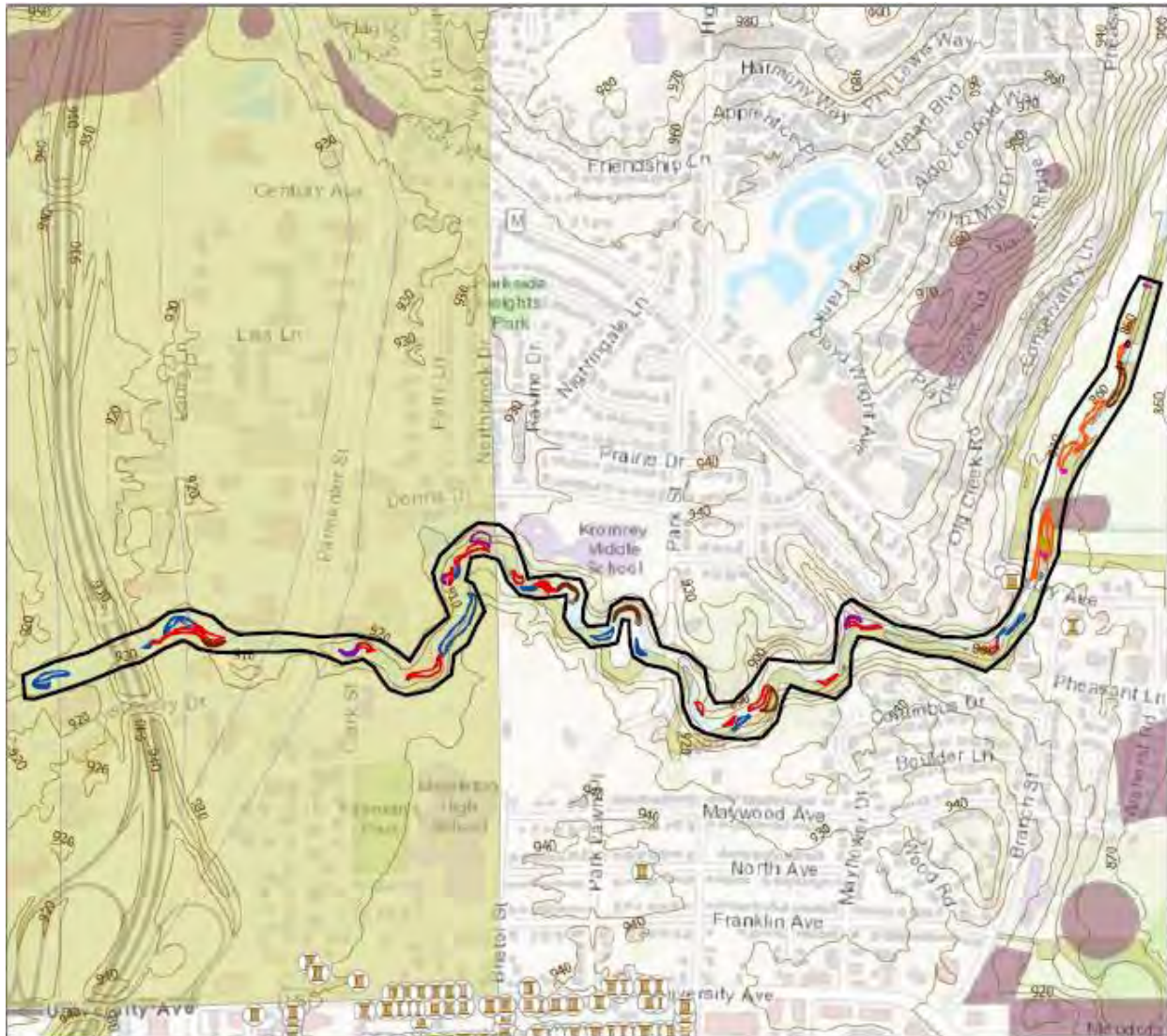


Figure 4: Photo Log. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
GoogleEarth image.



Figure 5: Photo facing east
Project files



Figure 6: Facing east
Project files



Figure 7: Photo facing northeast
Project files

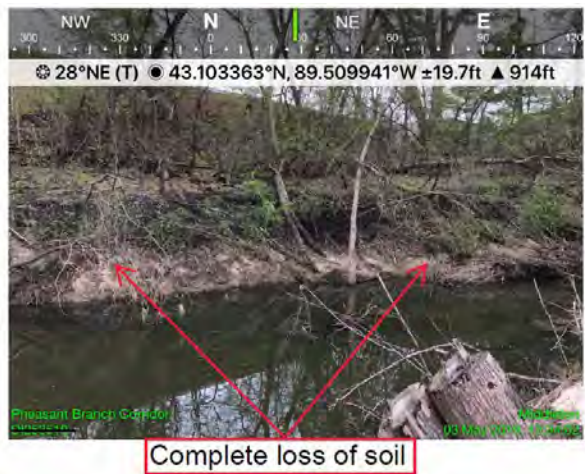


Figure 8: Photo facing east
Project files



Figure 9: Facing west
Project files



Figure 10: Facing south
Project files

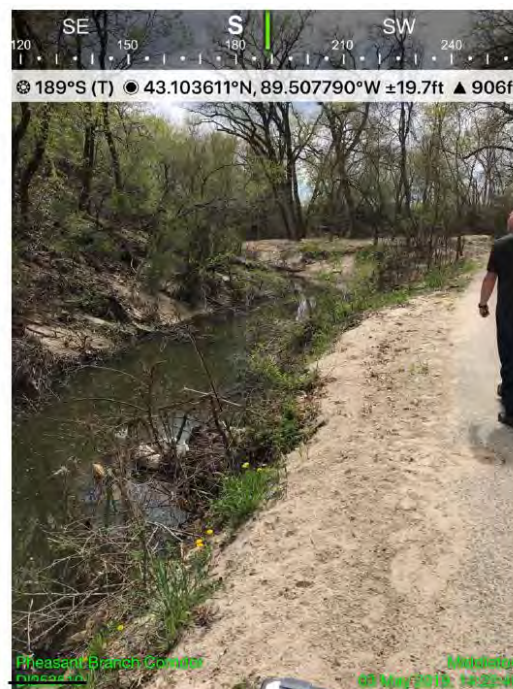


Figure 11: Facing north
Project files



Figure 12: Facing south
Project files



Figure 13: Facing southeast
Project files



Figure 14: Facing north
Project files



Figure 15: Facing southeast, stream relocation
Project files



Figure 16: Facing south, stream relocation
Project files



Figure 17 Facing south, stream relocation
Project files



Figure 18: Facing southwest
Project files



Figure 19: Facing south
Project files



Figure 20: Facing southwest
Project files



Figure 21: Facing southwest
Project files



Figure 22: Facing west
Project files



Figure 23: Facing north
Project files

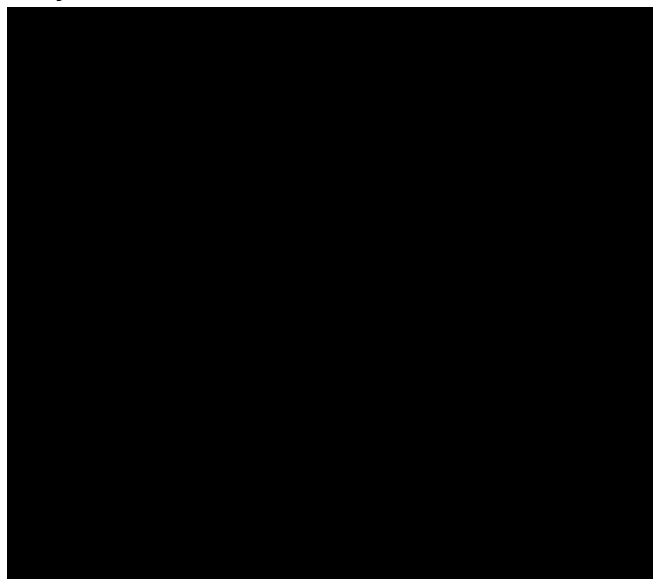


Figure 24: Facing south, 47-DA-0815, FEMA APE
previously surveyed.
Project files



Figure 25: Facing south, 47-DR-0185, FEMA
APE previously surveyed.
Project files



Figure 26: Facing north, 47-DA-0185, FEMA APE
previously surveyed.
Project files



Figure 27: Facing west, 47-DA-0185, FEMA APE
previously surveyed.
Project files

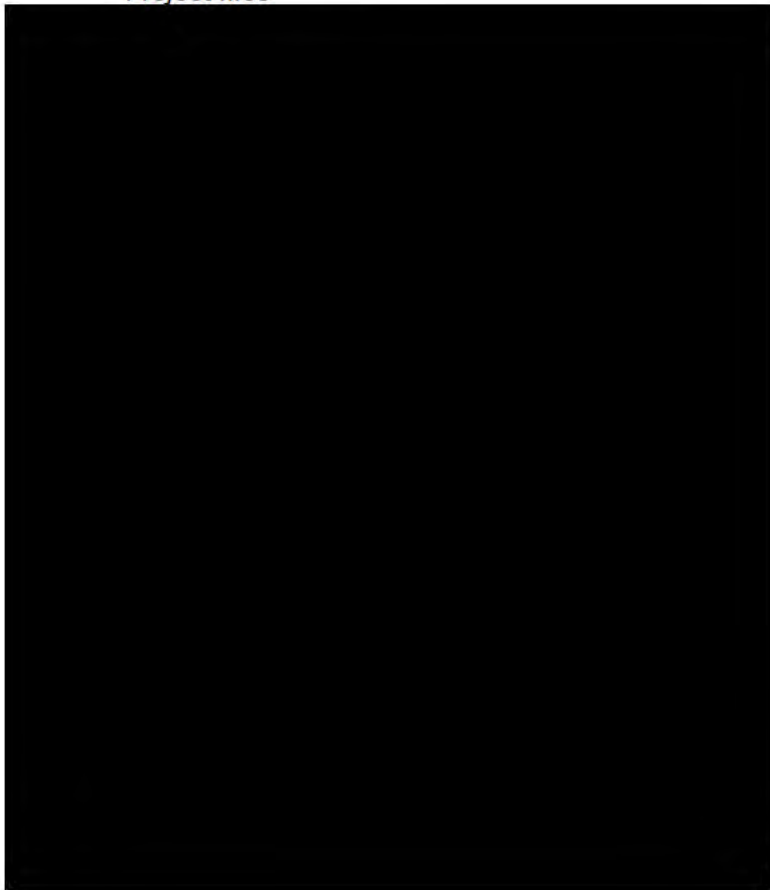


Figure 28: Facing southwest, 47-DA-0185,
FEMA APE previously surveyed.
Project files

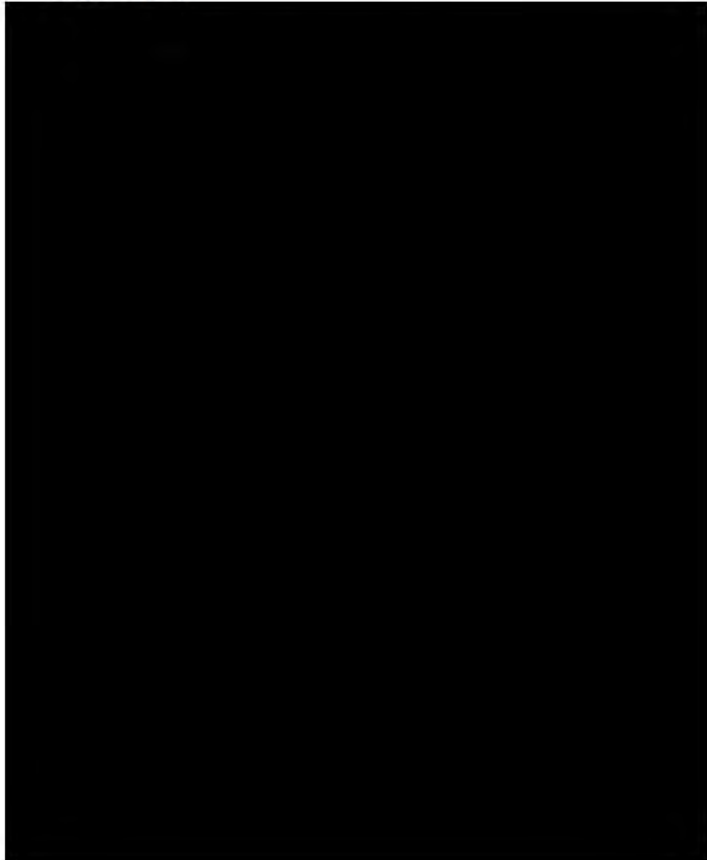


Figure 29: Facing north, 47-DA-0185, FEMA APE
previously surveyed.
Project files

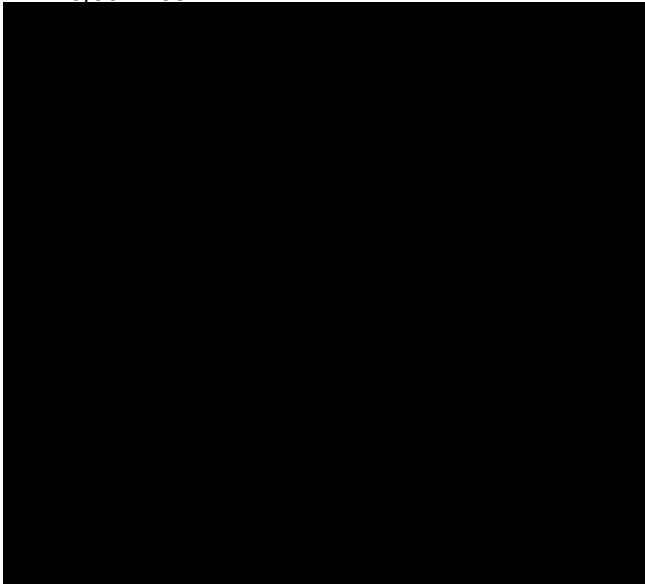


Figure 30: Facing north
Project files

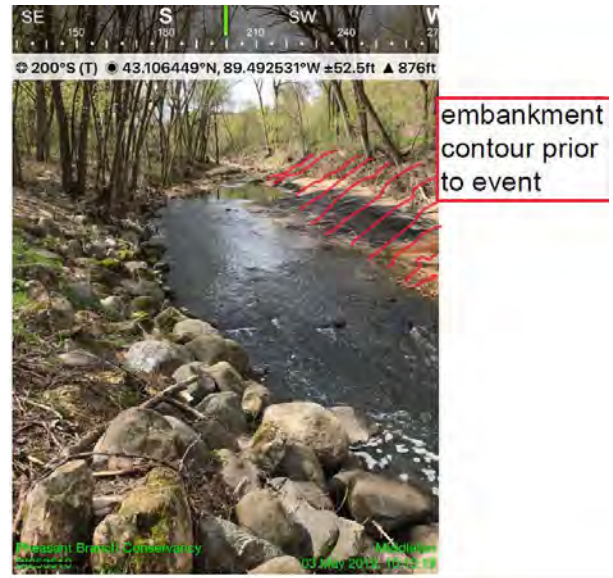


Figure 31: Facing north
Project files



Figure 32: SERCO background literature search identified two unsurveyed segments in yellow.
WHPD image.

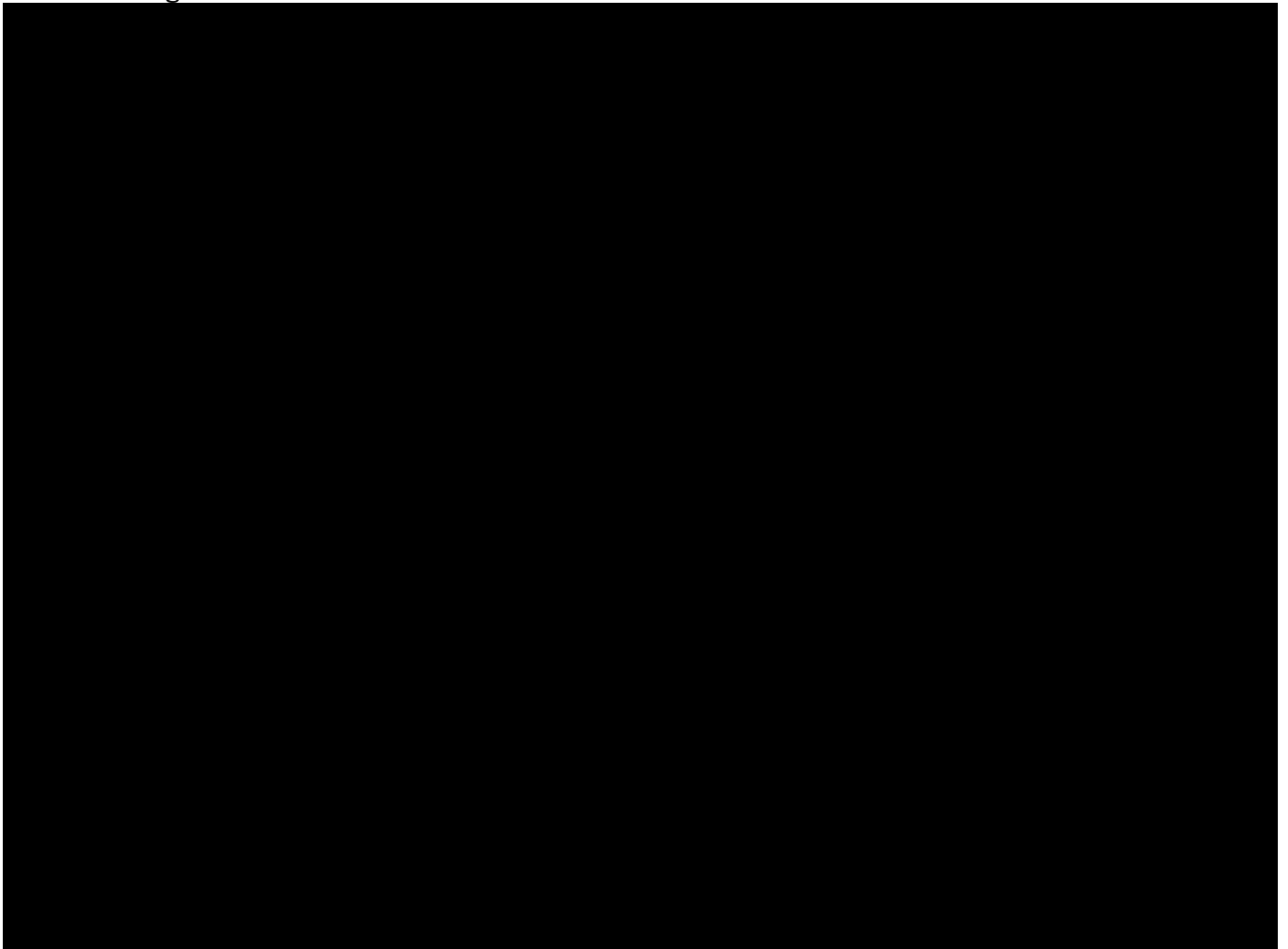
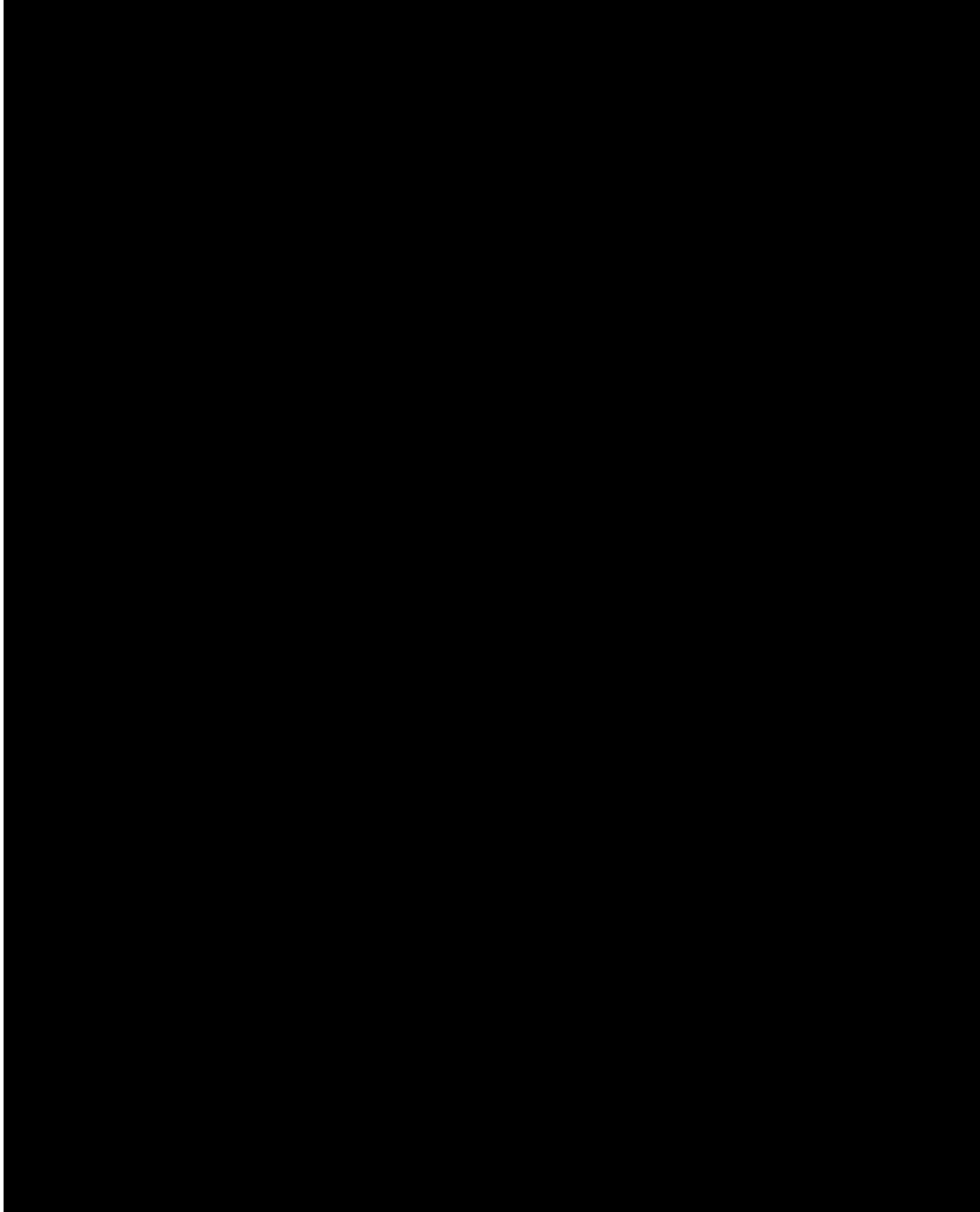


Figure 33: CARDNO 47-DA-0185 Archaeology Shovel Tests, APE previously surveyed. Note buffer extending beyond bank grading areas which extend beyond APE. The eastern limit of the site was only investigated up to and not beyond the existing limestone path.

Cardno aerial.



TECHNICAL MEMORANDUM
FINAL
PROJECT # 88229 EVENT #4402DR-WI
WATER CONTROL FACILITIES PBC STREAMBANK RESTORATION
ARCHAEOLOGICAL DESKTOP ASSESSMENT
CITY OF MIDDLETON, DANE COUNTY, WISCONSIN

SENIOR ARCHAEOLOGIST: Varna Boyd, MA, RPA, Principal Investigator
SUBJECT: Archaeological Desktop Assessment
DATE: February 3, 2022

This technical memorandum details the results of an archaeological desktop assessment in support of the Federal Emergency Management Agency's (FEMA) Public Assistance Grant, 4402DR-WI, for Water Control Facilities PBC Streambank Restoration in the City of Middleton, Wisconsin (Figure 1). The streambank restoration project is a result of Disaster #4402DR-WI (a severe storm with heavy rains) that occurred between August 17 and September 14, 2018. The severe storms and rains caused surface water flooding and high-velocity run-off to the Pheasant Branch drainage channel, which resulted in damage to water control facilities and stream embankments along portions of Pheasant Branch Creek.

The archaeological desktop assessment was conducted in anticipation of consultation with the Wisconsin Historical Society (WHS), which serves as the State Historic Preservation Office (SHPO), and Tribal Historic Preservation Officers (THPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The assessment was performed by a professional archaeologist who exceeds the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44716, September 29, 1983) and who has worked in Wisconsin previously. Portions of this assessment contain sensitive archaeological information (i.e., site location data).

ASSESSMENT GOALS AND METHODS

The goals of the assessment were to determine if previously identified archaeological resources were adjacent to or within the Area of Potential Effect (APE), which has been defined as the proposed limits of ground disturbance; determine what areas, if any, had been previously surveyed within the APE; determine the potential for archaeological resources within any previously unsurveyed areas; and make recommendations for further study, as warranted.



Figure 1: Project Location (Source: City of Middleton, WI).

To accomplish these goals, site file and previous survey research was conducted in the WHS's Wisconsin Historic Preservation Database (WHPD) for Township 7, Region 8E (T7R8E), Sections 1, 2, 11, and 12, which was considered the study area. Environmental data (e.g., soils) that could affect the potential for archaeological resources were reviewed for the APE.

Based on the known presence of archaeological sites in the vicinity, the potential for archaeological sites to be present within the project APE was initially considered to be high. However, it was also known that portions of the APE had been previously disturbed (e.g., graded) and that portions had been previously surveyed (see following section). As a result, the assessment also included a comparison of previous survey areas and project plans to determine if there were unsurveyed areas within the APE and if so, evaluate their potential for archaeological resources. Recommendations were made based on the combined data analysis. No archival research or review of architectural resources or properties was included in this archaeological desktop assessment.

ARCHAEOLOGICAL SITE FILE RESEARCH

Numerous surveys have been conducted in the vicinity, including studies by Archaeological Consulting and Services (Figure 2; Salkin 1992, 1993, and 2008), the WHS-Museum Archaeology Program (Figure 2; Hamilton 2010), and Cardno (Figure 3; Settle 2016) within the project APE. Only two small areas in the North of Century section of the APE have not been surveyed (Figure 4).

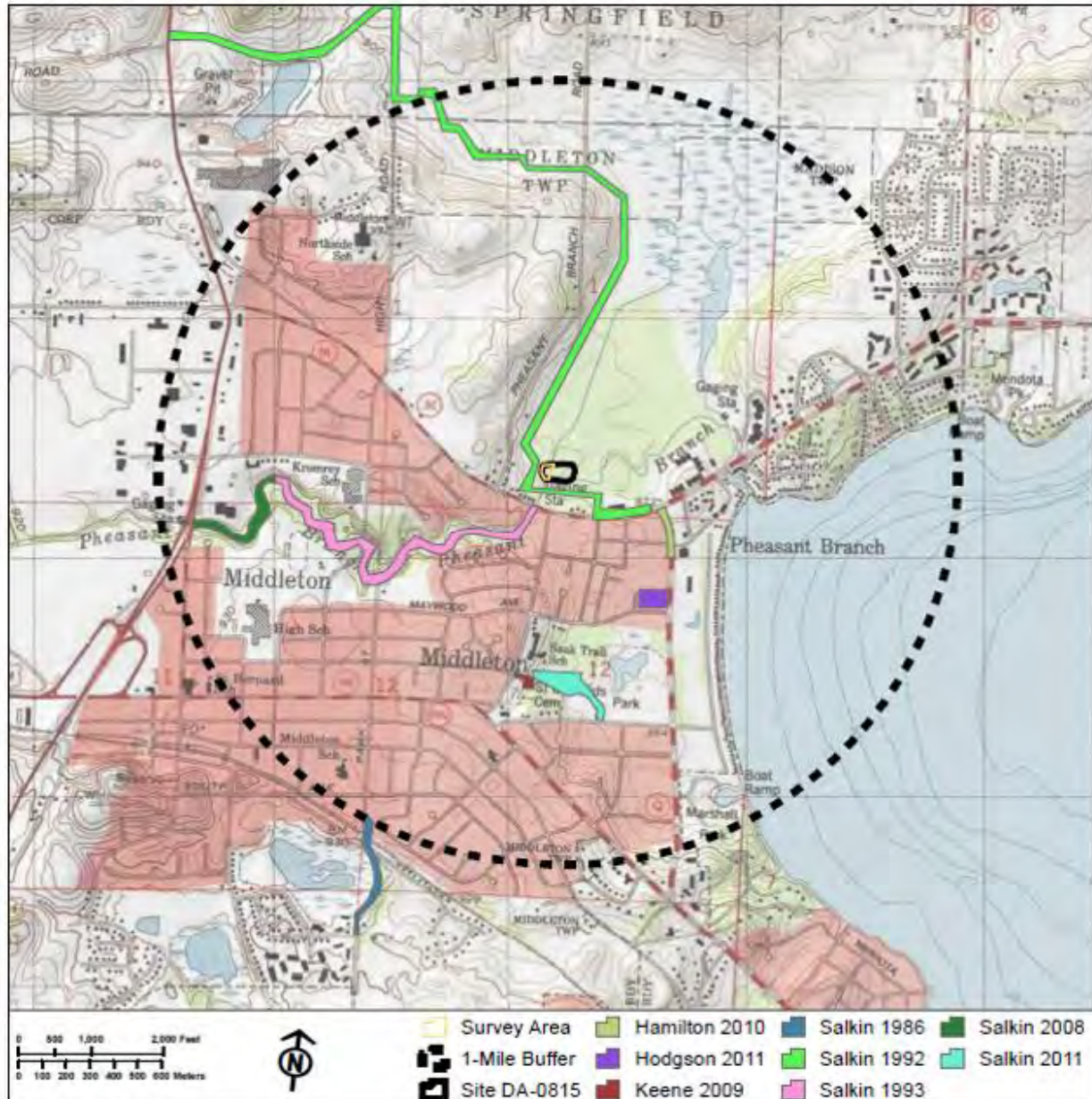
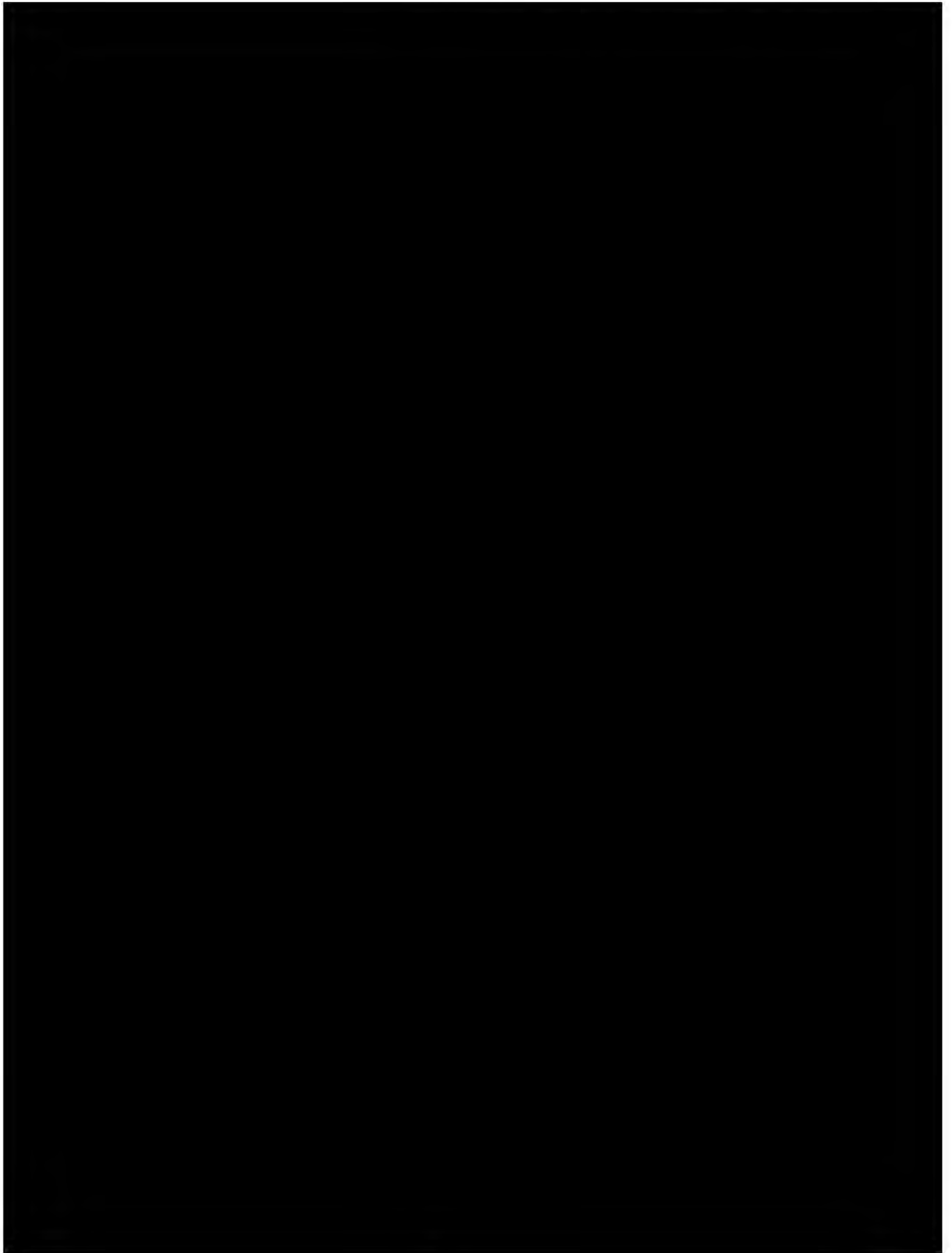


Figure 2: Surveys Prior to 2016 in the Project Vicinity (Source: Settle 2016:15).



Twenty archaeological sites were identified within the four T7R8E sections comprising the study area (Attachment 1). The majority (n=15) are precontact (i.e., Native American) mounds, campsites/villages, lithic workshops (i.e., stone tool manufacture), or lithic scatters (i.e., byproducts of stone tool production). There were also three multicomponent sites, including two precontact and historic Native American sites and one precontact and historic site. Two historic cemeteries, St. Luke's Cemetery and St. Bernard's Cemetery, are also present within the study area. [REDACTED]

[REDACTED] One site, 47-DA-0989 (Pheasant Branch Nature Preserve #1), has been determined not eligible for the NRHP; the remaining sites have not been evaluated for eligibility to the NRHP based on the WHPD site files.

The only site identified within the project APE was 47-DA-0815 (Site B), [REDACTED]. The site was originally identified in 1936 by Charles Brown of the WHS. [REDACTED]

[REDACTED] An archaeological survey of the western third of the site near Pheasant Branch was conducted by Cardno as part of a City of Middleton stream restoration project (Figure 3; Settle 2016). Ten shovel tests were excavated in that study, but none contained artifacts or cultural features. Portions of the east Pheasant Branch streambank and the entire west bank were not tested due to 15 percent or greater slopes (Settle 2016). Ground disturbance related to a limestone walking path was also noted in the eastern portion of Pheasant Branch within the Cardno project area (Settle 2016). Cardno recommended no further archaeological studies in what is now part of the current project APE (Settle 2016). FEMA will provide this technical memorandum as part of the SHPO consultation for this FEMA undertaking.

[REDACTED]

[REDACTED]

[REDACTED]

Two cemeteries are located within the study area. St. Luke's Cemetery is approximately 0.5 miles north and west of the project APE at 7515 Century Place in Middleton. St. Luke's Cemetery dates from approximately 1851 to the present. St. Bernard's Cemetery is approximately 0.4 miles south and southeast of the project APE at 1925 Branch Street in Middleton. It dates from 1897 to the present, but most headstones are from the 1960s to the present.

As the Sauk Mound, Heim Mound, the Murphy site, and the two cemeteries all have human burials, they are protected under the 1985 Wisconsin Act 316 (Wis. Stats. 157.70). While not expected as part of the current project, any effects to these sites require consultation with the WHS.

RESULTS AND RECOMMENDATIONS

The archaeological desktop assessment resulted in the identification of numerous prior surveys in the project APE as well as 20 archaeological sites within the study area. The proposed APE has been previously surveyed except for two small areas in the North of Century portion of the project. According to the City of Middleton, these two areas were part of the Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970 (personal communication between Mr. Roger Ammons, FEMA Program Delivery Manager, and Shawn Stauske, City of Middleton's Director of Public Works June 9, 2020). A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square yards of topsoil and seed. These activities have significantly disturbed the unsurveyed areas of the APE. As a result, no further archaeological survey is recommended within these two areas.

Only one of the 20 archaeological sites, 47-DA-0815 (Site B), is present within the project APE. Prior survey by Cardno was conducted in the portions of the site that overlap the project APE and no artifacts or cultural features were identified. As a result, it is unlikely that further survey would identify other cultural resources. As a result, no further work is recommended within the portion of the site within the proposed APE. However, if plans change and the APE is expanded, additional analysis should be conducted to ensure no unsurveyed areas of the site will be impacted by the proposed project.

Due to the location of the project APE, no effects are anticipated for any of the other archaeological sites or cemeteries, including the Sauk Mound, Heim Mound, and the Murphy site. As a result of the desktop archaeological assessment, it is anticipated that the proposed project will have no effect to known archaeological resources.

REFERENCES CITED

Hamilton, Kelley

2010 CTH Q (Allen Boulevard) Archaeological Monitor, Dane County. Prepared by the Wisconsin Historical Society-Museum Archaeology Program.

Salkin, Philip H.

1992 *An Archaeological Survey of the Proposed Pheasant Branch Interceptor Tributary Route in Middleton, Wisconsin.* Prepared by Archaeological Consulting and Services.

1993 *A Program of Archaeological testing at Two Sites (47DA987 and 47DA989) in Middleton, Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

2008 *WDOT Archaeological Survey Field Report: Pheasant Branch Creek Trail in Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

Settle, Kathleen

2016 *Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin.* Prepared by Cardno.

ATTACHMENT 1

Attachment 1: Archaeological Sites within T7R8E Sections 1, 2, 11, and 12.

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
1	47-DA-0815, Site B		Yes	16-0992	Consultation with SHPO, but no anticipated effect	The site overlaps Pheasant Branch and the APE. A Cardno survey (Settle 2016) in the western third of the site found no artifacts or other cultural resources. The current status of the site is unknown, and the site inventory notes a request for consultation.
1	47-DA-0209, Baskerville Campsite	Precontact Campsite/Village/Workshop	No	N/A	No effect	
1	47-DA-0989, Pheasant Branch Nature Preserve #1	Precontact Campsite/Village	No	92-0421	No effect	Not eligible.
1	47-DA-1249, Middleton Hills	Precontact (Late Paleoindian – Late Woodland) Campsite/Village	No	N/A	No effect	
2	St. Luke's Cemetery	Historic Cemetery	No	N/A	No effect	
2	47-DA-0737, Freeman	Precontact (Middle Archaic and Early Woodland) Lithic Scatter and Historic Periods	No	10-0283 and 89-0646	No effect	
2	47-DA-0966, S. Ziegler III	Precontact Workshop	No	89-0646	No effect	

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
2	47-DA-1422, Murphy Site II	Precontact (Middle and Late Archaic, Late Woodland) Campsite/Village/Burial	No	10-0283	No effect	
11	47-DA-0441, Woodside Heights Park	Precontact (Archaic) Campsite/Village	No	78-1104	No effect	
11	47-DA-0447, Park Shores	Precontact (Late Paleoindian and Archaic) Campsite/Village	No	78-1104	No effect	Most of site was destroyed by development, but a wooded area may still have intact deposits.
12	St. Bernard's Cemetery	Historic Cemetery	No	N/A	No effect	Any work in the park requires monitoring by an archaeologist.
12	47-DA-0381, Miller	Precontact and Historic Native American Campsite/Village	No	N/A	No effect	
12	47-DA-0389, Pheasant Branch	Precontact and Historic Native American Campsite/Village	No	11-9007, 10-7712	No effect	Portions of the site have been heavily disturbed. Site boundaries were amended in 2010.
12	47-DA-0423, Lemcke	Precontact (Late Archaic) Campsite/Village	No	N/A	No effect	
12	47-DA-0433, Sauk Trail School	Precontact (Late Woodland) Isolated Finds	No	11-9012	No effect	
12	47-DA-0495, Iltis Beach	Precontact (Late Woodland) Campsite/Village/Workshop	No	N/A	No effect	
12	47-DA-0816, Heim Farm	Precontact (Late Paleoindian, Late Archaic – Middle Woodland) Campsite/Village	No	11-9012	No effect	
Total Sites	20		1			

60 to 90% complete plans were provided as part of this consultation.

