APPENDIX H. ENVIRONMENTAL REVIEW DOCUMENTS

- List of Potential Permits Required for Bridge Construction / Modification
- Initial Environmental Review
- NGPC and USFWS – Draft Environmental Review Report
- Iowa DNR Environmental Review Coordination Emails
- LWCF 6(f) Boundary Map
- Historic Evaluation Coordination Letters
- Wetland Delineation Report
- Wellhead Protection Areas Map
- Hazardous Materials Memorandum
- FEMA Flood Insurance Rate Maps
- Environmental Justice - EJSCREEN Summary Report

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Bellevue Bridge Alternatives Study

List of Potential Permits and Other Applicable Regulations

Potential Permits & Clearances Needed

- Clean Water Act **Section 404 Permit** *(U.S. Army Corps of Engineers [USACE])*
  - Required for impacts to wetlands and Waters of the U.S.
- Clean Water Act **Section 401 – Individual Water Quality Certification** *(Nebraska Department of Environmental Quality [NDEQ] & Iowa Department of Natural Resources [IDNR])*
  - Required for impacts to waters of the State
- **Sovereign Lands Construction Permit** *(Iowa DNR)*
  - Required for impacts to state-owned lands and waters, including the Missouri River.
- Clean Water Act **Section 408 Permit** *(USACE)*
  - Required for any alterations to or occupancy of a USACE federally authorized civil works project (i.e., levees)
- Rivers and Harbors Act – **Section 9 Permit** *(U.S. Coast Guard)*
  - Required for construction or modification of bridges over navigable waters of the U.S.
- Rivers and Harbors Act – **Section 10 Permit** *(USACE)*
  - Required for structures constructed in the Missouri River that do not span it (cofferdams, falsework bents, test piles, work dikes, etc.)
- **Floodplain Development Permit** *(Local Authority – City of Bellevue and Mills County)*
  - Required for construction within 100-year (Zone A) floodplain
- **Conditional Letter of Map Revision** *(Federal Emergency Management Agency [FEMA])*
  - Required for floodway encroachment
- **National Pollutant Discharge Elimination System** Permit *(NDEQ and IDNR)*
  - Required for construction in Waters of the U.S. for activities that disturb 1 or more acres of land
- **Section 4(f) Evaluation** - U.S. Department of Transportation [DOT] Act *(FHWA)*
  - Required for U.S. DOT Actions (including federally funded projects) that result in a "use" of a publicly-owned recreational resource, including permanent incorporation or temporary occupancy
- **Threatened and Endangered Species** Clearance *(U.S. Fish & Wildlife Service, Nebraska Game & Parks Commission, IDNR)*
  - Pallid sturgeon, lake sturgeon, sturgeon chub, northern long-eared bat, barn owl
- **Section 106** Clearance (Nebraska and Iowa State Historic Preservation Offices)
  - Bellevue Bridge has been determined NOT eligible for listing on the National Register of Historic Places

Other Applicable Regulations

- **Federal Aviation Regulation Part 77** Compliance
  - Project is in the Conical Surface of the Offutt Airforce Base and subject to height restrictions.
- Clean Water Act **303(d) Impaired Waters**
  - *E. coli* and sulfa
- **Section 6(f)** – Land and Water Conservation Fund (LWCF) (*National Park Service*)
  - Haworth Park has received LWCF funds which prevent conversion to anything other than recreational resources.
- **Bald Eagle & Golden Eagle Protection Act** & **Migratory Bird Treaty Act** *(U.S. Fish & Wildlife Service)*
  - Bald eagle nesting and roosting habitat; migratory bird nesting habitat
- **Prime & Unique Farmland** – Farmland Protection Policy Act (U.S. Department of Agriculture - Natural Resources Conservation Service [NRCS])
  - Required for federally funded action that irreversibly converts farmland (directly or indirectly).

General Project Information

Project No. MAPA-5002(3)	Control No. 22755	Bridge No.: S370 01918	East Mission Avenue and County Road H10 (former State Hwy 370)
Project Name:	Bellevue Bridge Alternatives Study		
Prepared By:	Kody Unstad – Environmental Scientist, FHU	Date:	3 January 2019
Reviewed By:	Allison Sambol – Senior Environmental Scientist, FHU	Date:	8 January 2019

Project Location:

The Bellevue Bridge spans the Missouri River connecting Olde Towne Bellevue in Sarpy County, Nebraska with Mills County, Iowa. The bridge is located along the former route of State Highway 370, which is now East Mission Avenue in Nebraska and County Road H10 in Iowa.

Project Description:

A study of the Bellevue Bridge is being conducted to determine whether future conditions in the area warrant replacement of the bridge, potential alternatives for reconstruction of the bridge, and the potential impacts of closing the bridge. Since this is a preliminary study, specific work activities have not yet been determined. However, alternatives being considered include:

1) preservation and maintenance of existing bridge;
2) demolition of existing bridge without replacement;
3) construction of new bridge;
4) conversion of existing bridge to a recreational trail facility;
5) upgrading the existing bridge to have separate lanes for vehicles and a pedestrian trail; or
6) expansion of piers on existing bridge to create twin bridges.

Threatened, Endangered, and Protected Species				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
Nebraska Game & Parks Commission (NGPC) / U.S. Fish & Wildlife Service (USFWS) Conservation and Environmental Review Tool (CERT) Review for State & Federally listed Species **Source:** https://cert.outdoornebraska.gov/	☒	☐	☐	A draft CERT was prepared for the project. The CERT indicated that the project may result in impacts on listed species and further consultation with NGPC and USFWS is warranted.
State listed species range in project area? **Source:** http://outdoornebraska.gov/naturalheritageprogram/ https://programs.iowadnr.gov/naturalareasinventory/pages/Query.aspx Iowa DNR Environmental Review – 1 Nov 2018 (No. 16090)	☒	☐	☐	In Nebraska, state-listed species with ranges in the project ESA: lake sturgeon, sturgeon chub, American ginseng, river otter. In Iowa, state-listed species include: barn owl, Henslow's sparrow, plains pocket mouse, southern bog lemming, biscuit root, slender ladies'-tresses, great plains skink, ornate box turtle, western massasauga. However, the Iowa DNR did not find any site-specific records in the project area.
Federal listed species range in project area? **Source:** http://outdoornebraska.gov/naturalheritageprogram/ https://programs.iowadnr.gov/naturalareasinventory/pages/Query.aspx	☒	☐	☐	Pallid sturgeon, western prairie fringed orchid, northern long-eared bat, least tern.
Federal designated critical habitat identified within the project study area? **Source:** http://ecos.fws.gov/crithab/	☐	☒	☐	
Potential for Bald Eagles and/or migratory birds? **Source:** https://www.google.com/earth/	☒	☐	☐	The forested areas in the vicinity of the project are potential nesting and winter roosting habitat for bald eagles. If construction activities will occur during potential nesting or roosting periods for bald eagles, it is recommended that preconstruction surveys be conducted by a qualified biologist. Migratory birds may nest in trees, shrubs or areas of unmaintained vegetation throughout the study area. Swallows may also nest under the project bridge. Raptors may potentially nest in mature trees, including the riparian corridor along the Missouri River and the forested area on the west side of the railroad tracks. If activities will occur during the primary nesting season for migratory birds, including raptors, it is recommended that pre-construction surveys be conducted by a qualified biologist. The primary nesting season is generally considered to be April 1st to July 15th (February 1st to July 15th for raptors).

General Habitat Review **Source:** https://www.google.com/earth/ (Google Earth Imagery)	☒	☐	☐	The Missouri River provides habitat for listed species including the **pallid sturgeon, lake sturgeon, sturgeon chub,** and **river otter**. Wooded areas in the project ESA are potential habitat for the **northern long-eared bat** and **barn owl** (state listed in Iowa). Due to disturbances from agriculture and past bridge/road construction, native vegetation communities are generally lacking in the project area. Therefore, species that rely on these native plant communities are unlikely to be present. These include southern bog lemming, great plains skink, plains pocket mouse, ornate box turtle, Henslow's sparrow, western massasauga, western prairie fringed orchid, biscuitroot, and slender ladies' tresses.
Section 4(f) and 6(f)				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
Does the study area contain, or is it adjacent to a designated park, open space, or trail?	☒	☐	☐	Two City of Bellevue parks are present within the ESA, both located on the Nebraska side of the Missouri River. Haworth Park is located directly south of the project bridge and American Heroes Park is located directly north. A recreational trail circles the lake at American Heroes Park. The Keystone South Trail begins at Haworth Park (outside the ESA) and heads south. This trail is operated by the Papio-Missouri River Natural Resources District (PMRNRD)
Is the study area within an area that utilized Land and Water Conservation (LWCF) Grant funds? **Source:** http://www.nps.gov/lwcf/index.htm http://projects.invw.org/data/lwcf/grants-ne.html	☒	☐	☐	Two areas within the ESA were developed or purchased with Section 6(f) funds. The first area is located on the south side of Mission Avenue and west of Payne Drive. The second area is located on the north side of Mission Avenue west of the Missouri River and east of the American Heroes Park lake. These areas are not permitted for conversion to anything other than public outdoor recreation use without approval of the Secretary of the Department of Interior.
Is the study area in or near a known historic resource? (see next section for further information)	☐	☒	☐	
a. Is it in the proximity of a recreational area (i.e., park, playground, trail, greenbelt, etc.) or wildlife refuge? If Yes, answer the following questions: (1) Is the property used as a recreational area or wildlife refuge? ☒ Yes ☐ No (2) Is the property publicly owned? ☒ Yes ☐ No (3) If a recreational area, is it open to the public? ☒ Yes ☐ No	☒	☐	☐	Both Haworth Park and American Heroes Park are publicly owned (City of Bellevue) and open to the public. The trails on the park properties are also publicly owned and open to the public.

Historic and Archaeological Preservation				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
b. Will the project likely involve any undisturbed land, either public or private, including new borrow areas?	☒	☐	☐	Land on the Nebraska side of the river has largely been disturbed for development of the park properties and the railroad. However, agricultural fields are present on the Iowa side and could potentially contain archeological resources. Further evaluation would be needed.
c. Is the project in the proximity of any known archaeological site?	☐	☒	☐	The locations of archeological sites are not available in public databases. Further evaluation and coordination should occur with the Nebraska and Iowa State Historic Preservation Offices (SHPOs) and the Tribal Historic Preservation Offices (THPOs) regarding the potential for archeological resources.
d. Is the project in the proximity of any house, building, bridge, or other structure more than 50 years old?	☒	☐	☐	The project bridge (Bridge No. S370 01918) was constructed in 1952 and reconstructed in 2004. In 2002, an intensive survey of the bridge was conducted by an architectural historian with the Louis Berger Group for the Iowa Department of Transportation. It was determined not eligible for the NRHP. Both the Nebraska and Iowa SHPOs have concurred with this determination.
e. Is the project in the proximity of any known historic building, district, bridge, roadway, or structure? (1) Does the project involve an historic roadway? ☐ Yes ☒ No (2) Does the project involve an historic bridge? ☐ Yes ☒ No **Source:** http://www.nationalregisterofhistoricplaces.com/ne/sarpy/state.html https://history.nebraska.gov/historic-preservation http://sarpycountymuseum.org/	☐	☒	☐	The Burlington Depot (NRHP #70000375) was once located in the vicinity of the project, but in 1987 was relocated approximately a mile to the west, across from the Sarpy County Museum.

Wetlands				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
USFWS National Wetland Inventory *(NWI)* identified wetlands or other water resources within the project study area? **Source:** http://www.fws.gov/wetlands/Data/State-Downloads.html	☒	☐	☐	Freshwater emergent wetlands, freshwater forested/shrub wetlands, and freshwater ponds are mapped in the project area.
USDA Soil Survey hydric soils within the project study area? **Source:** http://websoilsurvey.sc.egov.usda.gov/	☒	☐	☐	The hydric soils components included Albaton – occasionally flooded, Albaton – rarely flooded, and Fluvaquents – silty, frequently flooded.

USGS 7.5 Minute Quadrangle Topographic Map and/or National Hydrography Dataset *(NHD)* identified streams and/or other water features within the project study area?				
• Identified Perennial Streams **Source:** http://nhd.usgs.gov/data.html	☒	☐	☐	The Missouri River is mapped as a perennial channel in the NHD data.
• Identified Intermittent Streams **Source:** http://nhd.usgs.gov/data.html	☐	☒	☐	
• Was a wetland delineation conducted?	☒	☐	☐	The wetland delineation identified palustrine emergent temporarily/seasonally flooded (PEMA/C) wetlands, palustrine forested temporarily flooded (PFOA) wetlands, palustrine scrub-shrub (PSSA) wetlands, and agricultural (farmed) wetlands.
Will the project likely involve placement of fill in waters of the United States, including wetlands?	☒	☐	☐	Wetland impacts would depend on the design of the selected alternative. Based on the delineation, impacts would likely occur to PEMA/C, PSSA, and PFOA wetlands.
Wild and Scenic Rivers				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
• Are there any Wild and Scenic Rivers within 1.5 miles? **Source:** http://www.rivers.gov/mapping-gis.php	☐	☒	☐	
• Are there Nationwide Rivers Inventory *(NRI)* Rivers or on a tributary within 0.5 mile? **Source:** http://www.nps.gov/ncrc/programs/rtca/nri/index.html	☐	☒	☐	
Water Quality				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
303(d) impaired water bodies identified within the project study area? If so, list all impairments: **Sulfate, *E. coli*** **Source:** http://www.epa.gov/waters/ir/index.html 2018 Water Quality Integrated Report, Nebraska Department of Environmental Quality	☒	☐	☐	In the project area, the Missouri River is listed as a Category 5 impaired waterbody for Public Drinking Water Supply (Sulfate) and Recreation (*E. coli*). (MT1-1000). TMDLs have not been developed.
Wellhead Protection Areas? **Source:** http://deqims2.deq.state.ne.us/deqflex/DEQ.html	☐	☒	☐	

Will the project disturb one or more acres of land?	☒	☐	☐	The amount of soil disturbance would depend upon which alternative is implemented.
Regulated Materials				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
Are there regulated materials sites within the study area with known or potential to impact the project? **Source:** Nebraska Department of Environmental Quality, Environmental Protection agency Facility Registry System, State Fire Marshall Records	☒	☐	☐	The former site of the Bellevue Wastewater Treatment Plant is located within the ESA. The project bridge could contain lead and therefore may require waste materials management.
Are there regulated sites with potential for large scale plumes within 0.5 mile of the study area? **Source:** Nebraska Department of Environmental Quality, Environmental Protection agency Facility Registry System, State Fire Marshall Records	☐	☒	☐	The Bellevue Public Schools Transportation Site is a superfund site located approximately 0.9 miles down-gradient of the project; the Offutt Air Force Base is a superfund site located approximately 1.25 miles down-gradient of the project.
Floodplains and Floodways				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
FEMA identified Floodplains and/or Floodways within the project study area?				
• "Zone A" Floodplain encountered? **Source:** http://www.floodmaps.fema.gov/NFHL/status.shtml	☒	☐	☐	The ESA overlaps Zone A, Zone AE, and Zone AH floodplain.
• Floodway encountered? **Source:** http://www.floodmaps.fema.gov/NFHL/status.shtml	☒	☐	☐	Floodway is present along the Missouri River and is approximately 0.5 miles wide at the location of the bridge.
Right-of-Way				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
• Potential for residential or business displacements? **Source:** https://www.google.com/earth/ (Google Earth Imagery)	☐	☒	☐	No residences or business are within the ESA of the proposed project. West of the railroad are residential neighborhoods with businesses along Mission Avenue. However, these are not anticipated to be impacted by the project.

Title VI (Civil Rights) and Environmental Justice				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
• Are there any potential low-income or minority populations potentially affected by the project? **Source:** https://ejscreen.epa.gov/mapper/	☒	☐	☐	Within a one-mile radius of the project, the low-income population is approximately 38%, which is higher than the state average of 30%. The minority population is lower than the state average.
• Are there any potential populations with Limited English Proficiency (LEP) affected by the project? **Source:** https://ejscreen.epa.gov/mapper/	☐	☒	☐	Within a one-mile radius of the project, no LEP populations were identified above the thresholds of 5% of the population or 1,000 individuals.
Airports				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
• Are there any airports located within 4 miles of the project?	☒	☐	☐	The Offutt Airforce Base is located approximately 1.5 miles southwest of the Bellevue Bridge. The ESA falls within the Conical Surface of the Airspace Control Surface Plan. The Conical Surface has variable height restrictions ranging from 150 to 500 feet depending on the location. The height of the bridge structure and any equipment used in construction activities will need to comply with the Airspace Control Surface Plan.
Farmlands				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
• Is the study area in or near any potential prime or unique farmlands? **Source:** http://datagateway.nrcs.usda.gov/	☒	☐	☐	Prime Farmland, Prime Farmland if Drained, and Farmland of Statewide Importance are mapped within the ESA. While the areas on the Nebraska side have been developed as parkland, the areas on the Iowa side remain as farmland. Form NRCS CPA-106 for Corridor Type Project may need to be completed for the project.
Permits and Clearances Likely to be Needed				
Published Maps and/or GIS Data Review	**Yes**	**No**	**N/A**	**Comments**
CWA Section 404 Permit *(USACE)*	☒	☐	☐	Wetlands and other Waters of the U.S. are located in the project area, including the Missouri River and adjacent riparian habitat. Impacts will require a Section 404 Permit from the USACE. • If permanent impacts to WOUS remain below 0.5 acre, the project would qualify for a Nationwide Permit. Project impacts could potentially qualify under a NWP 14 for Linear Transportation Project or NWP 15 for U.S. Coast Guard Approved Bridges. • If permanent impacts to WOUS exceed 0.5 acres, the project would require an Individual Permit. • If permanent impacts to wetlands exceed 0.1 acres, wetland mitigation would likely be required.

Individual 401 Water Quality Certification	☒	☐	☐	If an Individual Permit for Section 404 is required, then an Individual 401 Water Quality Certification would be required from the Nebraska Department of Environmental Quality and the Iowa Department of Natural Resources.
Sovereign Lands Construction Permit	☒	☐	☐	This permit is required from the Iowa DNR for construction on State-owned land and construction below the ordinary high water mark.
CWA Section 408 Permit *(USACE)*	☒	☐	☐	A Section 408 Permit is required to make alterations to, or temporarily or permanently occupy or use, any USACE federally authorized civil works project. Alterations proposed within a federally-constructed flood risk reduction project (FRRP) right-of-way are subject to Section 408. The project would be within the following levees: • L-611-614_MoRiv LB & Upper Pony Creek Ditch LB & L1BLB • R-616 – Missouri River RB A National Environmental Policy Act (NEPA) document is required as part of the 408 application; however, Categorical Permissions for Section 408 Alterations are in place in both Nebraska and Iowa. For both states, Highway/Street Bridge Replacement is included in the list of categorical permissions. If environmental impacts would be greater than minor (e.g., an Individual Section 404 Permit) then the Categorical Permission would not apply, and an Environmental Assessment would be required.
Rivers and Harbors Act – Section 9 Permit *(USCG)*	☒	☐	☐	The Missouri River is subject to Section 9 of the Rivers and Harbors Act, which is administered by the U.S. Coast Guard. Construction of a new bridge or modification of the existing bridge that changes vertical or horizontal clearance would require a Section 9 Permit. NEPA documentation would be required for a Section 9 Permit. Bridge modifications that do not alter navigation clearances would still need USCG approval, but no permit.
Rivers and Harbors Act – Section 10 Permit *(USACE)*	☒	☐	☐	The Missouri River is subject to Section 10 of the Rivers and Harbors Act, which is administered by USACE. If the project requires the construction of structures in the Missouri River that do not span it, these would require a Section 10 Permit. Such structures include cofferdams, falsework bents, brackets, temporary dolphins, survey towers, test piles, work dikes, etc.
Floodplain Development Permit *(Local Authority)*	☒	☐	☐	Required by FEMA National Flood Insurance Program for construction within 100-year floodplain. Will need to be obtained from the City of Bellevue and Mills County.
Conditional Letter of Map Revision (CLOMR)	☒	☐	☐	If there is any modification to the floodway boundaries or if the project would result in greater than a one-foot rise in Zone A floodplain, a CLOMR would be required from FEMA for compliance with floodway encroachment regulations.
National Pollutant Discharge Elimination System (NPDES) Permit	☒	☐	☐	Required for construction in water and soil disturbance greater than 1 acre. Will be needed from both the NDEQ and IDNR.
LWCF Section 6(f) Conversion Approval	☒	☐	☐	Required from the Secretary of the Department of Interior if converting a Section 6(f) property to a non-recreation use.
Section 4(f) Evaluation	☒	☐	☐	Required by FHWA if there is a 'use' of a Section 4(f) property. Some activities may qualify as an exception. Negligible impacts could be considered De minimis. More substantial impacts could require an Individual Section 4(f) Evaluation.

Agency Consultation				
• US Fish and Wildlife Service	☒	☐	☐	May require coordination with both the Nebraska and Rock Island USFWS offices.
• Nebraska Game and Parks Commission	☒	☐	☐	
• Iowa Department of Natural Resources	☒	☐	☐	
• Iowa State Historic Preservation Office	☒	☐	☐	
• Nebraska State Historic Preservation Office	☒	☐	☐	
• Tribal Historic Preservation Offices	☒	☐	☐	Coordination with tribes that have historical or cultural ties to the area.

Summary of Potential Impacts

Habitat for state and federally listed species is present in the Missouri River and within the wooded riparian corridor along the river. Habitat is also present for bald eagles and migratory birds. Adverse impacts to these species can generally be avoided through the implementation of standard mitigation, such as timing certain construction activities to when species are not active, conducting species surveys prior to construction, or capturing bridge debris from falling into the river. Further coordination with the USFWS, NGPC, and IDNR would be needed in later phases.

Section 4(f) properties are present within the project study area on the west side of the Missouri River, including Haworth Park, American Heroes Park and Trail, and the Keystone South Trail. Portions of these recreational resources used LWCF Section 6(f) funding for their development or purchase. Conversion of any Section 6(f) property to a non-recreational resource would require approval from the Secretary of the Department of Interior. Depending on the nature of impacts to Section 4(f) properties, the project could qualify for an exception or De minimis; if impacts are more than negligible, an Individual Section 4(f) evaluation could be required.

Both the Nebraska and Iowa State Historic Preservation Offices concurred that the Bellevue Bridge is not historic. No other known NRHP sites are located within the ESA, but there may be potential for archeological resources. Coordination with the Nebraska and Iowa SHPOs and relevant THPOs should be conducted in later phases of project planning.

Wetlands and channels (including the Missouri River) are present within the study area. Impacts to these resources will depend on the scope of work, but could require a Nationwide Permit, mitigation, or an Individual Permit depending on the design of the alternative that is implemented.

The Missouri River is listed as a Category 5 impaired waterbody for Public Drinking Water Supply (Sulfate) and Recreation (*E. coli*) (MT1-1000). TMDLs have not been developed.

Regulated materials sites in the vicinity of the project include the former site of the Bellevue Wastewater Treatment Plant and two superfund sites located down-gradient. The project bridge has the potential to contain lead.

FEMA designated Floodway and Floodplain are present within the ESA. Any encroachments of the Floodway or Floodplain will require a floodplain development permit and could potentially require a CLOMR.

A low-income population is present within the vicinity of the project. Potential indirect impacts from the project should be evaluated in later phases.

Offutt Airforce Base is located approximately 1.5 miles southwest of the Bellevue Bridge. Height restrictions are in place which could limit the bridge structure and any equipment used in construction activities. Further coordination should occur with Offutt in later phases.

Prime and Unique Farmland is present within the ESA. Form NRCS CPA-106 for Corridor Type Project may need to be completed for the project.

Depending on the alternative that is selected, and the scope of work required, potential permits for the project may include: 404 Permit from USACE; 401 WQC Permit from NDEQ and IDNR; Sovereign Lands Construction Permit from IDNR; Section 408 Permit from USACE; Section 9 Permit from USCG; Section 10 Permit from USACE; Floodplain Development Permit from local floodplain administrators; CLOMR from FEMA; NPDES permit. Federal funding for the project would require NEPA documentation, which could be an Environmental Impact Statement if impacts are considered significant (potentially for a new bridge), or an Environmental Assessment or Categorical Exclusion if impacts are not significant. Even without federal funding, NEPA documentation would still be required for certain permit applications (e.g., Section 408 or Section 9).