See Appendix A for the most recent project plans.



Miami Tribe of Oklahoma

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Ph: (918) 541-1300 • Fax: (918) 542-7260
www.miamination.com



Via email: fema-r5-environmental@fema.dhs.gov

April 1, 2022

Duane D. Castaldi
Regional Environmental Officer
U.S. Department of Homeland Security
FEMA Region V
536 South Clark Street, 6th Floor
Chicago, IL 60605

Re: Project #88229; PW 593, Pheasant Branch Creek Stabilization, Dane County, Wisconsin –
Comments of the Miami Tribe of Oklahoma

Dear Mr. Castaldi:

Aya, kikwehsitoole – I show you respect. The Miami Tribe of Oklahoma, a federally recognized Indian tribe with a Constitution ratified in 1939 under the Oklahoma Indian Welfare Act of 1936, respectfully submits the following comments regarding Project #88229; PW 593, Pheasant Branch Creek Stabilization in Dane County, Wisconsin.

The Miami Tribe offers no objection to the above-referenced project at this time, as we are not currently aware of existing documentation directly linking a specific Miami cultural or historic site to the project site. However, given the Miami Tribe's deep and enduring relationship to its historic lands and cultural property within present-day Wisconsin, if any human remains or Native American cultural items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) or archaeological evidence is discovered during any phase of this project, the Miami Tribe requests immediate consultation with the entity of jurisdiction for the location of discovery. In such a case, please contact me at 918-541-8966 or by email at dhunter@miamination.com to initiate consultation.

The Miami Tribe accepts the invitation to serve as a consulting party to the proposed project. In my capacity as Tribal Historic Preservation Officer I am the point of contact for consultation.

Respectfully,

Diane Hunter
Tribal Historic Preservation Officer



U.S. Department of Homeland Security
FEMA Region 5
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521

FEMA

March 29, 2022

Andrea Hunter, Director & Tribal Historic Preservation Officer
Osage Nation
627 Grandview Avenue
Pawhuska, Oklahoma 74056

Re: Pheasant Branch Creek Stabilization
Middleton, Dane County, Wisconsin
FEMA Project #88229; PW 593
43.103301, -89.513886 to 43.109433, -89.491877
S1, 2, 11, and 12 T7N R8E

Dear Dr. Hunter:

Pursuant to the Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the captioned Public Assistance Grant Program project. In accord with 36 CFR §800.11, I am enclosing documentation regarding this undertaking and its effect on historic properties, which is being sent concurrently to the Wisconsin State Historic Preservation Office for their review. This documentation provides the justification for FEMA's finding of no historic properties affected.

FEMA is providing these materials to the following federally recognized Indian tribes (Tribes) thought to have interests in the area:

- Ho-Chunk Nation
- Menominee Indian Tribe of Wisconsin
- Miami Tribe of Oklahoma
- Osage Nation
- Winnebago Tribe of Nebraska

In accord with 36 CFR 800.2(c)(2)(ii), FEMA is providing this opportunity for the Osage Nation to join the consultation by identifying concerns and providing comments about historic properties that may be affected by this undertaking. FEMA would also appreciate notice of Tribes other than those listed above that may have an interest in this undertaking.

SWe would appreciate a response from your office within 30 days. If you have questions, do not hesitate to contact me at 312-408-5549 or at fema-r5-environmental@fema.dhs.gov. If we do not receive a response within 30 days, FEMA will move forward with this undertaking without comment from the Osage Nation.

Sincerely,

Duane Castaldi
Regional Environmental Officer
FEMA Region 5

Sent by email to



FEMA

March 29, 2022

***Documentation Initiating and Concluding Section 106 Consultation
for a FEMA-Funded Undertaking***

Project Information:

Project ID: #88229; PW 593

Title: Pheasant Branch Creek Stabilization

Address: Pheasant Branch Creek from crossing at Deming Way, eastward to Century Avenue, then northward, parallel to Conservancy Lane

Location: Middleton, Dane County, WI

GPS: 43.102620, -89.51821 to 43.10945, -89.49057

PLSS: S1, 2, 11, and 12 T7N R8E

Description of Undertaking and APE:

As a result of severe storms, tornadoes, straight-line winds, flooding, and landslides affecting areas of the State of Wisconsin, President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) Program funding. The disaster event resulted in damage to infrastructure along the Pheasant Branch Creek Corridor from crossing at Deming Way and continuing eastward to north of Century Avenue in Middleton, Wisconsin (43.10262, -89.51821 to 43.10945, -89.49057).

The City of Middleton performed streambed relocation and streambank stabilization projects (most recently in 2007, 2008, 2009, 2010, 2012, and 2015) intermittently along this stretch of Pheasant Branch Creek, incorporating a variety of construction methods including sheet pile retaining walls, gabion baskets, toewood and rootwad, and rip rap toe protection. The City cleared, grubbed, graded and seeded the banks as part of these efforts. The flooding event washed away both engineered and non-engineered portions of the streambanks. However, only the areas with engineered stream stabilization will be funded by the FEMA PA grant program. Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as six timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated with the parks and creek corridor experienced erosion damage.

The Applicant, the City of Middleton, proposes to use contract services to repair the engineered streambanks in-kind to their pre-disaster design, save for the substitution of rip-rap toe protection and fill instead of rootwad and fill in several locations. Some locations along the bank that were damaged in the event will not be repaired but will be allowed to naturalize. All work is intermittent throughout the proposed construction project bounds.

The six timber and wood pedestrian bridges will be replaced and the recreational trail will be repaired and modified. The streambed will be lowered in a few locations to

accommodate the new bridges and trail modifications. Additionally, the stream itself will be shifted in two locations (43.104399, -89.504811 and 43.104008, -89.503381).

The Pheasant Branch and Pheasant Branch Conservancy

Although assessment of the entire Pheasant Branch waterway and Middleton's parks is beyond the scope of this review, an overview of the larger resource will help describe the APE and provide context for the review and recommendations of this consultation. The Friends of Pheasant Branch compiled a booklet (*Friends of Pheasant Branch, Geology, Cultural History and Ecology of the Pheasant Branch Conservancy and Watershed in Middleton, Wisconsin*, 2005) providing an overview of the area; this document provided the basis for the short history below.

The Ho-Chunk Nation occupied the area where the marshes and Pheasant Branch drain into Lake Mendota. Mounds located approximately one and one-half miles north and also approximately one-half mile east of the eastern edge of the proposed undertaking are associated with Native American occupation.

After an 1832 treaty with the Ho-Chunk Nation involving most of Dane County, European settlement began. The area was platted in 1836 and began to be developed. Beginning in the 1850's, portions of the Pheasant Branch creek west of present-day Park Street and the marshes to the west and north were channelized and drained to facilitate a peat harvesting industry and farming. The Pheasant Branch Creek channels now called North Fork and South Fork were created in the settlement period and increased the original creek watershed and stormwater flows considerably.

A village called Pheasant Branch was established in 1853 and was centered around the current Century Avenue Bridge over Pheasant Branch, near the current Branch Street. The village lost its importance in 1856 when the Milwaukee and Mississippi Railroad routed through Peatville, a village located to the southwest. Peatville eventually became Middleton.

After WWII, the area became a residential suburb of Madison and additional roads, utilities and buildings were built. The City of Middletown built nine storm sewers to drain the developed areas; these emptied into Pheasant Branch. A landfill (roughly between GPS Start: 43.10264, -89.50947 to 43.10329, -89.50777) along the southern edge of the creek east of Clark Street School was abandoned and capped after several creek flows and rain events caused erosion and sedimentation flow into Lake Mendota. In 1965, Middleton residents formed the Middleton Conservation Committee to address erosion and sedimentation issues with Pheasant Branch and Lake Mendota. The committee's efforts resulted in the 1970 rerouting of the main creek channel to flow northward into the marsh to reduce sedimentation flow into the lake. The Conservation Committee also spearheaded the purchase of approximately 340 acres of land by the City of to create the Pheasant Branch Conservancy (PBC) in the 1970s and 1980s. Dane County and the Wisconsin DNR also own lands contiguous to the City's parcels that comprise the total 550-acre conservancy.

The section of the Pheasant Branch stream, known as the Mainstem, flows easterly from the Mainstem Pond near Deming Way, under Parmenter Street to Park Street, then from Park to Century Avenue. The area from Parmenter to Park is called Firemen's Park and the area from Park to Century is called Parisi Park.

Firemen's Park is generally bordered by municipal, multi-and single-family residences, and school buildings; the Middleton Police Station, a multi-family complex, several large

residences and the Kromrey Middle School front onto Donna Drive with Firemen's Park and the Pheasant Branch at their rear. Part of Pheasant Branch was relocated to enable the middle school construction. Middleton High School's athletic campus borders Firemen's Park at the south side.

East of Park Street, Parisi Park is generally bordered by one and two-story single-family residences with a cluster of commercial buildings near Century Avenue and Branch Street that back onto the Conservancy property.

A large portion of the stream (approximately 2,800 linear feet beginning 450 feet north of Century Avenue) flows north-northeast from Century Avenue through a wooded area with post-1992 residential neighborhoods to the west, some commercial and multifamily buildings to the south, and at a distance of over one-quarter mile, a residential neighborhood to the east. To the north, the waterway flows into the Pheasant Branch Marsh, where the flow then passes southward again to Lake Mendota.

The streambank was realigned and straightened in 1970. A review of Historic Aerials' historic maps (<http://www.historicaerials.com>) shows the earlier stream route looping eastward in the late 1800's then looping further northward starting in the early 1900's until the 1970 realignment and straightening. The maps also indicate the current stream route was occasionally identified as an artificial ditch (1975, 1979).

Various other engineering and bank stabilization efforts along the stream banks occurred after this project, including the installation of a stream gage station and a rank of gabion baskets on the west bank immediately north of Century Avenue. The most recent streambank stabilization effort occurred in early 2018 when the Conservancy acted to improve the stream quality and reduce sediment outflow by adding cross vanes, toewood/rootwads, rip rap toes, erosion blankets, fabric, and mats, grading and seeding of banks, and removing log jams. The 2018 project began 100 feet north of Century and continued north for 4,000 linear feet. The disaster event, occurring between August 17 and September 14, 2018, severely damaged the stabilization project.

Construction drawings for the project and maps illustrating the APE are included in this submission. The Area of Potential Effect (APE) is defined as the construction limits as the work is not expected to have visual effects beyond the APE. Areas for equipment staging and access will conform to the existing paved trails adjacent to the stream. The APE is noted on Figure 3.

Steps Taken to Identify Historic Properties and the Description of Historic Properties:

Archaeology

An archaeological literature search and technical memorandum of recommendations was undertaken by an SOI-Qualified archaeologist with SERCO contracted by FEMA (Attachment 4).¹ The literature search and technical memorandum indicates that the APE for the corridor, except for two segments, has been previously surveyed (Figure 32). These two segments were heavily modified during a Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970. A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square

¹ Technical Memorandum Final, Project 88229 Event #4402DR-WI Water Control Facilities PBC Streambank Restoration Archaeological Desktop Assessment, City of Middleton, Dane County, Wisconsin. February 3, 2022.

yards of topsoil and seed. Given the APE, scope of work, and the significant extent and nature of the ground disturbing activities for previous stream relocation, the work within these two segments is not likely to encounter archaeological artifacts or features within their original depositional contexts that yield information important to history or pre-history.

SERCO identified only one archaeological site, 47-DA-0815 as partially within the APE. This site was originally identified in 1936 and partially surveyed in a 2016 archaeological survey conducted for a Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin by Cardno.² The partial survey encompasses the APE for this undertaking. The portions of the site that overlap the boundaries of the APE were not recommended for further investigations (Figure 33). FEMA notes that the prior archaeological investigations extended partially beyond the current APE although the entire boundaries of the site were not investigated. It is noted that the limestone walking path was the eastern most limit of the archaeological investigation and is not within this undertaking's APE.

Photos taken post-disaster within the boundaries of 47-DA-0815 (Figures 24-29) illustrate that the velocity of water within Pheasant Creek eroded, destabilized and washed out the nature-based solutions, soils, root wads as well as rip rap, geotechnical fabric and gabion baskets that were installed as part of the implemented Pheasant Branch Stream restoration project.

Although an evaluation of eligibility of 47-DA-0185 outside of the boundaries of the APE is beyond the scope of this review, within the APE, given the velocity of water, significant disturbance from prior installation of streambank stabilization, and prior archaeological investigations that extended beyond the banks which did not encounter archaeological artifacts or features, it is unlikely that intact soils with archaeological artifacts or features within their original depositional contexts exist.

The two stream relocations, (43.104399, -89.504811 and 43.104008, -89.503381) were within the CARDNO previous archaeological survey and outside of the recorded DA-47-0185 (Figures 15, 16, 17).

Based on the absence of archaeological features or artifacts within the APE, FEMA has determined that there are no below ground properties eligible for listing on the National Register of Historic Places within the APE for this undertaking.

Standing Structures

The nearest NRHP-listed properties and one NRHP historic district are located over three-quarters of a mile from the APE for this undertaking. The Dr. Newman C. Rowley House and the Middletown Depot are both over one mile southwest of the Century Avenue bridge over Pheasant Branch. The eastern end of the East End Historic District is three-quarters of a mile southwest of the Century Avenue bridge.

The closest surveyed property found in the Wisconsin SHPO database is the 1847 Old Stamm House, surveyed in 1977. The two-story fieldstone gabled ell building was constructed as a store and was used as a hotel, tavern, dance hall, supper club and restaurant. The building is on the south side of Century Avenue, approximately 325 feet

² Veronica Parsell, Principal Investigator. Cardno, Phase I Archaeological Reconnaissance Pheasant Branch Stream Restoration, City of Middleton, Dane County, Wisconsin. 2016.

from Pheasant Branch; views into and from the Pheasant Branch are limited by heavy vegetation.

The pedestrian bridges crossing Pheasant Branch within the proposed construction project APE are simple utilitarian timber and wood structures supported on earthen embankments and are not of historic age. No other standing structures exist within the APE for this undertaking.

Preliminary Determination of Eligibility:

Based on the information provided above, FEMA has determined that ***no resources within the APE are eligible for listing on the National Register of Historic Places.***

Finding:

FEMA finds that this undertaking will result in ***no historic properties affected.***

Summary of Views of Consulting Parties or Public:

On March 29, 2022, the following Tribes were provided information regarding this project:

Ho-Chunk Nation

Menominee Indian Tribe of Wisconsin

Miami Tribe of Oklahoma

Osage Nation

Winnebago Tribe of Nebraska

Figures:

Figure 1: Approximate undertaking site marked in blue, not to scale.
GoogleEarth image



Figure 2: Approximate undertaking site marked in blue, not to scale.
USGS Map "Middleton, WI" and "Madison West, WI," 1:24000, enlarged to show detail.

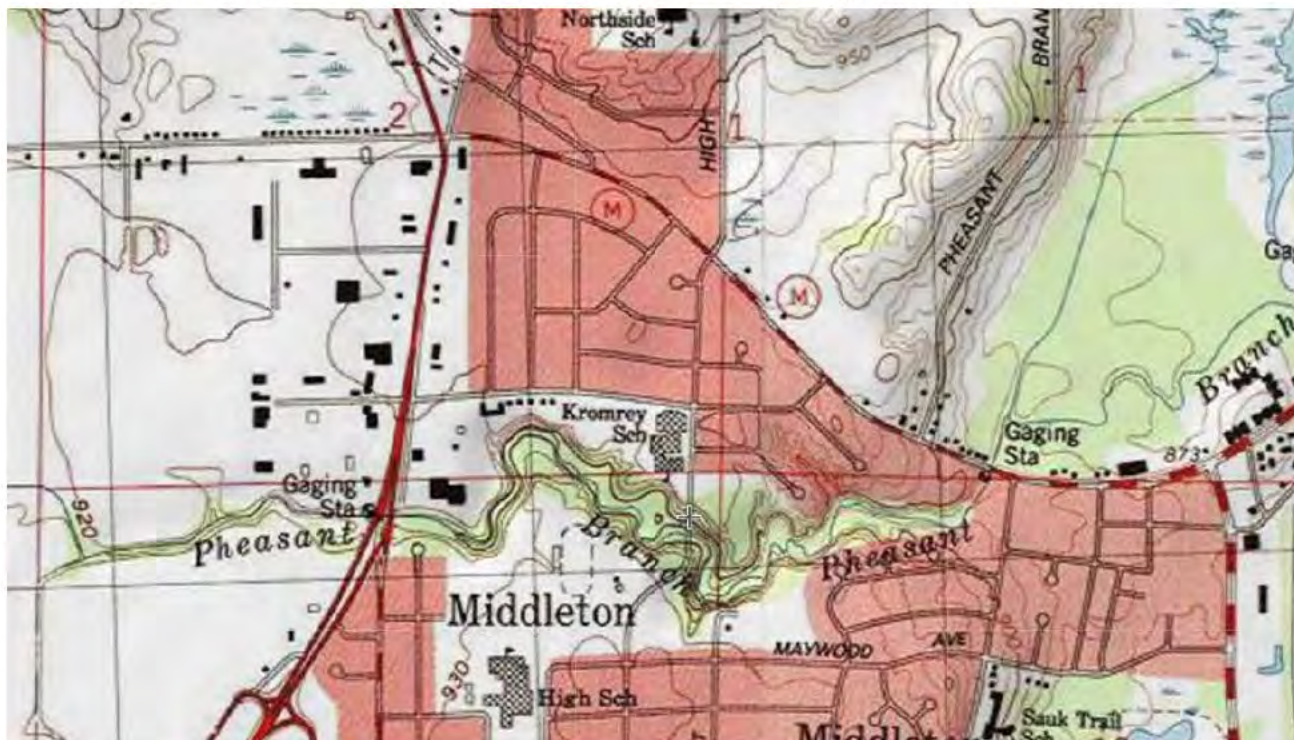


Figure 3: APE in black. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
USGS Map "Middleton, WI" and "Madison West, WI," with WISAHRD overlay.

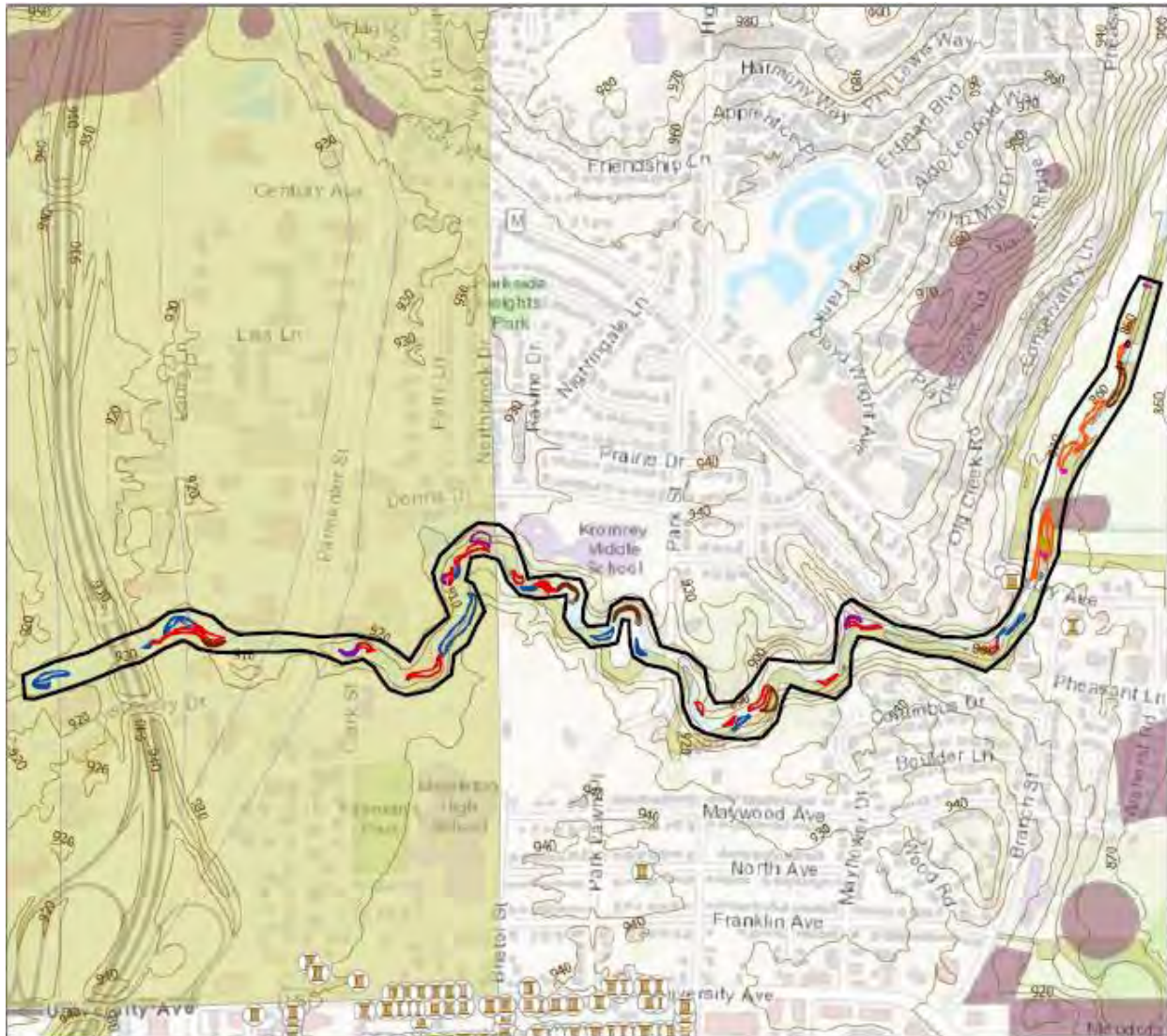


Figure 4: Photo Log. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
GoogleEarth image.



Figure 5: Photo facing east
Project files



Figure 6: Facing east
Project files



Figure 7: Photo facing northeast
Project files

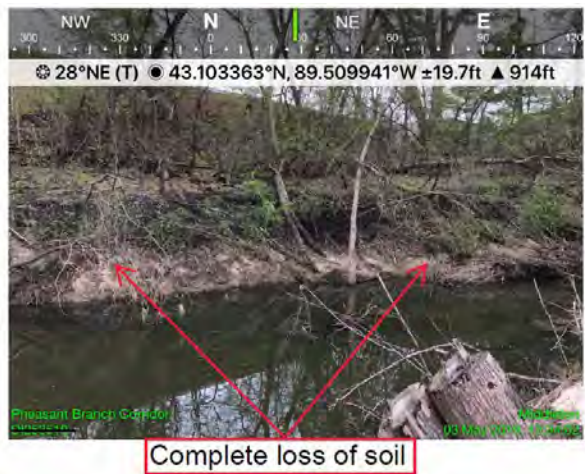


Figure 8: Photo facing east
Project files



Figure 9: Facing west
Project files



Figure 10: Facing south
Project files

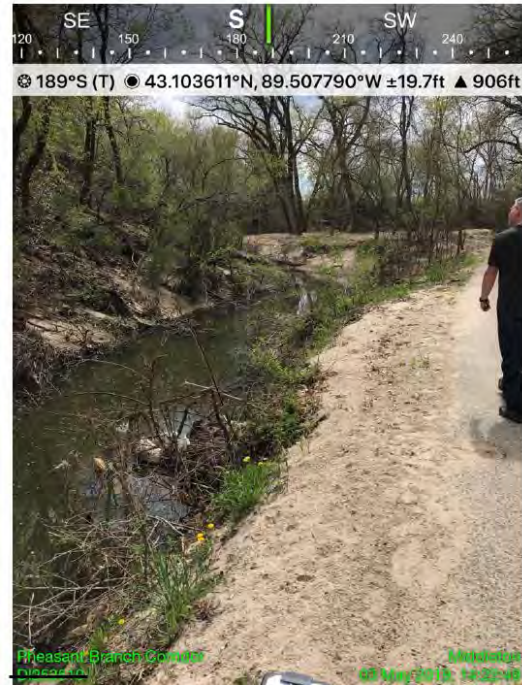


Figure 11: Facing north
Project files



Figure 12: Facing south
Project files



Figure 13: Facing southeast
Project files



Figure 14: Facing north
Project files



Figure 15: Facing southeast, stream relocation
Project files



Figure 16: Facing south, stream relocation
Project files



Figure 17 Facing south, stream relocation
Project files



Figure 18: Facing southwest
Project files



Figure 19: Facing south
Project files



Figure 20: Facing southwest
Project files



Figure 21: Facing southwest
Project files



Figure 22: Facing west
Project files



Figure 23: Facing north
Project files

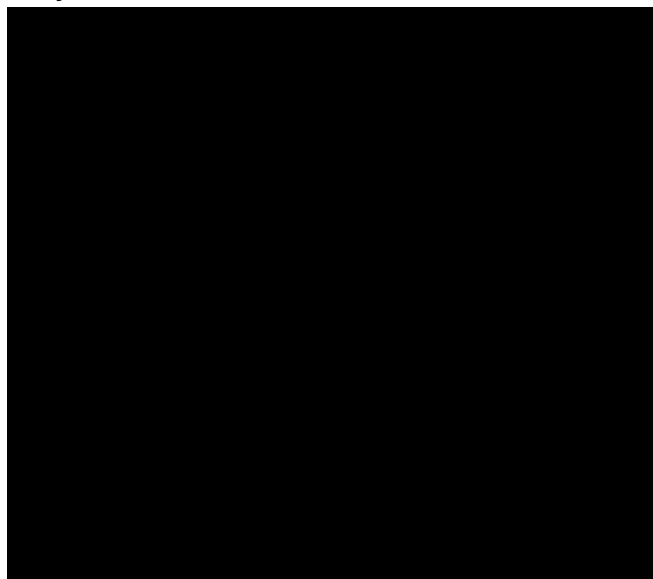


Figure 24: Facing south, 47-DA-0815, FEMA APE
previously surveyed.
Project files



Figure 25: Facing south, 47-DR-0185, FEMA
APE previously surveyed.

Project files



Figure 26: Facing north, 47-DA-0185, FEMA APE
previously surveyed.

Project files



Figure 27: Facing west, 47-DA-0185, FEMA APE
previously surveyed.

Project files

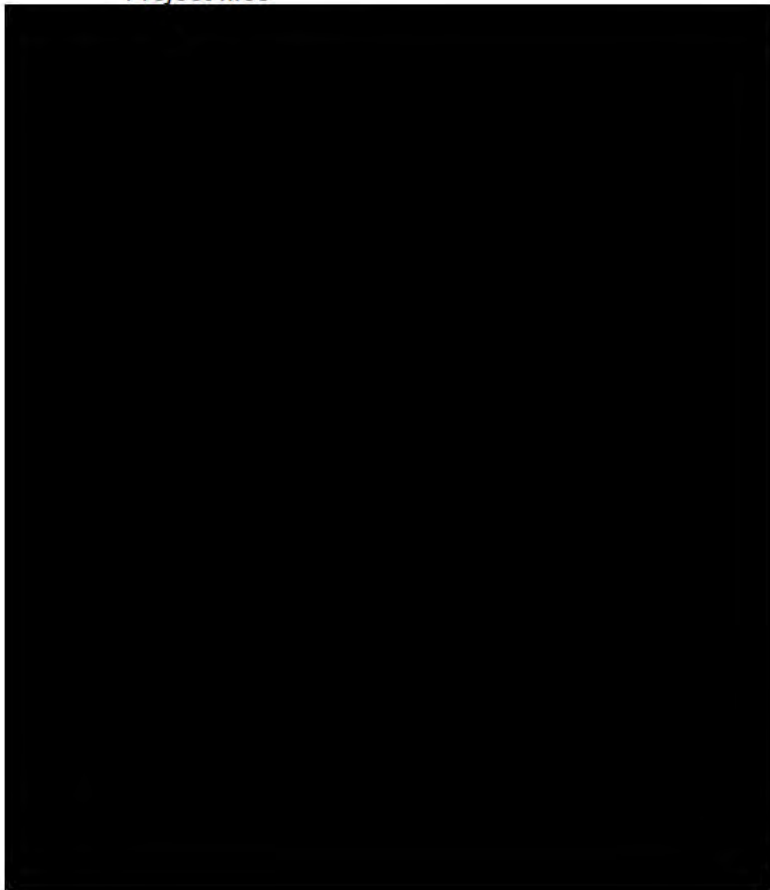


Figure 28: Facing southwest, 47-DA-0185,
FEMA APE previously surveyed.

Project files

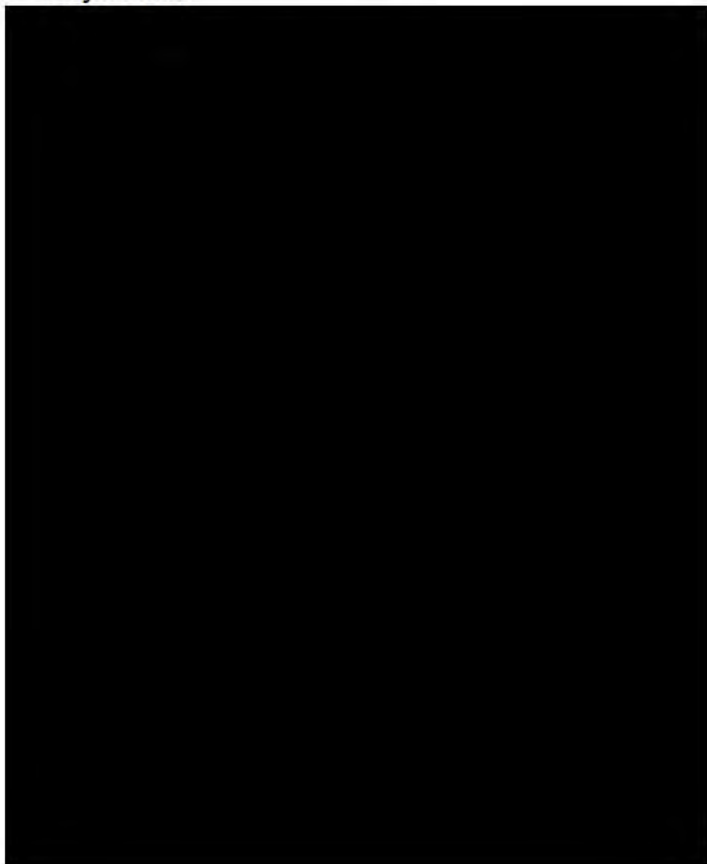


Figure 29: Facing north, 47-DA-0185, FEMA APE
previously surveyed.
Project files

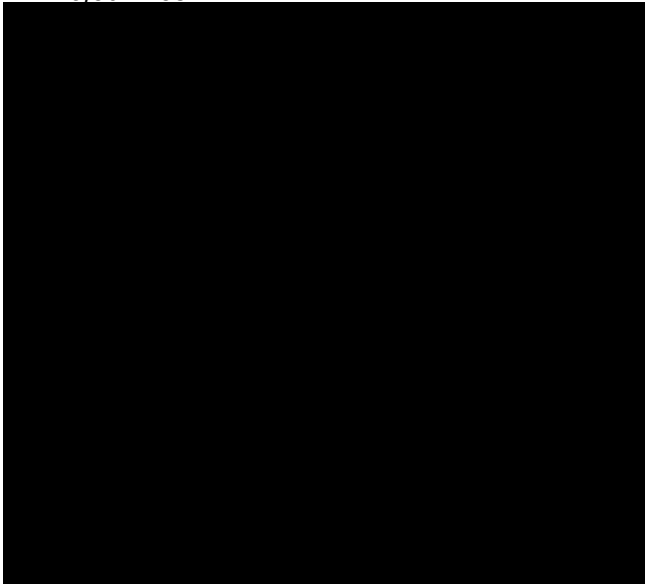


Figure 30: Facing north
Project files

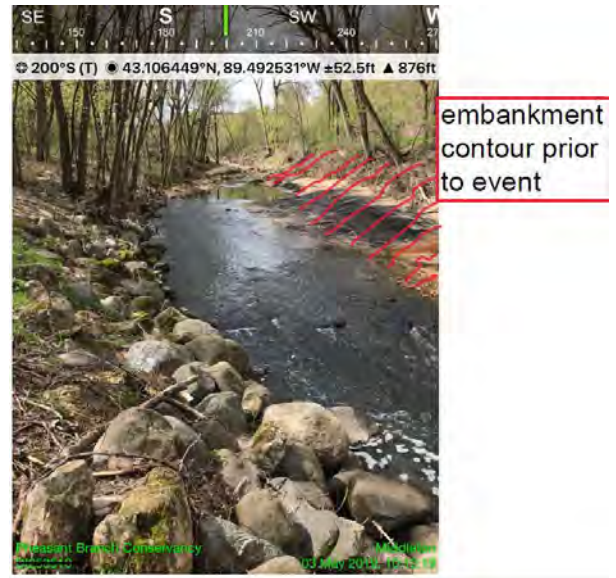


Figure 31: Facing north
Project files



Figure 32: SERCO background literature search identified two unsurveyed segments in yellow.
WHPD image.

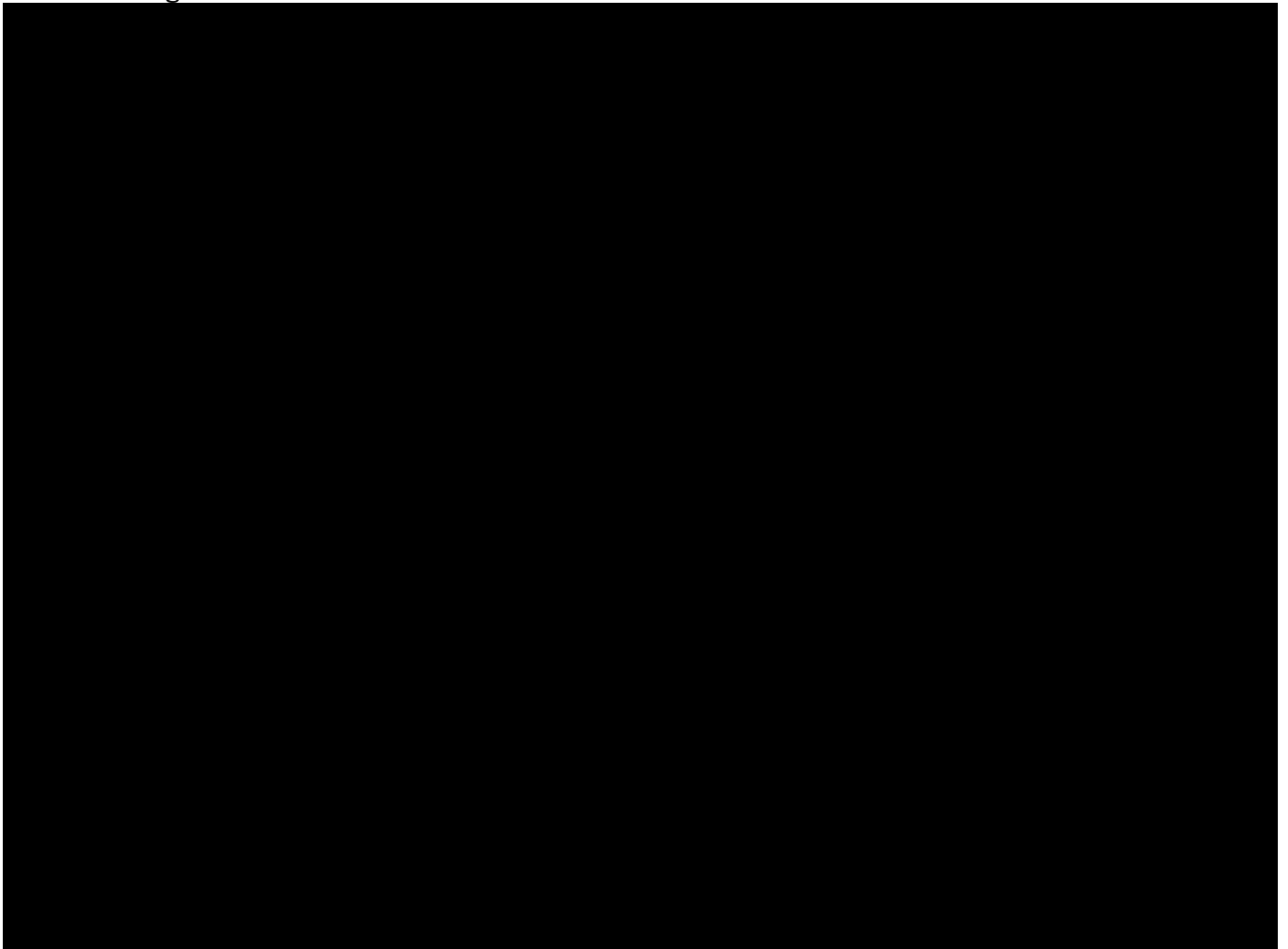
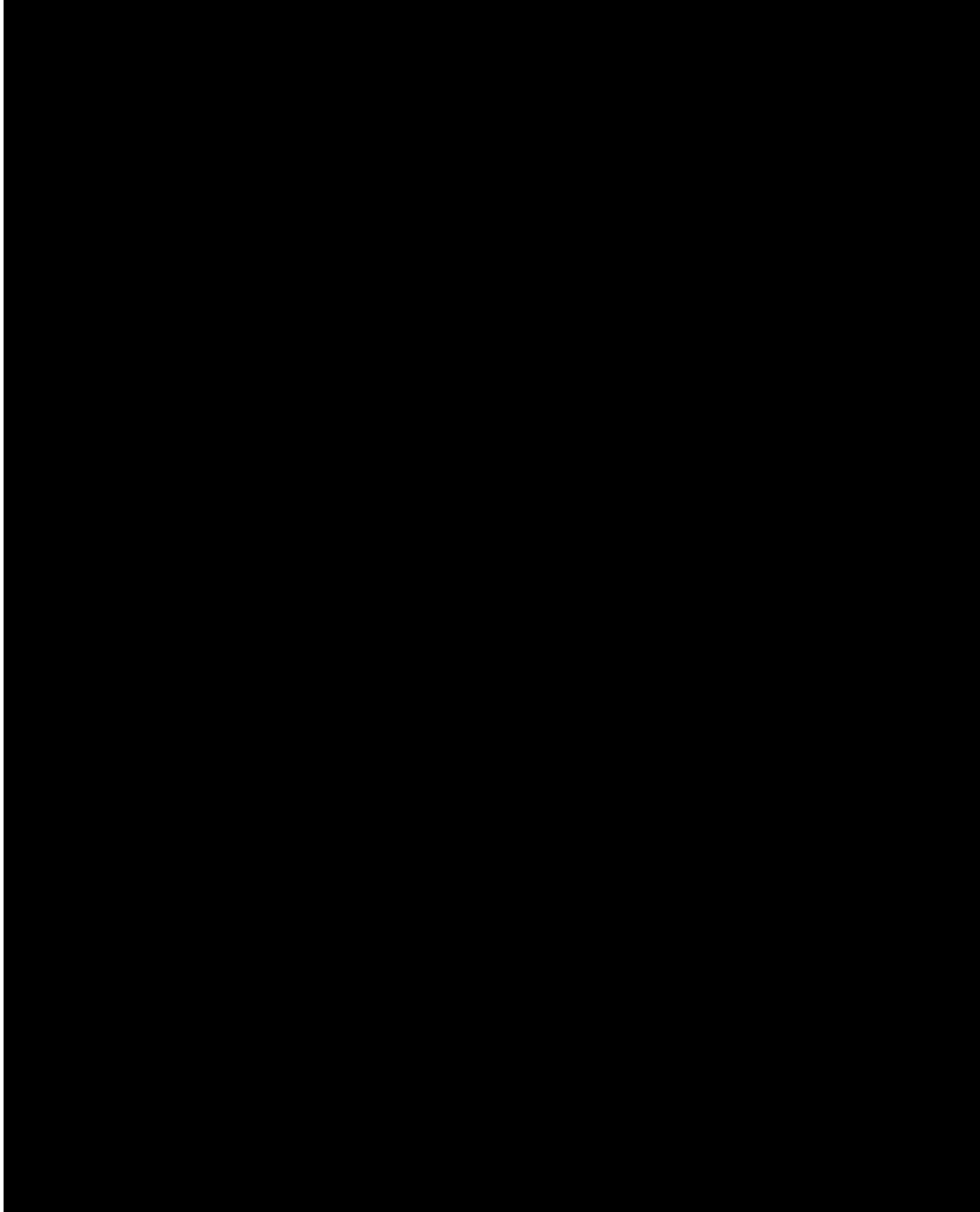


Figure 33: CARDNO 47-DA-0185 Archaeology Shovel Tests, APE previously surveyed. Note buffer extending beyond bank grading areas which extend beyond APE. The eastern limit of the site was only investigated up to and not beyond the existing limestone path.