Environmental Review Report

Project Information

Report Generation Date:	8/27/2018 11:12:22 AM
Project Title:	Bellevue Bridge
User Project Number(s):	
System Project ID:	NE-CERT-000742
Project Type:	Transportation, Roads/Bridges/Trails - County (Not NDOT or FHWA)
Project Activities:	Bridge - new, replacement, or extension - County Bridge or Culvert Repair or Maintenance - County Clearing & Grubbing Non-woody Vegetation - County Clearing & Grubbing Trees or Shrubs - County Earth Shoulder Construction - County Erosion Control - County Grading - County Guardrail Repair, Replacement, or Installation - County Pavement Marking - County Pavement Removal and/or Paving - County Stream Channel Impact - County Temporary Crossing, Causeway, or Work Platform - County Trails Trails - County
Project Size:	156.21 acres
County(s):	Sarpy
Watershed(s):	Missouri Tributaries
Watershed(s) HUC 8:	Big Papillion-Mosquito
Watershed(s) HUC 12:	Folsom Lake-Missouri River; Mud Creek-Papillion Creek
Biologically Unique Landscape(s):	Missouri River
Township/Range and/or Section(s):	T14R14ES31
Latitude/Longitude:	41.139455 / -95.877278

Contact Information

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Prepared By:	
Submitted On Behalf Of:	Bellevue Bridge Commission

Project Description

The project is located at the Bellevue Toll Bridge over the Missouri River on East Mission Avenue (formerly Highway 370) in the City of Bellevue, Sarpy County, Nebraska, and in rural Mills County, Iowa. The project is in the early phases of planning and specific improvements are unknown at this time. However, the project could involve, at most, construction of a new bridge across the Missouri River. Other options would likely involve repairs and modifications to the existing bridge across the Missouri River.

Introduction

The Nebraska Game and Parks Commission (Commission) and the U.S. Fish and Wildlife Service (Service) have special concerns for endangered and threatened species, migratory birds, and other fish and wildlife and their habitats. Habitats frequently used by fish and wildlife species are wetlands, streams, riparian areas, woodlands, and grasslands. Special attention is given to proposed projects which modify wetlands, alter streams, result in loss of riparian habitat, convert/remove grasslands, or contaminate habitats. When this occurs, the Commission and Service recommend ways to avoid, minimize, or compensate for adverse effects to fish and wildlife and their habitats.

CONSULTATION PURSUANT TO THE NEBRASKA NONGAME AND ENDANGERED SPECIES CONSERVATION ACT (NESCA)

The Commission has responsibility for protecting state-listed endangered and threatened species under authority of the Nongame and Endangered Species Conservation Act (NESCA) (Neb. Rev. Stat. § 37-801 to 37-811). Pursuant to § 37-807 (3) of NESCA, all state agencies shall, in consultation with the Commission, ensure projects they authorize (i.e., issue a permit for), fund or carry out do not jeopardize the continued existence of state-listed endangered or threatened species or result in the destruction or modification of habitat of such species which is determined by the Commission to be critical. If a proposed project may affect state-listed species or designated critical habitat, further consultation with the Commission is required.

Informal consultation pursuant to NESCA can be completed by using the Conservation and Environmental Review Tool (CERT). The CERT analyzes the project type and location, and based on the analysis, provides information about potential impacts to listed species, habitat questions and/or conservation conditions. Project proponents can agree to implement conservation conditions as outlined in the report and applicable to the project type by signing in the designated areas and uploading the signed PDF as part of their "final" project submittal. By agreeing to and implementing the conservation conditions as outlined (if applicable), then further consultation with the Commission is not required. If the report indicates the project may have impacts on listed species, then further consultation with the Commission is required.

TECHNICAL ASSISTANCE AND CONSULTATION PURSUANT TO THE ENDANGERED SPECIES ACT (ESA)

The Service has responsibility for conservation and management of fish and wildlife resources for the benefit of the American public under the following authorities: 1) Endangered Species Act of 1973 (ESA); 2) Fish and Wildlife Coordination Act; 3) Bald and Golden Eagle Protection Act; and 4) Migratory Bird Treaty Act. The National Environmental Policy Act (NEPA) requires compliance with all of these statutes and regulations.

Pursuant to section 7(a)(2) of ESA, every federal agency, shall in consultation with the Service, ensure that an action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. If a proposed project may affect federally listed species or designated critical habitat, section 7 consultation is required with the Service. It is the responsibility of the lead federal action agency to fully evaluate all potential effects (direct and indirect) that may occur to listed species and critical habitat in the action area. The lead federal agency provides their effect determination to the Service for concurrence. If federally listed species and/or designated/proposed critical habitat would be adversely affected by implementation of the project, the lead federal agency will need to formally request further section 7 consultation with the Service prior to making any irretrievable or irreversible commitment of federal funds (section 7(d) of ESA), or issuing any federal permits or licenses.

At this time, **the information generated in this report DOES NOT satisfy consultation obligations between the lead federal agency and the Service pursuant to ESA**. For the purposes of ESA, the information in this report should be considered as TECHNICAL ASSISTANCE, and does not serve as the Service's concurrence letter, even if the user signs and agrees to implement conservation conditions in order to satisfy the consultation requirements of NESCA.

Overall Results

The following result is based on a detailed analysis of your project.

- Potential impacts on listed species may occur as a result of this project. Please sign and date the certification section, upload the document as "final," and contact the Nebraska Game and Parks Commission and U.S. Fish and Wildlife Service for further information.

Additional Information

This project or activity "May Adversely Affect" listed endangered or threatened species. Further consultation with the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service is required.

Certification

I certify that ALL of the project information in this report (including project location, project size/configuration, project type, project activities, answers to questions) is true, accurate, and complete. If the project type, activities, location, size, or configuration of the project change, or if any of the answers to any questions asked in this report change, then this information is no longer valid and we recommend running the revised project through CERT to get an updated report.

_____ _____

Applicant/project proponent signature Date

Additional Considerations

Bald and Golden Eagle Protection Act

The federal Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668c) provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*). Under the Eagle Act, “take” of eagles, their parts, nests or eggs is prohibited. Disturbance resulting in injury to an eagle or a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior is a form of “take.”

Bald eagles use mature, forested riparian areas near rivers, streams, lakes, and wetlands and occur along all the major river systems in Nebraska. The bald eagle southward migration begins as early as October and the wintering period extends from December-March. The golden eagle is found in arid open country with grassland for foraging in western Nebraska and usually near buttes or canyons which serve as nesting sites. Golden eagles are often a permanent resident in the Pine Ridge area of Nebraska. Additionally, many bald and golden eagles nest in Nebraska from mid-February through mid-July. Disturbances within 0.5-miles of an active nest or within line-of-sight of the nest could cause adult eagles to discontinue nest building or to abandon eggs. Both bald and golden eagles frequent river systems in Nebraska during the winter where open water and forested corridors provide feeding, perching, and roosting habitats, respectively. The frequency and duration of eagle use of these habitats in the winter depends upon ice and weather conditions. Human disturbances and loss of wintering habitat can cause undue stress leading to cessation of feeding and failure to meet winter thermoregulatory requirements. These affects can reduce the carrying capacity of preferred wintering habitat and reproductive success for the species.

To comply with the Eagle Act, it is recommended that the project proponent determine if the proposed project would impact bald or golden eagles or their habitats. This can be done by conducting a habitat assessment, surveying nesting habitat for active and inactive nests, and surveying potential winter roosting habitat to determine if it is being used by eagles. The area to be surveyed is dependent on the type of project; however for most projects we recommend surveying the project area and a ½ mile buffer around the project area. If it is determined that either species could be affected by the proposed project, the Commission recommends that the project proponent notify the Nebraska Game and Parks Commission as well as the Nebraska Field Office, U.S. Fish and Wildlife Service for

recommendations to avoid “take” of bald and golden eagles.

Migratory Bird Treaty Act and Nebraska Revised Statute §37-540

We recommend the project proponent compliy with the Migratory Bird Treaty Act (16 U.S.C. 703-712: Ch. 128 *as amended*) (MBTA). The project proponent should also comply with Nebraska Revised Statute §37-540, which prohibits take and destruction of nests or eggs of protected birds (as defined in Nebraska Revised Statute §37-237.01). Construction activities in grassland, wetland, stream, woodland, and river bank habitats that would result in impacts on birds, their nests or eggs protected under these laws should be avoided. Although the provisions of these laws are applicable year-round, most migratory bird nesting activity in Nebraska occurs during the period of April 1 to July 15. However, some migratory birds are known to nest outside of the aforementioned primary nesting season period. For example, raptors can be expected to nest in woodland habitats during February 1 through July 15, whereas sedge wrens, which occur in some wetland habitats, normally nest from July 15 to September 10. If development in this area is planned to occur during the primary nesting season or at any other time which may result in impacts to birds, their nests or eggs protected under these laws, we request that the project proponent arrange to have a qualified biologist conduct a field survey of the affected habitats to determine the absence or presence of nesting migratory birds. If a field survey identifies the existence of one or more active bird nests that cannot be avoided by the planned construction activities, the Nebraska Game and Parks Commission and the Nebraska Field Office, U.S. Fish and Wildlife Service should be contacted immediately. For more information on avoiding impacts to migratory birds, their nests and eggs, or to report active bird nests that cannot be avoided by planned construction activities, please contact the U.S. Fish and Wildlife Service and/or the Nebraska Game and Parks Commission (contact information within report). Adherence to these guidelines will help avoid unnecessary impacts on migratory birds.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) requires consultation with the U.S. Fish and Wildlife Service (Service) and the State fish and wildlife agency (i.e., Nebraska Game and Parks Commission) for the purpose of preventing loss of and damage to fish and wildlife resources in the planning, implementation, and operation of federal and federaly funded, permitted, or licensed water resource development projects. This statute requires that federal agencies take into consideration the effect that the water related project would have on fish and wildlife resources, to take action to prevent loss or damage to these resources, and to provide for the development and improvement of these resources. The comments in this letter are provided as technical assistance only and are not the document required of the Secretary of the Interior pursuant to Section 2(b) of FWCA on any required federal environmental review or permit. This technical assistance is valid only for the described conditions and will have to be revised if significant environmental changes or changes in the proposed project take place. In order to determine whether the effects to fish and wildlife resources from the proposed project are being considered under FWCA, the lead federal agency must notify the Service in writing of how the comments and recommendations in this technical assistance letter are being considered into the proposed project.

Section 404 of the Clean Water Act

In general, the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service have concerns for impacts to wetlands, streams and riparian habitats. We recommend that impacts to wetlands, streams, and associated riparian corridors be avoided and minimized, and that any unavoidable impacts to these habitats be mitigated. If any fill materials will be placed into waterways or wetlands, the U.S. Army Corps of Engineers Regulatory Office in Omaha should be contacted to determine if a 404 permit is needed.

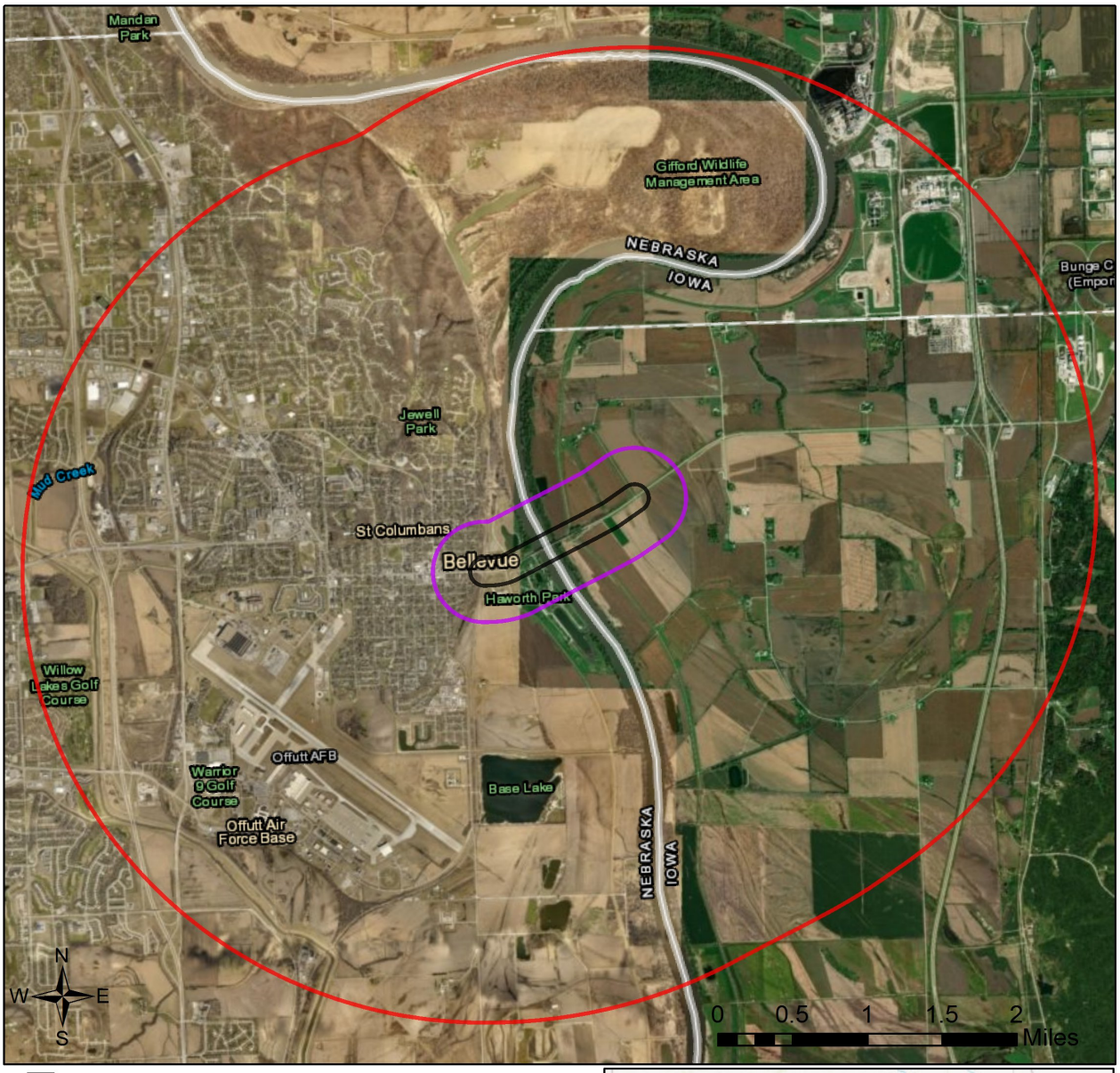
Agency Contact Information

Nebraska Game and Parks Commission
Carey Grell
2200 North 33rd Street
Lincoln, NE 68503
phone: (402) 471-5423
email: carey.grell@nebraska.gov

U.S. Fish and Wildlife Service
Eliza Hines
9325 South Alda Road
Wood River, NE 68883
phone: (308) 382-6468 ext. 204
email: eliza_hines@fws.gov

Bellevue Bridge

Aerial Image Basemap With Locator Map



Project Boundary

Project Review Boundary

3-mile Information Buffer Boundary

Project Size (acres): 156.21

Lat/Long (DD): 41.1395 / -95.8773

County(s): Sarpy

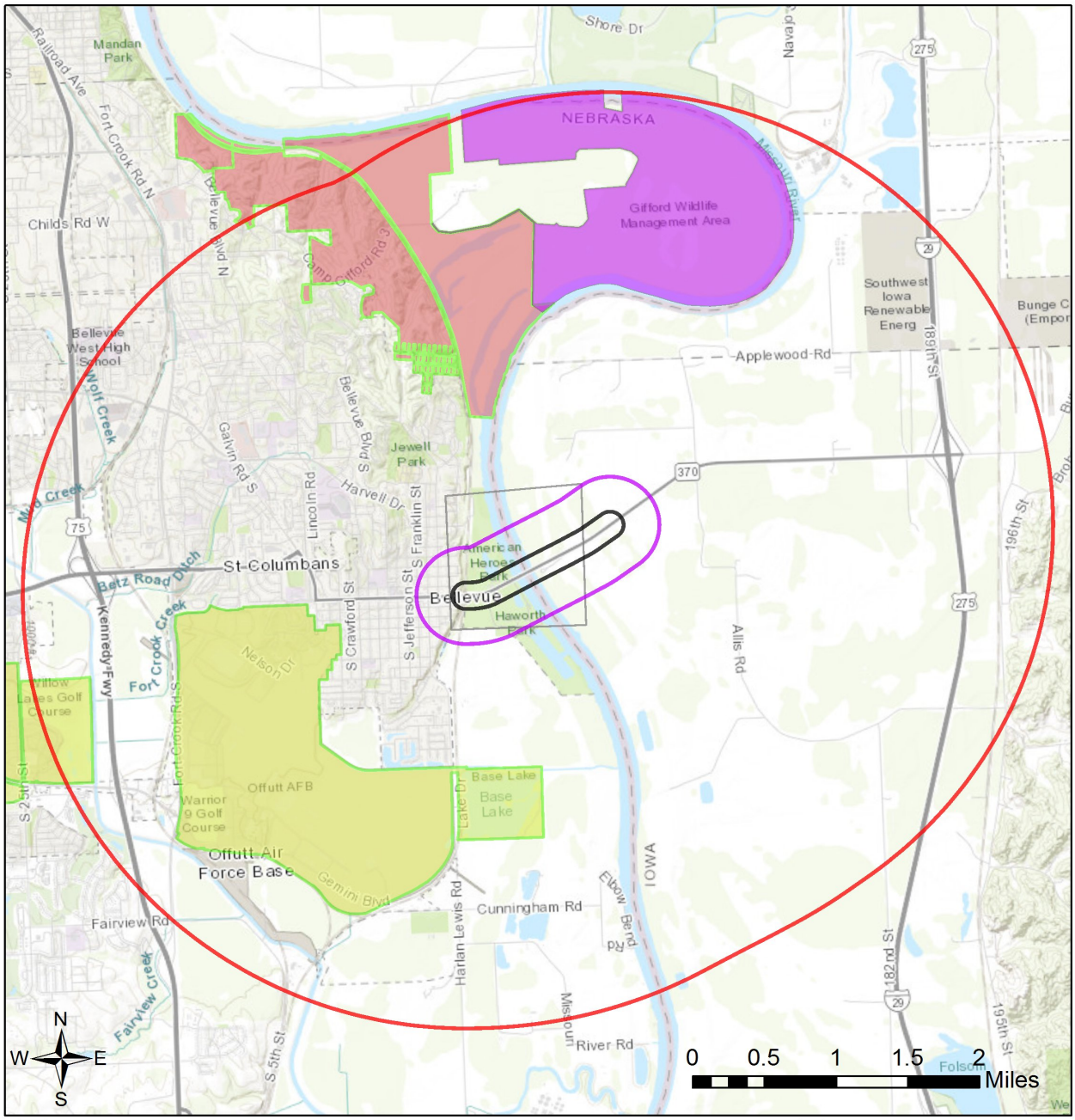
BUL(s): Missouri River

Township/Range/Section(s): T14R14ES31

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Bellevue Bridge

Topographic Basemap With Sections and Protected Areas



- Project Boundary
- Project Review Boundary
- 3-mile Information Buffer Boundary
- Sections
- NGPC Properties
- PAD (USGS) - boundaries

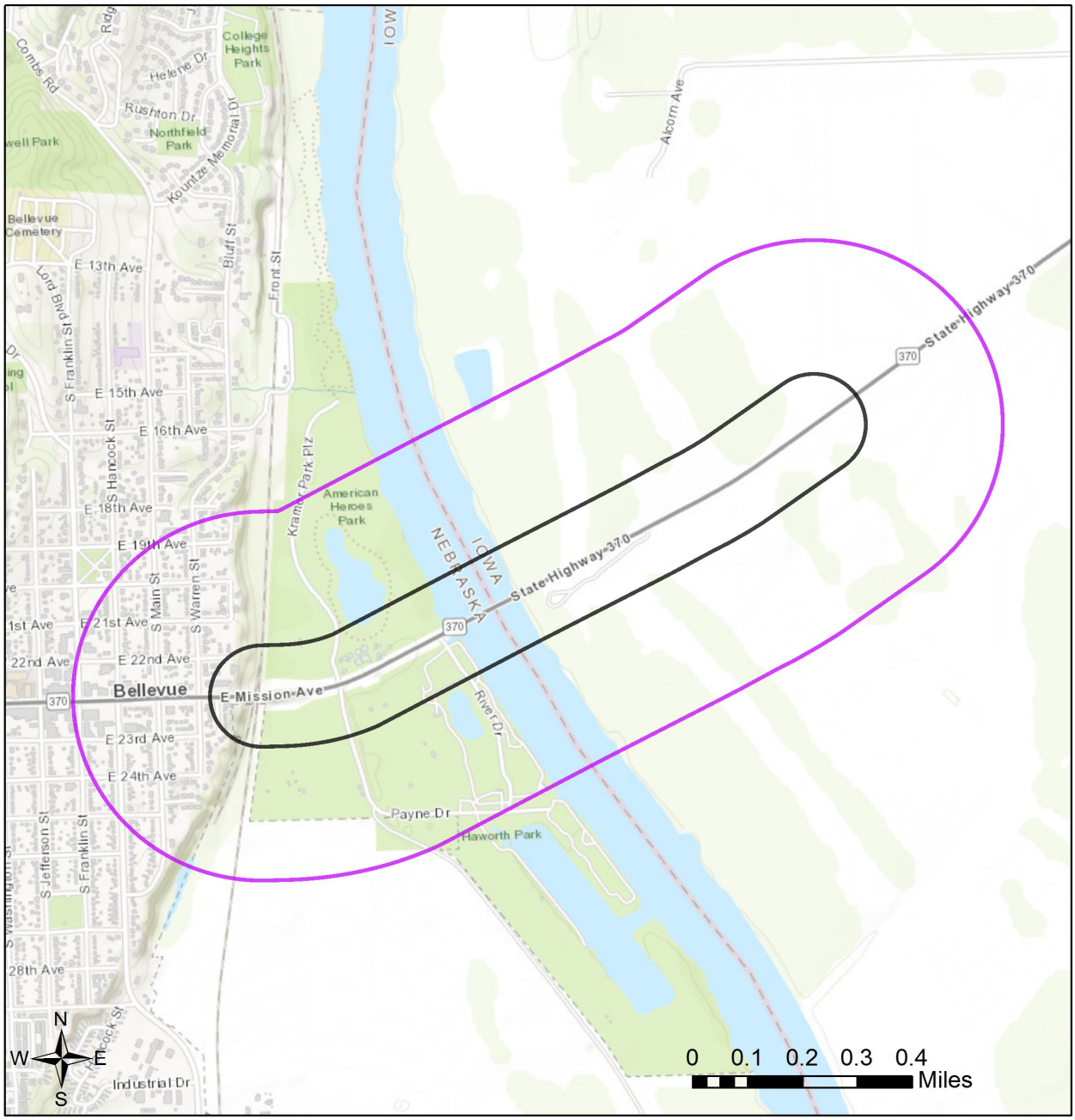
Protected Areas Database (USGS)

- U.S. Fish & Wildlife Service
- U.S. Forest Service
- Natural Resources Conservation Service
- Army Corps of Engineers
- Bureau of Reclamation
- Other Federal
- Tribal
- Conservation Organization
- Other State (non-NGPC)
- Other (City, Unknown)

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Bellevue Bridge

Web Map As Submitted By User



Project Boundary

Project Review Boundary

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Table 1
Protected Areas in Immediate Vicinity of Project (project review area)

This table has no results.