Cardno aerial.



TECHNICAL MEMORANDUM
FINAL
PROJECT # 88229 EVENT #4402DR-WI
WATER CONTROL FACILITIES PBC STREAMBANK RESTORATION
ARCHAEOLOGICAL DESKTOP ASSESSMENT
CITY OF MIDDLETON, DANE COUNTY, WISCONSIN

SENIOR ARCHAEOLOGIST: Varna Boyd, MA, RPA, Principal Investigator
SUBJECT: Archaeological Desktop Assessment
DATE: February 3, 2022

This technical memorandum details the results of an archaeological desktop assessment in support of the Federal Emergency Management Agency's (FEMA) Public Assistance Grant, 4402DR-WI, for Water Control Facilities PBC Streambank Restoration in the City of Middleton, Wisconsin (Figure 1). The streambank restoration project is a result of Disaster #4402DR-WI (a severe storm with heavy rains) that occurred between August 17 and September 14, 2018. The severe storms and rains caused surface water flooding and high-velocity run-off to the Pheasant Branch drainage channel, which resulted in damage to water control facilities and stream embankments along portions of Pheasant Branch Creek.

The archaeological desktop assessment was conducted in anticipation of consultation with the Wisconsin Historical Society (WHS), which serves as the State Historic Preservation Office (SHPO), and Tribal Historic Preservation Officers (THPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The assessment was performed by a professional archaeologist who exceeds the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44716, September 29, 1983) and who has worked in Wisconsin previously. Portions of this assessment contain sensitive archaeological information (i.e., site location data).

ASSESSMENT GOALS AND METHODS

The goals of the assessment were to determine if previously identified archaeological resources were adjacent to or within the Area of Potential Effect (APE), which has been defined as the proposed limits of ground disturbance; determine what areas, if any, had been previously surveyed within the APE; determine the potential for archaeological resources within any previously unsurveyed areas; and make recommendations for further study, as warranted.



Figure 1: Project Location (Source: City of Middleton, WI).

To accomplish these goals, site file and previous survey research was conducted in the WHS's Wisconsin Historic Preservation Database (WHPD) for Township 7, Region 8E (T7R8E), Sections 1, 2, 11, and 12, which was considered the study area. Environmental data (e.g., soils) that could affect the potential for archaeological resources were reviewed for the APE.

Based on the known presence of archaeological sites in the vicinity, the potential for archaeological sites to be present within the project APE was initially considered to be high. However, it was also known that portions of the APE had been previously disturbed (e.g., graded) and that portions had been previously surveyed (see following section). As a result, the assessment also included a comparison of previous survey areas and project plans to determine if there were unsurveyed areas within the APE and if so, evaluate their potential for archaeological resources. Recommendations were made based on the combined data analysis. No archival research or review of architectural resources or properties was included in this archaeological desktop assessment.

ARCHAEOLOGICAL SITE FILE RESEARCH

Numerous surveys have been conducted in the vicinity, including studies by Archaeological Consulting and Services (Figure 2; Salkin 1992, 1993, and 2008), the WHS-Museum Archaeology Program (Figure 2; Hamilton 2010), and Cardno (Figure 3; Settle 2016) within the project APE. Only two small areas in the North of Century section of the APE have not been surveyed (Figure 4).

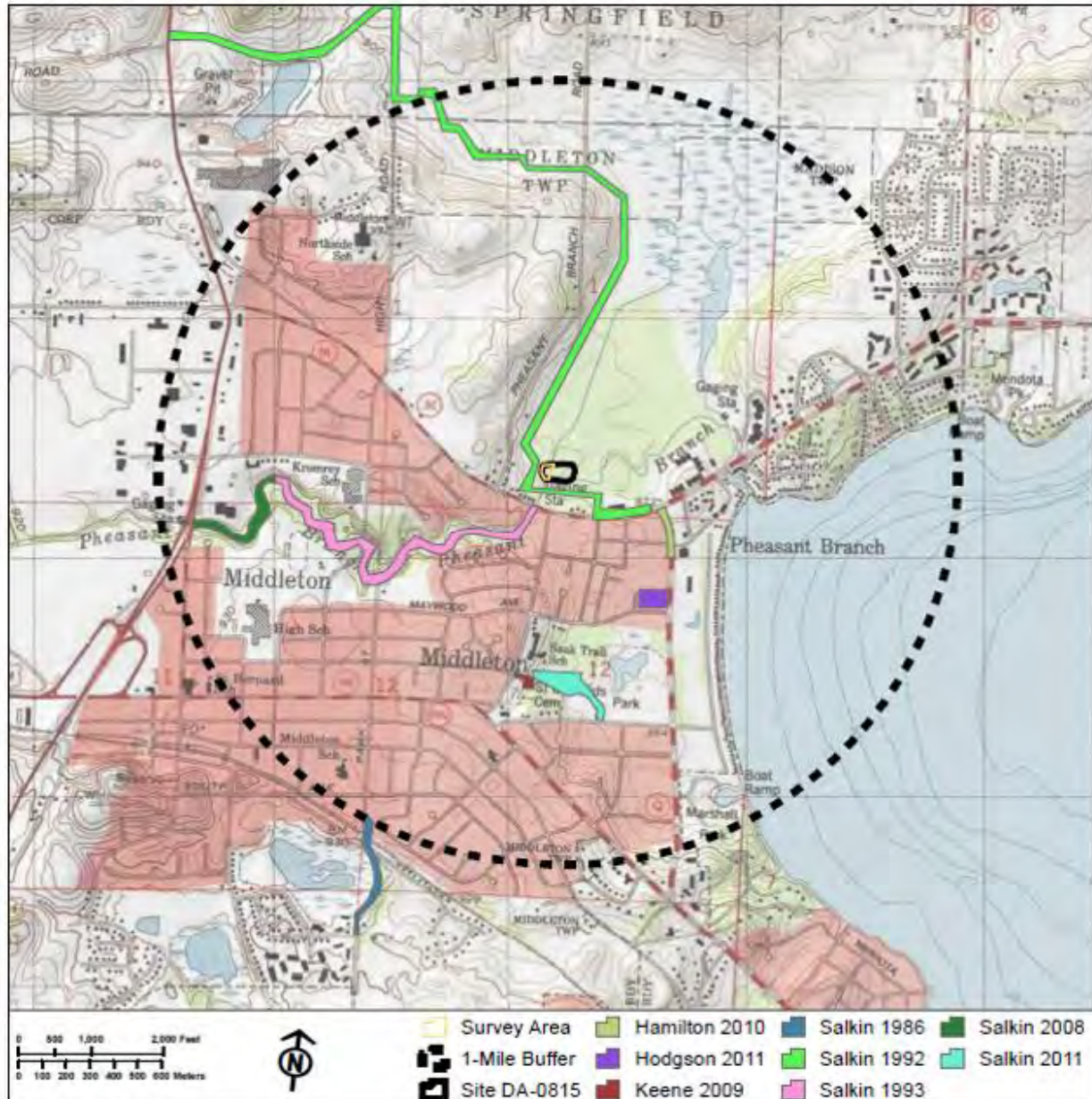
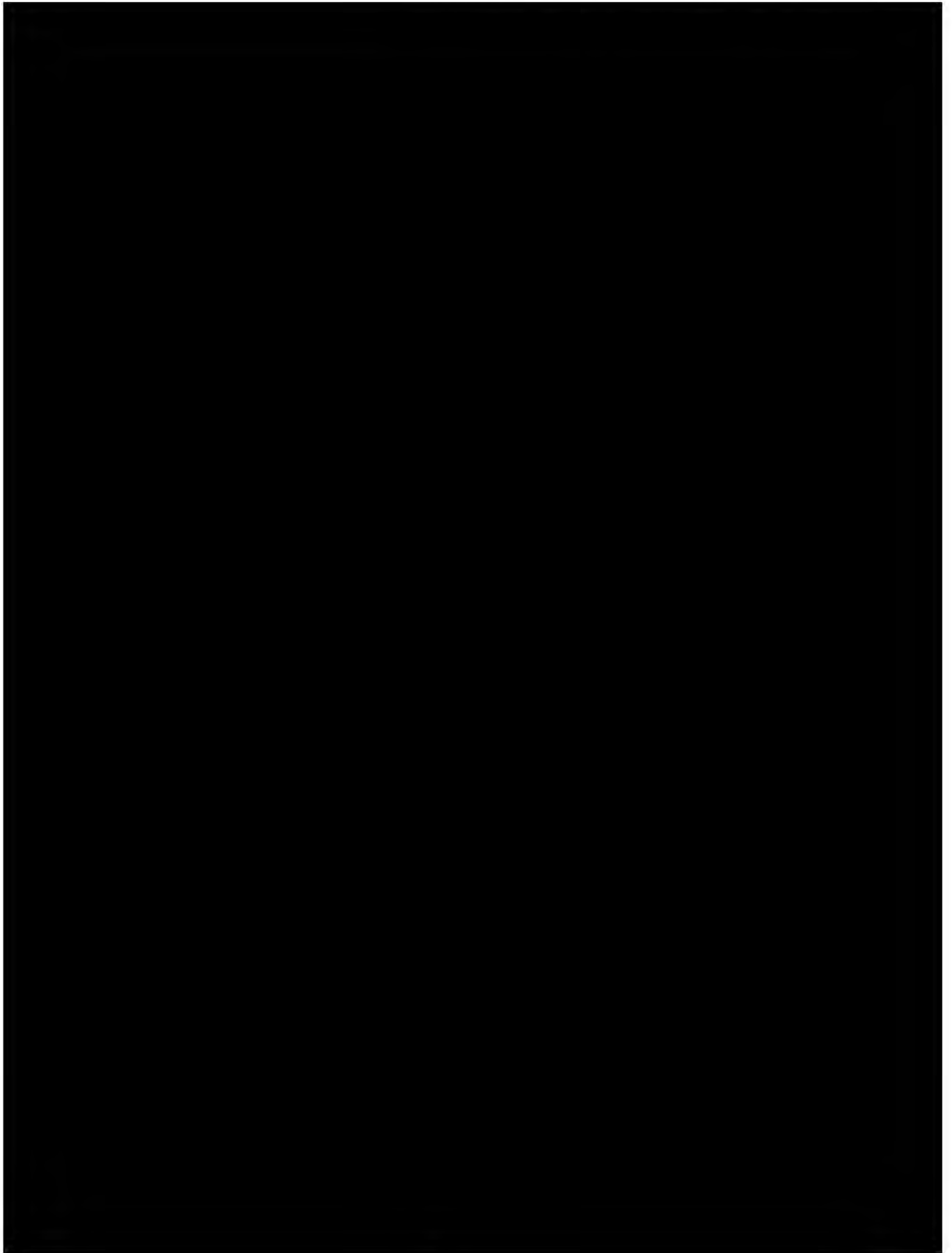


Figure 2: Surveys Prior to 2016 in the Project Vicinity (Source: Settle 2016:15).



Twenty archaeological sites were identified within the four T7R8E sections comprising the study area (Attachment 1). The majority (n=15) are precontact (i.e., Native American) mounds, campsites/villages, lithic workshops (i.e., stone tool manufacture), or lithic scatters (i.e., byproducts of stone tool production). There were also three multicomponent sites, including two precontact and historic Native American sites and one precontact and historic site. Two historic cemeteries, St. Luke's Cemetery and St. Bernard's Cemetery, are also present within the study area. [REDACTED]

[REDACTED] One site, 47-DA-0989 (Pheasant Branch Nature Preserve #1), has been determined not eligible for the NRHP; the remaining sites have not been evaluated for eligibility to the NRHP based on the WHPD site files.

The only site identified within the project APE was 47-DA-0815 (Site B), [REDACTED]. The site was originally identified in 1936 by Charles Brown of the WHS. [REDACTED]

[REDACTED] An archaeological survey of the western third of the site near Pheasant Branch was conducted by Cardno as part of a City of Middleton stream restoration project (Figure 3; Settle 2016). Ten shovel tests were excavated in that study, but none contained artifacts or cultural features. Portions of the east Pheasant Branch streambank and the entire west bank were not tested due to 15 percent or greater slopes (Settle 2016). Ground disturbance related to a limestone walking path was also noted in the eastern portion of Pheasant Branch within the Cardno project area (Settle 2016). Cardno recommended no further archaeological studies in what is now part of the current project APE (Settle 2016). FEMA will provide this technical memorandum as part of the SHPO consultation for this FEMA undertaking.

[REDACTED]

[REDACTED]

[REDACTED]

Two cemeteries are located within the study area. St. Luke's Cemetery is approximately 0.5 miles north and west of the project APE at 7515 Century Place in Middleton. St. Luke's Cemetery dates from approximately 1851 to the present. St. Bernard's Cemetery is approximately 0.4 miles south and southeast of the project APE at 1925 Branch Street in Middleton. It dates from 1897 to the present, but most headstones are from the 1960s to the present.

As the Sauk Mound, Heim Mound, the Murphy site, and the two cemeteries all have human burials, they are protected under the 1985 Wisconsin Act 316 (Wis. Stats. 157.70). While not expected as part of the current project, any effects to these sites require consultation with the WHS.

RESULTS AND RECOMMENDATIONS

The archaeological desktop assessment resulted in the identification of numerous prior surveys in the project APE as well as 20 archaeological sites within the study area. The proposed APE has been previously surveyed except for two small areas in the North of Century portion of the project. According to the City of Middleton, these two areas were part of the Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970 (personal communication between Mr. Roger Ammons, FEMA Program Delivery Manager, and Shawn Stauske, City of Middleton's Director of Public Works June 9, 2020). A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square yards of topsoil and seed. These activities have significantly disturbed the unsurveyed areas of the APE. As a result, no further archaeological survey is recommended within these two areas.

Only one of the 20 archaeological sites, 47-DA-0815 (Site B), is present within the project APE. Prior survey by Cardno was conducted in the portions of the site that overlap the project APE and no artifacts or cultural features were identified. As a result, it is unlikely that further survey would identify other cultural resources. As a result, no further work is recommended within the portion of the site within the proposed APE. However, if plans change and the APE is expanded, additional analysis should be conducted to ensure no unsurveyed areas of the site will be impacted by the proposed project.

Due to the location of the project APE, no effects are anticipated for any of the other archaeological sites or cemeteries, including the Sauk Mound, Heim Mound, and the Murphy site. As a result of the desktop archaeological assessment, it is anticipated that the proposed project will have no effect to known archaeological resources.

REFERENCES CITED

Hamilton, Kelley

2010 CTH Q (Allen Boulevard) Archaeological Monitor, Dane County. Prepared by the Wisconsin Historical Society-Museum Archaeology Program.

Salkin, Philip H.

1992 *An Archaeological Survey of the Proposed Pheasant Branch Interceptor Tributary Route in Middleton, Wisconsin.* Prepared by Archaeological Consulting and Services.

1993 *A Program of Archaeological testing at Two Sites (47DA987 and 47DA989) in Middleton, Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

2008 *WDOT Archaeological Survey Field Report: Pheasant Branch Creek Trail in Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

Settle, Kathleen

2016 *Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin.* Prepared by Cardno.

ATTACHMENT 1

Attachment 1: Archaeological Sites within T7R8E Sections 1, 2, 11, and 12.

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
1	47-DA-0815, Site B		Yes	16-0992	Consultation with SHPO, but no anticipated effect	The site overlaps Pheasant Branch and the APE. A Cardno survey (Settle 2016) in the western third of the site found no artifacts or other cultural resources. The current status of the site is unknown, and the site inventory notes a request for consultation.
1	47-DA-0209, Baskerville Campsite	Precontact Campsite/Village/Workshop	No	N/A	No effect	
1	47-DA-0989, Pheasant Branch Nature Preserve #1	Precontact Campsite/Village	No	92-0421	No effect	Not eligible.
1	47-DA-1249, Middleton Hills	Precontact (Late Paleoindian – Late Woodland) Campsite/Village	No	N/A	No effect	
2	St. Luke's Cemetery	Historic Cemetery	No	N/A	No effect	
2	47-DA-0737, Freeman	Precontact (Middle Archaic and Early Woodland) Lithic Scatter and Historic Periods	No	10-0283 and 89-0646	No effect	
2	47-DA-0966, S. Ziegler III	Precontact Workshop	No	89-0646	No effect	

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
2	47-DA-1422, Murphy Site II	Precontact (Middle and Late Archaic, Late Woodland) Campsite/Village/Burial	No	10-0283	No effect	
11	47-DA-0441, Woodside Heights Park	Precontact (Archaic) Campsite/Village	No	78-1104	No effect	
11	47-DA-0447, Park Shores	Precontact (Late Paleoindian and Archaic) Campsite/Village	No	78-1104	No effect	Most of site was destroyed by development, but a wooded area may still have intact deposits.
12	St. Bernard's Cemetery	Historic Cemetery	No	N/A	No effect	Any work in the park requires monitoring by an archaeologist.
12	47-DA-0381, Miller	Precontact and Historic Native American Campsite/Village	No	N/A	No effect	
12	47-DA-0389, Pheasant Branch	Precontact and Historic Native American Campsite/Village	No	11-9007, 10-7712	No effect	Portions of the site have been heavily disturbed. Site boundaries were amended in 2010.
12	47-DA-0423, Lemcke	Precontact (Late Archaic) Campsite/Village	No	N/A	No effect	
12	47-DA-0433, Sauk Trail School	Precontact (Late Woodland) Isolated Finds	No	11-9012	No effect	
12	47-DA-0495, Iltis Beach	Precontact (Late Woodland) Campsite/Village/Workshop	No	N/A	No effect	
12	47-DA-0816, Heim Farm	Precontact (Late Paleoindian, Late Archaic – Middle Woodland) Campsite/Village	No	11-9012	No effect	
Total Sites	20		1			

60 to 90% complete plans were provided as part of this consultation.

See Appendix A for the most recent project plans.



U.S. Department of Homeland Security
FEMA Region 5
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521

FEMA

March 29, 2022

Sunshine Thomas-Bear, Tribal Historic Preservation Officer
Winnebago Tribe of Nebraska
415 East Little Priest Dr
Winnebago, Nebraska 68071

Re: Pheasant Branch Creek Stabilization
Middleton, Dane County, Wisconsin
FEMA Project #88229; PW 593
43.103301, -89.513886 to 43.109433, -89.491877
S1, 2, 11, and 12 T7N R8E

Dear Ms. Thomas-Bear

Pursuant to the Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the captioned Public Assistance Grant Program project. In accord with 36 CFR §800.11, I am enclosing documentation regarding this undertaking and its effect on historic properties, which is being sent concurrently to the Wisconsin State Historic Preservation Office for their review. This documentation provides the justification for FEMA's finding of no historic properties affected.

FEMA is providing these materials to the following federally recognized Indian tribes (Tribes) thought to have interests in the area:

- Ho-Chunk Nation
- Menominee Indian Tribe of Wisconsin
- Miami Tribe of Oklahoma
- Osage Nation
- Winnebago Tribe of Nebraska

In accord with 36 CFR 800.2(c)(2)(ii), FEMA is providing this opportunity for the Winnebago Tribe of Nebraska to join the consultation by identifying concerns and providing comments about historic properties that may be affected by this undertaking. FEMA would also appreciate notice of Tribes other than those listed above that may have an interest in this undertaking.

SWe would appreciate a response from your office within 30 days. If you have questions, do not hesitate to contact me at 312-408-5549 or at fema-r5-environmental@fema.dhs.gov. If we do not receive a response within 30 days, FEMA will move forward with this undertaking without comment from the Winnebago Tribe of Nebraska.

Sincerely,

Duane Castaldi
Regional Environmental Officer
FEMA Region 5

Sent by email to sunshine.bear@winnebagoTribe.com



FEMA

March 29, 2022

***Documentation Initiating and Concluding Section 106 Consultation
for a FEMA-Funded Undertaking***

Project Information:

Project ID: #88229; PW 593

Title: Pheasant Branch Creek Stabilization

Address: Pheasant Branch Creek from crossing at Deming Way, eastward to Century Avenue, then northward, parallel to Conservancy Lane

Location: Middleton, Dane County, WI

GPS: 43.102620, -89.51821 to 43.10945, -89.49057

PLSS: S1, 2, 11, and 12 T7N R8E

Description of Undertaking and APE:

As a result of severe storms, tornadoes, straight-line winds, flooding, and landslides affecting areas of the State of Wisconsin, President Trump signed the 4402-DR-WI Disaster Declaration on October 18, 2018. Under this declaration, Dane County, among others, was made eligible for FEMA's Public Assistance (PA) Program funding. The disaster event resulted in damage to infrastructure along the Pheasant Branch Creek Corridor from crossing at Deming Way and continuing eastward to north of Century Avenue in Middleton, Wisconsin (43.10262, -89.51821 to 43.10945, -89.49057).

The City of Middleton performed streambed relocation and streambank stabilization projects (most recently in 2007, 2008, 2009, 2010, 2012, and 2015) intermittently along this stretch of Pheasant Branch Creek, incorporating a variety of construction methods including sheet pile retaining walls, gabion baskets, toewood and rootwad, and rip rap toe protection. The City cleared, grubbed, graded and seeded the banks as part of these efforts. The flooding event washed away both engineered and non-engineered portions of the streambanks. However, only the areas with engineered stream stabilization will be funded by the FEMA PA grant program. Portions of a recreational trail and its supporting slopes adjacent to the stream were also damaged, as well as six timber and wood pedestrian bridges. Several existing storm sewer inlets and outlets associated with the parks and creek corridor experienced erosion damage.

The Applicant, the City of Middleton, proposes to use contract services to repair the engineered streambanks in-kind to their pre-disaster design, save for the substitution of rip-rap toe protection and fill instead of rootwad and fill in several locations. Some locations along the bank that were damaged in the event will not be repaired but will be allowed to naturalize. All work is intermittent throughout the proposed construction project bounds.

The six timber and wood pedestrian bridges will be replaced and the recreational trail will be repaired and modified. The streambed will be lowered in a few locations to

accommodate the new bridges and trail modifications. Additionally, the stream itself will be shifted in two locations (43.104399, -89.504811 and 43.104008, -89.503381).

The Pheasant Branch and Pheasant Branch Conservancy

Although assessment of the entire Pheasant Branch waterway and Middleton's parks is beyond the scope of this review, an overview of the larger resource will help describe the APE and provide context for the review and recommendations of this consultation. The Friends of Pheasant Branch compiled a booklet (*Friends of Pheasant Branch, Geology, Cultural History and Ecology of the Pheasant Branch Conservancy and Watershed in Middleton, Wisconsin*, 2005) providing an overview of the area; this document provided the basis for the short history below.

The Ho-Chunk Nation occupied the area where the marshes and Pheasant Branch drain into Lake Mendota. Mounds located approximately one and one-half miles north and also approximately one-half mile east of the eastern edge of the proposed undertaking are associated with Native American occupation.

After an 1832 treaty with the Ho-Chunk Nation involving most of Dane County, European settlement began. The area was platted in 1836 and began to be developed. Beginning in the 1850's, portions of the Pheasant Branch creek west of present-day Park Street and the marshes to the west and north were channelized and drained to facilitate a peat harvesting industry and farming. The Pheasant Branch Creek channels now called North Fork and South Fork were created in the settlement period and increased the original creek watershed and stormwater flows considerably.

A village called Pheasant Branch was established in 1853 and was centered around the current Century Avenue Bridge over Pheasant Branch, near the current Branch Street. The village lost its importance in 1856 when the Milwaukee and Mississippi Railroad routed through Peatville, a village located to the southwest. Peatville eventually became Middleton.

After WWII, the area became a residential suburb of Madison and additional roads, utilities and buildings were built. The City of Middletown built nine storm sewers to drain the developed areas; these emptied into Pheasant Branch. A landfill (roughly between GPS Start: 43.10264, -89.50947 to 43.10329, -89.50777) along the southern edge of the creek east of Clark Street School was abandoned and capped after several creek flows and rain events caused erosion and sedimentation flow into Lake Mendota. In 1965, Middleton residents formed the Middleton Conservation Committee to address erosion and sedimentation issues with Pheasant Branch and Lake Mendota. The committee's efforts resulted in the 1970 rerouting of the main creek channel to flow northward into the marsh to reduce sedimentation flow into the lake. The Conservation Committee also spearheaded the purchase of approximately 340 acres of land by the City of to create the Pheasant Branch Conservancy (PBC) in the 1970s and 1980s. Dane County and the Wisconsin DNR also own lands contiguous to the City's parcels that comprise the total 550-acre conservancy.

The section of the Pheasant Branch stream, known as the Mainstem, flows easterly from the Mainstem Pond near Deming Way, under Parmenter Street to Park Street, then from Park to Century Avenue. The area from Parmenter to Park is called Firemen's Park and the area from Park to Century is called Parisi Park.

Firemen's Park is generally bordered by municipal, multi-and single-family residences, and school buildings; the Middleton Police Station, a multi-family complex, several large

residences and the Kromrey Middle School front onto Donna Drive with Firemen's Park and the Pheasant Branch at their rear. Part of Pheasant Branch was relocated to enable the middle school construction. Middleton High School's athletic campus borders Firemen's Park at the south side.

East of Park Street, Parisi Park is generally bordered by one and two-story single-family residences with a cluster of commercial buildings near Century Avenue and Branch Street that back onto the Conservancy property.

A large portion of the stream (approximately 2,800 linear feet beginning 450 feet north of Century Avenue) flows north-northeast from Century Avenue through a wooded area with post-1992 residential neighborhoods to the west, some commercial and multifamily buildings to the south, and at a distance of over one-quarter mile, a residential neighborhood to the east. To the north, the waterway flows into the Pheasant Branch Marsh, where the flow then passes southward again to Lake Mendota.

The streambank was realigned and straightened in 1970. A review of Historic Aerials' historic maps (<http://www.historicaerials.com>) shows the earlier stream route looping eastward in the late 1800's then looping further northward starting in the early 1900's until the 1970 realignment and straightening. The maps also indicate the current stream route was occasionally identified as an artificial ditch (1975, 1979).

Various other engineering and bank stabilization efforts along the stream banks occurred after this project, including the installation of a stream gage station and a rank of gabion baskets on the west bank immediately north of Century Avenue. The most recent streambank stabilization effort occurred in early 2018 when the Conservancy acted to improve the stream quality and reduce sediment outflow by adding cross vanes, toewood/rootwads, rip rap toes, erosion blankets, fabric, and mats, grading and seeding of banks, and removing log jams. The 2018 project began 100 feet north of Century and continued north for 4,000 linear feet. The disaster event, occurring between August 17 and September 14, 2018, severely damaged the stabilization project.

Construction drawings for the project and maps illustrating the APE are included in this submission. The Area of Potential Effect (APE) is defined as the construction limits as the work is not expected to have visual effects beyond the APE. Areas for equipment staging and access will conform to the existing paved trails adjacent to the stream. The APE is noted on Figure 3.

Steps Taken to Identify Historic Properties and the Description of Historic Properties:

Archaeology

An archaeological literature search and technical memorandum of recommendations was undertaken by an SOI-Qualified archaeologist with SERCO contracted by FEMA (Attachment 4).¹ The literature search and technical memorandum indicates that the APE for the corridor, except for two segments, has been previously surveyed (Figure 32). These two segments were heavily modified during a Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970. A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square

¹ Technical Memorandum Final, Project 88229 Event #4402DR-WI Water Control Facilities PBC Streambank Restoration Archaeological Desktop Assessment, City of Middleton, Dane County, Wisconsin. February 3, 2022.

yards of topsoil and seed. Given the APE, scope of work, and the significant extent and nature of the ground disturbing activities for previous stream relocation, the work within these two segments is not likely to encounter archaeological artifacts or features within their original depositional contexts that yield information important to history or pre-history.

SERCO identified only one archaeological site, 47-DA-0815 as partially within the APE. This site was originally identified in 1936 and partially surveyed in a 2016 archaeological survey conducted for a Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin by Cardno.² The partial survey encompasses the APE for this undertaking. The portions of the site that overlap the boundaries of the APE were not recommended for further investigations (Figure 33). FEMA notes that the prior archaeological investigations extended partially beyond the current APE although the entire boundaries of the site were not investigated. It is noted that the limestone walking path was the eastern most limit of the archaeological investigation and is not within this undertaking's APE.

Photos taken post-disaster within the boundaries of 47-DA-0815 (Figures 24-29) illustrate that the velocity of water within Pheasant Creek eroded, destabilized and washed out the nature-based solutions, soils, root wads as well as rip rap, geotechnical fabric and gabion baskets that were installed as part of the implemented Pheasant Branch Stream restoration project.

Although an evaluation of eligibility of 47-DA-0185 outside of the boundaries of the APE is beyond the scope of this review, within the APE, given the velocity of water, significant disturbance from prior installation of streambank stabilization, and prior archaeological investigations that extended beyond the banks which did not encounter archaeological artifacts or features, it is unlikely that intact soils with archaeological artifacts or features within their original depositional contexts exist.

The two stream relocations, (43.104399, -89.504811 and 43.104008, -89.503381) were within the CARDNO previous archaeological survey and outside of the recorded DA-47-0185 (Figures 15, 16, 17).

Based on the absence of archaeological features or artifacts within the APE, FEMA has determined that there are no below ground properties eligible for listing on the National Register of Historic Places within the APE for this undertaking.

Standing Structures

The nearest NRHP-listed properties and one NRHP historic district are located over three-quarters of a mile from the APE for this undertaking. The Dr. Newman C. Rowley House and the Middletown Depot are both over one mile southwest of the Century Avenue bridge over Pheasant Branch. The eastern end of the East End Historic District is three-quarters of a mile southwest of the Century Avenue bridge.

The closest surveyed property found in the Wisconsin SHPO database is the 1847 Old Stamm House, surveyed in 1977. The two-story fieldstone gabled ell building was constructed as a store and was used as a hotel, tavern, dance hall, supper club and restaurant. The building is on the south side of Century Avenue, approximately 325 feet

² Veronica Parsell, Principal Investigator. Cardno, Phase I Archaeological Reconnaissance Pheasant Branch Stream Restoration, City of Middleton, Dane County, Wisconsin. 2016.

from Pheasant Branch; views into and from the Pheasant Branch are limited by heavy vegetation.

The pedestrian bridges crossing Pheasant Branch within the proposed construction project APE are simple utilitarian timber and wood structures supported on earthen embankments and are not of historic age. No other standing structures exist within the APE for this undertaking.

Preliminary Determination of Eligibility:

Based on the information provided above, FEMA has determined that ***no resources within the APE are eligible for listing on the National Register of Historic Places.***

Finding:

FEMA finds that this undertaking will result in ***no historic properties affected.***

Summary of Views of Consulting Parties or Public:

On March 29, 2022, the following Tribes were provided information regarding this project:

Ho-Chunk Nation

Menominee Indian Tribe of Wisconsin

Miami Tribe of Oklahoma

Osage Nation

Winnebago Tribe of Nebraska

Figures:

Figure 1: Approximate undertaking site marked in blue, not to scale.
GoogleEarth image



Figure 2: Approximate undertaking site marked in blue, not to scale.
USGS Map "Middleton, WI" and "Madison West, WI," 1:24000, enlarged to show detail.

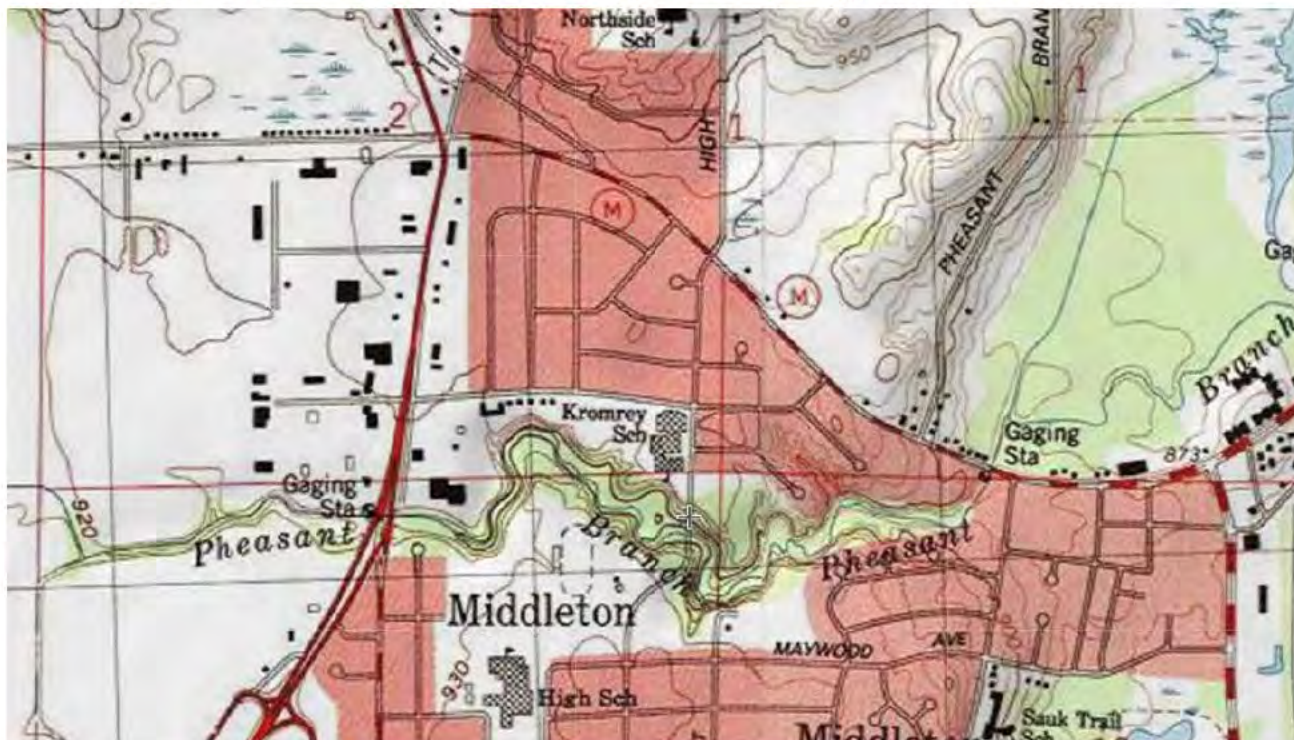


Figure 3: APE in black. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
USGS Map "Middleton, WI" and "Madison West, WI," with WISAHRD overlay.

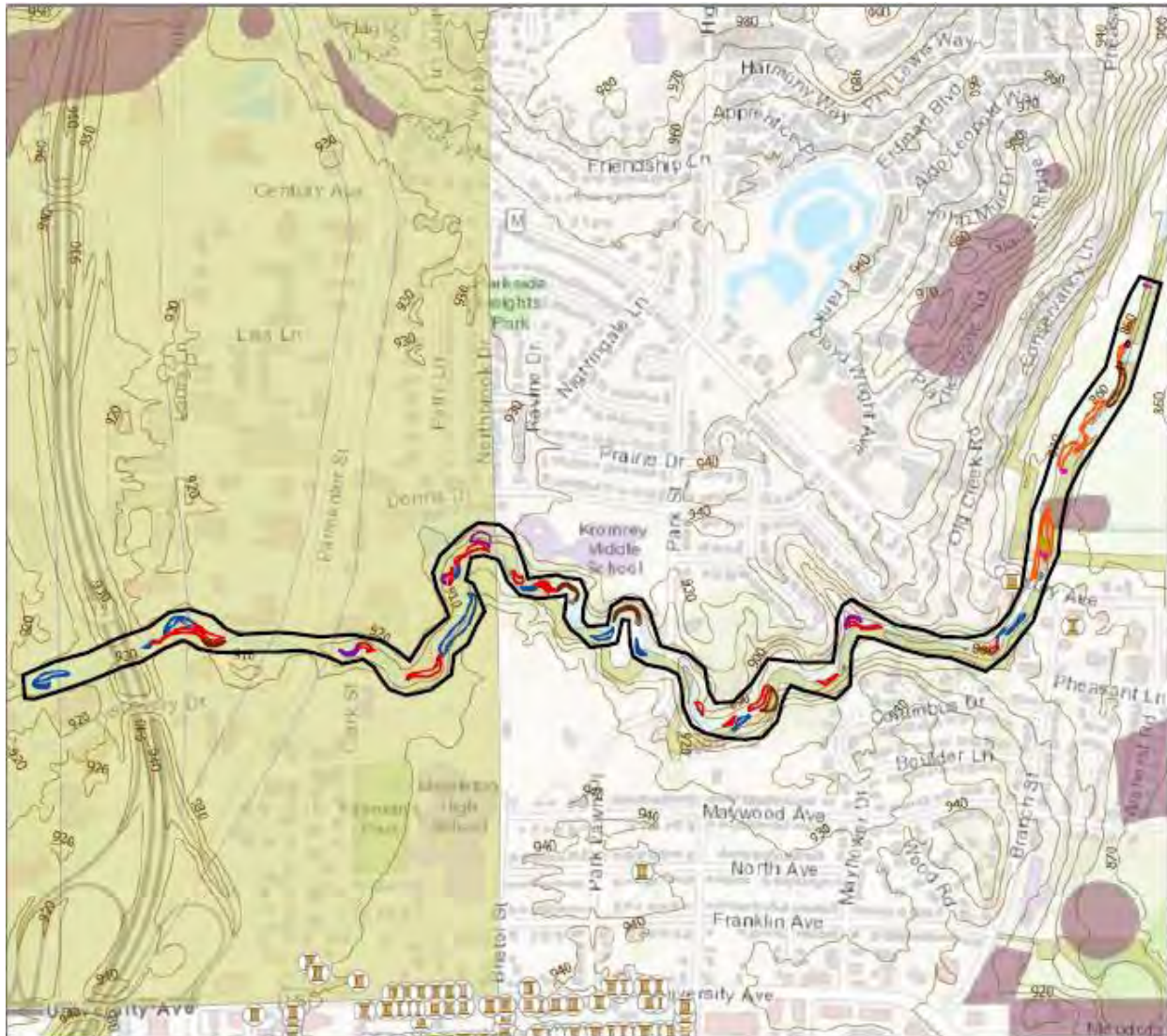


Figure 4: Photo Log. Work locations are in blue and orange (stone toe), red (bank grading), purple (rootwad), pink (boulder clusters) and brown (toewood).
GoogleEarth image.



Figure 5: Photo facing east
Project files



Figure 6: Facing east
Project files



Figure 7: Photo facing northeast
Project files

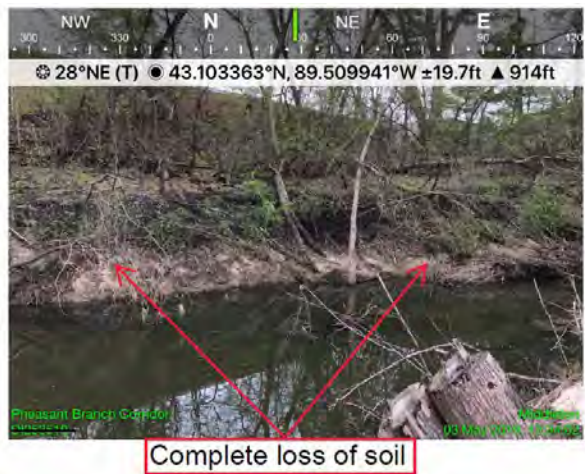


Figure 8: Photo facing east
Project files



Figure 9: Facing west
Project files



Figure 10: Facing south
Project files

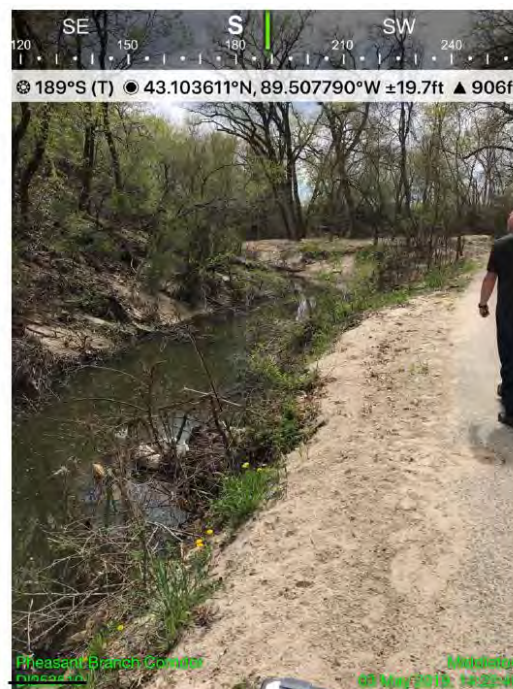


Figure 11: Facing north
Project files



Figure 12: Facing south
Project files



Figure 13: Facing southeast
Project files



Figure 14: Facing north
Project files



Figure 15: Facing southeast, stream relocation
Project files



Figure 16: Facing south, stream relocation
Project files



Figure 17 Facing south, stream relocation
Project files



Figure 18: Facing southwest
Project files



Figure 19: Facing south
Project files



Figure 20: Facing southwest
Project files



Figure 21: Facing southwest
Project files



Figure 22: Facing west
Project files



Figure 23: Facing north
Project files

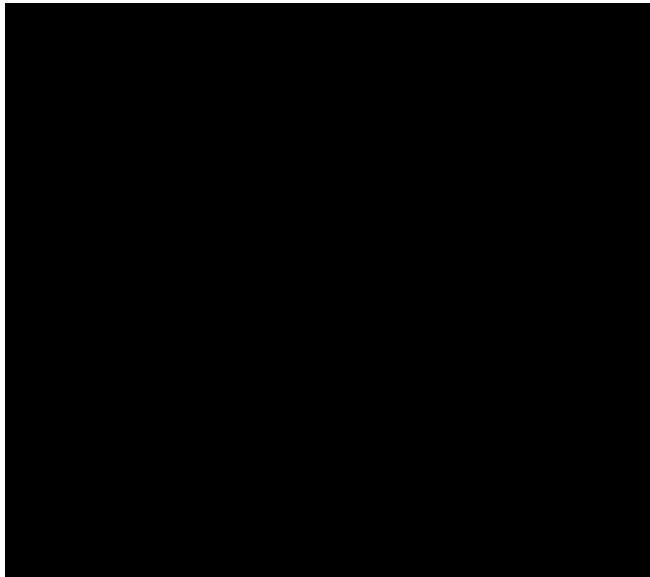


Figure 24: Facing south, 47-DA-0815, FEMA APE
previously surveyed.
Project files

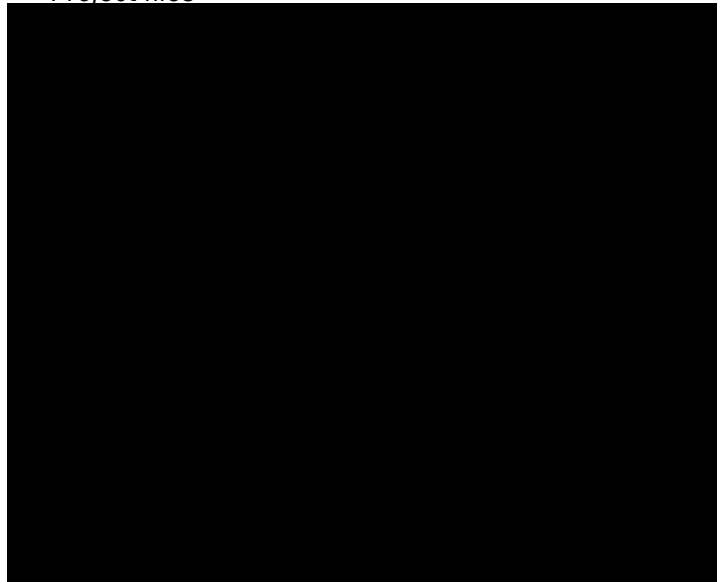


Figure 25: Facing south, 47-DR-0185, FEMA
APE previously surveyed.

Project files



Figure 26: Facing north, 47-DA-0185, FEMA APE
previously surveyed.

Project files

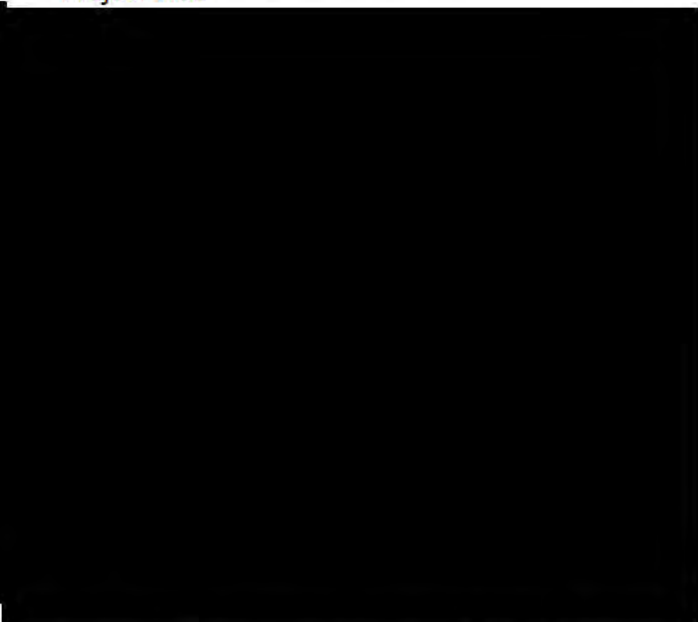


Figure 27: Facing west, 47-DA-0185, FEMA APE
previously surveyed.

Project files

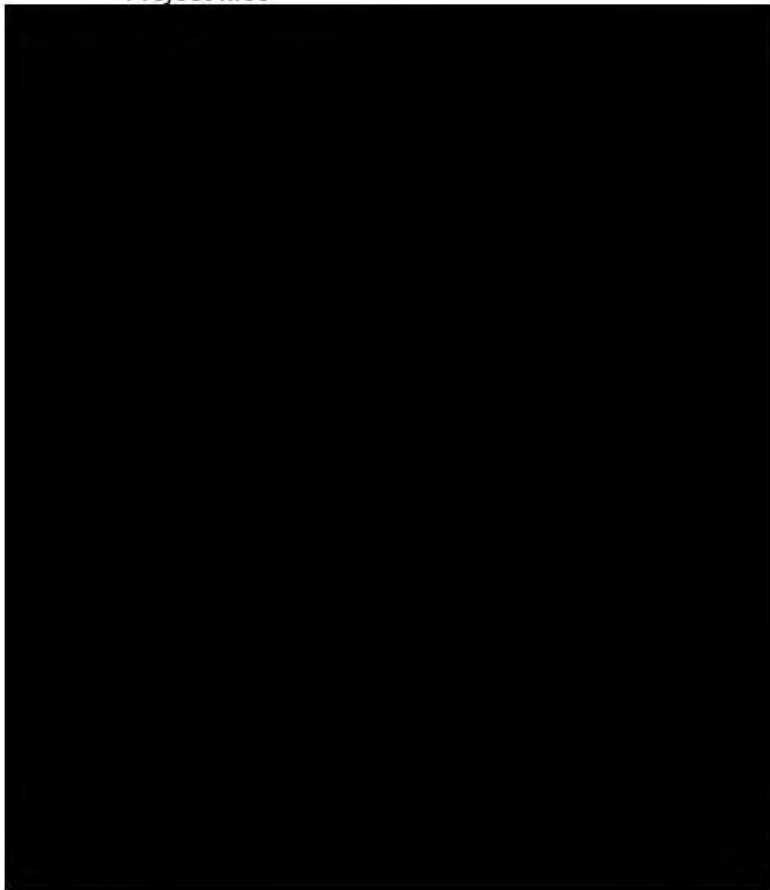


Figure 28: Facing southwest, 47-DA-0185,
FEMA APE previously surveyed.

Project files

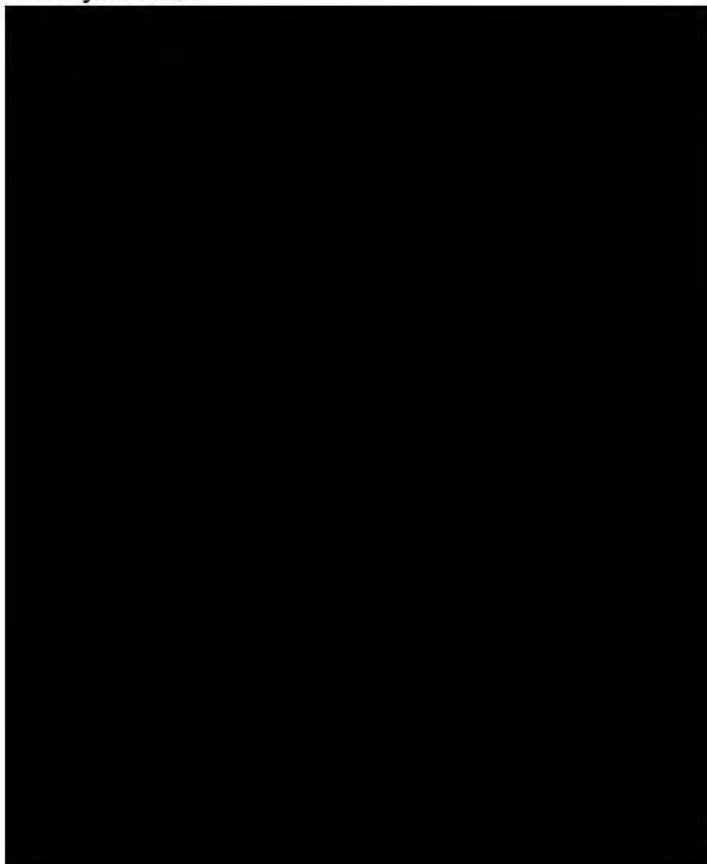


Figure 29: Facing north, 47-DA-0185, FEMA APE
previously surveyed.
Project files

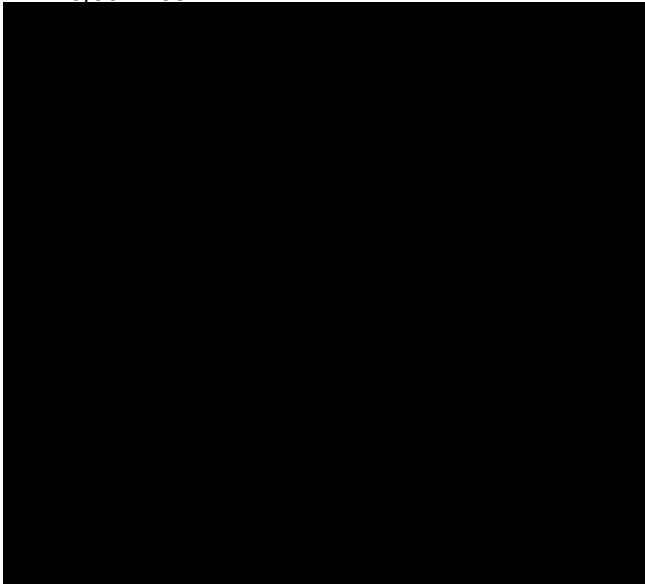


Figure 30: Facing north
Project files

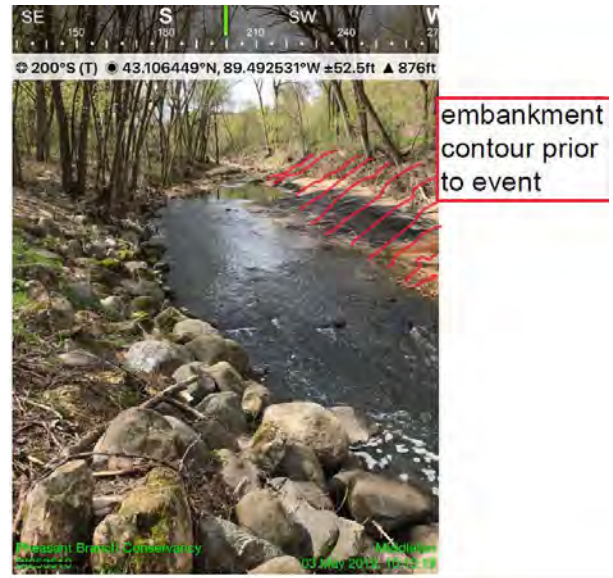


Figure 31: Facing north
Project files



Figure 32: SERCO background literature search identified two unsurveyed segments in yellow.
WHPD image.

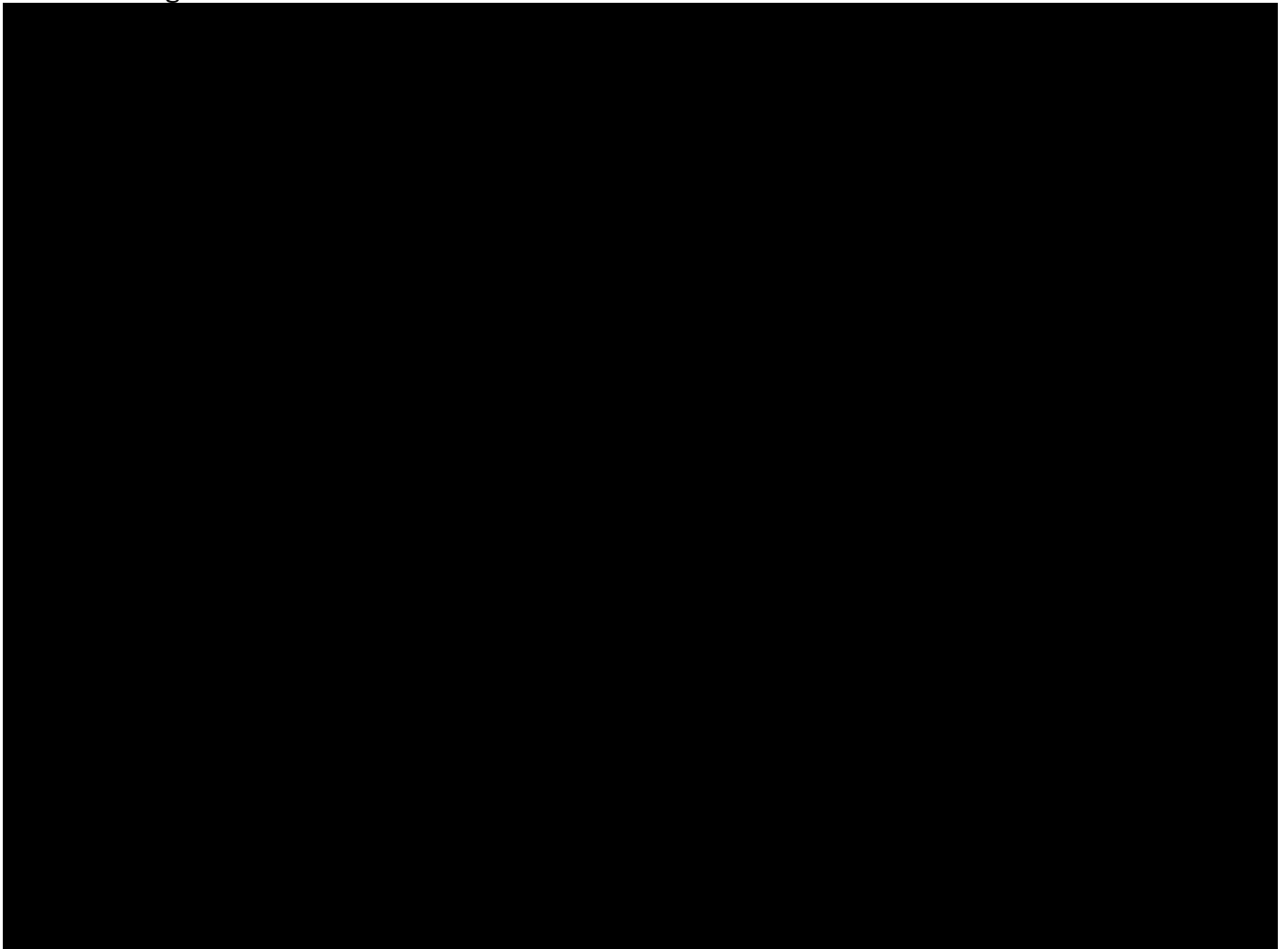
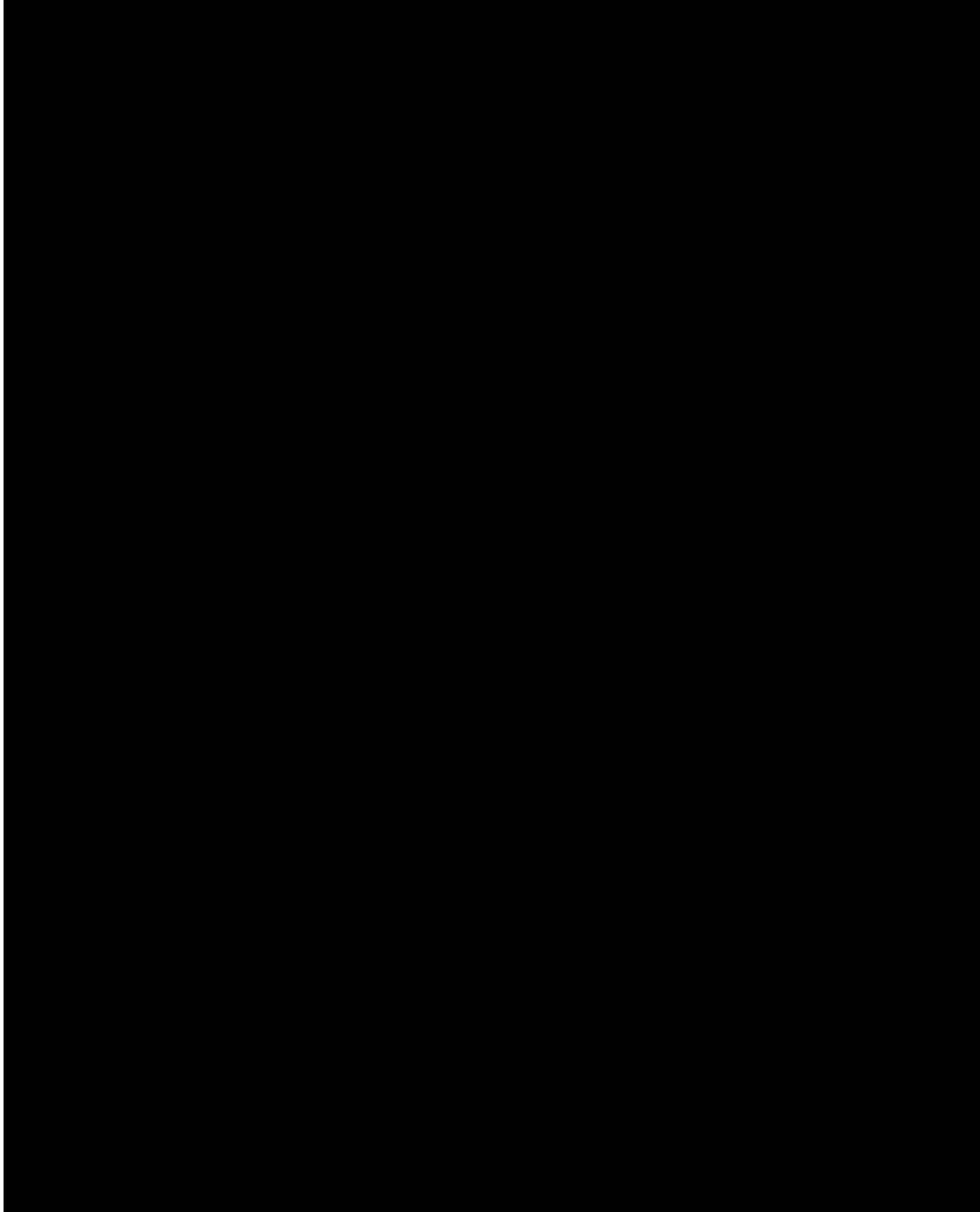


Figure 33: CARDNO 47-DA-0185 Archaeology Shovel Tests, APE previously surveyed. Note buffer extending beyond bank grading areas which extend beyond APE. The eastern limit of the site was only investigated up to and not beyond the existing limestone path.

Cardno aerial.



TECHNICAL MEMORANDUM
FINAL
PROJECT # 88229 EVENT #4402DR-WI
WATER CONTROL FACILITIES PBC STREAMBANK RESTORATION
ARCHAEOLOGICAL DESKTOP ASSESSMENT
CITY OF MIDDLETON, DANE COUNTY, WISCONSIN

SENIOR ARCHAEOLOGIST: Varna Boyd, MA, RPA, Principal Investigator
SUBJECT: Archaeological Desktop Assessment
DATE: February 3, 2022

This technical memorandum details the results of an archaeological desktop assessment in support of the Federal Emergency Management Agency's (FEMA) Public Assistance Grant, 4402DR-WI, for Water Control Facilities PBC Streambank Restoration in the City of Middleton, Wisconsin (Figure 1). The streambank restoration project is a result of Disaster #4402DR-WI (a severe storm with heavy rains) that occurred between August 17 and September 14, 2018. The severe storms and rains caused surface water flooding and high-velocity run-off to the Pheasant Branch drainage channel, which resulted in damage to water control facilities and stream embankments along portions of Pheasant Branch Creek.

The archaeological desktop assessment was conducted in anticipation of consultation with the Wisconsin Historical Society (WHS), which serves as the State Historic Preservation Office (SHPO), and Tribal Historic Preservation Officers (THPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The assessment was performed by a professional archaeologist who exceeds the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44716, September 29, 1983) and who has worked in Wisconsin previously. Portions of this assessment contain sensitive archaeological information (i.e., site location data).

ASSESSMENT GOALS AND METHODS

The goals of the assessment were to determine if previously identified archaeological resources were adjacent to or within the Area of Potential Effect (APE), which has been defined as the proposed limits of ground disturbance; determine what areas, if any, had been previously surveyed within the APE; determine the potential for archaeological resources within any previously unsurveyed areas; and make recommendations for further study, as warranted.



Figure 1: Project Location (Source: City of Middleton, WI).

To accomplish these goals, site file and previous survey research was conducted in the WHS's Wisconsin Historic Preservation Database (WHPD) for Township 7, Region 8E (T7R8E), Sections 1, 2, 11, and 12, which was considered the study area. Environmental data (e.g., soils) that could affect the potential for archaeological resources were reviewed for the APE.

Based on the known presence of archaeological sites in the vicinity, the potential for archaeological sites to be present within the project APE was initially considered to be high. However, it was also known that portions of the APE had been previously disturbed (e.g., graded) and that portions had been previously surveyed (see following section). As a result, the assessment also included a comparison of previous survey areas and project plans to determine if there were unsurveyed areas within the APE and if so, evaluate their potential for archaeological resources. Recommendations were made based on the combined data analysis. No archival research or review of architectural resources or properties was included in this archaeological desktop assessment.

ARCHAEOLOGICAL SITE FILE RESEARCH

Numerous surveys have been conducted in the vicinity, including studies by Archaeological Consulting and Services (Figure 2; Salkin 1992, 1993, and 2008), the WHS-Museum Archaeology Program (Figure 2; Hamilton 2010), and Cardno (Figure 3; Settle 2016) within the project APE. Only two small areas in the North of Century section of the APE have not been surveyed (Figure 4).

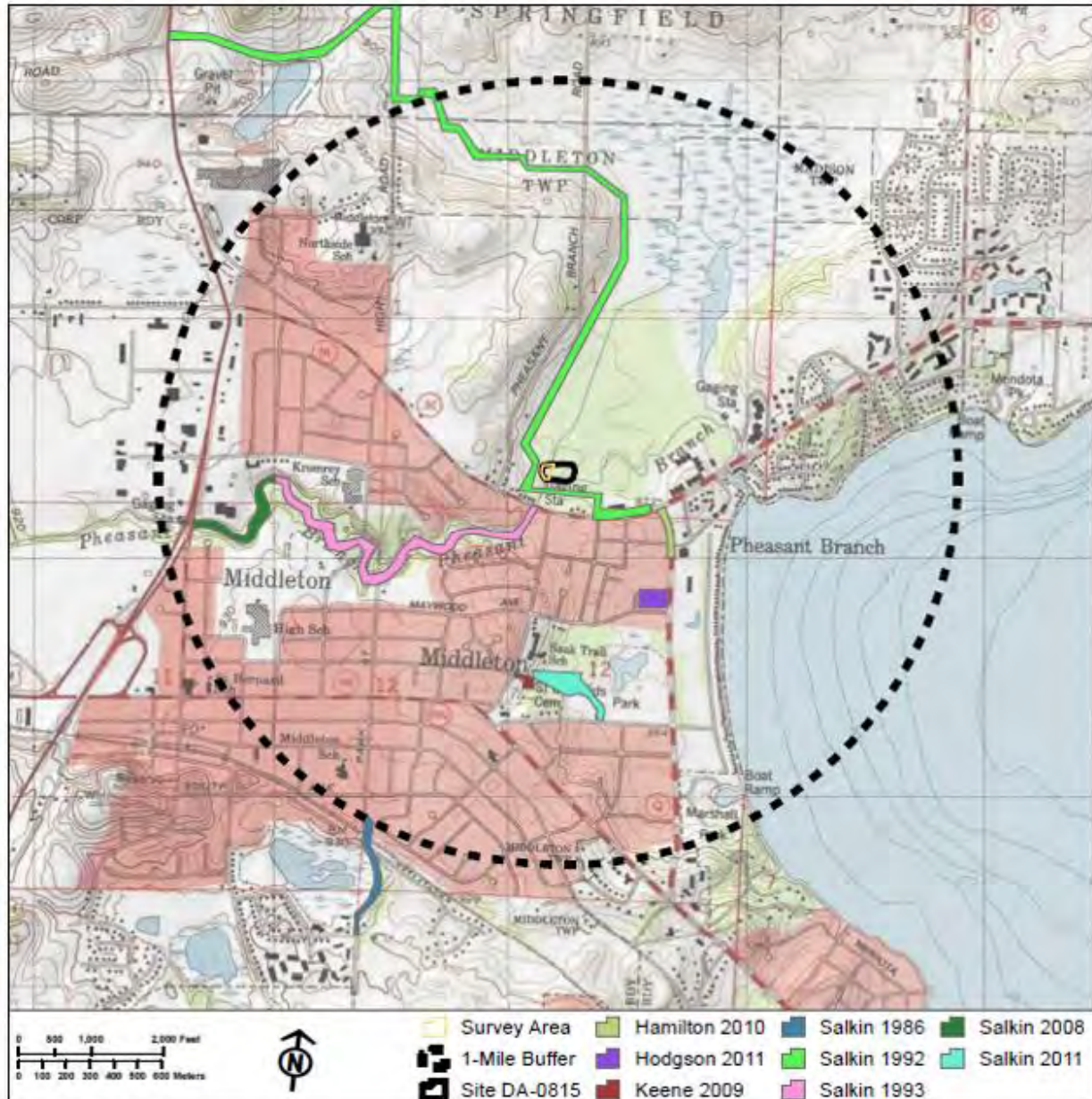
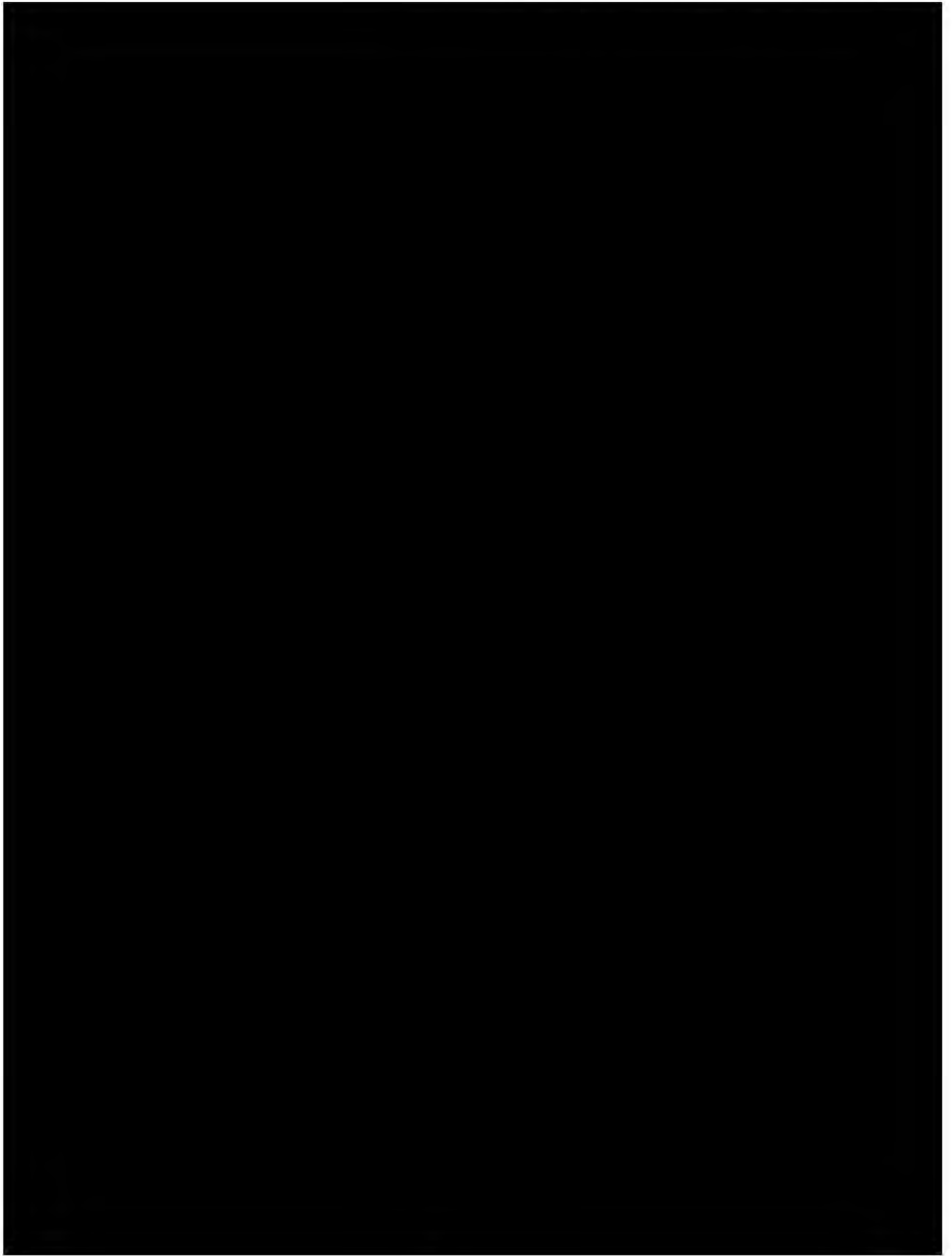


Figure 2: Surveys Prior to 2016 in the Project Vicinity (Source: Settle 2016:15).



Twenty archaeological sites were identified within the four T7R8E sections comprising the study area (Attachment 1). The majority (n=15) are precontact (i.e., Native American) mounds, campsites/villages, lithic workshops (i.e., stone tool manufacture), or lithic scatters (i.e., byproducts of stone tool production). There were also three multicomponent sites, including two precontact and historic Native American sites and one precontact and historic site. Two historic cemeteries, St. Luke's Cemetery and St. Bernard's Cemetery, are also present within the study area. [REDACTED]

[REDACTED] One site, 47-DA-0989 (Pheasant Branch Nature Preserve #1), has been determined not eligible for the NRHP; the remaining sites have not been evaluated for eligibility to the NRHP based on the WHPD site files.

The only site identified within the project APE was 47-DA-0815 (Site B), [REDACTED]. The site was originally identified in 1936 by Charles Brown of the WHS. [REDACTED]

[REDACTED] An archaeological survey of the western third of the site near Pheasant Branch was conducted by Cardno as part of a City of Middleton stream restoration project (Figure 3; Settle 2016). Ten shovel tests were excavated in that study, but none contained artifacts or cultural features. Portions of the east Pheasant Branch streambank and the entire west bank were not tested due to 15 percent or greater slopes (Settle 2016). Ground disturbance related to a limestone walking path was also noted in the eastern portion of Pheasant Branch within the Cardno project area (Settle 2016). Cardno recommended no further archaeological studies in what is now part of the current project APE (Settle 2016). FEMA will provide this technical memorandum as part of the SHPO consultation for this FEMA undertaking.

[REDACTED]

[REDACTED]

[REDACTED]

Two cemeteries are located within the study area. St. Luke's Cemetery is approximately 0.5 miles north and west of the project APE at 7515 Century Place in Middleton. St. Luke's Cemetery dates from approximately 1851 to the present. St. Bernard's Cemetery is approximately 0.4 miles south and southeast of the project APE at 1925 Branch Street in Middleton. It dates from 1897 to the present, but most headstones are from the 1960s to the present.

As the Sauk Mound, Heim Mound, the Murphy site, and the two cemeteries all have human burials, they are protected under the 1985 Wisconsin Act 316 (Wis. Stats. 157.70). While not expected as part of the current project, any effects to these sites require consultation with the WHS.

RESULTS AND RECOMMENDATIONS

The archaeological desktop assessment resulted in the identification of numerous prior surveys in the project APE as well as 20 archaeological sites within the study area. The proposed APE has been previously surveyed except for two small areas in the North of Century portion of the project. According to the City of Middleton, these two areas were part of the Pheasant Branch Creek Relocation project (City Project #69-108), which was permitted in 1969 and constructed in 1970 (personal communication between Mr. Roger Ammons, FEMA Program Delivery Manager, and Shawn Stauske, City of Middleton's Director of Public Works June 9, 2020). A new channel was excavated to flow in a north-northeast direction. In total, 22,050 cubic yards were excavated, and the new channel banks were covered with 16,078 square yards of topsoil and seed. These activities have significantly disturbed the unsurveyed areas of the APE. As a result, no further archaeological survey is recommended within these two areas.

Only one of the 20 archaeological sites, 47-DA-0815 (Site B), is present within the project APE. Prior survey by Cardno was conducted in the portions of the site that overlap the project APE and no artifacts or cultural features were identified. As a result, it is unlikely that further survey would identify other cultural resources. As a result, no further work is recommended within the portion of the site within the proposed APE. However, if plans change and the APE is expanded, additional analysis should be conducted to ensure no unsurveyed areas of the site will be impacted by the proposed project.

Due to the location of the project APE, no effects are anticipated for any of the other archaeological sites or cemeteries, including the Sauk Mound, Heim Mound, and the Murphy site. As a result of the desktop archaeological assessment, it is anticipated that the proposed project will have no effect to known archaeological resources.

REFERENCES CITED

Hamilton, Kelley

2010 CTH Q (Allen Boulevard) Archaeological Monitor, Dane County. Prepared by the Wisconsin Historical Society-Museum Archaeology Program.

Salkin, Philip H.

1992 *An Archaeological Survey of the Proposed Pheasant Branch Interceptor Tributary Route in Middleton, Wisconsin.* Prepared by Archaeological Consulting and Services.

1993 *A Program of Archaeological testing at Two Sites (47DA987 and 47DA989) in Middleton, Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

2008 *WDOT Archaeological Survey Field Report: Pheasant Branch Creek Trail in Dane County, Wisconsin.* Prepared by Archaeological Consulting and Services.

Settle, Kathleen

2016 *Phase I Archaeological Literature Review and Reconnaissance Pheasant Branch Stream Restoration, Dane County, Wisconsin.* Prepared by Cardno.

ATTACHMENT 1

Attachment 1: Archaeological Sites within T7R8E Sections 1, 2, 11, and 12.

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
1	47-DA-0815, Site B		Yes	16-0992	Consultation with SHPO, but no anticipated effect	The site overlaps Pheasant Branch and the APE. A Cardno survey (Settle 2016) in the western third of the site found no artifacts or other cultural resources. The current status of the site is unknown, and the site inventory notes a request for consultation.
1	47-DA-0209, Baskerville Campsite	Precontact Campsite/Village/Workshop	No	N/A	No effect	
1	47-DA-0989, Pheasant Branch Nature Preserve #1	Precontact Campsite/Village	No	92-0421	No effect	Not eligible.
1	47-DA-1249, Middleton Hills	Precontact (Late Paleoindian – Late Woodland) Campsite/Village	No	N/A	No effect	
2	St. Luke's Cemetery	Historic Cemetery	No	N/A	No effect	
2	47-DA-0737, Freeman	Precontact (Middle Archaic and Early Woodland) Lithic Scatter and Historic Periods	No	10-0283 and 89-0646	No effect	
2	47-DA-0966, S. Ziegler III	Precontact Workshop	No	89-0646	No effect	

T7R8E Section Number	Site Number and Name	Site Type	Within APE	WHS Project Number	Recommendation	Notes
2	47-DA-1422, Murphy Site II	Precontact (Middle and Late Archaic, Late Woodland) Campsite/Village/Burial	No	10-0283	No effect	
11	47-DA-0441, Woodside Heights Park	Precontact (Archaic) Campsite/Village	No	78-1104	No effect	
11	47-DA-0447, Park Shores	Precontact (Late Paleoindian and Archaic) Campsite/Village	No	78-1104	No effect	Most of site was destroyed by development, but a wooded area may still have intact deposits.
12	St. Bernard's Cemetery	Historic Cemetery	No	N/A	No effect	Any work in the park requires monitoring by an archaeologist.
12	47-DA-0381, Miller	Precontact and Historic Native American Campsite/Village	No	N/A	No effect	
12	47-DA-0389, Pheasant Branch	Precontact and Historic Native American Campsite/Village	No	11-9007, 10-7712	No effect	Portions of the site have been heavily disturbed. Site boundaries were amended in 2010.
12	47-DA-0423, Lemcke	Precontact (Late Archaic) Campsite/Village	No	N/A	No effect	
12	47-DA-0433, Sauk Trail School	Precontact (Late Woodland) Isolated Finds	No	11-9012	No effect	
12	47-DA-0495, Iltis Beach	Precontact (Late Woodland) Campsite/Village/Workshop	No	N/A	No effect	
12	47-DA-0816, Heim Farm	Precontact (Late Paleoindian, Late Archaic – Middle Woodland) Campsite/Village	No	11-9012	No effect	
Total Sites	20		1			

60 to 90% complete plans were provided as part of this consultation.

See Appendix A for the most recent project plans.

Appendix D: Floodplain and Wetlands Management

EXECUTIVE ORDER 11988 Floodplain Management Checklist (44 CFR Part 9)

TITLE: Pheasant Branch Creek Trail, Bridges, and Streambank Restoration Project – Deming Way to North of Century

PROPOSED ACTION: For full details refer to the Environmental Assessment Section 2.2. The Proposed Action consists of three components: (1) repairs and improvements to recreational trails and pedestrian bridges, (2) stream stabilization, and (3) channel work including stream realignment and associated bank stabilization.

APPLICABILITY: Actions which have the potential to affect floodplains or their occupants, or which are subject to potential harm by location in floodplains.

☒ **YES** ☐ **NO** The proposed action could potentially adversely affect the floodplain.

☒ **YES** ☐ **NO** The proposed action could potentially be adversely affected by the floodplain.

REMARKS: Actions taken in this project could adversely affect the floodplain such as improvements occurring within the floodplain including the placement of fill. The floodplain could also adversely impact both the nature based solutions proposed and the trails and pedestrian bridges improved by this project.

IF BOTH ANSWERS ARE NO, REVIEW IS COMPLETE; OTHERWISE CONTINUE WITH REVIEW.