Table 2
Documented Occurrences in Immediate Vicinity of Project (project review area):
Natural communities and special areas

Name	Other Information	SRank	GRank
Missouri River Biologically Unique Landscape	Link to BUL document		

Table 3
Township-level Documented Occurrences of Species within 1 Mile of Project Review Area

Scientific Name	Common Name	USFWS	State	SGCN	USFS	SRank	GRank
Acipenser fulvescens	Lake Sturgeon		T	Tier 1		S1	G3G4
Aesculus glabra var. arguta	Ohio Buckeye			Tier 2		S1S2	G5T4?Q
Anaxyrus americanus	American Toad		NC	Tier 2		S1	G5
Anguilla rostrata	American Eel			Tier 2		SNR	G4
Aralia racemosa	Spikenard			Tier 2		S1	G5
Arnoglossum atriplicifolium	Pale Indian-plantain			Tier 2		S2	G4G5
Asclepias amplexicaulis	Clasping-leaf Milkweed			Tier 2		S1	G5
Brachyelytrum erectum	Bearded Short-husk			Tier 2		S2	G5
Buteo lineatus	Red-shouldered Hawk			Tier 2		S1	G5
Carphophis vermis	Worm Snake		NC	Tier 2		S2	G5
Certhia americana	Brown Creeper			Tier 2		S2	G5
Charadrius melodus	Piping Plover	T	T	Tier 1		S2	G3
Claytonia virginica	Virginia Spring-beauty			Tier 2		S1	G5
Corallorhiza odontorhiza	Autumn Coral-root			Tier 2		S1?	G5
Cycleptus elongatus	Blue Sucker			Tier 1		S1	G3G4
Cygnus buccinator	Trumpeter Swan			Tier 1	S	S2	G4
Dryocopus pileatus	Pileated Woodpecker			Tier 2		S1	G5
Emydoidea blandingii	Blanding's Turtle		NC	Tier 1		S4	G4
Equisetum fluviatile	Water Horsetail			Tier 2		S1	G5
Euphyes dion	Dion Skipper			Tier 2		S2	G4

Table 3
Township-level Documented Occurrences of Species within 1 Mile of Project Review Area

Scientific Name	Common Name	USFWS	State	SGCN	USFS	SRank	GRank
Feniseca tarquinius	Harvester			Tier 2		S2	G5
Haliaeetus leucocephalus	Bald Eagle			Tier 2	S	S3	G5
Hybognathus placitus	Plains Minnow			Tier 2	S	S2	G4
Lilium michiganense	Michigan Lily					S2S4	G5
Macrhybopsis gelida	Sturgeon Chub		E	Tier 1	S	S1	G3
Macrhybopsis meeki	Sicklefin Chub			Tier 1		S1	G3
Microtus pinetorum	Woodland Vole			Tier 2		S1	G5
Monotropa uniflora	Indian-pipe			Tier 2		S1	G5
Muhlenbergia tenuiflora	Slim-flower Muhly			Tier 2		S1	G5
Myotis septentrionalis	Northern Long-eared Myotis	T	T	Tier 1 Provisional		SNR	G1G2
Panax quinquefolius	American Ginseng		T	Tier 1		S1	G3G4
Parkesia motacilla	Louisiana Waterthrush			Tier 2		S1	G5
Patis racemosa	Black-seed Ricegrass			Tier 2		S2	G5
Pedicularis lanceolata	Swamp Lousewort					S3	G5
Pimephales notatus	Bluntnose Minnow			Tier 2		S3	G5
Platygobio gracilis	Flathead Chub			Tier 2	S	S2	G5
Polyodon spathula	Paddlefish			Tier 2		S2	G4
Pompeius verna	Little Glassywing			Tier 2		S2S3	G5
Protonotaria citrea	Prothonotary Warbler			Tier 2		S2	G5
Scaphirhynchus albus	Pallid Sturgeon	E	E	Tier 1		S1	G2
Setophaga cerulea	Cerulean Warbler			Tier 1		SNA	G4
Sternula antillarum athalassos	Interior Least Tern	E	E	Tier 1		S2	G4T2Q
Triphora trianthophoros var. trianthophoros	Nodding-pogonia			Tier 1		S1	G3G4T3T4
Ulmus thomasii	Rock Elm					S2S4	G5
Vireo bellii	Bell's Vireo			Tier 1		S4	G5
Vireo flavifrons	Yellow-throated Vireo			Tier 2		S3	G5
Vireo griseus	White-eyed Vireo			Tier 2		SNA	G5
Zizania palustris	Northern Wild-rice					S3	G5

Table 4
Potential Occurrences in Immediate Vicinity of Project (project review area):
Special status species (Tier 1 at-risk species and Bald and Golden Eagle), based on models or range maps

Scientific Name	Common Name	Data Type	USFWS	State	SGCN	USFS	SRank	GRank
Acipenser fulvescens	Lake Sturgeon	Model		T	Tier 1		S1	G3G4
Ammodramus henslowii	Henslow's Sparrow	Range			Tier 1		S1	G4
Atrytone arogos iowa	Iowa Skipper	Range			Tier 1		S1	G3T3
Catocala nuptialis	Married Underwing	Range			Tier 1		SNR	G3G4
Catocala whitneyi	Whitney Underwing	Range			Tier 1		S1	G3G4
Cycleptus elongatus	Blue Sucker	Range			Tier 1		S1	G3G4
Emydoidea blandingii	Blanding's Turtle	Range		NC	Tier 1		S4	G4
Erynnis martialis	Mottled Duskywing	Range			Tier 1		S2	G3
Fundulus sciadicus	Plains Topminnow	Range			Tier 1	S	S3	G4
Haliaeetus leucocephalus	Bald Eagle	Range			Tier 2	S	S3	G5
Hesperia ottoe	Ottoe Skipper	Range			Tier 1	S	S2	G3G4
Hylocichla mustelina	Wood Thrush	Range			Tier 1		S3	G4
Lanius ludovicianus	Loggerhead Shrike	Range			Tier 1	S	S2S3	G4
Lontra canadensis	River Otter	Model		T	Tier 1	S	S2	G5
Macrhybopsis gelida	Sturgeon Chub	Model		E	Tier 1	S	S1	G3
Macrhybopsis meeki	Sicklefin Chub	Range			Tier 1		S1	G3
Myotis lucifugus	Little Brown Myotis	Range			Tier 1 Provisional		SNR	G3
Myotis septentrionalis	Northern Long-eared Myotis	Range	T	T	Tier 1 Provisional		SNR	G1G2
Perimyotis subflavus	Tricolored Bat	Range			Tier 1 Provisional		S1	G2G3
Platanthera praeclara	Western Prairie Fringed Orchid	Range	T	T	Tier 1		S2	G3
Scaphirhynchus albus	Pallid Sturgeon	Model	E	E	Tier 1		S1	G2
Speyeria idalia	Regal Fritillary	Range			Tier 1	S	S3	G3
Triphora trianthophoros var. trianthophoros	Nodding-pogonia	Range			Tier 1		S1	G3G4T3T4
Tryngites subruficollis	BUFF-BREASTED SANDPIPER	Range			Tier 1		S2N	G4

Table 4
Potential Occurrences in Immediate Vicinity of Project (project review area):
Special status species (Tier 1 at-risk species and Bald and Golden Eagle), based on models or range maps

Scientific Name	Common Name	Data Type	USFWS	State	SGCN	USFS	SRank	GRank
Vireo bellii	Bell's Vireo	Range			Tier 1		S4	G5

From: colleen.conroy@dnr.iowa.gov on behalf of Sov Land and Env Review, DNR
To: Kody.Unstad
Cc: Unknown Unknown
Subject: (SL 16090) Re: Env Review Request - Bellevue Bridge
Date: Thursday, November 1, 2018 10:04:38 AM
Attachments: image001.png
image001.png

Bridge Replacement
Mills County
Section 11, Township 73 N, Range 44 W

Thank you for inviting Department comment on the impact of this project. The Department has searched for records of rare species and significant natural communities in the project area and found no site-specific records that would be impacted by this project. However, these records and data are not the result of thorough field surveys. If listed species or rare communities are found during the planning or construction phases, additional studies and/or mitigation may be required.

This letter is a record of review for protected species, rare natural communities, state lands and waters in the project area, including review by personnel representing state parks, preserves, recreation areas, fisheries and wildlife but does not include comment from the Environmental Services Division of this Department. This letter does not constitute a permit. Other permits may be required from the Department or other state or federal agencies before work begins on this project.

Please reference the following DNR Environmental Review/Sovereign Land Program tracking number assigned to this project in all future correspondence related to this project: 16090.

If you have questions about this letter or require further information, please contact me at (515) 725-8464.

Environmental Review requests can be submitted electronically to: SLER@dnr.iowa.gov.

Seth Moore | Environmental Specialist
Iowa Department of Natural Resources
P 515-725-8464 | F 515-725-8201
502 E 9th St, Des Moines, IA 50319
www.iowadnr.gov

On Thu, Aug 30, 2018 at 4:34 PM Kody.Unstad <Kody.Unstad@fhueng.com> wrote:

> Please find the attached request for an Environmental Review for the Omaha-Council Bluffs MAPA – Bellevue Bridge Alternatives Study. If any additional information is required, please let me know. I would appreciate confirmation of you received this request.

Thank you,

full color with tag

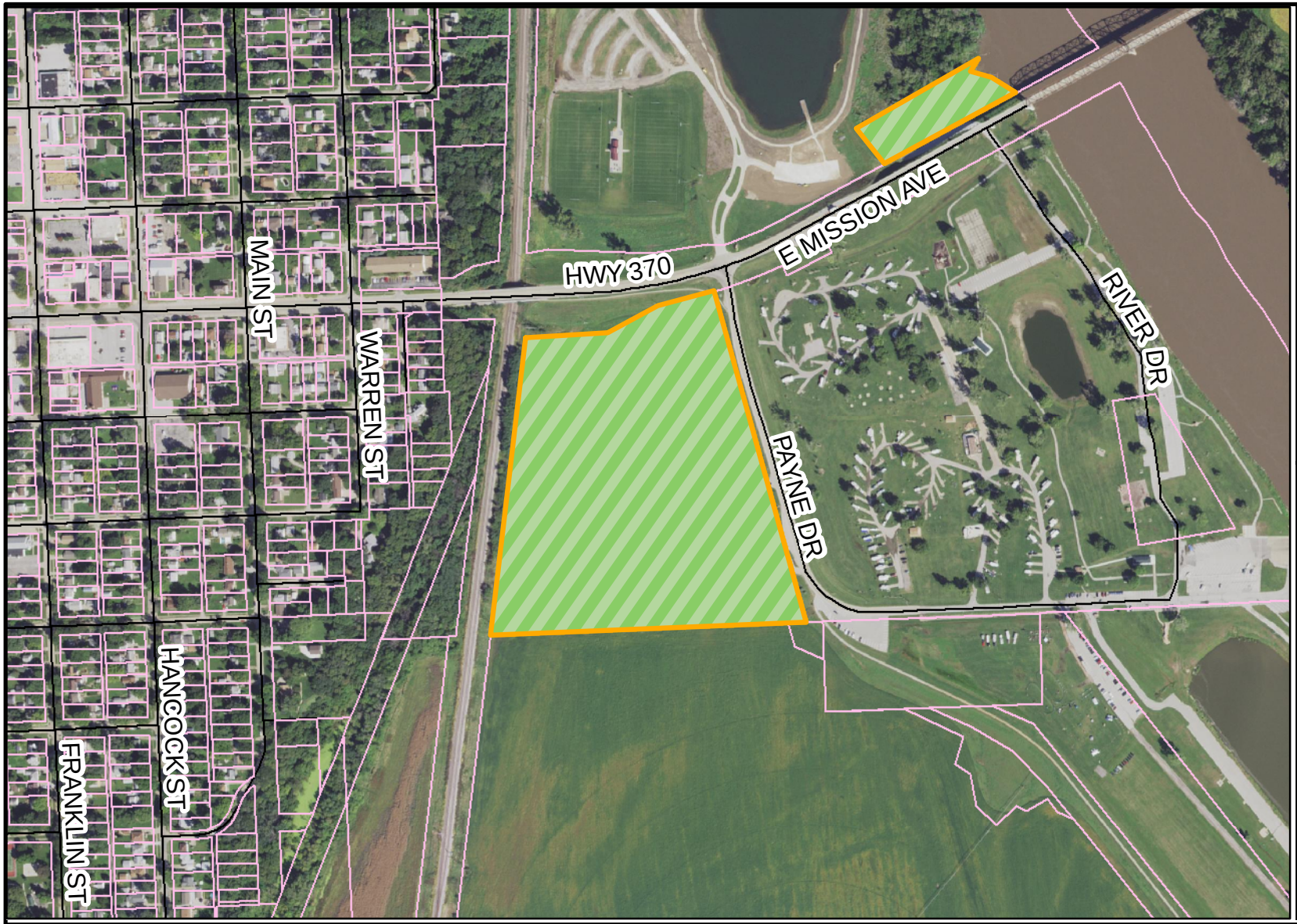
Kody Unstad

Environmental Scientist

office: 402.445.4405

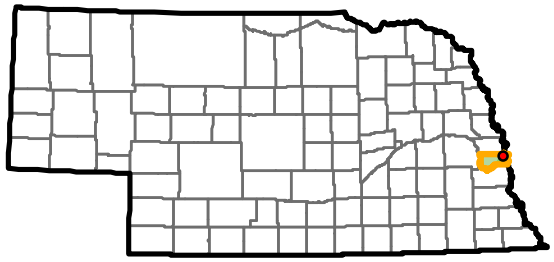
11422 Miracle Hills Dr., Ste. 115
kody.unstad@fhueng.com

www.fhueng.com



Known Rights:
60' Easment for utility (electrical) R.O.W. and Drainage Way

Comments/Notes:
1 - unoffical Map; 2 - 60' Easment for utility (electrical) R.O.W. and Drainage Way



LWCF Section 200305(f)(3) Boundary Map

Feet
0 162.5325 650 975 1,300

Project Name: Addition to Hawthorn Park - West
Project Number: 31-00106 **Project Sponsor:** City of Bellevue
Site Name: Hawthorn Park **# of Acres:** 24.27 +/- (GIS)/ +/- (Deed/ParcelData)
City, State: Bellevue, NE **Lat:** , **Long:**
SLO/ASLO: Schuyler Sampson (ASLO)

Signature: _____
Date: _____
Date Printed: 11/20/2018

NEBRASKA
GAME PARKS

STATE OF NEBRASKA

DEPARTMENT OF ROADS
John L. Craig, *Director*
1500 Highway 2
PO Box 94759
Lincoln NE 68509-4759
Phone (402)471-4567
FAX (402)479-4325
www.dor.state.ne.us

Mike Johanns
Governor

July 23, 2003

File

L. Robert Puschendorf
Deputy State Historic Preservation Officer
Nebraska State Historical Society
1500 "R" St
PO Box 82554
Lincoln NE 68501

RECEIVED
JUL 28 2003
NSHS/STATE HISTORIC PRESERVATION OFFICE

0307-093-01

Re: Bellevue Bridge, Sarpy County, Nebraska
Highway N-370 over the Missouri River
Structure No. S370 01918

Attn: Bill Callahan

A historic evaluation of this bridge was completed by Camilla Deiber, Architectural Historian, Louis Berger Group, Marion, Iowa. This report was prepared for the Iowa Department of Transportation (dated November 26, 2002) and a copy is attached. The evaluation determined that the structure was not eligible for listing on the National Register of Historic Places.

Your concurrence in this determination is requested.

Thank you for your assistance.

Sincerely,

Leonard J. Sand
Environmental Program Manager
Nebraska Department of Roads

LJS/D3-A1

Attachment

CONCUR
DEPUTY STATE HISTORIC PRESERVATION OFFICER
DATE 8/19/03

SY02-116

NEBRASKA STATE HISTORICAL SOCIETY
1500 R STREET, P.O.BOX 82554, LINCOLN, NE 68501-2554
(402) 471-3270 Fax: (402) 471-3100 1-800-833-6747 www.nebraskahistory.org
Michael J. Smith, Director/CEO

September 3, 2008

Herb Barelman
Bellevue Bridge Commission
601 East Mission
Bellevue, NE 68005-5121

Dear Mr. Barelman:

Thank you for submitting information to our office regarding the Bellevue Grand Army of the Republic Bridge over the Missouri. The bridge has an interesting history and is obviously of great importance to your commission. I'd also like to thank you for the time and effort you put into completing the survey form. It was very thorough and well-written.

Unfortunately, the bridge has already been deemed ineligible for listing on the National Register of Historic Places during a 2002 intensive survey by an architectural historian with the Louis Berger Group for the Iowa Department of Transportation. The Nebraska State Historical Society concurred with this decision in a latter round of correspondence dated 2003.

In Nebraska, our office administers the National Register for the National Park Service. As a Federal program, the guidelines for evaluating historic properties are quite strict. In this case, the bridge does not meet Criterion B (association with a significant person) because it does not represent Vice-President Nixon's contributions to history as well as other historic sites around the nation. It is also not eligible for listing under Criterion C (design/construction) because the South Omaha Bridge and Brownsville Bridge, earlier examples of the cantilevered warren through truss bridges over the Missouri, have already been listed as representatives of this type.

Criterion A (associations with a historic event or pattern) is possibly the most subjective of the three you have suggested, and sometimes the most difficult to understand when it is not accepted. In this case, the survey authors and the State Historic Preservation Offices in Nebraska and Iowa did not feel that the bridge had a sufficiently significant impact on the *historical* development of Bellevue.

Please know that although this property does not fit within the strict parameters of Park Service guidelines, that does not mean it is not important or that it should not be treated sensitively.

We urge you to continue your efforts at documenting the history and significance of the Bellevue Bridge, as well as searching for ways to keep it as part Nebraska's cultural landscape.

NEBRASKA STATE HISTORICAL SOCIETY
1500 R STREET, P.O.BOX 82554, LINCOLN, NE 68501-2554
(402) 471-3270 Fax: (402) 471-3100 1-800-833-6747 www.nebraskahistory.org
Michael J. Smith, Director/CEO

Thank you once again. The information that you submitted will be added to the Nebraska Historic Buildings Survey database as part of the permanent record of the State's built environment. If you have any questions, please feel free to call me at 1-800-833-6747 or 402-471-4775.

Sincerely,

Jessie Nunn

Jessie Nunn
National Register Coordinator
Nebraska State Historic Preservation Office
Nebraska State Historical Society
jnunn@nebraskahistory.org

Wetland Delineation Report

Bellevue Bridge Alternatives Study

Project No. MAPA-5002(3); Control No. 22755

Sarpy County, Nebraska; Mills County, Iowa

View east toward the Bellevue Bridge from the west side of the Missouri River.

Prepared for:
Metropolitan Area Planning Agency
2222 Cuming Street
Omaha, NE 68102

Prepared by:
Felsburg Holt & Ullevig
11422 Miracle Hills Drive, Suite 115
Omaha, Nebraska 68154

February 2019

FELSBURG HOLT & ULLEVIG
connecting & enhancing communities

TABLE OF CONTENTS

Page

List of Tables

List of Appendices

1.0 INTRODUCTION

1.1 Summary

Felsburg Holt & Ullevig (FHU) has prepared this wetland delineation report for the Bellevue Bridge Alternatives Study. The Bellevue Bridge spans the Missouri River linking the City of Bellevue in Sarpy County, Nebraska with western Mills County, Iowa (**Appendix A; Figure 1**). The study involves an inventory of existing bridge conditions and analysis of potential alternatives for the aging bridge including preservation and maintenance, demolition, replacement, or modification.

The purpose of this report is to identify the type, location, and extent of wetlands and channels located within the environmental study area (ESA). The ESA has been defined as extending from the BNSF Railway corridor on the west to the unnamed road 0.5 miles east of the bridge, and from the edge of a 100-foot buffer south of the bridge alignment to the edge of a 200-foot buffer north of the bridge that extends to 300 feet along the central portion of the alignment (see **Appendix A; Figure 2 Index Map**). Based on this delineation, wetlands are present within the ESA and consist of palustrine emergent temporarily/semi-permanently flooded (PEMA/PEMC), farmed PEMA/PEMC, palustrine scrub-shrub temporarily flooded (PSSA), and palustrine forested temporarily flooded (PFOA) wetlands. The project crosses the Missouri River.

1.2 Regulatory Framework

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) regulates impacts to waters of the U.S. (WOUS). Any project that requires the placement of dredged or fill material into WOUS, including wetlands, must obtain a Section 404 permit from USACE before initiating construction. As part of the permit program, the project is also reviewed for compliance with Section 401 Water Quality Certification as implemented by the Nebraska Department of Environmental Quality (NDEQ).

2.0 WETLAND/WATER RESOURCE DELINEATION METHODS

2.1 Review of Existing Resources

Several published and/or on-line resources were reviewed as part of the wetland evaluation:

- Natural Resource Conservation Service (NRCS), National Cooperative Soil Survey, Web Soil Survey and Digital Aerial Photographs, Lancaster County. U.S. Department of Agriculture. Accessed from: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm (NRCS 2018).
- U.S. Fish and Wildlife Service (USFWS) Wetlands Online Mapper, National Wetland Inventory (NWI) Layer. Accessed from: http://www.fws.gov/wetlands/Data/Mapper.html (USFWS 2018).
- U.S. Geological Service (USGS), The National Map Viewer with 1 arc-second National Elevation Dataset (NED) and National Hydrography Dataset (NHD). Accessed from: http://viewer.nationalmap.gov/viewer/ (USGS 2018).
- Esri, DigitalGlobe, GeoEye, I-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community (Esri 2018a).
- 1:24,000 scale metric Topographic Map; Omaha South 1994, Council Bluffs South 1994, Plattsmouth 1994, Pacific Junction 1994 (Esri 2018b).

Topography

This project is located within the Valleys Topographic Region of Nebraska (IANR 1973) which generally consists of flat-lying land along the major streams and rivers. Elevations within the ESA range from a low of approximately 960 feet (293 meters [m]) above sea level (asl) along both banks of the Missouri River to a high of 990 feet (302 m) asl near the far southwest corner of the ESA.

Drainage

The project lies within the Big Papillion – Mosquito Creek HUC 8 Watershed. The Missouri River is the main drainage feature and is approximately 650 to 680 feet wide in the vicinity of the bridge. Some minor drainages are also present within the ESA; all lead to the Missouri River.

Vegetation

The major NRCS Ecological Site Designations (NRCS 2018) mapped within the ESA include Loamy floodplain prairie; Sandy or silty lowland; Clayey overflow; Loamy floodplain forest; and Clayey floodplain prairie. The historic plant communities at the site would have included species such as Eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), common hackberry (*Celtis occidentalis*), American bladdernut, (*Staphylea trifolia*), buttonbrush (*Cephalanthus occidentalis*), Canadian wood nettle (*Laportea canadensis*), and rice cutgrass (*Leersia oryzoides*). As a result of drainage and clearing for agriculture and urban development floodplain forests have been degraded and have a high prevalence of invasive species such as white mulberry (*Morus alba*) and Siberian elm (*Ulmus pumila*).

Wetlands

National Wetland Inventory wetlands mapped within the ESA include riverine (R2UBH) and freshwater emergent (PEM1A) wetlands.

Land Use

The project occurs within the Iowa and Missouri Deep Loess Hills Major Land Resource Area (Land Resource Region M [Central Feed Grains and Livestock]) (NRCS 2006). Land uses within the ESA are primarily recreational on the west side of the Missouri River with American Heroes Park located north of East Mission Avenue and Haworth Park located to the south. Land uses on the east side of the river are primarily row-crop agriculture.

Soils

Many Soil Survey Geographic database (SSURGO) map units are present within the ESA (NRCS 2018). Those soil types which include hydric components are listed in **Table 1**.

TABLE 1: HYDRIC SOILS WITHIN THE ESA

SOIL TYPE	PORTION CONSIDERED HYDRIC	LOCATION
Haynie silt loam, 0 to 2 percent slopes, occasionally flooded	Albaton – occasionally flooded	hydric soils components may compose 5% of the soil type and are located on floodplains
Blake silty clay loam, 0 to 2 percent slopes	Albaton – occasionally flooded	hydric soil components may compose 5% of the soil type and are located on floodplains
Onawa silty clay, 0 to 2 percent slopes	Albaton – rarely flooded	hydric soil components may compose 5% of the soil type and are located on floodplains.
Modale silt loam, 0 to 2 percent slopes	Albaton – occasionally flooded	hydric soil components may compose 5% of the soil type and are located on floodplains.
Albaton silty clay, 0 to 2 percent slopes, occasionally flooded	Albaton – occasionally flooded	hydric soil components may compose 90% of the soil type and are located on floodplains.
Sarpy loamy fine sand, 1 to 3 percent slopes	Albaton – occasionally flooded	hydric soil components may compose 5% of the soil type and are located on floodplains.
Sarpy fine loamy sand, 0 to 2 percent slopes	Albaton – occasionally flooded	hydric soil components may compose 5% of the soil type and are located on floodplains.
Grable silt loam, 0 to 2 percent slopes	Albaton – occasionally flooded	hydric soil components may compose 5% of the soil type and are located on floodplains.
Percival silty clay, 0 to 2 percent slopes	Albaton – occasionally flooded	hydric soil components may compose 5% of the soil type and are located on floodplains.
Vore silty clay loam, 0 to 2 percent slopes	Albaton – occasionally flooded	hydric soil components may compose 5% of the soil type and are located on floodplains.
Onawa silty clay, occasionally flooded	Fluvaquents - silty, frequently flooded	hydric soil components may compose 13% of the soil type and are located on floodplains.
	Albaton - occasionally flooded	hydric soil components may compose 7% of the soil type and are located on floodplains.
Onawa-Lossing silty clays, occasionally flooded	Albaton - occasionally flooded	hydric soil components may compose 9% of the soil type and are located on floodplains.

2.2 Field Survey

The site visit for the project was conducted on 6 September 2018 by FHU scientists/biologists Kody Unstad and Adam Behmer. Field data was collected to: (1) delineate wetlands and (2) document other water resources.

Wetland Delineation Methodology

Wetland delineation procedures follow protocols described in the:

1. U.S. Army Corps of Engineers Wetland Delineation Manual (USACE 1987)
2. Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE 2010)

A point method is used to collect at least one sample point per wetland and at least one sample point in the uplands near the upland/wetland interface. Sample points are examined for the presence or absence of the three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Sample point data are recorded on USACE Wetland Determination Data Forms (USACE 2010). Delineated wetlands are classified according to the *Classification of Wetland and Deepwater Habitats of the United States* (Cowardin et al. 1979) based on field conditions.

Vegetation at each sample point is identified to the species level, when possible, and recorded. The wetland indicator status of each plant identified is also recorded and used to determine if hydrophytic vegetation is present (USACE 2016).

Where possible, soils are examined by excavating to the depth needed to identify hydric soils or a minimum of 20 inches. The soil profile is documented for changes in soil horizons, matrix and mottle colors, and redoximorphic features. Redoximorphic concentrations are the apparent accumulation of iron and manganese oxides within the soil profile. Redoximorphic depletions are areas of low chroma and high value that indicate the removal of reduced iron from the soil. Concentrations or depletions of iron are usually an indication of periodically, seasonally, or permanently saturated soil conditions.

Indicators of wetland hydrology (high water table and saturated or inundated soils), along with signs of previous prolonged saturation or inundation during the growing season, are also noted at each sampling location.

Channel Delineation Methodology

Areas with flowing water or a defined bed and bank are assessed for an ordinary high water mark (OHWM) when the channels are determined to be wider than 3 feet. The OHWM in a stream channel is generally an area free of vegetation along the bank below the 2-year channel-forming storm event (USACE 2005). Additionally, there is often a visible impression or scour line on the bank that is an indication of the OHWM. When a channel less than 3 feet wide is identified, the center of the channel is mapped to document its location.

Documentation

Locations of the wetland/upland boundary, sample points, channels, and other features within the ESA were mapped using a Trimble GeoXH or similar Global Positioning System (GPS) unit with sub-meter accuracy.

3.0 DELINEATION RESULTS

Seventeen wetlands and one channel were delineated within the ESA. The locations of delineated wetland boundaries, sample points, and photograph locations are shown on **Figure 2** in **Appendix A**. Wetland Determination Data Forms were completed for each sample point and are included in **Appendix B** with all sample point photographs found in **Appendix C**.

Summary data for wetlands is shown in **Table 2**, including wetland classification and acreage for delineated wetlands. Summary data for other water resources is included in **Table 3**. Delineated wetlands are primarily PEMA/PEMC, PSSA, and PFOA wetlands located within the floodplain of the Missouri River. Dominant species in the PEMA/PEMC wetlands include yellow nutsedge (*Cyperus esculentus*), reed canary grass (*Phalaris arundinacea*), and lady's thumb (*Persicaria maculosa*). Dominant species in the PSSA wetlands include roughleaf dogwood (*Cornus drummondii*) and white mulberry (*Morus alba*). Dominant species in the PFOA wetlands include white mulberry (*Morus alba*), eastern cottonwood (*Populus deltoides*), and silver maple (*Acer saccharinum*).

TABLE 2: DELINEATED WETLANDS

RESOURCE NUMBER	FIGURE 2 SHEET NO.	WETLAND CLASSIFICATION[1]	NEBRASKA WETLAND SUBCLASS	AREA[2] (acres)	POSSIBLY NON-JURISDICTIONAL[3]
Wetland 2	1	PEMA/PEMC	Floodplain Depression	2.2730	No
Wetland 3	1	PEMA/PEMC	Floodplain Depression	0.3218	No
Wetland 5	1,2	PEMA/PEMC	Floodplain Depression	0.0639	No
Wetland 7	2	PEMA/PEMC	Riverine Channel	0.1499	No
Wetland 8	2	PEMA/PEMC	Floodplain Depression	0.0346	No
Wetland 9	2,3	PFOA	Riverine Floodplain	0.7832	No
Wetland 11	2,3	PEMA/PEMC	Riverine Floodplain	0.2457	No
Wetland 12	3	PFOA	Riverine Floodplain[4]	0.6661	No
Wetland 13	3,4	PFOA	Riverine Floodplain [4]	0.3518	No
Wetland 14	3,4	PEMA/PEMC	Riverine Floodplain[4]	2.6097	No
Wetland 15	3,4	Farmed PEMA/PEMC	Riverine Floodplain[4]	2.2689	No
Wetland 17	4	PFOA	Floodplain Depression[4]	0.7031	No
Wetland 18	4,5	PSSA	Floodplain Depression[4]	0.1457	No
Wetland 20	4	PFOA	Floodplain Depression[4]	0.9787	No
Wetland 21	4,5,6	PSSA	Floodplain Depression[4]	0.7678[2]	No
Wetland 22	4,5,6	PEMA/PEMC	Floodplain Depression[4]	7.7940	No
Wetland 24	5,6	PEMA/PEMC	Floodplain Depression[4]	0.5285	No

[1] Cowardin classification as follows: PEMA - Palustrine Emergent Temporarily Flooded, PEMC - palustrine emergent semi-permanently flooded, and PFOA - palustrine forested temporarily flooded.
[2] The wetland is represented by multiple delineated areas. Wetland acreage provided in **Table 2** represents the total acreage of all delineated areas.
[3] All wetlands assumed to be jurisdictional under Section 404 of the Clean Water Act, unless a USACE Jurisdictional Determination is received indicating otherwise.
[4] Wetlands are in Iowa.

TABLE 3: OTHER WATER RESOURCES[1]

RESOURCE NUMBER	FIGURE 2 SHEET NO.	NAME	TYPE	FLOW REGIME	POSSIBLY NON-JURISDICTIONAL[2]
Channel 7	2	Unnamed Tributary	Channel	Intermittent	No
Channel 11	3	Missouri River	Channel	Perennial	No

[1] Other Water Resources are non-wetland water resources such as channels, ponds, and canals.
[2] All Water Resources are assumed to be jurisdictional under Section 404 of the Clean Water Act, unless a USACE Jurisdictional Determination is received indicating otherwise.

4.0 DISCUSSION

Much of the environmental study area was inundated a few weeks prior to the delineation due to heavy rains and flooding from elevated water levels in the Missouri River. Water levels had since receded but many low-lying areas still contained standing water at the time of the delineation. Most of these areas were determined to be wetlands, but likely do not contain standing water under normal hydrologic conditions.

Wetlands identified in this delineation are assumed to be jurisdictional and regulated by USACE under Section 404 of the Clean Water Act (see **Section 1.2**), unless a Jurisdictional Determination is received from USACE stating otherwise. Based on historical and current aerials, National Hydrography Dataset (NHD), LIDAR, and USGS topographic maps, it is likely that all wetlands and channels within the ESA are jurisdictional.

5.0 REFERENCES (Cited or Searched)

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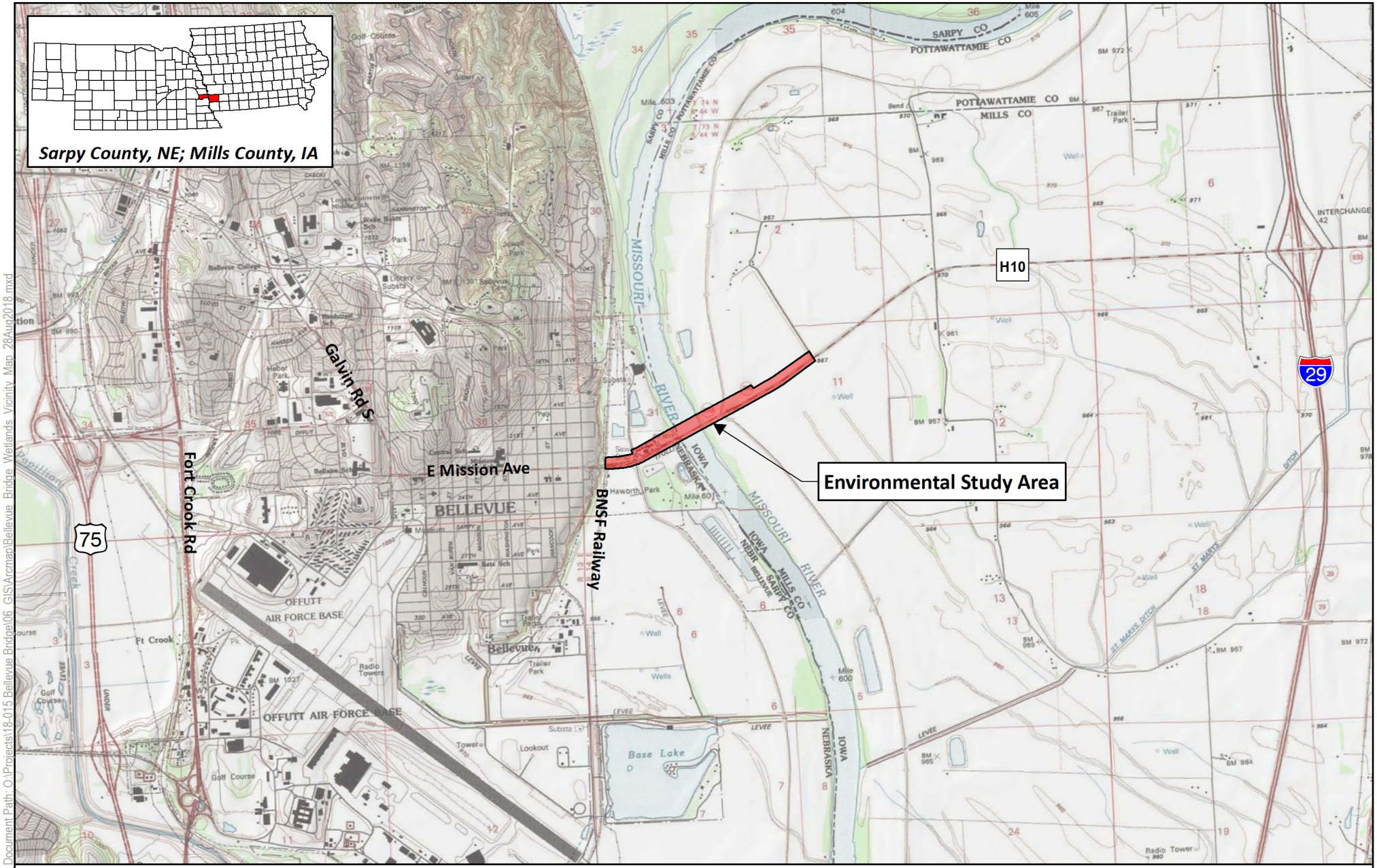
APPENDIX A:

FIGURES

Project No. MAPA-5002(3)
Control No. 22755



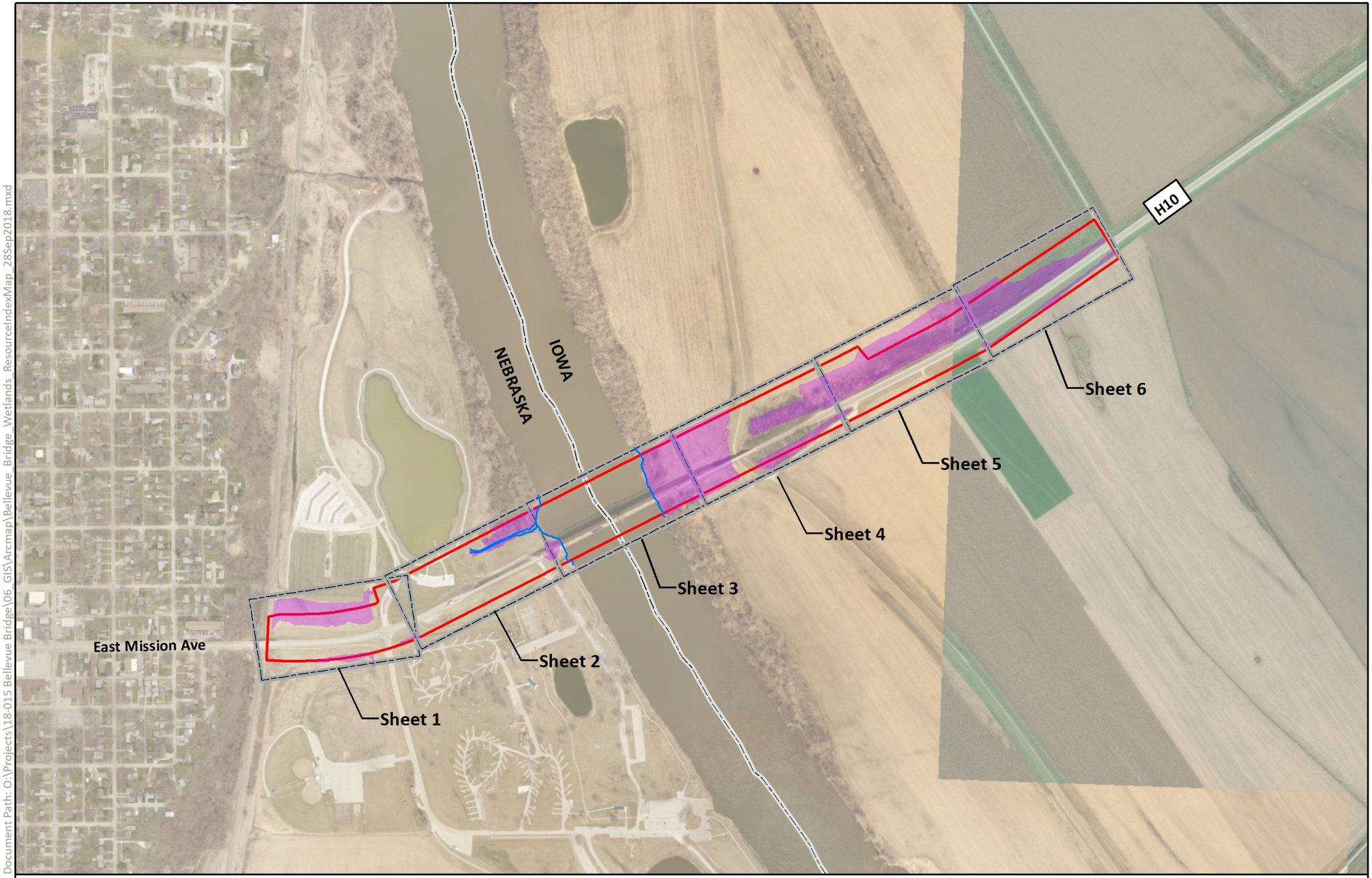
0 NORTH 2 Miles

Figure 1
Vicinity Map
Bellevue Bridge Alternatives Study
Sarpy County, NE & Mills County, IA

Topographic Source: 2013 National Geographic Society, i-cubed(Esri 2017); USGS 1:24,000 scale metric Topographic Map; Omaha South 1994, Council Bluffs South 1994, Plattsmouth 1994, Pacific Junction 1994

Aerial Source: 2016 High Res NEXOMA053065.sid

Project No. MAPA-5002(3)
Control No. 22755



Channel
Wetland
Environmental Study Area

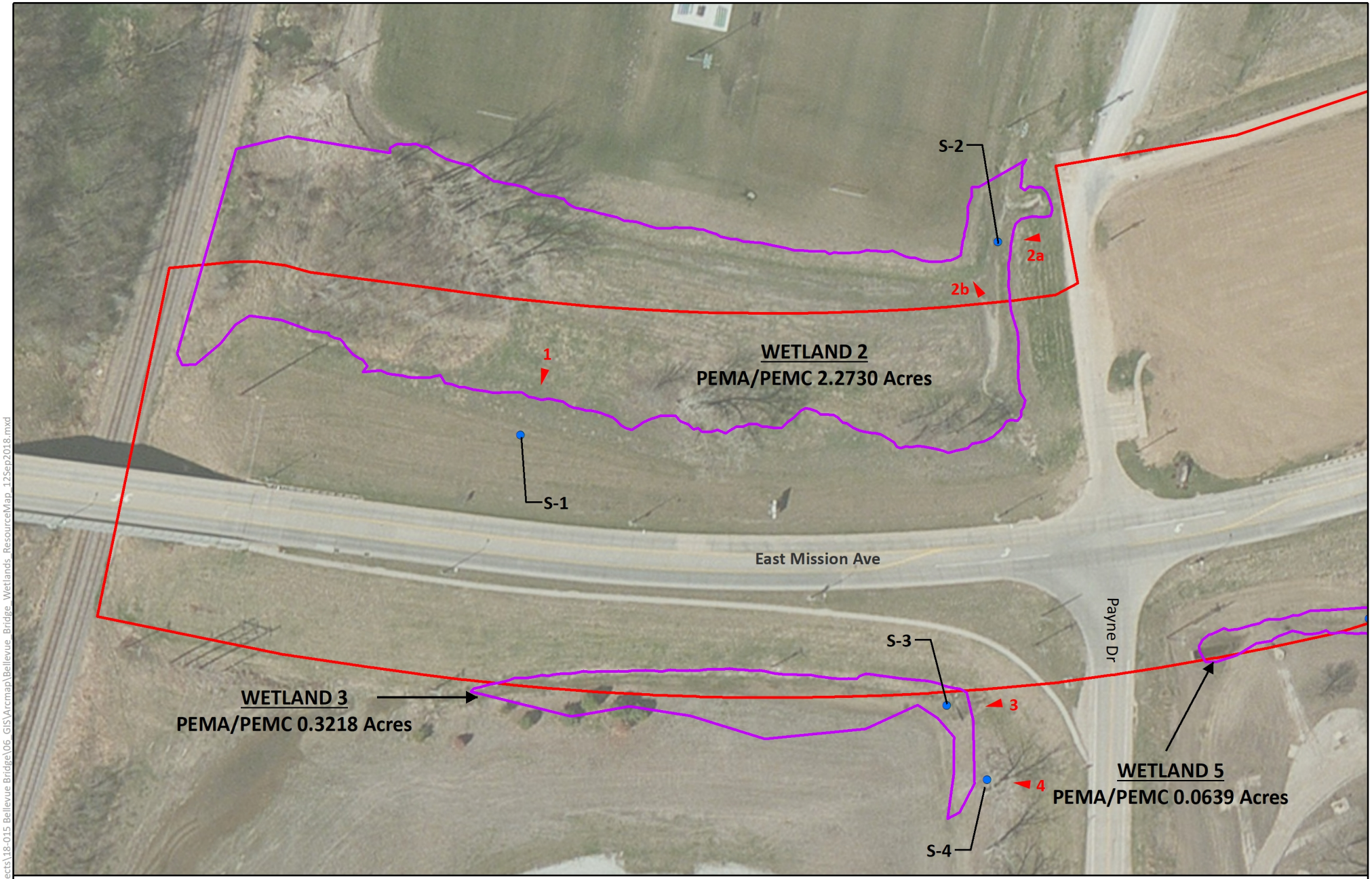
0 NORTH 1,000 Feet

Figure 2 - Index Map
Resource Map
Bellevue Bridge Alternatives Study
Sarpy County, NE; Mills County, IA

Aerial Source: Esri Aerial Imagery Service, 2018

Document Path: O:\Projects\18-015 Bellevue Bridge\06_GIS\Arcmap\Bellevue_Bridge_Wetlands_ResourceIndexMap_28Sep2018.mxd

Project No. MAPA-5002(3)
Control No. 22755



Sample Point
Photo direction
Channel
Railroads
Wetland
Environmental Study Area

0 NORTH 200 Feet

Figure 2 - Sheet 1

Resource Map

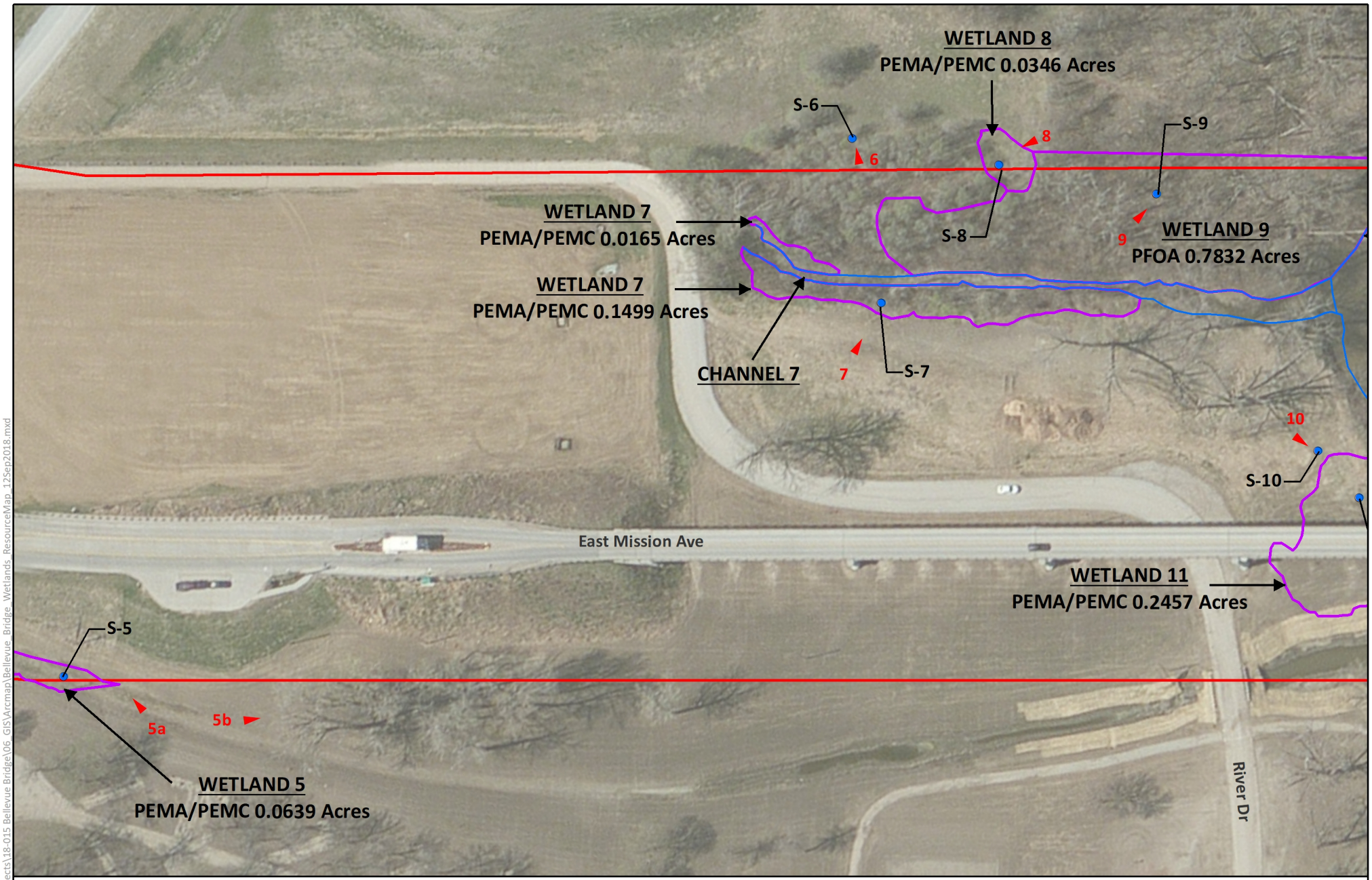
Bellevue Bridge Alternatives Study

Sarpy County, NE; Mills County, IA

Document Path: O:\Projects\18-015 Bellevue Bridge\06_GIS\Arcmap\Bellevue_Bridge_Wetlands_ResourceMap_12Sep2018.mxd