Mark the review steps required per applicability: ☒ All 8 / ☐ 1, 4, 5, 8 / ☐ 1-6, 8

CRITICAL ACTION: ☐ **YES** Review against 500 Year floodplain.
☒ **NO** Review against 100 Year floodplain

SCOPE OF WORK: For full details refer to the Environmental Assessment Section 2.2. The Proposed Action consists of three components: (1) repairs and improvements to recreational trails and pedestrian bridges, (2) stream stabilization, and (3) channel work including stream realignment and associated bank stabilization.

STEP 1: Determine whether the proposed action is in the 100-year floodplain, or, for critical actions, in the 500-year floodplain.

FLOOD HAZARD DATA:

☒ **YES** ☐ **NO** The current effective Flood Insurance Rate Map (FIRM) panels 55025C0382G and 55025C0401G, effective on 01/02/2009 (**Figures 6-9 of the Environmental Assessment**) show the location of the proposed work in relation to and within the floodplain. The proposed project is completely located within

the Zone AE, which is the designated Special Flood Hazard Area (SFHA) subject to inundation by the 100-year flood. In addition, all of the proposed channel work is located within the FEMA Regulatory Floodway.

WETLAND DATA:

- ☒ The project is located in a wetland as mapped by the U.S. Fish and Wildlife Service's National Wetlands Inventory. NWI classifies the Pheasant Branch Creek as Riverine habitat with applicable codes PEM1A, PEM1C, PFO1A, PFO1B, PFO1Bd, PFO1C, PSS1/EM1Bd, PUBG, PUBKr, and R2UB2H (for NWI Code definitions, see **Appendix D of the Environmental Assessment**). **Figure 10 of the Environmental Assessment** depicts the NWI wetlands within the project area. Dated: June 2022.
- ☐ The proposed action may be in a wetland based on evaluation from soil surveys, aerial photographs, site visit or other data.
- ☐ The project is outside of a designated wetland but has potential to affect the wetland, including support or encouragement of wetland development.

**IF THE ANSWERS IS YES, CONTINUE WITH THE FOLLOWING STEPS;
OTHERWISE REVIEW IS COMPLETE.**

STEP 2: Notify the public at the earliest possible time of the intent to carry out an action in a floodplain and involve the affected and interested public in the decision-making process.

- ☒ Notice was provided as part of a disaster cumulative notice.
Publication: Wisconsin State Journal
Date: November 16, 2018
- ☐ Project-specific notice provided.
Publication: Click or tap here to enter text.
Date: Click or tap here to enter text.
- ☐ Per allowances noted at 44 CFR Part 9.12(d)6, this notice is understood to meet the requirements of both Steps 2 and 7.

STEP 3: Identify and evaluate practicable alternatives to locating the proposed action in a floodplain (including alternatives sites, actions and the "no action" option). If a practicable alternative exists outside the floodplain, FEMA must locate the action at the alternative site..

- ☐ YES ☒ NO Is there a practicable alternative site location outside of the floodplain / wetland?

REMARKS: While the Environmental Assessment analyzes both the proposed action and the no action alternative, FEMA and the applicant did consider other alternatives. These other alternatives were all dismissed because they didn't meet the community needs or didn't address the flood hazard in full. All alternatives take place in the floodplain and there is no possibility of avoiding the floodplain due to the location of the trail system, park, and amenities.

☐ YES ☒ NO Is there a practicable alternative action outside of the floodplain / wetland that will not affect the floodplain / wetland?

REMARKS: No, all alternatives do have effects on the wetlands and floodplains.

☐ YES ☒ NO Is the No Action Alternative the most practicable alternative?

REMARKS: The no action alternative does not address project purpose and needs and therefore is not an appropriate solution.

**IF ANY ANSWER IS YES, THEN FEMA SHALL TAKE THAT ACTION
AND THE REVIEW IS CONCLUDED.**

STEP 4: Identify the potential direct and indirect impacts associated with the occupancy or modification of floodplains and the potential direct and indirect support of floodplain development that could result from the proposed action. 44CFR Part 9.10.

☐ YES ☒ NO Is the Proposed Action based on incomplete information?

☒ YES ☐ NO Is the proposed action in compliance with the NFIP?

☐ YES ☒ NO Does the proposed action increase the risk of flood loss?

☐ YES ☒ NO Will the proposed action result in an increased base discharge or increase the flood hazard potential to other properties or structures?

☒ YES ☐ NO Does the proposed action minimize the impact of floods on human health, safety and welfare?

☐ YES ☒ NO Will the proposed action induce future growth and development, which will potentially adversely affect the floodplain?

☒ YES ☐ NO Does the proposed action involve dredging and/or filling of a floodplain?

☐ YES ☒ NO Will the proposed action result in the discharge of pollutants into the floodplain?

☐ YES ☒ NO Does the proposed action avoid long- and short-term adverse impacts associated with the occupancy and modification of floodplains?

☐ YES ☒ NO Will the proposed action result in any indirect impacts that will affect the natural values and functions of floodplains or wetlands?

☐ YES ☒ NO Will the proposed action forego an opportunity to restore the natural and beneficial values served by floodplains?

☒ YES ☐ NO Does the proposed action restore and/or preserve the natural and beneficial values served by floodplains?

☒ **YES** ☐ **NO** Will the proposed action result in an increase to the useful life of a structure or facility?

REMARKS: The repairs and improvements to existing trails, bridges, and park amenities funded by this Public Assistance project include mitigation measures, such as raising the bridges above the floodplain, to reduce future flood damage. Additionally, the trail system is at continued risk of erosion and subsequent damage, and the project seeks to stabilize the banks to limit erosion and factors that could lead to more damage. Ultimately, continued investment in this park and trail system supports floodplain management because the existing park system is an excellent use of a floodplain. So while there are impacts to adding fill in the form of bioengineering, these support the greater good of maintaining a park in the floodplain.

STEP 5: Minimize the potential adverse impacts to or within floodplains identified under Step 4; restore and preserve the natural and beneficial values served by floodplains.

☒ **YES** ☐ **NO** For sites in the 100-Year floodplain, were flood hazard reduction techniques applied to the proposed action to minimize the flood impacts?

☒ **YES** ☐ **NO** Were avoidance and minimization measures applied to the proposed action to minimize the short and long-term impacts on the 100-Year floodplain?

☒ **YES** ☐ **NO** Were measures implemented to restore and preserve the natural and beneficial values of the floodplain?

REMARKS: This project minimized impacts by designing and engineering a plan to support wetlands and floodplains. Bridge repairs, for example, will raise them, allowing more water to flow under the bridges and therefore producing less damage to the bridges in future flooding events. The use of nature based solutions to support the bank stabilization is further expected to reduce any effects on the wetlands in the project area.

STEP 6: Reevaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others, and its potential to disrupt floodplain values and second, if alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5. FEMA shall not act in a floodplain unless it is the only practicable location.

☒ **YES** ☐ **NO** The action is still practicable at a floodplain site considering the exposure to flood risk and ensuing disruption of natural values.

☒ **YES** ☐ **NO** The floodplain site is the only practicable alternative.

- ☒ **YES** ☐ **NO** There is no potential for limiting the action to increase the practicability of previously rejected sites outside the floodplain and alternative actions.
- ☒ **YES** ☐ **NO** Minimization of harm to or within the floodplain can be achieved using all practicable means.
- ☒ **YES** ☐ **NO** The action in a floodplain clearly outweighs the requirement of E.O. 11988 and EO 11990.

REMARKS: Engineering plans for this project show that no rise to any Base Flood Elevations will result from the proposed work. Permitting conversations with DNR and USACE likewise have shown that there is no net loss of wetlands based on this project. For these reasons, there are no adverse effects associated with this project.

STEP 7: Prepare and provide the public with a finding and public explanation of any final decision that the floodplain is the only practicable alternative.

- ☐ Per allowances noted at 44 CFR Part 9.12(d)6, notice provided under Step 2 is understood to meet the requirements of both Steps 2 and 7.
- ☐ Notice was provided as part of a disaster cumulative notice.
Publication: Click or tap here to enter text.
Date: Click or tap here to enter text.
- ☒ Project-specific notice provided.
Publication: Click or tap here to enter text.
Date: Click or tap here to enter text.

AFTER PROVIDING THE FINAL NOTICE, FEMA SHALL, WITHOUT GOOD CAUSE SHOWN, WAIT AT LEAST 15 DAYS BEFORE CARRYING OUT THE PROPOSED ACTION.

STEP 8: Review the implementation and post-implementation phases of the proposed action to ensure that the requirements stated in Section 9.11 are fully implemented. Oversight responsibility shall be integrated into existing processes (44 CFR §9.11).

- ☒ **YES** ☐ **NO** Was grant conditioned on review of implementation and post-implementation phases to ensure compliance with EO 11988 and EO 11990?.

REMARKS: For full details, see the Environmental Assessment. The project will require a local floodplain development permit accompanied by a no rise certificate.

**FAILURE TO COMPLY WITH CONDITIONS ENUMERATED
IN THE RECORD OF ENVIRONMENTAL CONSIDERATION
MAY JEOPARDIZE FEDERAL FUNDING.**

**Project Area National Wetlands Inventory and Wisconsin Department of Natural Resources,
Surface-water Data Viewer Codes:**

PEM1A:

- P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 hectares (ha., 20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 meters (m., 6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
- EM: Class emergent characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Usually dominated by perennial plants.
- 1: Persistent subclass found only in the estuarine and palustrine systems.
- A: Water regime temporary flooded, surface water is present for brief periods, but the water table usually lies below the soil surface. Plants that grow both uplands and wetlands may be of this characteristic.
- PEM1C:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 ha. (20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
 - EM: Class emergent characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Usually dominated by perennial plants.
 - 1: Persistent subclass found only in the estuarine and palustrine systems.
 - C: Water regime seasonally flooded; surface water is present for extended periods. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.
- PFO1A:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 hectares (20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
 - FO: Forested class characterized by wood vegetation that is 6 m. (19.8 ft.) tall or taller.
 - 1: Subclass broad-leaved deciduous; woody angiosperms (trees or shrubs) with wide, flat leaves that are shed during the cold or dry season.
 - A: Water regime temporary flooded, surface water is present for brief periods, but the water table usually lies below the soil surface.

- PFO1B:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 ha. (20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
 - FO: Forested class characterized by wood vegetation that is 6 m. tall or taller.
 - 1: Subclass broad-leaved deciduous; woody angiosperms (trees or shrubs) with wide, flat leaves that are shed during the cold or dry season.
 - B: Water regime seasonally saturated; the substrate is saturated at or near the surface for extended periods. Surface water is typically absent but may occur for a few days after heavy rain and upland runoff.

- PFO1Bd:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 ha. (20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
 - Fo: Class forested characterized by wood vegetation that is 6 m. (19.8 ft.) tall or taller.
 - 1: Subclass broad-leaved deciduous; woody angiosperms (trees or shrubs) with wide, flat leaves that are shed during the cold or dry season.
 - B: Water regime seasonally saturated; the substrate is saturated at or near the surface for extended periods. Surface water is typically absent but may occur for a few days after heavy rain and upland runoff.
 - d: Special modifier Partially Drained/Ditched: A partly drained wetland has been altered hydrologically, but soil moisture is still sufficient to support hydrophytes. Drained areas that can no longer support hydrophytes are not considered wetlands. This Modifier is also used to identify wetlands containing, or connected to, ditches. The Partly Drained/Ditched Modifier can be applied even if the ditches are too small to delineate. The Excavated Modifier should be used to identify ditches that are large enough to delineate as separate features; however, the Partly Drained/Ditched Modifier also should be applied to the wetland area affected by the ditching.

- PFO1C:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 ha. (20 ac.); do not have an active wave-formed or bedrock shoreline

feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.

- FO: Forested class characterized by wood vegetation that is 6 m. (19.8 ft.) tall or taller.
 - 1: Subclass broad-leaved deciduous; woody angiosperms (trees or shrubs) with wide, flat leaves that are shed during the cold or dry season.
 - C: Water regime seasonally flooded; surface water is present for extended periods. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.
- PSS1/EM1Bd:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 ha. (20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
 - SS: Class SCRUB-SHRUB includes areas dominated by woody vegetation less than 6 m. (19.8 ft.) tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.
 - 1: Subclass broad-leaved deciduous; woody angiosperms (trees or shrubs) with wide, flat leaves that are shed during the cold or dry season.
 - EM: Class emergent characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Usually dominated by perennial plants.
 - 1: Persistent subclass found only in the estuarine and palustrine systems.
 - B: Water regime seasonally saturated; the substrate is saturated at or near the surface for extended periods. Surface water is typically absent but may occur for a few days after heavy rain and upland runoff.
 - d: Special modifier Partially Drained/Ditched: A partly drained wetland has been altered hydrologically, but soil moisture is still sufficient to support hydrophytes. Drained areas that can no longer support hydrophytes are not considered wetlands.
 - PUBG:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 ha. (20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
 - UB: Unconsolidated bottom; includes wetlands and deep-water habitats with at least 25% cover of particles smaller than stones (less than 6-7 centimeters (cm)), and a vegetative cover less than 30%.

- G: Water regime intermittently exposed, water covers the substrate throughout the year except in years of extreme drought.
- PUBKr:
 - P: Palustrine system includes all nontidal wetlands by trees, emergent, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are included if they are less than 8 ha. (20 ac.); do not have an active wave-formed or bedrock shoreline feature; low water a depth less than 2 m. (6.6 ft.) in the deepest part of the basin and have salinity due to ocean derived salts of less than 0.5 ppt.
 - UB: Unconsolidated bottom; includes wetlands and deep-water habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.
 - K: Water regime artificially flooded; the amount and duration of are flooding are controlled using pumps or siphons in combination with dikes, berms, or dams. Examples of artificially flooded wetlands are some agricultural lands, wildlife management areas where forests, crops, pioneer plants may be flooded or dewatered to attract wetland wildlife. The artificially flooded water regime modifier should not be used in the riverine system or for impoundments or excavated wetlands unless both water inputs and outputs are controlled to achieve a specific depth and duration of flooding.
 - r: Special modifier artificial substrate describes concrete-lined drainageways, well as Rock Bottom, Unconsolidated Bottom, Rocky Shore, and Unconsolidated Shore where humans have emplaced the substrate material. Jetties and breakwaters are examples of artificial Rocky Shores.
- R2UB2H:
 - R: Riverine system includes all wetlands and deep-water habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens, and (2) habitats with water containing ocean- derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created that periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.
 - 2: Subsystem lower perennial is characterized by a low gradient. There is no tidal influence and some water flow all year, except during years of extreme drought. The substrate consists of sand and mud. Oxygen deficits may sometimes occur. The fauna is composed mostly of species that reach their maximum abundance in still water, and true planktonic organisms are common. The gradient is lower than that of the upper Perennial Subsystem and the floodplain is well developed.
 - UB: Class unconsolidated bottom includes all wetlands and deep-water habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and vegetative cover of less than 30%.
 - 2: Subclass sand is unconsolidated particles smaller than stones are sand, although finer or coarser sediments may be intermixed.

- H: Water regime permanently flooded; water that covers the substrate throughout the year in all years.

Appendix E: City Meeting Notes



City of Middleton

PHEASANT BRANCH CREEK CORRIDOR MASTER PLAN

PUBLIC INPUT MEETING #2 – 9.10.2019

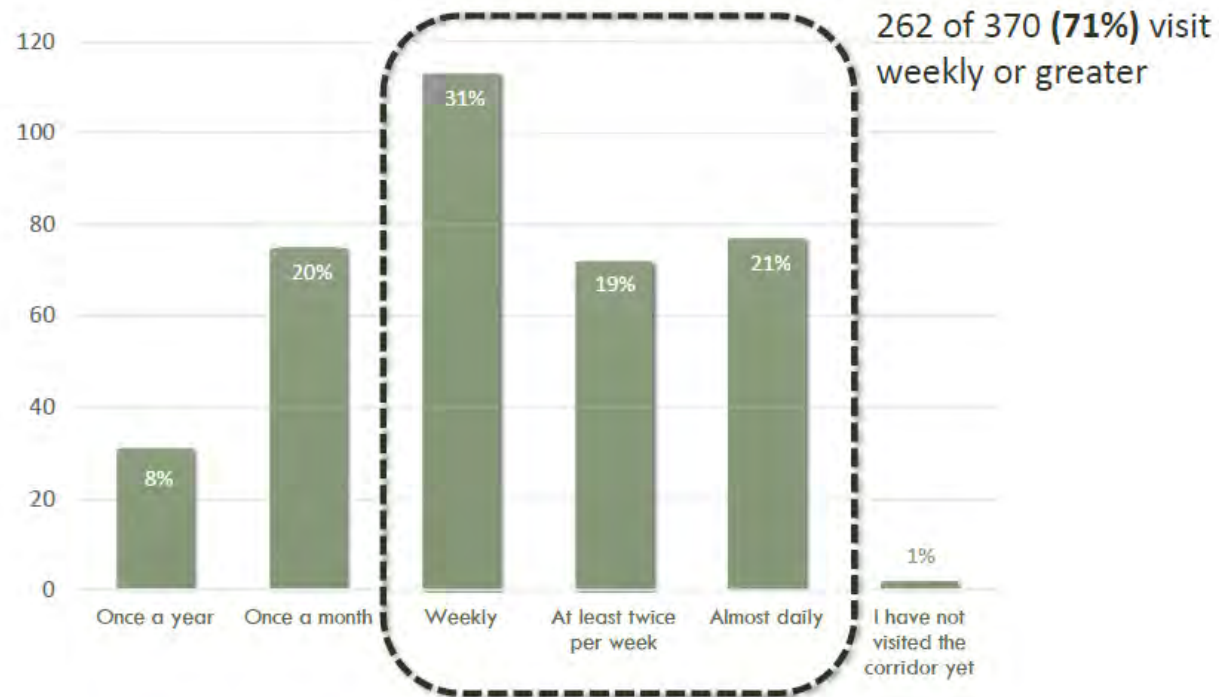


Online Survey

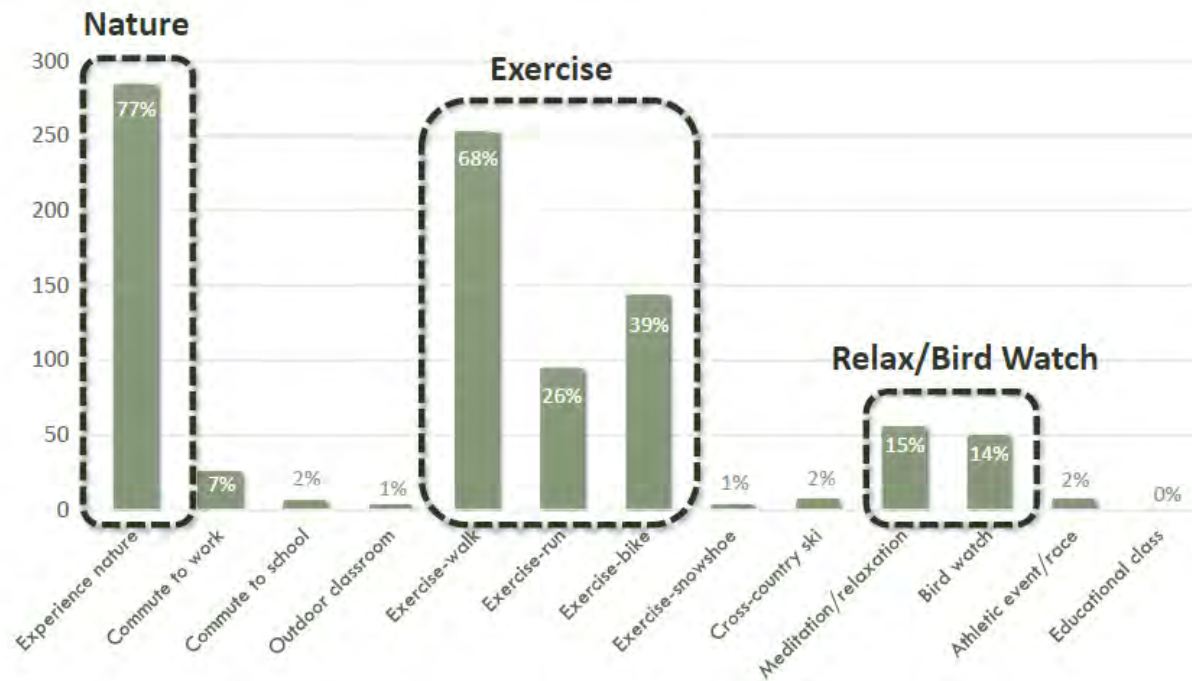
- 370 Participants
- 337 City of Middleton residents
- 50/50 Male/Female
- 18-29 years old : 2%
- 30-39 years old : 16%
- 40-49 years old : 20%
- 50-59 years old : 21%
- 60-69 years old : 25%
- 70-79 years old : 16%
- 80-89 years old : 0.004% (1 respondent)



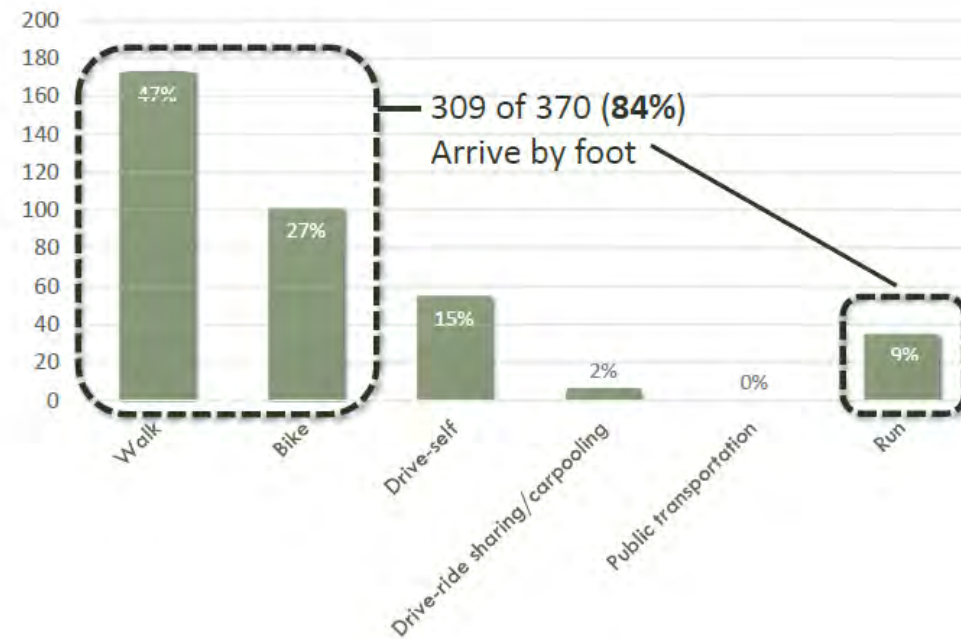
How often do you visit the Pheasant Branch Creek Corridor?



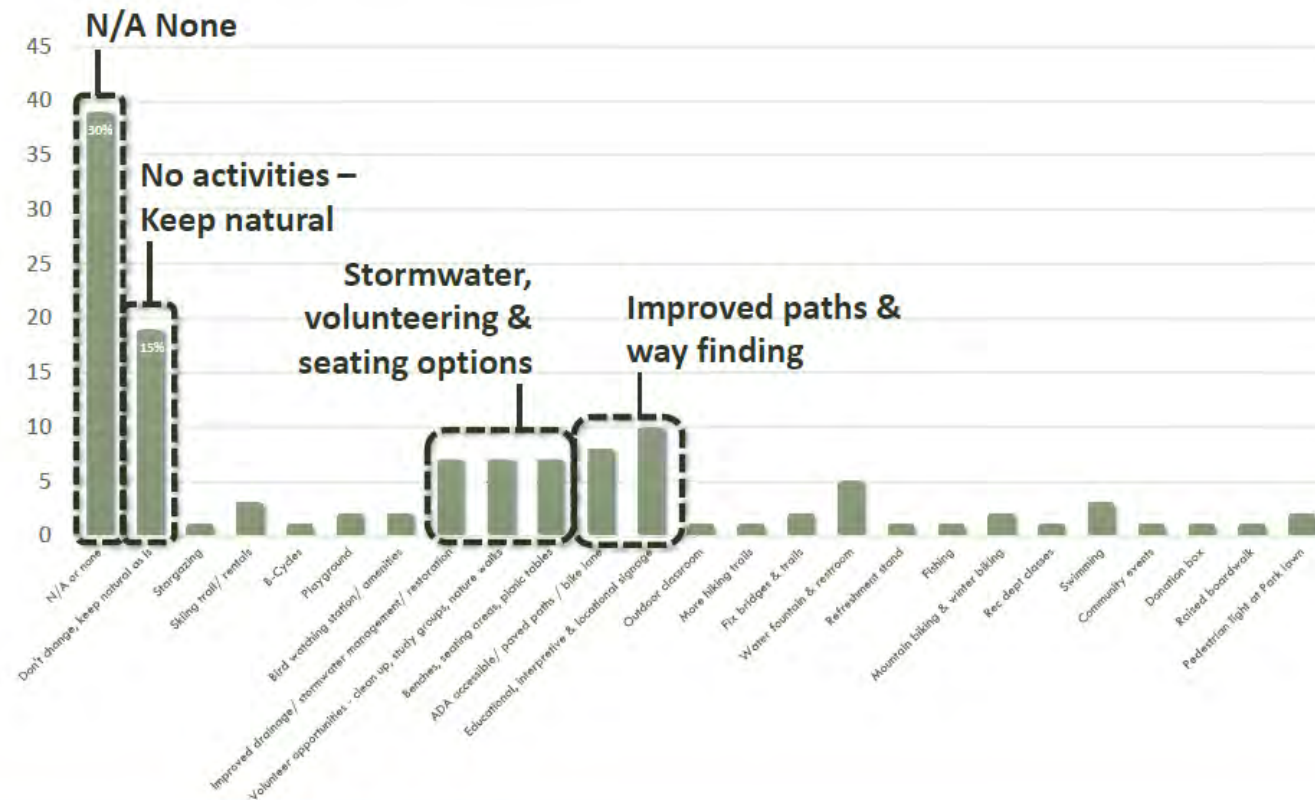
Why do you visit the Corridor?



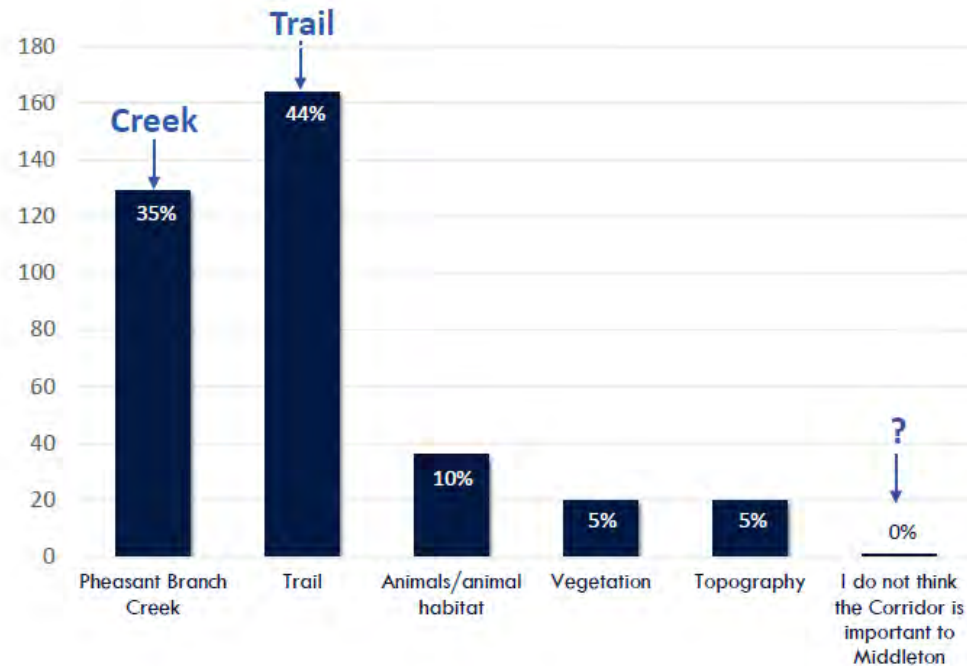
How do you access the Creek Corridor?



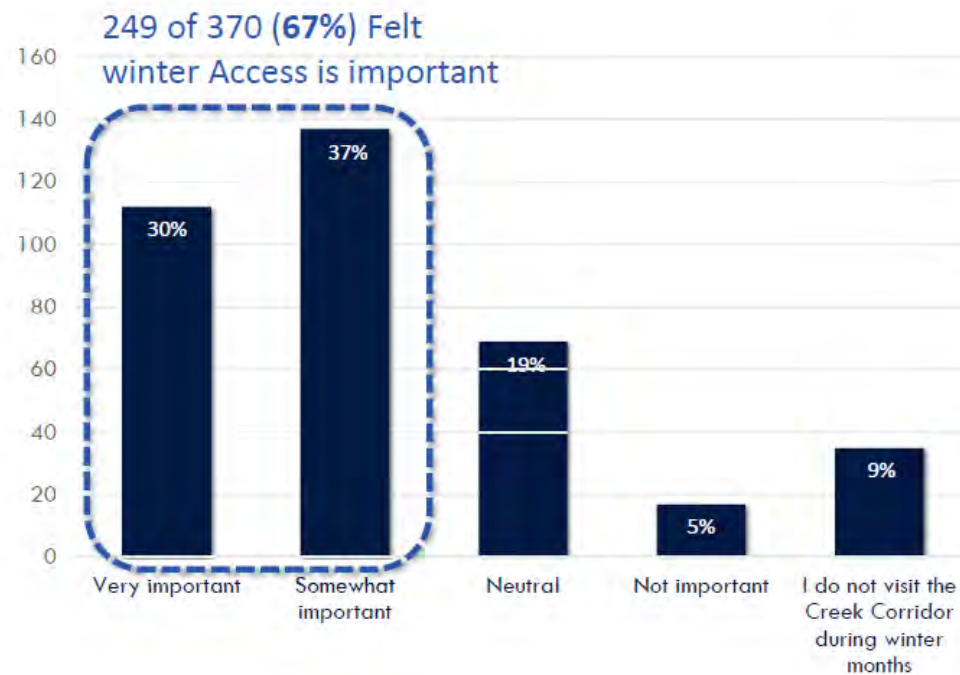
What activities would you like to occur within the Corridor that currently do not exist?



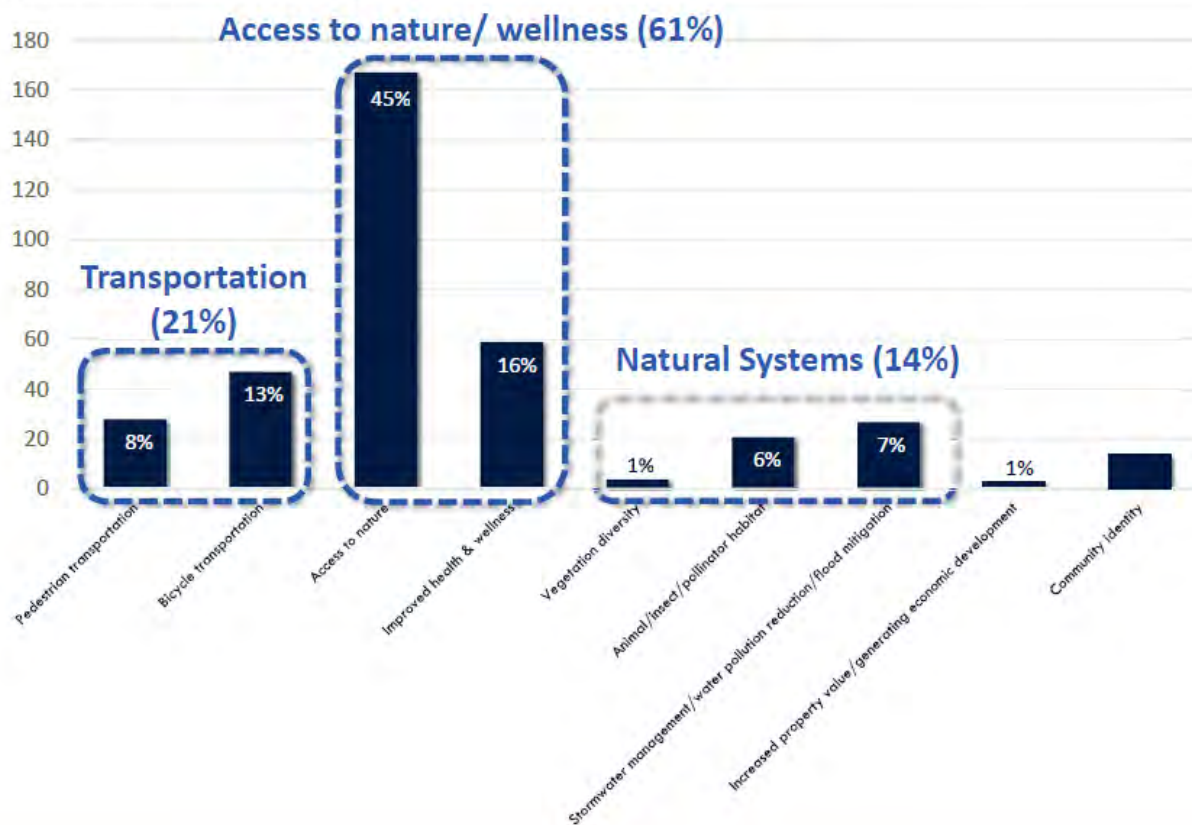
What do you feel makes the Corridor a special place in Middleton? (Please select one)



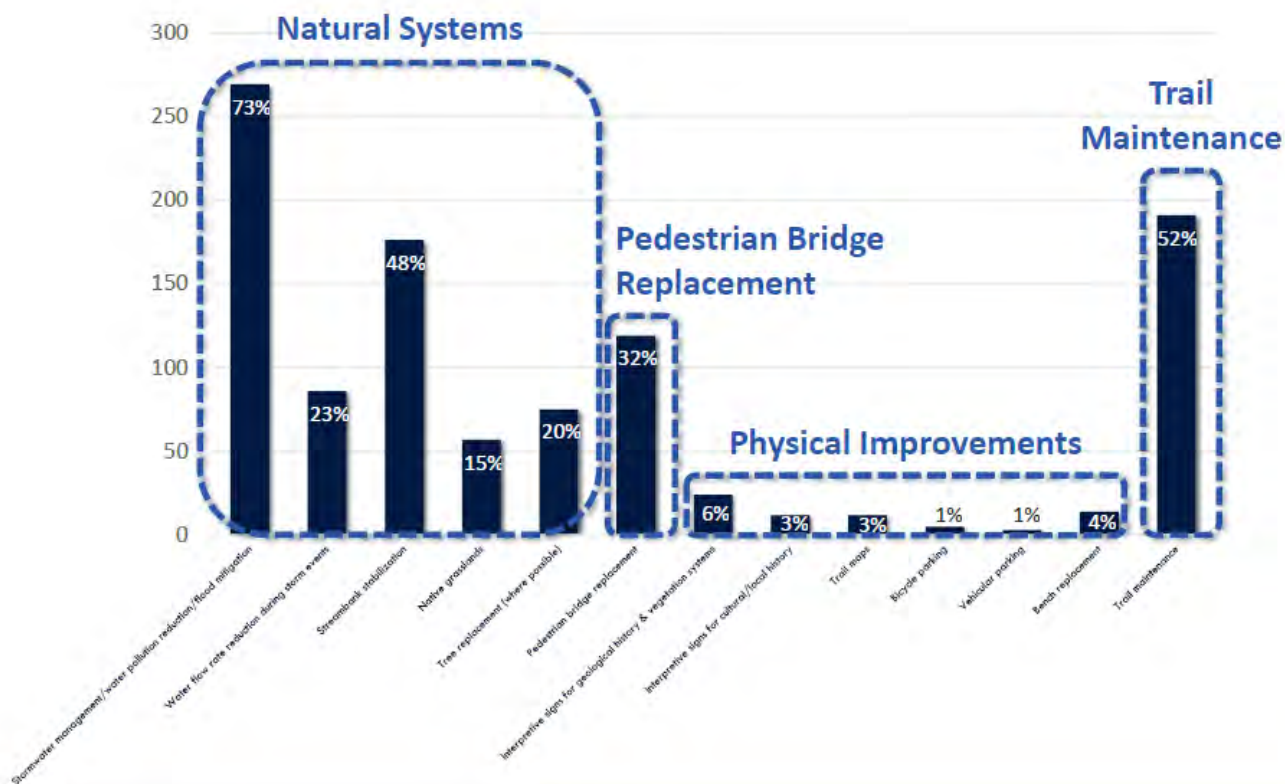
How important is Creek Corridor access during the winter season?



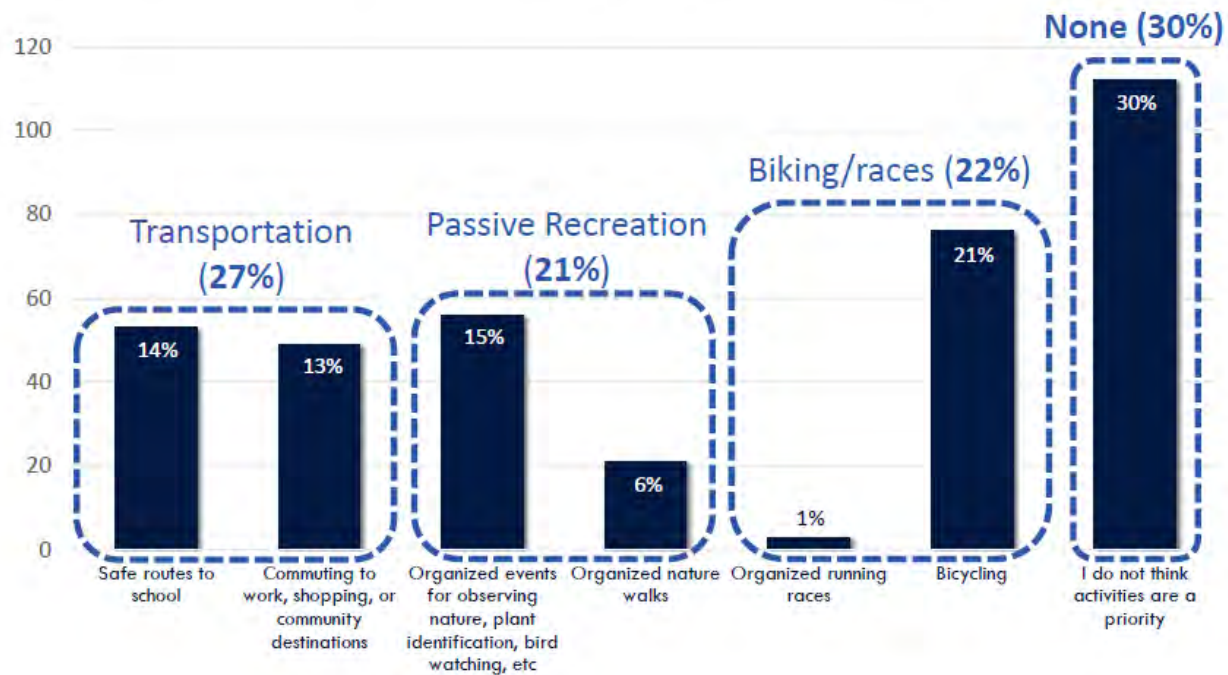
Which benefit of the corridor is most important to you?
(Please select one)



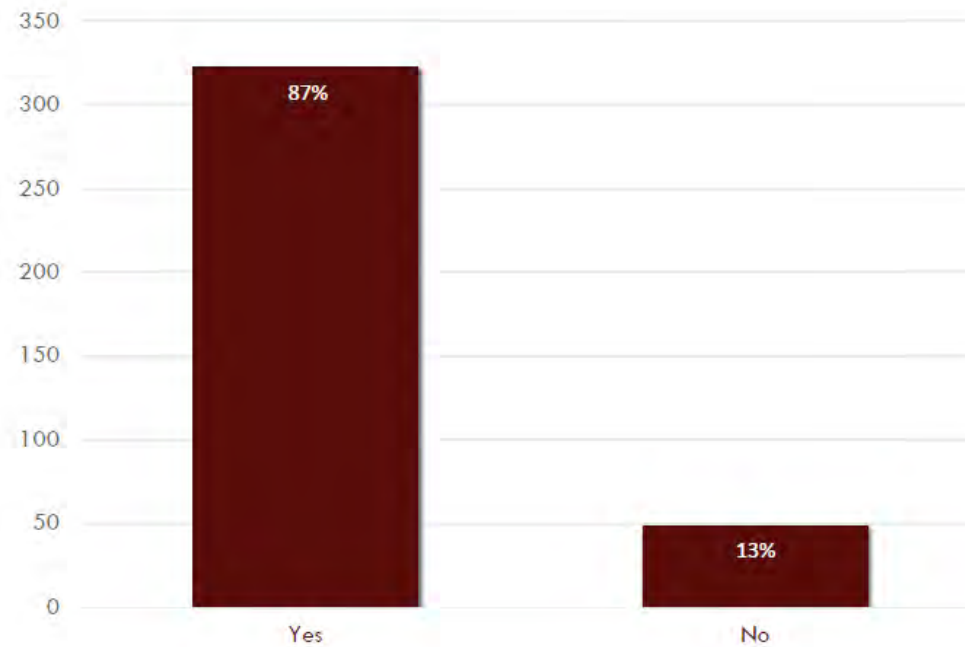
What potential improvements do you consider priorities?
(Please select up to your top three)



What potential activity do you consider a priority?