Aerial Source: Esri Aerial Imagery Service, 2018

Project No. MAPA-5002(3)
Control No. 22755



Sample Point
Photo direction
Channel
Railroads
Wetland
Environmental Study Area

0 200 Feet

NORTH

Figure 2 - Sheet 2

Resource Map

Bellevue Bridge Alternatives Study

Sarpy County, NE; Mills County, IA

Aerial Source: Esri Aerial Imagery Service, 2018

Document Path: O:\Projects\18-015 Bellevue Bridge\06_GIS\Arcmap\Bellevue_Bridge_Wetlands_ResourceMap_12Sep2018.mxd

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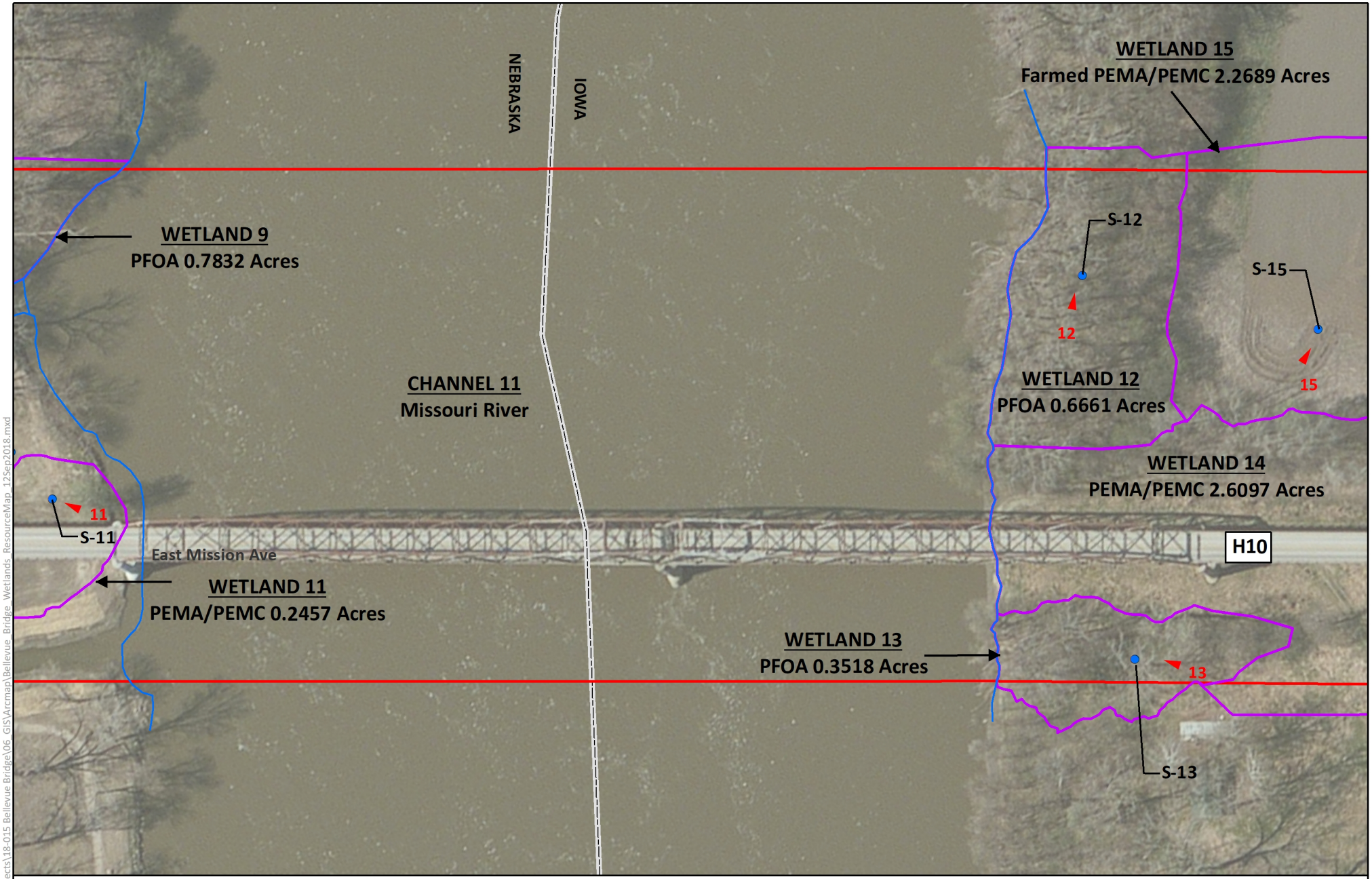


Sample Point
Photo direction
Channel
Railroads
Wetland
Environmental Study Area

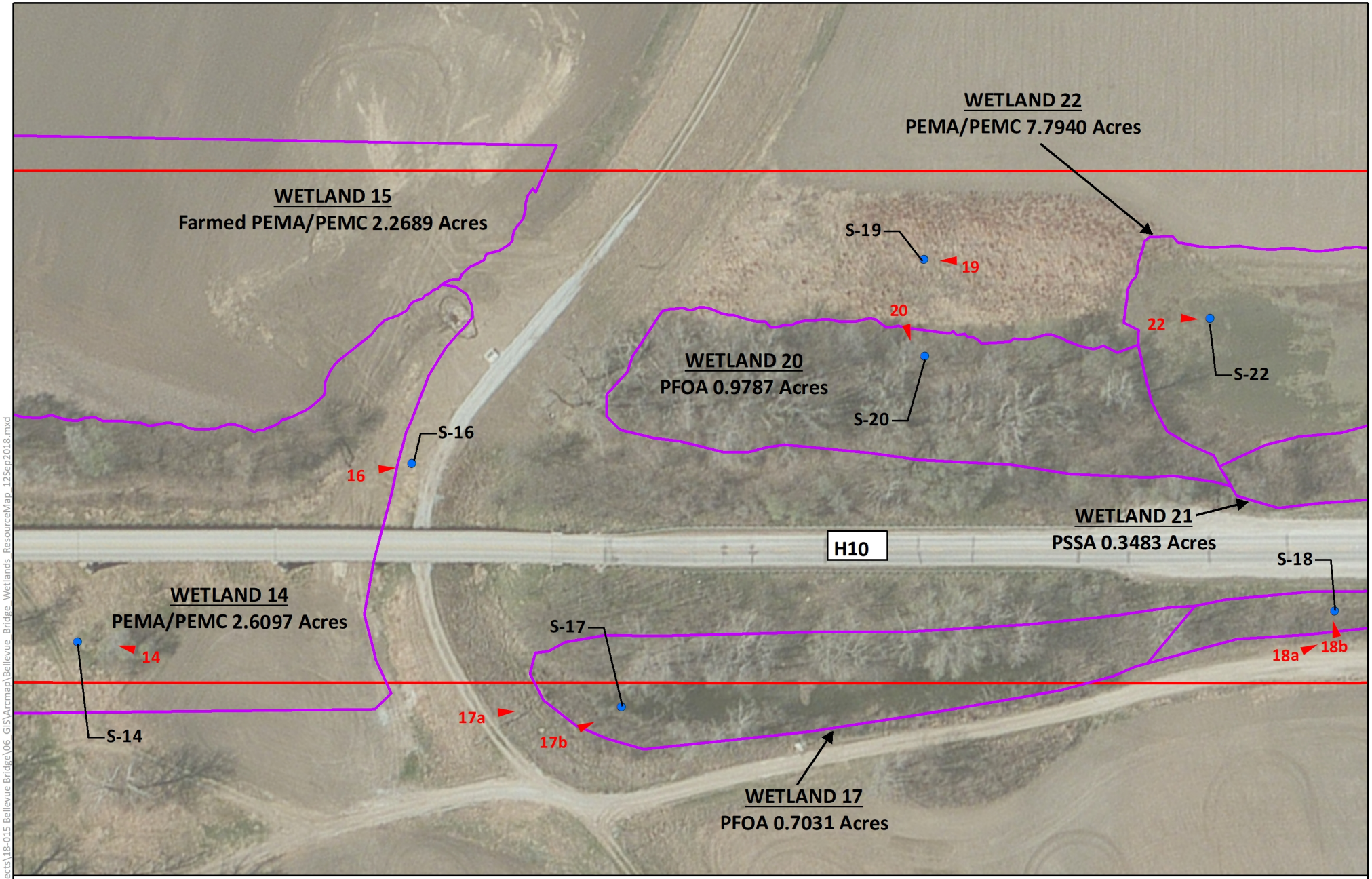
0 200 Feet
NORTH

Figure 2 - Sheet 3
Resource Map
Bellevue Bridge Alternatives Study
Sarpy County, NE; Mills County, IA

Aerial Source: Esri Aerial Imagery Service, 2018

Document Path: O:\Projects\18-015 Bellevue Bridge\06_GIS\Arcmap\Bellevue_Bridge_Wetlands_ResourceMap_12Sep2018.mxd

Project No. MAPA-5002(3)
Control No. 22755



Sample Point
Photo direction
Channel
Railroads
Wetland
Environmental Study Area

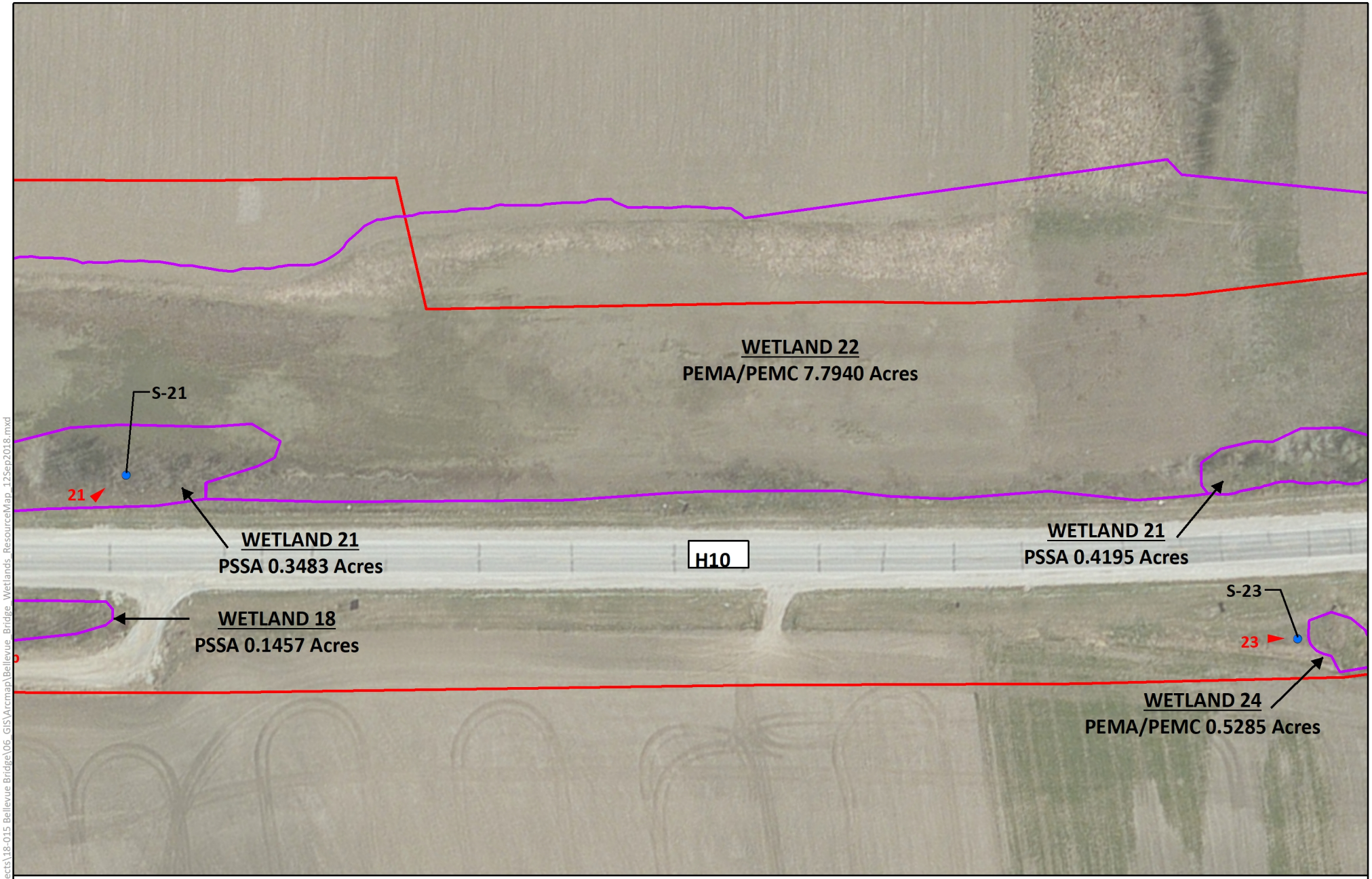
0 200 Feet
NORTH

Figure 2 - Sheet 4
Resource Map
Bellevue Bridge Alternatives Study
Sarpy County, NE; Mills County, IA

Aerial Source: Esri Aerial Imagery Service, 2018

Document Path: O:\Projects\18-015 Bellevue Bridge\06_GIS\Arcmap\Bellevue_Bridge_Wetlands_ResourceMap_12Sep2018.mxd

Project No. MAPA-5002(3)
Control No. 22755



Sample Point
Photo direction
Channel
Railroads
Wetland
Environmental Study Area

0 200 Feet

NORTH

Figure 2 - Sheet 5

Resource Map

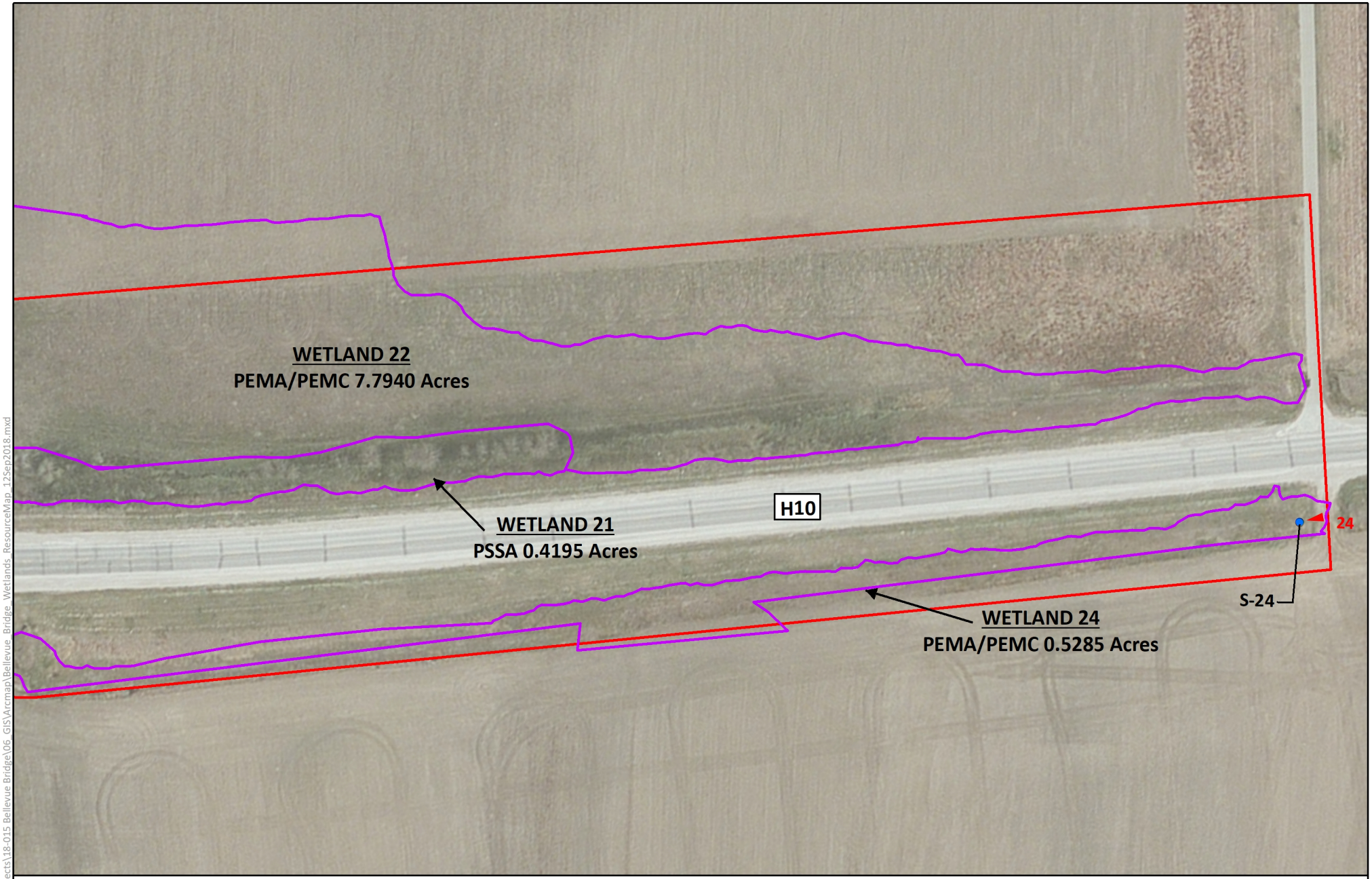
Bellevue Bridge Alternatives Study

Sarpy County, NE; Mills County, IA

Aerial Source: Esri Aerial Imagery Service, 2018

Document Path: O:\Projects\18-015 Bellevue Bridge\06_GIS\Arcmap\Bellevue_Bridge_Wetlands_ResourceMap_12Sep2018.mxd

Project No. MAPA-5002(3)
Control No. 22755



Sample Point
Photo direction
Channel
Railroads
Wetland
Environmental Study Area

0 200 Feet
NORTH

Figure 2 - Sheet 6
Resource Map
Bellevue Bridge Alternatives Study
Sarpy County, NE; Mills County, IA

Aerial Source: Esri Aerial Imagery Service, 2018

Document Path: O:\Projects\18-015 Bellevue Bridge\06_GIS\Arcmap\Bellevue_Bridge_Wetlands_ResourceMap_12Sep2018.mxd

APPENDIX B:

WETLAND DETERMINATION DATA FORMS MIDWEST REGION

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-1
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): sideslope | Local relief (concave, convex, none): | Slope (%): 40
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1367244185133 | Long: -95.886256341859 | Datum: NAD 83
Soil Map Unit Name: Onawa silty clay, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation , Soil X , or Hydrology significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation , Soil , or Hydrology naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample point S-1 is the upland outpoint for Wetland 2 located on a steep slope leading up to the E Mission Avenue roadway. Soils in the area do not appear to be natural as they were part of the constructed roadway embankment.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size:)			
1 *Poa pratensis*	65	Y	FAC
2 *Setaria viridis*	25	Y	UPL
3 *Lotus corniculatus*	10	N	FACU
4 *Phalaris arundinacea*	5	N	FACW
5			
6			
7			
8			
9			
10			
	105	= Total Cover	

Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	65	x 3 =	195
FACU species	10	x 4 =	40
UPL species	25	x 5 =	125
Column Totals	105 (A)		370 (B)

Prevalence Index = B/A = 3.52

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? N

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: S-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	75	10YR 5/8	15	C	M	Loamy clay	Gravel present
			10YR 6/2	10	D	M		
6-20	10YR 3/4	75	10YR 5/8	255	C	M	Loamy clay	Sand and gravel present

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

The sampled soil is fill material for the embankment. The soil is a problematic hydric soil because it meets indicators for a hydric soil but has been disturbed as evidenced by the presence of mixed-in gravel and sand.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

There are no wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-2
Investigator(s): KMU ATB | Section, Township, Range: S21, T14N, R14E
Landform (hillslope, terrace, etc.): Ditch / drainage path | Local relief (concave, convex, none): Concave | Slope (%): 0-8
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1372832310737 | Long: -95.8849700940134 | Datum: NAD 83
Soil Map Unit Name: Onawa-Lossing silty clays, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 2

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PEMA/PEMC wetland located within a ditch/drainage swale leading to a concrete box culvert, and extending into an adjacent field north of E Mission Ave. The ditch was flooded due to high flows in the Missouri River backing up through culverts. Historic aerial imagery indicates the ditch is not typically inundated.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1 *Cornus drummondii*	3	Y	FAC
2 *Fraxinus pennsylvanica*	2	Y	FACW
3			
4			
5			
	5 = Total Cover		
Herb Stratum (Plot size: ____)			
1 *Cyperus esculentus*	35	Y	FACW
2 *Persicaria maculosa*	25	Y	FACW
3 *Setaria viridis*	10	N	UPL
4 *Amaranthus retroflexus*	5	N	FACU
5			
6			
7			
8			
9			
10			
	75 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	62	x 2 =	124
FAC species	3	x 3 =	9
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals	80 (A)		203 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

The sample point was within the ditch. Other areas of the wetland were dominated by *Phalaris arundinacea.*

SOIL

Sampling Point: S-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					Loamy clay	
8-12	10YR 2/2	95	10YR 5/8	5	C	M	Loamy clay	
12-20	10YR 3/2	100					Loamy clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

The soil sample was taken in the area of the wetland dominated by *Phalaris arundinacea* where soils were saturated but not inundated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	1
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The ditch was flooded due to water backing up from the culvert leading to the Missouri River. Above the ditch, many other areas of the wetland contained up to an inch of surface water.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-3
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): Drainage path | Local relief (concave, convex, none): Concave | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1362785544877 | Long: -95.8849528372288 | Datum: NAD 83
Soil Map Unit Name: Onawa-Lossing silty clays, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 3

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PEMA/PEMC wetland located in the East Mission Avenue roadside ditch. Hydrologic conditions are not typical due to high flows in the Missouri River backing up water into the wetland through a reinforced concrete pipe culvert at the East Mission Avenue and Payne Drive intersection. Historic aerial imagery indicates the wetland is not typically inundated.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	30	Y	FACW
2 *Persicaria maculosa*	25	Y	FACW
3 *Panicum virgatum*	5	N	FAC
4			
5			
6			
7			
8			
9			
10			
	60	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	60 (A)		125 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

The wetland is approximately 40 percent bare ground/open water.

SOIL

Sampling Point: S-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? _____

Remarks:

No soil sample was taken due the presence of surface water. However, soils are assumed hydric based on the presence of hydrophytic vegetation and standing water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No	___	Depth (inches):	10
Water Table Present?	Yes	___	No	___	Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes	___	No	___	Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The wetland is inundated due to high flows in the Missouri River backing up through drainage swales and culverts. Although the wetland may not typically be inundated, saturation or inundation does occur at a frequency and duration sufficient to support hydrophytic vegetation.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-4
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): Toe of the hillslope | Local relief (concave, convex, none): None | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1361323589264 | Long: -95.8848320441071 | Datum: NAD 83
Soil Map Unit Name: Onawa-Lossing silty clays, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample is the upland outpoint to Wetland 3, located at the toe of the roadway slope and at a higher elevation than the adjacent wetland.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size:)			
1 *Sorghastrum nutans*	35	Y	FACU
2 *Schedonorus arundinaceus*	20	Y	FACU
3 *Poa pratensis*	20	Y	FAC
4 *Setaria viridis*	15	N	UPL
5 *Andropogon gerardii*	10	N	FAC
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	55	x 4 =	220
UPL species	15	x 5 =	75
Column Totals	100 (A)		385 (B)

Prevalence Index = B/A = 3.85

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? N

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: S-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Loamy clay	
4-16	10YR 4/2	100					Loamy clay	
16-20	10YR 4/2	90	10YR 5/8	10	C	M	Loamy clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? N

Remarks:

No redox concentrations occur within the upper 12 inches of soil and no hydric soil indicators are met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes		No	X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes		No	X	Depth (inches):

Indicators of Wetland Hydrology Present? N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area drains toward Wetland 3.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-5
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): Drainage ditch | Local relief (concave, convex, none): Concave | Slope (%): 0-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1366363490804 | Long: -95.8834096038976 | Datum: NAD 83
Soil Map Unit Name: Onawa-Lossing silty clays, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 5

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PEMA/PEMC wetland located in a drainage ditch between two culverts, with the east culvert leading to the Missouri River. The entire area was recently inundated due to water backing up from the river, and standing water was still present throughout the ditch. No upland outpoint was sampled because the adjacent upland areas were disturbed from tilling and seeding after the recent flooding.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Echinochloa crus-galli*	70	Y	FACW
2 *Cyperus esculentus*	20	Y	FACW
3 *Persicaria maculosa*	8	N	FACW
4 *Persicaria lapathifolia*	2	N	FACW
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

Typha angustifolia was present near the culvert at the west end of the wetland, but not in the sample point area.