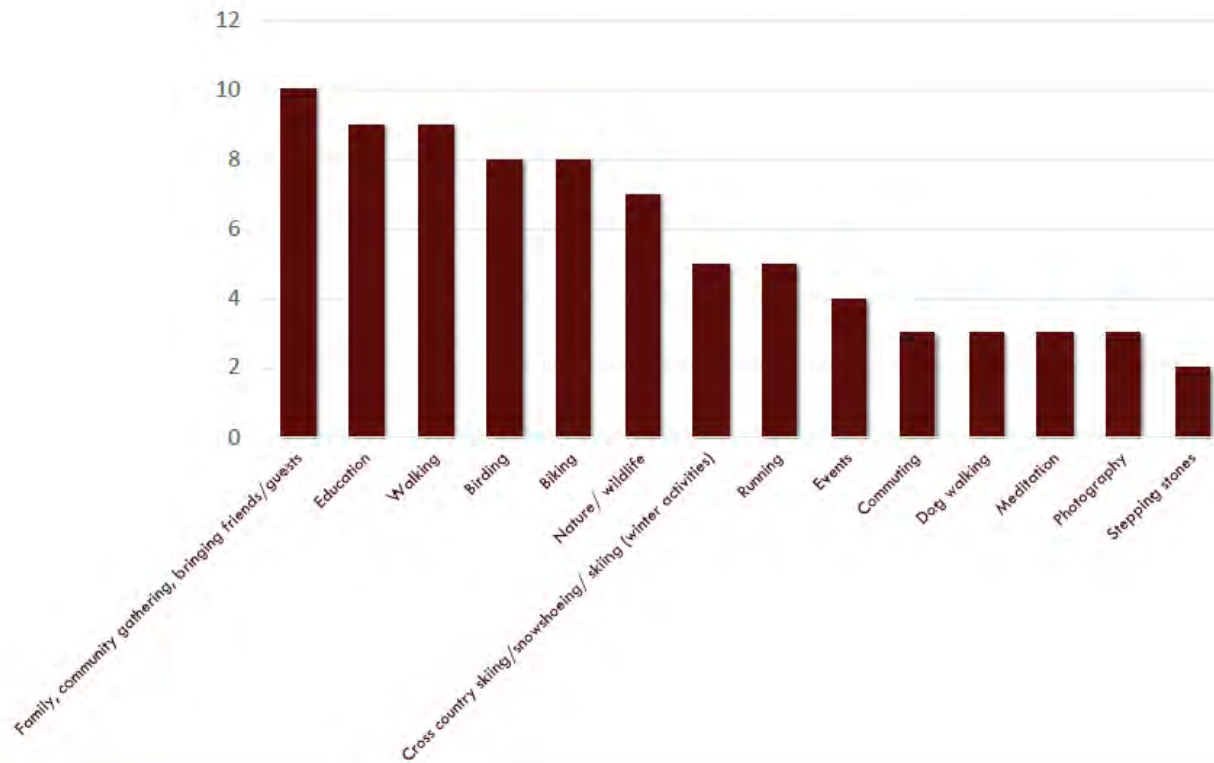


The City is always exploring grant opportunities to supplement city funds. If grants are not available or awarded, do you support the city borrowing funds to finance Corridor improvements?



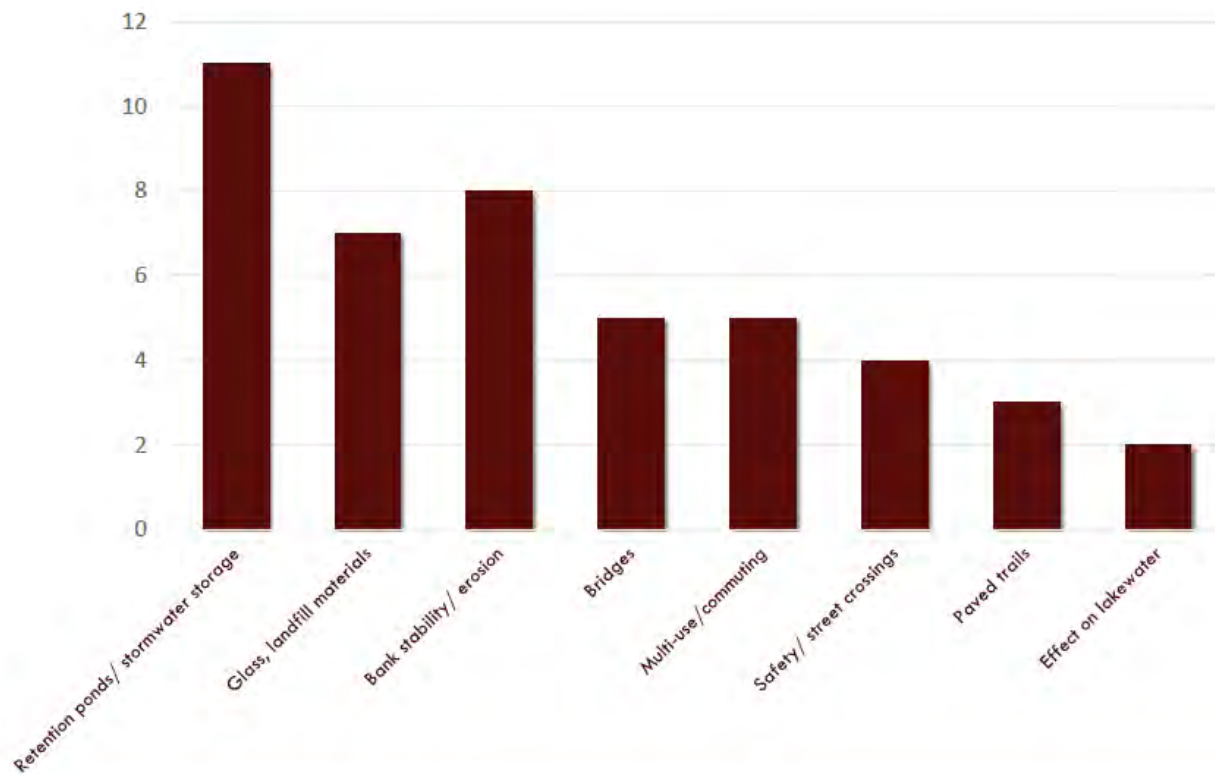
PUBLIC INPUT MEETING #1:

How do you currently use the Pheasant Branch Creek Corridor?



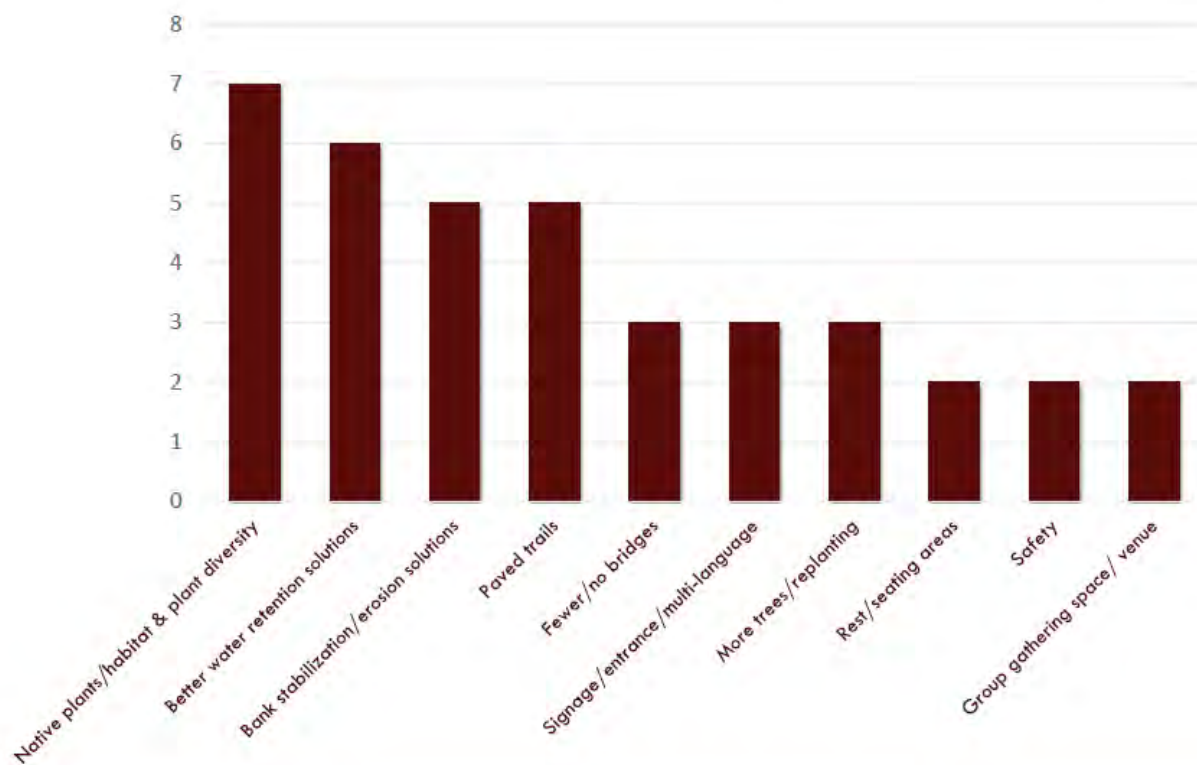
PUBLIC INPUT MEETING #1:

What are your concerns about the Pheasant Branch Creek Corridor?



PUBLIC INPUT MEETING #1:

What are opportunities for the Pheasant Branch Creek Corridor?



Public Input Summary

- Corridor is valued by the community and other users
- Keep the corridor as natural as possible
- Accommodate various users
- Important place where citizens and families interact
- Opportunity to replace what was lost & make improvements!



Trail Alignment Options

Pheasant Branch Creek Corridor Option A: No Change - Existing Trail Repair



Trail Alignment Options

Pheasant Branch Creek Corridor Option B: Realigned Trail

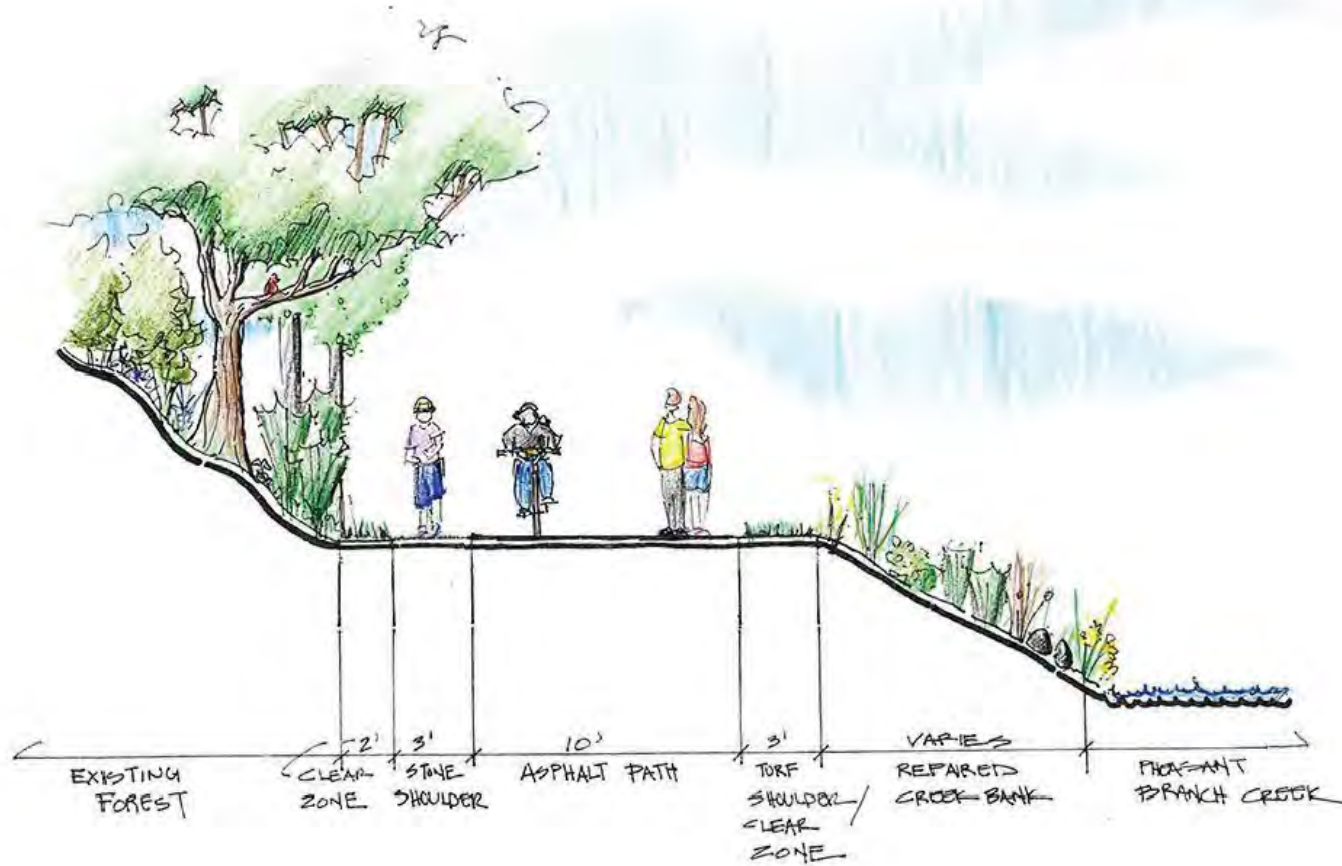


Trail Alignment Options

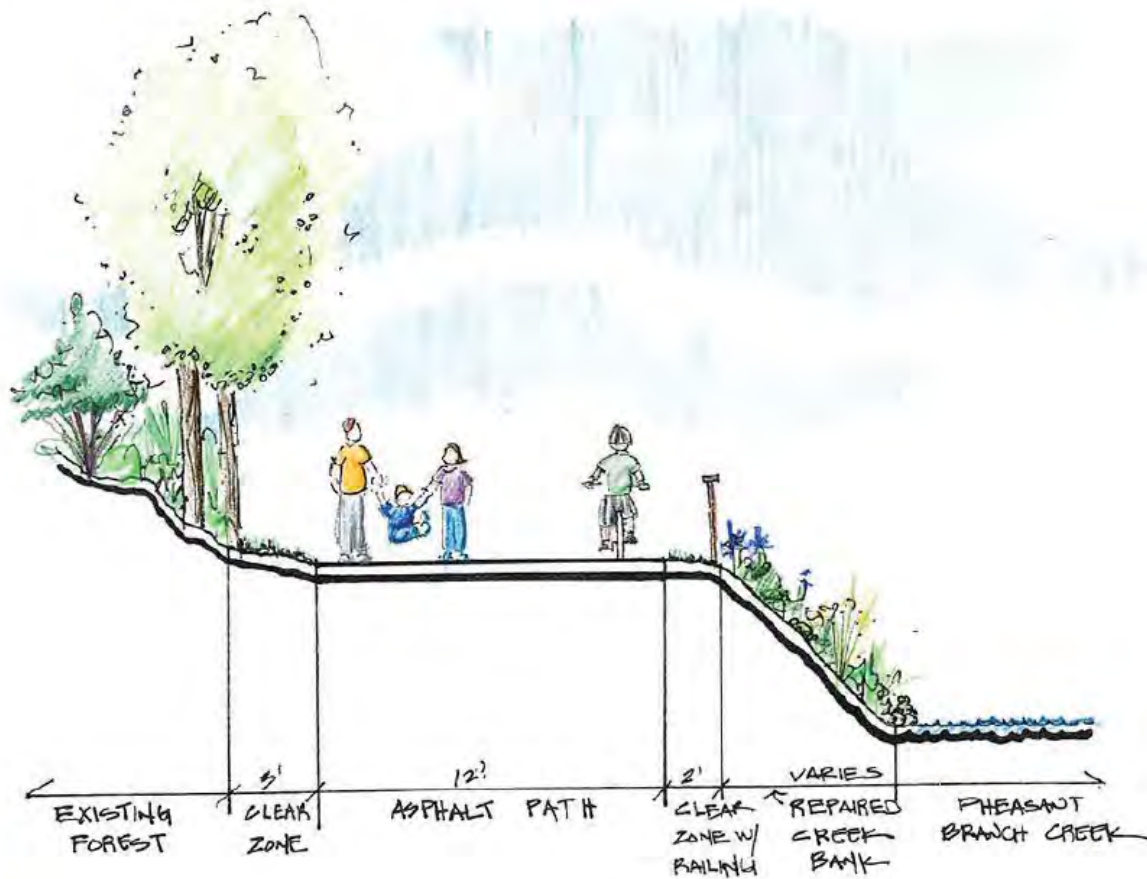
Pheasant Branch Creek Corridor Option C: Realigned with Split Use Trail



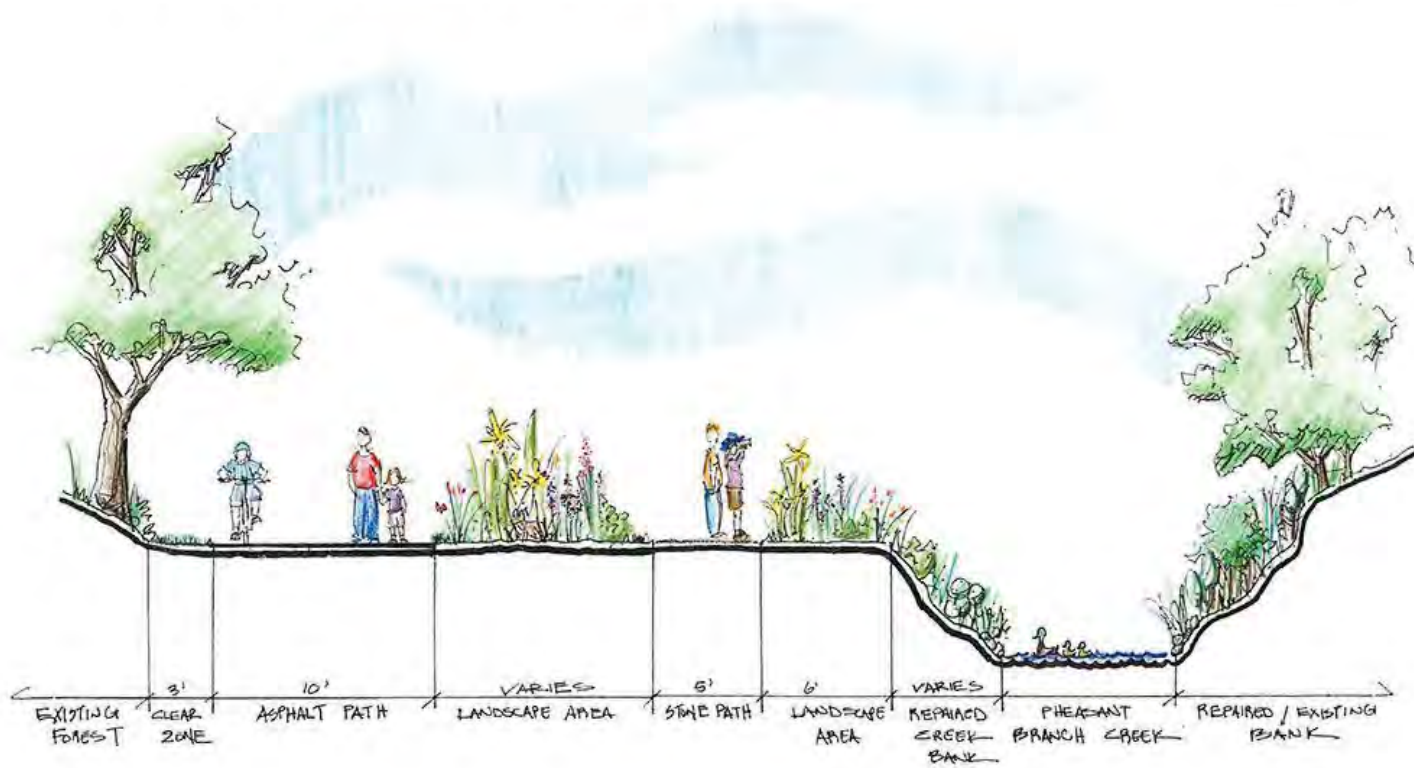
Trail Sections - Existing



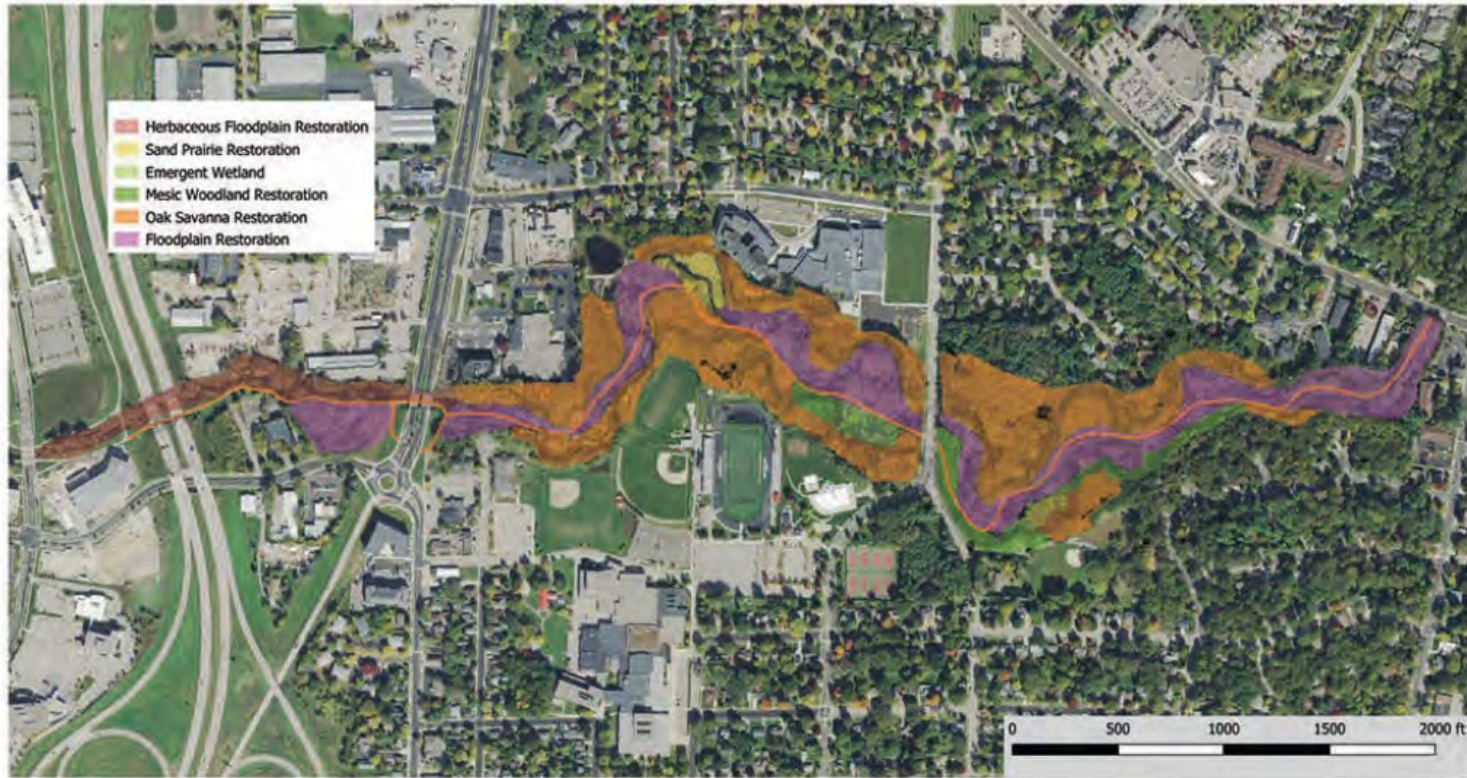
Trail Sections – Realigned Trail



Trail Sections – Split-Use Trail



Vegetation Restoration



Herbaceous Floodplain Restoration



- Deming to Parmenter
- Remove existing invasive plants
- Re-grading slopes to a plantable gradient with floodplain benches
- Wetland floodplain mix near water
- Drier prairie species upslope



Sand Prairie Restoration



- Areas with large sand deposits from 2018 flood
- Rather than remove sand, establish a sand prairie/ecosystem

Emergent Wetland

- One existing wetland
- Planned for wetlands or oxbows created by channel reconstruction
- Provides beneficial habitat, control runoff, and aide in stormwater capture/storage



Mesic Woodland Restoration



- On north-facing, shady areas
- Shade tolerant woodland species
- Remnant species existing: maiden hair fern, alternate-leaved dogwood
- Clear and manage invasive species to stimulate existing natives species

Oak Savanna Restoration

- Largest area proposed
- Most upland areas proposed as oak savanna
- Many existing oak canopy trees with invasive tree and shrub species beneath
- Very little sunlight reaching ground preventing oak regeneration, limiting diversity & creates erosion
- Clear invasive species & re-seeding restoration
- Managed by prescribed fire



Floodplain Restoration



- Woodland areas abutting creek
- Severe soil erosion and tree loss during 2018 flood
- Existing large canopy trees: black walnut, cottonwood, silver maple & invasive black locust
- Clear trees, especially invasives, will restore native herbaceous community, shrub layer and stimulate oak regeneration
- Control invasive groundcover



CITY OF MIDDLETON
PHEASANT BRANCH CREEK CORRIDOR
RESTORATION & IMPROVEMENTS MASTER PLAN

PUBLIC INPUT SESSION

AGENDA

June 20, 7:00 p.m. – 8:00 p.m.

Kromrey Middle School Cafetorium

1. Welcome and Introduction	7:00 – 7:10
<ul style="list-style-type: none">▪ Welcoming comments: Review of project purpose and timeline▪ Orientation to workshop objectives and schedule	5 min. 5 min.
2. How do you currently use the Pheasant Branch Creek Corridor?	7:10 – 7:25
<ul style="list-style-type: none">▪ Each participant shares what activities they enjoy within the Corridor▪ Recorder writes responses on flip charts, make note of common activities▪ Reporter provides summary to the large group	10 min. 5 min.
3. Concerns & Opportunities	7:25 – 7:55
<ul style="list-style-type: none">▪ Participants use red dots to highlight areas of concern<ul style="list-style-type: none">➢ Each participant receives 5 dots➢ Recorder writes a description of the concern next to the dots▪ Participants use green dots to locate opportunities<ul style="list-style-type: none">➢ Each participant receives 5 dots➢ Recorder writes a description of the opportunity next to the dots▪ Reporter provides summary to the large group	30 min.
4. Wrap-up	7:55 – 8:00
<ul style="list-style-type: none">▪ Describe next steps in the City's process▪ Complete evaluations (see back of agenda)	5 min.



CITY OF MIDDLETON

**PHEASANT BRANCH CREEK CORRIDOR
RESTORATION & IMPROVEMENTS MASTER PLAN**

WORKSHOP EVALUATION FORM

Before you leave, we'd like to get your impressions of this Public Input Session. We will use your answers and the other input we have received today to prepare for future public participation efforts. Please answer these questions and return this evaluation form at the "check-in" table before you leave. Thanks so much for your participation!

1. On a scale of 1 to 10, how would you rate the overall usefulness of this event?

Poor, Not useful											Excellent, Very Informative
	1	2	3	4	5	6	7	8	9	10	

2. What were the most significant outcomes of this input session for you?

3. How could we have improved this event?

4. Please offer any comments, suggestions, or opinions you have on the City's park and open space planning process in the space provided below



CITY OF MIDDLETON
PHEASANT BRANCH CREEK CORRIDOR
RESTORATION & IMPROVEMENTS MASTER PLAN

**ROLES OF FACILITATOR, RECORDER,
AND REPORTER**
RULES FOR BRAINSTORMING

FACILITATOR

- Help keep the group on task
- Watch the time to assure that the group completes its task
- Assure that everyone is able to participate (no one is dominating, no one is excluded)
- Remind people to listen as others are talking
- Encourage people to respect different perspectives and views

RECORDER

- Listen for key words
- Capture the basic ideas and essence of discussion
- Write rapidly
- Write legibly
- Number each sheet, reference topic, group
- Do not worry about spelling

REPORTER

- Be sure you understand what you are expected to report
- Listen carefully to the discussion
- Report out key points as requested at the end of the session
- “Recorder” and “Reporter” can be the same person

RULES OF BRAINSTORMING

- Do not judge ideas (good or bad)
- Don't dismiss anything as “impossible”
- Repeated ideas are fine
- “Piggybacking” off of someone else's idea is fine
- The more ideas, the better
- Everyone's opinion is valid



CITY OF MIDDLETON
PHEASANT BRANCH CREEK CORRIDOR
RESTORATION & IMPROVEMENTS MASTER PLAN

PUBLIC INPUT SESSION #2

AGENDA

September 10, 2019 7:00 p.m. – 8:30 p.m.

Kromrey Middle School Cafetorium

1. Welcome and Introduction (Matt Amundson, City of Middleton)	7:00 – 7:10
<ul style="list-style-type: none">▪ Welcoming comments: Review of project purpose and timeline▪ Orientation to meeting objectives and schedule	5 min. 5 min.
2. Public Input Meeting #1 and Survey Summary (Jeff Maloney, Vandewalle)	7:10 – 7:25
3. Trail Alignment Options (Lynda Fink, KL Engineering)	7:25 – 7:55
<ul style="list-style-type: none">▪ No Change – Existing Trail Repair (five bridges)▪ Realigned Trail (three bridges)▪ Realigned Trail w/ Split Use Trail (four bridges)▪ Trail sections	
4. Ecological Restoration (Jens Jensen, Jensen Ecology)	7:55 – 8:15
5. Wrap Up and Questions	8:15 – 8:30

If you have not participated in the on-line survey regarding bridge design and streambank stabilization, please stop by the station on your way out to provide input.



CITY OF MIDDLETON

PHEASANT BRANCH CREEK CORRIDOR RESTORATION & IMPROVEMENTS MASTER PLAN

MEETING FEEDBACK FORM

Before you leave, please provide your written feedback to the presentation today and return this evaluation form at the "check-in" table before you leave. Thank you for your participation!

1. Which trail alignment do you prefer? (Circle one and provide reason, if desired)

A – No Change – Existing Trail Repair (five bridges)

B-Realigned Trail (three bridges)

C- Realigned Trail w/Split Use Trail (four bridges)

2. Do you support a 3' wide gravel shoulder on the trail where possible? (Circle one & provide reason, if desired)

Yes

No

3. Do you support the ecological restoration approach? (Circle one & provide reason, if desired)

Yes

No

4. Rank the following in order of priority (Write 1-4 in space below)

___ Bridges ___ Streambank Stabilization ___ Trail ___ Ecological Restoration

5. Rank the following in order of priority (Write 1-4 in space below)

___ Bathrooms ___ Outdoor Gathering Spaces ___ Wayfinding/Interpretive Signage
___ Birding Areas

6. Other Comments



CITY OF MIDDLETON
PHEASANT BRANCH CREEK CORRIDOR
RESTORATION & IMPROVEMENTS MASTER PLAN

PUBLIC INPUT SESSION #2 FEEDBACK SUMMARY

September 10, 2019 7:00 p.m. – 8:30 p.m.
Kromrey Middle School Cafetorium

Before you leave, please provide your written feedback to the presentation today and return this evaluation form at the “check-in” table before you leave. Thank you for your participation!

1. Which trail alignment do you prefer? (Circle one and provide reason, if desired)

- A – No Change – Existing Trail Repair (five bridges) - 2
- B-Realigned Trail (three bridges) – 5
- C- Realigned Trail w/Split Use Trail (four bridges) -15

Realigned with current path width - 2

2. Do you support a 3' wide gravel shoulder on the trail where possible? (Circle one & provide reason, if desired)

Yes - 7

No – 10

No preference/no response – 6

Yes, depends on cost - 1

3. Do you support the ecological restoration approach? (Circle one & provide reason, if desired)

Yes - 23

No

Yes, depends on cost – 1

4. Rank the following in order of priority (Write 1-4 in space below) – 22 respondents

Bridges – 1.59

Streambank Stabilization – 3.45

Trail – 2.4

Ecological Restoration – 2.54

1 person-whatever the experts conclude makes the most sense, 1 person- can't prioritize, need to do all

5. Rank the following in order of priority (Write 1-4 in space below) 21-22 Respondents

Bathrooms – 1.62

Outdoor Gathering Spaces – 2.62

Wayfinding/Interpretive Signage – 2.86

Birding Areas (22 Respondents) – 2.95

None of the above/No Response – 11

Responses Weighted:
1=4pts, 2=3pts, 3=2pts, 4=1pt
Average by rank per respondent

Note: The 21-22 respondents is due to one respondent only ranking birding and none of the other options.

6. Other Comments

- Need to stabilize bare slope areas as soon as possible, active erosion leads to hugest?? sediment loads into Lake Mendota--much worse than pre-flood ?? lake is filling in!!
- Streambank restoration at park street does not seem to solve the problem of water shooting out of culverts like a jet
- Stabilization and flood mitigation are biggest issue for me. Otherwise you end up doing it all again in 10 yrs
- It shouldn't be necessary to wait for full funding for parts of the eco restoration to start; and results would inform future investment. If the design does not account for further catastrophic flooding, then it will fail no matter how thorough
- Next public meeting please a microphone if you're answering a question come up to the front. Thank you.
- Will the new restoration result in warmer water in the creek? Do you foresee any negative results?
- Current 10' width is appropriate for existing uses
- There should be signage directing walkers to face oncoming traffic & bikes to stay to the right on the trail. This would eliminate the possibility of walkers being hit by bikes riding up behind them.
- Thanks for the interesting options & the chance to ask lots of questions
- Need cost estimates for all items
- Next time there are meetings have them in a smaller room with a microphone

7. Summary of Dot Exercise

Bridge Design Preference

- Bridge A – 0
- Bridge B – 0
- Bridge C - 7
- Bridge D – 12

Streambank Stabilization Preference

- Sheet Piling – 2
- Gabion Baskets – 1
- Stone Rip Rap -1
- Toewood – 1
- Native Vegetation - 16

BRIDGE DESIGN PREFERENCE

PLEASE SELECT YOUR PREFERENCE OF THE BRIDGES BELOW BY ADDING A DOT STICKER IN THE WHITE AREA BELOW THE PHOTO. In addition to the appearance of the bridge, the bridges have been ranked from 1 to 3 for cost, difficulty, maintenance & construct-ability (1 being the lowest/easiest and 3 being the highest/most difficult).

Bridge A

Cost: 3
Maintenance: 2
Construct-ability: 3



Bridge B

Cost: 3
Maintenance: 3
Construct-ability: 3



Bridge C

Cost: 3
Maintenance: 1
Construct-ability: 3



Bridge D

Cost: 1
Maintenance: 1
Construct-ability: 1



STREAMBANK STABILIZATION PREFERENCE

PLEASE SELECT YOUR PREFERENCE OF THE OPTIONS BELOW BY ADDING A DOT STICKER IN THE WHITE AREA BELOW THE PHOTO.

In addition to the appearance, the options have been ranked from 1 to 3 for cost, maintenance, constructability and habitat (1 being the lowest/easiest and 3 being the highest/most difficult).

Stream Bank

Cost: 1, Maintenance: 1, Constructability: 1, Habitat: 1



Figure 1: Example of stream bank stabilization



Figure 2: Example of stream bank stabilization

Stream Bank

Cost: 1, Maintenance: 1, Constructability: 1, Habitat: 1



Figure 3: Example of stream bank stabilization



Figure 4: Example of stream bank stabilization

Stream Bank

Cost: 1, Maintenance: 2, Constructability: 1, Habitat: 2



Figure 5: Example of stream bank stabilization



Figure 6: Example of stream bank stabilization

Stream Bank

Cost: 1, Maintenance: 2, Constructability: 2, Habitat: 3



Figure 7: Example of stream bank stabilization



Figure 8: Example of stream bank stabilization

Stream Bank

Cost: 1, Maintenance: 2, Constructability: 1, Habitat: 3



Figure 9: Example of stream bank stabilization



Figure 10: Example of stream bank stabilization



Appendix G: Permits



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

June 21, 2021

Regulatory File No. MVP-2021-00848-SJW

City of Middleton
c/o Mark Wegner
7426 Hubbard Avenue
Middleton, Wisconsin 53562

Dear Mr. Wegner:

We are responding to your request for authorization to permanently discharge fill material below the plane of the ordinary high water mark (OHWM) of Pheasant Branch in the City of Middleton for bank stabilization and erosion control purposes. The proposed work is located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 02, Township 07 North, Range 08 East, Dane County, Wisconsin.

Project authorization:

The regulated activities associated with this project include the permanent discharge of fill material (rock riprap) below the plane of the OHWM along 3,395 linear feet (0.27 acre) of Pheasant Branch. In addition, the project would include the permanent discharge of fill material below the plane of the OHWM onto 3,200 square feet (0.07 acre) of aquatic bed for the installation of toe wood/root wad structures, five boulder clusters, two cross vane structures, and for repairs to one riffle structure. We have determined that these activities are authorized by a Nationwide Permit (NWP) or a Regional General Permit (RGP), specifically, NWP 13, Bank Stabilization. This work is shown on the enclosed figures, labeled MVP-2021-00848-SJW: Page 1 of 21 through 21 of 21.

Your project exceeds the limitations established in the general permit related to the 500 linear foot threshold for rock riprap outlined in NWP 13 – Bank Stabilization. However, based on a case-specific review, we have determined the proposed activity will result in no more than minimal adverse effects and a waiver has been granted.

Conditions of your permit:

You must ensure the authorized work is performed in accordance with the enclosed General Permit terms, General Conditions, and St. Paul District Regional Conditions.

You are also required to complete and return the enclosed Compliance Certification form within 30 days of completing your project. Please email the completed form to the contact identified in the last paragraph.

A change in location or project plans may require re-evaluation of your project. Proposed changes should be coordinated with this office prior to construction. Failure to comply with all terms and conditions of this permit invalidates this authorization and could result in a violation of Section 301 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. You must also obtain all local, State, and other Federal permits that apply to this project.

Water Quality Certification:

You must also comply with the enclosed Water Quality Certification conditions associated with this General Permit.

Permit expiration:

The 2017 NWP is valid until March 18, 2022 unless modified, suspended, or revoked. If the work has not been completed by that time, you should contact this office to verify that the permit is still valid. Furthermore, if you commence or are under contract to commence this activity before the date of General Permit expiration, modification, or revocation, you have 12 months to complete the activity under the present terms and conditions of the General Permit.