SOIL

Sampling Point: S-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

Soils were not sampled due to the presence of standing water throughout the wetland. However, soils are assumed hydric based on the presence of hydrophytic vegetation and standing water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	4
Water Table Present?	Yes		No		Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes		No		Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The standing water is due to flooding from the Missouri River. The area is likely always a wetland but does not usually have standing water present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-6
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.13845872389 | Long: -95.882437640248 | Datum: NAD 83
Soil Map Unit Name: Carr-Ticonic-Scroll complex, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample point S-6 is the upland outpoint for Wetland 7, 8, and 9. It is located in the Missouri River floodplain. Based on historic aerial imagery, this area may have been disturbed in recent years due to construction of a berm and trail just to the west.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1 *Ulmus pumila*	4		UPL
2			
3			
4			
5			
	4 = Total Cover		
Herb Stratum (Plot size: ____)			
1 *Poa pratensis*	50	Y	FAC
2 *Convolvulus arvensis*	15	Y	UPL
3 *Setaria viridis*	10	N	UPL
4 *Cyperus esculentus*	10	N	FACW
5 *Humulus japonicus*	10	N	FACU
6 *Solidago gigantea*	6	N	FACW
7 *Solidago canadensis*	4	N	FACU
8			
9			
10			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	16	x 2 =	32
FAC species	50	x 3 =	150
FACU species	14	x 4 =	56
UPL species	29	x 5 =	145
Column Totals	109 (A)		383 (B)

Prevalence Index = B/A = 3.51

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? N

Remarks: (Include photo numbers here or on a separate sheet.)

Many annual weedy species are present in this area, which may be indicative of recent disturbance.

SOIL

Sampling Point: S-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sand	
4-12	10YR 3/3	50					Loamy clay	
	10YR 5/3	50						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compact, dense

Depth (inches): 12

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area is generally flat, but may slope slightly toward adjacent wetland areas.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-7
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): channel fringe | Local relief (concave, convex, none): Concave | Slope (%): 0-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1380559552486 | Long: -95.8821741806973 | Datum: NAD 83
Soil Map Unit Name: Onawa-Lossing silty clays, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 7

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PEMA/PEMC wetland located on the fringe of a channel (Channel 7) draining from two culverts to the Missouri River. The width of the channel at the time of sampling was much more than is typical (about 40 feet wide) due to high flows from the Missouri River backing up into the area. The culvert outlets were entirely submerged. One culvert drains from the pond at American Heroes Park, the other from open drainages located at Wetland 2 and from the parking lot at American Heroes Park.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1 *Cornus drummondii*	5	Y	FAC
2 *Fraxinus pennsylvanica*	4	Y	FACW
3 *Platanus occidentalis*	2	N	FACW
4 *Morus alba*	2	N	FAC
5 *Gleditsia triacanthos*	2	N	FACU
	15 = Total Cover		
Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	80	Y	FACW
2 *Apocynum cannabinum*	20	Y	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	86	x 2 =	172
FAC species	27	x 3 =	81
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals	115 (A)		261 (B)

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

The trees were small (<3-inch DBH) and were therefore included in the sapling/shrub stratum.

SOIL

Sampling Point: S-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	30	10YR 6/8	25	C	M	Loam	Sand/gravel prevalent
	10YR 4/2	25						
	10 YR 3/3	20						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel, fill

Depth (inches): 8

Hydric Soil Present? Y

Remarks:

Could not get beyond 8 inches due to presence of gravel in soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	
Water Table Present?	Yes		No		Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes		No		Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Based on historical aerial imagery, the channel is likely only a few feet wide under typical hydrologic conditions; the OHWM was estimated based on aerial imagery. Water appeared to be backflowing into the channel from the Missouri River at the time of the site visit. The presence of a water table / saturation within 12 inches couldn't be determined due to the restricted depth of sampling from gravel in the soil.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-8
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): Floodplain Depression | Local relief (concave, convex, none): Concave | Slope (%): 0-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.138459162443 | Long: -95.8820613635208 | Datum: NAD 83
Soil Map Unit Name: Ticonic-Sarpy-Carr complex, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil X, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 8

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PEMA/PEMC wetland located in a floodplain depression outside the canopy of a PFOA wetland (Wetland 9).

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Fraxinus pennsylvanica*	10	Y	FACW
2 *Cornus drummondii*	10	Y	FAC
3 *Ulmus thomasii*	5	Y	FAC
4			
5			
	25	= Total Cover	

Herb Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Cyperus esculentus*	30	Y	FACW
2 *Phalaris arundinacea*	20	Y	FACW
3 *Toxicodendron radicans*	10	N	FAC
4			
5			
6			
7			
8			
9			
10			
	60	= Total Cover	

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	85 (A)		195 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

All species are FAC or FACW.

SOIL

Sampling Point: S-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Sandy loam	
2-6	10YR 3/3	100					Sand	
6-14	10YR 4/3	100					Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compact, dense

Depth (inches): 14

Hydric Soil Present? Y

Remarks:

The soils are considered a problematic hydric soil based on the presence of hydrophytic vegetation and wetland hydrology indicators. The absence of hydric soil indicators is likely due to sand deposition from historical river flooding. Aerial imagery from 2012 shows sand deposits in this area which may have covered over hydric soil layers.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes		No	X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes		No	X	Depth (inches):

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dead vegetation is present on the ground surface and is an indication of recent inundation, but no surface water was present at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-9
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 0-10
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1385529539637 | Long: -95.8816239619454 | Datum: NAD 83
Soil Map Unit Name: Ticonic-Sarpy-Carr complex, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil X, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 9

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PFOA wetland located in a riparian woodland along the west bank of the Missouri River (Channel 11). The topography is undulating due to uneven depostion of sand from periodic Missouri River flooding.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Morus alba*	60	Y	FAC
2 *Populus deltoides*	20	Y	FAC
3 *Fraxinus pennsylvanica*	10	N	FACW
4			
5			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Cornus alternifolia*	8	Y	FAC
2 *Morus alba*	2	Y	FAC
3			
4			
5			
	10	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Teucrium canadense*	20	Y	FACW
2 *Viola sororia*	15	Y	FAC
3 *Commelina communis*	10	N	FACU
4 *Eupatorium serotinum*	5	N	FAC
5 *Toxicodendron radicans*	5	N	FAC
6 *Persicaria punctata*	3	N	OBL
7 *Sicyos angulatus*	2	N	FACW
8			
9			
10			
	60	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across all Strata: 6 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	32	x 2 =	64
FAC species	115	x 3 =	345
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals	160 (A)		452 (B)

Prevalence Index = B/A = 2.83

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

Area has a mix of upland and hydrophytic species in the herb stratum. With the undulating topography, depressions contain a higher proportion of hydrophytic species than level areas, but the overall vegetation is hydrophytic.

SOIL

Sampling Point: S-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Silt loam	
4-20	10YR 4/2	100					Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

The soil is considered a problematic hydric soil based on the presence of hydrophytic vegetation and wetland hydrology indicators. The absence of hydric soil indicators is likely due to periodic sand deposition from river flooding. Aerial imagery from 2012 show sand deposits in this area which may have covered over existing hydric soil layers.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Due to the undulating topography, there are numerous depressions that likely are periodically inundated as evidenced by water-stained leaves.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-10
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): Terrace/Floodplain | Local relief (concave, convex, none): None | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1382107277198 | Long: -95.8808911704224 | Datum: NAD 83
Soil Map Unit Name: Ticonic-Sarpy-Carr complex, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample point S-10 is the upland outpoint for Wetland 11 located on an open terrace in the Missouri River floodplain north of the Bellevue Bridge.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size:)			
1 *Setaria viridis*	70	Y	UPL
2 *Andropogon gerardii*	10	N	FAC
3 *Panicum virgatum*	10	N	FAC
4 *Setaria faberi*	10	N	FACU
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	10	x 4 =	40
UPL species	70	x 5 =	350
Column Totals	100 (A)		450 (B)

Prevalence Index = B/A = 4.50

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? N

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: S-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Loamy clay	Saturated
4-8	10YR 4/2	95	10YR 6/1	5	D	M	Loamy clay	
8-12	10YR 3/3	100					Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compact, dense

Depth (inches): 12

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes		No	X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes		No	X	Depth (inches):

Indicators of Wetland Hydrology Present? N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The area is at a higher elevation than Wetland 11 and drains toward the wetland and the Missouri River.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Sarpy County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Nebraska | Sampling Point: S-11
Investigator(s): KMU ATB | Section, Township, Range: S31, T14N, R14E
Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%): 0-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1381594952443 | Long: -95.880728280456 | Datum: NAD 83
Soil Map Unit Name: Ticonic-Sarpy-Carr complex, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation , Soil , or Hydrology naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 11, Channel 11

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents the Missouri River (Channel 11) and a PEMA/PEMC wetland located under the Bellevue Bridge along the west bank of the Missouri River. The Missouri River is a perennial river approximately 700-feet wide at the location of the Bellevue Bridge.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size:)			
1 *Cyperus esculentus*	20	Y	FACW
2 *Panicum dichotomiflorum*	20	Y	FACW
3 *Persicaria lapathifolia*	15	Y	FACW
4 *Populus deltoides*	15	Y	FAC
5 *Bidens cernua*	10	N	OBL
6 *Amaranthus tuberculatus*	5	N	OBL
7			
8			
9			
10			
	85	= Total Cover	

Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	55	x 2 =	110
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	85 (A)		170 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

Populus deltoides saplings are less than 3 feet tall and therefore included in the herbaceous stratum.

SOIL

Sampling Point: S-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Sand	
6-14	10YR 4/2	40	10YR 5/8	30	C	M	Clay loam	
	10YR 2/2	30						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compact, dense

Depth (inches): 14

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The area is near the edge of the Missouri River (Channel 11), a perennial river that is approximately 700 feet wide in the vicinity of the project.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-12
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Terrace / Floodplain | Local relief (concave, convex, none): Concave/Convex | Slope (%): -
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1402666663204 | Long: -95.8764776336365 | Datum: NAD 83
Soil Map Unit Name: Sarpy fine sandy loam, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 12

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PFOA wetland located in the wooded riparian corridor along the east bank of the Missouri River. The local relief is variable with both concave and convex areas.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1 *Acer saccharinum*	30	Y	FACW
2 *Morus alba*	10	Y	FAC
3 *Populus deltoides*	5	N	FAC
4			
5			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1 *Acer saccharinum*	5	Y	FACW
2			
3			
4			
5			
	5	= Total Cover	
Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	65	Y	FACW
2 *Eupatorium serotinum*	15	N	FAC
3 *Humulus japonicus*	5	N	FACU
4 *Urtica dioica*	3	N	FACW
5 *Sicyos angulatus*	2	N	FACW
6			
7			
8			
9			
10			
	90	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	30	x 3 =	90
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals	140 (A)		320 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

The canopy is relatively open, but contains more than 30 percent cover.

SOIL

Sampling Point: S-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Loamy clay	
2-12	10YR 2/2	90	10YR 5/8	5	C	M	Clay loam	
	10YR 4/2	5						
12-20	10YR 4/2	90					Sandy clay	
	10YR 2/2	10						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The area has undulating topography with many depressions, likely due to deposition of materials from periodic river flooding.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-13
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Drainage path | Local relief (concave, convex, none): Concave | Slope (%): 0-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.138873620336 | Long: -95.8777725033853 | Datum: NAD 83
Soil Map Unit Name: Sarpy fine sandy loam, 0 to 2 percent slops | NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 13

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland 13 is a PFOA wetland located along a drainage pathway leading to the Missouri River (Channel 11). There is evidence of overland flow through the wetland.

VEGETATION -- Use scientific names of plants.

	Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1	*Morus alba*	70	Y	FAC
2	*Populus deltoides*	20	Y	FAC
3				
4				
5				
		90	= Total Cover	
	Sapling/Shrub Stratum (Plot size:)			
1				
2				
3				
4				
5				
		0	= Total Cover	
	Herb Stratum (Plot size:)			
1	*Phalaris arundinacea*	30	Y	FACW
2	*Commelina communis*	10	N	FACU
3	*Urtica dioica*	10	N	FACW
4	*Sicyos angulatus*	3	N	FACW
5	*Rumex crispus*	2	N	FAC
6				
7				
8				
9				
10				
		55	= Total Cover	
	Woody Vine Stratum (Plot size:)			
1				
2				
		0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	43	x 2 =	86
FAC species	92	x 3 =	276
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals	145 (A)		402 (B)

Prevalence Index = B/A = 2.77

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

The area has approximately 40 percent bare ground.

SOIL

Sampling Point: S-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Sandy clay	
4-10	10YR 2/2	90	10YR 5/8	10	C	M	Sandy clay loam	
10-20	10YR 3/3	95	10YR 5/8	5	C	M	Loamy clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

There is evidence of overland flow through the area based on bent and matted down vegetation and the presence of debris on the ground. However, there are no channel or erosional features.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-14
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Terrace / Floodplain | Local relief (concave, convex, none): None | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1391473894891 | Long: -95.8771335030898 | Datum: NAD 83
Soil Map Unit Name: Haynie silt loam, 0 to 2 percent slopes, occasionally flooded | NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil X, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 14

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland 14 is a PEMA/PEMC wetland located in the floodplain on the east side of the Missouri River, including areas beneath the Bellevue Bridge. Wetland 14 supports natural vegetation, but is a continuation of farmed wetlands to the north and south.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Echinochloa crus-galli*	60	Y	FACW
2 *Panicum dichotomiflorum*	30	Y	FACW
3 *Persicaria lapathifolia*	10	N	FACW
4 *Cyperus esculentus*	5	N	FACW
5			
6			
7			
8			
9			
10			
	105	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	105 (A)		210 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

Based on historical imagery, much of Wetland 14 will be planted with crops in drier years, but appears to have been left fallow in 2018 as natural vegetation is present.

SOIL

Sampling Point: S-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	95	10YR 6/1	5	D	M	Clay loam	
6-20	10YR 4/4	100					Clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

New material was likely depostied during recent flooding. The presence of dominant hydrophytic vegetation and wetland hydrology (standing water, geomorphic position) supports a problematic hydric soil designation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	2
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The area was recently inundated (July 2018), but had receded by the time of the site visit. A backwater area was present; although it resembled a channel, this feature ended abruptly after a few hundred feet. Based on historical imagery, it appears to fill with water when there are high flows in the river, and is dry at other times.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-15
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1395624982115 | Long: -95.8783854112953 | Datum: NAD 83
Soil Map Unit Name: Percival silty clay, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation X, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 15

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a farmed PEMA/PEMC wetland in the Missouri River floodplain. The field appeared to have been planted with soybeans earlier in the year, but after flooding due to high river levels and heavy rains, is now dominated by weedy annual species. A large portion of the wetland was still covered in standing water.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Amaranthus tuberculatus*	40	Y	OBL
2 *Xanthium strumarium*	15	N	FAC
3 *Abutilon theophrasti*	15	N	FACU
4 *Populus deltoides*	5	N	FAC
5 *Morus alba*	2	N	FAC
6			
7			
8			
9			
10			
	77	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	0	x 2 =	0
FAC species	22	x 3 =	66
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals	77 (A)		166 (B)

Prevalence Index = B/A = 2.16

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

Areas where the floodwaters had receded were dominated by weedy annual species. The field appeared to have been planted with soybeans (*Glycine max*) earlier in the year. However, none remained at the location of the sample point and therefore were not included in the herb stratum.

SOIL

Sampling Point: S-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Clay loam	
4-8	10YR 2/1	95	10YR 5/8	5	C	M	Clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compact, dense

Depth (inches): 8

Hydric Soil Present? Y

Remarks:

Hydric soils indicators were present within the top 8 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	4
Water Table Present?	Yes		No		Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes		No		Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Based on historical aerial imagery, the field contains wet signatures in many years. The entire field was inundated a few weeks prior to the delineation. Large areas of standing water were still present at the time of the delienation.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-16
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Sideslope | Local relief (concave, convex, none): None | Slope (%): 50
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1398042542731 | Long: -95.8764558794332 | Datum: NAD 83
Soil Map Unit Name: Haynie silt loam, 0 to 2 percent slopes, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample point S-16 is the upland outpoint for Wetlands 12, 13, 14, and 15. The sampled area is located on the riverside slope of the levee. Because of the continuous nature of the wetlands on the riverside of the levee, this was the only upland area available as an outpoint.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size:)			
1 *Setaria faberi*	40	Y	FACU
2 *Sorghastrum nutans*	35	Y	FACU
3 *Abutilon theophrasti*	10	N	FACU
4 *Panicum virgatum*	10	N	FAC
5 *Phalaris arundinacea*	6	N	FACW
6 *Chenopodium album*	2	N	FACU
7			
8			
9			
10			
	103	= Total Cover	

Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	6	x 2 =	12
FAC species	10	x 3 =	30
FACU species	87	x 4 =	348
UPL species	0	x 5 =	0
Column Totals	103 (A)		390 (B)

Prevalence Index = B/A = 3.79

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? N

Remarks: (Include photo numbers here or on a separate sheet.)

A small amount of *Phalaris arundinacea* is creeping upslope from the wetlands, but overall vegetation is upland.

SOIL

Sampling Point: S-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rip rap

Depth (inches): 0

Hydric Soil Present? N

Remarks:

Unable to take a soil sample due to the presence of rip rap. Soils are assumed to be non-hydric sbased on the lack of hydrophytic vegetation and wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes		No	X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes		No	X	Depth (inches):

Indicators of Wetland Hydrology Present? N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Located on levee slope, no ability to retain water.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-17
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Ditch / depression | Local relief (concave, convex, none): Concave | Slope (%): 0-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1393548306779 | Long: -95.8758480986777 | Datum: NAD 83
Soil Map Unit Name: Haynie silt loam, 0 to 2 percent slopes, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 17

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PFOA wetland dominated by a tree canopy of *Populus deltoides* and *Salix amygdaloides*. The central portion of the wetland was inundated.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1 *Populus deltoides*	40	Y	FAC
2 *Salix amygdaloides*	15	Y	FACW
3 *Salix interior*	5	N	FACW
4			
5			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1 *Salix interior*	15	Y	FACW
2 *Cornus drummondii*	10	Y	FAC
3			
4			
5			
	25	= Total Cover	
Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	40	Y	FACW
2 *Lemna minor*	8	N	OBL
3 *Equisetum arvense*	2	N	FAC
4			
5			
6			
7			
8			
9			
10			
	50	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	75	x 2 =	150
FAC species	52	x 3 =	156
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	135 (A)		314 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

Much of the vegetation was growing near the edges of the standing water, but some vegetation was growing in the central portion. At the time of the delineation, many of the trees were growing within the area of standing water. However, water levels were likely higher than is typical.

SOIL

Sampling Point: S-17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

No soil sample was taken due to the presence of standing water throughout the wetland. Soils are assumed hydric based on the presence of hydrophytic vegetation and wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- X True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No	___	Depth (inches):	12-24
Water Table Present?	Yes	___	No	___	Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes	___	No	___	Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The depth of standing water was estimated to be approximately 1 to 2 feet. Based on historical aerial imagery, it appears that the wetland often contains some standing water, but dries up periodically. At the time of the delineation, the water levels were likely higher than is typical.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-18
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0-4
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1404171785446 | Long: -95.8737555255624 | Datum: NAD 83
Soil Map Unit Name: Onawa silty clay, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 18

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PSSA wetland located in the roadside ditch. The wetland is located directly east of a PFOA wetland (Wetland 17).

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Morus alba*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1 *Cornus drummondii*	100	Y	FAC
2			
3			
4			
5			
	100	= Total Cover	
Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	30	Y	FACW
2 *Solidago gigantea*	10	Y	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	40	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	110	x 3 =	330
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	150 (A)		410 (B)

Prevalence Index = B/A = 2.73

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

The herbaceous vegetation is sparse at the base of the *Cornus drummondii* , and is mostly present along the edge of standing water in the bottom of the ditch.

SOIL

Sampling Point: S-18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

No soil sample was taken due to the presence of standing water throughout the wetland. Soils are assumed hydric based on the presence of hydrophytic vegetation and wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	6
Water Table Present?	Yes		No		Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes		No		Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The ditch is full of standing water.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-19
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): None | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1406716684297 | Long: -95.8754408912135 | Datum: NAD 83
Soil Map Unit Name: Vore silty clay loam, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample point S-19 is the upland outpoint to Wetlands 20, 21, and 22. The sample point is located on a flat area between the agricultural field (Wetland 18) and the PFOA wetland (Wetland 20). The area was determined to be upland based on the absence of wetland hydrology and hydric soils despite having a plant community dominated by facultative species.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1 *Cornus drummondii*	10	Y	FAC
2			
3			
4			
5			
	10 = Total Cover		
Herb Stratum (Plot size: ____)			
1 *Poa pratensis*	70	Y	FAC
2 *Solidago canadensis*	15	N	FACU
3 *Phalaris arundinacea*	8	N	FACW
4 *Setaria viridis*	5	N	UPL
5 *Sorghastrum nutans*	5	N	FACU
6 *Chamaecrista fasciculata*	2	N	FACU
7			
8			
9			
10			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	80	x 3 =	240
FACU species	22	x 4 =	88
UPL species	5	x 5 =	25
Column Totals	115 (A)		369 (B)

Prevalence Index = B/A = 3.21

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: S-19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Loamy clay	
4-8	10YR 3/1	80					Loamy clay	
	10YR 3/3	10	10YR 6/2	10	D	M		
8-22	10YR 3/1	100					Loamy clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The area has a relatively flat, uniform topography.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-20
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.140529808854 | Long: -95.8753503292646 | Datum: NAD 83
Soil Map Unit Name: Vore silty clay loam, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 20

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PFOA wetland. The wetland is very similar to Wetland 17, but on the opposite side of the road. The central portion of the wetland was inundated.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1 *Morus alba*	40	Y	FAC
2 *Populus deltoides*	35	Y	FAC
3 *Acer saccharinum*	10	N	FACW
4 *Gleditsia triacanthos*	5	N	FACU
5			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1 *Cornus drummondii*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	
Herb Stratum (Plot size:)			
1 *Phalaris arundinacea*	25	Y	FACW
2 *Toxicodendron radicans*	20	Y	FAC
3 *Solidago canadensis*	15	Y	FACU
4 *Lemna minor*	5	N	OBL
5 *Cyperus esculentus*	5	N	FACW
6			
7			
8			
9			
10			
	70	= Total Cover	
Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across all Strata: 6 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	40	x 2 =	80
FAC species	105	x 3 =	315
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals	170 (A)		480 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

With the exception of *Lemna minor*, most vegetation was growing near the edges of the open water. Many of the trees were growing in the standing water at the time of the delineation, but water levels were likely higher than is typical.

SOIL

Sampling Point: S-20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

No soil sample was taken due to the presence of standing water throughout the wetland. Soils are assumed hydric based on the presence of hydrophytic vegetation and wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- X True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No	___	Depth (inches):	12-24
Water Table Present?	Yes	___	No	___	Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes	___	No	___	Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The depth of standing water was estimated to be approximately 1 to 2 feet. Based on historical aerial imagery, it appears that the wetland often contains some standing water, but dries up periodically. At the time of the delineation, the water levels were likely higher than is typical.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-21
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Ditch | Local relief (concave, convex, none): None | Slope (%): 0
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1405671974276 | Long: -95.8746411008296 | Datum: NAD 83
Soil Map Unit Name: Percival silty clay, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 20

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PSSA wetland located in the road ditch. The area was inundated at the time of the delineation.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1 *Morus alba*	5	Y	FAC
2			
3			
4			
5			
	5	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1 *Cornus drummondii*	20	Y	FAC
2 *Salix interior*	15	Y	FACW
3 *Morus alba*	5	N	FAC
4			
5			
	40	= Total Cover	

Herb Stratum (Plot size:)			
1 *Phalaris arundinacea*	25	Y	FACW
2 *Equisetum arvense*	20	Y	FAC
3 *Lemna minor*	20	Y	OBL
4			
5			
6			
7			
8			
9			
10			
	65	= Total Cover	

Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across all Strata: 6 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	40	x 2 =	80
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	110 (A)		250 (B)

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: S-21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

No soil sample was taken due to the presence of standing water throughout the wetland. Soils are assumed hydric based on the presence of hydrophytic vegetation and wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No	___	Depth (inches):	8
Water Table Present?	Yes	___	No	___	Depth (inches):	na
Saturation Present? (includes capillary fringe)	Yes	___	No	___	Depth (inches):	na

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Standing water fills much of the road ditch. Based on aerial imagery, nearly all of the wetland was inundated a few weeks before the delineation, but waters have since receded. Though it may not typically be inundated, the wetland appears to be saturated or inundated at a frequency or duration to support hydrophytic vegetation. This is also supported by historical aerial imagery.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-22
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): None | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1425280254163 | Long: -95.8699614915116 | Datum: NAD 83
Soil Map Unit Name: Haynie silt loam, 0 to 2 percent slopes, occasionally flooded | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? N (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 22

Remarks: (Explain alternative procedures here or in a separate report.)

Sample documents a PEMA/PEMC wetland located in an inundated area between an agricultural field and a roadside ditch.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1 *Cornus drummondii*	5	Y	FAC
2			
3			
4			
5			
	5	= Total Cover	
Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	50	Y	FACW
2 *Polygonum coccineum*	15	Y	FAC
3 *Phyla lanceolata*	3	N	OBL
4			
5			
6			
7			
8			
9			
10			
	68	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	50	x 2 =	100
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	73 (A)		163 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: S-22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

No soil sample was taken due to the presence of standing water throughout the wetland. Soils are assumed hydric based on the presence of hydrophytic vegetation and wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	6
Water Table Present?	Yes		No		Depth (inches):	-
Saturation Present? (includes capillary fringe)	Yes		No		Depth (inches):	-

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Much of the wetland is located in a broad, flat ditch that is generally at a lower elevation than the adjacent agricultural field. However, the wetland extends into the agricultural field at some locations. Based on aerial imagery, nearly all of the wetland was inundated a few weeks before the delineation, but waters have since receded. Though it may not typically be inundated, the wetland appears to be saturated or inundated at a frequency or duration to support hydrophytic vegetation. This is also supported by historical aerial imagery.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-23
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0-8
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1415563803446 | Long: -95.8706487573929 | Datum: NAD 83
Soil Map Unit Name: Vore silty clay loam, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample point S-23 is the outpoint to Wetland 24 and is located in an upland area in the ditch west of where a CMP culvert takes ditch drainage under the road.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1 *Setaria viridis*	75	Y	UPL
2 *Panicum virgatum*	12	N	FAC
3 *Echinochloa crus-galli*	8	N	FACW
4 *Chamaecrista fasciculata*	5	N	FACU
5 *Helianthus maximiliani*	3	N	UPL
6 *Andropogon gerardii*	2	N	FAC
7			
8			
9			
10			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	14	x 3 =	42
FACU species	5	x 4 =	20
UPL species	78	x 5 =	390
Column Totals	105 (A)		468 (B)

Prevalence Index = B/A = 4.46

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? N

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: S-23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	95	10YR 5/8	5	C	M	Clay loam	
4-8	10YR 3/1	100					Clay loam	
8-10	10YR 3/1	95	10YR 5/8	5	C	M	Clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compact, dense

Depth (inches): 10

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Indicators of Wetland Hydrology Present? N

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The area is at a higher elevation than the adjacent wetland to the east.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Bellevue Bridge | City/County: Mills County | Sampling Date: 9/06/2018
Applicant/Owner: Metropolitan Area Planning Agency (MAPA) | State: Iowa | Sampling Point: S-24
Investigator(s): KMU ATB | Section, Township, Range: S11, T73N, R44W
Landform (hillslope, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 41.1415495431185 | Long: -95.8704902090989 | Datum: NAD 83
Soil Map Unit Name: Vore silty clay loam, 0 to 2 percent slopes | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	Y	**Is the Sampled Area Within a Wetland?**	Y
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 24

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland 24 is a PEMA/PEMC wetland located in a flooded ditch with OBL vegetation. There is a CMP culvert that drains into the ditch at the location of the sample point.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Polygonum coccineum*	15	Y	FAC
2 *Echinodorus berteroi*	10	Y	OBL
3 *Apocynum cannabinum*	9	Y	FAC
4 *Desmanthus illinoensis*	5	N	FACU
5 *Dichanthelium scoparium*	5	N	FACW
6 *Typha sp.*	1	N	OBL
7			
8			
9			
10			
	45	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	11	x 1 =	11
FACW species	5	x 2 =	10
FAC species	24	x 3 =	72
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals	45 (A)		113 (B)

Prevalence Index = B/A = 2.51

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Y

Remarks: (Include photo numbers here or on a separate sheet.)

The area has approximately 55 percent open water. The *Desmanthus illinoensis* is dead in the standing water.

SOIL

Sampling Point: S-24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

Soils are assumed hydric based on the presence of hydrophytic vegetation and wetland hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- X True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	10
Water Table Present?	Yes		No		Depth (inches):	-
Saturation Present? (includes capillary fringe)	Yes		No		Depth (inches):	-

Indicators of Wetland Hydrology Present? Y

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The ditch was filled with water at the time of the wetland delineation. Obligate species, including *Echinodorus berteroi*, were present.

APPENDIX C:

PHOTOGRAPHIC LOG

Photograph 1. View south toward sample point S-1, the upland outpoint for Wetland 2, located on slope leading up to East Mission Avenue. This area is dominated by *Poa pratensis* and *Setaria pumila*.

Photograph 2a. View west toward sample point S-2 and Wetland 2, a PEMA/PEMC wetland located between a soccer field and East Mission Avenue. Drainage swales within the wetland contained standing water; dominants included *Cyperus esculentus* and *Persicaria maculosa*. Areas above the swales were dominated by *Phalaris arundinacea*.

Photograph 2b. View northwest toward Wetland 2, overlooking the ditch/drainage swale. The ditch drains into a culvert under 15th Street and ultimately leading to the Missouri River.

Photograph 3. View west toward sample point S-3 and Wetland 3, a PEMA/PEMC wetland dominated by *Phalaris arundinacea* and *Persicaria maculosa*. Standing water was present throughout much of the wetland.

Photograph 4. View west toward sample point S-4, the upland outpoint for Wetland 3, located above the wetland. This area is dominated by *Sorghastrum nutans*, *Schedonorus arundinaceus*, and *Poa pratensis*.

Photograph 5a. View west toward Wetland 5, a PEMA/PEMC wetland located in a drainage ditch leading to the Missouri River. The wetland is dominated by *Echinochloa crus-galli* and *Cyperus esculentus.* The surrounding area was recently inundated from high river levels, but waters had since receded. At the time of the site visit, standing water remained only within the ditch containing the wetland. The area surrounding the wetland had been tilled.

Photograph 5b. View northeast toward the drainage ditch associated with Wetland 5. This portion of the ditch was not delineated due to being outside the ESA; however, Wetland 5 appears to continue outside the ESA along the drainage ditch until it enters a culvert under River Drive and then drains into the Missouri River.

Photograph 6. View northwest toward sample point S-6, the upland outpoint for Wetlands 7, 8, and 9. This area is dominated by *Poa pratensis* and *Convolvulus arvensis*.

Photograph 7. View north toward sample point S-7, Channel 7, and Wetland 7. Wetland 7 is a PEMA/PEMC wetland located along the fringes of Channel 7, which is an intermittent tributary ditch leading to the Missouri River. The wetland is dominated *Phalaris arundinacea* and *Apocynum cannabinum*. The channel is the outlet from the drainage ditches on the west side of 15th Street, and also from the pond and the parking lot at American Heroes Park.

Photograph 8. View south toward sample point S-8 and Wetland 8, a PEMA/PEMC wetland located in a floodplain depression. Dominant species include *Fraxinus pennsylvanica, Cornus drummondii, Cyperus esculentus,* and *Phalaris arundinacea*.

Photograph 9. View north toward sample point S-9 and Wetland 9, a PFOA wetland located in the riparian corridor along the west bank of the Missouri River. Dominant species included *Cornus alternifoilia*, *Morus alba*, *Populus deltoides*, *Fraxinus pennsylvanica*, and *Teucrium canadense*.

Photograph 10. View east toward sample point S-10, the upland outpoint for Wetland 11. This area is dominated by *Setaria viridis*. The Missouri River (Channel 11) is present in the background.

Photograph 11. View west toward sample point S-11 and Wetland 11, a PEMA/PEMC wetland located under the Bellevue Bridge along the west bank of the Missouri River (Channel 11). Dominant species are *Populus deltoides, Cyperus esculentus, Panicum dichotomiflorum,* and *Persicaria lapathifolia*.

Photograph 12. View northwest toward sample point S-12 and Wetland 12, a PFOA wetland located in the riparian corridor along the east bank of the Missouri River. Dominant species are *Acer saccharinum*, *Morus alba*, and *Phalaris arundinacea.*

Photograph 13. View west toward sample point S-13 and Wetland 13, a PFOA wetland located in the riparian corridor along the east bank of the Missouri River. There is evidence of overland flow through the area, but no channel or erosional features. Dominant species are *Morus alba, Populus deltoides,* and *Phalaris arundinacea*.

Photograph 14. View west toward sample point S-14 and Wetland 14, a PEMA/PEMC wetland located in the floodplain of the Missouri River. Dominant species are *Echinochloa crus-galli* and *Panicum dichotomiflorum*.

Photograph 15. View north toward sample point S-15 and Wetland 15, a farmed PEMA/PEMC wetland that appears to have been planted in soybeans earlier in the year. The area has since been colonized by weedy annuals, including *Amaranthus tuberculatus* and *Xanthium strumarium*.

Photograph 16. View northeast toward sample point S-16, the upland outpoint for Wetlands 12, 13, 14, and 15. The point is located on the riverside slope of the levee and is dominated by *Setaria faberi* and *Sorghastrum nutans*.

Photograph 17a. View northeast toward the edge of Wetland 17, a PFOA wetland located on the south side of H10 and the Bellevue Bridge embankment. Dominant species are *Populus deltoides*, *Salix amygdaloides*, *Salix interior, Cornus drummondii*, and *Phalaris arundinacea.*

Photograph 17b. View northeast toward sample point S-17 and the center of Wetland 17. Much of the wetland was inundated during the site visit.

Photograph 18a. View north toward Wetland 18, a PSSA wetland located in the ditch between County Road H10 and a gravel levee access road. Dominant species are *Cornus drummondii, Morus alba*, *Phalaris arundinacea,* and *Solidago gigantea*.

Photograph 18b. View northwest toward sample point S-18 and Wetland 18. Standing water was present in the bottom of the ditch. Most herbaceous vegetation was restricted to the fringes of the water.

Photograph 19. View southwest toward sample point S-19, the upland outpoint for Wetlands 20, 21 and 22, located on a flat area that is at a higher elevation than the adjacent wetlands. This area is dominated by *Poa pratensis* and *Cornus drummondii*.

Photograph 20. View southeast toward sample point S-20 and Wetland 20. This PFOA wetland is dominated by *Morus alba, Populus deltoides, Cornus drummondii, Phalaris arundinacea, Solidago canadensis* and *Toxicodendron radicans*.

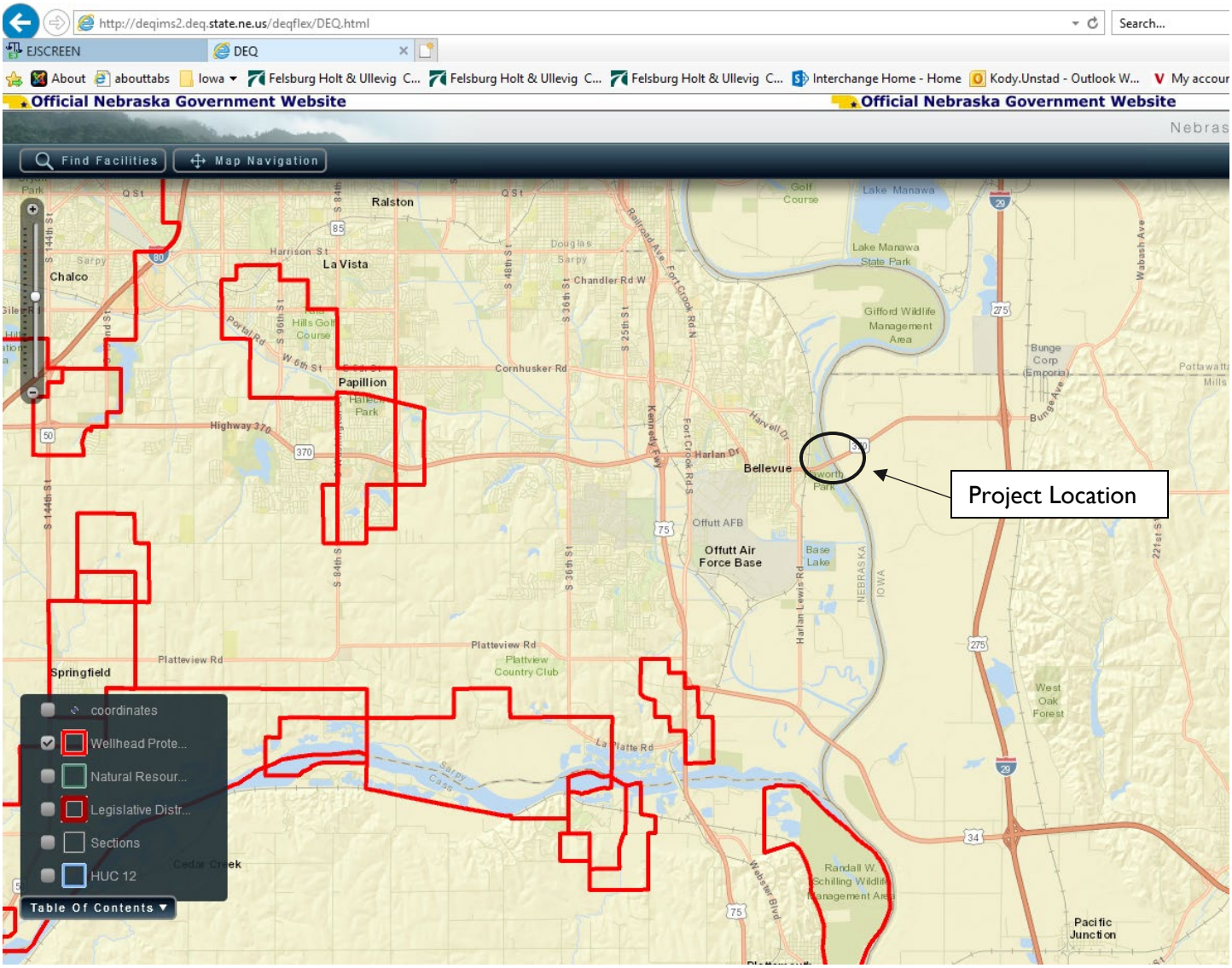
Photograph 21. View north toward sample point S-21 and Wetland 21, a PSSA wetland located in the ditch on the north side of County Road H10. Dominant species include *Morus alba*, *Cornus drummondii*, *Salix interior*, *Phalaris arundinacea*, *Equisetum arvense*, and *Lemna minor*.

Photograph 22. View east toward sample point S-22 and Wetland 22, a PEMA/PEMC wetland located between an agricultural field on the north and County Road H10 on the south. Dominant species include *Phalaris arundinacea*, *Polygonum coccineum,* and *Cornus drummondii*.

Photograph 23. View northeast toward sample point S-23, the upland outpoint for Wetland 24. This area is dominated by *Setaria viridis*.

Photograph 24. View southwest toward sample point S-24 and Wetland 24, a PEMA/PEMC wetland located in the ditch on the south side of County Road H10. Dominant species include *Polygonum coccineum*, *Echinodorus berteroi*, and *Apocynum cannabinum*.

Wellhead Protection Areas



MEMORANDUM

TO: Metropolitan Area Planning Agency

FROM: Adam Behmer, Environmental Scientist, FHU

DATE: October 23, 2018

SUBJECT: Hazardous Materials Search
Project Name: Bellevue Bridge Alternatives Study
Project No: MAPA-5002(3)
Control No: 22755
FHU Project No.: 118015-01

Adam Behmer, an Environmental Scientist with Felsburg Holt & Ullevig (FHU), conducted a site visit and desktop Hazardous Materials Search as part of the environmental review and planning effort for the Bellevue Bridge Alternatives Study. A site visit was completed on September 6, 2018. The Bellevue Bridge spans the Missouri River linking the City of Bellevue in Sarpy County, Nebraska with western Mills County, Iowa (**Figure 1**). The alternatives study involves an inventory of existing conditions of the bridge and its uses, and analysis of alternative actions that could be taken as the bridge ages; including preservation and maintenance, bridge closure, or bridge reconstruction. The Hazardous Materials Search environmental study area within Nebraska is at the edge of a fully developed urban corridor lined with residential neighborhoods, commercial businesses, and recreational parks. Within Iowa, the Hazardous Materials Search environmental study area is rural, consisting of fields of agricultural row crops.

Methodology. The methodologies used to identify the presence of regulated Hazardous Materials sites within the project area included the following steps:

- A site reconnaissance for existing potential hazardous materials concerns
- Review Nebraska Department of Environmental Quality (NDEQ) records
- Environmental Protection Agency (EPA)-Facility Registry System (FRS),
- Review State Fire Marshall (SFM) records
- Review other readily available regulatory records from local, state, and federal agency records for properties within the project area.

The results of the NDEQ IMS, EPA-FRS, and SFM review are listed in **Table 1**. The table includes facilities listed in regulatory databases related to hazardous substance and/or petroleum product use, storage, or transfers. These types of sites may include, but are not limited to, underground storage tanks (UST), leaking underground storage tank (LUST), Petroleum Release Remediation (PRR), Release Assessment (RA), Resource Conservation and Recovery Act (RCRA) sites with reported violations, and Tier 2 Chemical Reporting/Superfund Amendments and Reauthorization Act (SARA) Title III sites (TL3). These types of sites were included in **Table 1** if they are located adjoining to and/or within 0.1 mile of the project footprint. National Priority List or Superfund (SF) sites were identified and included if they were located adjoining to and/or within 1 mile of the project footprint.

Environmental Settings. The project is located within the Missouri River floodplain, with portions of the project being located in between the Missouri River levee system. Surface runoff is generally directed toward the Missouri River. Nebraska Department of Natural Resources (NDNR) files for registered wells within the project vicinity indicate that groundwater static water levels vary between 11 feet below ground surface (bgs) and 20 feet bgs (NDNR, 2018). Based on the general topographic slope of the area and groundwater static levels, groundwater flow would generally be toward the Missouri River. Regional geology is primarily Pennsylvanian-aged sandstone, shale, and limestone from the Kansas City group covered by unconsolidated glacial till (USGS, 2018).

Site Observations. During the site visit, it was observed that the bridge substructure contains painted steel I-beams as support structures. The project bridge was constructed in 1952 and reconstructed in 2004. Because of its construction date, lead-based materials may be present. Therefore, the bridge itself would have the potential to impact the proposed project construction and materials management.

Pole- and pad-mounted electrical transformers were observed throughout the study area. Prior to 1979, polychlorinated biphenyl (PCB) materials were used to manufacture electrical transformers. They have since been banned due to their environmental toxicity. The United States Environmental Protection Agency (USEPA) defines PCB equipment as containing greater than 500 parts per million (ppm) PCBs; "PCB contaminated equipment" as containing 50 to 500 ppm PCBs; and "non-PCB equipment" as containing less than 50 ppm PCBs. Any electrical equipment with no label or unknown concentration is assumed to be "PCB contaminated equipment" per EPA regulation and should be managed accordingly. No indication of leaks or spills, such as stressed vegetation or areas devoid of vegetation, were visible in the surrounding area.

Regulatory Database Review. The regulatory database review identified three sites with the potential for contamination that could cause a risk to human health and safety (**Table 1**; **Figure 2**). All three sites were identified as being under NDEQ's LUST program and two sites were identified as having SF status.

Table 1. Identified Sites within the Hazardous Materials Search Area

Facility	Address[1]	Regulatory Database, Facility Status, and/or Details	Relative Distance and Direction from the Project
Bellevue Wastewater Treatment Plant NDEQ IIS #42197	1001 E. Mission Avenue	LUST, Inactive	10 feet north of Mission Ave; up-gradient
Bellevue Public Schools Transportation NDEQ IIS #42047	104 E. 34th Avenue	LUST, Inactive; PRR, Inactive and Active; RCRA, Active; SF, Active	0.9 miles southwest; down-gradient
Offutt Air Force Base NDEQ IIS #58390	106 Peacekeeper	SF, Inactive, and Active; RCRA, Inactive and Inactive; RA, Inactive and Active; LUST, Inactive	1.25 miles south; down-gradient

Notes:

1 Address = Bellevue, NE

2 LUST = Leaking Underground Storage Tank

4 PRR = Resource Conservation and Recovery Act

4 RCRA = Resource Conservation and Recovery Act

5 SF = Resource Conservation and Recovery Act

Discussion and Findings. This Hazardous Materials Search memo is a cursory review of existing conditions and publicly available information and is limited in its scope. However, it is unknown where additional right-of-way (ROW) would be necessary. The property acquisition process and NEPA environmental review process may require additional assessments and field investigations based on the proposed project description and associated project activities, in conjunction with the information identified during this cursory review. Based on the site visit, regulatory program information (identified sites), local topography, groundwater flow direction and depth, a more detailed review should be made during the planning and design process in compliance with NDOT's Hazardous Materials Review guidance. The review findings would then be used to identify, if necessary, avoidance options, when possible, and, to assist with the development of materials management or mitigation measures.