Jurisdictional determination:

No jurisdictional determination was requested or prepared for this project. While not required, you may request a jurisdictional determination from the contact identified in the last paragraph.

Contact Information:

If you have any questions, please contact me in our Stevens Point field office at (651) 290-5878 or by email at samuel.j.woboril@usace.army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "Samuel J. Woboril". The signature is fluid and cursive, with the first name "Samuel" and last name "Woboril" clearly distinguishable.

Samuel J. Woboril
Lead Project Manager

CC:

Weston Matthews, Wisconsin Department of Natural Resources
Aaron Steber, Cardno

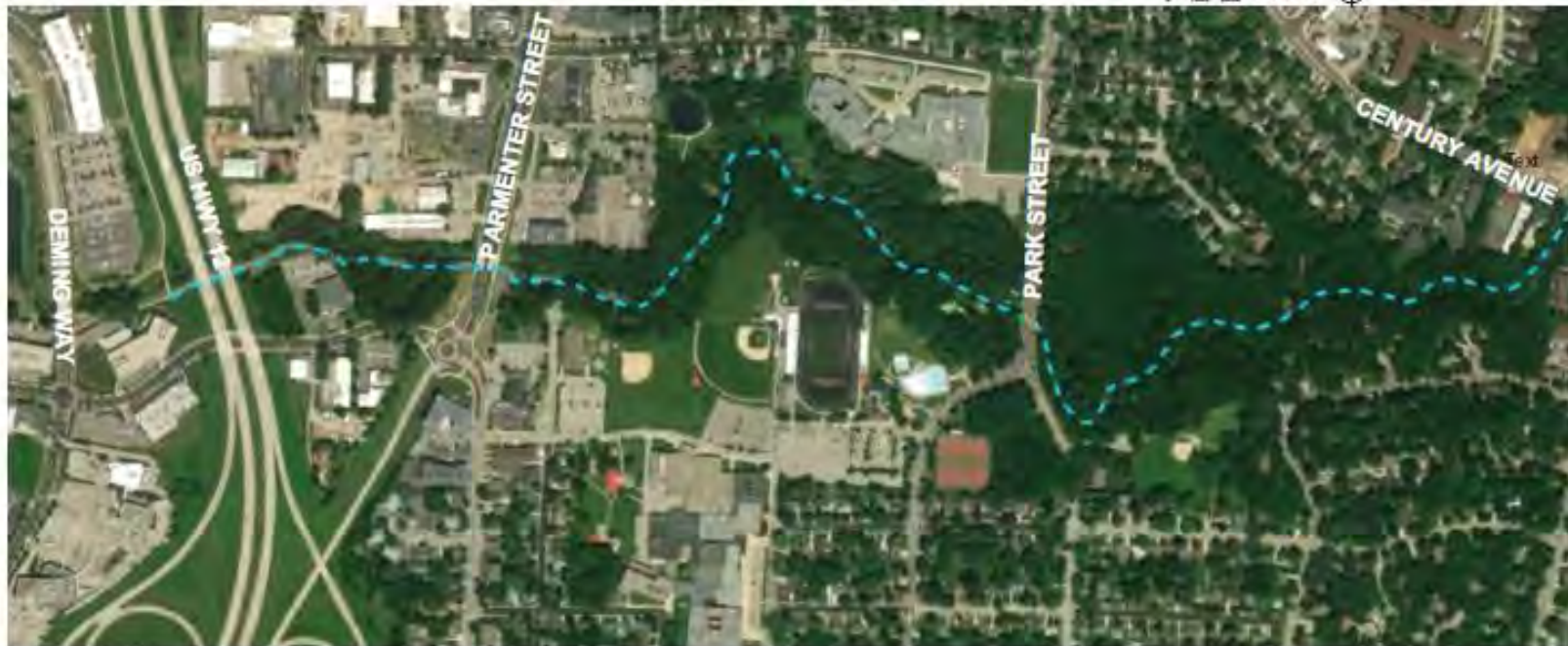
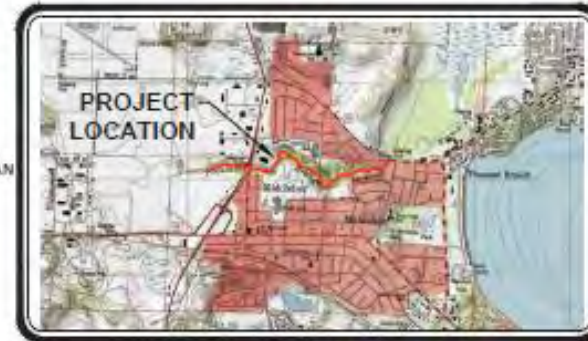
CITY PROJECT 18-125n
CITY OF MIDDLETON

Sheet Number	Sheet Title
1	TITLE SHEET AND SHEET INDEX
2	PROJECT OVERVIEW MAINSTEM POND TO PARMENTER STREET
3	PROJECT OVERVIEW TO PARMENTER TO PARK STREET
4	PROJECT OVERVIEW PARK STREET TO CENTURY AVENUE
5	PROPOSED PLAN 0+00 TO 6+50
6	PROPOSED PLAN 6+50 TO 12+00
7	PROPOSED PLAN 12+00 TO 15+50
8	PROPOSED PLAN 15+50 TO 23+50
9	PROPOSED PLAN 23+50 TO 29+00
10	PROPOSED PLAN 29+00 TO 36+50
11	PROPOSED PLAN 36+50 TO 41+50
12	PROPOSED PLAN 41+50 TO 47+50
13	PROPOSED PLAN 47+50 TO 51+50
14	PROPOSED PLAN 51+50 TO 59+50
15	PROPOSED PLAN 59+50 TO 67+50
16	PROPOSED PLAN 67+50 TO 73+00

17	PROPOSED PLAN 73+00 TO 80+00
18	PROPOSED PLAN 80+00 TO 86+00
19	PROPOSED PLAN 86+00 TO 92+30
20	PROPOSED PLAN 92+30 TO 98+30
21	PROPOSED PLAN 98+30 TO 105+00
22-28	EXISTING CROSS SECTIONS
29-33	PROPOSED CROSS SECTIONS
34-36	EROSION CONTROL / PLANTING PLAN
37-40	DETAILS



Know what's below.
Call before you dig.



SITE MAP
SCALE 1" = 500'

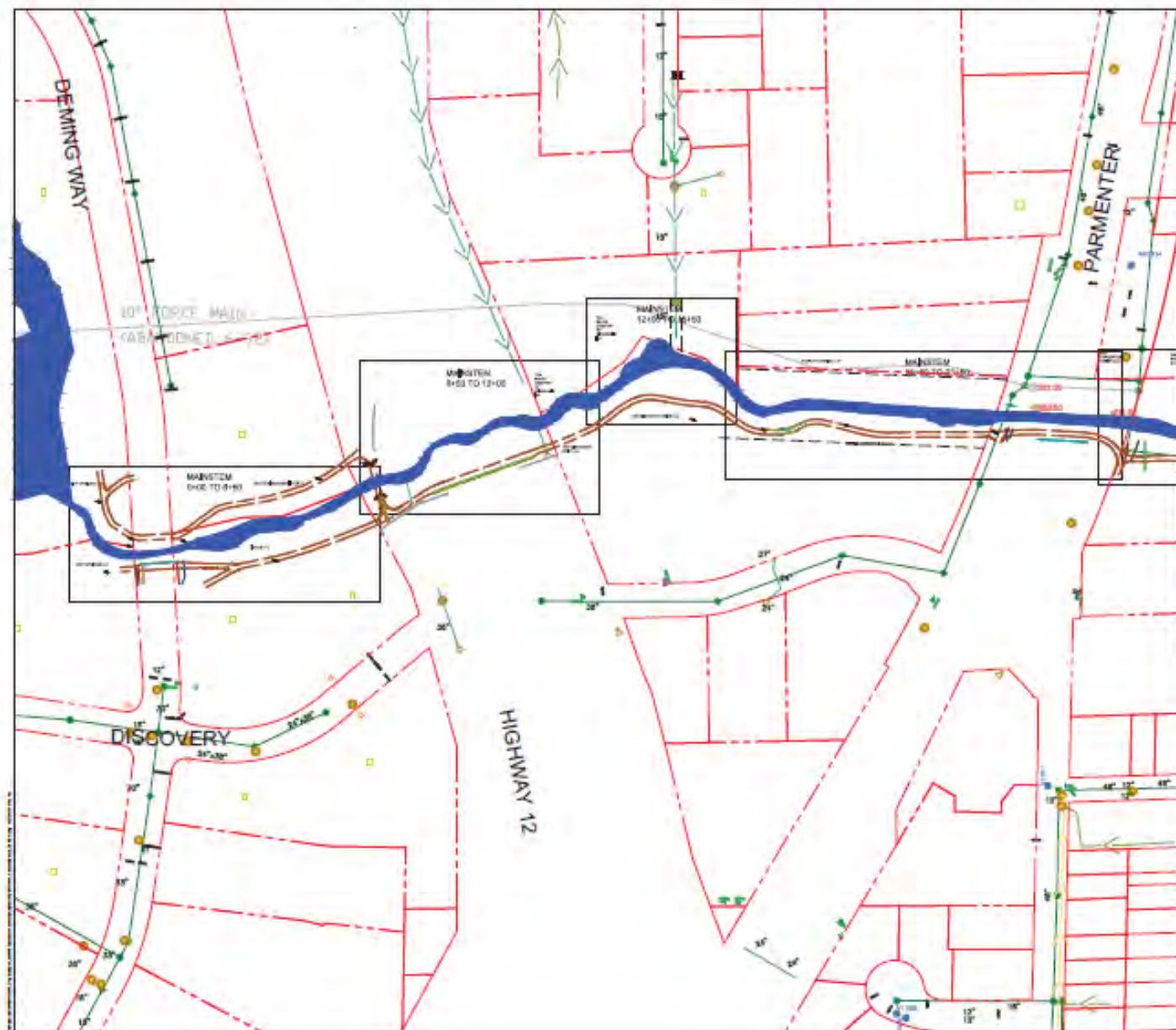
POINT
0 125 250

FINAL DESIGN

[illegible][illegible]

1

PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
TITLE SHEET AND SHEET INDEX
DANE COUNTY, WISCONSIN



LEGEND

- EXISTING GRADE
- PHEASANT BRANCH CHANNEL
- EXISTING SANITARY SEWER LINE
- EXISTING STORM WATER LINE
- EXISTING TRAIL
- PROPERTY LINE

Construction Sequencing Notes:

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLETING ALL ACTIVITIES IN A SAFE MANNER. PROVIDE APPROPRIATE MEASURES TO ENSURE THAT PEASING WORKING ENTER NEAR THE WORK AREA AND PROTECTED.
2. CONSTRUCTION IS RESPONSIBLE FOR CONTACTING UTILITIES IN ADVANCE OF CONSTRUCTION TO DETERMINE LOCATION OF ALL FACILITIES AND TO PROVIDE ADEQUATE PROTECTION DURING CONSTRUCTION.
3. CONTRACTOR SHALL PROTECT SITE ACCESS POINTS TO PREVENT TRACKING OF SOILS AND OTHER CONSTRUCTION RELATED MATERIALS ONTO THE EXISTING HIGHWAY DURING CONSTRUCTION.
4. CONSTRUCTION WILL BEAR ON THE UPTHEAM PROJECT AREA AND PROCEED DOWNSTREAM. INSTALLED WORK SHALL BE COMPLETED DURING LOW FLOW CONDITIONS.
5. TREES REMOVED AND EXCESS SOILS FROM BANK GRADING OPERATIONS SHALL BE STOCKPILED ON-SITE FOR INCORPORATION INTO BACKFILL (COMPOSITE AND TOWNWOOD AREAS).
6. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

FINAL DESIGN

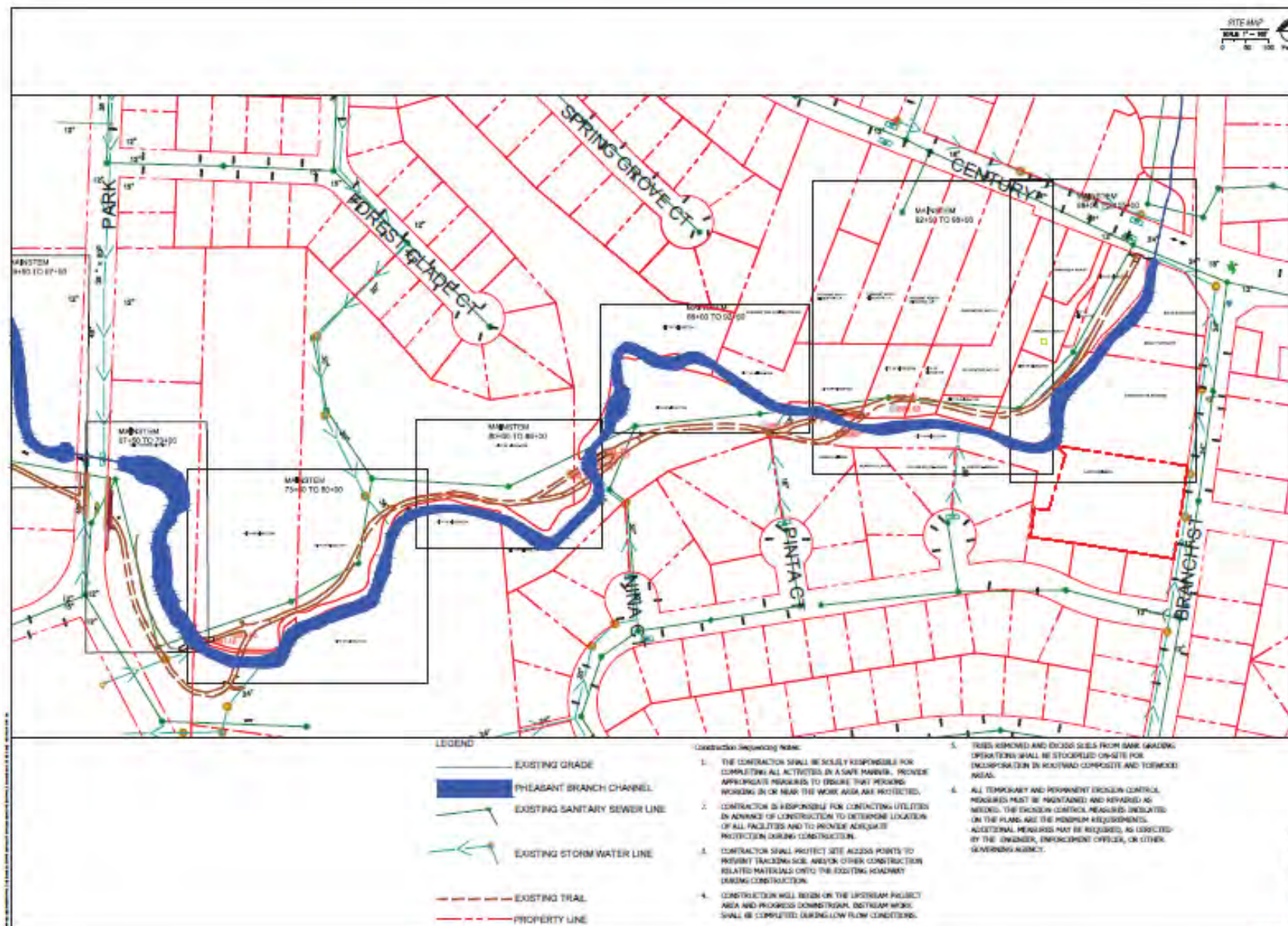


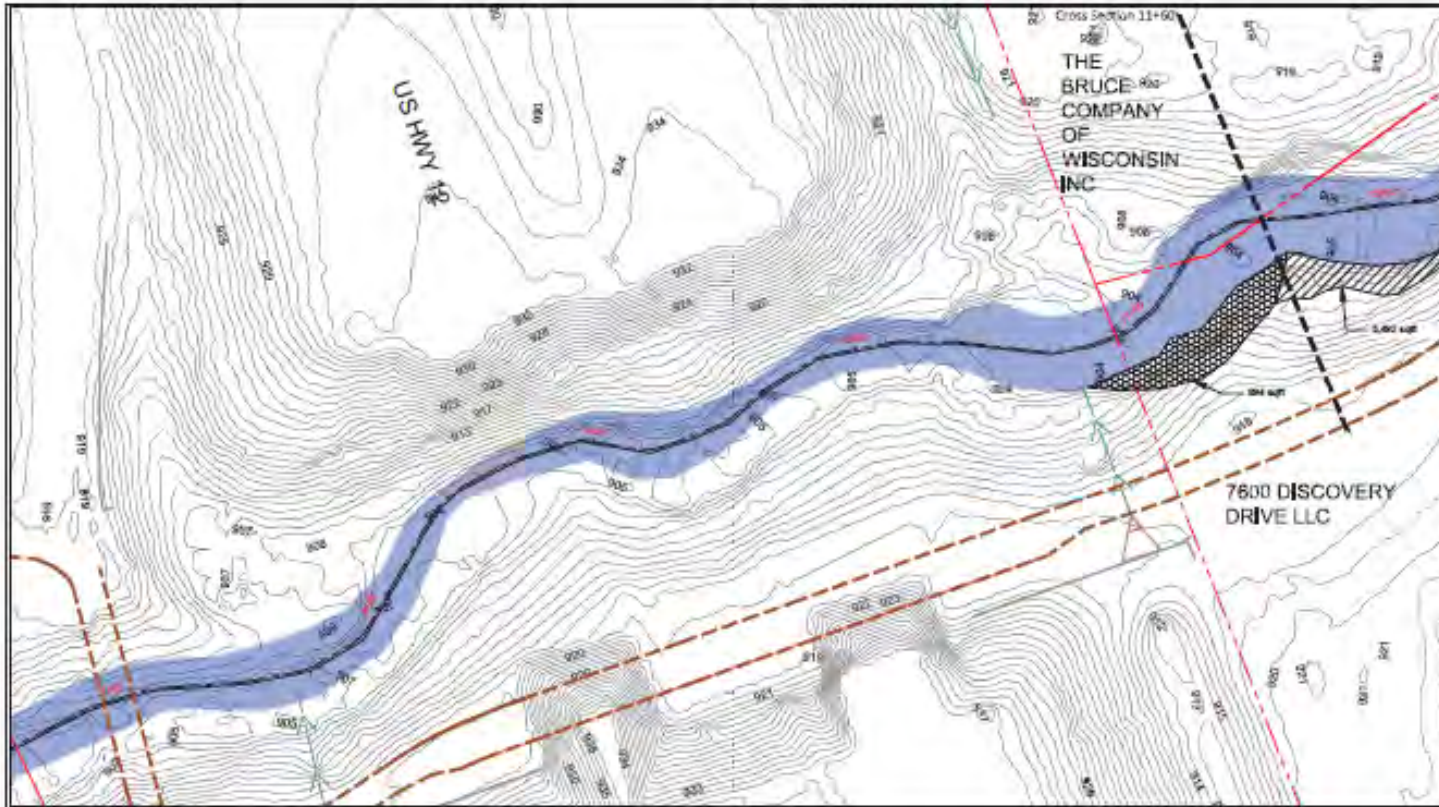
PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
MAINSTEM POND TO PARAMENTER
DANE COUNTY, WISCONSIN

DATE	BY	REVISION

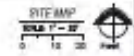
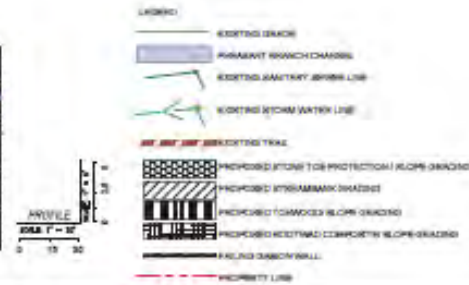
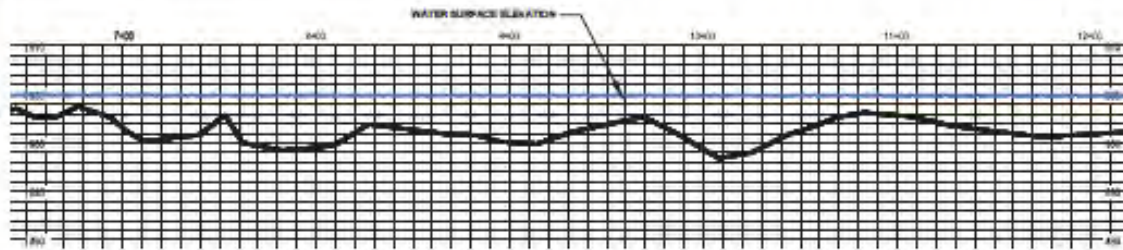
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DESIGNER	J. L. HARRIS
CHECKED	J. L. HARRIS
IN CHARGE	J. L. HARRIS
PROJECT	121000-101000
PROJECT NO.	121000-101000
PROJECT NAME	121000-101000
PROJECT LOCATION	121000-101000
PROJECT SCALE	121000-101000
PROJECT STATUS	121000-101000
PROJECT COMMENTS	121000-101000

2





Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Stream Turb	RS	20+00	12+00	AC
			Subtotal	80

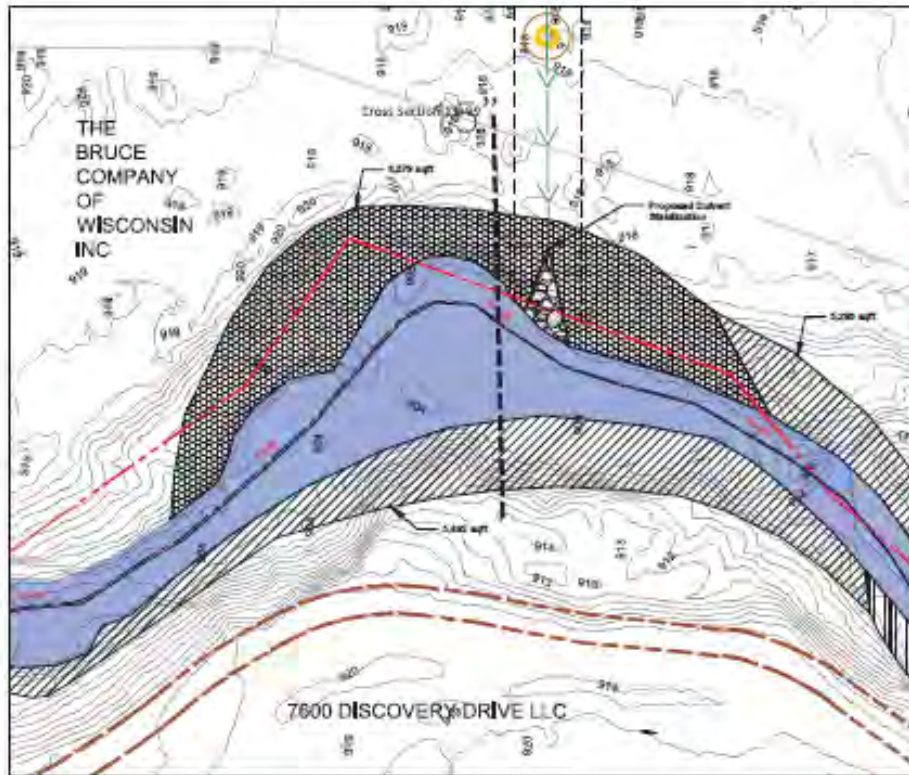


FINAL DESIGN

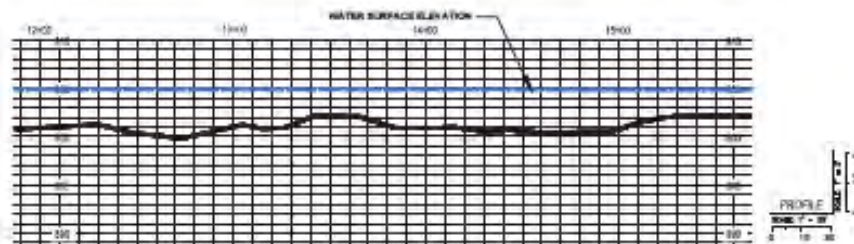
PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
6+50 TO 12+00
DANE COUNTY, WISCONSIN

DATE	REVISION
1/2/21	1

6



Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Stone Toe	LB	12+60	15+00	240
			Subtotal	240



- Notes:
1. CITY WORKS LIMITED TO DRAIN ELEVATION AND WIDTH. (ASBEST WINGS APPLICABLE)

- LEGEND:
- PROPOSED DRAIN
 - PHILASANT BRANCH CHANNEL
 - WORKING SAFETY BARRIER LINE
 - EXISTING STREAM/WORK LINE
 - PROPOSED STONE TOE PROTECTION (STONE/GRASS)
 - PROPOSED STREAMBANK EROSION
 - PROPOSED CHANNEL BEDROCK EROSION
 - PROPOSED ROCK/STONE COMPOSITE BLOWN/SHEDS
 - EXISTING DRAINAGE
 - PROPERTY LINE
 - EROSION LINE

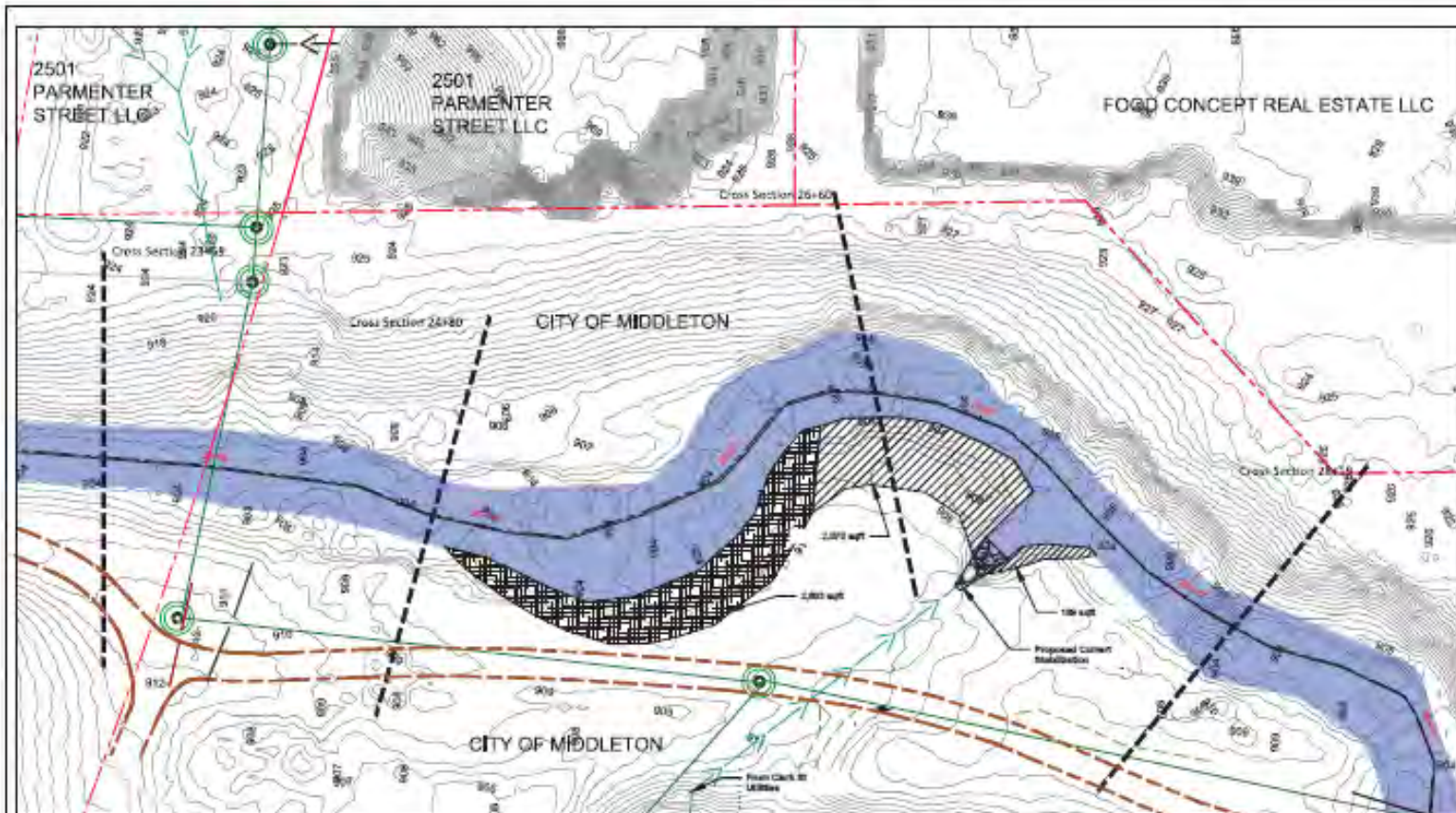


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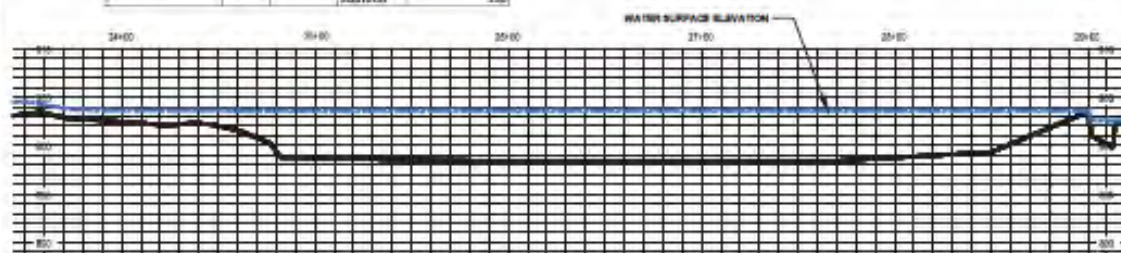
PHILASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
12+00 TO 15+50
DANE COUNTY, WISCONSIN

DATE	REV	DESCRIPTION

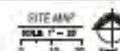
10+00 TO 15+50
7



Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Roofed Composite	RB	24+90	25+40	150
			Subtotal	150



- LEGEND
- EXISTING GRADE
 - PHEASANT BRANCH CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - 20% 200% 200% EXISTING TRAIL
 - PROPOSED STONE TIE PROTECTION SLOPE GRADING
 - PROPOSED STREAMBANK GRADING
 - PROPOSED TERRACED SLOPE GRADING
 - PROPOSED SCOTCHBROOM/SPRUCE SLOPE GRADING
 - EXISTING GRASS WALL
 - PROPERTY LINE

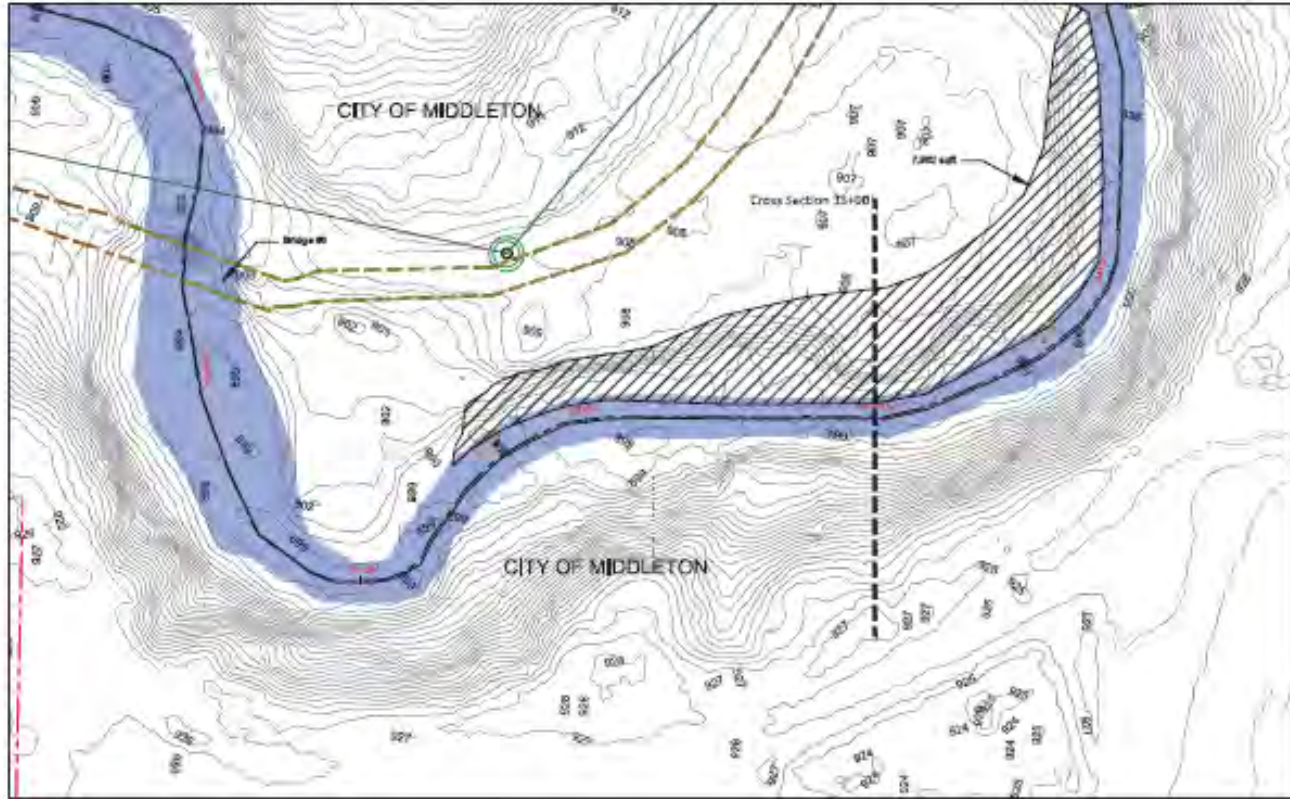


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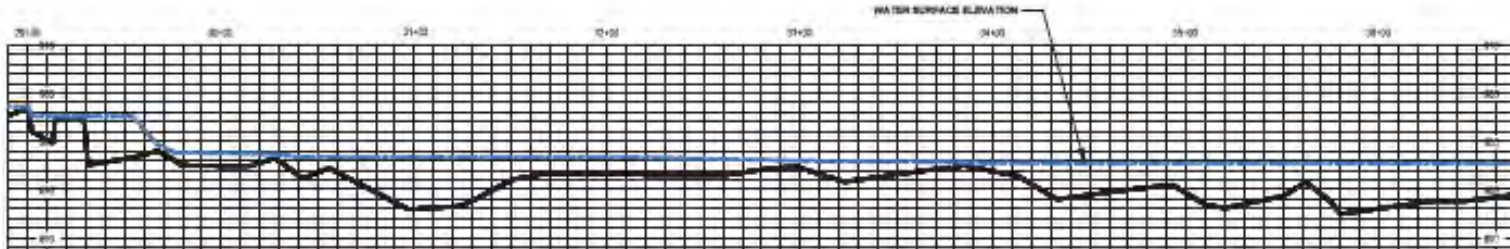
PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
23+50 TO 29+00
DANE COUNTY, WISCONSIN

23+50 TO 24+00

9



- LEGEND
- EXISTING GRADE
 - PROPOSED STREAM CHANNEL
 - EXISTING SANITARY SEWER LINE
 - EXISTING STORM WATER LINE
 - EXISTING TRAIL
 - PROPOSED EROSION PROTECTION / SLOPE DRAPING
 - PROPOSED STREAMBANK DRAPING
 - PROPOSED TYPED SLOPE DRAPING
 - PROPOSED FOOTBRIDGE / CORROSION SLOPE DRAPING
 - FALLING DARTON WALL
 - PROPERTY LINE

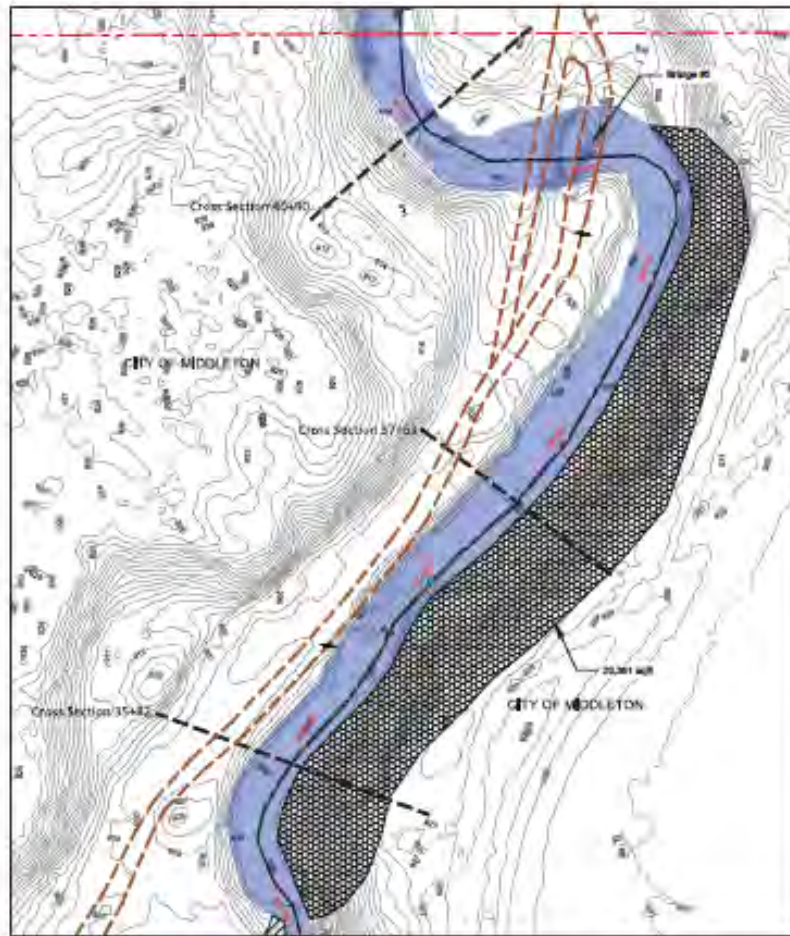


SITE MAP
SCALE 1" = 30'

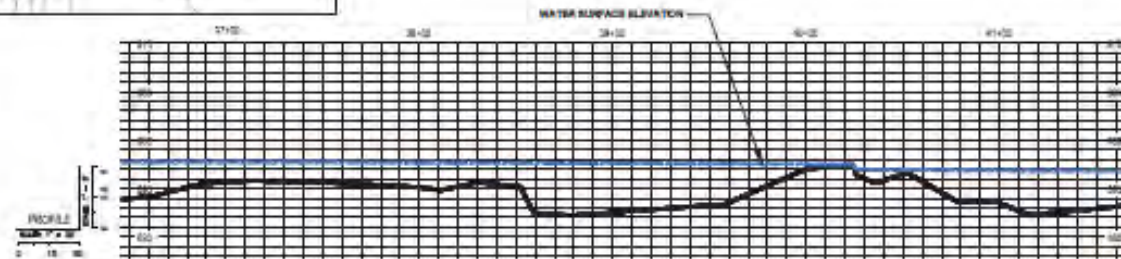
FINAL DESIGN

PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
29+00 TO 36+50
DANE COUNTY, WISCONSIN

10



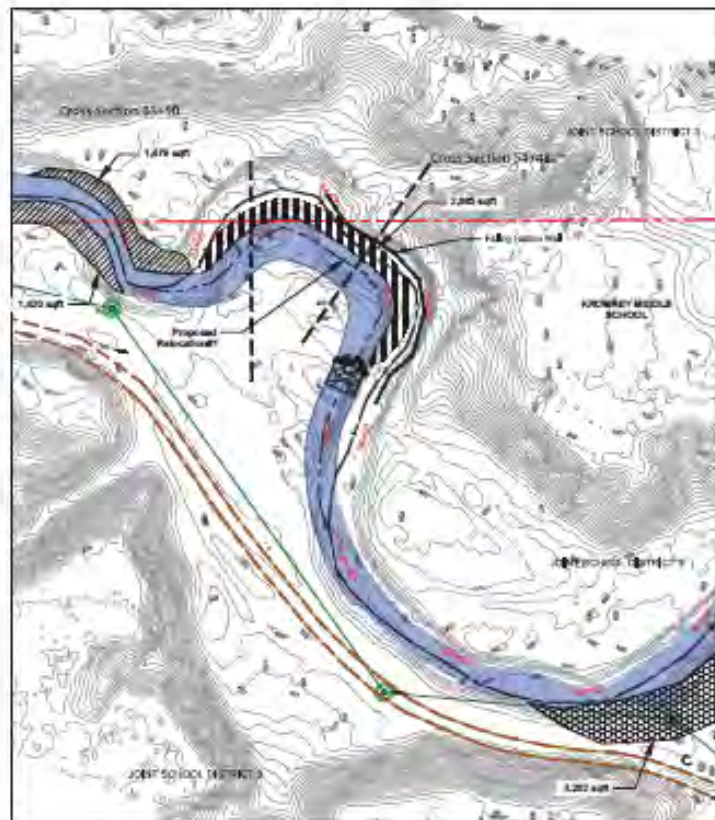
Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Stone Toe	RB	34+90	39+50	460
			Subtotal	460



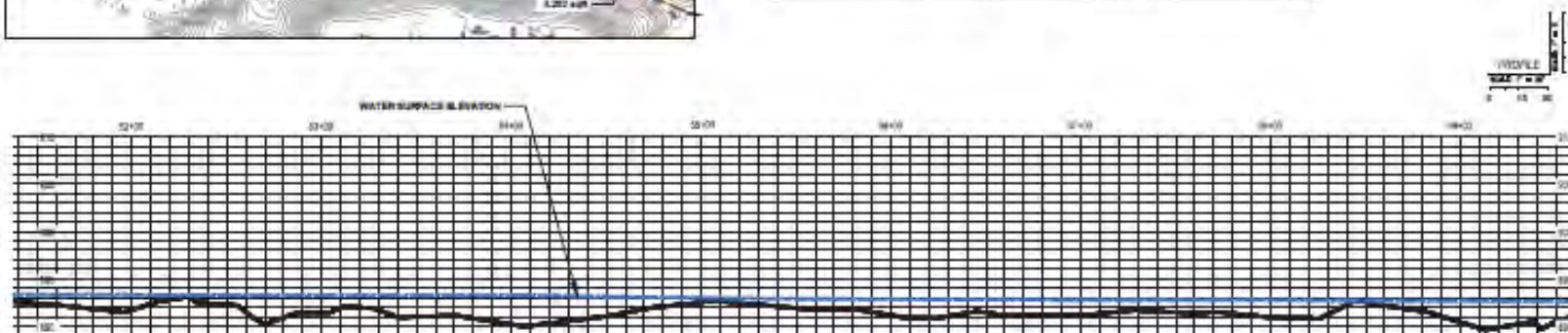
PHEASANT BRANCH STREAMBANK STABILIZATION
 MAINSTEM POND TO CENTURY AVENUE
 36+50 TO 41+50
 DANE COUNTY, WISCONSIN

NO.	DATE	DESCRIPTION
1	08/11/2021	FINAL DESIGN





Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Toewood	LB	0+40a	2+50a	210
Boulder Cluster	NA	2+45a	2+70a	25
		Subtotal		235



FINAL DESIGN

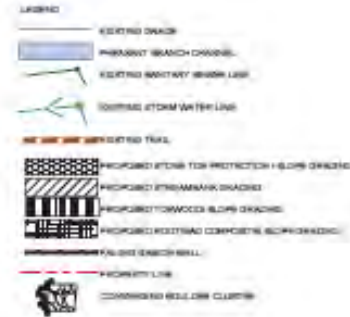
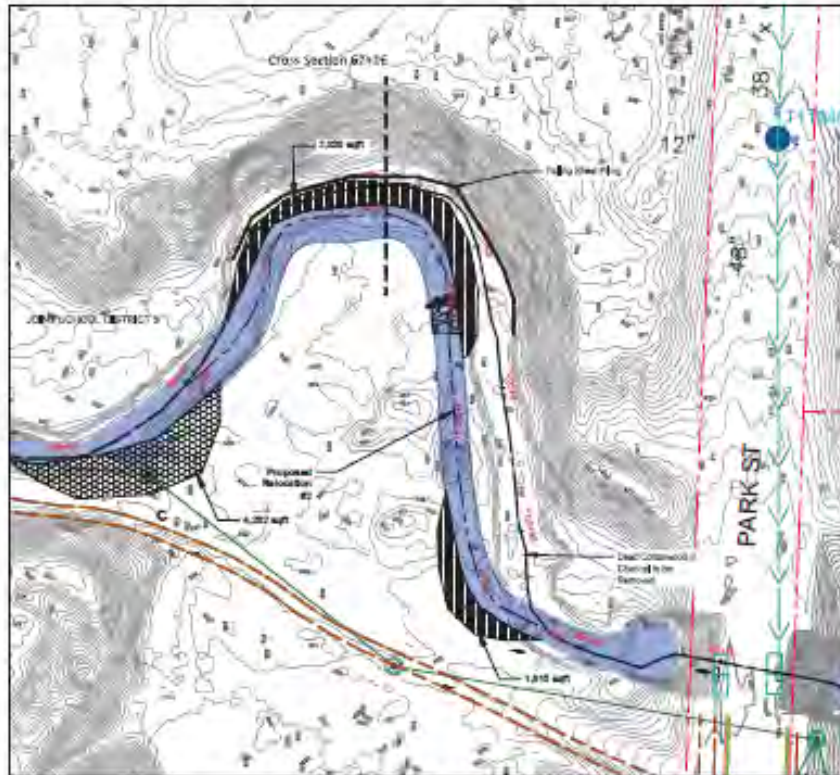
DATE	10/1/2011
BY	W. J. HARRIS
CHECKED BY	W. J. HARRIS
APPROVED BY	W. J. HARRIS

51+50 TO 54+50

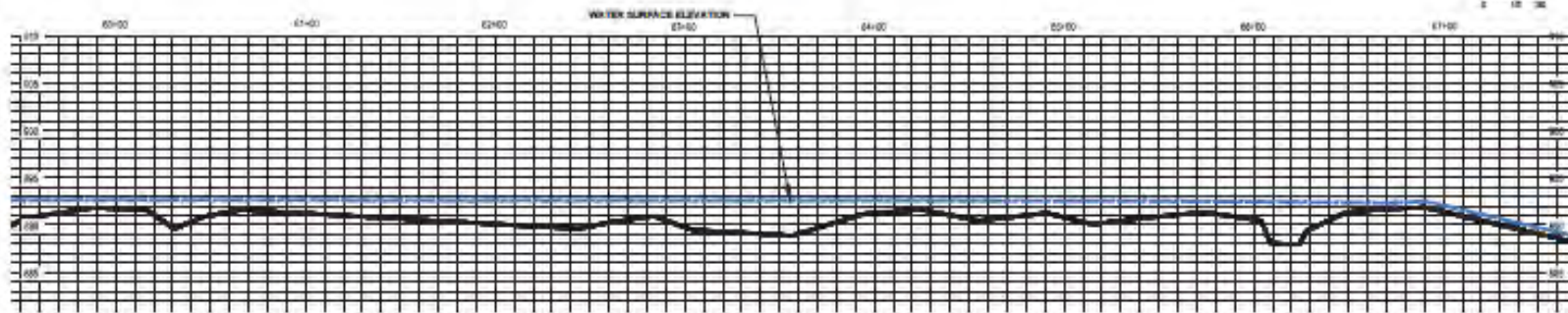
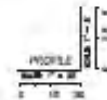
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PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
51+50 TO 59+50
DANE COUNTY, WISCONSIN





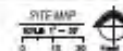
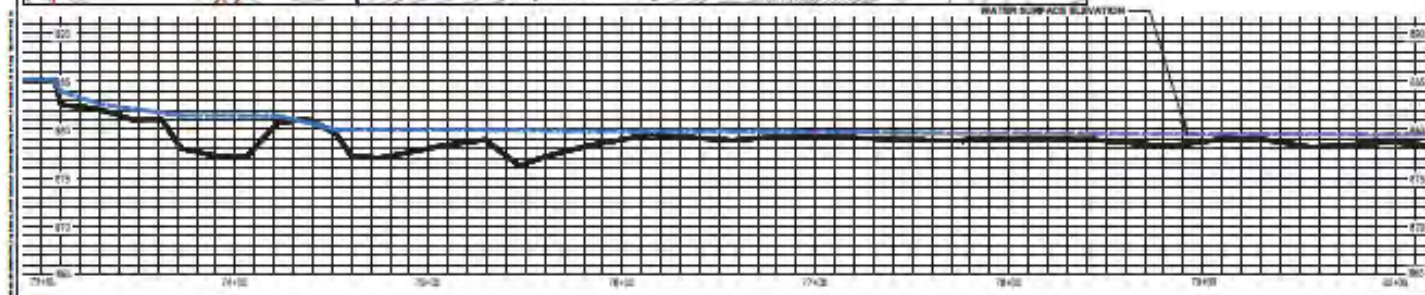
Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Streambank	LB	0+40b	3+50b	250
Streambank	NA	3+00b	3+25b	25
Streambank	RB	4+50b	5+30b	80
Subtotal				355



PHEASANT BRANCH STREAMBANK STABILIZATION
MAINSTEM POND TO CENTURY AVENUE
59+50 TO 67+50
DANE COUNTY, WISCONSIN

15

15



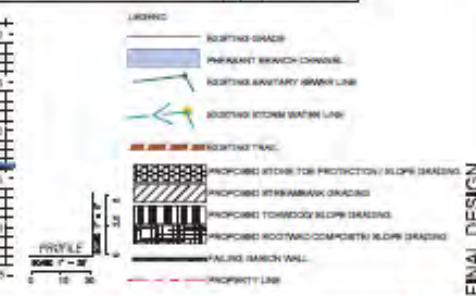
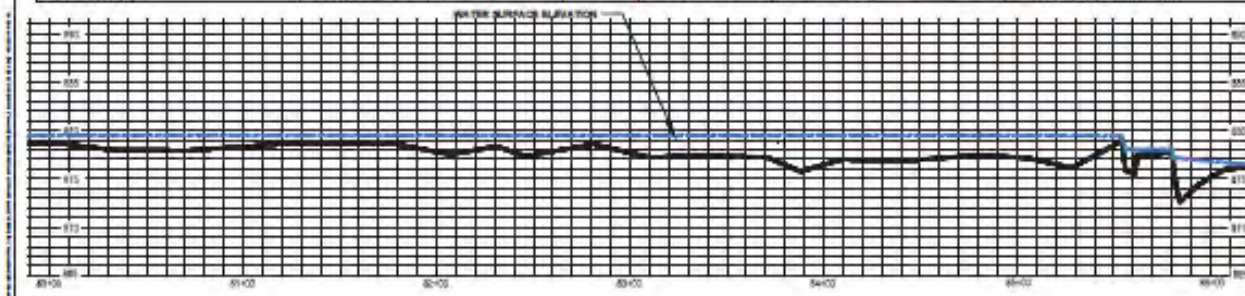
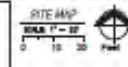
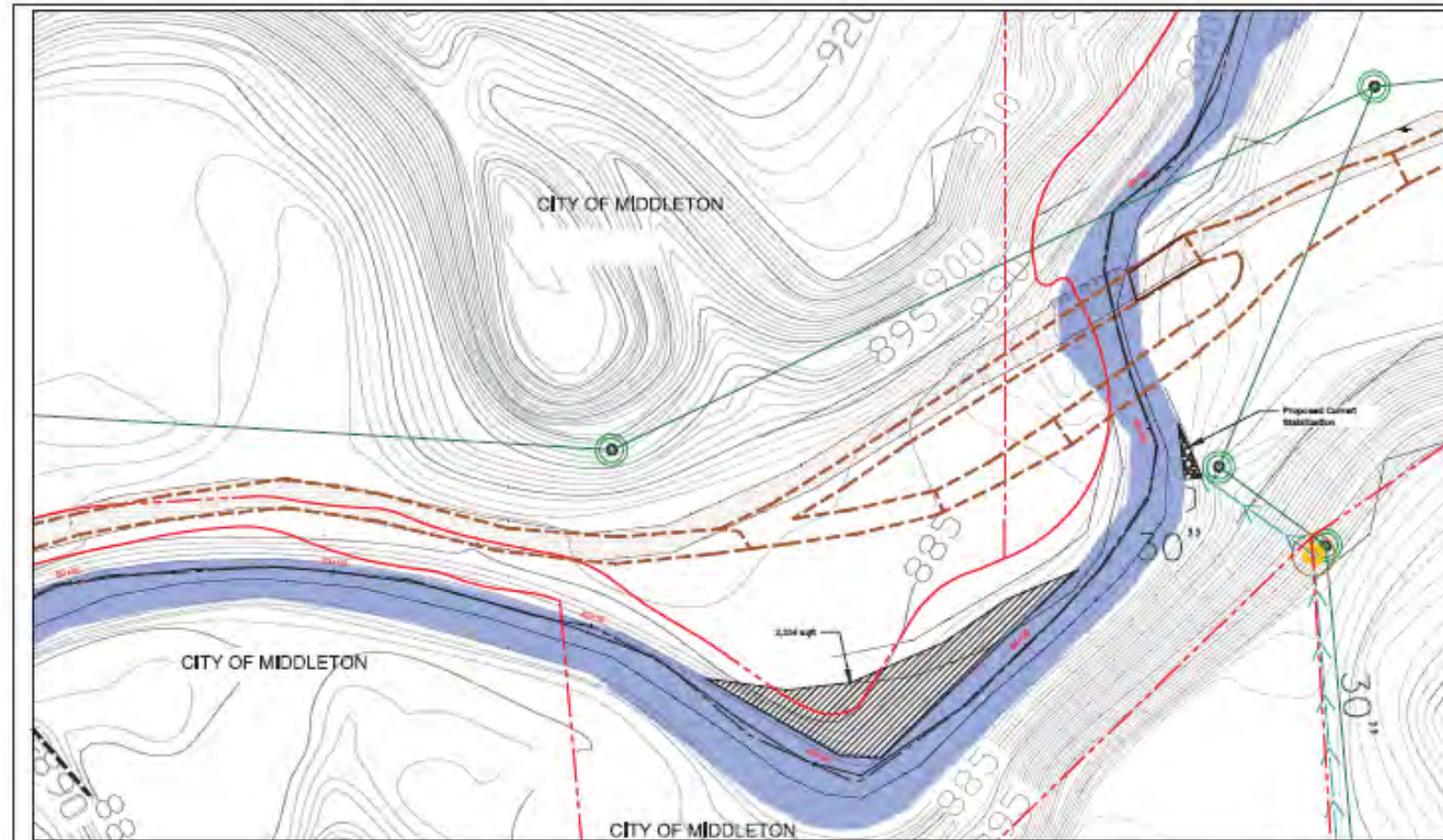
PIEASANT BRANCH STREAMBANK STABILIZATION
MINNISTEM POND TO CENTURY AVENUE
73+00 TO 80+00
DAKE COUNTY, WISCONSIN

Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Stone Toe	RB	74+90	76+40	150
Toewood	RB	77+20	79+00	180
			Subtotal	330

[illegible]

FINAL DESIGN

7C-000



FINAL DESIGN

PHEASANT BRANCH STREAMBANK STABILIZATION

MAINSTEM POND TO CENTURY AVENUE

80+00 TO 86+00

DANE COUNTY, WISCONSIN

NO.	DATE	DESCRIPTION
1	08/11/2011	ISSUED FOR PERMIT
2	08/11/2011	ISSUED FOR PERMIT
3	08/11/2011	ISSUED FOR PERMIT
4	08/11/2011	ISSUED FOR PERMIT
5	08/11/2011	ISSUED FOR PERMIT
6	08/11/2011	ISSUED FOR PERMIT
7	08/11/2011	ISSUED FOR PERMIT
8	08/11/2011	ISSUED FOR PERMIT
9	08/11/2011	ISSUED FOR PERMIT
10	08/11/2011	ISSUED FOR PERMIT
11	08/11/2011	ISSUED FOR PERMIT
12	08/11/2011	ISSUED FOR PERMIT
13	08/11/2011	ISSUED FOR PERMIT
14	08/11/2011	ISSUED FOR PERMIT
15	08/11/2011	ISSUED FOR PERMIT
16	08/11/2011	ISSUED FOR PERMIT
17	08/11/2011	ISSUED FOR PERMIT
18	08/11/2011	ISSUED FOR PERMIT

DATE: 08/11/2011

TIME: 10:00 AM

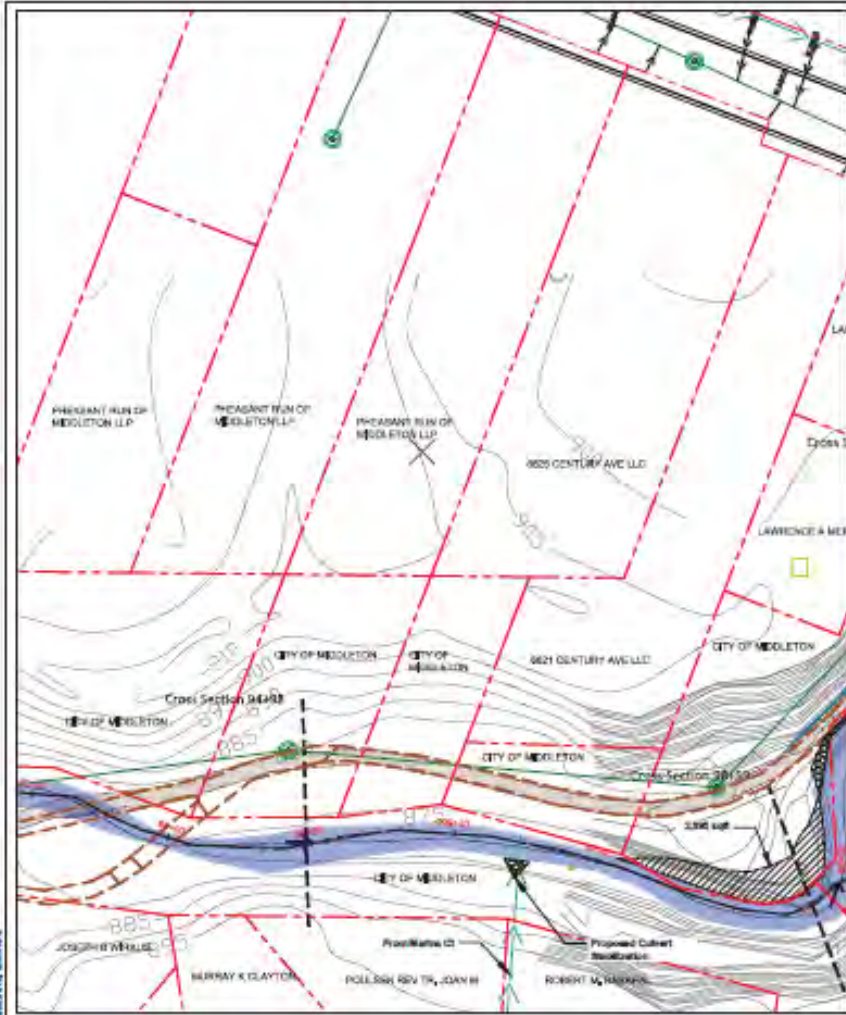
PROJECT: PHEASANT BRANCH STREAMBANK STABILIZATION

LOCATION: MAINSTEM POND TO CENTURY AVENUE

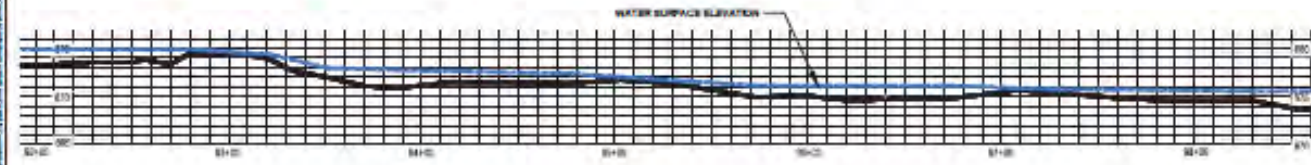
STATIONING: 80+00 TO 86+00

SCALE: 1" = 10'

18



- LEGEND
- EXISTING GRADE
 - PROPOSED GRADE
 - PROPOSED BRANCH CHANNEL
 - PROPOSED INSTANTANEOUS FLOOD LINE
 - EXISTING FLOODWAY LINE
 - PROPOSED FLOODWAY LINE
 - PROPOSED ROCK RIPRAP / SLOPE STABILIZATION
 - PROPOSED STEEP SLOPE STABILIZATION
 - PROPOSED TOPOGRAPHIC SLOPE STABILIZATION
 - PROPOSED ROCKWALL / COMPOSITE SLOPE STABILIZATION
 - PROPOSED FULL HEIGHT RETAINING WALL
 - PROPERTY LINE



FINAL DESIGN

ENGINEERING
CONSULTING
ARCHITECTURE
INTERIOR DESIGN

PHEASANT BRANCH STREAMBANK STABILIZATION

MAINSTEM POND TO CENTURY AVENUE

92+50 TO 98+50

DANE COUNTY, WISCONSIN

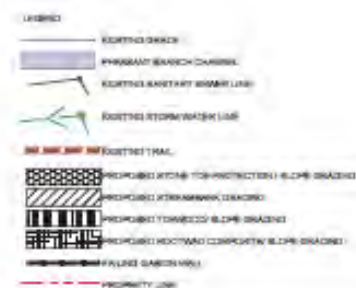
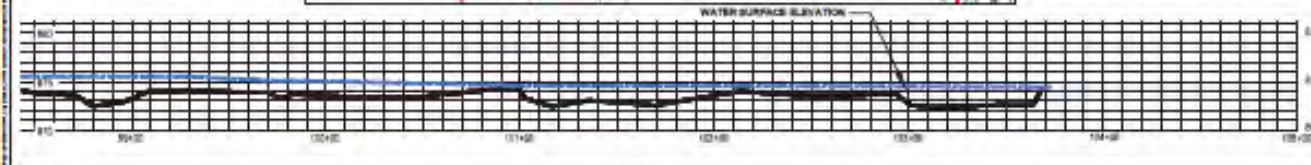
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20+50 TO 98+50

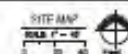
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20+50 TO 98+50

20



Structure Table				
Structure	Bank	Start STA	End STA	Treatment Length
Stone Toe	LB	99+50	100+50	10
Stone Toe	RB	100+25	100+00	25
			Subtotal	35



BEFORE THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Application of the United States Department of the Army,)
Corps of Engineers, for Water Quality Certification for the)
Final Regulations Pertaining to the Issuance, Reissuance,)
and Modification of Nationwide Permits)

On January 6, 2017, the United States Department of the Army, Corps of Engineers (COE), published its final notice regarding the Issuance of Nationwide Permits (NWP) in the Federal Register (agency docket number COE-2015-0017). The publication includes new, existing, and modified NWP. Publication of these NWP serves as the Corps' application to the State for water quality certification (WQC) under Section 401 of the Federal Clean Water Act (CWA).

The Wisconsin Department of Natural Resources (WDNR) has examined the final regulations pursuant to Section 401, CWA, and Chapter NR 299, Wisconsin Administrative Code (Wis. Adm. Code).

The WDNR has determined the following conditions for the NWP are required to ensure compliance with state water quality standards enumerated in 299.04, Wis. Adm. Code. The certification contained herein shall expire on March 19, 2022.

Section 401 Certification does not release the permittee from obtaining all other necessary federal, state, and local permits, licenses, certificates, approvals, registrations, charters, or similar forms of permission required by law. It does not limit any other state permit, license, certificate, approval, registration, charter, or similar form of permission required by law that imposes more restrictive requirements. It does not eliminate, waive, or vary the permittee's obligation to comply with all other laws and state statutes and rules throughout the construction, installation, and operation of the project. This Certification does not release the permittee from any liability, penalty, or duty imposed by Wisconsin or federal statutes, regulations, rules, or local ordinances, and it does not convey a property right or an exclusive privilege.

This Certification does not replace or satisfy any environmental review requirements, including those under the Wisconsin Environmental Policy Act (WEPA) or the National Environmental Policy Act (NEPA).

Note: The specific language in the NWP is not included in this document. Copies of complete nationwide permits published in the Federal Register on January 6, 2017, may be obtained from your local COE field office.

STATE CONDITIONS AND LIMITATIONS OF CERTIFICATION

GENERAL CONDITIONS:

1. The permittee shall allow the WDNR reasonable entry and access to the discharge site to inspect the discharge for compliance with the certification and applicable laws.

2. If any of these §401 water quality certification conditions are found invalid or unenforceable, the water quality certification is denied for all activities to which that condition applies.

3. Water quality certification is denied without prejudice for activities involving the temporary stockpiling of dredged or fill material in waters of the state, including wetlands.

4. No discharges of dredged or fill material below the ordinary high water mark of a navigable stream as defined by s. 310.03(5), Wis. Adm. Code, may take place during fish spawning periods or times when nursery areas would be adversely impacted. These periods are:

- September 15th through May 15th for all trout streams and upstream to the first dam or barrier on the Root River (Racine County), the Kewaunee River (Kewaunee County), and Strawberry Creek (Door County). To determine if a waterway is a trout stream, you may use the WDNR website trout maps at <http://dnr.wi.gov/topic/fishing/trout/streammaps.html>.
- March 1st through June 15th for ALL OTHER waters.

5. Unless specifically exempt from state statute and federal Pre-Construction Notification (PCN) requirements, Applicants seeking authorization under these NWP's shall complete the Joint State/Federal Permit Application on the department e-permitting site at <http://dnr.wi.gov/Permits/Water/>.

Nationwide Permits Granted Water Quality Certification:

- NWP 3 - Maintenance
- NWP 4 - Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
- NWP 5 - Scientific Measurement Devices
- NWP 6 - Survey Activities
- NWP 13 - Bank Stabilization
- NWP 15 - U.S. Coast Guard Approved Bridges
- NWP 16 - Return Water From Upland Contained Disposal Areas
- NWP 18 - Minor Discharges
- NWP 20 - Response Operations for Oil or Hazardous Substances
- NWP 22 - Removal of Vessels
- NWP 25 - Structural Discharges
- NWP 27 - Aquatic Habitat Restoration, Enhancement, and Establishment Activities
- NWP 28 - Modifications of Existing Marinas
- NWP 30 - Moist Soil Management for Wildlife
- NWP 31 - Maintenance of Existing Flood Control Facilities
- NWP 35 - Maintenance Dredging of Existing Basins
- NWP 36 - Boat Ramps
- NWP 37 - Emergency Watershed Protection and Rehabilitation
- NWP 38 - Cleanup of Hazardous and Toxic Waste
- NWP 45 - Repair of Uplands Damaged by Discrete Events
- NWP 53 - Removal of Low-Head Dams
- NWP 54 - Living Shorelines

Nationwide Permits for which Water Quality Certification is Partially Denied

WQC is certified or denied without prejudice as indicated below for the activities authorized by the following NWP. Certified activities are subject to WQC conditions 1-5 above. If activities are denied without prejudice, the applicant must apply to the WDNR for an individual 401 WQC.

- NWP 7 - Outfall Structures and Associated Intake Structures
 - o WQC denied: Where the effluent from the outfall is not regulated under the WPDES permit program. WPDES permit information is available at:
<http://dnr.wi.gov/topic/wastewater/PermitApplications.html>
 - o WQC certified: All other NWP 7 activities.
- NWP 32 - Completed Enforcement Actions
 - o WQC denied: If WDNR is not a party to the agreement or if WDNR has not concurred in writing with the settlement agreement.
 - o WQC certified: All other NWP 32 activities.
- NWP 39 - Commercial and Institutional Developments
 - o WQC denied: Discharges of dredged or fill material for the construction of the following attendant features: yards, recreation facilities, stormwater management facilities or wastewater management facilities.
 - o WQC certified: All other NWP 39 activities.
- NWP 41- Reshaping Existing Drainage Ditches
 - o WQC denied: If any portion of the project will occur in or adjacent to a trout stream or any perennial tributaries to a trout stream. To determine if a waterway is a trout stream, you may use the WDNR website trout maps at
<http://dnr.wi.gov/topic/fishing/trout/streammaps.html>.
 - o WQC certified: All other NWP 41 activities.
- NWP 42 - Recreational Activities
 - o WQC denied: If the project involves the placement of any dredged or fill material into Wisconsin navigable waters as defined ins. NR 310.03(5), Wis. Adm. Code.
 - o WQC certified: All other NWP 42 activities.
- NWP 44 - Mining Activities
 - o WQC denied: If the project involves the placement of any dredged or fill material into Wisconsin navigable waters as defined ins. NR 310.03(5), Wis. Adm. Code.
- NWP 46 - Discharges in Ditches
 - o WQC denied: If the project involves the placement of any dredged or fill material into Wisconsin navigable waters as defined ins. NR 310.03(5), Wis. Adm. Code.
 - o WQC certified: All other NWP 46 activities.
- NWP 51- Land-Based Renewable Energy Generation Facilities
 - o WQC denied: Discharges of dredged or fill material for the construction of the following attendant features: yards, recreation facilities, stormwater management facilities or wastewater management facilities.
 - o WQC certified: All other NWP 51 activities.

Water Quality Certification Is Also Denied for the Nationwide Permits Revoked by the Corps of Engineers in Wisconsin and Listed Below:

- NWP 8 - Oils and Gas Structures on the Outer Continental Shelf
- NWP 12 - Utility Line Activities
- NWP 14 - Linear Transportation Projects
- NWP 15 - U.S. Coast Guard Approved Bridges
- NWP 21- Surface Coal Mining Activities
- NWP 23 -Approved Categorical Exclusions
- NWP 24 - Indian Tribe or State Administered Section 404 Programs
- NWP 34 - Cranberry Production Activities
- NWP 49 - Coal Re-mining Activities
- NWP 50 - Underground Coal Mining Activities

Nationwide Permits Denied Water Quality Certification Without Prejudice At This Time:

The following NWP categories are denied Water Quality Certification (WQC) in their entirety and require an individual Section 401 WQC for all activities under these NWPs. In instances where a state has denied the 401 WQC for discharges under a particular NWP, permittees must furnish the District Engineer for the COE with an individual 401 WQC.

Each category was reviewed and it was determined that: potential water quality and beneficial use impacts would be beyond that considered minimal; the activity was not likely to occur in Wisconsin; the NWP doesn't align with state general permit standards required by statute (NWP 29, 40, 43); inadequate data was available for WDNR to fully evaluate potential water quality and beneficial use impacts; or the category was empty (Reserved).

- NWP 17 - Hydropower Projects
- NWP 19 - Minor Dredging
- NWP 26 - Reserved
- NWP 29 - Residential Developments
- NWP 33 - Temporary Construction, Access and Dewatering
- NWP 40 - Agricultural Activities
- NWP 43 - Stormwater Management Facilities
- NWP 47 - Reserved
- NWP 48 - Existing Commercial Shellfish Aquaculture Activities
- NWP 52 - Water-Based Renewable Energy Generation Pilot Projects

Note: State water quality certification is not required for the following Section 10 only NWPs: 1-Aids to Navigation, 2 - Structures in Artificial Canals, 9 - Structures in Fleeting and Anchorage Areas, 10 - Mooring Buoys, 11- Temporary Recreational Structures, 28 - Modifications of Existing Marinas, 35 - Maintenance Dredging of Existing Basins.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin Statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

To request a contested case hearing pursuant to section 227.42, Wisconsin Statutes, you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources.

This determination becomes final in accordance with the provisions of s. NR 299.05(7), Wisconsin Administrative Code, and is judicially reviewable when final. For judicial review of a decision pursuant to Sections 227.52 and 227.53, Wisconsin Statutes, you have 30 days after the decision becomes final to file your petition with the appropriate circuit court and to serve the petition on the Secretary of the Department of Natural Resources. The petition must name the Department of Natural Resources as the respondent.

Reasonable accommodation, including the provision of informational material in an alternative format, will be provided for qualified individuals with disabilities upon request.

This notice is provided pursuant to section 227.48(2), Wisconsin Statutes.

Dated at Madison, Wisconsin

June 1, 2017

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By



Cathy Stepp, Secretary



US Army Corps of Engineers®

St. Paul District

COMPLIANCE CERTIFICATION

Regulatory File Number: MVP-2021-00848-SJW
Name of Permittee: Mark Wegner – City of Middleton
County/State: Dane County, Wisconsin
Date of Issuance: June 21, 2021

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the Corps contact identified in your verification letter within 30 days.

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

By signing below, the permittee is certifying that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the permit, and any required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
3911 Fish Hatchery Rd
Fitchburg, WI, 53711

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711



06/23/2021

Mark Wegner
7426 Hubbard Ave.
Middleton, WI 53562
[sent electronically]

IP-SC-2021-13-01703-04

RE: Application to Changing stream course and bank stabilization in the City of MIDDLETON, Dane County

Dear Mr. Wegner:

The Department of Natural Resources has completed its review of your application for a permit to realign a section of stream channel and stabilize banks of Pheasant Branch located in the SE 1/4, SW 1/4, Section 02, Township 07, Range 08E, City of MIDDLETON, Dane County. You will be pleased to know your application is approved.

I am attaching a copy of your permit, which lists the many important conditions that must be followed to protect water quality and habitat. A copy of the permit must be posted for reference at the project site. Please read your permit conditions carefully so that you are fully aware of what is expected of you.

Please note you are required to submit photographs of the completed project within 7 days after you've finished construction. This helps both of us to document the completion of the project and compliance with the permit conditions.

Your next step will be to notify me of the date on which you plan to start construction and again after your project is complete.

If you have any questions about your permit, please call me at (608) 228-8107 or email Jeff.Schure@wisconsin.gov.

Sincerely,

Jeff J Schure

Jeff Schure
Water Management Specialist

Email CC:
U.S. Army Corps of Engineers
County Zoning Administrator
DNR Conservation Warden
Aaron Steber, Cardno

**STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**CHANNEL CHANGES/Stabilization PERMIT
IP-SC-2021-13-01703-04**

Application of Mark Wegner is hereby granted under Sections Ch 30.195(1) and Ch 30.208, Wisconsin Statutes, to change the channel and stabilize banks on Pheasant Branch located in the SE 1/4, SW 1/4, Section 02, Township 07, Range 08E, City of MIDDLETON, Dane County, subject to the following conditions:

PERMIT

1. You must notify Jeff Schure at phone (608) 228-8107 or email Jeff.Schure@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.
2. You must complete the project as described **on or before June 23, 2026**. If you will not complete the project by this date, you must submit a written request for an extension prior to expiration of the initial time limit specified in the permit. Your request must identify the requested extension date. The Department shall extend the time limit for an individual permit or contract for no longer than an additional 5 years if you request the extension before the initial time limit expires. You may not begin or continue construction after the original permit expiration date unless the Department extends the permit in writing or grants a new permit.
3. This permit does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of this permit. If you wish to alter the project or permit conditions, you must first obtain written approval of the Department.
4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.
5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.
6. The Department may modify or revoke this permit for good cause, including if the project is not completed according to the terms of the permit or if the Department determines the activity is detrimental to the public interest.
7. **You must post a copy of this permit at a conspicuous location on the project site, visible from the waterway**, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of the permit and approved plan available at the project site at all times until the project is complete.
8. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understood, and agreed to follow all conditions of this permit.
9. **You must submit a series of photographs to the Department, within one week of completing work on the site**. The photographs must be taken from different vantage points and depict all work authorized by this permit.
10. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.
11. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Adm. Code. The technical standards are found at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.
12. All equipment used for the project including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.

The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.

1. **Inspect and remove** aquatic plants, animals, and mud from your equipment.
2. **Drain all water** from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps.
3. **Dispose** of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals, or water from one waterbody to another.
4. **Wash your equipment** with hot (>140° F) and/or high-pressure water,
- OR -
Allow your equipment to **dry thoroughly for 5 days.**

FINDINGS OF FACT

1. Mark Wegner, 7426 Hubbard Ave., Middleton, WI 53562, filed an application with this Department on 04/28/2021, under sections Ch 30.195(1) and 30.208, Wisconsin Statutes, to change the channel and add stream stabilization practices on Pheasant Branch located in the SE 1/4, SW 1/4, Sec. 02, T. 07, R. 08E, City of MIDDLETON, Dane County.
2. Stream banks along Pheasant Branch Creek in the City of Middleton, Dane County, WI suffered extensive damage during the August 2018 historic flood event as well as during various 2019 flood events. Cardno performed a flood damage assessment identifying areas of high erosion risk and sediment loss along the banks of the waterway. Proposed bank stabilization, reshaping the banks and realignment of the channel in sections of stream will dissipate energy and increase flood-flow capacity.
3. The Department has completed an investigation of the project site and has evaluated the project as described in the application and plans.
4. Pheasant Branch is a navigable water and no bulkhead exists at the project site.
5. The proposed project, if constructed in accordance with this permit will not adversely affect water quality, will not increase water pollution in surface waters and will not cause environmental pollution as defined in s. 283.01(6m), Wis. Stats.
6. The proposed project will not impact wetlands if constructed in accordance with this permit.
7. The Department of Natural Resources has determined that the agency's review of the proposed project constitutes an equivalent analysis action under s. NR 150.20(2), Wis. Adm. Code. The Department has considered the impacts on the human environment, alternatives to the proposed projects and has provided opportunities for public disclosure and comment. The Department has completed all procedural requirements of s. 1.11(2)(c), Wis. Stats., and NR 150, Wis. Adm. Code for this project.
8. The Department of Natural Resources has completed all procedural requirements and the project as permitted will comply with all applicable requirements of Sections 30.195(1), 30.12 and 30.208, Wisconsin Statutes and Chapters NR 102, 103, of the Wisconsin Administrative Code.

The applicant was responsible for fulfilling the procedural requirements for publication of notices under s. 30.208(5)(c)1m., Stats., and was responsible for publication of the notice of pending application under s.30.208(3)(a), Stats. or the notice of public informational hearing under s.30.208(3)(c), Stats., or both. S. 30.208(3)(e), Stats., provides that if no public hearing is held, the Department must issue its decision within 30 days of the 30-day public comment period, and if a public hearing is held, the Department must issue its decision within 20 days after the 10-day period for public comment after the public hearing. S. 30.208(5)(bm), Stats., requires the Department to consider the date on which the department publishes a notice on its web site as the date of notice.
10. The activity will not cause environmental pollution as defined in s. 299.01(4).

11. The newly relocated stream channel is considered navigable and public as a result of this authorization and project. The newly relocated stream channel is considered navigable for local zoning purposes and local permits/approvals are required for work proposed within the shoreland zone of this waterway.

12. No material injury will result to the riparian rights of any riparian owners of real property that abuts any water body that is affected by the activity.

CONCLUSIONS OF LAW

1. The Department has authority under the above indicated Statutes and Administrative Codes, to issue a permit for the construction and maintenance of this project.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions shall be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing of any individual permit decision pursuant to section 30.209, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources, P.O. Box 7921, Madison, WI, 53707-7921. The petition shall be in writing, shall be dated and signed by the petitioner, and shall include as an attachment a copy of the decision for which administrative review is sought. If you are not the applicant, you must simultaneously provide a copy of the petition to the applicant. If you wish to request a stay of the project, you must provide information, as outlined below, to show that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment. If you are not the permit applicant, you must provide a copy of the petition to the permit applicant at the same time that you serve the petition on the Department.

The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

A request for contested case hearing must meet the requirements of section 30.209, Wis. Stats., and sections NR 2.03, 2.05, and 310.18, Wis. Admin. Code, and if the petitioner is not the applicant the petition must include the following information:

1. A description of the objection that is sufficiently specific to allow the department to determine which provisions of this section may be violated if the proposed permit or contract is allowed to proceed.
2. A description of the facts supporting the petition that is sufficiently specific to determine how the petitioner believes the project, as proposed, may result in a violation of Chapter 30, Wis. Stats.
3. A commitment by the petitioner to appear at the administrative hearing and present information supporting the petitioner's objection.

If the petition contains a request for a stay of the project, the petition must also include information showing that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment.

Dated at the South Central Region Headquarters, Wisconsin on 06/23/2021.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By: *Jeff J Schure*

Jeff Schure

Water Management Specialist