Figure 1. Topographic Vicinity Map

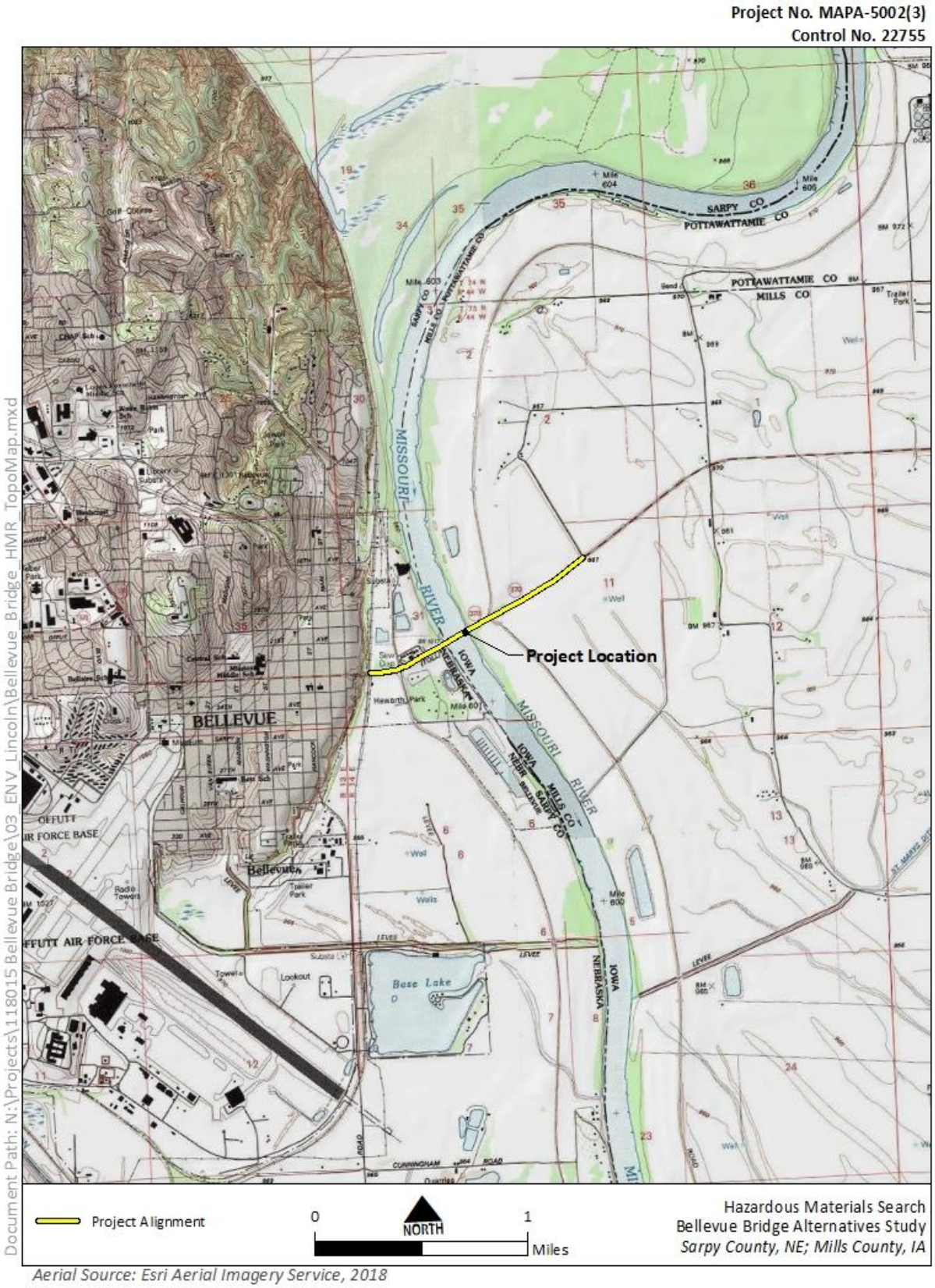
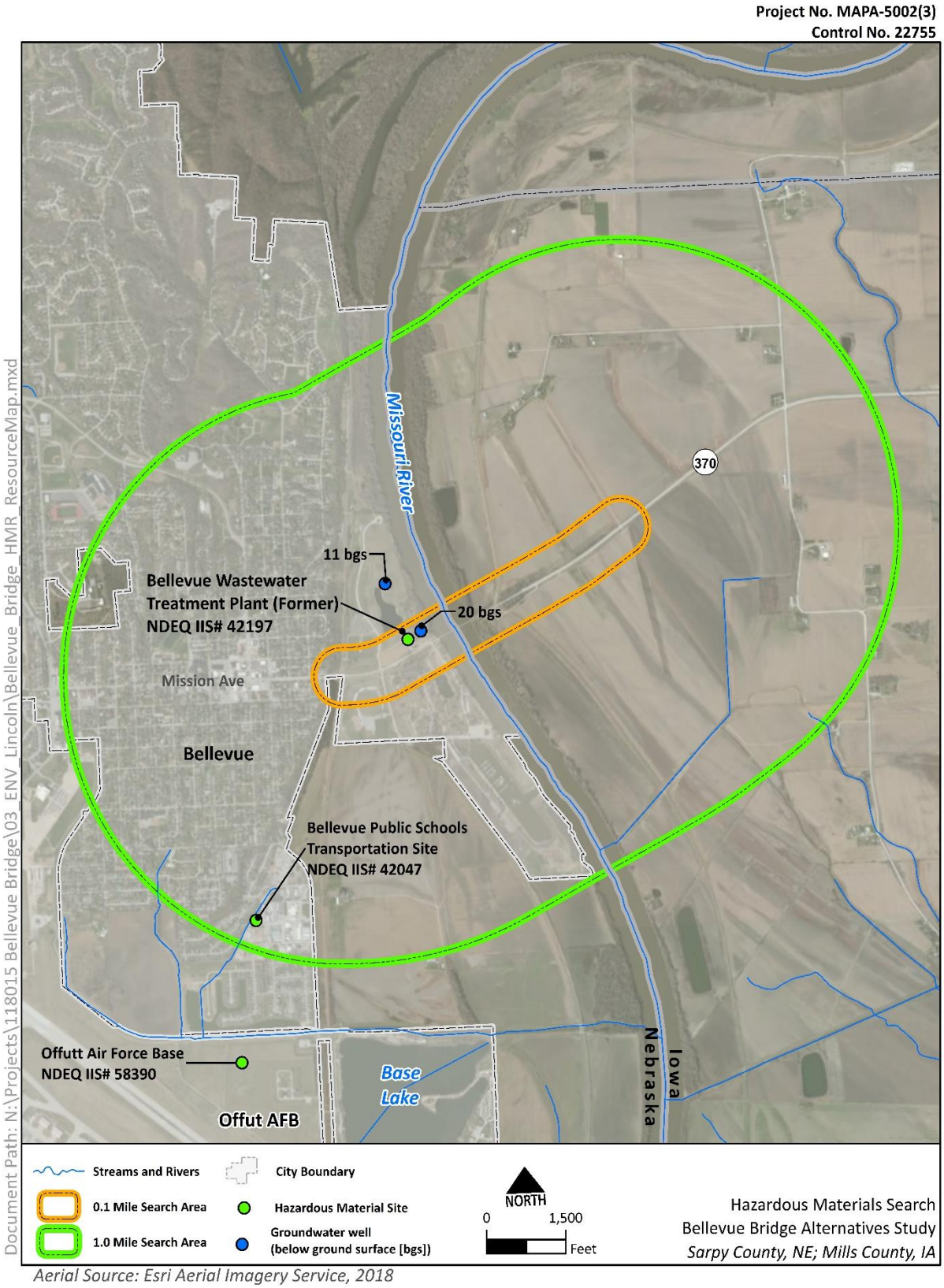
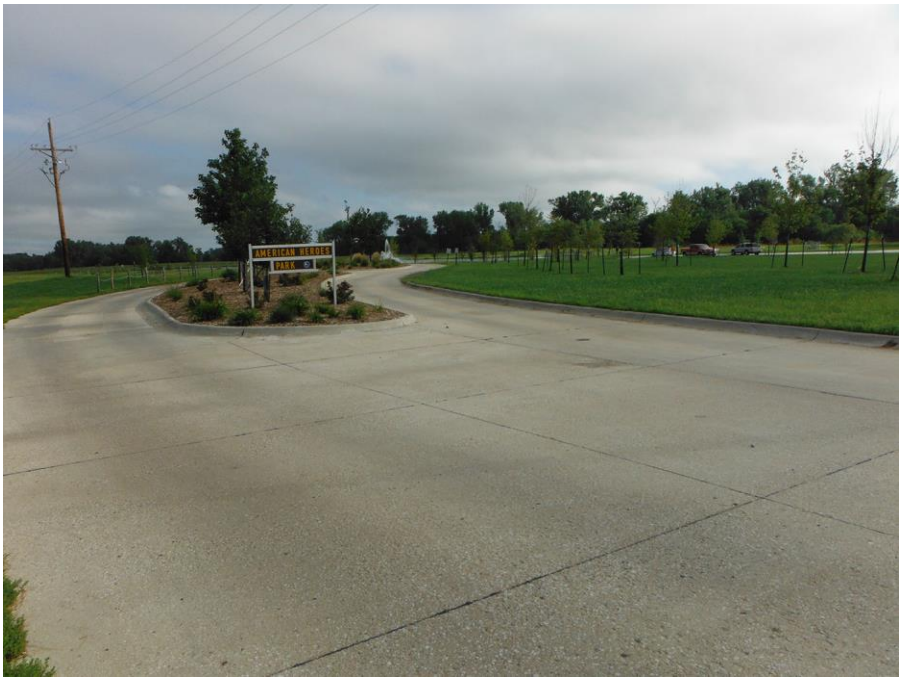


Figure 2. Hazardous Materials Site Map



Aerial Source: Esri Aerial Imagery Service, 2018

Photograph 1. View southwest toward a typical residence near the western extent of the environmental study area. Houses in the area appear to be 40-50 years old.



Photograph 2. View north toward American Heroes Park near the location of the former Bellevue Waste Water Treatment Plant. South of this park is Haworth Park, which consists of baseball fields, marina, and camp sites.

Photograph 3. View southeast toward the Bellevue Bridge. Bellevue Bridge is a continuous truss bridge over the Missouri River connecting Mills County, Iowa and Sarpy County, Nebraska near the city of Bellevue, Nebraska.

Photograph 4. View toward the bridge support substructure, which are painted. Paint on the materials used during the time of the bridge's construction may have contained lead-based materials. A lead inspection may be needed if paint removal or disposal is necessary.

Photograph 5. View north toward a petroleum pipeline marker located north of Highway 370, in Iowa. Several utility markers such as this are present within the study area.

Photograph 6. View southeast toward row crop agricultural fields south of Highway 370, in Iowa. The Iowa side of the environmental study area is dominated by agricultural fields that contain wetlands.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 14. The horizontal datum was NAD 83, GRS80 spheroid. Differences in corner coordinates from a projection or datum other than that used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and location information about the **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit their website at www.ngs.noaa.gov.

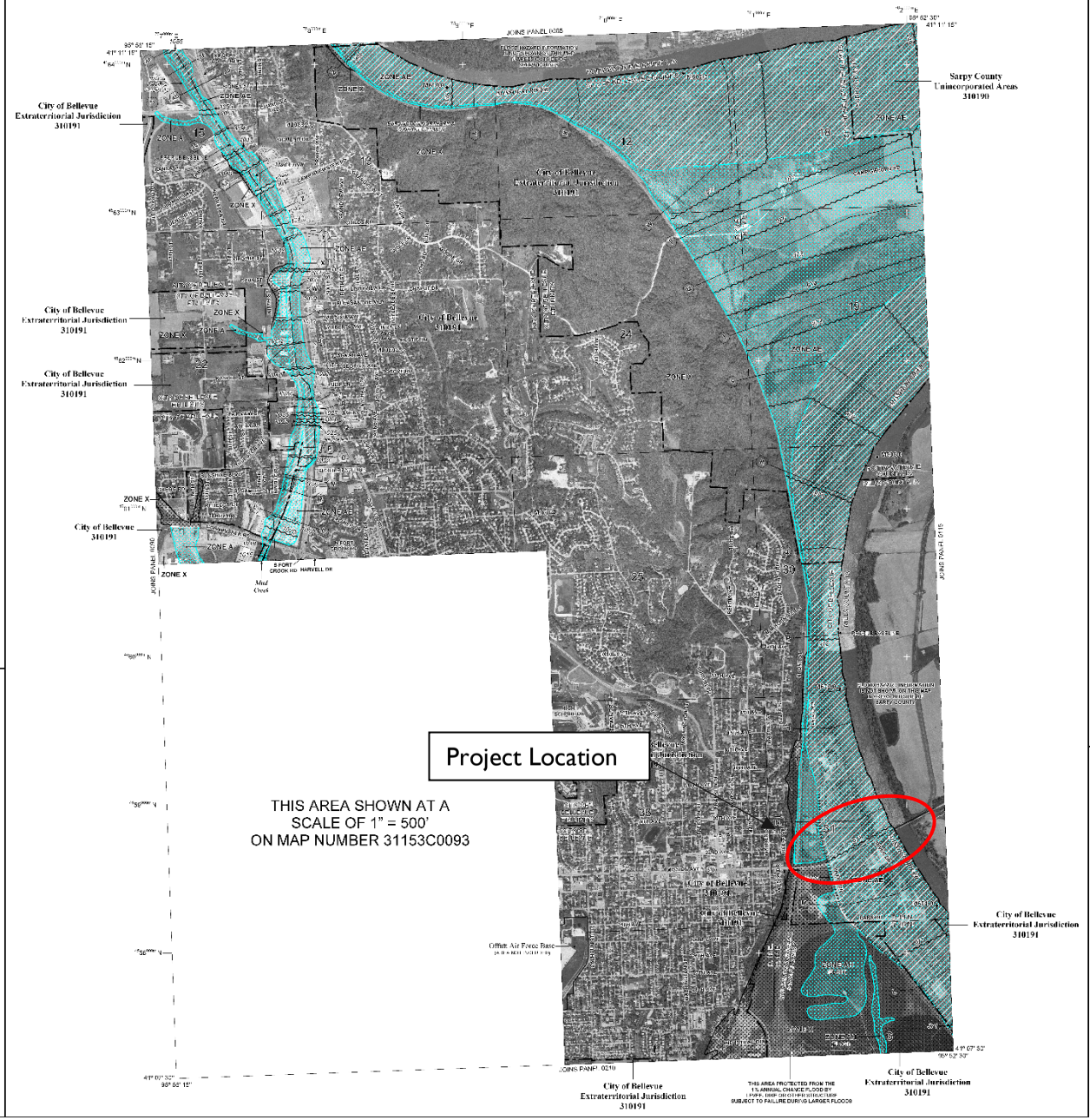
Base map information shown on this FIRM was derived from scanned, orthophotography provided by the Omaha Council Bluffs Metropolitan Area Planning Agency (MAPA) dated 2002, with a ground resolution of either 1.4 or 2.8 meter.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a listing of Communities Participating in the National Flood Insurance Program (NFIP) and their effective dates (or the most recent publication date) for all applicable jurisdictions.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at www.fema.gov/msc.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877- FEMA MAP (1-877-336-2627) or visit the FEMA website at www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A — No Base Flood Elevations determined.
ZONE AE — Base Flood Elevations determined.
ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR — Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 — Area to be protected from the 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without a substantial increase in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from the 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- (A) — Cross section line
- (23) — Transect line
- 97° 07' 30", 32° 22' 30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), western hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 14
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile
- Inlet or Drainage Structure

See "Flood Report for Summary of Inlet or Drainage Elevations"

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index.

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
JANUARY 15, 1999

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For the initial countywide FIRM, the Special Flood Hazard Areas and flood risk zones in this panel were determined by scaling and/or graphic overlay from the Flood Insurance Rate Maps listed in the Initial Countywide FIRM Date(s) column in the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

For communities with multiple printed FIRM panels, the currently effective community map history table is located in the Publication Info section of each printed FIRM panel.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
150 0 300 600 METERS

PANEL 0095G

FIRM

FLOOD INSURANCE RATE MAP

SARPY COUNTY, NEBRASKA AND INCORPORATED AREAS

PANEL 95 OF 255

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
BELLEVUE, CITY OF	310191	0095	G
SARPY COUNTY	310184	0095	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 31153C0095G

MAP REVISED DECEMBER 2, 2005

Federal Emergency Management Agency


Project Location
ELEVATION REFERENCE MARKS
KEY TO MAP
EXPLANATION OF ZONE DESIGNATIONS
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
COUNTY OF
MILLS,
IOWA
(UNINCORPORATED AREAS)
PANEL 25 OF 150
COMMUNITY-PANEL NUMBER
190891 0025 C
MAP REVISED:
AUGUST 5, 1989
Federal Emergency Management Agency

EJSCREEN Report (Version 2018)

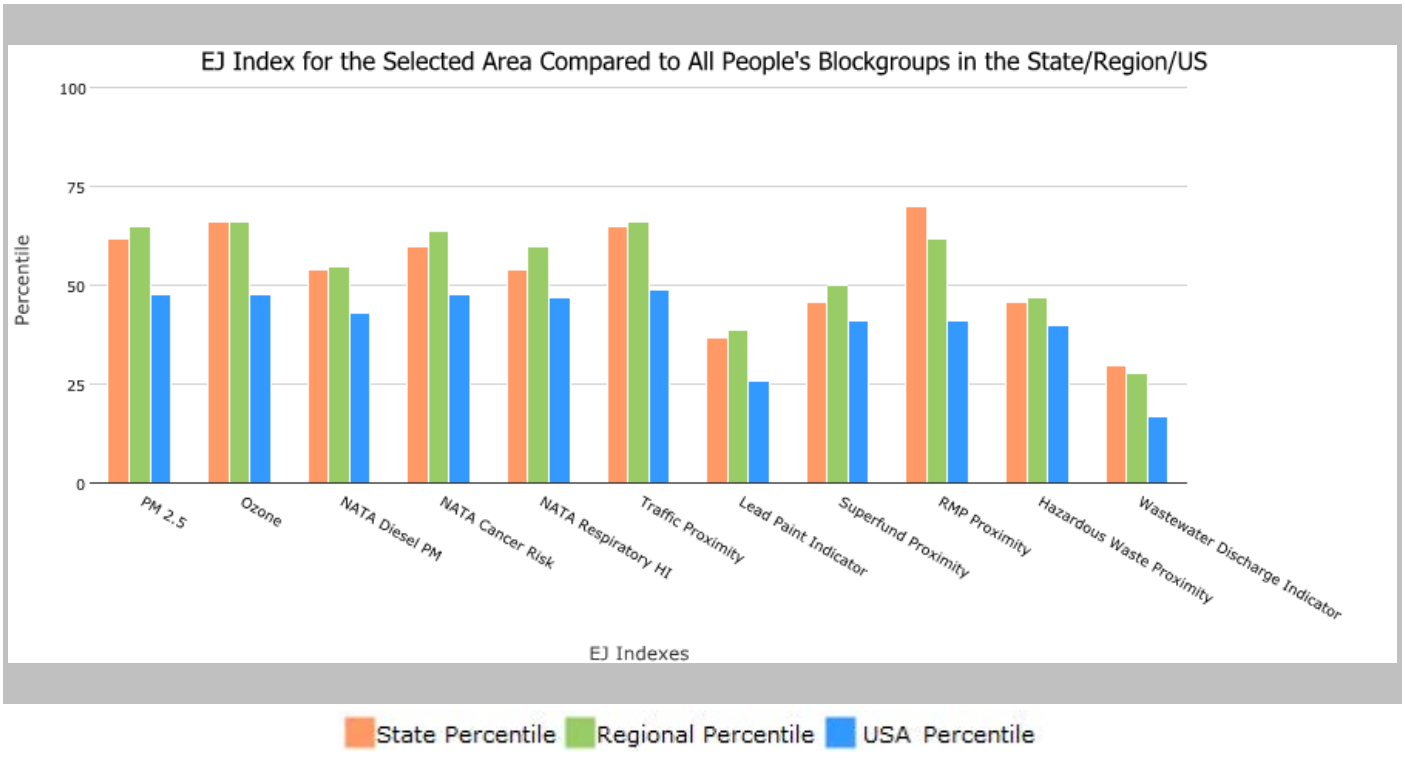
1 mile Ring around the Area, NEBRASKA, EPA Region 7

Approximate Population: 7,116

Input Area (sq. miles): 5.34

Bellevue Bridge

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	62	65	48
EJ Index for Ozone	66	66	48
EJ Index for NATA* Diesel PM	54	55	43
EJ Index for NATA* Air Toxics Cancer Risk	60	64	48
EJ Index for NATA* Respiratory Hazard Index	54	60	47
EJ Index for Traffic Proximity and Volume	65	66	49
EJ Index for Lead Paint Indicator	37	39	26
EJ Index for Superfund Proximity	46	50	41
EJ Index for RMP Proximity	70	62	41
EJ Index for Hazardous Waste Proximity	46	47	40
EJ Index for Wastewater Discharge Indicator	30	28	17



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

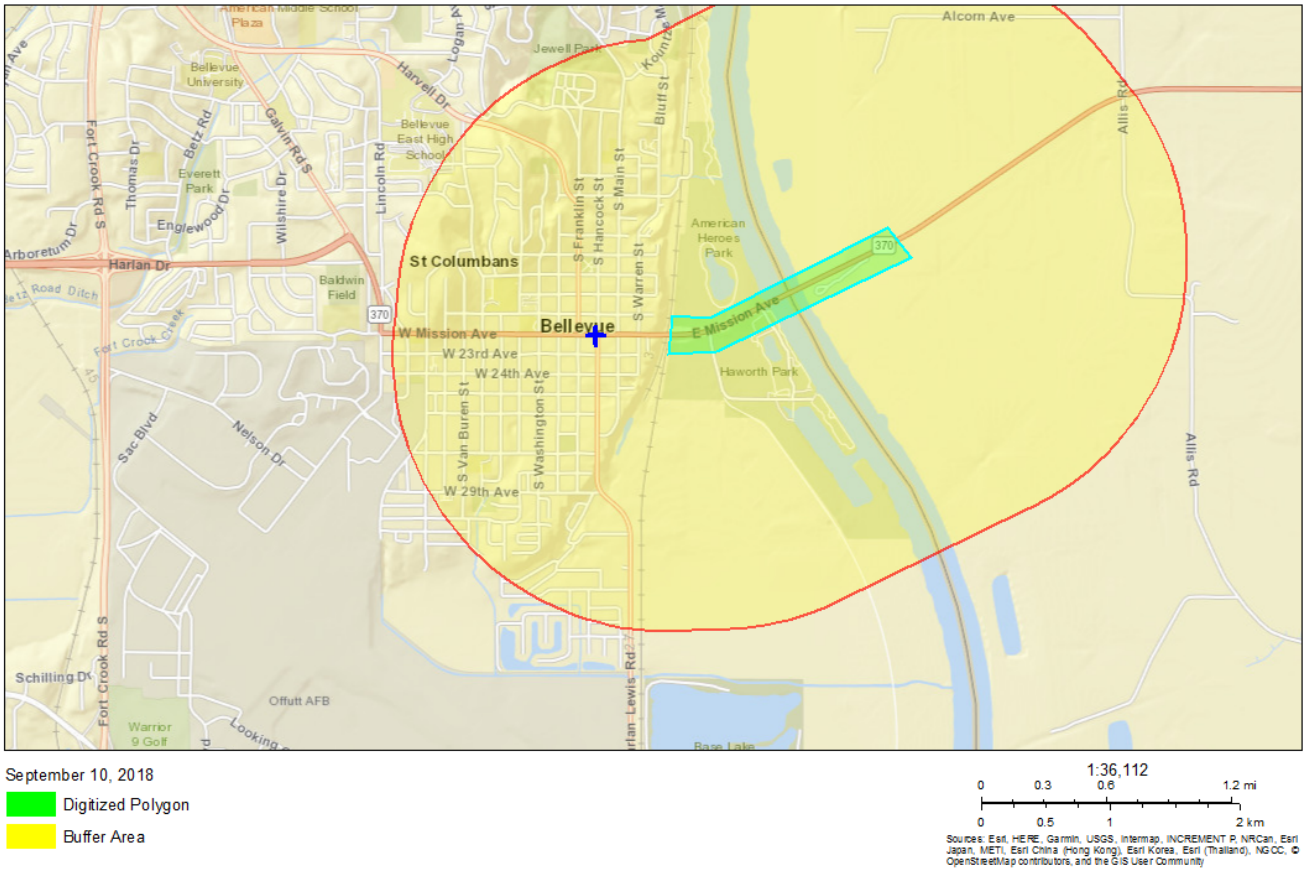
EJSCREEN Report (Version 2018)

1 mile Ring around the Area, NEBRASKA, EPA Region 7

Approximate Population: 7,116

Input Area (sq. miles): 5.34

Bellevue Bridge



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2018)

1 mile Ring around the Area, NEBRASKA, EPA Region 7

Approximate Population: 7,116

Input Area (sq. miles): 5.34

Bellevue Bridge

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	9.18	8.37	79	9.45	34	9.53	40
Ozone (ppb)	41	41.8	11	42.8	22	42.5	35
NATA* Diesel PM (µg/m^3)	0.718	0.759	49	0.78	50-60th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	36	31	68	38	<50th	40	<50th
NATA* Respiratory Hazard Index	1.5	1.2	70	1.5	50-60th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	19	130	33	490	31	600	25
Lead Paint Indicator (% Pre-1960 Housing)	0.49	0.37	63	0.35	69	0.29	75
Superfund Proximity (site count/km distance)	0.056	0.12	68	0.091	59	0.12	54
RMP Proximity (facility count/km distance)	0.23	1.5	16	0.92	34	0.72	43
Hazardous Waste Proximity (facility count/km distance)	0.31	0.6	54	0.82	52	4.3	44
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0021	0.53	64	2.4	65	30	72
Demographic Indicators							
Demographic Index	28%	25%	67	26%	66	36%	45
Minority Population	17%	20%	61	19%	64	38%	35
Low Income Population	38%	30%	69	32%	65	34%	62
Linguistically Isolated Population	1%	3%	63	2%	71	4%	49
Population With Less Than High School Education	8%	9%	58	10%	51	13%	42
Population Under 5 years of age	8%	7%	68	6%	74	6%	75
Population over 64 years of age	10%	14%	35	15%	27	14%	34

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice