FINDING OF NO SIGNIFICANT IMPACT
CATEGORICAL PERMISSIONS
SECTION 408 ALTERATIONS TO EXISTING
U.S. ARMY CORPS OF ENGINEERS CIVIL WORKS PROJECTS
33 U.S.C. SECTION 408
IOWA
January 2017

The Omaha District receives numerous requests each year from private, public, tribal, or other federal entities to alter civil works projects. To date, as requests are received, they are evaluated on a case-by-case basis using a nine-step process outlined in Engineering Circular (EC) 1165-2-216, Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers (USACE) Civil Works Project Pursuant to 33 USC 408. Under this process, USACE determines if the alteration would be injurious to the public interest or impair the usefulness of the USACE project. To expedite review and approval, EC 1165-2-216 states that USACE districts can develop categorical permissions to streamline the processing of alterations that are similar in nature and have minor impacts to the environment.

In accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) implementing regulations, and CEQ guidelines for Effective Use of Programmatic NEPA Reviews, a Programmatic Environmental Assessment (Programmatic EA) has been prepared. The purpose of this Programmatic EA is to evaluate the environmental and socio-economic effects of proposed alterations, categorized as categorical permissions that have been developed by the Omaha District. The attached Programmatic EA considers a suite of reasonably foreseeable categorical permissions that fall within the Omaha District's Civil Works boundaries within the state of Iowa.

Two alternatives were considered: Alternative 1 (No Action Alternative) and Alternative 2 (Develop and use Categorical Permissions in order to expedite review), the Preferred Alternative. A list of the Categorical Permissions is provided below. The Programmatic EA and comments received from the resource agencies were used to determine whether the proposed action would require the preparation of an Environmental Impact Statement (EIS). All environmental, social, and economic factors relevant to the proposal were considered in this Programmatic EA. The analysis verifies that the effects of these categorical permissions, both individually and cumulatively will have similar and minor effects to the environment. The preferred alternative is in compliance with applicable environmental statutes.

Categorical Permissions	
Placing electrical, fiber optic, water, sanitary or drainage pipe utilities under a levee	Replacing drainage structures
Abandoning drainage structures	Removing drainage structures
Construction of bike trails on top of a levee	Installing relief wells
Abandoning relief wells	Installing pump stations
Repairing pump stations	Modifying drainage structures
Performing geotechnical explorations	Placing new riprap
Temporary staging areas and working pads for material and equipment	Installing fences
Installing utility poles	Removing existing utility poles

Categorical Permissions Continued	
Replacing highway/street bridges	Placing sanitary, water, or drainage pipes up and over a levee
Repairing/paving streets	Installing temporary channel crossings
Abandoning pipe or conduit	Placing monitoring monuments

It is my finding, based on the Programmatic EA that the proposed federal activity will not have any significant adverse impacts on the environment or USACE civil works projects and will not constitute a major federal action significantly affecting the quality of the human environment. Therefore, an EIS does not need to be prepared.

Date: 03 MAR 17

John W. Henderson, P.E.
Colonel, Corps of Engineers
District Commander

US Army Corps of Engineers
Omaha District

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT
&
FINDING OF NO SIGNIFICANT IMPACT

CATEGORICAL PERMISSIONS
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The Perry Creek Flood Risk Reduction Project has recently been added to the list of USACE Civil Works projects in Iowa, and information concerning this project may be found in the attached addendum.

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1. Introduction

The United States Army Corps of Engineers (USACE), Northwestern Division (NWD), Omaha District (NWO) has constructed numerous civil works projects within its boundaries in the state of Iowa to include federal flood risk reduction projects (e.g., levees and channel modifications) located in rural and urban areas. These civil works projects are constructed by USACE and turned over to a non-federal sponsor to operate and maintain per agreement with USACE. The Corps of Engineers has a congressionally mandated responsibility to ensure that federally-constructed flood risk reduction projects are appropriately operated and maintained. No improvement shall be passed over, under, or through walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right of way (ROW), nor shall any change be made in any feature of the works without prior approval of the USACE.

Each year, NWO receives numerous requests from private, public, tribal, or other federal entities (requesters) to alter federally-constructed civil works projects. In 2015, NWO received 141 requests to alter federal flood risk reduction projects. When requests are received, they are evaluated on a case-by-case basis to determine if the proposed alteration would be injurious to the public interest or impair the usefulness of the USACE project. Engineering Circular (EC) 1165-2-216, titled *Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408*, provides guidance to process requests, also called Section 408 requests, and is available at http://www.publications.usace.army.mil/USACEPublications/Engineer Circulars/tabid/16426/u31387q/323136/Default.aspx.

To help expedite the submittal, review, and approval process, EC 1165-2-216 also states that USACE districts can develop categorical permissions to cover potential alterations that are similar in nature and have minor to negligible impacts.

In order to address the potential environmental impacts of implementing categorical permissions for Section 408 alterations as required under the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [USC] 4321 *et. seq.*); the President's Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500 – 1508) (CEQ, 1992);

and the U.S. Army Corps of Engineers' Engineer Regulation (ER) 200-2-2 (33 CFR 230) (USACE, 1988), NWO has prepared this Programmatic Environmental Assessment (EA). This Programmatic EA assesses the overall environmental effects of proposed actions that involve multiple individual projects, a large geographical area, or a suite of combined projects as described in the CEQ (2014) guidelines for *Effective Use of Programmatic National Environmental Policy Act (NEPA) Reviews*. If it is determined that a proposed Section 408 alteration would have more than a minor to negligible adverse effect, the alteration would not be considered a categorical permission and would therefore not fall under the scope of this Programmatic EA. In this case, a separate EA or Environmental Impact Statement (EIS) would need to be prepared.

This Programmatic EA will be reviewed on a regular basis to ensure compliance with applicable laws and regulations, and to ensure that circumstances have not changed that would impact the analysis and conclusions reached in this document.

1.1 33 USC Section 408 Authority and Guidance

The authority to grant permission for temporary or permanent alterations to federally-authorized civil works projects is contained in Section 14 of the River and Harbors Act of 1899, codified at 33 U.S.C. Section 408, titled *Taking possession of, use of, or injury to harbor or river improvements*. It states:

"It shall not be lawful for any person or persons to take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States, or any piece of plant, floating or otherwise, used in the construction of such work under the control of the United States, in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods, or as boundary marks, tide gauges, surveying stations, buoys, or other established marks, nor remove for ballast or other purposes any stone or other material composing such works: Provided, That the Secretary of the Army may, on the recommendation of the Chief of Engineers, grant permission for the temporary occupation or use of any of the aforementioned civil works when in his judgment such occupation or use will not be injurious to the public interest: Provided further, That the Secretary may, on the recommendation of the Chief of Engineers, grant permission for the alteration or permanent occupation or use of any of the aforementioned civil works when in the judgment of the Secretary such occupation or use will not be injurious to the public interest and will not impair the usefulness of such work."

Specific USACE guidance for implementation of 33 USC Section 408 is provided in EC 1165-2-216. EC 1165-2-216 is only applicable to alterations proposed within the lands and real property interests of USACE projects. EC 1165-2-216 defines the use of the terms "alteration" and "alter" as any action by an entity other than USACE that builds upon, alters, improves, moves, occupies, or otherwise affects the usefulness or the structural or ecological integrity of a USACE

project. The entity or individual requesting permission to alter the USACE project, hereafter referred to as the requestor, is responsible for acquiring all other needed permissions, authorizations, and permits. This includes any permits needed from the USACE Regulatory Program, specifically Section 10 of the Rivers and Harbors Act (for the construction of any structure in or over any navigable water of the United States) and 404 of the Clean Water Act (for the discharge of dredged or fill material into navigable water of the United States).

Generally, when a Section 408 request for alteration is proposed, a nine-step procedure, as outlined in EC 1165-2-216, is followed. This procedure is scalable to be commensurate with the scope of the requested alteration. Not all the steps will be applicable to every Section 408 request. In simple cases, such as those that are applicable to this Programmatic EA, the steps may be combined or occur simultaneously. The duties contained within the nine-step procedure are shared among the USACE, the requester, and/or the non-federal sponsor as identified below:

1) Pre-coordination. Early coordination between the USACE, the requestor, and the non-federal sponsor is recommended to identify potential issues, focus efforts, minimize costs, and protect sensitive information.
2) Written request. The requester shall provide a written request to the USACE to initiate the Section 408 process. The written request shall include: a) a complete project description, b) a statement indicating if a Section 10/404/103 permit will also be pursued, c) information regarding if credit under Section 221 of the Flood Control Act of 1970 is being sought, d) a statement of whether use of federally-owned real property or property owned by the non-federal sponsor will be required, and e) a written statement from the non-federal sponsor endorsing the proposed alteration. This information is used by the USACE to determine documentation and approval requirements.
3) Required documentation. The USACE works with the requestor to obtain information necessary to determine whether the proposed alteration would impair the usefulness of the project or be injurious to the public interest. Such information includes: a) technical analysis and design, b) hydrologic and hydraulics system performance analysis, c) environmental compliance, d) real estate requirements, e) Executive Order 11988 considerations– induced development in the floodplain, f) review plan, if determined necessary, g) operation and maintenance requirements, and h) other information as deemed appropriate to complete the evaluation.
4) District-led Agency Technical Review (ATR). The USACE identifies the appropriate subject matter experts to conduct an ATR to ensure the requirements set forth in EC 1165-2-216 have been met. The ATR makes the following determinations: a) impair the usefulness of the project determination, b) injurious to the public interest determination, c) legal and policy compliance determination.
5) Summary of Findings. Upon completion of the district review and demonstration of environmental compliance, the USACE district develops a Summary of Findings that provides rational and conclusions for recommending approval or denial of the Section 408 request.

6) USACE Division review (if required). The Division will review the Summary of Findings for policy compliance and legal sufficiency, quality assurance and completeness, identification of conflicts with ongoing studies, and confirmation of the need for USACE Headquarters review and decision review. Division will provide comments to the District to address, deny, or recommend approval of the request to USACE Headquarters.
7) USACE Headquarters review (if required). USACE Headquarters conducts a policy compliance review, and comments will be provided to the Division to be addressed or a memorandum of final decision will be signed along with the Finding of No Significant Impact (FONSI) or Record of Decision (ROD) as applicable if the request is granted.
8) Notification. The District Commander is responsible for providing a written notification to the requestor for a Section 408 request, regardless of the decision level.
9) Post-permission oversight. The USACE district may develop procedures for monitoring construction activities and for post-construction inspections to ensure the alteration was completed accordingly. The requester will provide as-built drawings and Operations and Maintenance (O&M) Manual updates.

With this Programmatic EA in place, the nine-step procedure may be streamlined for a Categorical Permitted alteration by completing Step 1, which is recommend but optional; Steps 2 and 3 are combined; Step 4; Steps 5 and 8 are combined; and Step 9. The required documentation in Step 3 is reduced for a Categorical Permitted alteration with no need for a review plan or full environmental assessment because these items would already be satisfied. Steps 6 and 7 would not apply. Subsequently, the USACE could process Categorically Permitted Alteration requests more quickly by using the attached Record of Environmental Consideration to ensure compliance.

1.2 Scope of the Programmatic Environmental Assessment

The Omaha District's area of responsibility for civil works projects covers a wide geographic area and includes the states of Nebraska, Iowa, North Dakota, South Dakota, Wyoming, Colorado, Montana, Missouri, and Minnesota (Figure 1). The scope of this Programmatic EA is limited to federally-constructed flood risk reduction projects within the state of Iowa. Per EC 1165-2-216, the scope of the analysis for Section 408 reviews is limited to the right-of-way of USACE projects and those adjacent areas that are directly or indirectly affected by the alteration. If a proposed alteration is part of a larger project that extends beyond the USACE project boundaries, the Omaha District would determine what portions or features of the larger project USACE has control or responsibility over to warrant inclusion as part of the evaluation, as described in EC 1165-2-216. Requests to modify projects other than federal flood risk reduction projects will be evaluated on a case-by-case basis.

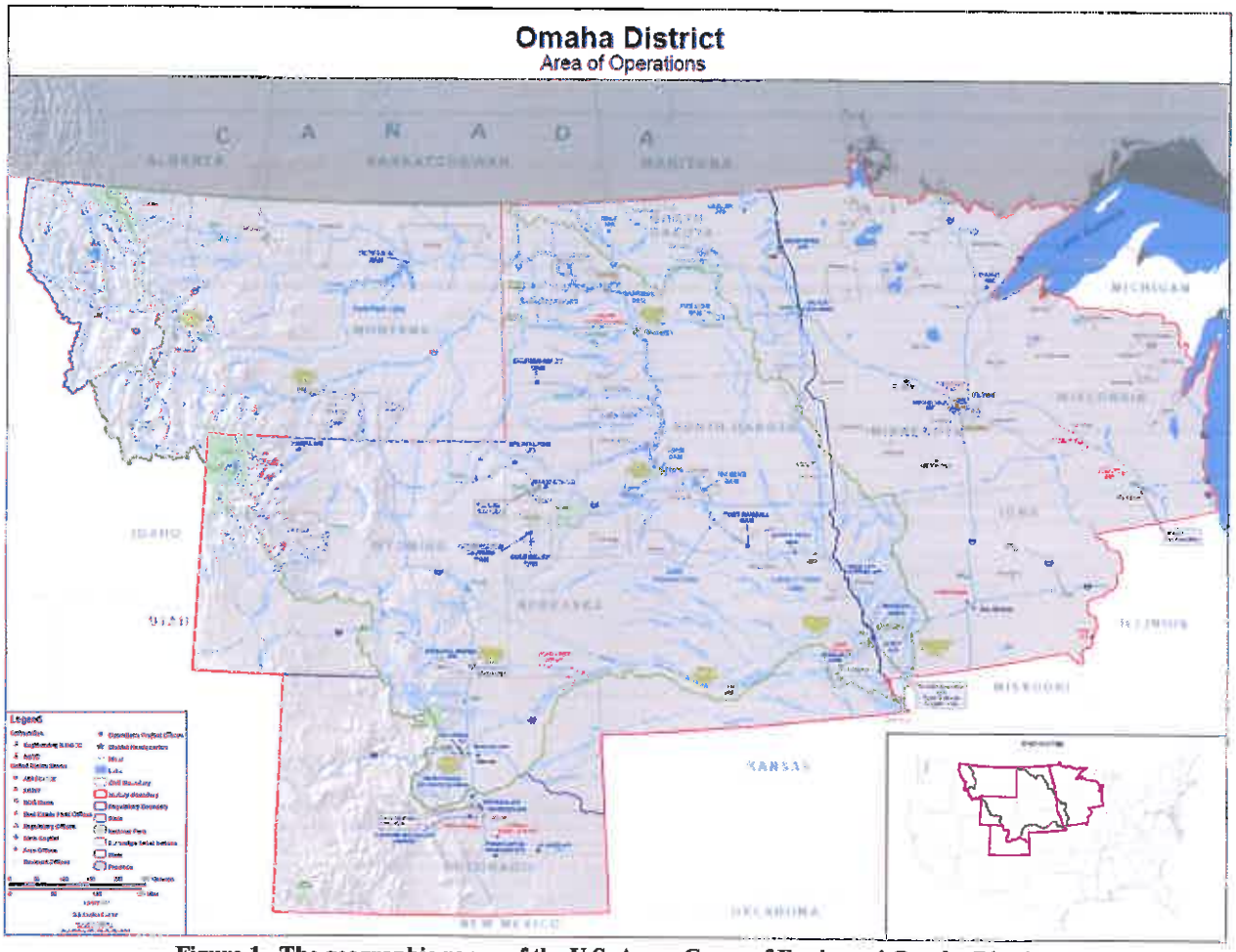

Figure 1. The geographic range of the U.S. Army Corps of Engineers' Omaha District

Note: The green line outlines the civil works boundary, the red line outlines the military boundary, and the purple line outlines the regulatory boundary.

2. Purpose and Need

The Omaha District receives numerous requests each year to review proposed alterations to USACE-constructed civil works projects. NWO received 141 requests to alter federally-constructed flood risk reduction projects in 2015 alone. The majority of the requests are for relatively minor alterations such as geotechnical borings, horizontal directional drilling for the placement of utility lines, protecting slopes, and altering interior drainage pipes. These activities tend to be similar in nature and have similar (minor to negligible) impacts.

Engineering Circular 1165-2-216 states that USACE districts have the ability to develop categorical permissions for compliance with Section 408 to cover potential alterations that are similar in nature and that have similar impacts. This aligns with guidance from CEQ concerning development of programmatic NEPA reviews for multiple actions that are similar in nature

(CEQ, 2014). At the same time, a programmatic document allows for a more comprehensive evaluation of potential environmental impacts that may result from numerous alterations within NWO. The purpose of this document is to utilize categorical permissions as described in EC 1165-2-216 to cover potential alterations that are similar in nature and have similar impacts (minor to negligible) in order to expedite the review and approval process.

3. Alternatives

National Environmental Policy Act regulations indicate to some extent the scope of alternatives to be considered in all EAs and EISs. These include the No-Action Alternative, Preferred Alternative, and other "reasonable" alternatives. These regulations also generally set the scope for a Programmatic EA by directing agencies to group activities together. For this Programmatic EA, only two reasonable alternatives, the No-Action Alternative and the Preferred Alternative, were considered, since the only viable options are to continue processing proposed Section 408 alteration requests on a case-by-case basis or utilize an approved list of categorical permissions, as outlined in this Programmatic EA, to expedite the Section 408 review process.

3.1 Alternative 1 – No Action

The No-Action Alternative would not result in the development of categorical permissions. All requests to alter USACE projects would be evaluated on a case-by-case basis to determine if the alteration would be injurious to the public interest or impair the usefulness of the USACE civil works project. This alternative would not meet the purpose and need of expediting requests that are similar in nature and have similar impacts; however, this alternative has been retained in this Programmatic EA in order to provide a baseline for comparison with the Preferred Alternative.

3.2 Alternative 2 – Utilize a List of Approved Categorical Permissions to Expedite the Section 408 Review and Approval Process (Preferred Alternative)

Under the Preferred Alternative, a list of approved categorical permissions would be utilized in order to expedite the review process for Section 408 requests to alter USACE civil works projects. All Section 408 requests must meet general and engineering requirements as well as environmental conditions established by USACE. General and engineering requirements include:

a. Design and construction specifications must be signed and sealed by a registered Professional Engineer and, if applicable, a registered Geologist from the state of Iowa.
b. Proposed alterations must not negatively impact typical performance, inspections, operations, and maintenance of the USACE project.
c. Proposed alterations must not adversely impact any flood-fighting operations that may be conducted at the USACE project.
d. Proposed alterations must not result in any increase in operation and maintenance costs to the government.

If the above general and engineering requirements are met, the proposed alteration would not be expected to impair the usefulness of the USACE project. In addition to meeting the above requirements, Section 408 requests must meet environmental conditions which include:

a. Proposed alterations must not adversely affect threatened or endangered species, including their critical habitat, in accordance with the Endangered Species Act.
b. Proposed alterations must not result in the 'take' of any migratory birds as defined by the Migratory Bird Treaty Act.
c. Proposed alterations must not result in the transfer of any invasive species to new locations.
d. Proposed alterations requiring a Section 404 Permit must be within the limits of an applicable Nationwide or Regional General Permit.
e. Proposed alterations must incorporate Best Management Practices (BMPs) to control storm water runoff or any point source discharges in accordance with required National Pollutant Discharge Elimination System (NPDES) permits.
f. Proposed alterations must not encourage additional development within the floodplain.
g. Proposed alterations must not adversely affect any cultural resources and must be in compliance with Section 106 of the National Historic Preservation Act.
h. Proposed alterations must meet other conditions as described in Chapter 5, Environmental Consequences.

If the above environmental conditions are met and the proposed alteration has only a negligible or minor impact to the environment, then the alteration would be considered not injurious to the public interest. If a proposed alteration does not meet the above environmental conditions or results in more than negligible or minor impacts to the environment, then a stand-alone environmental assessment, potentially including mitigation for impacts, or an environmental impact statement would be prepared.

The list of categorical permissions in this Programmatic EA, described below, was developed based on past experience that showed the construction of these types of alterations met the above general and engineering requirements and were not injurious to the project. The categorical permissions also met the environmental conditions and the impacts to the environment were considered negligible to minor. By developing an approved list of categorical permissions in which detailed environmental analysis is not required, the Preferred Alternative meets the purpose and need for expedited review and approval of Section 408 requests to alter USACE civil works projects.

1) **Placing Electrical, Fiber Optic (Internet, Phone, and Cable), Water, Sanitary, or Drainage Pipe Utilities under a Levee (Note: The placement of gas lines will require a more detailed review and will not be considered a categorical permission.)**

- Open Cut – Within the project ROW, levee embankment material is removed and then replaced according to design criteria for placement of the utility.

- Horizontal Directional Drill – A pit is excavated on either side of the levee, usually outside the project ROW, and then pressure and drilling fluids are used to place the utility under the levee embankment/channel section.
- Jack and Bore – A pit is excavated on either side of the levee, usually outside the project ROW (in agricultural fields or in urban locations), and then the utility is mechanically placed under the surface.

2) **Replacing Drainage Structures**
- The existing structures are demolished and a new structure is constructed per USACE design criteria. All work typically remains within the project ROW.

3) **Abandoning Drainage Structures**
- Grout is placed inside an existing pipe and gatewell structure (to an elevation above the top invert of the pipe inside the gatewell) to fill all voids.

4) **Removing Drainage Structures**
- An existing structure is demolished and replaced with compacted fill material.

5) **Constructing a Bike Trail on top of a Levee (Including Rest Stations)**
- Gravel surfacing, concrete, or asphalt is placed on top of the existing levee crest. Placement of any material cannot degrade the authorized level of flood protection.

6) **Installing Relief Wells**
- A hole is bored into the earth's surface some distance away from the landside toe of the levee and a relief well is then installed.

7) **Abandoning Relief Wells**
- Existing relief wells are grouted full and then abandoned per State and other applicable requirements.

8) **Installing Pump Station**
- A pump structure is constructed on the landside of the levee near a water feature (ditch or channel).

9) **Repairing Pump Station**
- Components of the pump station (pump, electrical controls, etc.) may be repaired or replaced or the entire pump station itself may be replaced.

10) **Modifying Existing Drainage Structures**
- Slip lining – Slip lining, a trenchless method for repairing structural or environmental damages to a pipe, is completed by installing a smaller "carrier pipe" into the larger "host pipe" grouting the annular space between the two pipes, and sealing the ends.

11) **Performing Geotechnical Explorations**
- Geotechnical explorations, for the purpose of determining the soundness of the civil works project, may be performed on the levee crest, riverside berms, and/or landside berms by using borings, Cone Penetration Tests (small probe pushed into the ground), or Multi-Electrode Electrical Resistivity Tests (cable and shallow depth probes placed on the levee crest or levee cross section).

12) **Placing New Riprap**
- New riprap is placed on the channel slope, levee embankment, around bridge piers and outfall structures for erosion control.

13) **Temporary Staging Areas and Working Pads for Material and Equipment**
- Temporary staging areas or working pads are set up for materials and/or equipment within the project ROW. This also includes levee crests or berms that are used as haul roads. The impacted area will need to be repaired to pre-construction conditions.

14) **Installing Fences**
- Fences that are designed to not impede wildlife migrations can be installed on the project ROW or up and over a levee. Access gates can be included.

15) **Installing Utility Poles**
- Utility poles are erected within the project ROW, but not on the levee section.

16) **Removing Existing Utility Poles**
- Existing utility poles are removed and the holes are backfilled with compacted material and/or grout.

17) **Replacing Highway/Street Bridge**
- Bridges may be removed or replaced. Levee tie-ins may be impacted with the removal of the bridge embankment and placement of bridge piers near the levee embankment or within the channel limits.

18) **Placing Sanitary, Water, or Drainage Pipes Up and Over the Levee**
- A pipe is placed on top of the levee crest, embankment material is added to cover the pipe, and the top of the levee is surfaced to accommodate vehicles. Levee side slopes also will have additional embankment material placed to cover the pipe.

19) **Repairing/Paving Streets**
- Construction of new street paving or repair of existing paving that is placed on the levee section or up and over the levee section. Typical work includes milling existing paving and placing new paving.

20) **Installing Temporary Channel Crossings**
- Temporary culverts are installed with riprap placed around and on top of the structure located within the flow line of a channel. Crossing provides access for construction equipment to move from one bank to another. A hydraulic no-rise analysis must be provided.

21) **Abandoning Pipe or Conduit**
- A pipe or conduit within the levee is either completely removed or abandoned by grouting.

22) **Placing Monitoring Monuments**
- Monuments (e.g., carsonite posts or brass caps) are constructed on the project to survey and monitor for movement typically due to nearby construction or marking the location of sub-grade features.

It should be noted that this Programmatic EA is specific to work completed on levees and other flood risk reduction projects for which USACE has an interest per the Public Law (PL) 84-99 Rehabilitation Program. The PL 84-99 program consists of federal flood risk reduction projects owned, operated, and maintained by non-federal sponsors. Although USACE does not have any real estate interest on these projects, USACE does maintain a federal interest in these projects

since the program provides rehabilitation assistance for damages caused during high-water events. This Programmatic EA does not address the following activities since they have already been determined to be categorically excluded under NEPA per Corps Engineering Regulation 200-2-2 (33 CFR 230.9):

(a) Activities at completed Corps projects which carry out the authorized project purposes. Examples include routine operation and maintenance actions, general administration, equipment purchases, custodial actions, erosion control, painting, repair, rehabilitation, replacement of existing structures and facilities such as buildings, roads, levees, groins and utilities, and installation of new buildings utilities, or roadways in developed areas.

(b) Minor maintenance dredging using existing disposal sites.

(c) Planning and technical studies which do not contain recommendations for authorization or funding for construction, but may recommend further study. This does not exclude consideration of environmental matters in the studies.

(d) All Operations and Maintenance grants, general plans, agreements, etc., necessary to carry out land use, development and other measures proposed in project authorization documents, project design memoranda, master plans, or reflected in the project NEPA documents.

(e) Real estate grants for use of excess or surplus real property.

(f) Real estate grants for Government-owned housing.

(g) Exchanges of excess real property and interests therein for property required for project purposes.

(h) Real estate grants for rights of way which involve only minor disturbances to earth, air, or water: (1) minor access roads, streets and boat ramps, (2) minor utility distribution and collection lines (fiber optic lines, power lines, water lines, and irrigation lines/intakes), (3) removal of sand, gravel, rock, and other material from existing borrow areas, (4) oil and gas seismic and gravity meter survey for exploration purposes, and (5) storm water intakes.

(i) Real estate grants of consent to use Government-owned easement areas (applicable only to consents that do not impair the usefulness of the Government-owned easement).

(j) Real estate grants for archeological and historical investigations compatible with the Corps' National Historic Preservation Act responsibilities.

(k) Renewal and minor amendments of existing real estate grants evidencing authority to use Government-owned real property.

(l) Reporting excess real property to the General Services Administration for disposal.

(m) Boundary line agreements and disposal of lands or release of deed restrictions to cure encroachments.

(n) Disposal of excess easement interest to the underlying fee owner.

(o) Disposal of existing buildings and improvements for off-site removal.

(p) Sale of existing cottage site areas.

(q) Return of public domain lands to the Department of the Interior.

(r) Transfer and grants of lands to other Federal agencies.

(s) Oil and Gas Development. Examples include geotechnical investigations, seismic and gravity meter surveys, biological/cultural resource surveys, decommissioning/abandonment of

wells/pipelines, reclamation activities, and repurposing existing pipelines. Currently, NWO does not use this categorical exclusion due to extraordinary circumstances. As such, these oil/gas development projects cannot be excluded from NEPA nor considered a categorical permission.

4. Existing Conditions

This section contains a description of relevant resources that could be impacted by each alternative. The important resources described in this section are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. In order to assess the environmental consequences of alternatives, the existing conditions or affected environment of the proposed study area must be known. Due to the broad nature of this Programmatic EA and the large span of completed USACE civil works projects within the state of Iowa, the affected environmental resources are addressed collectively by two means: regionally and individually. Regional resources (i.e., air quality, cultural resources, recreation, terrestrial vegetation, threatened and endangered species, and wildlife) are somewhat similar throughout the state of Iowa while individual or project-specific resources (i.e., water quality, aquatic species, noise, wetlands and threatened and endangered species) vary based on the project site.

Resources that were considered, but not carried forward because no adverse impacts were identified included: climate and meteorology (no measureable effect on climate would occur from the proposed project due to the minor construction footprint and duration), hazardous waste (these areas would always be avoided so no impacts would arise), and prime farmlands (lands occupied by the USACE civil works projects are currently under-going a differing use and are not farmable, thus, no impacts to farmlands would occur).

4.1 Existing Regional Conditions for Iowa

4.1.1 Air Quality

Federal air quality policies are regulated through the Clean Air Act. In accordance with this act, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants considered harmful to public health and the environment. The criteria pollutants include carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter. The EPA is required to designate counties or air basins as in attainment or nonattainment for each criteria pollutant. Attainment means that an area is meeting or is below a given safe standard set by the EPA for the particular criteria pollutants. If an area is in nonattainment (the levels of a particular pollutant exceed EPA standards) the state must develop an implementation plan to achieve compliance. Once in compliance with the NAAQS, the area becomes a maintenance area.

The EPA has issued regulations addressing the applicability and procedures for ensuring that federal activities comply with the Clean Air Act. The EPA Final Conformity Rule requires federal agencies to ensure that federal actions in designated nonattainment or maintenance areas conform to an approved or promulgated state implementation plan or federal implementation plan to ensure that a federal action would not cause a new violation of the NAAQS, contribute to any increase in the frequency or severity of violations of existing NAAQS, or delay the timely attainment of any NAAQS or other attainment milestones. If a project results in a total net increase in pollutant emissions that is less than the applicable *de minimis* threshold established in 40 CFR 93.153(b), detailed conformity analyses are not required. The air quality in Iowa is good with all but two counties in attainment with the NAAQS for all criteria pollutants.

Muscatine County exceeds EPAs standards for sulfur dioxide. Sulfur dioxide (SO_2) is one of a group of highly reactive gasses known as "oxides of sulfur." The largest sources of SO_2 emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%). Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. SO_2 is linked with a number of adverse effects on the respiratory system. No USACE Civil Works projects are located in this county.

Pottawattamie County exceeds EPAs standards for lead. Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been from fuels in on-road motor vehicles (such as cars and trucks) and industrial sources. As a result of EPA's regulatory efforts to remove lead from on-road motor vehicle gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions to the air today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline.

4.1.2 Cultural Resources

Cultural resources are a broad pattern of material and non-material sites or objects that represent contemporary, historic, and pre-historic human life, ways, or practices. River floodplains usually contain a variety of cultural resource types that span from the earliest Native American inhabitants of North America to the present. Common cultural resource sites include prehistoric Native American archeological sites, historic archeological sites, ship wrecks, and structures such as bridges and buildings. Projects involving Federal land, funds, or permitting are subject to compliance with the National Historic Preservation Act of 1966 (NHPA).

The NHPA (Public Law 89 80-655), as amended, and other applicable laws and regulations require Federal agencies to take into account the effects of their undertakings on significant cultural resources within the proposed undertaking's area of potential effect (APE). Typically, these studies require archival searches and field surveys to identify if any cultural resources are present. When significant sites are recorded, efforts are made to avoid the resources, minimize

adverse effects, and preserve the site(s) in place. If any significant sites cannot be avoided and would be adversely impacted, an appropriate mitigation plan would be implemented to recover data that would be otherwise lost due to the undertaking. The civil works project areas have been previously disturbed during original construction of the project and, as such, likely do not contain subsurface cultural resources. The original levees and their component structures are in some cases over 50 years old and hence may be evaluated for eligibility to be listed on the National Register of Historic Places (NRHP). However, due to periodic substantial alterations, repairs, and replacements, they will in all likelihood lack:

"The quality of significance in American history, architecture, archeology, engineering, and cultural as present in districts, sites, buildings, structures, and objects that *possess integrity* of location, design, setting, materials, workmanship, feeling, and association, and…"

Specifically under Criterion C:

"… That *embody the distinctive characteristics* of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction."

Undertakings such as taking borings, installing posts or poles, horizontal directional drilling for the placement of utility lines, protecting slopes, and installing small structures such as outbuildings and drainage pipes or any of the actions enumerated in Section 3.2, are unlikely to impact eligible historic properties. Potential exceptions may exist, such as the repair or replacement of unique or rare historic bridges.

4.1.3 Recreation

The Federal Water Project Recreation Act of 1965, as amended, declares that recreation and fish and wildlife enhancement be given full consideration as purposes of federal water development projects. The Land and Water Conservation Fund Act of 1965 (LWCFA), as amended, assists in preserving, developing, and assuring accessibility to outdoor recreational resources.

The recreational resources associated with civil works projects generally consist of hiking and biking trails that are located on the levee crown or in the project's ROW. If project sites contain recreational resources that are LWCFA facilities (national natural treasures such as parks, protected forests, and wildlife areas), coordination with the National Park Service would be required to ensure a conversion does not occur to the feature.

4.1.4 Terrestrial Vegetation

Most of the civil works projects described in this Programmatic EA consist of levees and other flood control structures. During construction of these projects, existing habitat was cleared, the project was built, and then the area was planted with a uniform stretch of brome grass. During operation and maintenance activities on the completed projects, the brome grass is regularly

mowed to prevent the establishment of trees, minimize wildlife usage that may cause adverse effects to the project, and provide ease of inspection in order to quickly identify deficiencies and allow for expedited repairs. In some areas, native vegetation has been planted adjacent to levees but never on levees themselves. As stated, trees are not allowed to grow on the projects or within the projects' ROW, which is generally 15 feet on either side. Although the projects are located in both urban and rural areas, the terrestrial vegetation on the projects remain the same; regularly mowed brome grass. In limited instances, native vegetation was planted on seepage berms.

4.1.5 Wildlife

The Fish and Wildlife Coordination Act of 1958, as amended, recognizes the vital contribution of wildlife resources to the Nation and requires equal consideration and coordination of wildlife conservation with water resources development programs. The Migratory Bird Treaty Act of 1918 established a federal prohibition against pursuing, hunting, taking, capturing, killing, possessing, offering for sale, purchasing, delivering, shipping, transporting, exporting, or attempting any of these activities with any migratory bird, part, nest, or egg.

Because the majority of the civil works projects covered under this Programmatic EA consist of levees and improved channels with limited terrestrial vegetation (i.e., regularly mowed brome grass and lack of trees), wildlife use is limited. Wildlife in close association with the projects generally includes species accustomed to human presence and disturbance. Mammals common to these areas include white-tailed deer, eastern cottontail rabbit, raccoon, fox squirrel, and opossum. Common birds include blue jays, robins, mourning doves, cardinals, swallows, and sparrows. Raptors likely use these areas for hunting and resting but no nesting activity occurs due to the lack of trees.

For those civil works projects that are located in more rural areas, habitat adjacent to the brome-grass expanses would likely consist of agricultural or wild/undisturbed lands. Because of the diminished human presence in these areas, wildlife likely to be found adjacent to the civil works projects include threatened and endangered species (northern long-eared bats in forests or interior least terns and piping plovers on sandbars), bald eagles, migratory birds not typically seen in urban and park-like settings, and mammals such as bobcat, cougar, and fox.

4.1.6 Threatened and Endangered Species

The Endangered Species Act of 1973 (ESA), as amended, provides for the conservation of species listed as endangered and threatened throughout all or a significant portion of their range, and provides for the conservation of the ecosystems on which they depend. As habitat loss is the primary threat to most imperiled species, the ESA allows designation of specific areas as critical habitat.

The following threatened and endangered species are known to occur in the state of Iowa and subsequently could be found near the civil works projects described in this Programmatic EA.

Figure 2 is a map of Iowa counties to help the reader identify the locations of where the species are located when referring to the individual species maps.

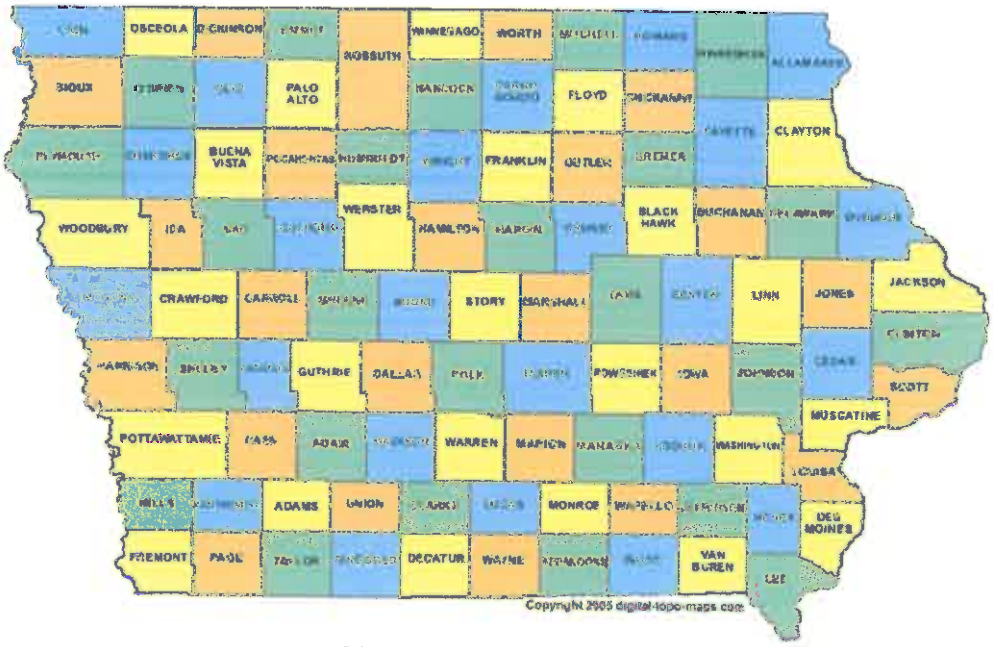

Figure 2. Iowa County Map
(Courtesy of Digital-Topo-Maps.com)

4.1.6.1 **Prairie bush clover** *(Lespedeza leptostachya)* are found in dry to mesic (containing a moderate amount of moisture) prairies with gravelly soils (Figure 3).

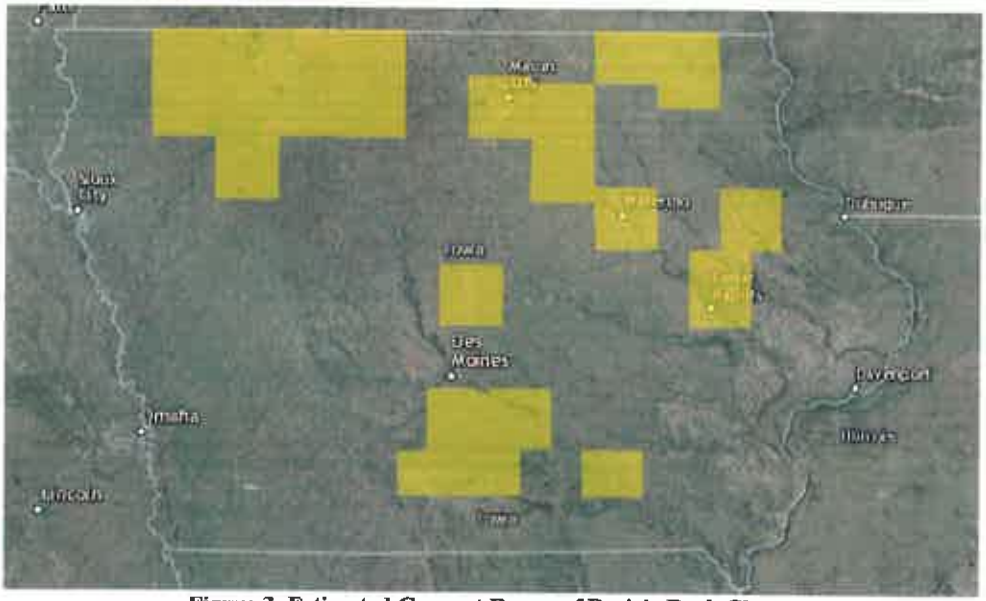

Figure 3. Estimated Current Range of Prairie Bush Clover
(Courtesy of Iowa DNR Natural Areas Inventory)

4.1.6.2 Western prairie fringed orchids (*Platanthera praeclara*) are found in mesic to wet unbroken tallgrass prairies and sedge meadows (Figure 4).

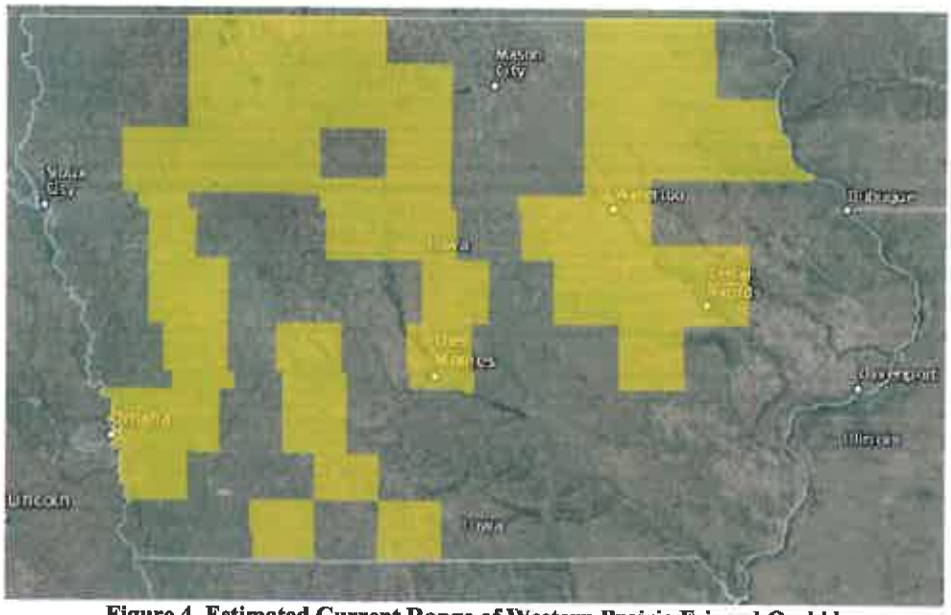

Figure 4. Estimated Current Range of Western Prairie Fringed Orchid (Courtesy of Iowa DNR Natural Areas Inventory)

4.1.6.3 Indiana bats (*Myotis sodalis*) need large diameter trees with loose bark for roosting. They feed near drainage areas and slow-moving rivers where water and insects are abundant. Indiana bats hibernate in caves during the late fall and winter months (Figure 5).

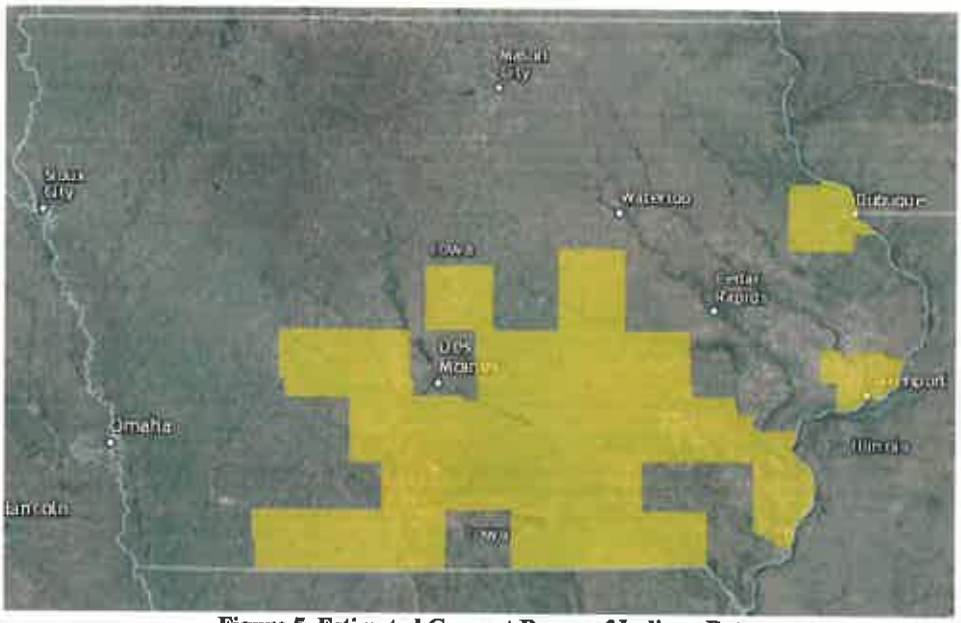

Figure 5. Estimated Current Range of Indiana Bat (Courtesy of Iowa DNR Natural Areas Inventory)

4.1.6.4 Northern long-eared bats (*Myotis septentrionalis*) roost behind loose pieces of bark, within cavities and crevices of live and dead trees, and occasionally in structures like barns and buildings during the summer months. They emerge at dusk to forage on insects and return to their roosts before dawn. In the winter months, northern long-eared bats hibernate in caves and in mines. In the spring and fall months, northern long-eared bats migrate in large numbers between their summer and winter habitats (Figure 6).

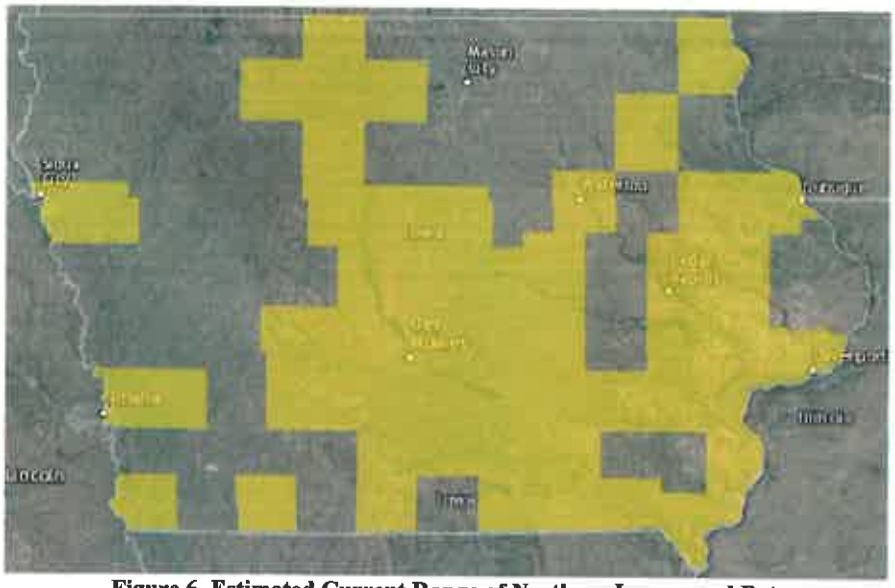

Figure 6. Estimated Current Range of Northern Long-eared Bat
(Courtesy of Iowa DNR Natural Areas Inventory)

4.1.6.5 Interior least terns (*Sterna antillarum athalassos*) ***and piping plover*** (*Charadrius melodus*) nest on unvegetated or sparsely vegetated sandbars in river channels and occasionally along the shorelines of sandpits. The nesting season for these birds is from April 15 through September 15. Channel constrictions and obstructions that disrupt natural flows and influence sandbar complexes in the river limit potential habitat for these birds (Figures 7 and 8, respectively).

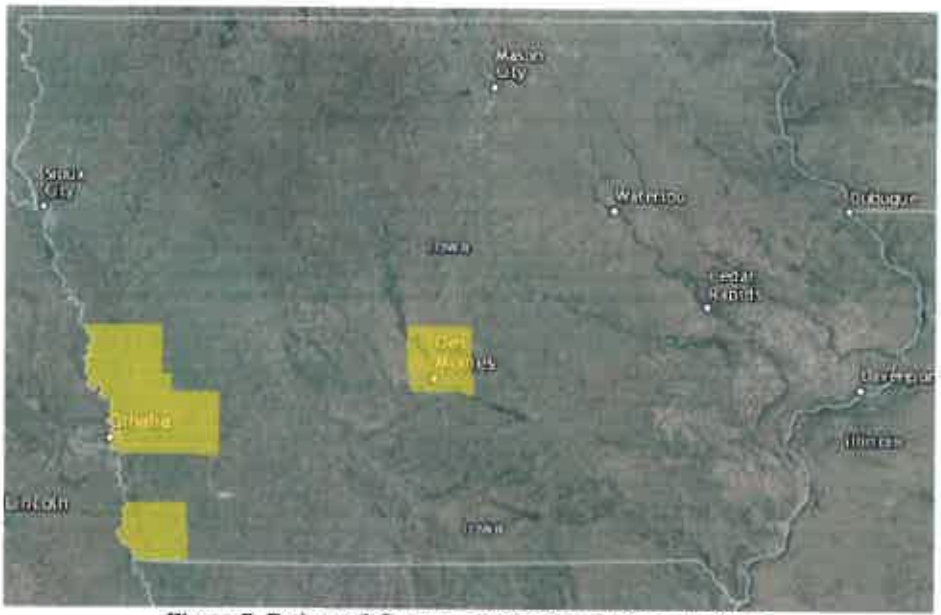

Figure 7. Estimated Current Range of Interior Least Tern
(Courtesy of Iowa DNR Natural Areas Inventory)

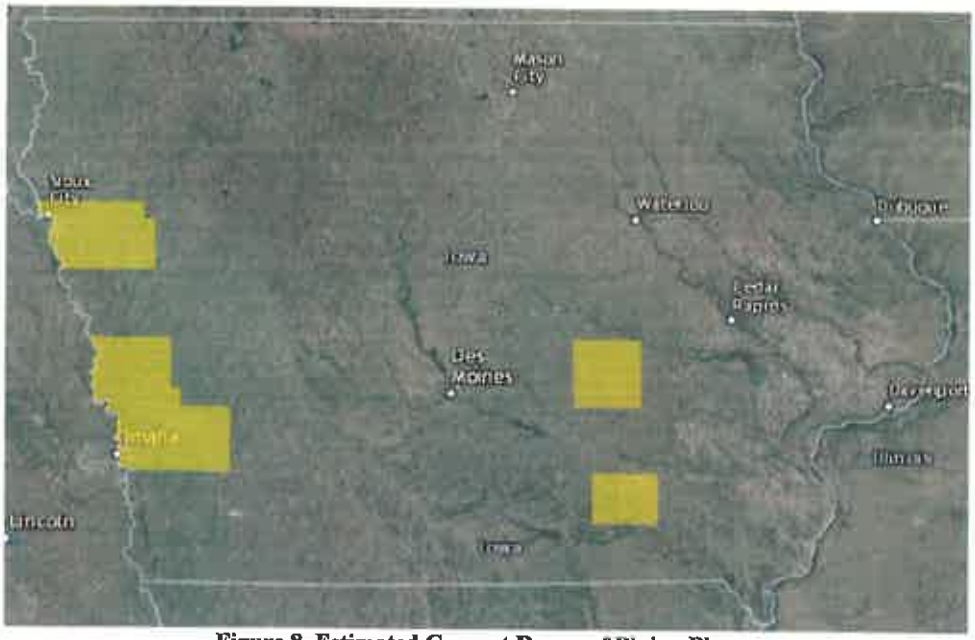

Figure 8. Estimated Current Range of Piping Plover
(Courtesy of Iowa DNR Natural Areas Inventory)

4.1.6.6 Pallid sturgeon (*Scaphirhynchus albus*) are typically bottom dwellers in rivers with swift, turbid, and free flowing waters. Pallid sturgeon are adapted for living close to the bottom of large, shallow rivers with sand and gravel bars. Pallid sturgeon are associated with diverse aquatic habitats and are found in large-river ecosystems that provide a diverse array of floodplains, backwaters, chutes, sloughs, islands, sandbars, and main channel waters. Fish are

the preferred food of pallid sturgeons, although aquatic insect larvae are also consumed in earlier life stages (Figure 9).

Figure 9. Estimated Current Range of Pallid Sturgeon
(Courtesy of Iowa DNR Natural Areas Inventory)

4.1.6.7 Designated critical habitat is not present for any of the federally-listed threatened or endangered species within areas containing completed civil works projects. Since the existing projects are within areas that were previously disturbed by construction and are now regularly disturbed (operation and maintenance activities), additional investigations for threatened or endangered species' critical habitat on USACE civil works project sites are not necessary under this Programmatic EA.

Critical habitat may be located in areas adjacent to the USACE civil works projects or designated at a date in the future. To ensure designated critical habitat is not adversely modified or destroyed by actions taken to construct categorically permitted alterations, informal consultation with the U.S. Fish and Wildlife Service (USFWS) would occur on a case-by-case basis.

Table 4-1. Threatened and Endangered Species in the State of Iowa and Potential Occurrence at Individual Civil Works Project Sites. (An "X" indicates potential occurrence at that site).

	Prairie Bush Clover	Western Prairie Fringed Orchid	Indiana Bat	Northern Long-eared Bat	Piping Plover	Least Tern	Pallid Sturgeon
Big Sioux River	X	X		X	X	X	X
East Boyer River	X	X	X				
Emerson	X	X	X	X			X
Floyd River	X	X		X	X	X	X
Hawarden	X	X		X			
Ida Grove	X	X		X			
Red Oak	X	X	X	X			
Perry Creek	X	X		X	X	X	X
Little Sioux River	X	X		X	X	X	X
L-624-627	X	X	X	X	X	X	X
L-561, 550, and 536	X	X	X	X	X	X	X
L-575	X	X	X	X	X	X	X
Main Ditch 6	X	X	X	X	X	X	X
L-594	X	X	X	X	X	X	X
L-601	X	X	X	X	X	X	X
L611-614	X	X	X	X	X	X	X

4.1.7 Floodplains

Floodplains along the rivers in Iowa have been substantially altered over the past century. In many areas, flood control, bank stabilization, and channelization of rivers have either completely or partially removed the connectivity of the rivers with their floodplain. The majority of floodplains are now used for either agriculture or urban development. It is expected that over time, more agricultural areas will be converted to urban/suburban uses, as urban populations continue to grow.

4.2 Existing Site-Specific Conditions

For the site-specific project areas, water quality, aquatic species, noise, wetlands, and threatened and endangered species are discussed on an individual basis.

4.2.1 Water Quality

Individual states have jurisdiction for managing water quality within their states. Section 303(d) of the Clean Water Act requires each state to identify water for which existing required pollution controls are not stringent enough to meet state water quality standards as well as to identify the beneficial uses of that water. States are also required to establish total maximum daily loads (TMDLs) for these waters (see 40 CFR 130.7). In Iowa, the Iowa Department of Natural Resources (IDNR) maintains and updates (every two years) an Impaired Water List and Integrated Report for all surface waters in the state. The report can be downloaded at: http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Monitoring/Impaired-Waters.

4.2.2 Aquatic Species

The Fish and Wildlife Coordination Act of 1958, as amended, was established to provide protection to fish and wildlife when federal actions result in the control or modification of a natural stream or waterbody.

Iowa's rivers and streams support a diverse population of fish that feed, breed, and shelter on a year-round basis. Over 100 species have been reported in numerous surveys and much overlap in species composition is noted within Iowa's watersheds. The University of Iowa Hygienic Laboratory's Limnology Section and the IDNR's Watershed Monitoring and Assessment Section staff sampled many streams and rivers across Iowa, dividing their efforts between Iowa's two major drainage basins; the Missouri River Drainage and the Mississippi River Drainage (Figure 10). Following the extensive sampling effort, the IDNR, Geological Survey examined the species collected, arbitrarily assigned size to the sampled watersheds (small, approximately 16 square miles; medium, approximately 60 square miles; and large, approximately 200 square miles) based on drainage area and physical stream characteristics, and used that information to prepare a Water Fact Sheet in January 2008. The Water Fact Sheet was designed to help individuals determine which fish species would be likely to occur within particular watersheds across the state.

Results of the extensive sampling effort found that nine species were common to all watersheds in Iowa. These species include: creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, and fathead minnow.

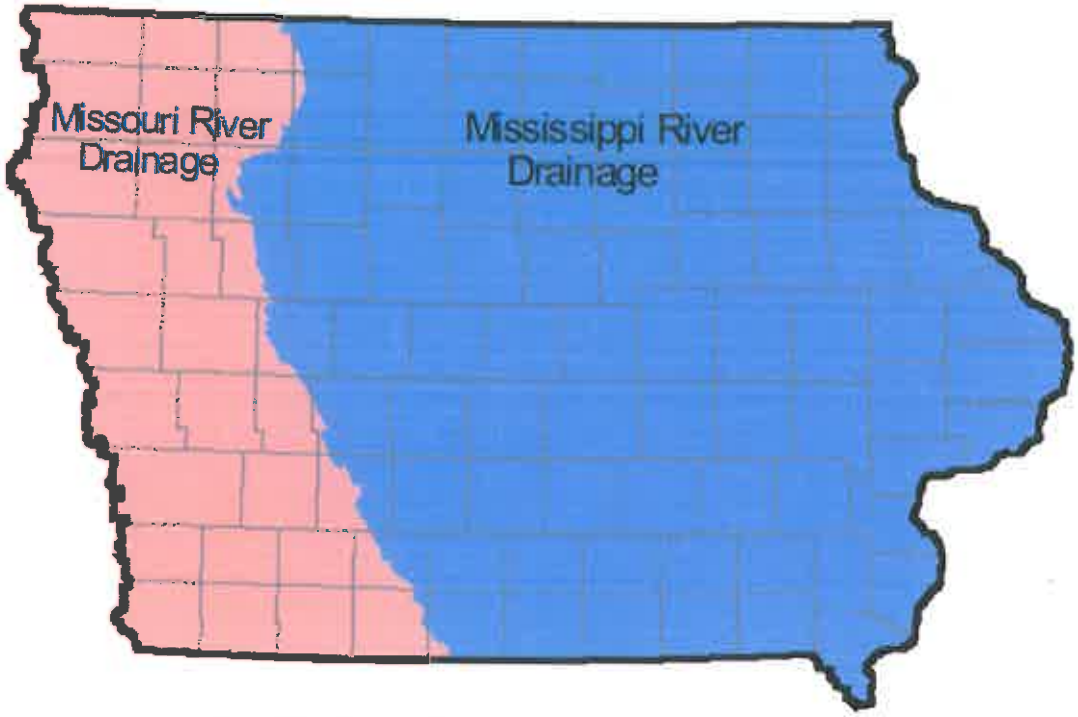

Figure 10. Map of the Missouri River and Mississippi River Drainage Basins in Iowa (Courtesy of Iowa DNR Geological Survey)

Within the Missouri River Drainage, small watersheds were found to also include red shiner and black bullhead; medium watersheds were found to also include bluntnose minnow, channel catfish, common carp, red shiner, stonecat, and suckermouth minnow; and the larger watersheds were found to also include bluntnose minnow, channel catfish, common carp, flathead chub, quillback carpsucker, red shiner, shorthead redhorse, and stonecat.

The aquatic species that may occur site-specifically within drainages at each civil works project are discussed individually below.

4.2.3 Noise

Noise is defined as unwanted sound that interferes with normal activities or in some way reduces the quality of the environment. Across the civil works project area in Iowa, the level of ambient noise varies considerably depending on the amount of development in a given area. In agricultural areas, which are typically open, noise may carry for some distance. Noise sources in agricultural areas are predominantly natural and include wind, weather, and wildlife sounds with occasional sounds from farm machinery. Traffic from highways and other roadways also are a common source of background noise. Seasonally, noise produced from farming activities create levels of noise similar to the types of noises produced by some construction activities.

In urban and residential areas, road traffic is the major source of noise with other noises coming from construction and industrial sources. The most noise sensitive areas in urban environments include parks, recreational areas, and businesses. Areas with a high sensitivity to noise, such as residences, schools and day care facilities, hospitals, places of worship, and libraries occasionally occur adjacent to USACE civil works projects.

Sources of noise in or around areas further removed from urban development may include recreational boating, hunting, and other human activities (e.g., ATVs). Isolated and even more remote areas have a greater potential to contain desirable habitat for fish and wildlife including threatened and endangered species (e.g., less human disturbance therefore less noise).

4.2.4 Wetlands

The Clean Water Act (CWA) of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968 collectively provide protection to valuable natural resources such as wetlands. Generally, wetlands in the project areas consist primarily of freshwater forested/shrub wetlands and freshwater emergent wetlands located in the floodplains of rivers and their tributaries or along the riverside and landside toes of levees where hydrology is favorable. In many cases, as a result of flooding, water features, such as new channels, have been created on the floodplains where no such features previously occurred. These areas could be considered jurisdictional waters of the United States (water bodies that are regulated by the USACE under Section 404) and could therefore, be protected under the CWA. For each site-specific project, the National Wetlands Inventory (NWI) database was consulted to determine the type and location of wetlands that occur in the project area where the proposed Section 408 alteration might take place. It should be noted that these maps may no longer be accurate due to the habitat-shaping process associated with high water events. Thus, on-site investigations and delineations would be conducted in these areas to identify, map, and ensure protection of the resources that fall under protection of Section 404 of the CWA.

4.2.5 Threatened and Endangered Species

A description of the threatened and endangered species that regionally occur within the state of Iowa was provided above in Section 4.1.6 of the Existing Conditions. The threatened and endangered species that may occur site-specifically near each civil works project are discussed individually below.

4.3 USACE Civil Works Projects in Iowa

4.3.1 Big Sioux River

Name: Big Sioux River Flood Protection and Erosion Control Project – Sioux City, Iowa and South Dakota.

Location: The project is located along the extreme downstream reach of the Big Sioux River at, and in the vicinity of, Sioux City, Woodbury County, Iowa and North Sioux City, Union County, South Dakota. The upstream end of the project is the McCook Lake Interchange of Interstate 29

(Figure 11) and through the middle of the city of North Sioux City (Figure 12). The downstream end of the project is near the Interstate 29 bridge crossing over the Big Sioux River (Figure 13). The bridge is located about 1-1/2 miles upstream from the Big Sioux River/Missouri River confluence.

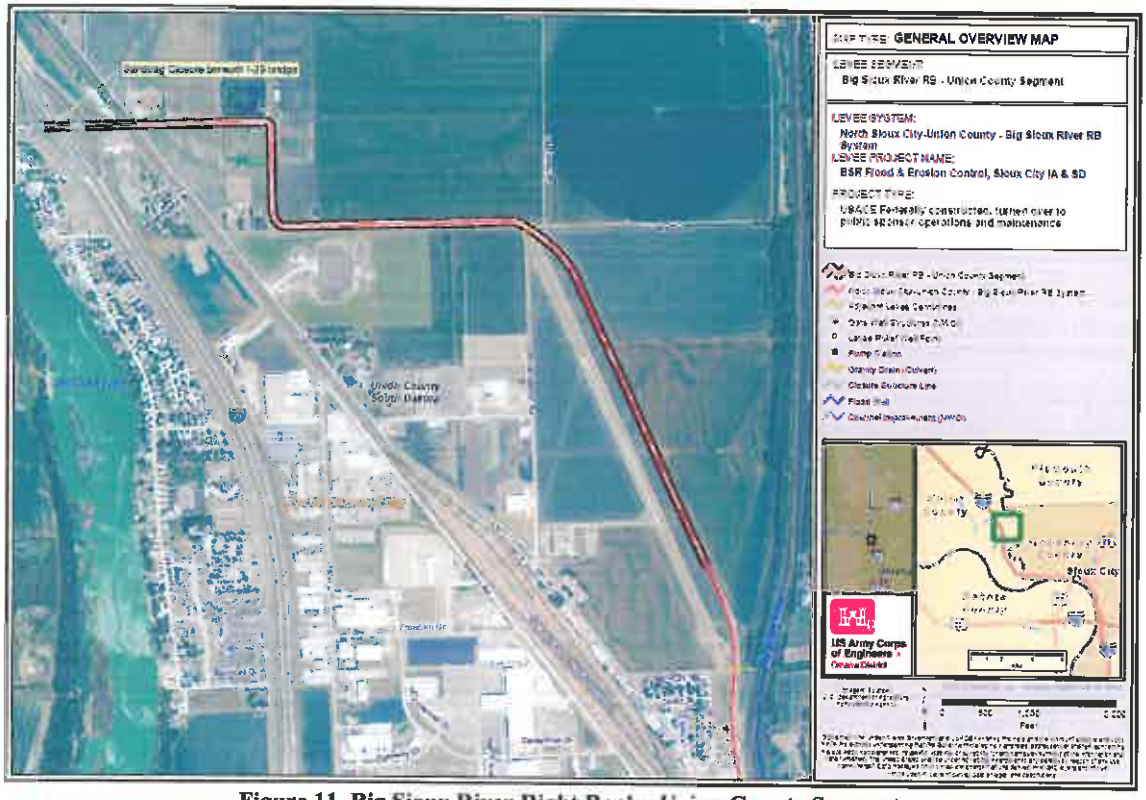

Figure 11. Big Sioux River Right Bank - Union County Segment

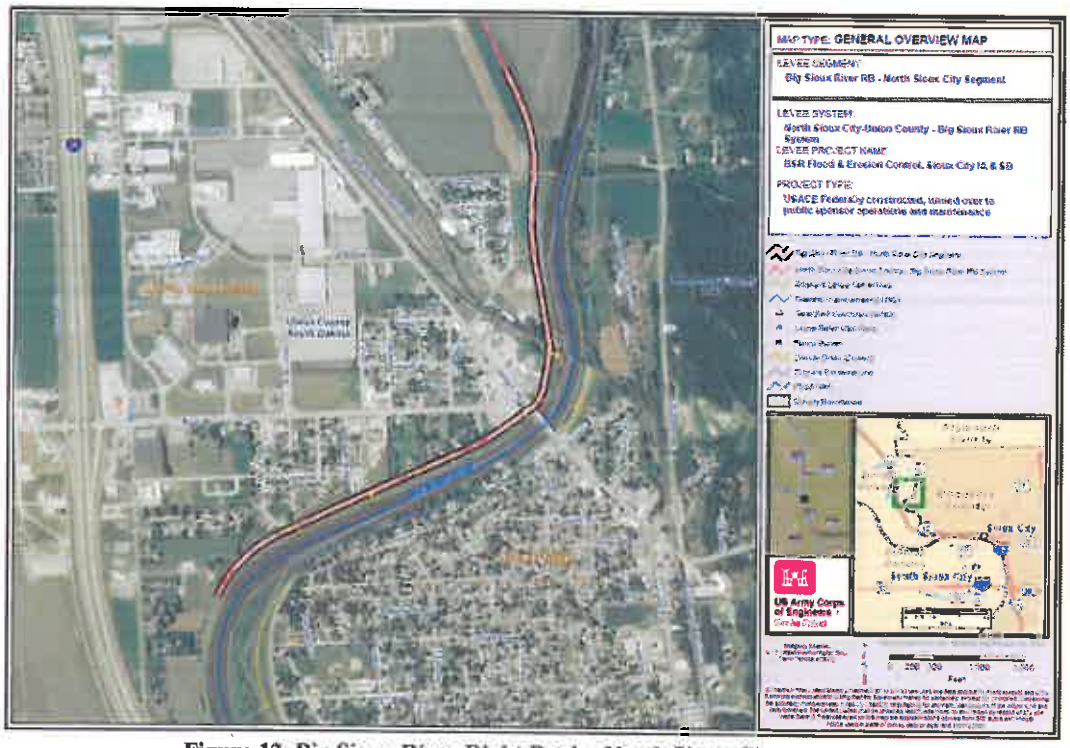

Figure 12. Big Sioux River Right Bank - North Sioux City Segment

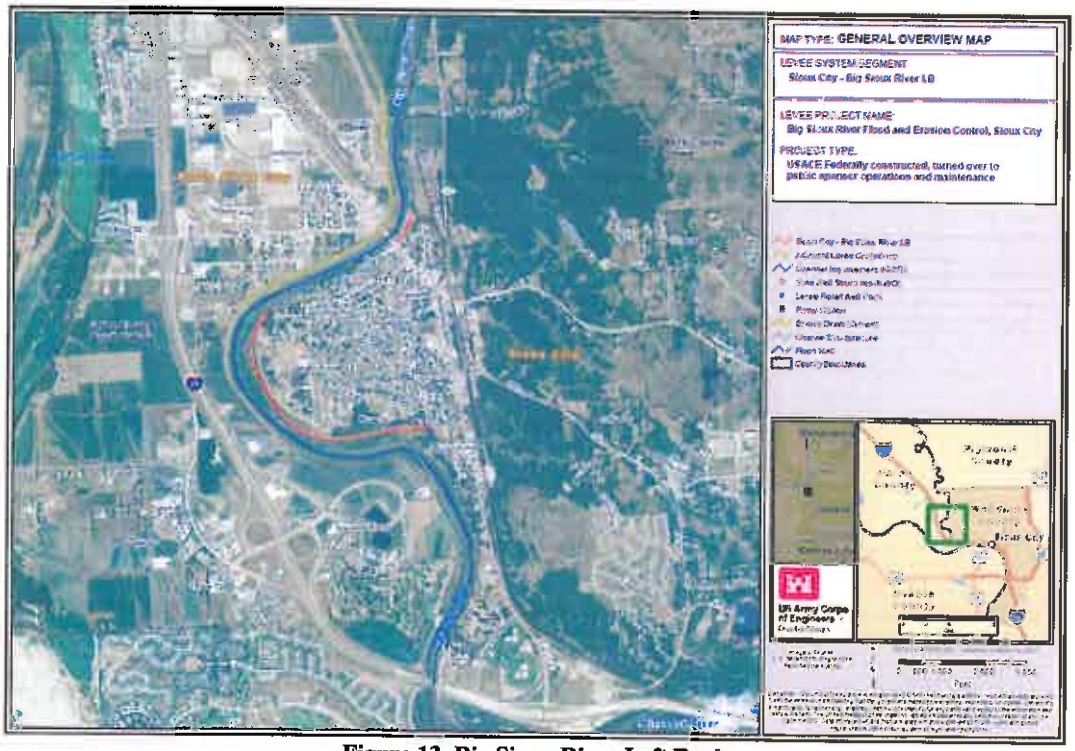

Figure 13. Big Sioux River Left Bank

Project Features: The Big Sioux River Flood and Erosion Control Project consists of a 19,650-foot improved channel along the Big Sioux River, an 18,200-foot long right bank levee, an 850-foot long upstream left bank levee and a 6,400-foot long downstream left bank levee, rock riprap slope protection, drainage structures, sandbag closures, bar gates, and surfacing (levee crowns, ramps, and turnouts). A view of a portion of the flood control project is provided in Figure 14.

Figure 14. Sioux River Flood Protection and Erosion Control Project (Looking upstream from the I-29 Bridge)

Existing Conditions:

Water Quality: The beneficial uses of the Big Sioux River include aquatic life support, fish consumption, and primary contact recreation. The Big Sioux River is listed as a Category 5b waterbody, which designates the waterbody as having a biological impairment with the cause unknown. Aquatic life is impaired with the stressor suspected of being low dissolved oxygen. Iowa considers the impairment to have a relatively low social impact and a relatively high cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority IV.

Aquatic Species: Aquatic species likely found within the Big Sioux River include: creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, bluntnose minnow, channel catfish, common carp, flathead chub, quillback carpsucker, red shiner, shorthead redhorse, and stonecat.

Noise: Sources of noise include urban disturbances such as automobiles, construction, and industry.

Wetlands: The USFWS NWI Database revealed scattered freshwater forested/shrub wetlands and freshwater emergent wetlands along the Big Sioux River.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, least tern, piping plover, northern long-eared bat, and pallid sturgeon are known to occur in Woodbury County, Iowa. Due to the existing vegetative conditions (brome grass) and on-going

maintenance activities that occur along the civil works project site, western prairie fringed orchid, prairie bush clover, and northern long-eared bat are unlikely to occur where proposed alterations would be made. The absence of sandbars within the Big Sioux River prevents the interior least tern and piping plover from establishing residence near the civil works project. Due to the limited big river features like those found in the Missouri River, the pallid sturgeon likely does not occur in association with this civil works project.

4.3.2 East Boyer River

Name: East Boyer River Flood Protection Project (federally constructed) and East Boyer River Left Bank Levee (non-federally constructed), Denison, Iowa.

Location: The project is located along both banks of the East Boyer River through the city of Denison, in Crawford County, Iowa (Figures 15 and 16).

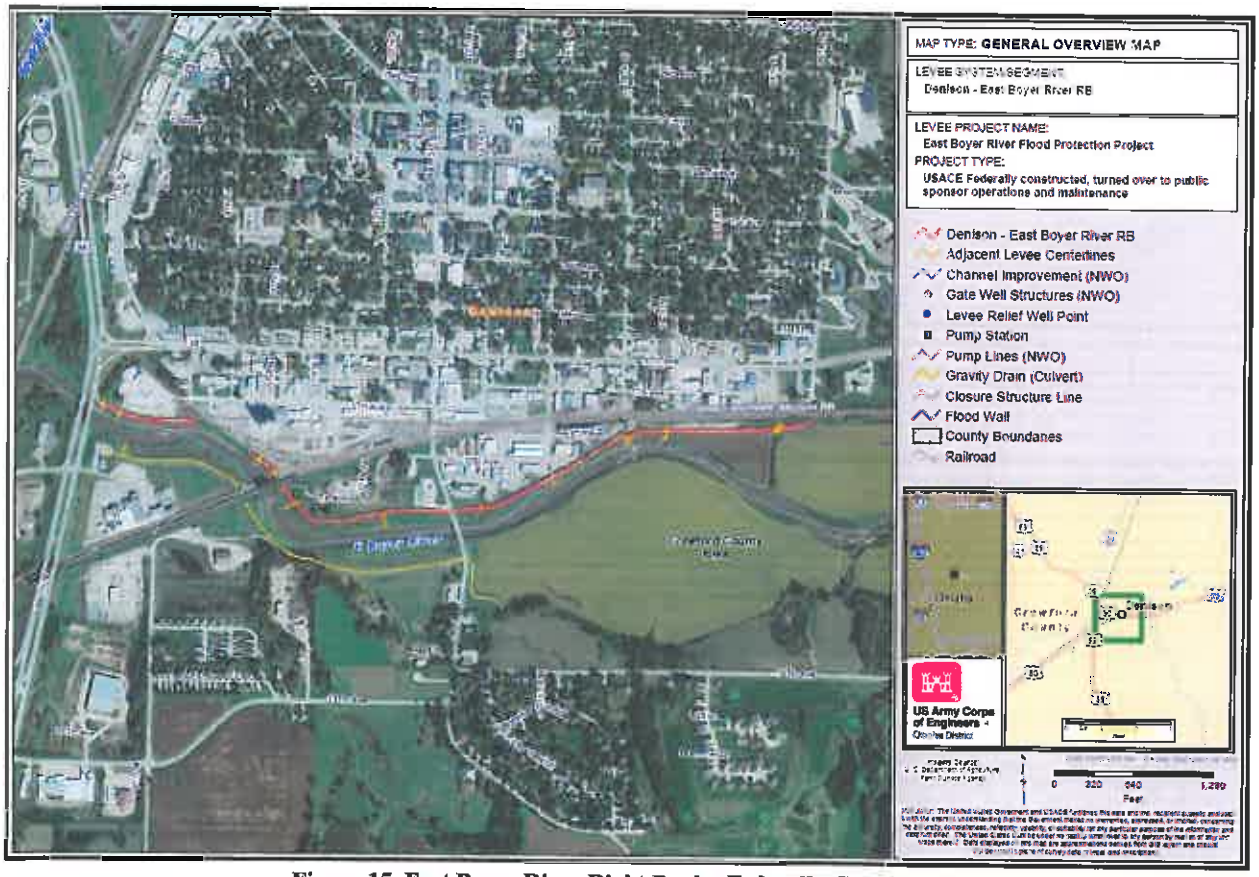

Figure 15. East Boyer River Right Bank - Federally Constructed

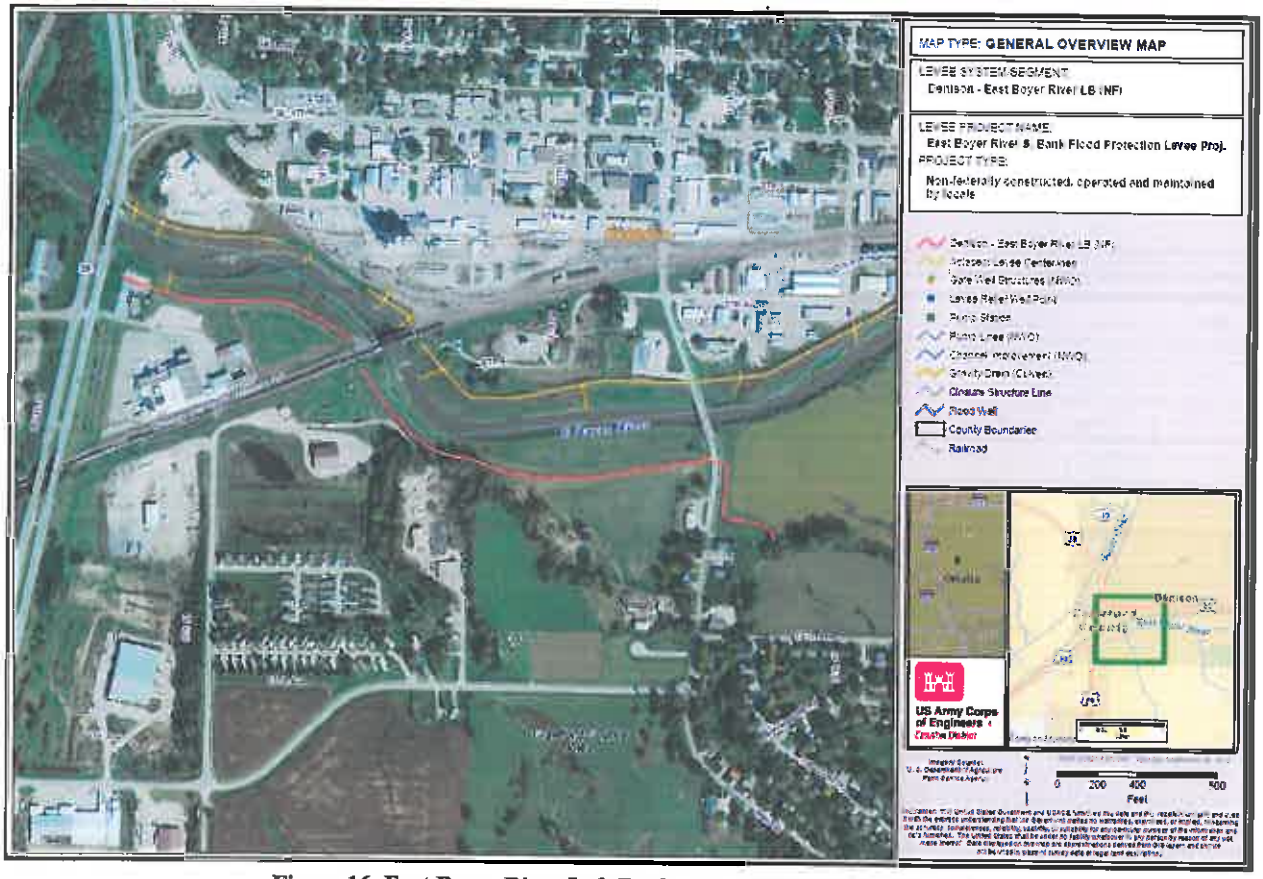

Figure 16. East Boyer River Left Bank - Non-Federally Constructed

Project Features: The East Boyer River Flood Protection Project consists of 6,400 feet of right bank earthen levee with short reaches of floodwall and inspection trench, sod, crushed rock and recycled concrete surfacing, reinforced concrete drainage pipes, flap gates, closure structures, drop structures, and grouted riprap and broken rock slope armoring. The East Boyer River Left Bank Levee consists of a 3,800-foot earthen levee, closure structures, and a flood warning system. A view of a portion of the flood control project is provided in Figures 17 and 18.

Figure 17. Levees (beneath blue lines) at the Highway 59 Bridge, Looking Downstream

Figure 18. Levees at the South Main Street Bridge, Looking Upstream

Existing Conditions:

Water Quality: The beneficial uses of the East Boyer River include aquatic life support and primary contact recreation. The East Boyer River is listed as a Category 5a waterbody, which designates the waterbody as having impairment due to a known pollutant. Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority III.

Aquatic Species: Aquatic species found within the East Boyer River include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller,

common shiner, fathead minnow bluntnose minnow, channel catfish, common carp, red shiner, stonecat, and suckermouth minnow.

Noise: Sources of noise include urban disturbances such as automobiles, construction, and industry.

Wetlands: The USFWS NWI Database revealed limited fresh water emergent and freshwater forested/shrub wetlands along the East Boyer River.

Threatened and Endangered Species: Northern long-eared bat, western prairie fringed orchid and prairie bush clover are known to occur in Crawford County. Due to the existing vegetative conditions (brome grass) and on-going maintenance activities that occur along this civil works project site, these species are unlikely to occur where proposed alterations would be made.

4.3.3 Indian Creek

Name: Emerson, Iowa Flood Protection Project.

Location: The project is located on the right bank of the Indian Creek at Emerson, Mills County, Iowa (Figure 19).

Figure 19, Emerson - Indian Creek Right Bank

Project Features: The Indian Creek Flood Protection Project consists of a 183-foot earthen levee, a railroad embankment, the Morton Avenue road raise, a flood warning system, sandbag closures, and drainage structures (Figure 20).

Figure 20. Earthen Railroad Embankment (blue line) as seen from Highway 59

Existing Conditions:

Water Quality: The beneficial use of the Indian Creek include aquatic life support. Indian Creek is listed as a Category 5b-v waterbody, which designates the waterbody as being biologically impaired with the impairment being confirmed with multiple samplings. Aquatic life is the impaired use with a low biotic index being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively high cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority IV.

Aquatic Species: Aquatic species found within Indian Creek include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, red shiner and black bullhead.

Noise: Sources of noise include rural and urban disturbances such as farm machinery, natural sounds, automobiles, construction, recreation, and light industry.

Wetlands: The USFWS NWI Database revealed scattered freshwater forested/shrub and freshwater emergent wetlands along Indian Creek.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, Indiana bat, northern long-eared bat, and pallid sturgeon are known to occur in Mills County. Due to the limited big river features like those found in the Missouri River, the pallid sturgeon likely does not occur in association with this civil works project. Because of the on-going

maintenance activities, lack of trees, and established brome grass along this civil works project, the northern long-eared bat, Indiana bat, western fringed prairie orchid, and prairie bush clover do not occur here.

4.3.4 Floyd River

Name: Floyd River Flood Control Project, Sioux City, Iowa.

Location: The project is located on the Floyd River above its junction with the Missouri River at Sioux City, Woodbury County, Iowa (Figures 21 and 22).

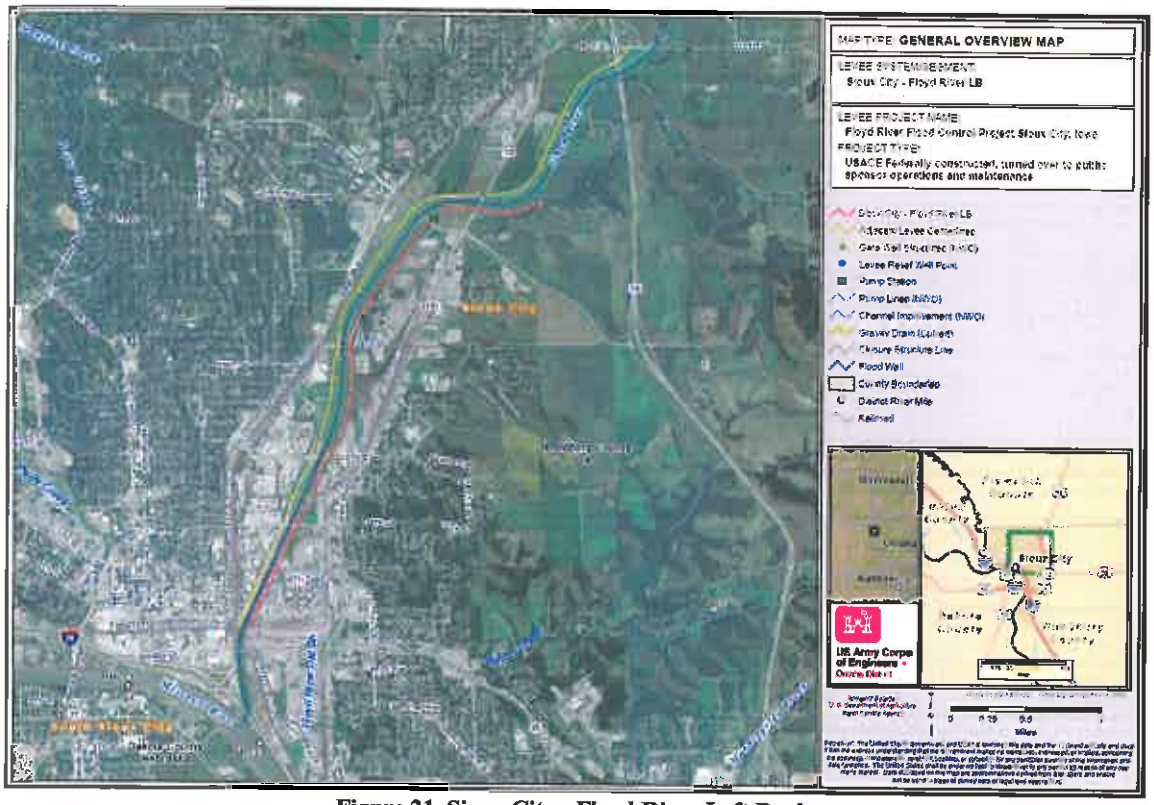

Figure 21. Sioux City - Floyd River Left Bank

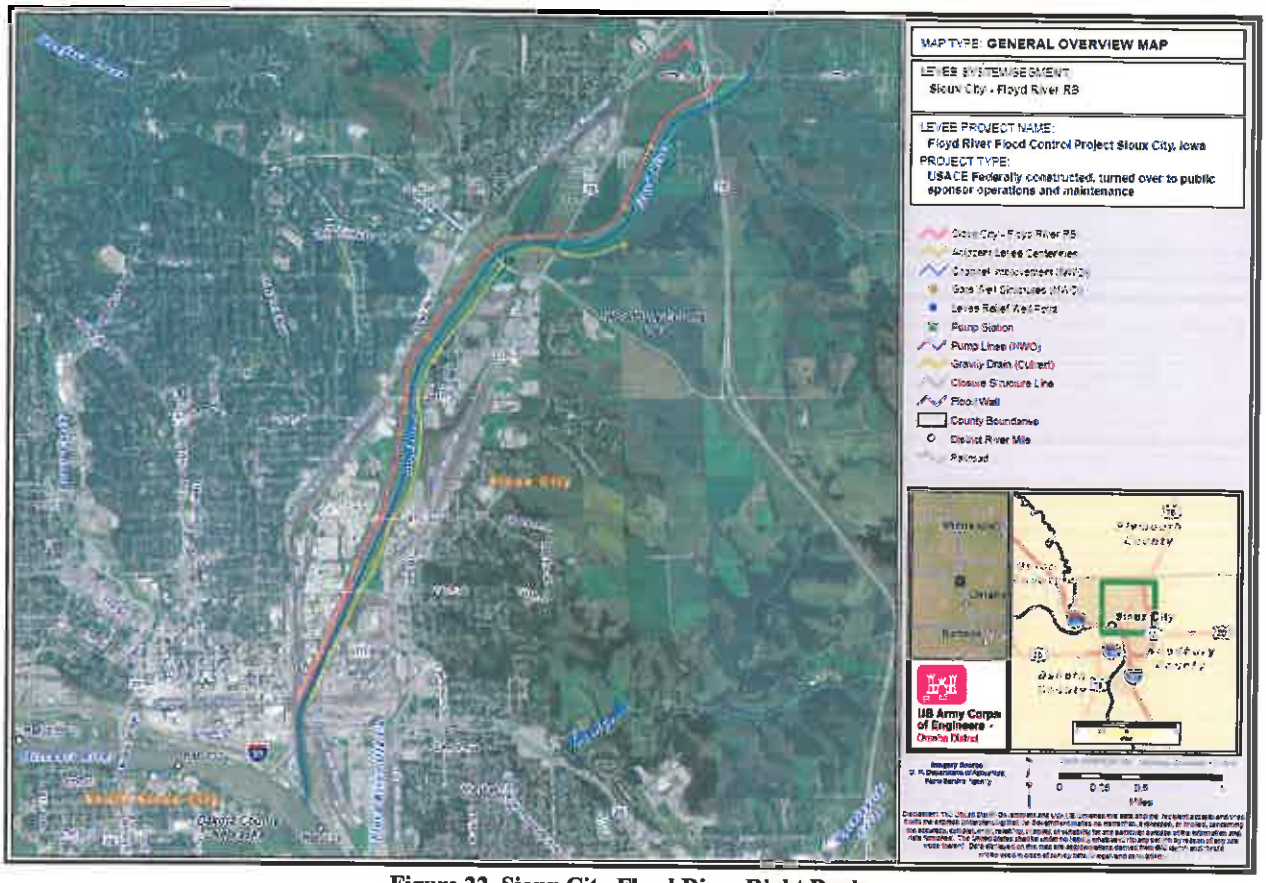

Figure 22. Sioux City Floyd River Right Bank

Project Features: The Floyd River Flood Control Project consists of approximately 6.4 miles of earthen levees, channel improvements, sod, riprap slope protection, and surfacing material on levee crowns, ramps, and turnouts (Figure 23).

Figure 23. Earthen Levees near the 28th Street Bridge, Looking Downstream

Existing Conditions:

Water Quality: The beneficial uses of the Floyd River include aquatic life support, fish consumption, and primary contact recreation. The Floyd River is listed as a Category 5a

waterbody, which designates the waterbody as having impairment due to a known pollutant. Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority III.

Aquatic Species: Aquatic species found within the Floyd River include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, bluntnose minnow, channel catfish, common carp, red shiner, stonecat, and suckermouth minnow.

Noise: Sources of noise include urban disturbances such as automobiles, construction, and industry.

Wetlands: The USFWS NWI Database revealed no wetlands along the Floyd River through Sioux City. It is likely that freshwater emergent wetlands occur along the levee toe due to favorable hydrology.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, least tern, piping plover, northern long-eared bat, and pallid sturgeon are known to occur in Woodbury County. Due to the limited big river features like those found in the Missouri River, the pallid sturgeon likely does not occur in association with this civil works project. Because of the on-going maintenance activities, lack of trees, and established brome grass along this civil works project, the northern long-eared bat, western prairie fringed orchid, and prairie bush clover do not occur here. The absence of sandbars within the Floyd River prevents the interior least tern and piping plover from establishing residence.

4.3.5 Dry Creek

Name: Hawarden Flood Control Project, Dry Creek, Hawarden, Sioux County, Iowa.

Location: The project is on the relocated channel of Dry Creek from Iowa Highway No. 10 downstream to its confluence with the Big Sioux River in Hawarden, Sioux County, Iowa (Figures 24 and 25).

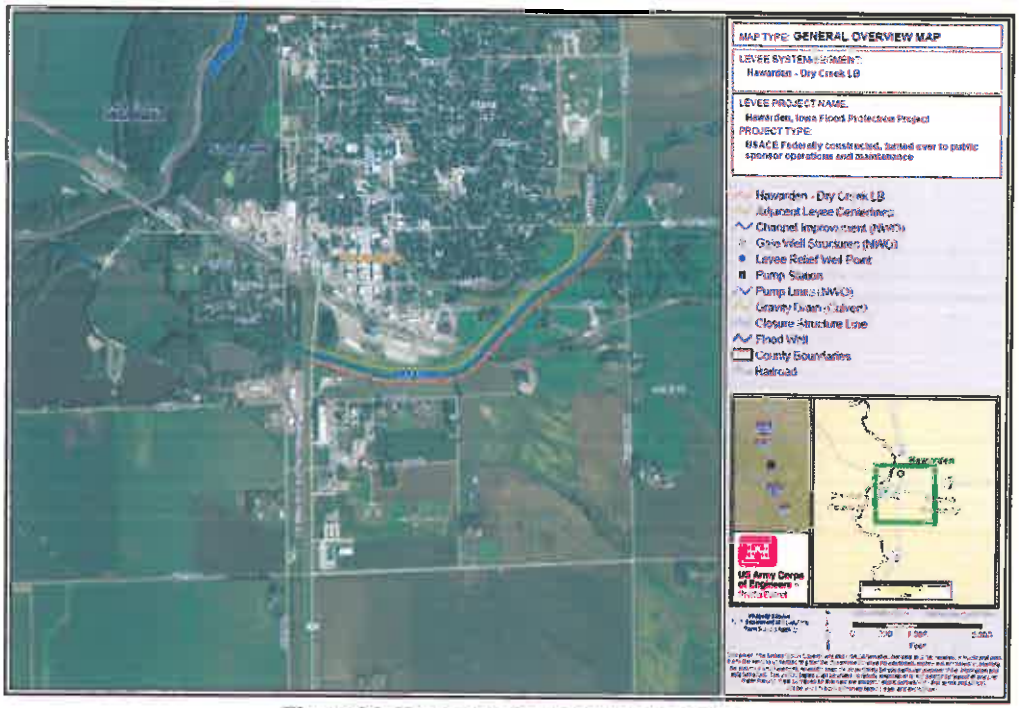

Figure 24. Hawarden Dry Creek Left Bank

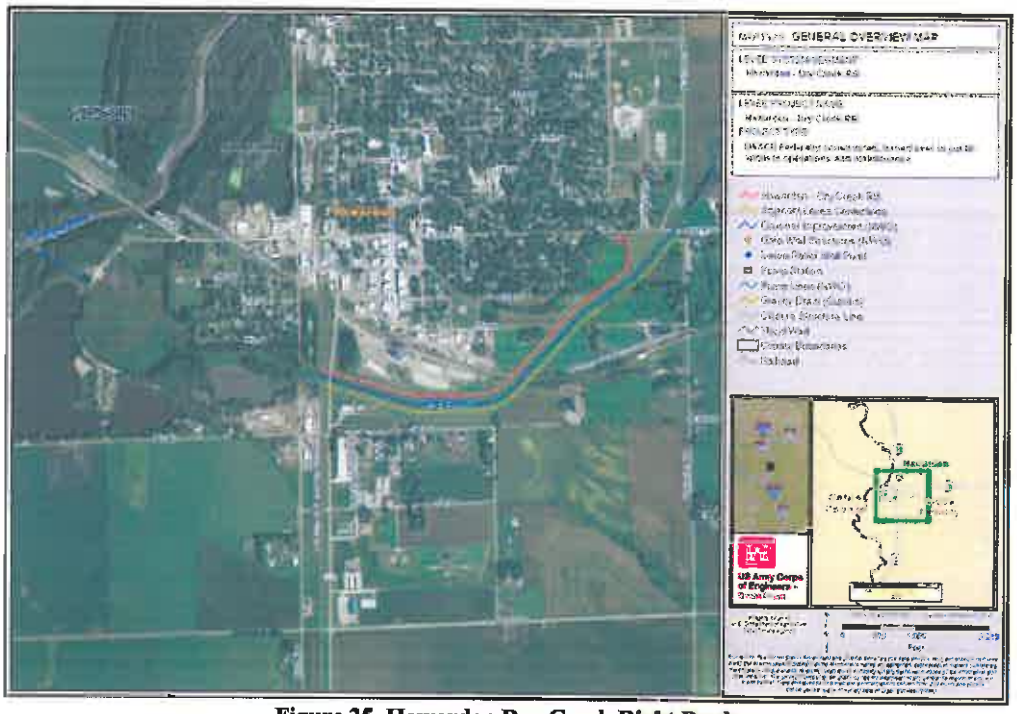

Figure 25. Hawarden Dry Creek Right Bank

Project Features: The Hawarden Flood Protection Project consists of a diversion channel, a gravel pit, a rock-lined chute within the diversion channel, sheet pile, earthen levees, drainage

structures, railroad and highway bridges, an overflow trestle, riprap protection, and sod cover (Figure 26).

Figure 26. Earthen Levees (blue lines) as seen from the Avenue East Bridge

Existing Conditions:

Water Quality: The beneficial uses of the Dry Creek include aquatic life support and primary contact recreation. Dry Creek is listed as a Category 5p waterbody, which designates the waterbody as having impairment of presumptive use (EPA-approved use attainability analysis is needed to determine appropriate use). Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority III.

Aquatic Species: Aquatic species within Dry Creek include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, red shiner and black bullhead.

Noise: Sources of noise include rural disturbances such as light automobile traffic, farm machinery, and natural sounds.

Wetlands: The USFWS NWI Database revealed no wetlands along Dry Creek. It is likely that freshwater emergent wetlands occur along the levee toe due to favorable hydrology.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, and northern long-eared bat are known to occur in Sioux County. Because of the on-going maintenance activities, lack of trees, and established brome grass along this civil works project,

the northern long-eared bat, prairie bush clover, and the western prairie fringed orchid do not occur here.

4.3.6 Maple River and Odebolt Creek

Name: Ida Grove Flood Control Project, Little Sioux River Basin, Ida Grove, Iowa.

Location: The project is located along the realigned channels of the Maple River and Odebolt Creek, and is on the north, east, and west sides of the city of Ida Grove, Ida County, Iowa (Figures 27-30).

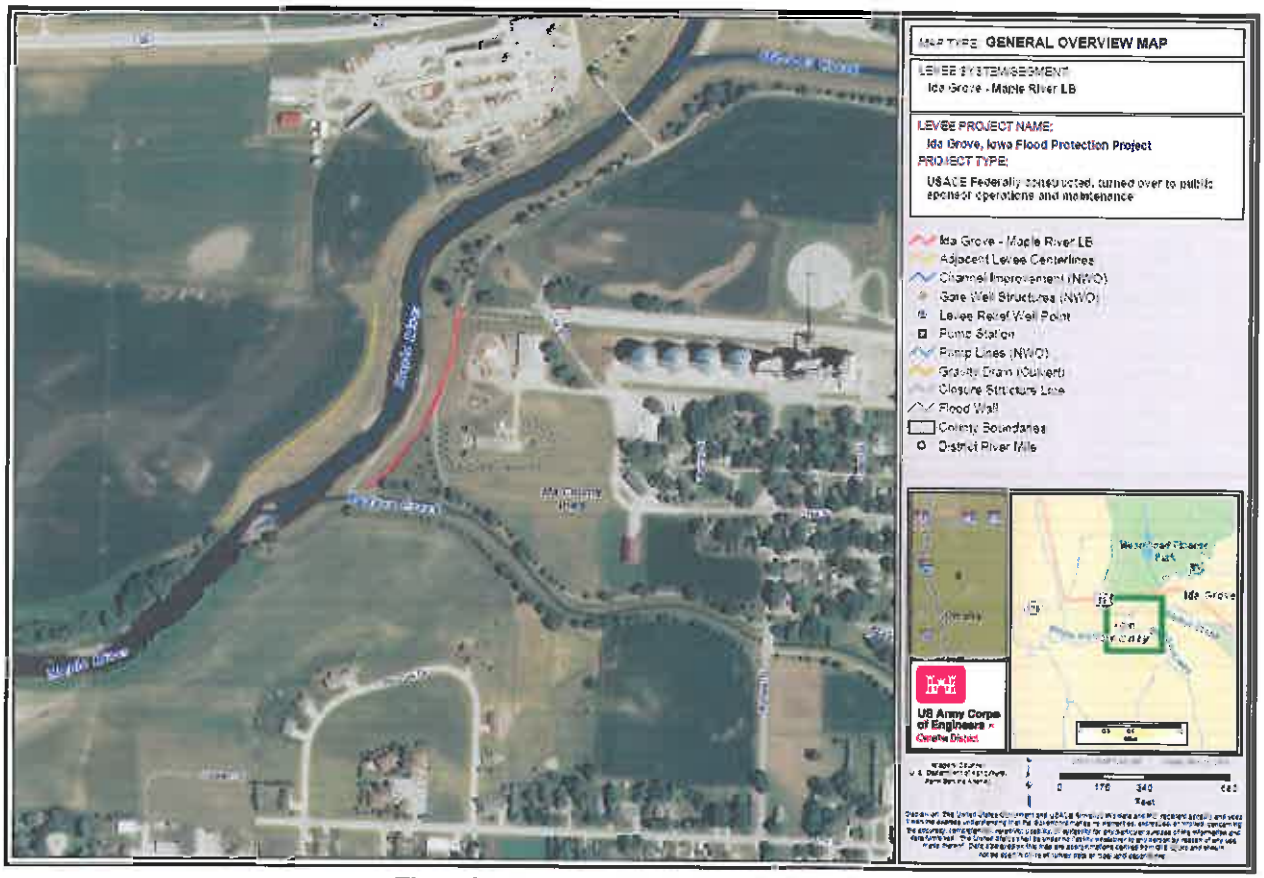

Figure 27. Ida Grove Maple River Left Bank

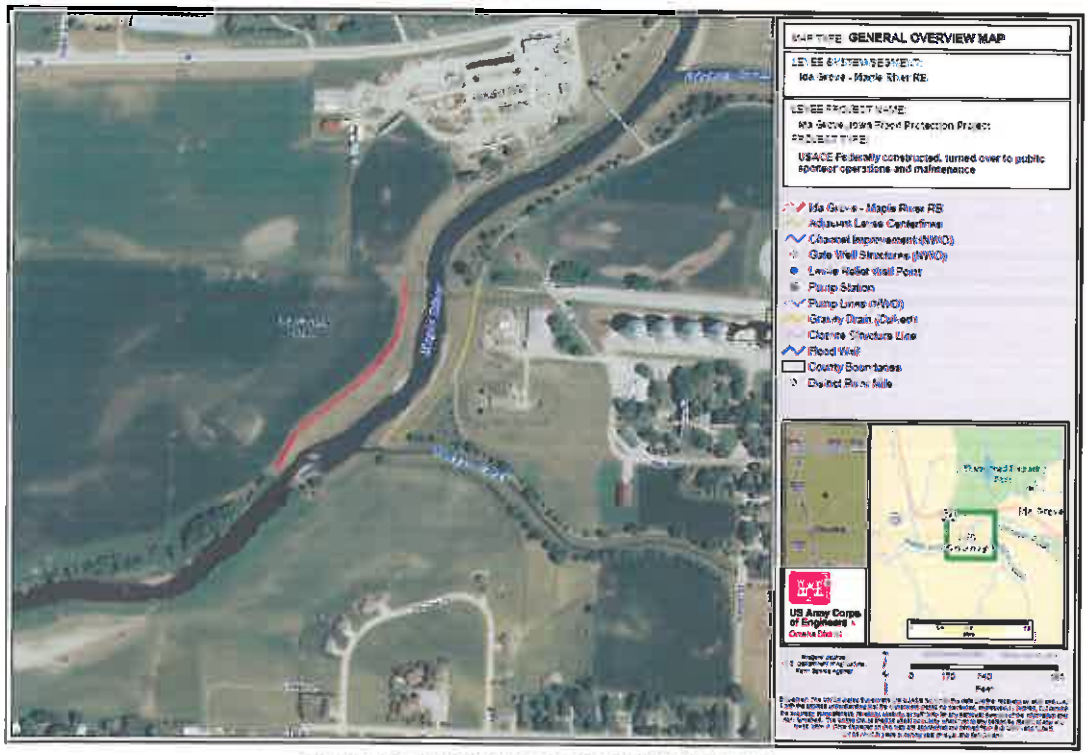

Figure 28. Ida Grove Maple River Right Bank

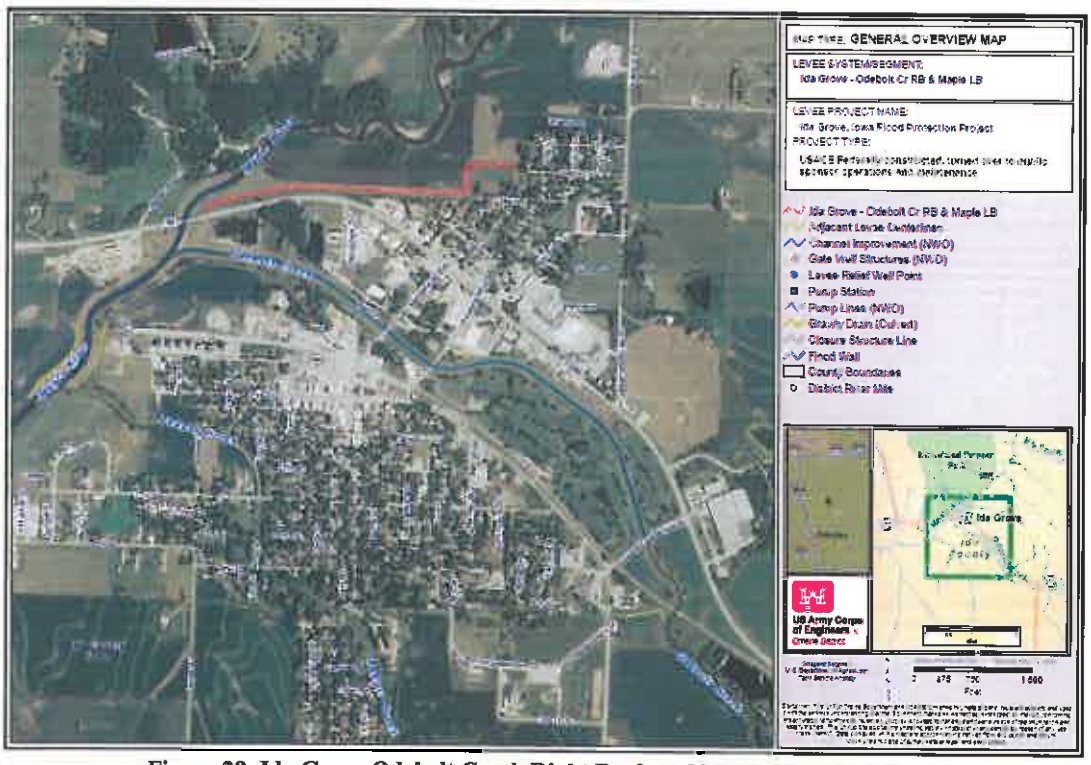

Figure 29. Ida Grove Odebolt Creek Right Bank and Maple River Left Bank

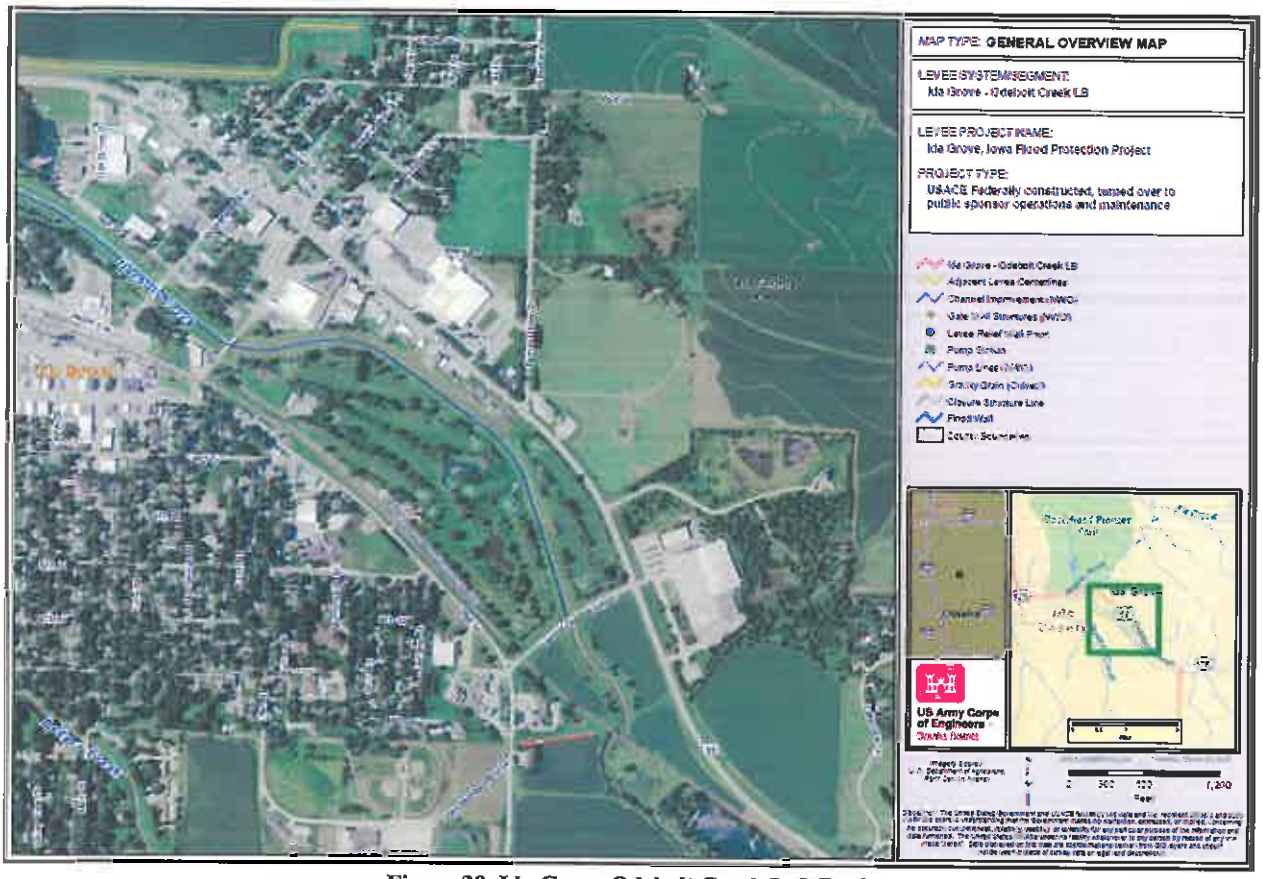

Figure 30. Ida Grove Odebolt Creek Left Bank

Project Features: The Maple River/Odebolt Creek Flood Protection Project consists of a 4,361-foot improved and realigned Maple River channel with a 4,440-foot left bank tie-off levee and a 600-foot training levee, a 9,125-foot improved and realigned Odebolt Creek channel with a left bank training levee, drainage structures, rock protection, sod cover, bar gates and fencing, rock surfacing, and tree plantings (Figures 31 and 32).

Figure 31. Realigned Channel at the Main Street Bridge, Looking Downstream

Figure 32. At the Highway 59 Bridge Looking Downstream at the Confluence of Maple River and Odebolt Creek

Existing Conditions:

Water Quality: The beneficial uses of the Maple River and Odebolt Creek include aquatic life support, fish consumption, and primary contact recreation. The Maple River and Odebolt Creek are listed as Category 5a waterbodies, which designates them as having impairments due to a known pollutant. Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairments to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for these waterbodies as Priority III.

Aquatic Species: Aquatic species in these waterways include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, red shiner and black bullhead.

Noise: Sources of noise include urban and rural disturbances such as automobile traffic, construction, light industry, farm machinery, and natural sounds.

Wetlands: The USFWS NWI Database revealed no wetlands along Odebolt Creek or the portion of the Maple River that runs adjacent to Ida Grove. It is likely that freshwater emergent wetlands occur along the levee toes due to favorable hydrology.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, and northern long-eared bat are known to occur in Ida County. Because of the on-going maintenance activities, lack of trees, and established brome grass along this civil works project, the northern long-eared bat, prairie bush clover, and the western prairie fringed orchid do not occur here.

4.3.7 East Nishnabotna River

Name: Red Oak Flood Protection Project, East Nishnabotna River, Red Oak, Iowa.

Location: The project is located a ¼ mile upstream of U.S. Hwy 34 and continues downstream to the Burlington Northern Railroad Bridge. It is situated along the left bank of the East Nishnabotna River and is west of the city of Red Oak, Montgomery County, Iowa (Figure 33).

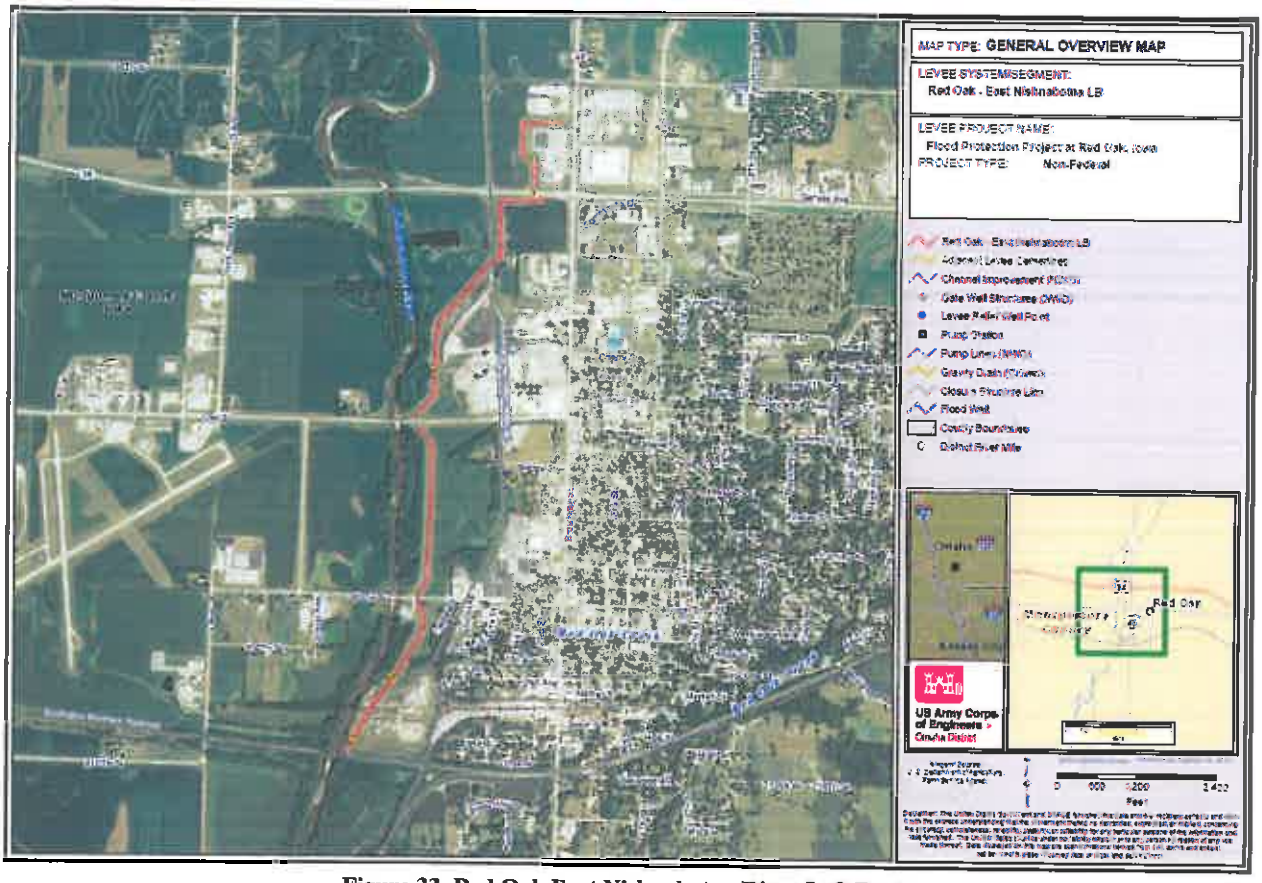

Figure 33. Red Oak East Nishnabotna River Left Bank

Project Features: The Red Oak Flood Protection Project consists of an improved channel along the East Nishnabotna River, an 11,200-foot earthen levee, rock riprap bank protection, drainage structures, sandbag closures, bar gates and fencing, and crushed rock surfacing (Figures 34 and 35).

Figure 34. Earthen Levee (Blue Line) Located at West Coolbaugh Road, East Nishnabotna River to the Left

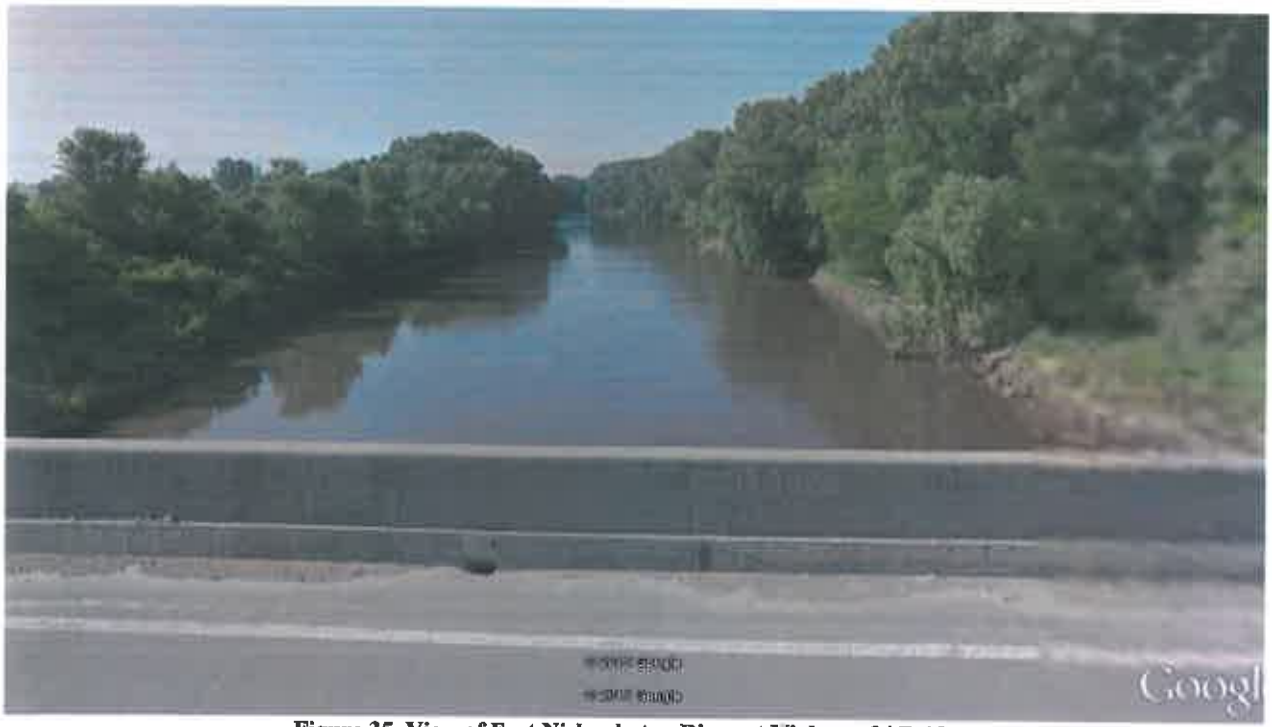

Figure 35. View of East Nishnabotna River at Highway 34 Bridge

Existing Conditions:

Water Quality: The beneficial uses of the East Nishnabotna River include aquatic life support, fish consumption, and primary contact recreation. The East Nishnabotna River is listed as a Category 5a waterbody, which designates the waterbody as having impairment due to a known pollutant. Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority III.

Aquatic Species: Aquatic species in the East Nishnabotna River include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, bluntnose minnow, channel catfish, common carp, red shiner, stonecat, and suckermouth minnow.

Noise: Sources of noise include urban and rural disturbances such as automobile traffic, construction, industry, farm machinery, and natural sounds.

Wetlands: The USFWS NWI Database revealed numerous freshwater forested/shrub wetlands along the East Nishnabotna River. Minor numbers of freshwater emergent wetland also were noted.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, Indiana bat, and northern long-eared bat are known to occur in Montgomery County. Because of the on-going maintenance activities, lack of trees, and established brome grass along this civil works project, the northern long-eared bat, Indiana bat, prairie bush clover, and the western prairie fringed orchid do not occur here.

4.3.8 Little Sioux River (3 Projects)

4.3.8.1 Little Sioux River, Iowa Flood Protection Project, Levee and Channel Alterations, Little Sioux InterCounty Drainage District, Monona and Harrison Counties, Iowa.

Location: The project extends from the Missouri River upstream along the Little Sioux River, thence upstream from the mouth of Wolf Creek and West Fork Ditch to the Monona-Woodbury county line (Figures 36-50).

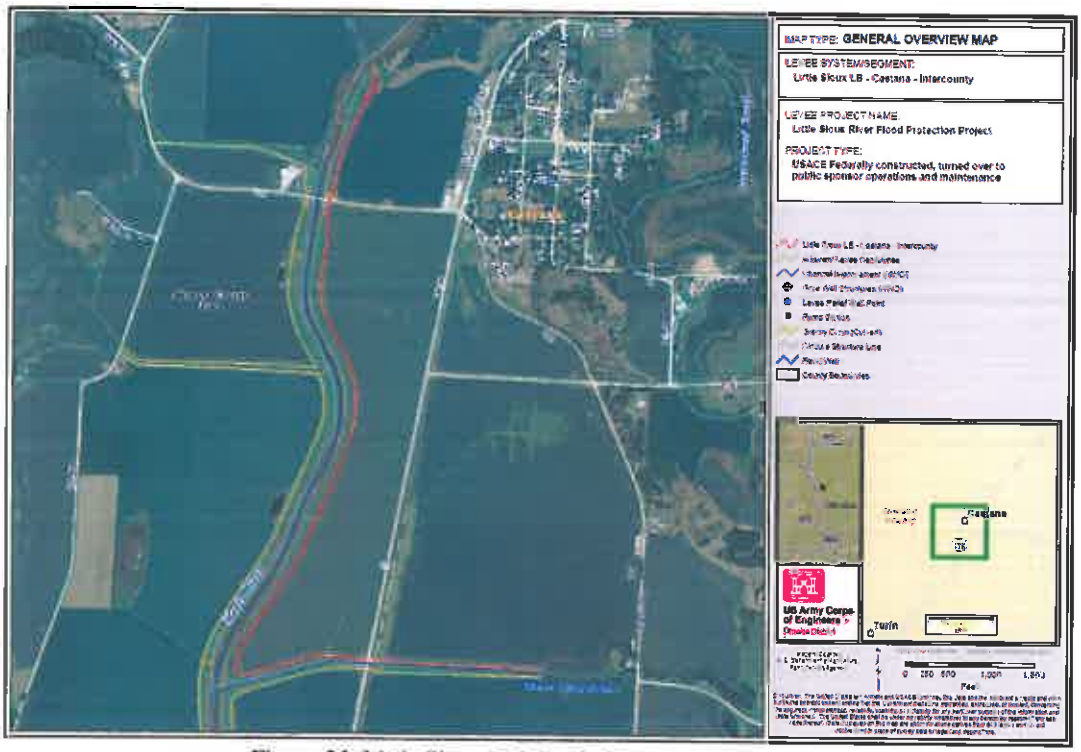

Figure 36. Little Sioux Left Bank Castana InterCounty

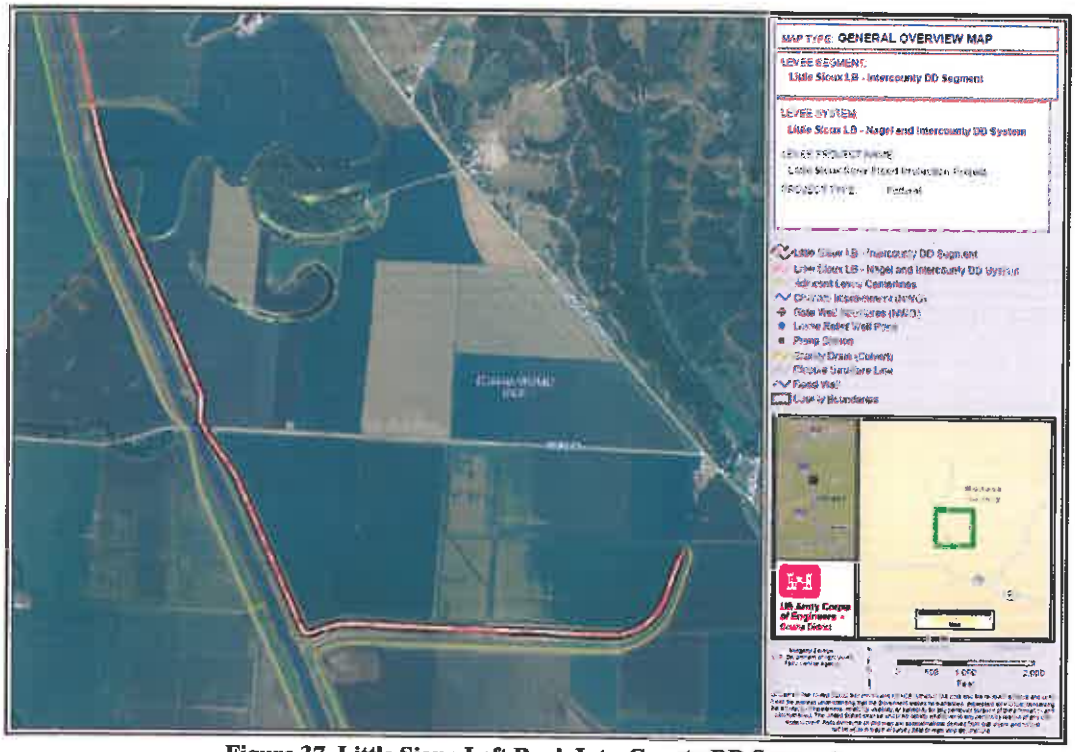

Figure 37. Little Sioux Left Bank InterCounty DD Segment

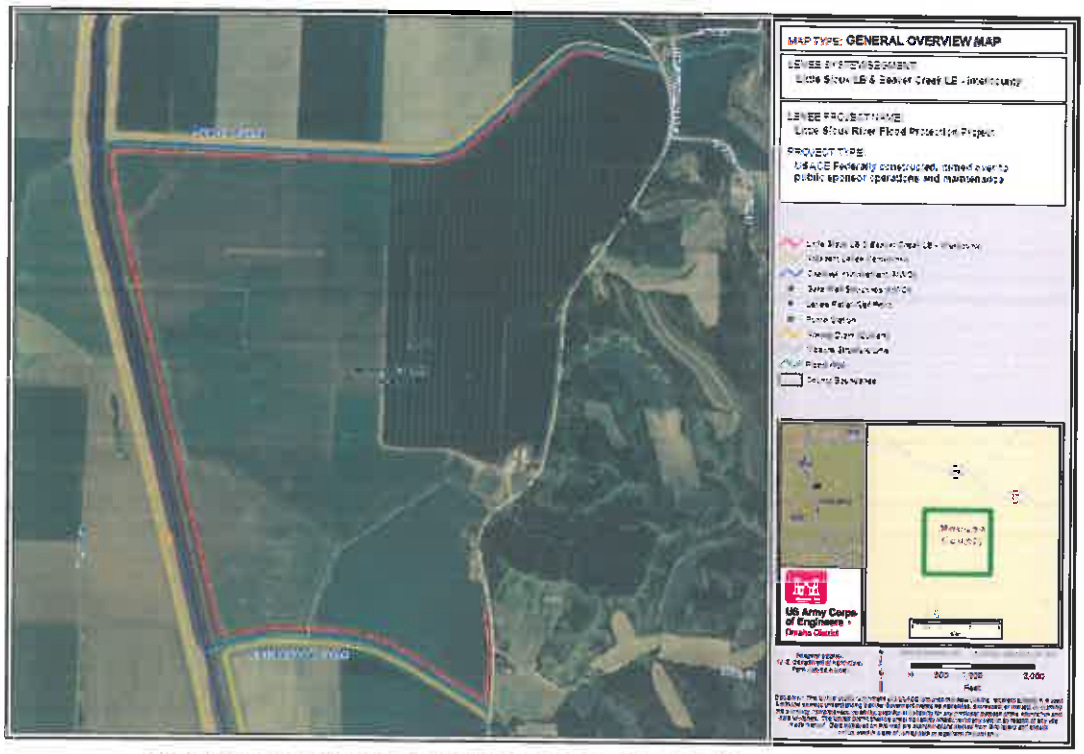

Figure 38. Little Sioux Left Bank and Beaver Creek Left Bank InterCounty

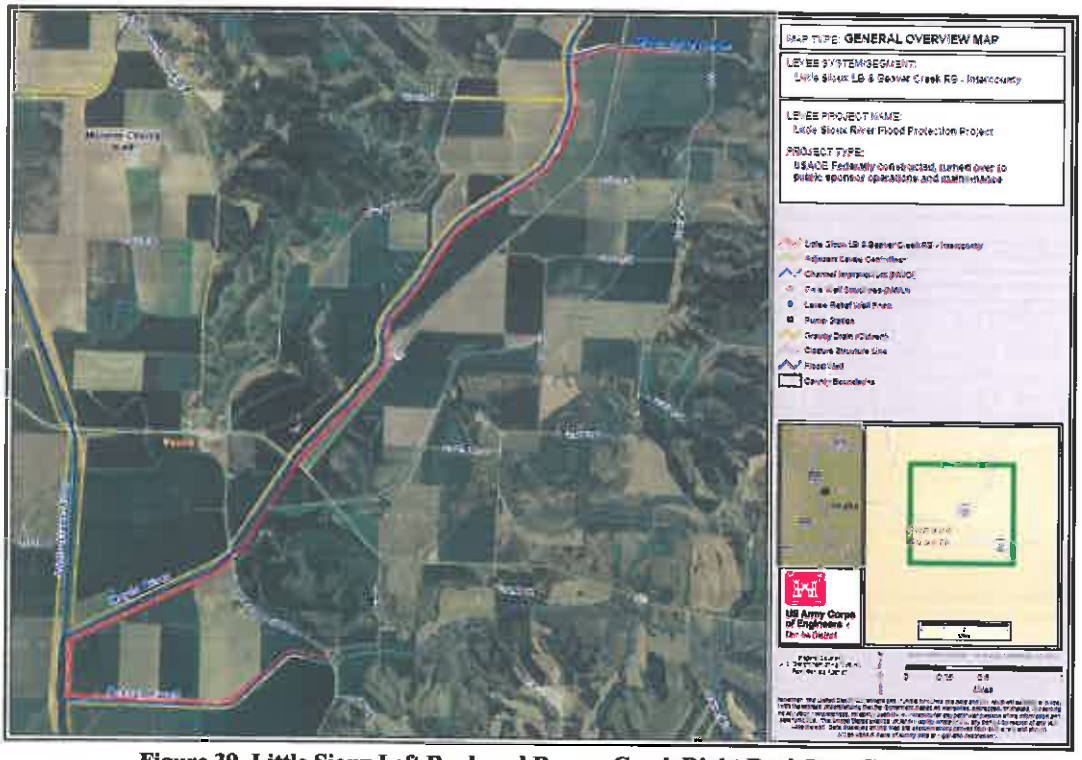

Figure 39. Little Sioux Left Bank and Beaver Creek Right Bank InterCounty

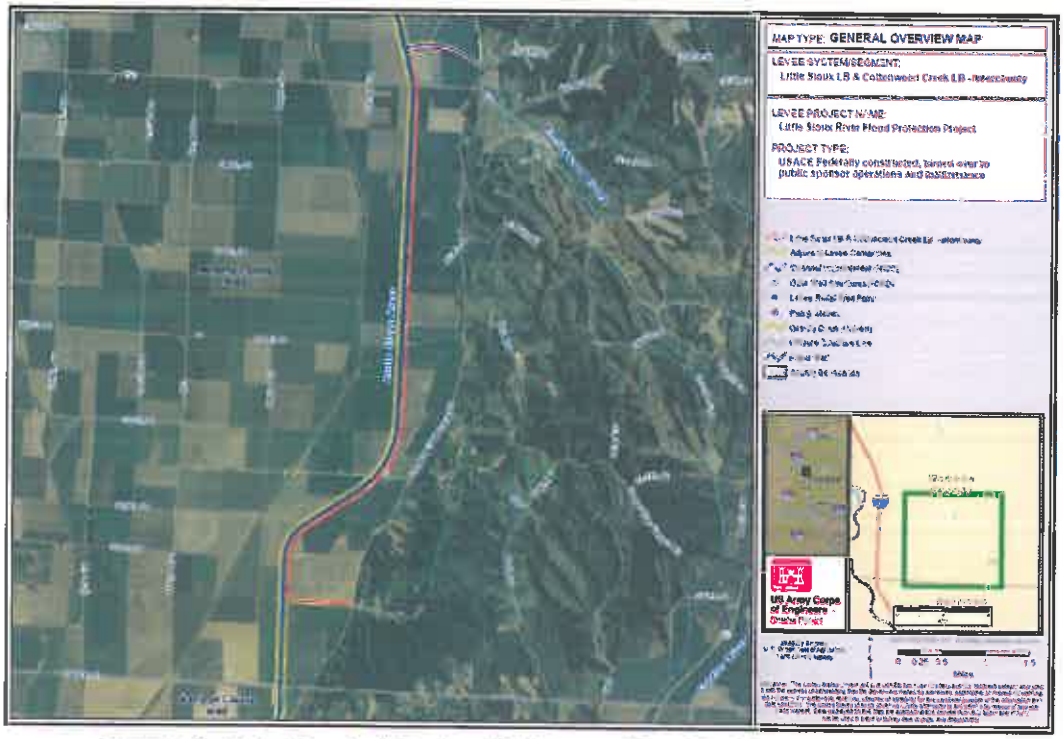

Figure 40. Little Sioux Left Bank and Cottonwood Creek Left Bank InterCounty

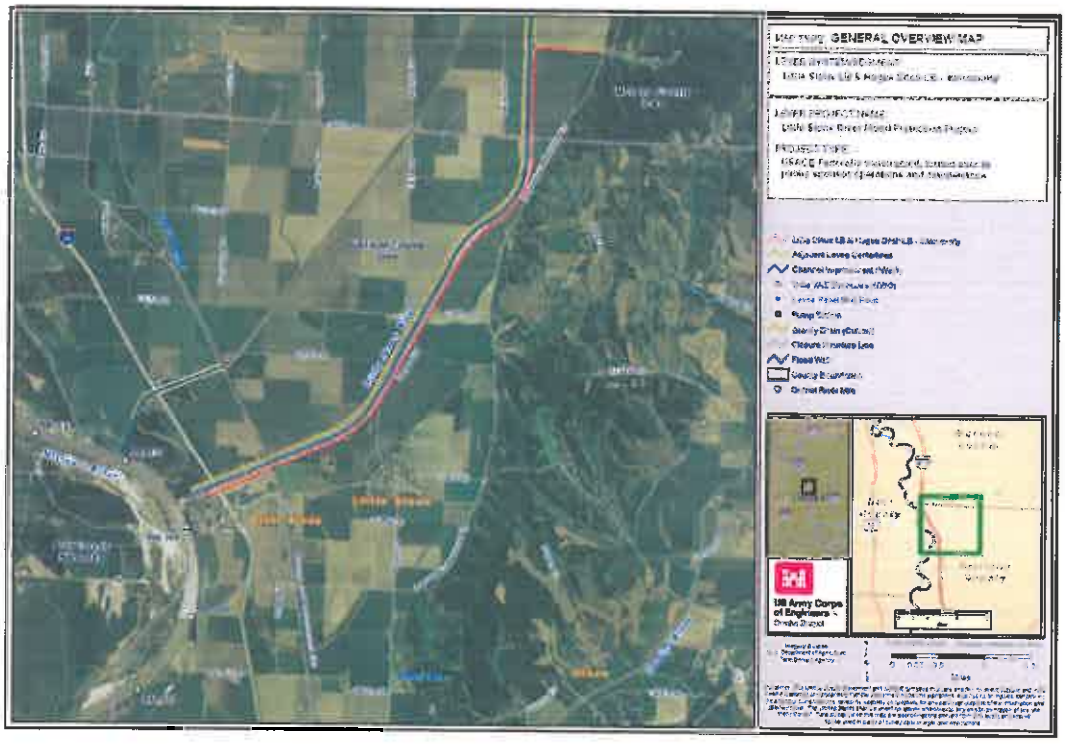

Figure 41. Little Sioux Left Bank and Hogue Ditch Left Bank InterCounty

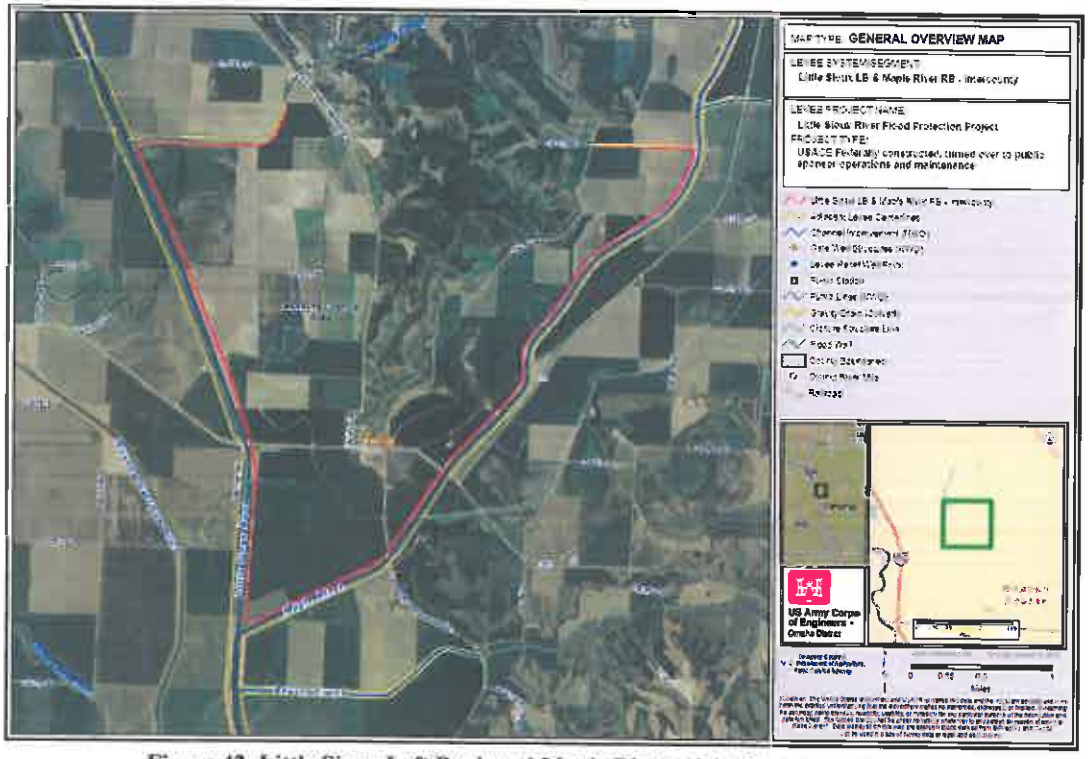

Figure 42. Little Sioux Left Bank and Maple River Right Bank InterCounty

Figure 43. Little Sioux Maple River Right Bank North

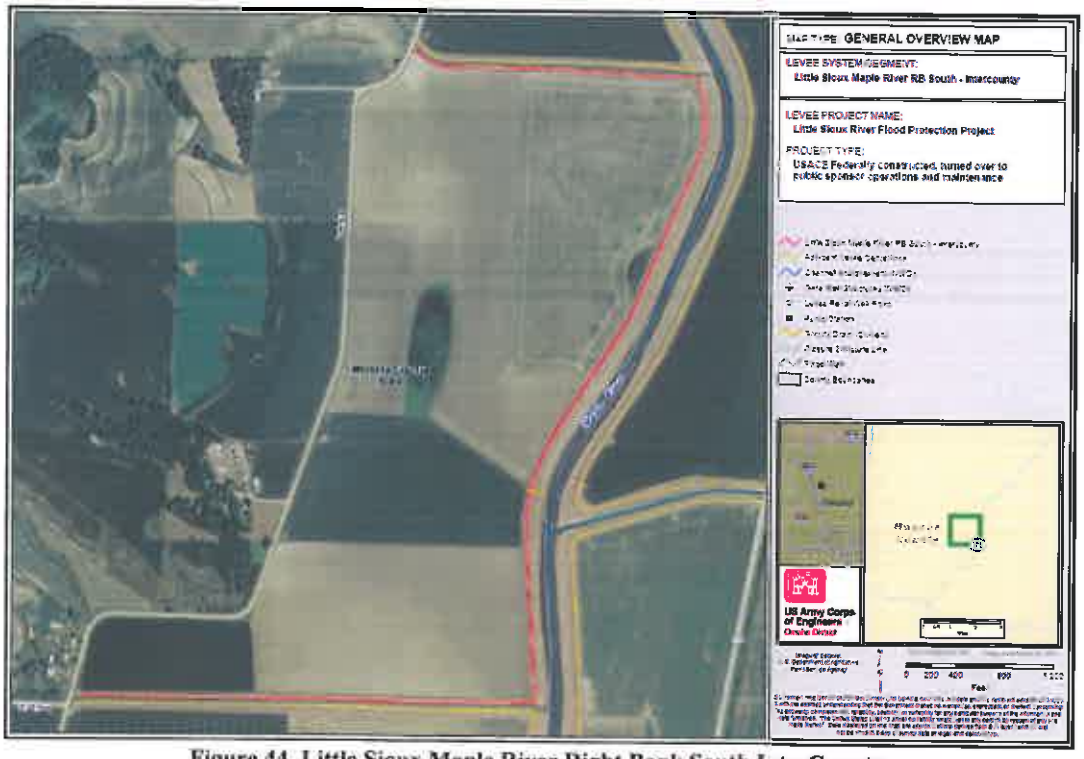

Figure 44. Little Sioux Maple River Right Bank South InterCounty

Figure 45. Little Sioux Monona-Harrison Ditch Right Bank InterCounty

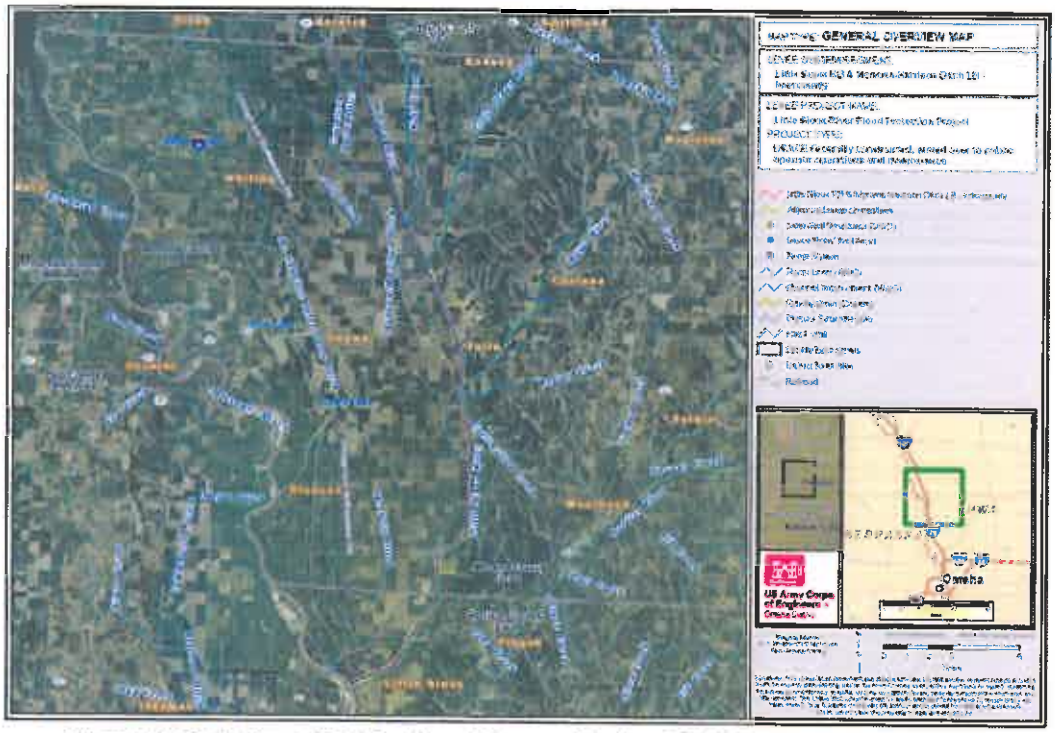

Figure 46. Little Sioux Right Bank and Monona-Harrison Ditch Left Bank InterCounty

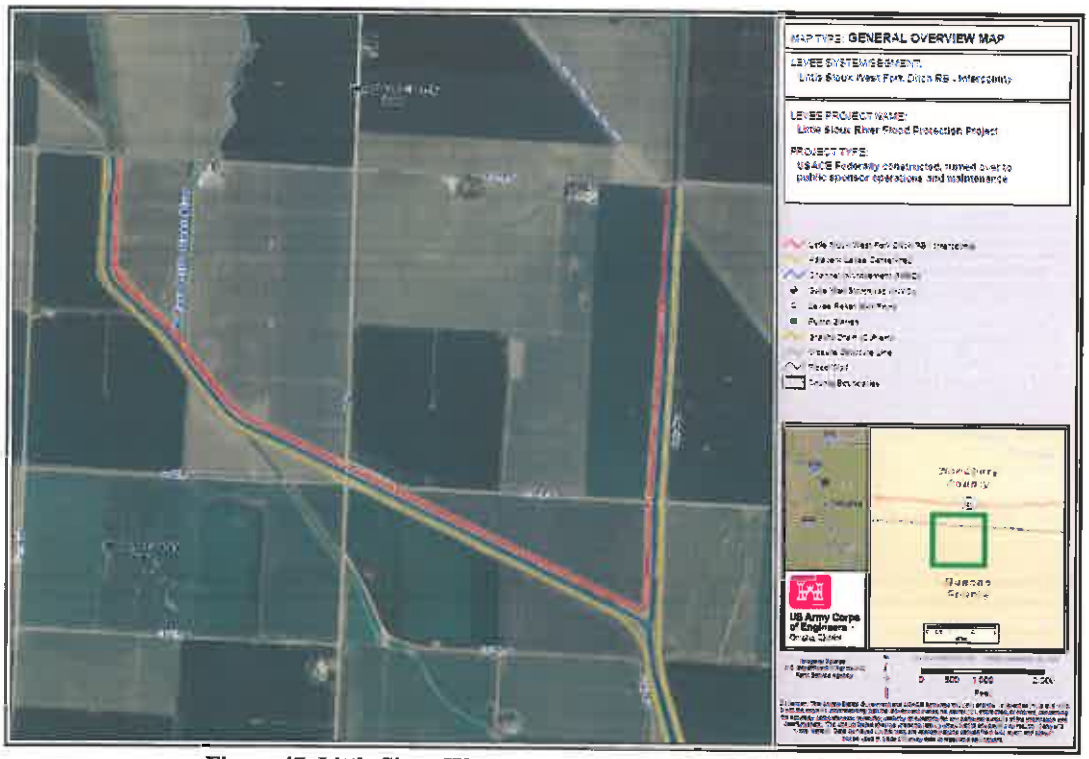

Figure 47. Little Sioux West Fork Ditch Right Bank InterCounty

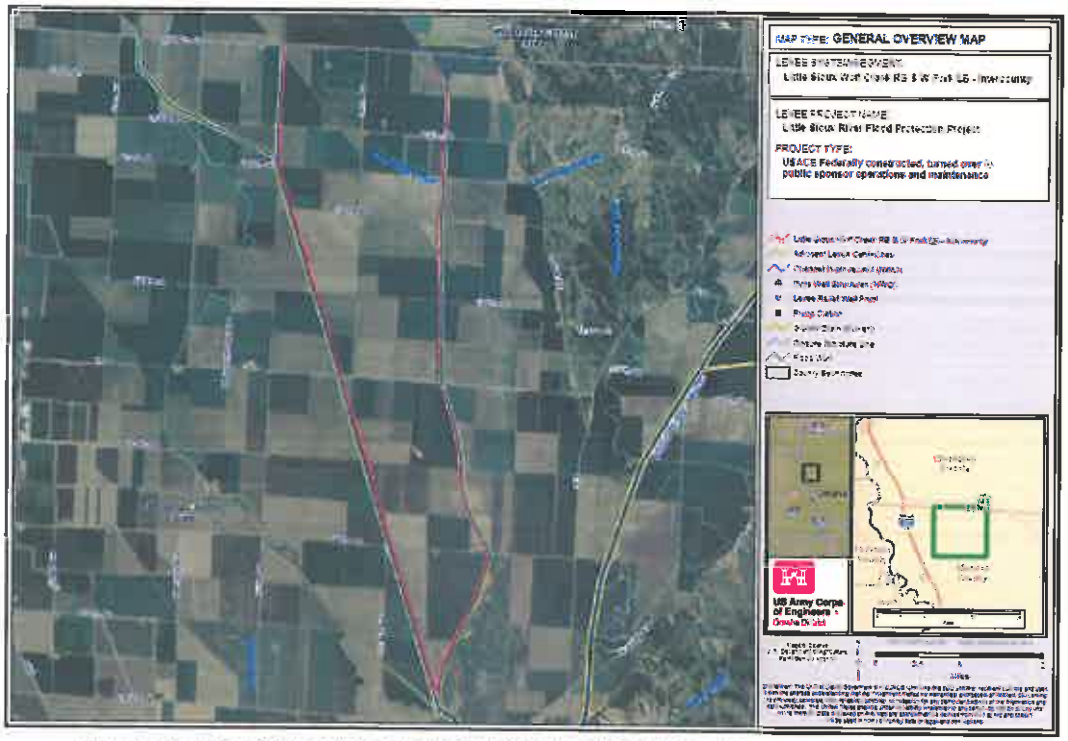

Figure 48. Little Sioux Wolf Creek Right Bank and West Fork Left Bank InterCounty

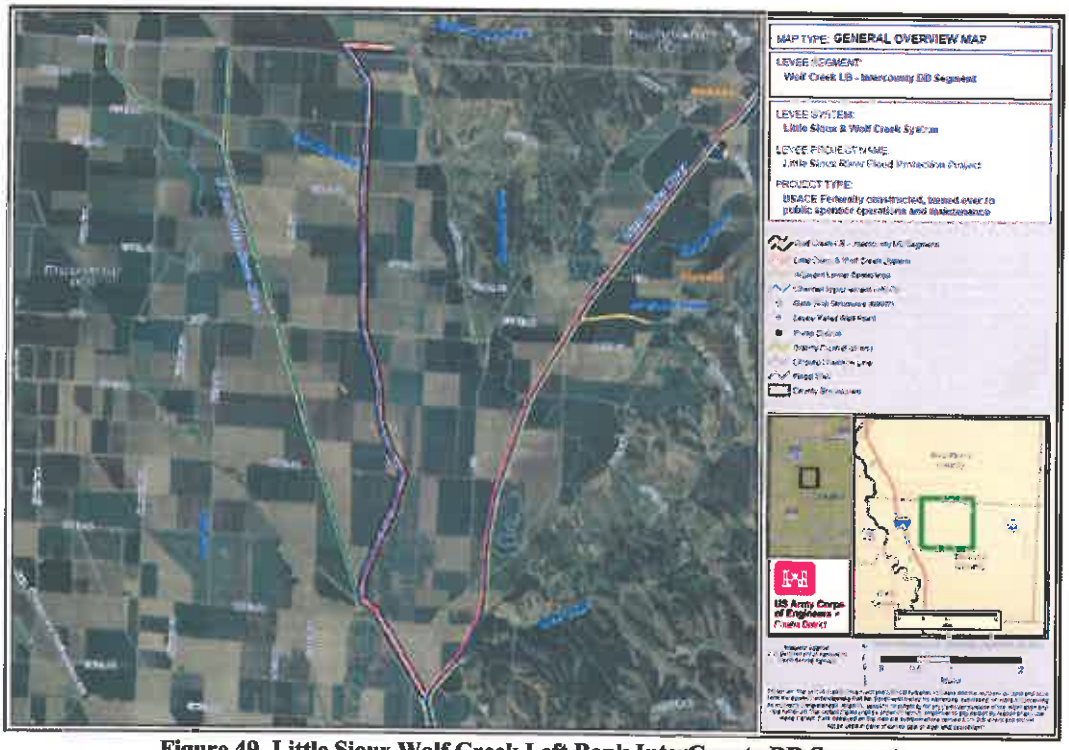

Figure 49. Little Sioux Wolf Creek Left Bank InterCounty DD Segment

Project Features: The Little Sioux Flood Protection Project consists of 111 miles of levees, associated seepage berms, channel improvements, drainage structures (including inlets and outlets), sluice and flap gates, manual pedestal lifts, power lifts, painting, pressure relief wells, discharge pipes, drainage ditches, stream gages, borrow pits, riprap slope protection, sod, channel bed control structures, bar gates and fencing, and right-of-way markers (Figure 51).

Figure 50. Typical View of InterCounty Levees from Highway 175 Bridge

4.3.8.2 Little Sioux River, Iowa Flood Protection Project, Nagel Drainage District, Monona County, Iowa

Location: The project extends upstream from the InterCounty Drainage Districts Boundaries along the Little Sioux River to the Monona-Woodbury County line (Figures 52-55).

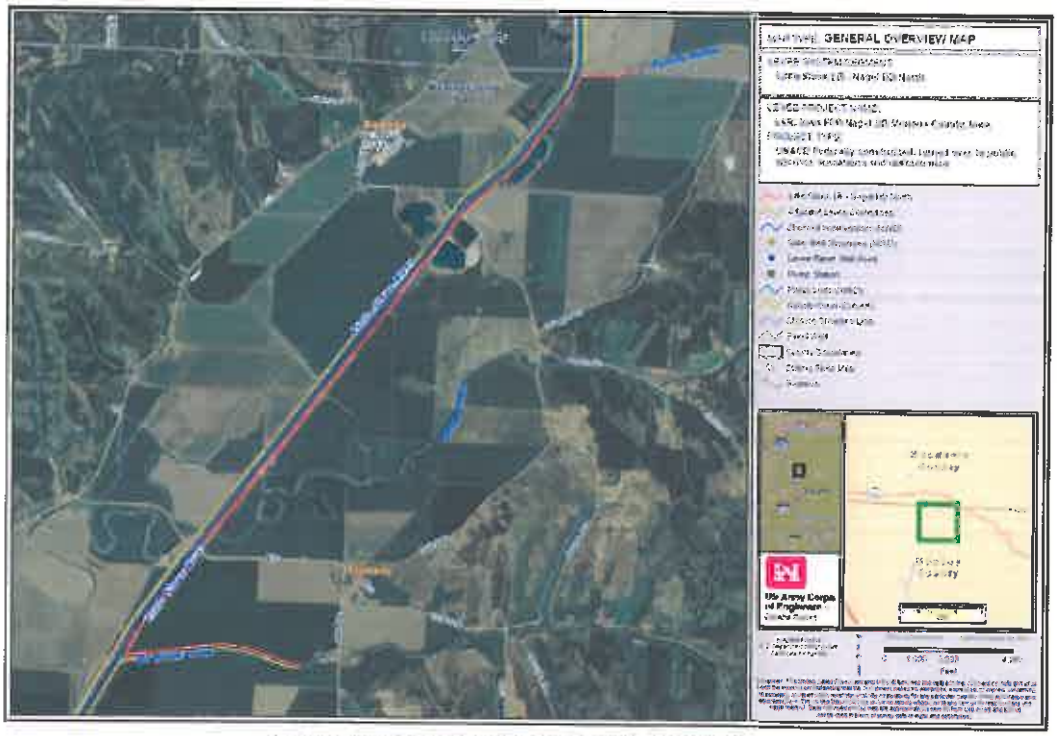

Figure 51. Little Sioux Left Bank Nagel DD North

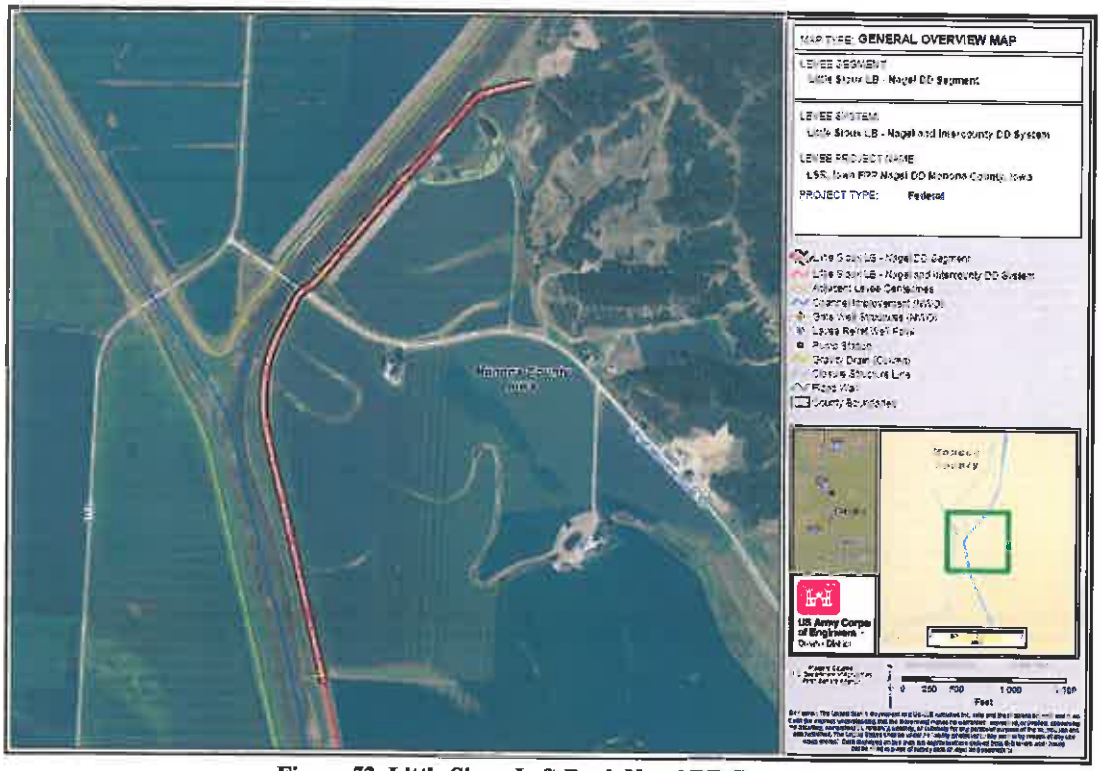

Figure 52. Little Sioux Left Bank Nagel DD Segment

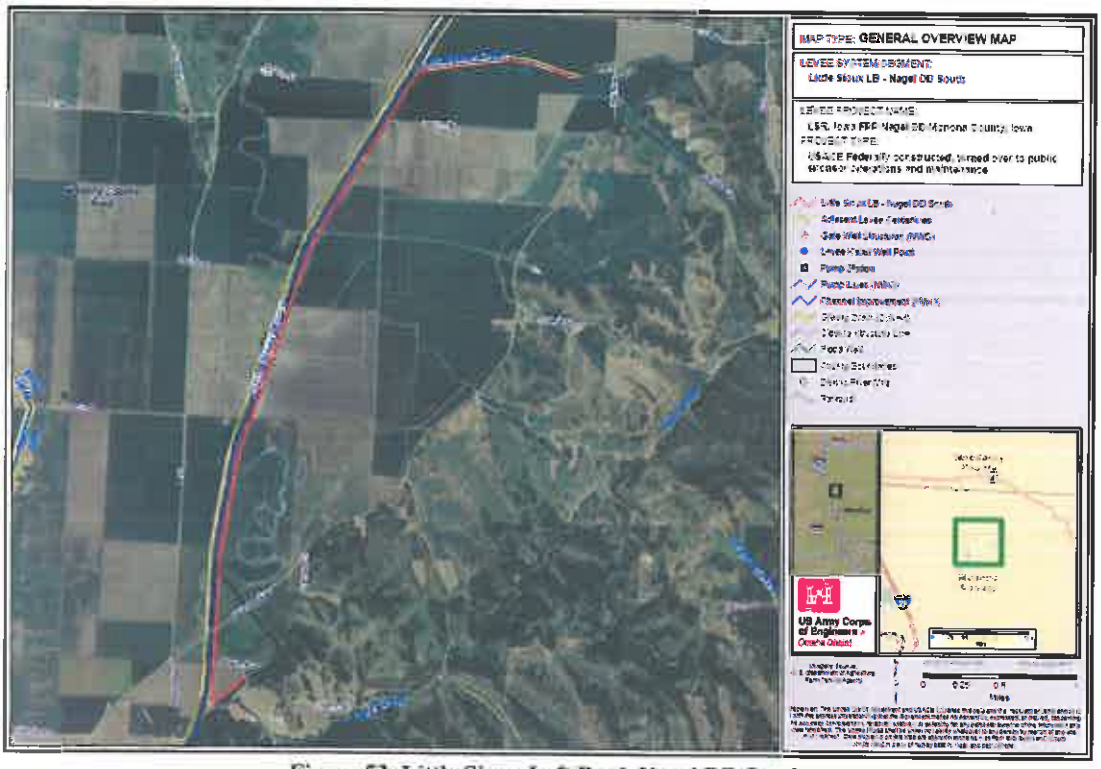

Figure 53. Little Sioux Left Bank Nagel DD South

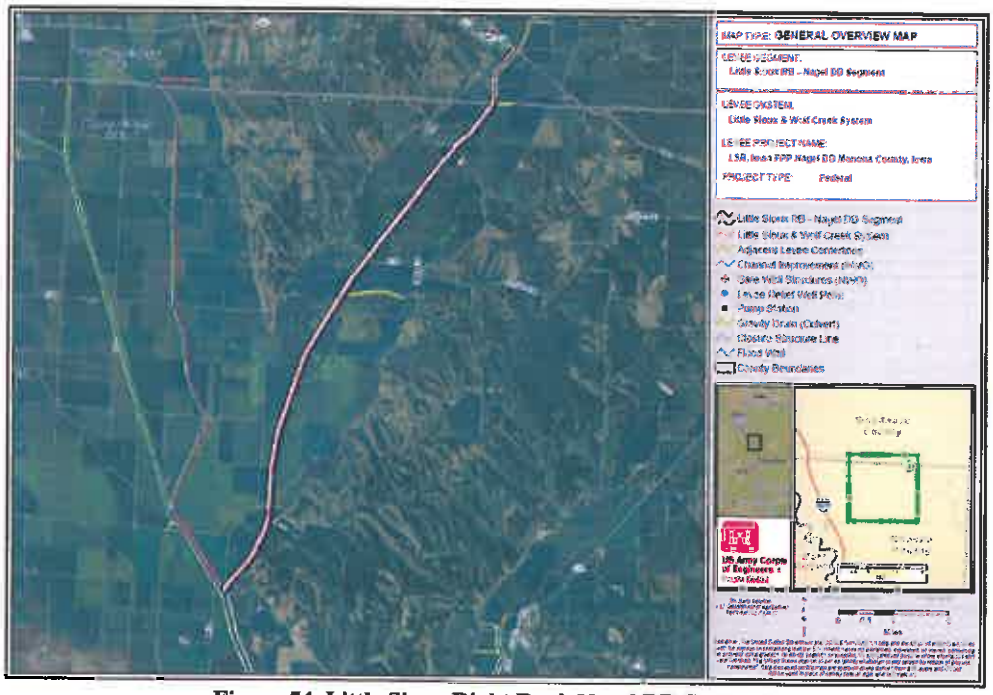

Figure 54. Little Sioux Right Bank Nagel DD Segment

Project Features: The Little Sioux Flood Protection Project consists of levees along both banks of the Little Sioux River, including levees along McMasters Ditch, Gard Creek and diversion channel, seepage berms, road ramp crossings, access ramps, turnouts, drainage ditches, drainage structures, riprap bank protection, sod, and bar gates and fencing (Figure 56).

Figure 55. Typical View of Nagel Levees from the East 16th Street Bridge

4.3.8.3 Little Sioux River, Iowa Flood Protection Project, Smithland Drainage District, Bennett – McDonald Drainage District

Location: The project is located along the Little Sioux River starting at the Monona - Woodbury County and extending to Smithland. Levees run along both banks with the left bank tying into high ground along the south bank of Parnel Creek and the right bank tying into high ground near Highway 141. The southern end of this project ties into the Nagel Drainage District boundaries (Figures 57 and 58).

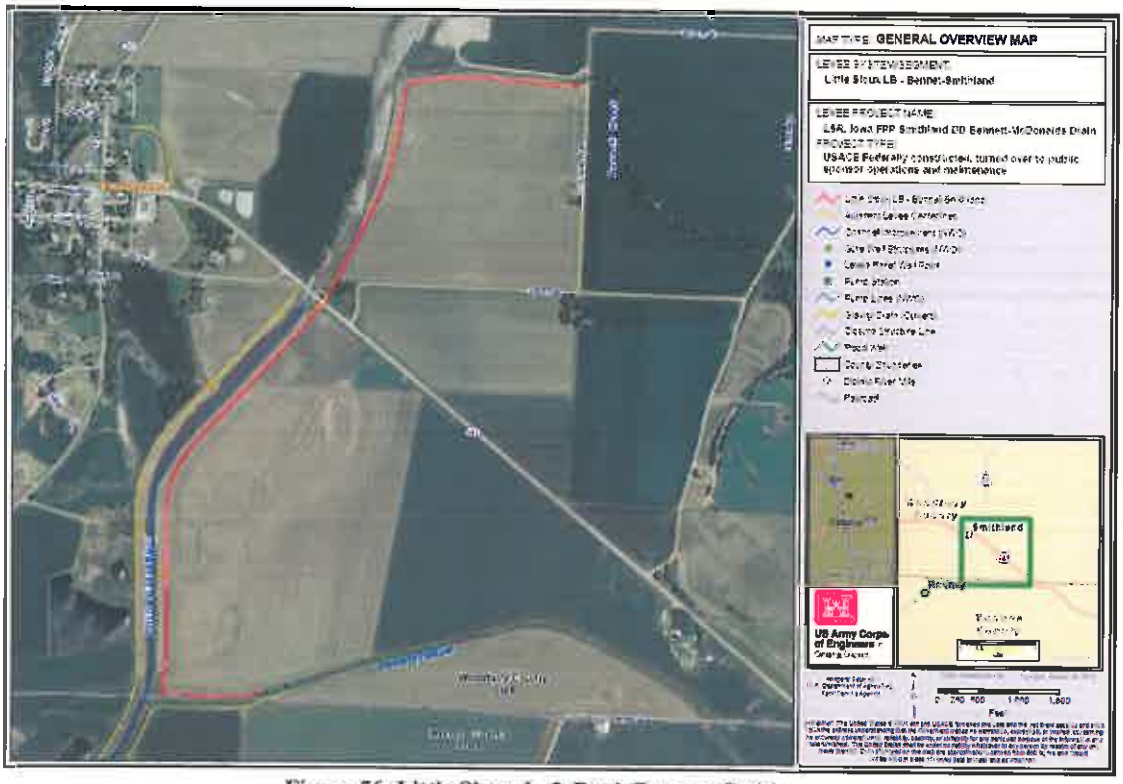

Figure 56. Little Sioux Left Bank Bennett-Smithland

Figure 57. Little Sioux Right Bank Bennett - Smithland Segment

Project Features: The Flood Protection Project consists of about 9,000 feet of levees along both banks of the Little Sioux River, under seepage berms, road ramps, access ramps, turnouts, drainage ditches, relief wells, borrow areas, drainage structures, riprap slope protection, sod, levee surfacing, bar gates and fencing (Figure 59).

Figure 58. Typical View of Bennett-Smithland Levees from Highway 141

Existing Conditions:

Water Quality: The beneficial uses of the Little Sioux River include aquatic life support, fish consumption, and primary contact recreation. The Little Sioux River is listed as a Category 5a waterbody, which designates the waterbody as having impairment due to a known pollutant. Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority III.

Wolf Creek and West Fork Ditch are listed as Category 5p waterbodies, which designates them as having impairment of presumptive use (EPA-approved use attainability analysis is needed to determine appropriate use). Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority III.

Aquatic Species: Aquatic species within the Little Sioux River, Wolf Creek, and West Fork Ditch include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, red shiner and black bullhead.

Noise: Sources of noise include rural disturbances such as light automobile traffic, farm machinery, and natural sounds.

Wetlands: The USFWS NWI Database revealed no wetlands along the Little Sioux River. Numerous agricultural lands line both side of these flood protection works. It is likely that freshwater emergent farmed wetlands are scattered along its course as favorable hydrology likely exists.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, pallid sturgeon, least tern, piping plover, and northern long-eared bat are known to occur in Monona, Harrison, and Woodbury counties. Due to the existing vegetation (maintained brome grass and lack of trees), on-going maintenance activities, absence of sand bars, and lack of big river features like those found in the Missouri River at this civil works project site, these species are unlikely to occur where proposed alterations would be made.

4.3.9 Missouri River (11 Projects)

4.3.9.1 Council Bluff Flood Protection, Council Bluffs, Iowa, Part I Council Bluffs Levee & Indian Creek Tieback, Part II Mosquito Creek and Ag. Levees L624 & L627

Location: The Council Bluffs project is located on the left bank of the Missouri River between river miles 624 and 636 in Council Bluffs, Pottawattamie County, Iowa (Figures 59, 60, and 61).

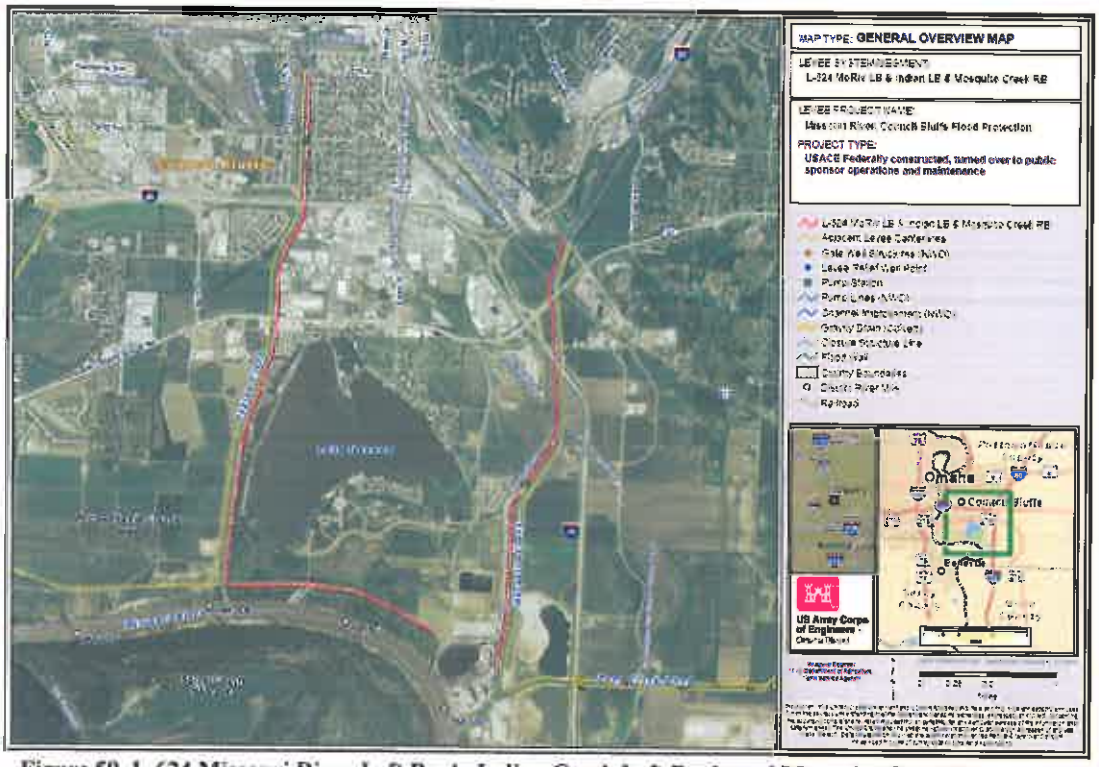

Figure 59. L-624 Missouri River Left Bank, Indian Creek Left Bank, and Mosquito Creek Right Bank

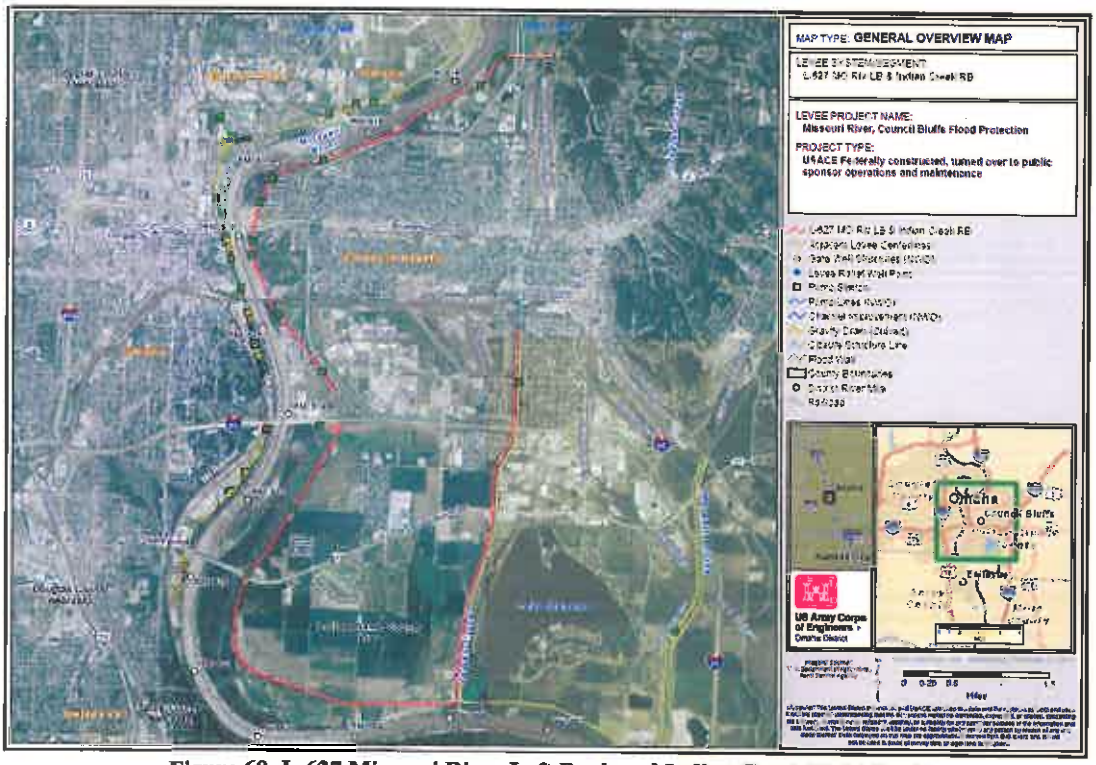

Figure 60. L-627 Missouri River Left Bank and Indian Creek Right Bank

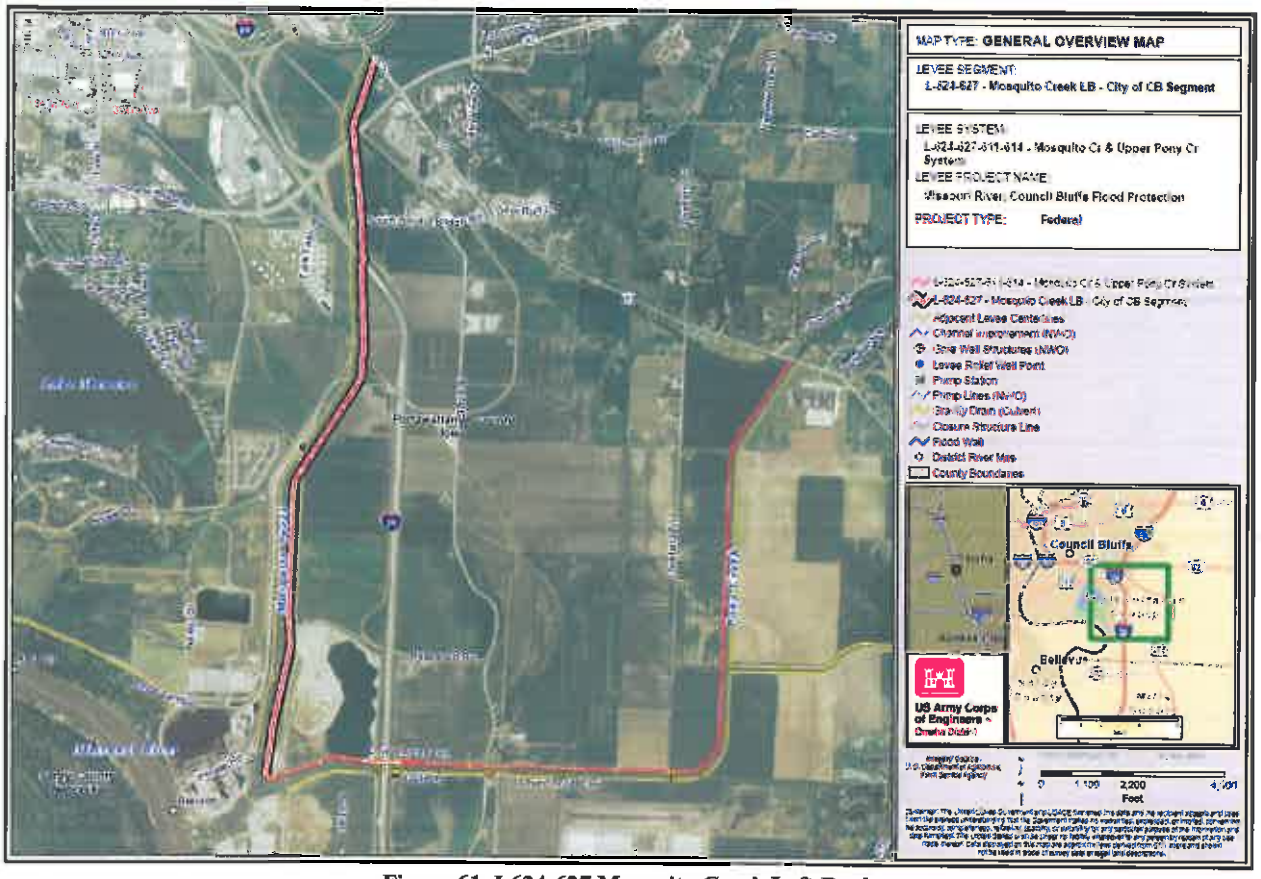

Figure 61. L624-627 Mosquito Creek Left Bank

Project Features: The Council Bluffs Flood Protection project consists of approximately 14 miles of earthen levee, 180 feet of floodwall, 100 under seepage wells, 2 closure structures, 9 drainage structures, and pumping stations (including 3 sewers, an industrial waste facility, and 6 under seepage wells). Unit I includes 4.8 miles of levees extending from the north tieback of the Missouri River Levee Unit L-627 to the Union Pacific Railroad Bridge. Unit II Section 1 contains 1.4 miles of levee joining Unit I and running south to I-80 where it ties to Agricultural Levee Unit L-627. Unit II Section 2 contains 6.2 miles of levee along both banks of the Indian Creek ditch from near 29th Avenue to the Missouri River. Unit II Section 3 contains 2 miles of levee along both banks of Indian Creek from 16th Avenue south to 29th Avenue. Unit III Section 1 contains sewage pumping stations and outlet structures through the levee for Avenue "C" and the 6th Avenue – 7th Avenue diversion sewer. Unit III Section 2 contains the 29th Avenue sewer pumping station and the Pacific Fruit Express pump station. Levee Unit L624-627 Mosquito Creek LB contains 3.4 miles of levee extending from the confluence of Mosquito Creek with Upper Pony Creek running upstream along the left bank of Mosquito Creek to high ground at Wabash Avenue, formerly U.S. Highway 275. Levees also include crushed rock surfacing, sod, ramps, turnouts, bar gates and fencing, station markers, riprap slope protection, intake and outlet channels, electrical equipment, outfalls, reinforced concrete pipe, culverts, ponding areas (Figure 62).

Figure 62. Typical View of the Council Bluffs Levee as seen from the Missouri River I-480 Bridge

4.3.9.2 Missouri River Levee Units L-561, L-550, L-536, Atchison County Levee District No. 1, Atchison and Holt Counties, Missouri

Location: Missouri River Levee Units L-561, L-550, and L-536 are located along the left bank of the Missouri River in Atchison and Holt Counties, Missouri, between approximate Missouri River miles 533 and 561 with tieback levees on the Nishnabotna River, High Creek, McElroy Creek, Rock Creek, Turkey Creek, and Mill Creek. L-561 is located along the left bank of the Nishnabotna River upstream of the confluence with High Creek, the left bank of High Creek, the right bank of High Creek to the confluence with McElroy Creek, and the right bank of McElroy Creek. L-550 ties into L-561 along the left bank of High Creek at the confluence with the Nishnabotna River, extends downstream along the left bank of the Missouri River to Rock Creek, and includes left and right bank tieback levees along Rock Creek and the left and right tieback levees along Turkey Creek. L-536 ties into the L-550 Rock Creek left bank tieback levee at the Rock Creek and Missouri River confluence, extends downstream along the left bank of the Missouri River to Mill Creek, and extends upstream along Mill Creek, tying into an existing nonfederal levee (Figures 63-68).

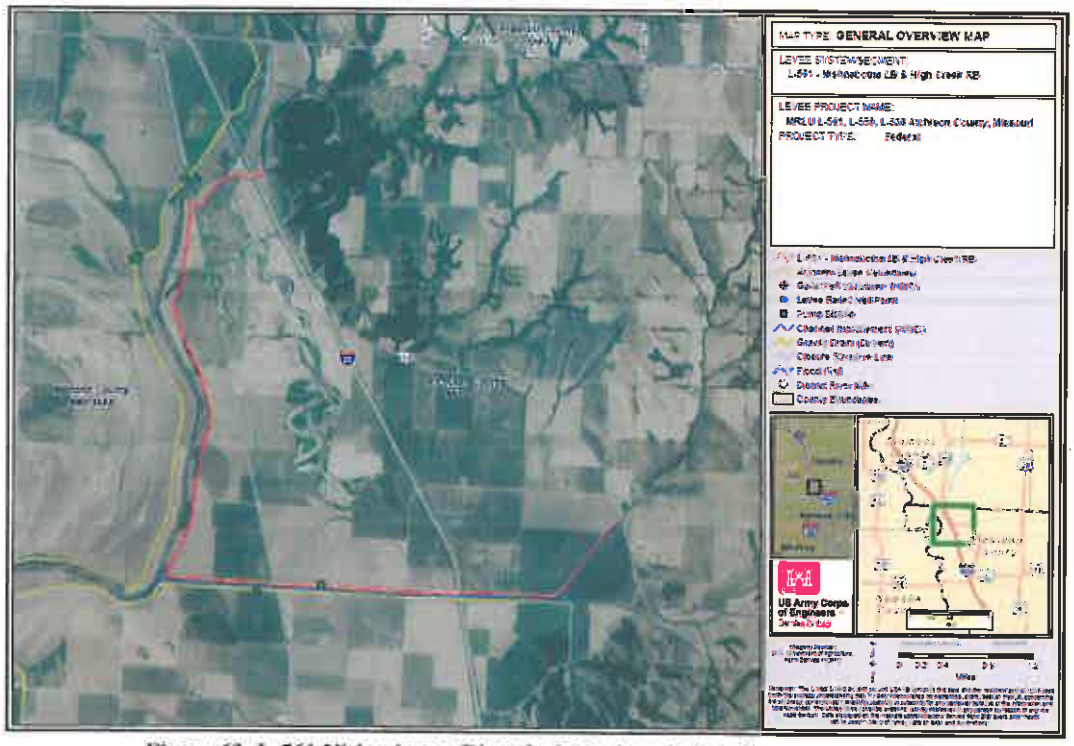

Figure 63. L-561 Nishnabotna River Left Bank and High Creek Right Bank

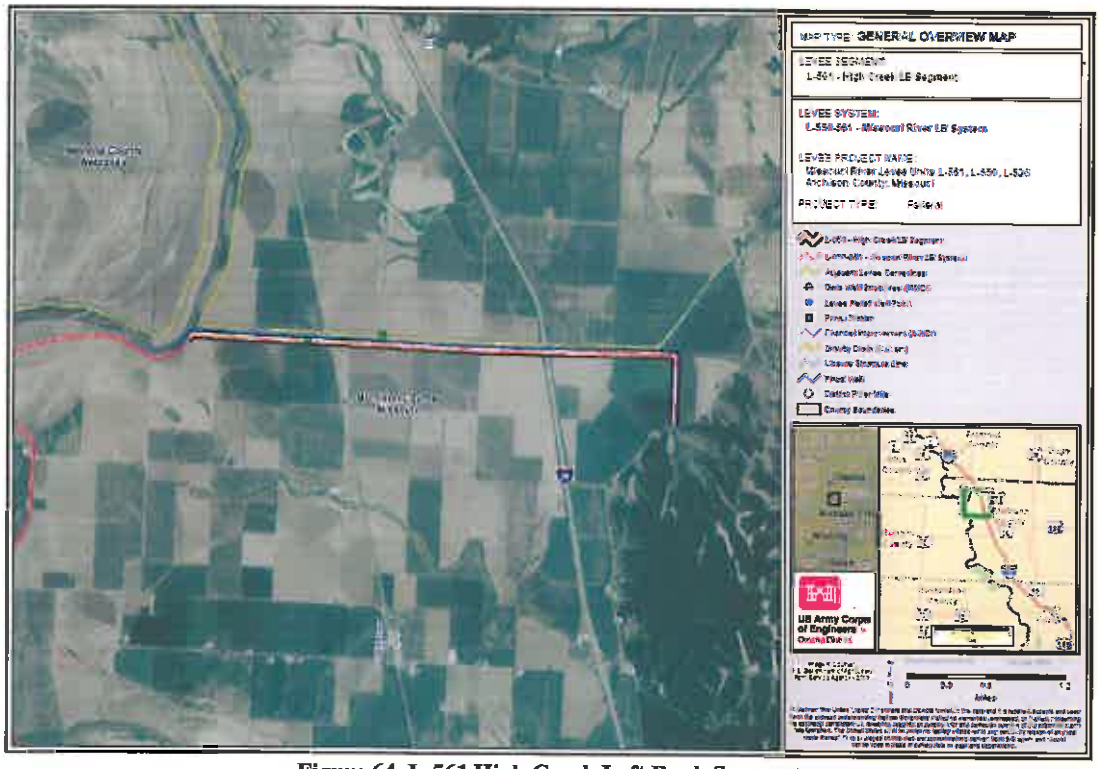

Figure 64. L-561 High Creek Left Bank Segment

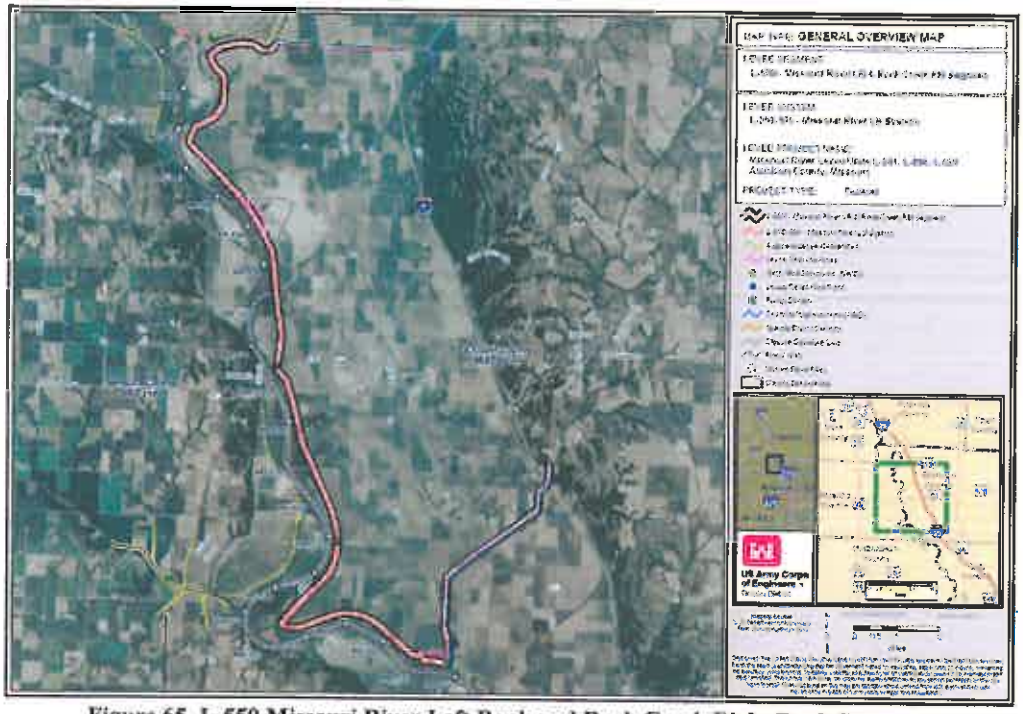

Figure 65. L-550 Missouri River Left Bank and Rock Creek Right Bank Segment

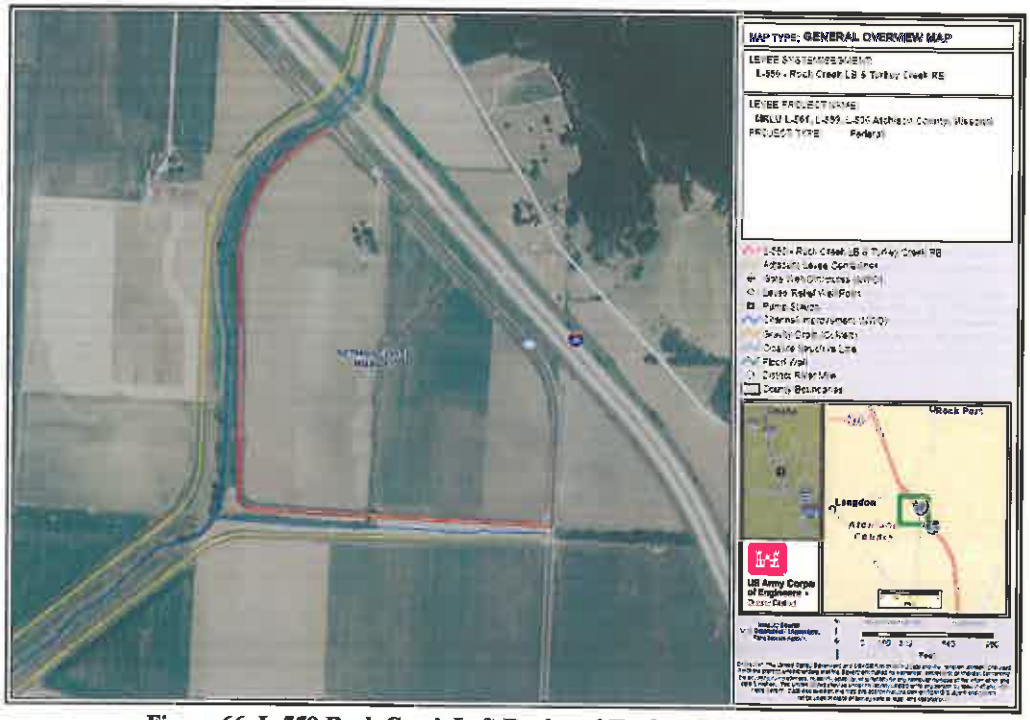

Figure 66. L-550 Rock Creek Left Bank and Turkey Creek Right Bank

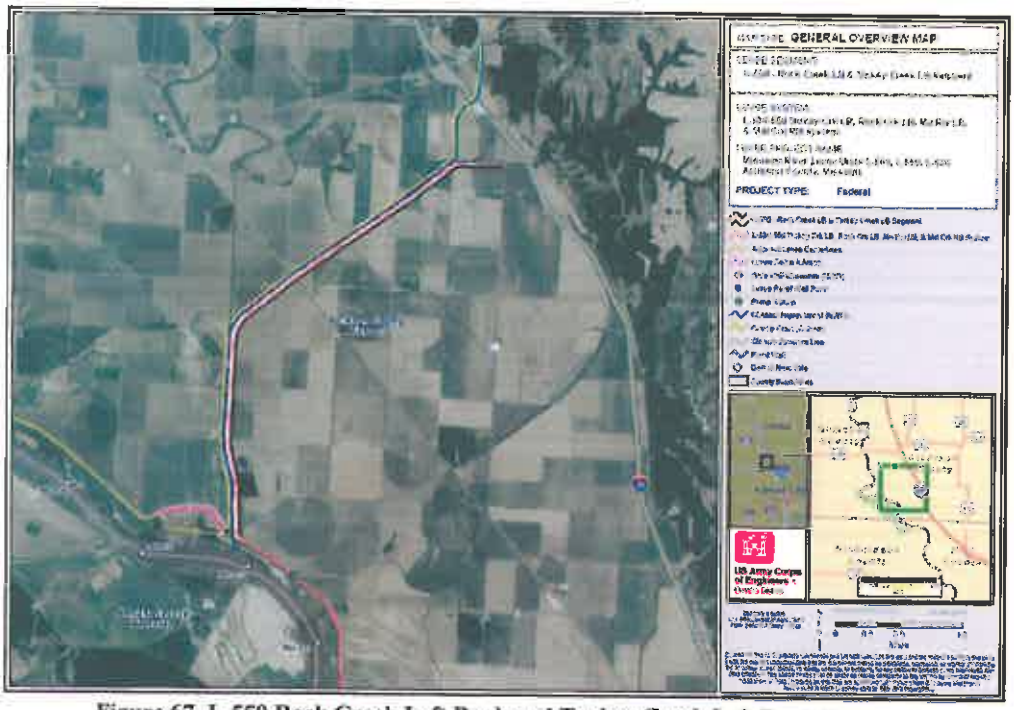

Figure 67. L-550 Rock Creek Left Bank and Turkey Creek Left Bank Segment

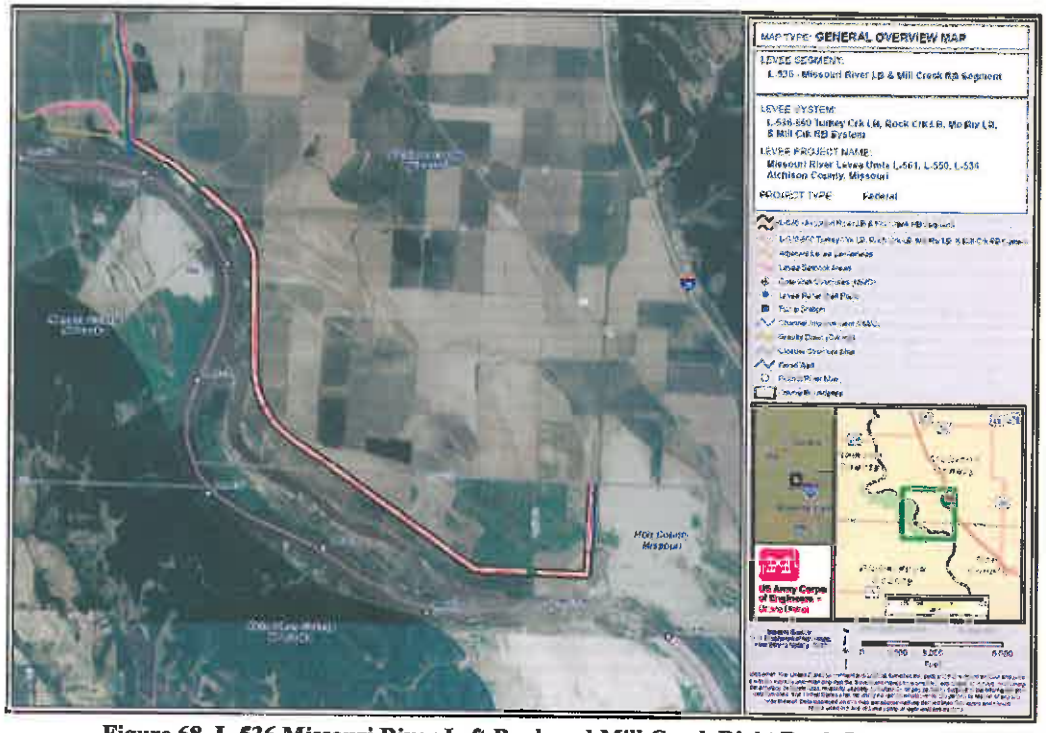

Figure 68. L-536 Missouri River Left Bank and Mill Creek Right Bank Segment

Project Features: The major project features of the Missouri River Levee Units L-561, L-550, and L-536 include: three levee units consisting of approximately 54 miles of earthen levees

located along the left bank of the Missouri River, and along tributaries to the Missouri River (typical levee cross-section has a crown width of 10 feet, and landside and riverside slopes of 1 Vertical to 3 Horizontal); under seepage control structures including riverside toe cutoff trenches, landside berms, relief wells, and a toe drain system; interior drainage structures to transfer interior drainage from the landside of the levee to the riverside of the levee; ponding areas to hold water during flood emergencies; sod, rock slope protection, and bar gates with locks and fencing (Figures 69-71).

Figure 69. Typical View of L-561 Levees from the I-29 Bridge

Figure 70. Typical View of the L-550 Levees from the Brownville Bridge

Figure 71. View of the Upper-most Section of L-536 from Highway 111

4.3.9.3 Missouri River Levee Unit L-575 Benton-Washington Levee District, Fremont County, Iowa

Location: Levee Unit L-575 starts close to the southwest corner of Thurman, Iowa, and then continues westward to the Missouri River channel. The levee then proceeds south along the Missouri River channel (Figures 72 and 73).

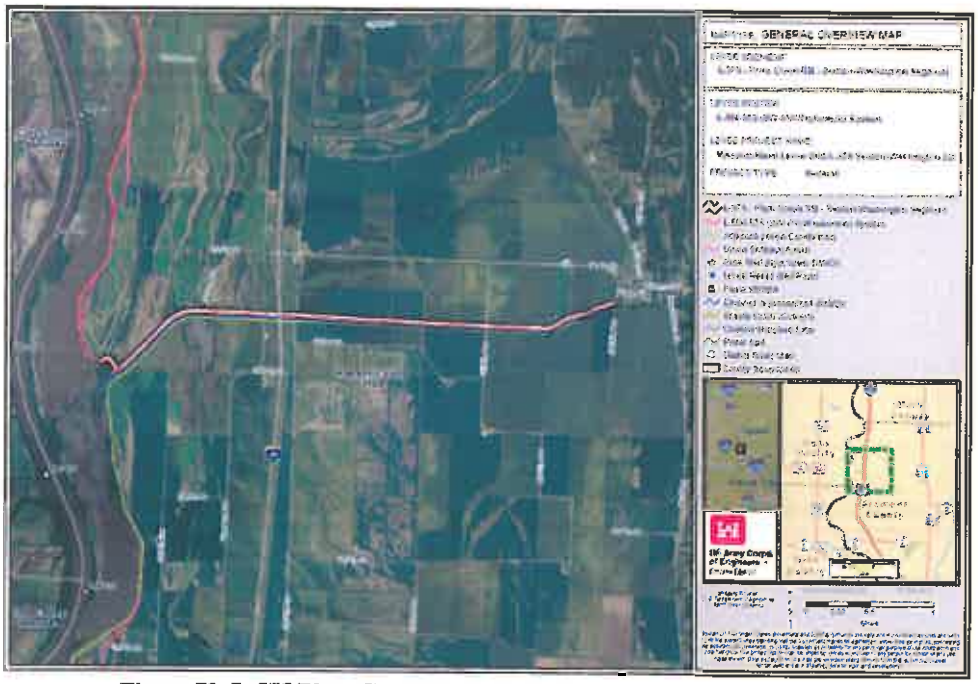

Figure 72. L-575 Plum Creek Right Bank Benton-Washington Segment

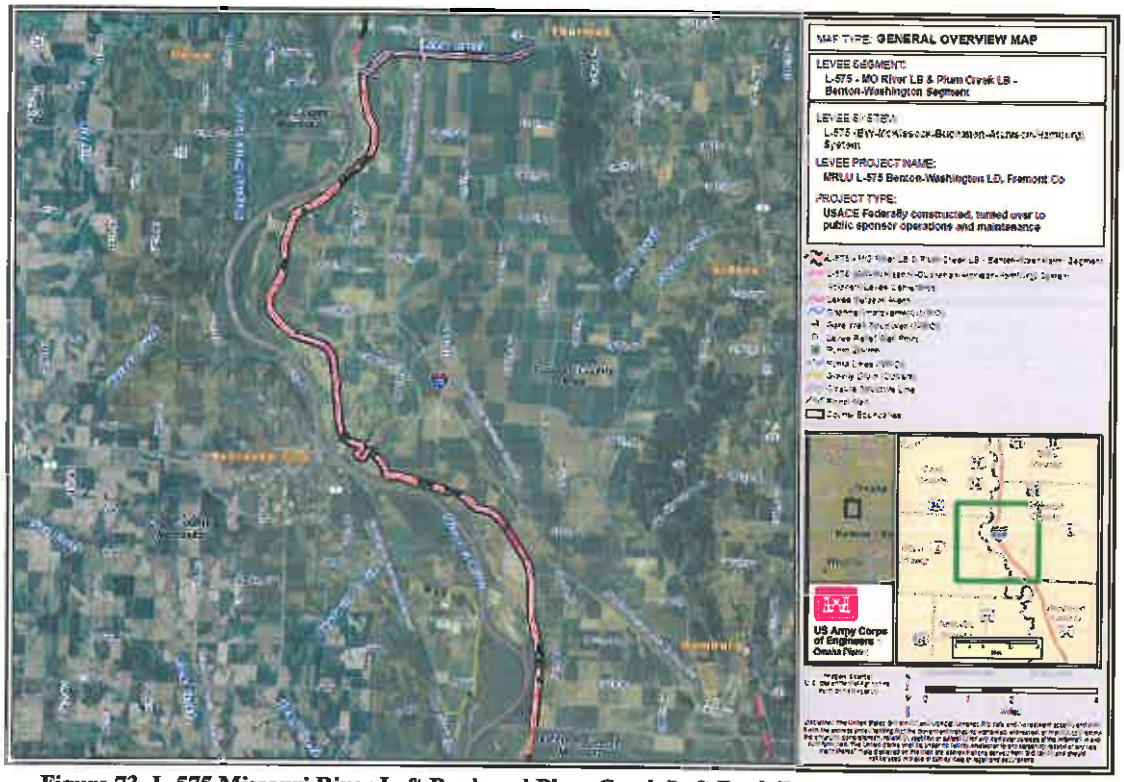

Figure 73. L-575 Missouri River Left Bank and Plum Creek Left Bank Benton-Washington Segment

Project Features: Levee Unit L-575 consists of a crown width of 10 feet, slopes of 1 foot vertical to 3 feet horizontal; landside berms; sod; and surfacing of 4 inches of crushed rock. The total length of the levees within the Benton-Washington Levee District is 28.35 miles (Figure 74).

Figure 74. View of the Benton-Washington Levee at I-29 near Thurman

4.3.9.4 Missouri River Levee Unit L-575 Buchanan Drainage District No. 1, Atchison County, Missouri

Location: This portion of Levee Unit L-575 is located along the left bank of the Missouri River channel and is approximately 6 miles southwest of the town of Hamburg, Iowa (Figure 75).

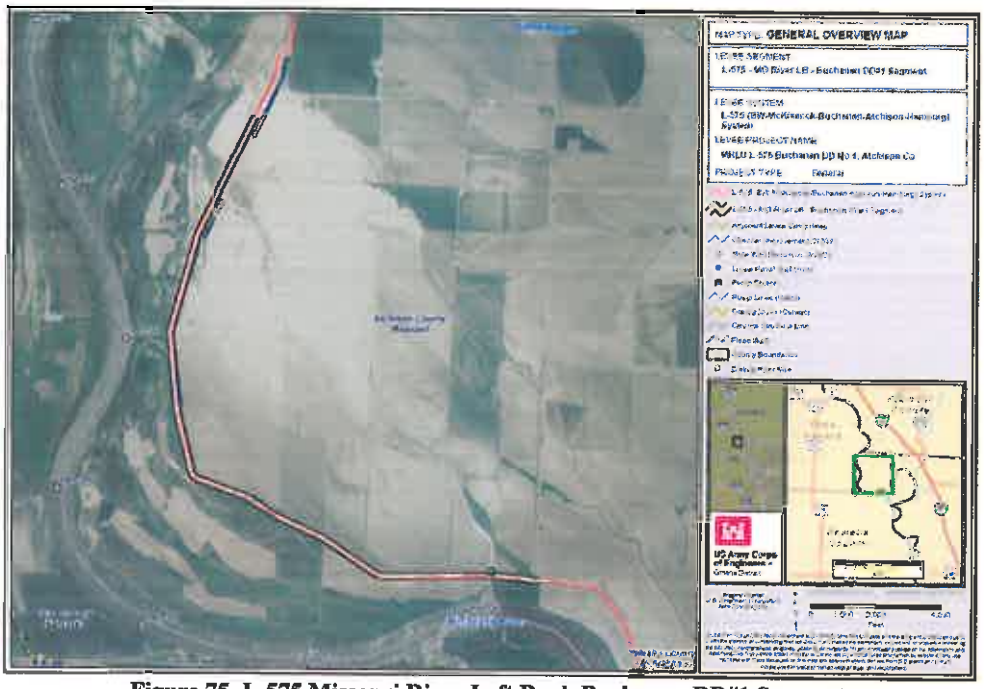

Figure 75. L-575 Missouri River Left Bank Buchanan DD#1 Segment

Project Features: This portion of Levee Unit L-575 consists of an earthen levee, 4.55 miles in length, along the left bank of the Missouri River; landside berms at various points along the levee; drainage structures to convey interior drainage to the riverside of the levee; underseepage control devices consisting of horizontal toe drains and pressure relief wells; ponding areas to hold water during flood emergencies; gravel surfacing of the levee crest to provide for travel during adverse weather; and grass sod to provide for erosion protection of the levee slopes.

4.3.9.5 Missouri River Levee Unit L-575 Hamburg Levee and Drainage District, Fremont County, Iowa

Location: This portion of Levee Unit L-575 is located to the east and the southwest of Hamburg, Iowa, on the left bank of the Missouri River with a tie back levee along the right bank of the Nishnabotna River (Figure 76).

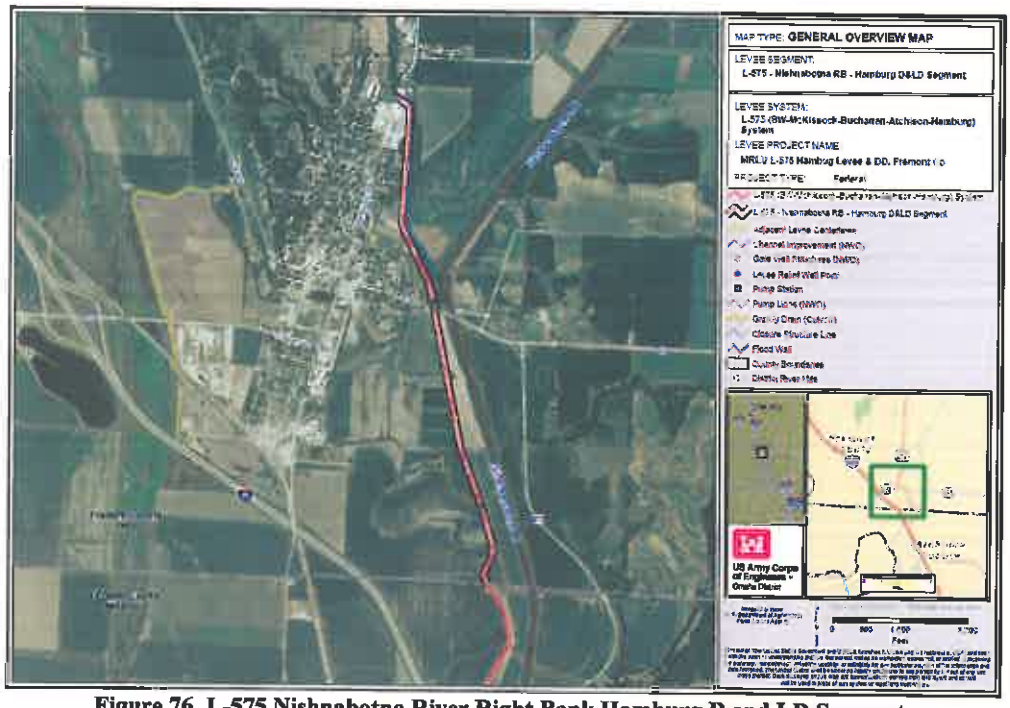

Figure 76. L-575 Nishnabotna River Right Bank Hamburg D and LD Segment

Project Features: This portion of Levee Unit L-575 consists of an earthen levee 2.36 miles in length along the left bank of the Missouri River and along the right bank of the Nishnabotna River, drainage structures to conduct interior drainage to the riverside of the levee, a closure structure across U.S. 275, ponding areas to pond water during flood emergencies, and a 12-inch pump to evacuate water from the landside of the levee to the riverside (Figure 77).

Figure 77. View of the lower portion of the Hamburg Levee at I-29

4.3.9.6 Flood Protection Project Main Ditch 6, Hamburg, Iowa

Location: The Main Ditch 6 Flood Protection Project is located in southwestern Iowa in Fremont County (Figure 78). Hamburg is located between the Missouri River and Nishnabotna River and lies in the floodplain of the Missouri River, Nishnabotna River, and Main Ditch 6. The Main Ditch 6 levee system is located on the left descending bank of Main Ditch 6 and is located on the north and west sides of the City of Hamburg, Iowa. This levee system ties into the Interstate 29 roadway embankment. In turn this embankment acts as the levee on the south side of Hamburg. Hamburg also is located on the right bank of the Nishnabotna River, approximately 8 miles upstream from its confluence with the Missouri River. Main Ditch 6 is a lowland drainage ditch, which drains approximately 43,000 acres of both hilly terrain and flat agricultural bottomland behind Missouri River Levee Unit R-575. This project completes a system of levees, which protects Hamburg from flooding of the Nishnabotna River and/or Main Ditch 6 and the Missouri River. The project levee ties into uplands on the north and I-29 on the south. I-29 serves as a levee due to its raised elevation. Highway 333 and the Burlington Northern and Santa Fe railroad intersect the levee at a lower elevation than the levee top.

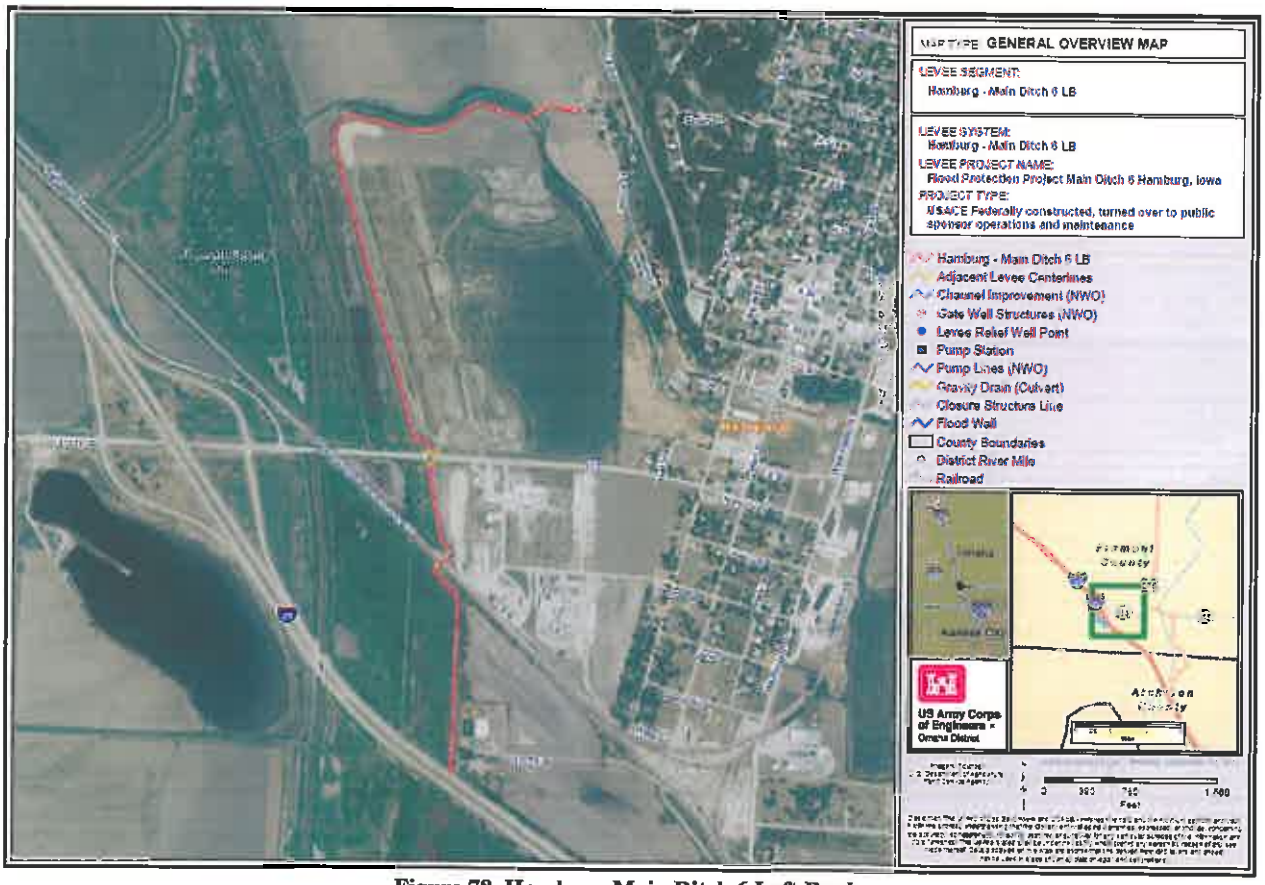

Figure 78. Hamburg Main Ditch 6 Left Bank

Project Features: This Flood Protection Project consists of an earthen levee system approximately 8,000 feet long, panel closure structures, access ramps, drainage ditches and structures, gravel surfacing, sod, panel gates and fencing, and borrow areas (Figure 79).

Figure 79. Typical View of Main Ditch 6 Levee from 310th Street

4.3.9.7 Missouri River Levee Unit L-575, McKissock Island Precinct Dike and Levee District, Nemaha County, Nebraska

Location: This section of Levee Unit L-575 is located about 3 miles south of Hamburg, Iowa, on the left bank of the Missouri River, with a small section of levee on the Nishnabotna River located in Nemaha County, Nebraska (Figure 80).

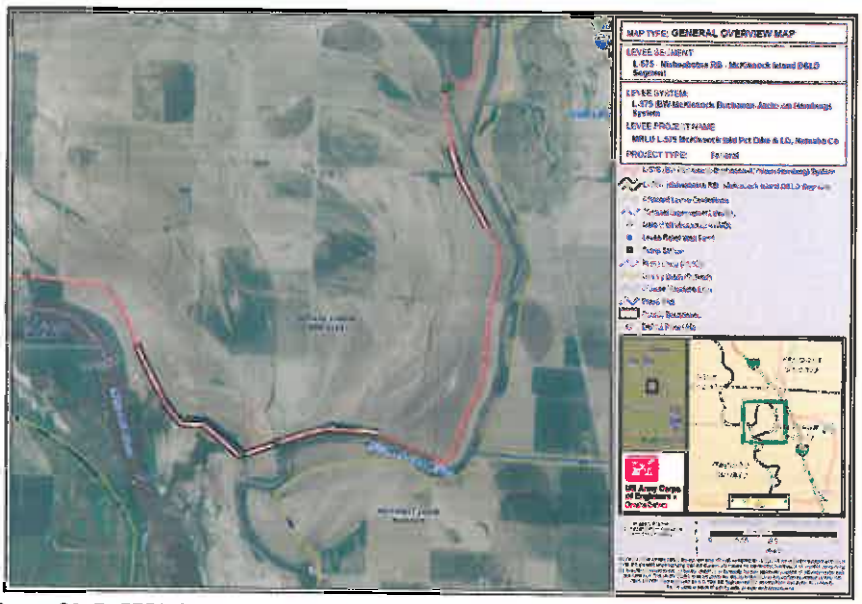

Figure 80. L-575 Nishnabotna River Right Bank McKissock Island D and DL Segment

Project Features: This section of Levee Unit L-575 consists of an earthen levee approximately 3.18 miles in length along the left bank of the Missouri River; landside berms; drainage structures to conduct interior drainage to the river side of the levee; underseepage control devices consisting of piezometers and relief wells; ponding areas to pond water during flood emergencies; and an 18-inch pump and a 24-inch pump to convey flood water from the landside of the dike to the river side of the dike.

4.3.9.8 Missouri River Levee Unit L-575, Northwest Atchison County Levee District, Atchison County, Missouri

Location: This section of Levee Unit L-575 is located in four sections; the first section starts approximately 1.25 miles southeast of Hamburg, Iowa, and is roughly 2.75 miles long. The second section starts approximately 4 miles south of Hamburg, Iowa, and is roughly 2.5 miles long. The third section starts approximately 5 miles southwest of Hamburg, Iowa, and is roughly 1 mile long. The fourth section starts roughly 4.5 miles west of Hamburg, Iowa, and is roughly 1 mile long (Figure 81).

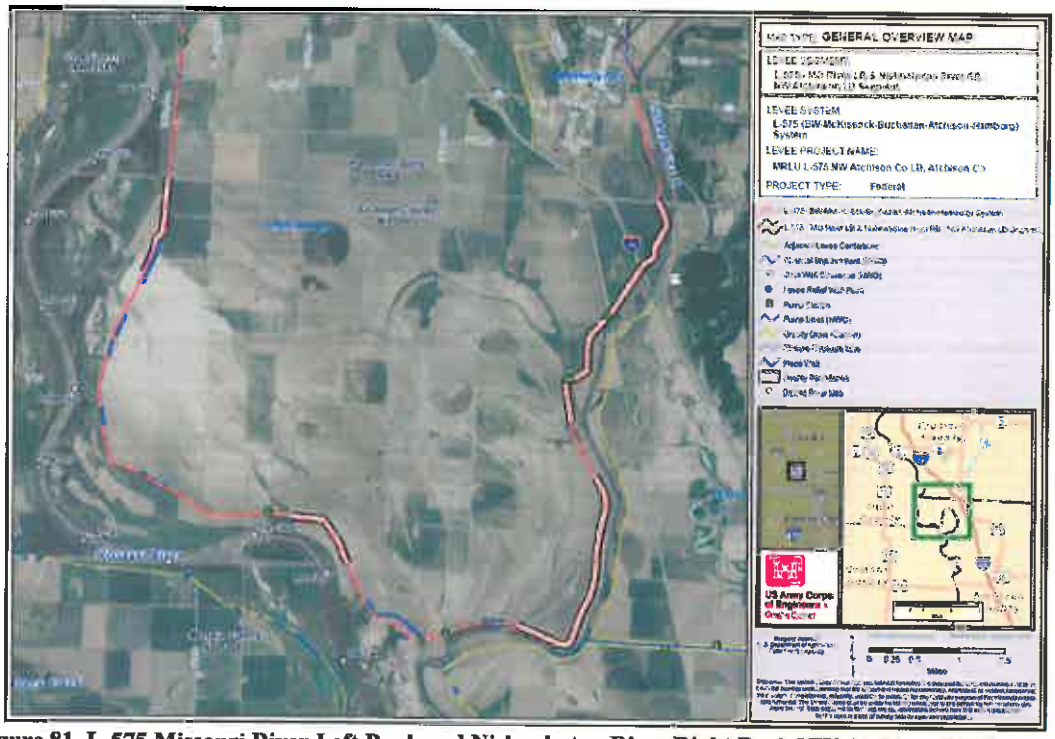

Figure 81. L-575 Missouri River Left Bank and Nishnabotna River Right Bank NW Atchison LD Segment

Project Features: This section of Levee Unit L-575 consists of an earthen levee 7.29 miles in length along the left bank of the Missouri River, landside berms, drainage structures to conduct interior drainage to the riverside of the levee, ponding areas to pond water during flood emergencies, a 24-inch pump to pump flood water from the land side of the levee to the riverside of the levee, and a special outlet structure.

4.3.9.9 Missouri River Levee Unit L-594, Pleasant Valley Levee District and Waubonsie Drainage District, Fremont County, Iowa

Location: The Pleasant Valley segment of Missouri River Levee Unit L-594 is located along the left (east) bank of the Missouri River between Waubonsie Creek and Plum Creek, and is generally south of the city of Bartlett, in Fremont County, Iowa. The levee ties into the Missouri River Levee Unit L-575 right bank tieback along Plum Creek at the confluence of Plum Creek and the Missouri River. The levee extends upstream along the left bank of the Missouri River 5.6 miles to the L-594 tieback levee along the Waubonsie Creek left bank (Figure 82).

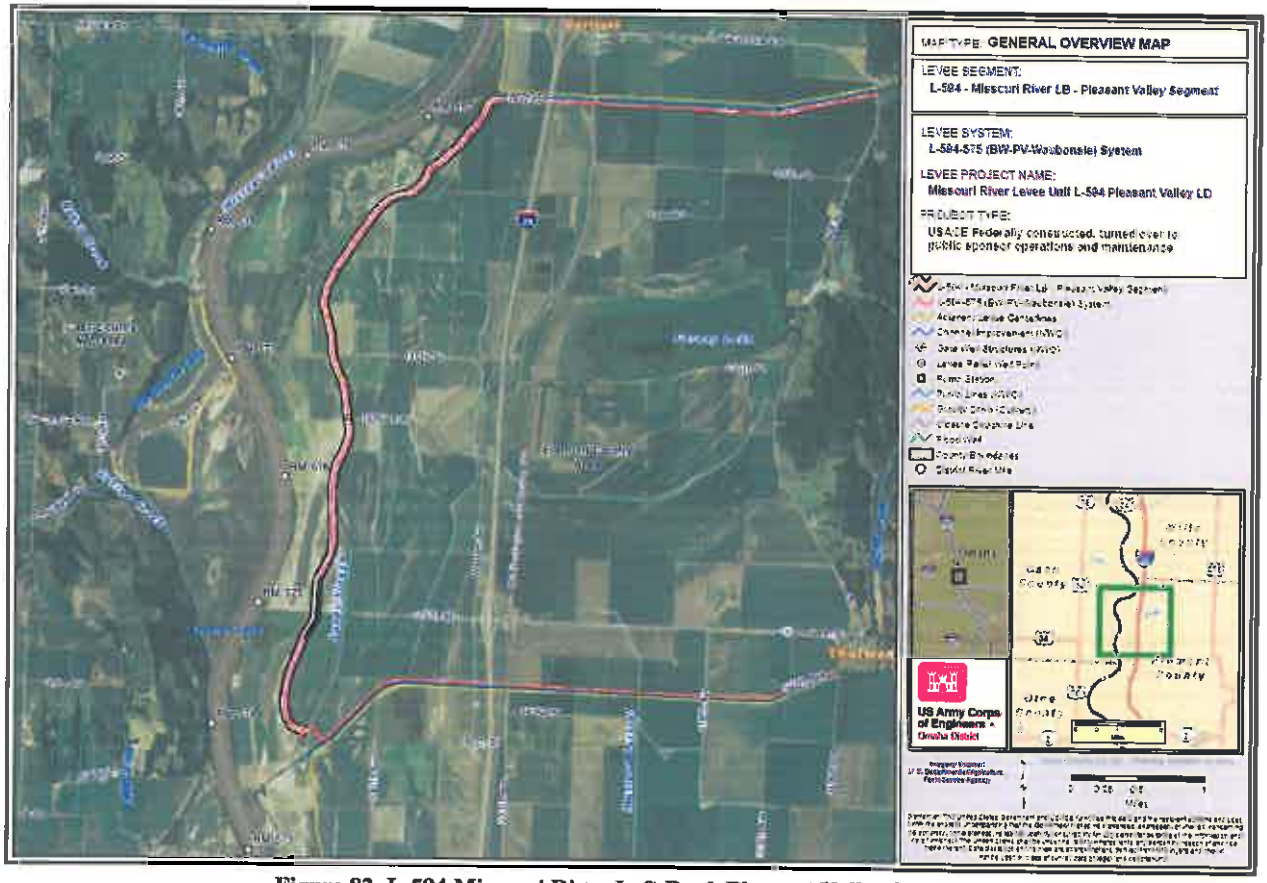

Figure 82. L-594 Missouri River Left Bank Pleasant Valley Segment

The Waubonsie Drainage District of Missouri River Levee Unit L-594 is located along the right and left banks of Waubonsie Creek from County Road L44 (Bluff Road) near the bluff line to the Missouri River. At its closest, the levee is approximately 1,900 feet south of the City of Bartlett, Fremont County, Iowa. The Waubonsie Creek left bank levee ties off at the upstream end at Station WC 154+41.05 L and extends downstream along Waubonsie Creek to approximately 1,400 feet east of the Missouri River confluence (Figure 83). The Waubonsie Creek right bank levee ties off at the upstream end at Station WC 155+19.92 L and extends downstream along Waubonsie Creek to near the confluence with the Missouri River where the levee ties into Missouri River Levee Unit L-601 (Figure 84).

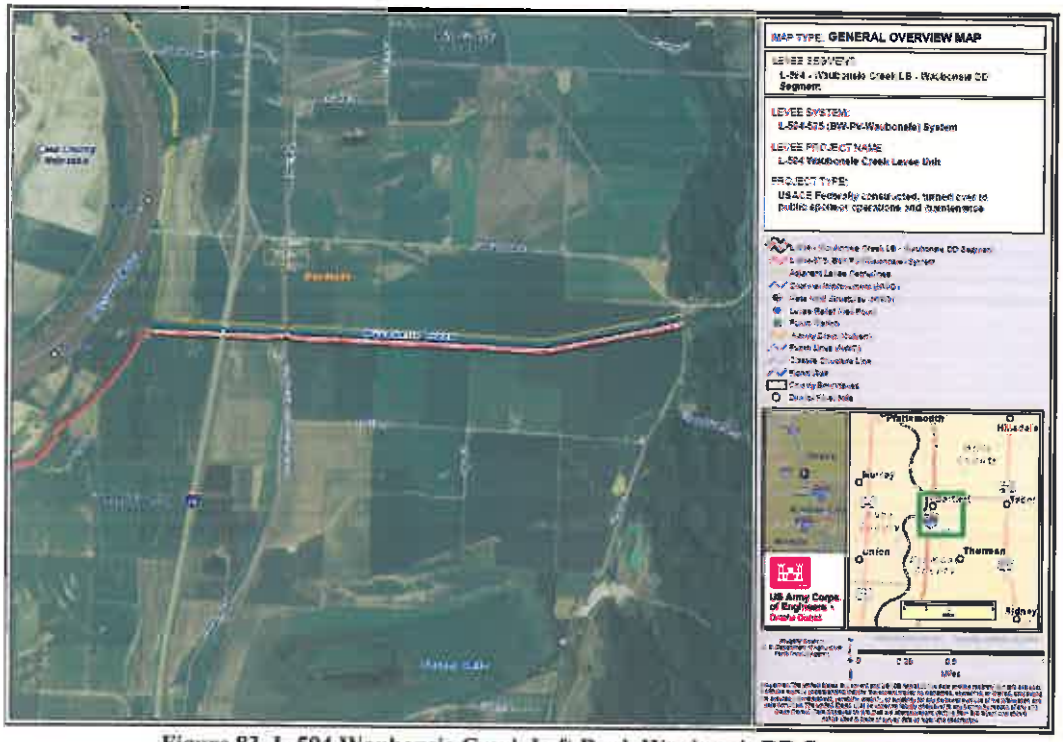

Figure 83. L-594 Waubonsie Creek Left Bank Waubonsie DD Segment

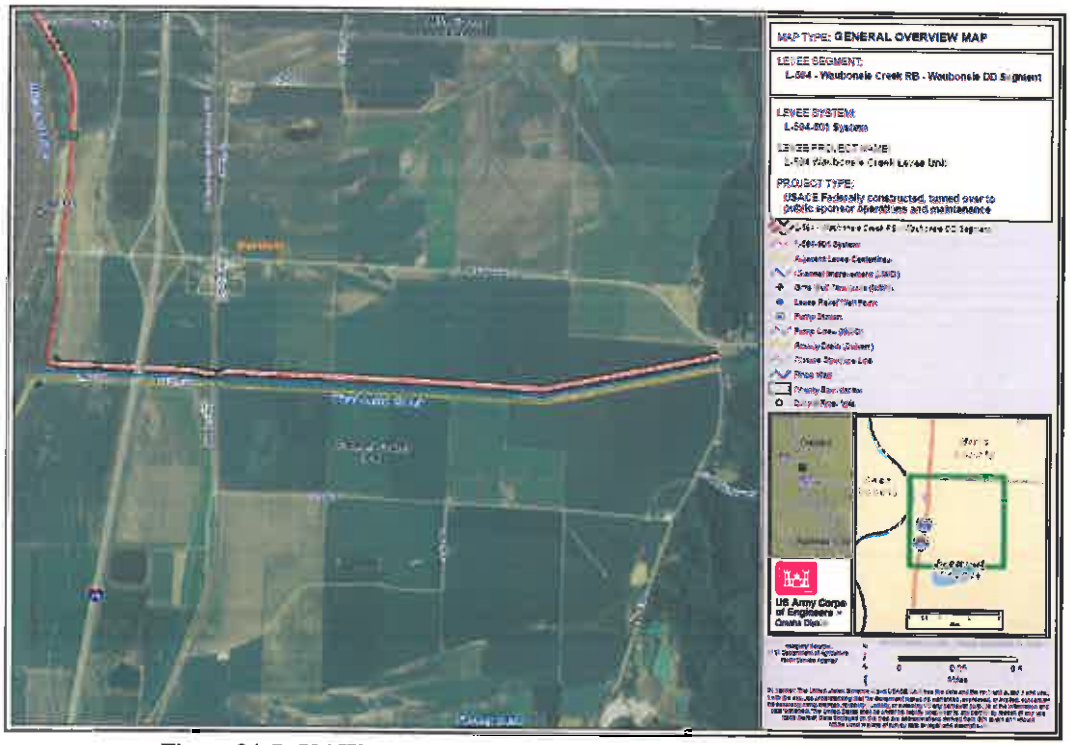

Figure 84. L-594 Waubonsie Creek Right Bank Waubonsie DD Segment

Project Features: Levee Unit L-594 consists of the Pleasant Valley levee which is approximately 5.6 miles in length and was constructed along the left bank of the Missouri River from the right bank of the Plum Creek levee (Unit L-575) to the left bank of the Waubonsie Creek levee (Unit L-594) and the Waubonsie tieback levees, each approximately 2.9 miles in length, and were constructed along the existing channel of the Waubonsie Creek from the bluff line to the Missouri River with the left bank ending at the Pleasant Valley levee (Unit L-594) and the right bank ending at Levee Unit L-601; typical levee cross-sections with a crown width of 10 feet, and landside and riverside slopes of 1 Vertical to 3 Horizontal; underseepage control measures including toe drains, landside berms, a riverside berm, and relief wells; interior drainage structures and ditches to transfer interior drainage from the landside of the levee to the riverside of the levee; drainage structures; surfacing on the levee crest, turnouts and riverside and landside access ramps; ramps, turnouts, and gates with locks to control access; riprap protection; a setback levee; and sandbag closure structures at both ends of the Burlington Northern Railroad Bridge crossing Waubonsie Creek.

4.3.9.10 Missouri River Levee Unit L-601, Fremont and Mills Counties, Iowa

Location: The Missouri River Levee Unit L-601 is located along the left bank of the Missouri River in Fremont and Mills Counties, Iowa between Missouri River miles 580.3 and 586.6. The levee begins at the existing tieback levee near the confluence of Waubonsie Creek and the Missouri River in Fremont County and proceeds northward to include Watkins Ditch (Keg Creek) in Mills County. The project is generally southwest of Glenwood, Iowa and north of Bartlett, Iowa (Figure 85).

The Missouri River Levee Unit L-601Bartlett Segment includes the portion of L-601 along the Missouri River, from Station 284+40 L in Mills County, to Station 0+09 L in Fremont County at the confluence of Waubonsie Creek and the Missouri River. At Station 0+09 L, L-601 ties into Missouri River Levee Unit L-594.

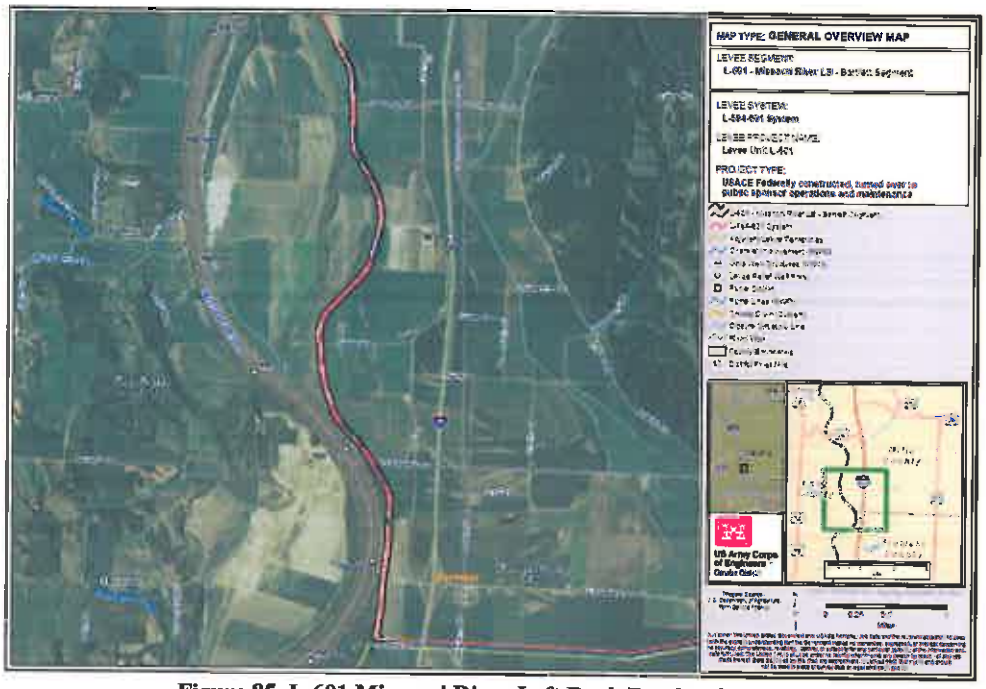

Figure 85. L-601 Missouri River Left Bank Bartlett Segment

The Miller-Sturgeon Segment, located in Mills County, includes the portion of L-601 located along the left bank of the Missouri River from Station 383+50, near the confluence of Watkins Ditch and the Missouri River, and extends downstream to Station 284+40 (Figure 86).

Figure 86. L-601 Missouri River Left Bank Miller-Sturgeon Segment

The Watkins Drainage District segments include the L-601 tieback levees along the right and left banks of Watkins Ditch in Mills County (Figures 87 and 88). The right bank levee ties off at a county road bridge abutment at levee Station WD 592+30 R and extends downstream to the confluence with Pony Creek at Station WD 420+98 R. The left bank levee ties off at the bluff line at Station WD 617+98 L, and extends downstream to the confluence with the Missouri River at Station WD 383+50 L.

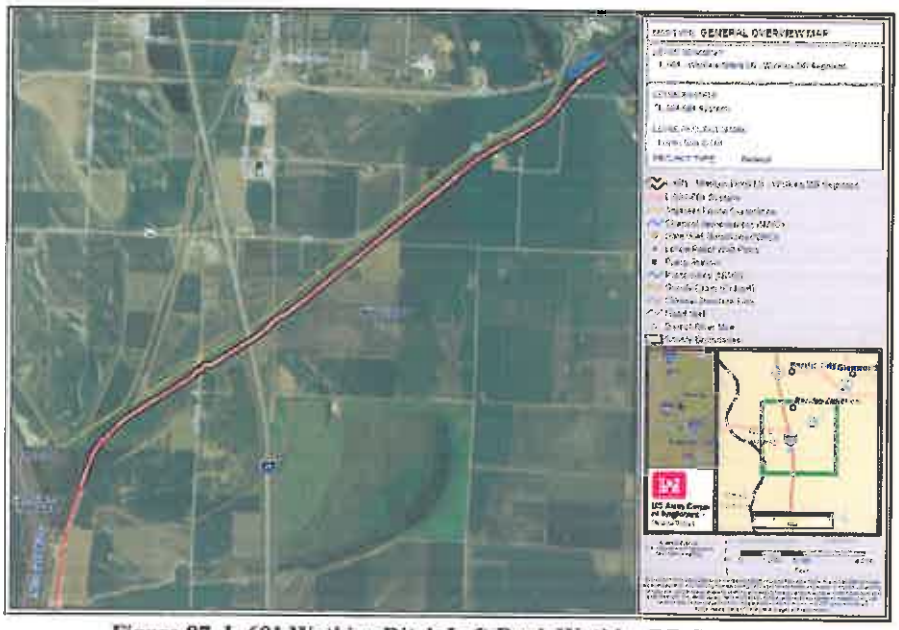

Figure 87. L-601 Watkins Ditch Left Bank Watkins DD Segment

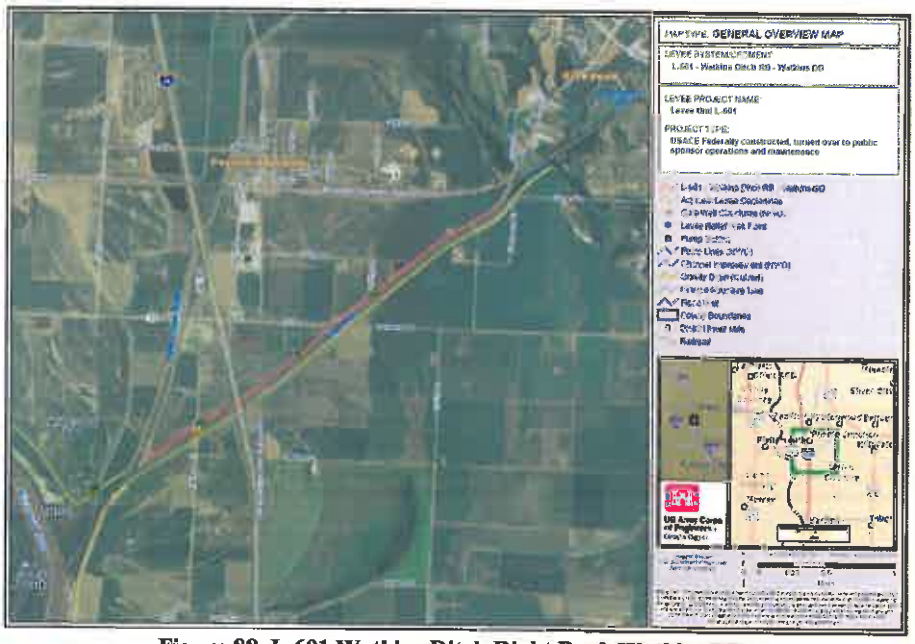

Figure 88. L-601 Watkins Ditch Right Bank Watkins DD

Project Features: Levee Unit L-601 consists of earthen levees including the Bartlett Segment, which is 28,431 feet (5.38 miles) long and located along the left bank of the Missouri River between the downstream end of the Miller-Sturgeon Segment and Waubonsie Creek, the NLD segment designation for this reach is "L-601 - Missouri River LB - Bartlett Segment". The Miller-Sturgeon Segment, which is 9,910 feet (1.88 miles) long and located along the left bank of the Missouri River, downstream of Watkins Ditch, in Mills County, Iowa, the NLD segment designation for this reach is "L-601 - Missouri River LB - Miller-Sturgeon Segment". The L-601 Watkins Ditch RB levee is 17,132 feet (3.24 miles) long and located along the right bank of Watkins Ditch, the NLD segment designation for this reach is "L-601 - Watkins Ditch RB - Watkins DD." L-601 Watkins Ditch LB is - 23,448 feet (4.44 miles) located along the left bank of Watkins Ditch, in Mills County, Iowa, the NLD segment designation for this reach is "L-601 - Watkins Ditch LB - Watkins DD Segment." The levees include a typical levee cross-section with a crown width of 10 feet, and landside and riverside slope of 1 Vertical to 3 Horizontal. Additional features include underseepage control measures including toe drains, landside berms, riverside berms, and relief wells; interior drainage structures to transfer interior drainage from the landside of the levee to the riverside of the levee; surfacing on levee crest, turnouts, and riverside and landside access ramps for surveillance, maintenance, and flood fighting purposes; and gates and locks to control access.

4.3.9.11 Missouri River Levee Unit L-611-614, M&P Missouri River Levee District, Mills and Pottawattamie Counties, Iowa

Location: The Missouri River Levee Unit L-611-614 is located along the left bank of the Missouri River in Mills and Pottawattamie Counties, Iowa between River Miles 588.0 and 605.7. The levee ties off at the downstream end of the project at Station 3+09L along the right bank of Keg Creek at the confluence with Lower Pony Creek in Mills County. At that location, L-611-614 ties into a federally-constructed Soil Conservation Service levee project along Lower Pony Creek. From the downstream tie-off, the levee proceeds northward, set back approximately 1,500 feet from the centerline of the Missouri River, to Mosquito Creek in Pottawattamie County. This project also includes tieback levees built along the left bank of Mosquito Creek to the confluence with Upper Pony Creek, along the left and right banks of Upper Pony Creek, and along the left and right banks of Lateral 1-B from Upper Pony Creek to the tie-off at Wabash Avenue, formerly U.S. Highway 275 (Figures 89-91).

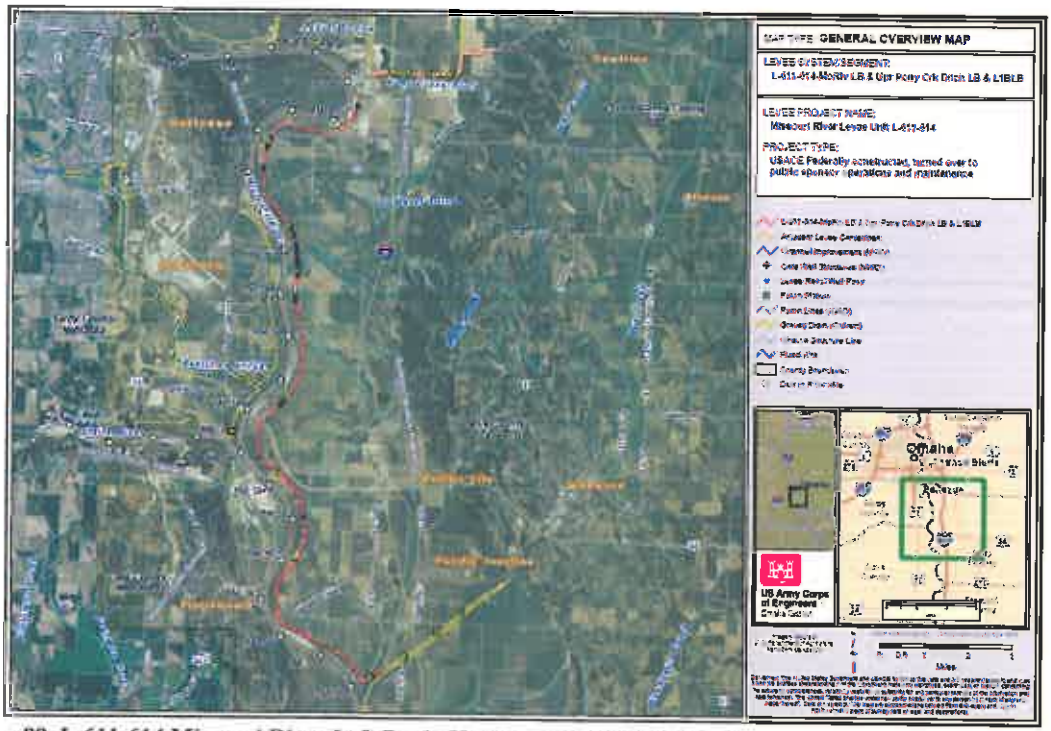

Figure 89. L-611-614 Missouri River Left Bank, Upper Pony Creek Ditch Left Bank, and Lateral 1B Left Bank

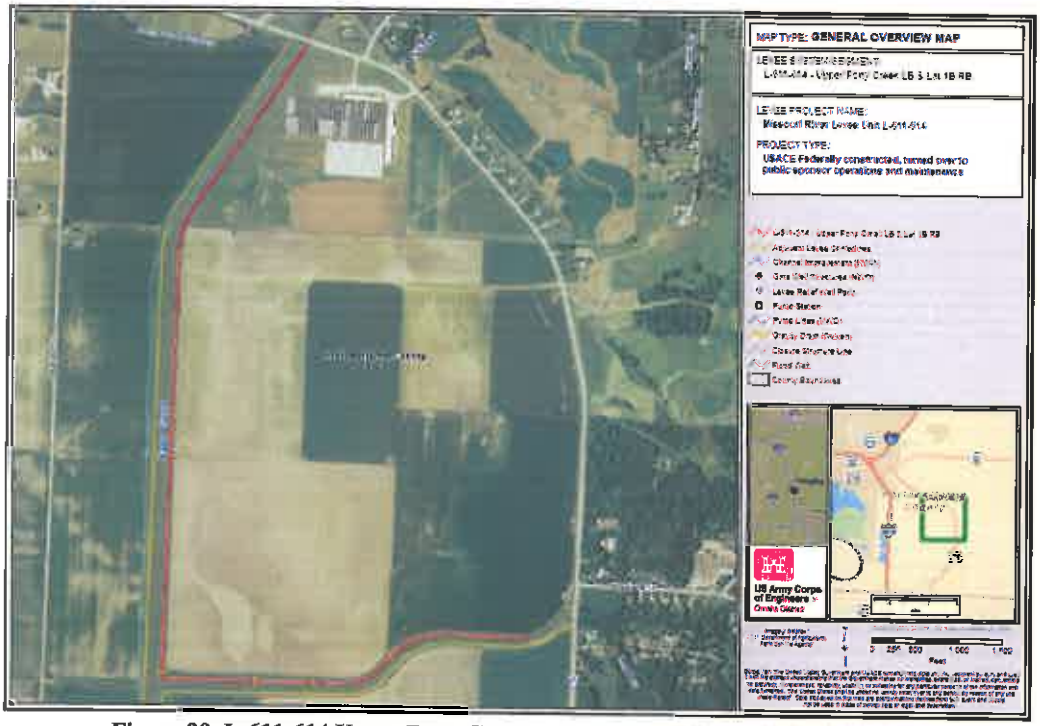

Figure 90. L-611-614 Upper Pony Creek Left Bank and Lateral 1B Right Bank

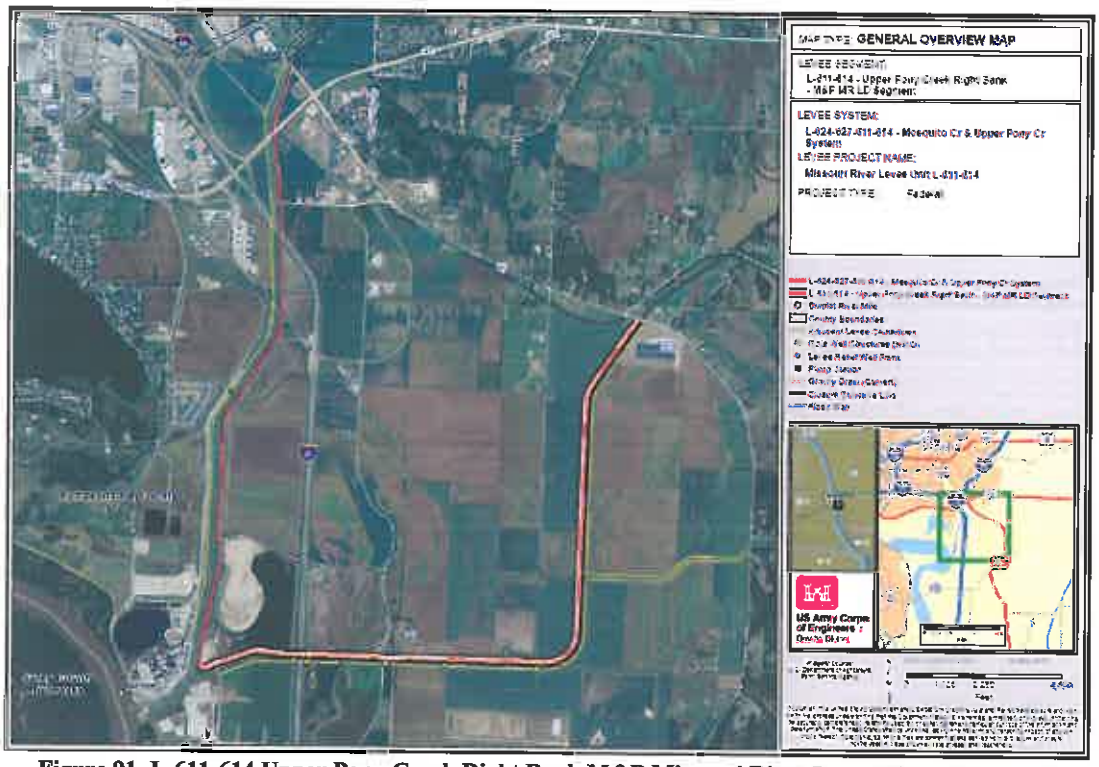

Figure 91. L-611-614 Upper Pony Creek Right Bank M&P Missouri River Levee District Segment

Project Features: The major project features of the Missouri River Levee Units L-611-614 include four earthen levees. The first is 93,772 feet (17.76 miles) long and is located along the left bank of the Missouri River in Mills and Pottawattamie Counties, Iowa. This reach lies within NLD segment designation "L-611-614 - MO River Left & Upper Pony Creek Ditch LB & Lateral 1B LB." The second is 2,956 feet (0.56 miles) long and is located along the left bank of Mosquito Creek (high ground channel reach) in Pottawattamie County, Iowa. This reach lies within NLD segment designation "L-611-614 - MO River Left & Upper Pony Creek Ditch LB & Lateral 1B LB." The third is 41,448 feet (7.85 miles total including 3.99 miles on the right bank and 3.86 miles on the left bank) long and is located along the right and left banks of Upper Pony Creek in Pottawattamie County, Iowa. This reach lies within NLD segment designations "L-611-614 - MO River Left & Upper Pony Creek Ditch LB & Lateral 1B LB," "L-611-614 – Upper Pony Creek LB & Lateral 1B RB," and "L-611-614 - Upper Pony Creek Ditch Right Bank - M&P MR LD Segment." The fourth is 9,451 feet (1.79 miles total including 0.84 miles on the right bank and 0.95 miles on the left bank) long and is located along the right and left banks of Lateral 1B in Pottawattamie County, Iowa. This reach lies within NLD segment designations "L-611-614 – MO River Left & Upper Pony Creek Ditch LB & Lateral 1B LB" and "L-611-614 – Upper Pony Creek LB & Lateral 1B RB." The typical levee cross-section has a crown width of 10 feet, and landside and riverside slope of 1 Vertical to 3 Horizontal. The levee has an average approximate height of 14 feet. Additional features include road ramp crossings, access ramps, and turnouts; underseepage control measures including landside berms and relief wells; interior drainage structures to transfer interior drainage from the landside of the levee to

the riverside of the levee; drainage ditches, including culverts; and gates and locks to control access.

Existing Conditions:

Water Quality: The state of Iowa designates the following uses to the Missouri River from the Iowa-Missouri state line to the confluence with the Big Sioux River: Primary Contact Recreation, Warmwater Type 1 Aquatic Life, and Human Health. The Missouri River at the Council Bluffs water works intake also is designated as a raw water source to be treated for use as potable water. Pursuant to Iowa's antidegradation policy, the Missouri River is not identified as an outstanding State Water (Tier 2½) or an outstanding National Resource Water (Tier 3). As appropriate, Iowa's antidegradation policy provides Tier 2 protection (existing water quality) to the Missouri River. Tier 1 protection (existing uses) applies and the State designated beneficial uses must be protected and associated numeric and narrative water quality criteria to protect these beneficial uses are not to be violated.

Iowa has not listed the Missouri River on the state's most recent (i.e. 2012) 303(d) Category 5 impaired waters list requiring a TMDL. The state has listed the Missouri River segment from the Little Sioux River to Elm Creek at RM 691 (Waterbody ID Code: IA 06-WEM-0040_1) as a Category 4c impaired water for aquatic life – game fish. Category 4c impairment means at least one use is impaired, but the impairment is not caused by a "pollutant" and a TMDL is not required. The listed Category 4c impairment of the Missouri River in this segment is due to habitat alterations and flow modifications that resulted from development of the river for navigation uses in the mid-Twentieth Century (IDNR, 2014).

The beneficial uses of the Mosquito Creek, Mill Creek, and Keg Creek include aquatic life support and primary contact recreation. Mosquito Creek, Mill Creek, and Turkey Creek are listed as Category 5p waterbodies, which designates them as having impairment of presumptive use (EPAs approved use attainability analysis is needed to determine appropriate use). Primary contact is the impaired use with bacteria being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively low cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority III.

The beneficial uses of the Rock Creek include aquatic life support and primary contact recreation. Rock Creek is listed as a Category 5a waterbody, which designates the waterbody as having impairment due to a known pollutant. Aquatic life is the impaired use with organic enrichment/low dissolved oxygen being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively high cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority IV.

The beneficial uses of the Plum Creek and Keg Creek include aquatic life support and primary contact recreation. Plum Creek and Keg Creek are listed as Category 5b-t waterbodies, which designates them as having impairment but the impairment is tentative and additional monitoring

to confirm the impairment is needed. Aquatic life is the impaired use with biological IBI (low biotic index) being the cause or stressor. Iowa considers the impairment to have a relatively low social impact and a relatively high cost for TMDL development. As such, Iowa places TMDL development for this waterbody as Priority IV.

Waubonsie Creek is listed as a Category 3a waterbody, which designates the waterbody as having insufficient data to determine whether any designated uses are met. Designated uses under investigation for this creek include primary contact and aquatic life (non-game fish).

The beneficial uses of the Pony Creek include aquatic life support and primary contact recreation. Pony Creek is listed as a Category 3b waterbody, which designates the waterbody as having at least one designated use potentially impaired. Aquatic life is the potentially impaired use with the cause or stressor unknown. It is believed the stressor is biological and is affecting fish and invertebrates.

High Creek, McElroy Creek, and Main Ditch 6 were not present on Iowa's Section 303(d) Impaired Water Listings Report.

Aquatic Species: Aquatic species in the Missouri River and its tributaries are numerous and include creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, red shiner, black bullhead, bluntnose minnow, channel catfish, common carp, stonecat, suckermouth minnow, flathead chub, quillback carpsucker, and shorthead redhorse.

Noise: Sources of noise include urban and rural disturbances such as automobile traffic, construction, industry, farm machinery, and natural sounds.

Wetlands: The USFWS NWI Database revealed freshwater emergent and freshwater forested/shrub wetlands scattered along the course of these Flood Protection Projects.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, Indiana bat, northern long-eared bat, least tern, piping plover, and pallid sturgeon are known to occur in Pottawattamie, Fremont, and Mills counties. Due to the on-going maintenance activities, established brome grass, and lack of trees along these civil works projects, the western prairie fringed orchid, prairie bush clover, northern long-eared bat, and Indiana bat do not occur within the boundaries of the civil works projects. Least tern, piping plover, and pallid sturgeon are known to occur along the Missouri River and may be found in association with these civil works projects.

5. Environmental Consequences

This chapter presents the environmental effects of the No Action Alternative (Alternative 1) and the Preferred Alternative (Alternative 2). The impact analysis contained within this Programmatic EA was developed based on past experience. Past experience showed that the environmental analysis on these types of projects had environmental impacts that were minor to negligible. Upon approval of this Programmatic EA, all future Section 408 requests will undergo an initial review to ensure compliance with applicable laws and that the proposed alteration fits within the scope of the Programmatic EA. If it is determined that the proposed request to alter a USACE civil works project would result in impacts greater than minor to negligible as described in this EA, a stand-alone EA or EIS would be prepared for that request. Examples of instances where a proposed Section 408 alteration request would result in impacts greater than minor or negligible to the environment and, subsequently require a stand-alone EA or EIS would include:

1. Any proposed alteration that may adversely affect any threatened or endangered species in accordance with the Endangered Species Act.

2. Any proposed alteration that would result in the 'take' of migratory birds as defined in the Migratory Bird Treaty Act.

3. Any proposed alteration that would result in the transfer of any invasive species to new locations.

4. Any proposed alteration that would require an individual Clean Water Act Section 404 permit.

5. Any proposed alteration that would exceed state water quality standards.

6. Any proposed alteration that would encourage additional development within the floodplain.

7. Any proposed alteration that may adversely affect any cultural resources or not be in compliance with Section 106 of the National Historic Preservation Act.

8. Any proposed alteration that would have more than negligible to minor vegetative impacts to grasslands or treed areas.

9. Any proposed alteration that would result in any impacts to federal mitigation areas and/or lands specified as ecosystem restoration areas.

10. Any proposed alteration that does not use Horizontal Directional Drilling (HDD), Jack and Bore and/or overhead utility construction when crossing a wetland or other Waters of the U.S.

11. Any proposed alteration that requires off-site tree clearing activities that have a connected use to the civil works project and does not complete the clearing within the winter months when neither nesting migratory birds nor listed bats are in the area.

This section presents the effects of each of the alternatives on the existing resource. Impacts are quantified whenever possible.

"Significance" has been analyzed in this document in terms of both context (sensitivity) and intensity (magnitude and duration):

- Magnitude
  a. No Impact – there is no effect to the resource.
  b. Negligible – there is no discernible impact to the resource in the project area, but the resource is likely affected due to human presence.
  c. Minor – there are noticeable impacts to the resource in the project area, but the resource is still mostly functional.
- Duration
  a. Short term – temporary effects caused by the construction and/or implementation of a selected alternative. Note: Because this Programmatic EA identifies those Section 408 alterations that can be categorically permitted, there are no instances in which the duration of the impact would be long term as a long-term impact could be deemed more than minor.

5.1 Alternative 1 - No Action

Under the No-Action Alternative, Section 408 categorical permissions would not be developed. All requests to alter USACE projects would continue to be evaluated on a case-by-case basis with the preparation of an individual EA or EIS to determine if the alteration would be injurious to the public interest or impair the usefulness of the USACE project.

5.2 Alternative 2 – Utilize a List of Categorical Permissions to Expedite the Section 408 Review and Approval Process (Preferred Alternative).

Under Alternative 2, the list of categorical permissions identified in this Programmatic EA would be adopted and a streamlined review and approval process would be conducted.

5.2.1 Detailed Description of Environmental Impacts Associated with Construction of the Categorical Permissions

5.2.1.1 Noise

Construction of some of the categorical permissions could be accomplished with a small work crew and the use of hand tools. In those instances, no discernible noise would be generated. However, in other cases, proposed alterations would require the use of heavy construction

equipment. The operation of heavy construction equipment would result in a discernible increase in noise at the project sites. The noise may cause wildlife species to leave or avoid the area. To avoid or minimize construction-related noise impacts on sensitive wildlife species, preconstruction surveys may be required to determine if sensitive species are located in the vicinity of the proposed alteration, at staging areas, or within borrow areas. Coordination with the USFWS would be implemented if sensitive species are identified and a determination is made that construction-related noise could affect the sensitive species. Measures recommended by the USFWS to minimize noise impacts to sensitive species may then be required, and could include establishing an appropriate buffer area around the identified species' location, enforcing temporal restrictions on construction activities, and/or establishing access restrictions on construction personnel and vehicles.

Additionally, noise from the operation of construction equipment could create a disturbance that disrupts individuals engaged in recreational activities or those participating in day-to-day activities in noise-sensitive areas (hospitals, churches, residences). Construction-related noise could reduce the recreational enjoyment of individuals by diminishing the peaceful atmosphere that nature provides or by scaring fish and wildlife away from the area where the recreationalist might be fishing, hunting, or wildlife viewing. Construction-related noise also could irritate individuals in noise-sensitive areas by interfering with their resting, worshipping, and normal day-to-day activities. To reduce construction-related noise, Best Management Practices (BMPs) would be implemented. BMPs would include avoiding idling heavy construction equipment when not immediately needed to reduce noise during the daylight hours, and not operating heavy construction equipment during the hours between sunset and sunrise to limit noise when most individuals are resting. Upon completion of the construction, noise would cease and thus no long-term impacts are anticipated.

Overall, the construction-related noise from implementation of categorically permitted alterations would be considered minor and short-term. Construction-related activities would be conducted only during daylight hours when other noise-generating activities regularly occur (traffic, agricultural practices, and airplanes) and, thus, it would blend into other normal daytime sounds. Not idling construction equipment and implementing measures recommended by the USFWS would help minimize noise impacts on the surrounding environment. Fish and wildlife displaced from the area during construction could return to the area once construction is completed as no long-term noise is anticipated. Based on the above analysis, noise generated during the proposed categorically permitted Section 408 alterations would not be considered significant.

5.2.1.2 Air Quality

The operation of construction equipment would result in slight and temporary increases in particulate matter in the immediate area of where the construction equipment was operating. The increase in particulate matter would stem from equipment exhaust and dust generated from the movement of the construction equipment. Best Management Practices, such as avoiding idling construction equipment when not immediately needed and wetting or otherwise preparing the

construction site prior to and during construction activities, would be implemented to reduce dust and adverse air quality impacts. The construction-related increases in particulate matter would cease upon completion of the proposed alteration and no long-term adverse air quality impacts would occur. As such, with the implementation of BMPs, the minor input of particulate matter to the environment generated during construction of the categorically permitted Section 408 alterations would not be considered significant as no NAAQS for criteria pollutants, including lead, would be exceeded.

5.2.1.3 Water Quality

Construction of some categorically permitted alterations could impact water quality by increasing sediment loads in waterways adjacent to where construction is occurring. Increased sediment impacts water quality by increasing turbidity. Turbidity can reduce the aesthetic quality of a waterbody by making the water appear cloudy or murky and, thereby impact recreation. Turbidity can harm fish and other aquatic species by reducing food supplies, degrading spawning beds, and affecting gill function. Turbidity also can reduce sunlight penetration in the water, which reduces photosynthesis of aquatic plants, and in turn reduces the amount of dissolved oxygen in the aquatic environment. Sediment absorbs heat, so turbidity can raise the surface water temperature and impact species accustomed to colder water environments. Sediments can add nutrients such as nitrogen and phosphorus to the water and cause unexpected algae growth. When the algae die and decompose, dissolved oxygen is used, which adversely impacts dissolved oxygen uptake by aquatic species. Alterations that require earth-moving activities such as shaping and grading levee slopes and placing rock riprap are examples of how sediment can enter the waterway and increase turbidity. Eroding soil from bare construction sites is another way sediments could reach the adjacent waters. To minimize water quality impacts caused by increased sediments, BMPs such as using hay bales and silt fences would be employed around the construction site to minimize sediment movement from bare areas and during earth-moving operations. Following construction, all bare areas not otherwise hard-surfaced, would be planted with native vegetation to help hold sediments in place.

Gas, oil, and other fluids leaking from ill-maintained construction equipment are examples of pollutants that may enter the waterway and impact water quality. Construction fluids can enter the waterways in two ways: directly from dripping machinery or indirectly if spilled on the ground and carried to the waterway by overland storm flows. Petroleum products do not dissolve in water and can stick to everything from sediments to wildlife. Petroleum products are toxic to wildlife and plants and if introduced to the aquatic environment, can cause death. To minimize water quality impacts caused by gas, oil, and other fluids, BMPs such as ensuring construction equipment used on site is properly maintained to prevent leakage and is power-washed with at least 140 degree water at an approved wash site to remove grease, oil, and noxious plant and animal species and parts before entering the proposed construction site.

Additionally, the construction representative would ensure that he/she complies with requirements related to stormwater discharges from construction activities. This would include obtaining a National Pollution Discharge Elimination System (NPDES) permit if more than one

acre of ground would be disturbed as part of the overall project and preparing a stormwater pollution prevention plan. The construction representative also would be required to obtain a CWA Section 401 Water Quality Certification to ensure that no state water quality standards would be exceeded. These conditions, when implemented, would greatly limit the amount of sediment and pollutants that could enter area waterways. Activities that meet the conditions of the identified BMPs, requirements, and permits do not usually result in more than minor impacts to water quality because the potential contaminants are removed from the site prior to entrance, contained on site, and/or have minimal exposure to the waterway. As such, any minor input of pollutants would not significantly impact water quality or result in significant impacts to related uses such as aquatic life, recreation, agricultural water supply, aesthetics, public drinking water, or industrial water supply.

5.2.1.4 Wetlands

Construction of categorical permissions would employ horizontal directional drilling, jack and bore, or overhead utility construction as first choices when encountering wetlands. These actions would result in no impact to wetlands as the activities would avoid the wetlands by traversing under or over them. However, in the event that open cutting is used, construction equipment could inadvertently introduce fill into the wetland or impact the clay lining that retains water within the wetland during the construction activity. If fill is introduced into a wetland or the clay lining is impacted, the wetland's ability to function normally could be impacted. Thus, when open-cutting is proposed, the NWO would ensure that any impacts to the wetlands from construction activities are kept to a minimum and fall within the limits of a Nationwide or Regional General Permit. Since it has been determined that Nationwide and Regional General Permits have minimal individual and cumulative adverse effects, the proposed method would not result in significant adverse impacts to wetlands. If impacts do not fall within the scope of a Nationwide or Regional General Permit, then a supplemental or stand-alone NEPA document would be required.

In some instances, bore pits may need to be constructed off of USACE civil works boundaries in order to provide appropriate space to conduct the horizontal directional drilling. In these instances, an assessment of that area would occur to ensure that bore pit construction would have no adverse impacts to wetlands above that allowed under a Nationwide or Regional General Permit. If it can be demonstrated that no impacts to wetlands occur from the offsite bore pit construction, or the offsite bore pit construction would result in impacts that fall within the limits of a Nationwide or Regional General Permit, the proposed alteration would fall within the guidelines of a categorical permission and the impacts would not be considered significant.

5.2.1.5 Terrestrial Vegetation

The vegetation that covers civil works project areas consists of either non-native species (fescue, brome or rye grasses) that are regularly maintained (mowed) or native grass species that are left in a more natural state. On levees, which are designed to hold back water, non-native species (i.e., brome grass) that are regularly maintained are preferred in order to provide uniformity along the course of the levee to allow levee inspectors to easily determine if any deficiencies are

present. The regular maintenance of vegetation also keeps trees from growing on the levee so that their roots do not have an opportunity to destroy the integrity of the levee. Seepage berms, which are constructed landside of the levee, are not designed to hold back water but rather designed to provide weight behind the levee to help control under-seepage flows and keep those flows from 'boiling up' near the toe of the levee. Because seepage berms do not require the same level of inspection or performance as levees, native grasses are sometimes planted on these features and left in a natural state to provide habitat for wildlife.

During construction of categorically permitted Section 408 alterations, vegetation may need to be cleared or grubbed to provide a workable surface area for construction of the alteration; to provide staging areas for construction equipment, supplies, and/or vehicles; or to provide areas for bore pit construction when horizontal directional drilling is proposed. To ensure that alterations do not result in more than negligible to minor impacts on vegetation, any degradation to terrestrial vegetation shall be repaired to its pre-construction condition. Thus, following construction, any disturbed area not otherwise hard-surfaced would be replanted with vegetation that existed prior to the disturbance unless the disturbed area contained weedy species. In cases where weedy species were impacted, native vegetation or non-native grasses would be replanted depending upon the location of the disturbed area (i.e., on levees non-native grasses would be planted, on seepage berms native vegetation would be used). As such, no significant impacts to vegetation are anticipated.

When lands outside of the civil works boundaries are needed to construct categorically permitted alterations, they are considered 'linked' to the categorical permission. For linked areas (other than agricultural or urban areas) where vegetation, especially trees, would need to be cleared or grubbed, a pre-construction survey would need to be conducted prior to the disturbance. To determine the significance of the disturbance, results of the pre-construction survey would need to be shared with the USFWS to determine if listed species would be adversely affected. Depending on the outcome, a separate EA or EIS may need to be prepared.

5.2.1.6 Fish and Wildlife

The operation of heavy construction equipment and/or the presence of construction crews may adversely impact fish and wildlife. Adverse impacts to fish and wildlife could result from vibrations in the ground and water caused by the operation of the heavy equipment, noise from the operation of the heavy equipment, and/or visual disturbances cause by the motion of the heavy equipment and/or work crews. These impacts would be short-term and occur only during the construction period. Once construction was completed, ambient conditions would return, thus, these impacts are not considered significant.

Water quality impacts to fish and wildlife could result during construction. The potential for localized increases in turbidity from construction-related activities could interfere with the feeding, breeding, or sheltering activities of many species. However, because most rivers and streams in Iowa are located in areas that consist of easily erodible soils, short-term increases in turbidity occur naturally in these drainages during storm events. Because of this, most of the

native fish and wildlife species within the region are tolerant of short-term increases in turbidity; therefore, impacts are not considered significant.

Because USACE project areas have been heavily disturbed in the past from previous construction of the projects and continue to be disturbed on a continuous basis from operation and maintenance activities, they are not known to contain any unique habitat for wildlife that is not available in other nearby locations. It is expected that fish and wildlife that associate with the USACE civil works project areas would simply move to other habitat in nearby locations during construction activities. Thus, the construction-related impacts to fish and wildlife would be considered minor and not significant. Following construction, any disturbed areas not otherwise hard-surfaced (e.g., rip rapped banks), would be re-planted with vegetation that existed prior to the construction activity unless it was weeds or other noxious vegetation that was removed. In these instances, native vegetation or brome grasses would be planted depending on where the revegetation was to occur (i.e. seepage berms vs. levee banks, respectively). Thus, the impact to fish and wildlife from construction activities that temporarily impact vegetation would be considered short term and not significant.
In order to avoid impacts to fish and wildlife during borrow operations, any borrow material that may be needed for repairs would need to be obtained from commercial sources or agricultural lands. Similarly, any excess soil material removed from the proposed project site would need to be spoiled in commercial areas or in agricultural lands. Borrow/spoil operations that use commercial or agricultural sites have been determined to be non-significant in past environmental assessments conducted by the NWO. If, however, borrow material would be obtained from or spoiled at locations other than commercial sources or agricultural lands, a separate EA or EIS may need to be prepared.

5.2.1.7 Migratory Birds

Although the provisions of the Migratory Bird Treaty Act (MBTA) are applicable year-round, most migratory bird nesting activity within Iowa typically ranges between April 1 through July 15 for passerines (song birds) and February 1 to July 15 for raptors. During this period, trees and grasslands with nests containing eggs, young, or adult birds engaged in nesting activities are considered active and shall be avoided. It should be noted here that some migratory birds nest outside of the nesting periods identified above.

Construction of categorically permitted alterations has the potential to disturb nesting migratory birds. Noise and ground vibrations from construction equipment, visual movement of construction equipment and/or work crews, and/or the removal of trees or grasses containing active nests could interfere with migratory bird nesting.

To minimize impacts to nesting migratory birds, grass and tree clearing would be scheduled to occur within the winter months when migratory birds are not present. If clearing of grasses and trees is proposed to occur during the primary nesting season or at any other time that may result in the 'take' of nesting migratory birds, a qualified biologist would need to conduct a pre-construction field survey of the affected habitats to determine the presence or absence of nesting

migratory birds. If nesting migratory birds are present, no grass or tree clearing would occur until the young birds have left the nest. If no nesting migratory birds are present, the proposed clearing of grass and trees may proceed as planned. In the event that pre-construction surveys have been conducted, no migratory bird nesting activities have been discovered, construction has begun, and an occupied nest of a species protected by the MBTA is then observed, construction would be stopped and consultation with the USFWS initiated to ensure compliance with the MBTA. Construction would not re-start until consultation has been completed and the possibility of impacting nesting migratory birds has passed. With implementation of these minimization and avoidance measures, the potential adverse impacts associated with the categorically permitted alterations would not be considered significant on migratory birds.

5.2.1.8 Bald and Golden Eagles

The bald eagle has been de-listed from the Endangered Species Act, but continues to be protected under the Bald and Golden Eagle Protection Act (BGEPA), the MBTA, and the Lacey Act -16 U.S.C. § 701, May 25, 1900. The BGEPA prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." This definition also includes impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present; if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Because large trees that are used by eagles are not allowed to grow on USACE flood damage reduction projects, it is likely eagles would not be encountered on the proposed project sites. However, eagles in active nests in the "line-of-sight" of the proposed alteration could be disturbed by the noise and movement of construction equipment and construction personnel. Thus, eagle nest surveys may be required prior to the initiation of construction in order to determine eagle presence/absence, particularly if construction is slated to occur during January 1 to July 31.

To avoid construction-related disturbances to any nesting bald eagles and their young, USFWS guidelines would be followed. These guidelines include maintaining a buffer zone of at least 660 feet between the project and any active nest, or restricting construction to the August through late-December time frame when bald eagles are not nesting. The size and shape of effective buffers may vary depending on the topography and other ecological characteristics surrounding the nest site and would be established following any eagle survey if necessary. The variations in buffer zones serve to minimize visual and auditory impacts associated with human activities near nest sites.

All eagle nest surveys shall be conducted by a qualified biologist if the proposed alterations are to take place within the active nesting season of bald eagles. A stand-alone NEPA document may

need to be prepared if nesting eagles are identified in the proposed project area and the proposed minimization measures would prove to be ineffective. However, if no eagles are discovered, the alterations may proceed. With implementation of the eagle minimization and avoidance measures, the adverse construction-related impacts associated with the categorically permitted alterations would not be considered significant on nesting eagles.

5.2.1.9 Threatened and Endangered Species

With the majority of the civil works projects being located in areas where human-induced disturbances occur on a continual basis, the likelihood of encountering an endangered or threatened species is minor. However, for the civil works projects located in more remote areas that experience less human-induced disturbances, the likelihood of encountering endangered or threatened species increases.

Impacts to endangered and threatened species in the more remote areas would generally result from construction-related noise and human presence during construction. Noise and human presence could cause disruptions to the normal behavioral activities of the endangered or threatened species. Causing species to leave their nesting sites, interrupting their feeding activities, and/or causing species to avoid the area are some examples of disrupting normal behavioral activities. When an effect to listed species is anticipated, an effect determination must be made and coordination with the USFWS conducted. As such, this Programmatic EA also acts as a Biological Assessment for Endangered Species Act compliance.

5.2.1.9.1 **May Affect, but Not Likely to Adversely Affect Determinations**

For species with a "may affect, but not likely to adversely affect" determination, the USACE would consult with the USFWS on a case-by-case basis prior to construction of any categorically permitted alteration to ensure the effect determinations made here remain valid. Consultation with the USFWS would be triggered during review of individual categorically permitted alterations as noted in the attached Record of Environmental Consideration (Appendix B). Consultation with the USFWS would ensure compliance with the Endangered Species Act.

Western prairie fringed orchids are found in unbroken tall grass prairies, wet prairies and sedge meadows.

Prairie bush clover are found in dry to mesic (containing a moderate amount of moisture) prairies with gravelly soils.

In some civil works project locations, native habitat has been planted or naturally occurs nearby. In these cases, construction-related activities associated with clearing and grubbing of vegetation has the potential to take these species. The following conservation measure is proposed to avoid potential adverse effects.

Western Prairie Fringed Orchid and Prairie Bush Clover Conservation Measure: To avoid potential adverse effects to the western fringed prairie orchid and the prairie bush clover, pre-construction surveys for these species would be conducted to determine if they are present or absent at the proposed site. If the species are identified as occurring on site, no construction would take place until coordination with the USFWS has been completed. If surveys reveal that these species are not located on site, the project could proceed and survey results would be forwarded to the USFWS for informational purposes.

Interior least terns may be found feeding or nesting on barren to sparsely vegetated sandbars along rivers, at sand and gravel pits, or on lake shorelines adjacent to the civil works projects described in this Programmatic EA. Nesting for this species occurs from late April through August. If categorically permitted alterations are proposed to occur when this species is in close proximity to the proposed project site (close proximity is considered 2,640 feet as stated in the *2011 USACE Emergent Sandbar Habitat Programmatic Environmental Impact Statement*), construction-related noise and human presence could interfere with the feeding, breeding, or sheltering of this species. Thus, the categorically permitted alterations may affect interior least terns. The following conservation measure is proposed to avoid potential adverse effects.
Interior Least Tern Conservation Measure: Should construction of any categorically permitted alteration be proposed during the April through August time frame and in counties containing this species, a pre-construction survey would be conducted. If the species is identified feeding or initiating nesting activities, no work would be conducted until the species has vacated the area. If no interior least terns are spotted, the proposed action may proceed as planned.

Piping plovers may be found feeding or nesting near wetlands, along lakeshores, or along sandbars adjacent to civil works projects. Nesting for this species occurs from late April through August. If categorically permitted alterations are proposed to occur at a project site when this species is in close proximity (close proximity is considered ½ mile), construction-related noise and human presence may interfere with the feeding, breeding, or sheltering of this species. Thus, the categorically permitted alterations may affect piping plover. The following conservation measure is proposed to minimize potential adverse effects.

Piping Plover Conservation Measure: Should any categorically permitted alteration be proposed during the April through August time frame in counties containing this species, a pre-construction survey would be conducted. If the species is identified and is feeding or initiating nesting activities, no work would be conducted until the piping plover has vacated the area. If no piping plover are spotted, the proposed project may continue as planned.

Northern long-eared bats and **Indiana bats** are found behind loose pieces of bark, within cavities and crevices of live and dead trees, and occasionally in structures like barns during the summer months. In the winter months, these species hibernate in caves and in mines. In the spring and autumn months, these species migrate between their summer and winter homes. Because these species do not seek a specific tree species or forest community to roost (rather selecting trees with loose or exfoliating bark), these species may be found within forested

communities adjacent to the civil works projects described in this Programmatic EA but not within the USACE project ROW since trees are regularly removed as a maintenance requirement.

In some cases, clearing of the trees adjacent to the USACE ROW may be required to establish staging areas or to construct bore pits for horizontal directional drilling activities. In these instances, the areas outside of the USACE ROW would be considered "linked" to the categorically permitted alteration, and any potential adverse impacts occurring in those linked areas would be considered within the scope of the alteration. Clearing trees in linked areas may affect these species if they happen to be roosting in the trees when the trees are removed. Additionally, the removal of trees may affect the bats by incrementally removing ideal roosting habitat. To ensure adverse effects to bats that occur in linked areas are minimized, the following conservation measures would be required.

Northern Long-eared Bat and Indiana Bat Conservation Measures: All tree clearing needed as part of any categorically permitted alteration in linked areas shall be conducted within the winter months when the bats are in hibernation. Additionally, the proposed removal of trees would be coordinated with the USFWS to determine if the amount of trees proposed for removal or the location of trees proposed for removal could rise to a level of an adverse effect.

Pallid sturgeon may be found feeding, breeding, or sheltering in deep and shallow waters of the main channel and tributaries of the Missouri River. If categorically permitted alterations are proposed to occur at the project when this species is present, construction-related noise, vibrations in the water, and human presence could interfere with the feeding, breeding, or sheltering of this species and cause the pallid sturgeon to leave the area of disturbance. Thus, the categorically permitted alterations may affect this species. However, once construction has ceased, it is believed that pallid sturgeon would return to the area to again carry on with its normal activities. The following conservation measures are proposed to minimize potential adverse effects.

Pallid Sturgeon Conservation Measures: Best management practices would be implemented to reduce overland flows, erosion, and sediment from impacting water quality in the immediate area of the alteration. Additionally, in-water construction would not occur during the species' spawning migrations (April – June) in areas where this species is known to occur.

5.2.1.9.2 **May Adversely Modify or Destroy Designated Critical Habitat.**

Designated critical habitat is not present at any of the civil works projects described in this Programmatic EA for any of the federally-listed threatened or endangered species. Since the existing projects are within areas that were previously disturbed (construction) and are now regularly disturbed (operation and maintenance activities), no future potential is likely to designate critical habitat on USACE civil works project lands.

However, there is the potential to inadvertently modify or destroy designated critical habitat that occurs on lands located adjacent to USACE lands if the areas designated as critical habitat receive stormwater runoff containing sediments and/or pollutants from construction activities or staged materials. Thus, BMPs that limit stormwater runoff (e.g., hay bales and silt fences) would be implanted to avoid adverse modification or destruction of any adjacent sensitive habitats. It should be noted that direct modification or destruction of critical habitat on adjacent lands would not be authorized under this Programmatic EA and would be subject to an additional assessment under NEPA.

5.2.1.10 Cultural Resources

The Omaha District's Cultural Resources Specialist (pers. comm., August 26, 2015) stated that provided the alterations are confined to the footprint of the previous construction (the existing civil works project), the alteration would have "No Potential to Affect Historic Properties."

The original levees and their component structures are in some cases over 50 years old and hence may be evaluated for eligibility to be listed on the National Register of Historic Places (NRHP). However, due to substantial alterations, repairs and replacements they typically do not *possess integrity* and do not *embody the distinctive characteristics* under Criterion C of the National Register Criteria for Evaluation.

In the event of an unanticipated discovery of cultural resources, the work shall be halted immediately and a district archeologist shall be notified. The work shall not be continued until the area is inspected by a staff archeologist. If he or she determines that the discovery requires further consultation, the Iowa State Historic Preservation Office will be notified.

If the categorically permitted alteration requires activities to occur outside of the footprint of the previous construction (staging areas, bore pits, borrow sites, etc.) additional site assessments for cultural resources would need to be made. Note that in these cases, a separate or tiered NEPA document also may need to be prepared.

5.2.1.11 Floodplains

Construction of the categorical permissions listed in this Programmatic EA would not result in additional development in the floodplain or encourage additional occupancy and/or modification of the floodplain on the lands or real property interests of USACE projects. They would not result in any increases in water elevations during flood events. Requirements of Executive Order 11988 – Floodplain Management, would be followed. If these requirements are not met, then the request to alter a USACE project would not be allowed under this programmatic environmental assessment. If greater than minor impacts to floodplain management were identified during the preparation of any tiered environmental assessment, a separate stand-alone NEPA document would need to be prepared.

5.2.2 Categorical Permissions that have No to Negligible Environmental Impacts

During review of the list of Section 408 alterations that qualify for categorical permissions and taking into consideration the above impacts that could occur during construction of the alterations, USACE noted that the proposed alterations could be combined into groups of alterations that would have similar impacts on the environment.

For example, the proposed categorical permissions listed below would have no impact on air quality, water quality, wetlands, threatened and endangered species, fish, or cultural resources. The below-listed categorical permissions would result in negligible impacts to terrestrial habitat because the disturbed area would be returned to pre-construction condition following the alteration or would have negligible impact to wildlife as the species may be startled during construction or human presence and avoid the area until the disturbance has ended. These conclusions were made based on the fact that the alteration would require a very small project footprint, only minimal human presence, and a slight generation of noise in the area during the alteration. These alterations include (and are numbered according to the list generated under Alternative 2 above):

3) Abandonment of Drainage Structures
5) Bike Trail on Top of Levee (including rest stations)
7) Abandonment of Relief Wells (Filled in-place)
9) Repair of Pump Station
11) Geotechnical Explorations
14) Fences
15) Installation of Utility Poles
16) Removal of Existing Utility Poles
22) Placement of Monitoring Monuments

5.2.3 Categorical Permissions that have Minor Environmental Impacts to Water and Terrestrial Resources

The next set of alterations would result in minor disturbances to water or channel banks. The impacts to water resources would be minimized with Best Management Practices and would not exceed the limits of a Nationwide or Regional General Permit. The alterations identified below would have minor and short-term impacts on air quality (from the operation of construction equipment), water quality (slight increases in turbidity within the immediate area of construction), wetlands (within Nationwide or Regional General Permit limits), threatened and endangered species primarily to pallid sturgeon and Topeka shiner due to turbidity increases (beneficial effect) and construction-related vibrations causing the fish to temporarily leave the area (minor affect), fish (similar effects as with pallid sturgeon), wildlife (causing the species to temporarily leave the area), terrestrial habitat (minor disturbances during construction that would be remedied by returning the area to pre-construction conditions), and noise (slight and temporary increases from construction operations). As with all categorical permissions, the

chances of encountering a cultural resource is extremely low due to the fact that the alteration would occur on previously disturbed ground. However, should a cultural resource be encountered during construction, all work would cease until the area was inspected by a cultural resource specialist and a right to proceed was granted. These alterations include (and are numbered according to the list generated under Alternative 2 above):

8) Installation of Pump Station
12) Riprap Placement
17) Highway/Street Bridge Replacement
20) Temporary Channel Crossing

5.2.4 Categorical Permissions that have Minor Environmental Impacts to Terrestrial Resources Only

The remaining Section 408 alterations would result in minor impacts to air quality (from the operation of construction equipment), wetlands (within Nationwide or Regional General Permit limits), threatened and endangered species [terrestrial species from construction-related noise causing the species to temporarily leave the area (minor affect)], wildlife (causing the species to temporarily leave the area, any tree removal would be coordinated to occur outside of migratory bird nest season and bat roosting), terrestrial habitat (minor disturbances during construction that would be remedied by returning the area to pre-construction conditions), and noise (slight and temporary increases from construction operations). As with all Section 408 alterations, the chances of encountering a cultural resource is extremely low due to the fact that the alteration would occur on previously disturbed ground. However, should a cultural resource be encountered during construction, all work would cease until the area was inspected by a cultural resource specialist and a right to proceed was granted. These alterations include (and are numbered according to the list generated under Alternative 2 above):

1) Utilities under the Levee
2) Replacement of Drainage Structures
4) Removal of Drainage Structures
6) Installation of Relief Wells
10) Modification of Existing Drainage Structures
13) Staging Areas (materials and equipment)
18) Pipes Up and Over Levee (sanitary, water, drainage)
19) Street Paving/Repair
21) Pipe or Conduit Abandonment

6. Cumulative Impacts

The combined incremental effects of human activity are referred to as cumulative impacts (40CFR 1508.7). While these incremental effects may be insignificant on their own,

accumulated over time and from various sources, they can result in serious degradation to the environment. The cumulative impact analysis must consider past, present, and reasonably foreseeable actions in the study area. The analysis also must include consideration of actions outside of the Corps, to include other state and federal agencies. As required by the National Environmental Policy Act, the Corps has prepared the following assessment of cumulative impacts related to the categorical permissions being considered in this Programmatic EA.

Past, Present, and Reasonably Foreseeable Projects

Past actions included the construction of the civil works project sites. In addition, many residential subdivisions and commercial properties have been constructed on the landside of the civil works sites. Agricultural land has been developed on both sides at many of the civil works project sites. The construction of all these facilities has greatly altered the historic aquatic and terrestrial environment.

Present actions at the civil works project sites include the current operation and maintenance of the project by the USACE and non-federal sponsors. The entire civil works project sites are regularly maintained, which limits the establishment of terrestrial and aquatic habitat from forming, and also results in an on-going human presence. In addition, portions of the projects are regularly used for recreation, which results in steady human disturbances. Alterations to civil works projects are being conducted in multiple states across the entire District. Alterations made in one state could affect environmental resources located in another state if the impact in the first state causes species to permanently relocate to other areas. These activities have an incremental and continuing adverse impact on the aquatic and terrestrial environment.

The anticipated alterations of civil works projects would continue to have an incremental adverse impact on the environment although it is believed the impacts would not be significant over time since the alterations would occur to existing constructed facilities and fish and wildlife associated with these projects could return to the area when construction has completed. Other future actions associated with the civil works project sites could include the potential for construction of residential and commercial developments, and transportation improvements since the areas on the landside of the USACE civil works project would be better protected from floods. This would most likely come at the expense of agricultural lands and would increase human presence and their associated disturbances. These impacts, which are out of the scope of this Programmatic EA, could have more than a minor cumulative adverse impact on the environment if not properly mitigated.

7. Compliance with Environmental Statutes

Bald and Golden Eagle Protection Act, 16 U.S.C. Sec. 668, 668 note, 669a-668d. In compliance. This Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions for the scientific or exhibition purposes, for religious purposes of Indian Tribes, or for the protection of wildlife, agriculture or preservation of the species. The proposed

categorical permitted alterations would have no adverse effects on bald eagles as trees suitable for nesting do not occur on the civil works project sites described in this Programmatic EA. For linked projects, no clearing or grubbing activities would be allowed within the February 1 through July 15 timeframe if an active nest is in line-of-sight of the clearing. In addition, a survey would be conducted not more than five days prior to the commencement of clearing and grubbing operations to ensure no active nests are within 660 feet of the proposed clearing. If an active nest is found within the 660-foot area, no clearing would occur until the USFWS and the Iowa Department of Natural Resources (IDNR) have been notified and information on how to proceed has been obtained.

Clean Air Act, as amended, 42 U.S.C. 185711-7. et seq. In compliance. Air quality is not expected to be significantly impacted to any measurable degree by the proposed action.

Clean Water Act (CWA), as amended. (Federal Water Pollution Control Act) 33 U.S.C. 1251. et seq. In compliance. Regulatory requirements for the placement of dredged or fill material into waters of the United States is mandated by the CWA under Section 404. The Corps authorizes this permit. Categorically permitted alterations must not exceed the limits of a Nationwide or Regional General Permit. Since it has been determined that Nationwide and Regional General Permits have minimal individual and cumulative adverse effects, the proposed categorically permitted alterations would not result in significant adverse impacts to wetlands.

The Omaha District Regulatory Office coordinated with the Iowa Department of Environmental Quality during preparation of the Nationwide and Regional General Permits to ensure compliance with Section 401 of the CWA. Results of that coordination concluded with issuance of a "blanket" Water Quality Certification that was "tied to" the Nationwide and Regional General Permits.

Comprehensive Environmental Response Compensation and Liability Act (CERCLA). In compliance. Typically CERCLA is triggered by (1) the release or substantial threat of a release of a hazardous substance into the environment; or (2) the release or substantial threat of a release of any pollutant or contaminant into the environment which presents an imminent threat to the public health and welfare. To the extent such knowledge is available, 40 CFR Part 373 requires notification of CERCLA hazardous substances in a land transfer. Areas containing hazardous waste would always be avoided and are not subject to this Programmatic EA.

Endangered Species Act, as amended, 16 U.S.C. 1531, et seq. In compliance. The USFWS was contacted via email on September 1, 2015 during preparation of the DRAFT PEA. An informal discussion between the Corps and the USFWS was conducted via phone and informal comments were provided by the USFWS. Those comments were incorporated into the DRAFT PEA. During the phone conversation, the Corps informed the USFWS that they also would have an opportunity to provide comments during the preparation of all tiered NEPA documents. On July 6, 2016, a second email was sent to the USFWS to inform them that the final DRAFT EA was

available for agency and public comment. The Corps requested the USFWS review the DRAFT document and provide any additional comments. No additional comments were received.

Environmental Justice (E.O. 12898). In compliance. Federal agencies shall make achieving environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. The categorically permitted alterations do not disproportionately impact minority or low-income populations as all races and income levels receive the same benefits from the proposed actions.

Farmland Protection Policy Act (Subtitle I of Title XV of the Agriculture and Food Act of 1981), effective August 6, 1984. In compliance. Compliance with this act also satisfies the requirements set forth in Council on Environmental Quality (CEQ) Memorandum of August 11, 1980, *Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA*. No prime farmland would be converted to a different use as a result of this proposed action.

Federal Water Project Recreation Act, as amended, 16 U.S.C. 460-1(12), et seq. In compliance. Categorically permitted alterations may temporarily impact recreational use until such time as construction was complete. In the long-term, no changed recreational use of the civil works projects would occur.

Fish and Wildlife Coordination Act. 16 U.S.C. 661 et seq. In compliance. As stated above, the USFWS was contacted on multiple occasions and informal comments provided by the USFWS were added to the DRAFT PEA during its preparation.

Floodplain Management (E.O. 11988). In compliance. The categorically permitted alterations would occur on previously constructed civil works projects and no betterments would be authorized. No change in area floodplains would result.

Migratory Bird Treaty Act of 1918 as amended, 16 U.S.C. 703-711, et seq. In compliance. The MBTA is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over utilization. Executive Order 13186 (2001) directs executive agencies to take certain actions to implement the act. The Corps will avoid impacts to migratory birds, and their nests, during categorically permitted alterations by ensuring the removal of any trees or grasses associated with the alteration is conducted within the winter months before the arrival of migrating birds.

National Environmental Policy Act (NEPA), as amended, 42 U.S.C. 4321, et seq. In compliance. This programmatic environmental assessment has been prepared for the proposed action and satisfies the NEPA requirement. An Environmental Impact Statement is not required.

National Historic Preservation Act, as amended. 16 U.S.C. 470a, et seq. In compliance. In a personal communication (August 26, 2015) with the Omaha District's cultural resources staff, the Planning Section was informed that provided the categorically permitted alterations are confined to the footprint of the previously cleared Area of Potential Effect, the categorically permitted alterations would have No Potential to Affect Historic Properties. In a second communication with the cultural resources staff, dated February 18, 2016, the Planning Section was informed that levees and their component structures that are 50 years or older are not eligible for listing on the National Register of Historic Places because the continual alterations, repairs, and replacements that occur to these structures reduce the quality of their significance in American history, architecture, archeology, engineering, and culture.

There is always potential for an unanticipated discovery of cultural resources during construction activities. In the event that historic resources are uncovered, work would be halted immediately and a District archeologist would be notified. The work will not be restarted until the area has been inspected by a District archeologist and an order to proceed is given. If the District archeologist determines that the resources require further consultation, he or she will notify the Iowa State Historic Preservation Office.

Noise Control Act of 1972, 42 U.S.C. 4901 et seq. In compliance. While there will be a minor noise disturbance from construction during the categorically permitted alterations, there will be no long-term noise disturbances associated with this alterations.

Protection of Wetlands (E.O.11990). In compliance. The proposed categorically permitted alterations must fall within the limits of a Nationwide or Regional General Permit. Since it has been determined that Nationwide and Regional General Permits have minimal individual and cumulative adverse effects, no significant impacts to wetlands or waters of the U.S. are anticipated. Rivers and Harbors Act, 33 U.S.C. 401, et seq. In compliance. A Section 10 permit is not required for Corps projects.

Watershed Protection and Flood Prevention Act, 16 U.S.C. 1101, et seq. In compliance. The contractor is required to prepare an erosion and sedimentation control plan (Plan) prior to the start of construction. Best Management Practices to minimize erosion and sedimentation need to be identified in the Plan and then implemented.

Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq. This Act preserves the outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. No impacts to wild and scenic rivers are anticipated as no civil works projects are located on wild and scenic designated segments of Iowa rivers.

8. Public Involvement and Agency Coordination

8.1 Public Involvement

In accordance with NEPA, a 30-day review period of this draft Programmatic EA was provided via a Notice of Availability on the Omaha Districts website at:

http://www.nwo.usace.army.mil/Missions/CivilWorks/Planning/PlanningProjects.aspx

Public comments received included: No public comments were received.

8.2 Agency Coordination

The following agencies were contacted via email to solicit comment and input on the proposed Programmatic EA. Please see Appendix A.

- U.S. Fish and Wildlife Service
- Iowa Department of Natural Resources
- NWO Cultural Resources staff
- U.S. National Park Service
- U.S. Environmental Protection Agency

Comments received included:

U.S. Fish and Wildlife Service: The USFWS was contacted via email on September 1, 2015 during preparation of the DRAFT PEA. An informal discussion between the Corps and the USFWS was conducted via phone and informal comments were provided by the USFWS. Those comments were incorporated into the DRAFT PEA. During the phone conversation, the Corps informed the USFWS that they also would have an opportunity to provide comments during the preparation of all tiered NEPA documents. On July 6, 2016, a second email was sent to the USFWS to inform them that the final DRAFT EA was available for agency and public comment. The Corps requested the USFWS review the DRAFT document and provide any additional comments. No additional comments were received.

Iowa Department of Natural Resources: The Iowa Department of Natural Resources did not respond.

Cultural Resources: In a personal communication (August 26, 2015) with the Omaha District's cultural resources staff, the Planning Section was informed that provided the categorically permitted alterations are confined to the footprint of the previously cleared Area of Potential Effect, the categorically permitted alterations would have No Potential to Affect Historic Properties. In a second communication with the cultural resources staff, dated February 18, 2016, the Planning Section was informed that levees and their component structures that are 50

years or older are not eligible for listing on the National Register of Historic Places because the continual alterations, repairs, and replacements that occur to these structures reduce the quality of their significance in American history, architecture, archeology, engineering, and culture.

U.S. National Park Service: The U.S. National Park Service did not respond.

U.S. Environmental Protection Agency: In a July 26, 2016 letter, the U.S. Environmental Protection Agency stated that they had concerns with categorical permissions numbers 1 and 12. Specifically, for categorical permission number 1, it was stated that gas pipelines (and other hazardous liquid pipelines) should be excluded from the list because these types of pipelines are more likely to require special design considerations (e.g., valve placement and enhanced erosion protection) to protect water resources. **Response:** Noting that gas lines would require a more detailed analysis to ensure they have no significant impacts on the environment, they have been removed from the list of categorical permissions.

For categorical permission number 12, it was stated that riprap placement should be limited to repairing and replacing existing riprap, or that a condition be included that requires new riprap placement be limited in scope to that authorized within the limits of a Nationwide Permit. **Response:** As stated in the environmental conditions on page 7 of this EA, proposed alterations requiring a Section 404 Permit must be within the limits of an applicable Nationwide or Regional General Permit.

Note: While the comments received from the EPA addressed civil works projects in the states of Colorado, Montana, North Dakota, South Dakota, and Wyoming, the comments were of a general nature such that they were considered and included in this PEA as well.

9. Preparer

This Programmatic EA and the associated FONSI were prepared by Mr. Matthew D. Vandenberg (Environmental Resource Specialist). The address of the preparer is: U.S. Army Corps of Engineers, Omaha District; PM-AC, 1616 Capitol Avenue, Omaha, Nebraska 68102.

Prepared By: _____ Date: Jan 9, 2017
Matthew D. Vandenberg
Environmental Resources Specialist

Approved By: _____ Date: 1/10/17
Eric Laux
Chief, Environmental Resources and Missouri River Recovery Program Plan Formulation Section

Appendix A
Agency Coordination

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

CATEGORICAL PERMISSIONS
SECTION 408 ALTERATIONS TO EXISTING
U.S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROJECT
33 U.S.C. SECTION 408
IOWA

January 2017

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

JUL 2 6 2016

Ref: 8EPR-N

RECEIVED 29 Jul 16

U.S. Army Corps of Engineers, Omaha District
CENWO-PM-AC
Attn: Section 408 EA
1616 Capitol Avenue
Omaha, NE 68102-4901

cenwo-planning@usace.army.mil

Re: Programmatic Environmental Assessment: Categorical Permissions Section 408 Alterations to Existing Civil Works Projects

Dear Sir or Madam:

We have reviewed the draft Programmatic Environmental Assessments and Finding of No Significant Impacts: Categorical Permissions, Section 408 Alterations to Existing U.S. Army Corps of Engineers Civil Works Projects for the states of Colorado, Montana, North and South Dakota, and Wyoming, dated June 2016. We have two recommendations to reduce potential environmental impacts for projects that may be authorized under the categorical permissions. Our comments are provided for your consideration pursuant to our responsibilities and authority under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

The environmental assessments analyze the environmental effects of projects utilizing the proposed list of categorical permissions (Alternatives 2) and the no action alternative. The proposed list of categorical permissions is generally activities that will have minor environmental impacts. However, categorical permission numbers 1 and 12 should be modified to further limit the use of the permissions to construction activities that routinely have only minor impacts.

Permission 1) Placing Electrical, Fiber Optic (Internet, Phone, Cable), Gas, Water, Sanitary, or Drainage Pipe Utilities under a Levee

We recommend that the permission 1 be changed to:

- Exclude gasoline and other hazardous liquid pipelines. These types of pipelines are more likely to need project specific environmental analyses to protect water resources and special design considerations such as valve placement and enhanced erosion protection.

- Clarify the term "gas" pipe utilities. Based on the context of the permission it appears that gas means "natural gas" pipelines such as local gathering and distribution lines. We recommend that the permission also exclude natural gas transmission lines, which are larger and are at higher pressures.

Permission 12) Placing New Riprap

- New riprap is placed on the channel slope, levee embankment, around bridge piers and outfall structures for erosion control.

We recommend that permission 12 be limited to repairing and replacing riprap. Another possibility would be to limit new areas of riprap, such as the 200 foot limitation in the Section 404 of the Clean Water Act Nationwide Permit (NWP) Number 3, Maintenance. In addition the NWP specifies "The placement of new or additional riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer."

Thank you for the opportunity to provide comments on the draft Programmatic Environmental Assessments for Categorical Permissions for Section 408 Alterations to Civil Works Projects. If further explanation of our comments is desired, please contact me at (303) 312-6704, or your staff may contact Dana Allen at (303) 312-6879 or by email at allen.dana@epa.gov.

Sincerely,

Philip S. Strobel
Director, NEPA Compliance and Review Program
Office of Ecosystems Protection and Remediation

From: Vandenberg, Matthew D NWO
To: "david_hurd@nps.gov"
Subject: Review and Comment on Environmental Assessments - Intermountain Region (UNCLASSIFIED)
Date: Friday, July 08, 2016 12:44:00 PM
CLASSIFICATION: UNCLASSIFIED

Mr. Hurd:

The Corps of Engineers has prepared several final draft programmatic environmental assessments (EA) for developing categorical permissions under Title 33, U.S. Code 408 of the Rivers and Harbors Act of 1899 (Section 408) and those are currently available for review and input.

The draft programmatic EAs evaluate the environmental impacts of allowing certain routine alterations to be permitted at federally-constructed civil works projects within the Omaha District's civil works boundary (Montana, North Dakota, South Dakota, Wyoming, Colorado, Nebraska and Iowa).

Please navigate to http://www.nwo.usace.army.mil/Media/News-Releases/Article/821771/public-input-sought-onproposed-list-for-expediting-routine-alterations-at-dist/ and scroll through the list to find the Draft programmatic EAs specific to your areas of concern.

Comments must be postmarked or received no later than August 1, 2016.

Project Contact: Matt Vandenberg - - matthew.d.vandenberg@usace.army.mil

Thank you for your attention to this request for input.
Matthew D. Vandenberg
Environmental Resources Specialist
Omaha District, US Army Corps of Engineers
1616 Capitol Avenue
Omaha, Nebraska 68102
402/995-2694
CLASSIFICATION: UNCLASSIFIED

From: Vandenberg, Matthew D NWO
To: "shepard.larry@epamail.epa.gov"; "nicholas_chevance@nps.gov"; kraig_mcpeek@fws.gov; "Hildreth, Pete [DNR]"
Subject: Agency input sought on Environmental Assessment for routine alterations at District civil works projects (Section 408) (UNCLASSIFIED)
Date: Wednesday, July 06, 2016 9:55:00 AM

CLASSIFICATION: UNCLASSIFIED

Team:

A final draft programmatic environmental assessment (EA) for developing categorical permissions under Title 33, U.S. Code 408 of the Rivers and Harbors Act of 1899 (Section 408) is currently available for review and input. The draft programmatic EA evaluates the environmental impacts of allowing certain routine alterations to be permitted at federally-constructed civil works projects within the Omaha District's civil works boundary (Montana, North Dakota, South Dakota, Wyoming, Colorado, Nebraska and Iowa).

Please navigate to http://www.nwo.usace.army.mil/Media/News-Releases/Article/821771/public-input-sought-onproposed-list-for-expediting-routine-alterations-at-dist/ and scroll through the list to find the Draft programmatic EA specific to your state of concern.

Comments must be postmarked or received no later than August 1, 2016.

Project Contact: Matt Vandenberg - - matthew.d.vandenberg@usace.army.mil

Thank you for your attention to this request for input.

Matthew D. Vandenberg
Environmental Resources Specialist
Omaha District, US Army Corps of Engineers
1616 Capitol Avenue
Omaha, Nebraska 68102
402/995-2694
CLASSIFICATION: UNCLASSIFIED

From: Vandenberg, Matthew D NWO
To: "Ledwin, Jane"; "Bruce, Angi [DNR]"; "Chafa, Doug [DNR]"
Subject: Programmatic Environmental Assessment and ESA Affect Determinations
Date: Tuesday, September 01, 2015 12:41:00 PM

Team:

The USACE is working on a Programmatic Environmental Assessment (PEA) for Section 408 Alterations that have been deemed Categorical Permissions.

Section 408 Alterations are any modifications to a Public Works project (in this case levees) no matter how big or small. All alterations to Public Works projects require permission from the USACE to ensure the Alteration does not AFFECT THE FUNCTION or ALTER THE PURPOSE of the Public Works project.

Categorical Permissions are those alterations deemed "minor" and would have negligible to minor impacts to the environment with implementation of minimization measures (page 5 - 7 of the DRAFT PEA provides a list of Categorical Permissions along with certain conditions that must be implemented to ensure the alteration remains within the Categorically Permitted Alteration category).

Pages 11-12 of the PEA provides a list of T&E Species that MAY BE associated with the Public Works projects. Pages 14 to 28 provides a list of the Public Works projects in Iowa along with a description of existing conditions including T&E species found in the county where the Public Works project is located.

Pages 29 to 32 includes my attempt to group Section 408 Alterations that would result in similar impacts (No to negligible impacts, impacts to water and terrestrial resources, and impacts solely to terrestrial resources).

Pages 36 to 38 is the section of the PEA that acts as the Biological Assessment and makes affect determinations. Included with the determinations are measures that must be implemented along with the proposed alteration to reduce potential affects to T&E species.

The USACE requests your concurrence with those determinations.

Additionally, for determinations of "may affect, but not likely to adversely affect" the PEA states that the USACE would coordinate with the USFWS. Do you wish the USACE to do this coordination on a project-by-project basis or with implementation of the minimization measures identified in the PEA, are you satisfied that the determinations and minimization measures are adequate.

IOWA DEPARTMENT OF NATURAL RESOURCES

Some of the alterations may include minor in-water work. I understand that if waters of the state of Iowa are affected, a Sovereign Lands Permit would be required. Is it possible to obtain a programmatic-type Sovereign Lands Permit to cover the minor impacts to waters of Iowa from implementation of the categorically permitted alterations.

I understand that this is a lot to take in so if you have any comments at all, please feel free to contact me at any time.

The hope is that this PEA can be completed by October, which would be a quick turn-around, but the USACE in getting inundated with requests for these "minor" alterations.

Thanks for your assistance with this project.

Matthew D. Vandenberg
Environmental Resources Specialist
Omaha District, US Army Corps of Engineers
1616 Capitol Avenue
Omaha, Nebraska 68102
402/995-2694

From: Vandenberg, Matthew D NWO
To: Barnum, Sandra V NWO; McCullor, Matthew
Subject: Section 408 Programmatic Environmental Assessment
Date: Friday, August 28, 2015 10:16:00 AM

Sandy/Matt:

Planning is working on a Programmatic Environmental Assessment (PEA) for Section 408 Alterations that have been deemed Categorical Permissions.

Section 408 Alterations are any modifications to a Public Works project (in this case levees) no matter how big or small. All alterations require permission from the USACE to ensure the Alteration does not AFFECT THE FUNCTION or ALTER THE PURPOSE of the Public Works project.

Categorical Permissions are those alterations deemed "minor" and would have negligible to minor impacts to the environment with implementation of minimization measures (page 5 - 7 of the DRAFT PEA provides a list of Categorical Permissions along with conditions that must be implemented to ensure the alteration remains within the Categorically Permitted Alteration category).

Pages 13 to 33 provides a list of the Public Works projects in Nebraska along with a description of existing conditions.

The alterations to Public Works projects would, for the most part, occur within the existing footprint of the Public Work project so it is believed that no cultural resources would be encountered. However, we will note that should a cultural resource be encountered, work would stop until a District archeologist surveys the area and coordinates with SHPO as required.

Some alterations may require disturbances off of the Public Works project boundaries. In these instances, coordination with cultural resources staff will occur on a case-by-case basis.

Please review the attached DRAFT PEA and provide comments on cultural resources as necessary

Thanks for your assistance with this project.

Matthew D. Vandenberg
Environmental Resources Specialist
Omaha District, US Army Corps of Engineers
1616 Capitol Avenue
Omaha, Nebraska 68102
402/995-2694

Appendix B

Example of the Tiered NEPA Document to be used for Categorically Permitted Alterations

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

CATEGORICAL PERMISSIONS
SECTION 408 ALTERATIONS TO EXISTING
U.S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROJECT
33 U.S.C. SECTION 408
IOWA

January 2017

Tiered NEPA Document for Categorically Permitted Alterations to Existing U.S. Army Corps of Engineer Civil Works Projects

	Proposed Categorically Permitted Alterations (Check all that apply)
☐	Utilities under the levee: • Open cut: Within the project Right of Way (ROW) levee embankment material is removed and then replaced according to design criteria for placement of the utility. • Horizontal Directional Drill: A pit is excavated on either side of the levee, usually outside the project ROW, and then pressure and drilling fluids are used to place the utility under levee embankment/channel section. • Jack and Bore: A pit is excavated on either side of the levee, usually outside the project ROW (in agricultural fields or on urban locations), and then the utility is mechanically placed under the surface.
☐	Replacement of drainage structures: • The existing structures are demolished and a new structure is constructed per USACE design criteria. All work typically remains within the project ROW.
☐	Abandonment of drainage structures: • Grout is placed inside an existing pipe and gatewell structure (to an elevation above the top invert of the pipe inside the gatewell) to fill all voids.
☐	Removal of drainage structures: • An existing structure is demolished and replaced with compacted fill material.
☐	Construction of a Bike trail on top of levee (including rest stations): • Gravel surfacing, concrete, or asphalt is placed on top of the existing levee crest. Placement of any material cannot degrade the authorized level of flood protection.
☐	Installation of relief wells: • A hole is bored into the earth's surface some distance away from the landside toe of the levee and a relief well is then installed.
☐	Abandonment of relief wells: • Existing relief wells are grouted full and then abandoned per State and other applicable requirements.
☐	Installation of pump stations: • A pump structure is constructed on the landside of the levee near a water feature (ditch or channel).
☐	Repair of pump stations: • Components of the pump station (pump, electrical controls, etc.) may be repaired or replaced or the entire pump station itself may be replaced.
☐	Modification of existing drainage structures: • Slip lining –Slip lining, a trenchless method for repairing structural or environmental damages to a pipe, is completed by installing a smaller "carrier pipe" into the larger "host pipe" grouting the annular space between the two pipes, and sealing the ends.
☐	Geotechnical Explorations • Geotechnical explorations, for the purpose of determining the soundness of the civil works project, may be performed on the levee crest, riverside berms, and/or landside berms by using borings, Cone Penetration Tests (small probe pushed into the ground), or Multi-Electrode Electrical Resistivity Tests (cable and shallow depth probes placed on the levee crest or levee cross section).

☐	Riprap placement: • New riprap is placed on the channel slope, levee embankment, around bridge piers and outfall structures for erosion control.
☐	Temporary Staging areas and Working Pads for Material and Equipment: • Temporary staging areas or working pads are set up for materials and/or equipment within the project ROW. This also includes levee crests or berms that are used as haul roads. The impacted area will need to be repaired to pre-construction conditions.
☐	Fences: • Fences that are designed to not impede wildlife migrations can be installed on the project ROW or up and over a levee. Access gates can be included.
☐	Installation of utility poles: • Utility poles are erected within the project ROW, but not on the levee section.
☐	Removal of existing utility poles: • Existing utility poles are removed and the holes are backfilled with compacted material and/or grout.
☐	Replacement of Highway/Street Bridge: • Bridges may be removed or replaced. Levee tie-ins may be impacted with the removal of the bridge embankment and placement of bridge piers near the levee embankment or within the channel limits.
☐	Placement of Sanitary, Water, or Drainage Pipes Up and Over the Levee): • A pipe is placed on top of the levee crest, embankment material is added to cover the pipe, and the top of the levee is surfaced to accommodate vehicles. Levee side slopes also will have additional embankment material placed to cover the pipe.
☐	Street paving/repair: • Construction of new street paving or repair of existing paving that is placed on the levee section or up and over the levee section. Typical work includes milling existing paving and placing new paving.
☐	Installation of temporary channel crossings: • Temporary culverts are installed with riprap placed around and on top of the structure located within the flow line of a channel. Crossing provides access for construction equipment to move from one bank to another. A hydraulic no-rise analysis must be provided.
☐	Pipe or conduit abandonment: • A pipe or conduit within the levee is either completely removed or abandoned by grouting.
☐	Placement of monitoring monuments: • Monuments (e.g., carsonite posts or brass caps) are constructed on the project to survey and monitor for movement typically due to nearby construction or marking the location of sub-grade features.

Record of Environmental Consideration

Project Name:

Project Location:

Project Description:

Name and Date of Original NEPA document: *Programmatic Environmental Assessment & Finding of No Significant Impact, Categorical Permissions, Section 408 Alterations to Existing U.S. Army Corps of Engineers Civil Works Projects, 33 U.S.C. Section 408, January 2017 Iowa*

Status of Existing NEPA Documentation: A FONSI was prepared for Categorically Permitted Alterations in the state of Iowa and signed by Omaha District Commander Colonel John W. Henderson, P.E. in March 2017. Factors considered in making that determination included considerations as to whether or not the proposed alteration would be injurious to the public interest, impair the usefulness of the USACE project, or result in significant adverse impacts to the human environment.

Rational Used to determine if this Record of Environmental Consideration (REC) is Appropriate:

☐ The proposed action is Categorically Excluded from NEPA requirements.

☐ The proposed alteration is included on the list of Categorically Permitted Alterations contained within the Programmatic Environmental Assessment as identified above.

☐ The proposed action has been adequately assessed in an existing NEPA document and determined to not present the potential for significant adverse effects to the human environment, be injurious to the public interest, or impair the usefulness of the USACE civil works project.

☐ Reevaluation of the potential Environmental Effects has been completed as demonstrated on the attached. (**Review Completed**).

_____ _____

Date

Eric Laux, Chief
Environmental Resources and Missouri River Recovery Program Plan Formulation Section

I. Compliance Review for Environmental Laws

A. National Historic Preservation Act

☐ No potential to affect historic properties. On ___DATE___, the Iowa State Historic Preservation Office provided a letter that stated,

Provide information obtained from SHPO

There is always the possibility that previously unsuspected archeological remains may be uncovered during the process of project construction. In the unlikely event of an unanticipated discovery of cultural resources, work will halt immediately and contact will be made with a Corps archeologist. The work will not continue until a qualified archeologist inspects the find. If it is determined that the discovery requires further consultation, the Corps will consult with the Iowa SHPO.

☐ Historic properties or Archeological resources may be affected. Standard Section 106 review required.

☐ Project conditions are required. See explanation in Section V.

B. Endangered Species Act

☐ No listed species and/or critical habitat are present in areas affected directly or indirectly by the Federal Action.

☐ Listed species and/or critical habitat are present in areas affected directly or indirectly by the Federal Action. Coordination with the U.S. Fish and Wildlife Service conducted (See Agency Coordination at the end of this REC).

☐ No effect determination shared with the U.S. Fish and Wildlife Service.

☐ May affect, not likely to adversely affect threatened and endangered species or designated critical habitat concurrence provided by the U.S. Fish and Wildlife Service.

C. Clean Water Act

☐ No waters of the United States would be affected directly or indirectly by the project.

☐ Waters of the United States, including wetlands, would be affected by the proposed project.

☐ Project requires Section 404/401 (Clean Water Act) and/or Section 10 (Rivers and Harbors Act) permits/certifications. To be obtained prior to construction.

☐ Permits/certifications have been obtained (copy attached).

D. Fish and Wildlife Coordination Act

☐ No water body would be affected, modified, or controlled by the project.

☐ A water body would be affected, modified, or controlled by the project.

☐ Coordination with the U.S. Fish and Wildlife Service was conducted.

☐ No recommendations offered by the U.S. Fish and Wildlife Service.

☐ Recommendations provided by the U.S. Fish and Wildlife Service.

☐ Project conditions would be required. See explanation in Section V.

E. Clean Air Act

☐ No significant air quality emissions would result from the proposed project and no National Ambient Air Quality Standards would be exceeded.

F. Migratory Bird Treaty Act

☐ No take of migratory birds would occur from the project.

G. Bald and Golden Eagle Protection Act

☐ No take of bald or golden eagles would occur from this project.

H. Noise Control Act

☐ No permanent noise would result from the project.

G. Vegetation

☐ No more than a minor amount of vegetation would be disturbed and vegetation impacts would be offset by returning the area to conditions that existed prior to the construction-related disturbance.

H. Recreation

☐ No permanent impacts to recreation would result from the proposed alteration.

II. Compliance Review for Executive Orders

A. Executive Order 11988 – Flood Plains

☐ No effect on Flood Plains/Flood Levels would occur or the project is located outside the Flood Plain.

B. Executive Order 11990 - Wetlands

☐ No effect on wetlands would occur and the project is located outside of wetlands.

☐ The project is located in wetlands or effects to wetlands would occur.

☐ Beneficial effects on wetlands would occur.

☐ Adverse effects associated with constructing in or near wetlands would occur.

☐ Coordination with the Corps Regulatory Office was conducted.

Nationwide Permit _____ would be used for this alteration.

C. Executive Order 12898 – Environmental Justice

☐ No Environmental Justice issues are associated with the project.

☐ Low income or minority populations are in or near the project area.

☐ No disproportionately high or adverse impact on low income or minority populations would occur.

III. Other Relevant Laws, Environmental Regulations, or Executive Orders

☐ No other laws, environmental regulations, or executive orders have been identified.

☐ Other laws, environmental regulations, or executive orders include:

(Identify the other laws, environmental regulations, or executive orders not clearly falling under any of the above and include an explanation of the resolution and coordination conducted in Section V).

IV. Extraordinary Circumstances

Based on review of compliance with other environmental laws and Executive Orders, and in consideration of other environmental factors, review the project for extraordinary circumstances.

Note: A "Yes" under any circumstance may require the preparation of a stand-alone Environmental Assessment or Environmental Impact Statement.

Yes	No	
☐	☐	(i) The scope is greater than normally experienced for the particular action being implemented.

Yes No

☐ ☐ (ii) The proposed action has a high level of controversy.

☐ ☐ (iii) Potential for degradation, even though slight, of an already degraded condition.

☐ ☐ (iv) Employment of unproven or unique technology.

☐ ☐ (v) Presence of hazardous or toxic substances at levels which exceed Federal, state, or local regulations or standards.

☐ ☐ (vi) Potential for adverse effects on health or safety.

☐ ☐ (vii) Potential to violate federal, state, local, or tribal law.

☐ ☐ (viii) Potential for significant cumulative impacts when the proposed action is combined with other past, present, and reasonably foreseeable future actions, even though the impacts of the proposed action may not be significant by themselves.

V. Required Project Conditions

☐ No additional project conditions are required.

☐ Project conditions are required. (Include sub-heading and describe the required project conditions).

Based on this review and coordination with the resource agencies, no new significant impacts on the environment are anticipated. Consequently, it is not necessary to prepare an Environmental Impact Statement or new Environmental Assessment. This Record of Environmental Consideration is considered adequate NEPA documentation for this action because the proposed project impacts were adequately covered in the Programmatic NEPA document.

Addendum

Additional Civil Works Projects in Iowa

1. Perry Creek. The Perry Creek Flood Risk Reduction Project was recently added to the list of USACE Civil Works projects in Iowa. Information concerning this project is provided below.

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

CATEGORICAL PERMISSIONS
SECTION 408 ALTERATIONS TO EXISTING
U.S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROJECT
33 U.S.C. SECTION 408
IOWA

January 2017

Name: Perry Creek Flood Risk Reduction Project – Sioux City, Woodbury County, Iowa.

Location: The project is located along both banks of Perry Creek, a left bank tributary of the Missouri River, in the city of Sioux City, Woodbury County, Iowa. The project also includes a short reach of Plum Creek, a right bank tributary of Perry Creek. Perry Creek flows in a north-south direction through the central portion of Sioux City. It enters the City from the north, paralleling and crossing Hamilton Boulevard at three locations within the city limits. From near the intersection of Hamilton Boulevard and Wesley Parkway, the creek parallels the Parkway at varying distances until the confluence with the Missouri River is reached.

Perry Creek goes underground via a conduit entrance structure located immediately upstream of 6th Street. From the entrance structure, the creek continues to flow into a constructed underground channel (a 50-foot-wide U-shaped concrete conduit structure with a roof over most of its length). The underground conduit carries flows southward under Interstate 29 until it discharges into the Missouri River downstream of Chris Larsen Park Road. The entire project reach is shown in Figure A-1.

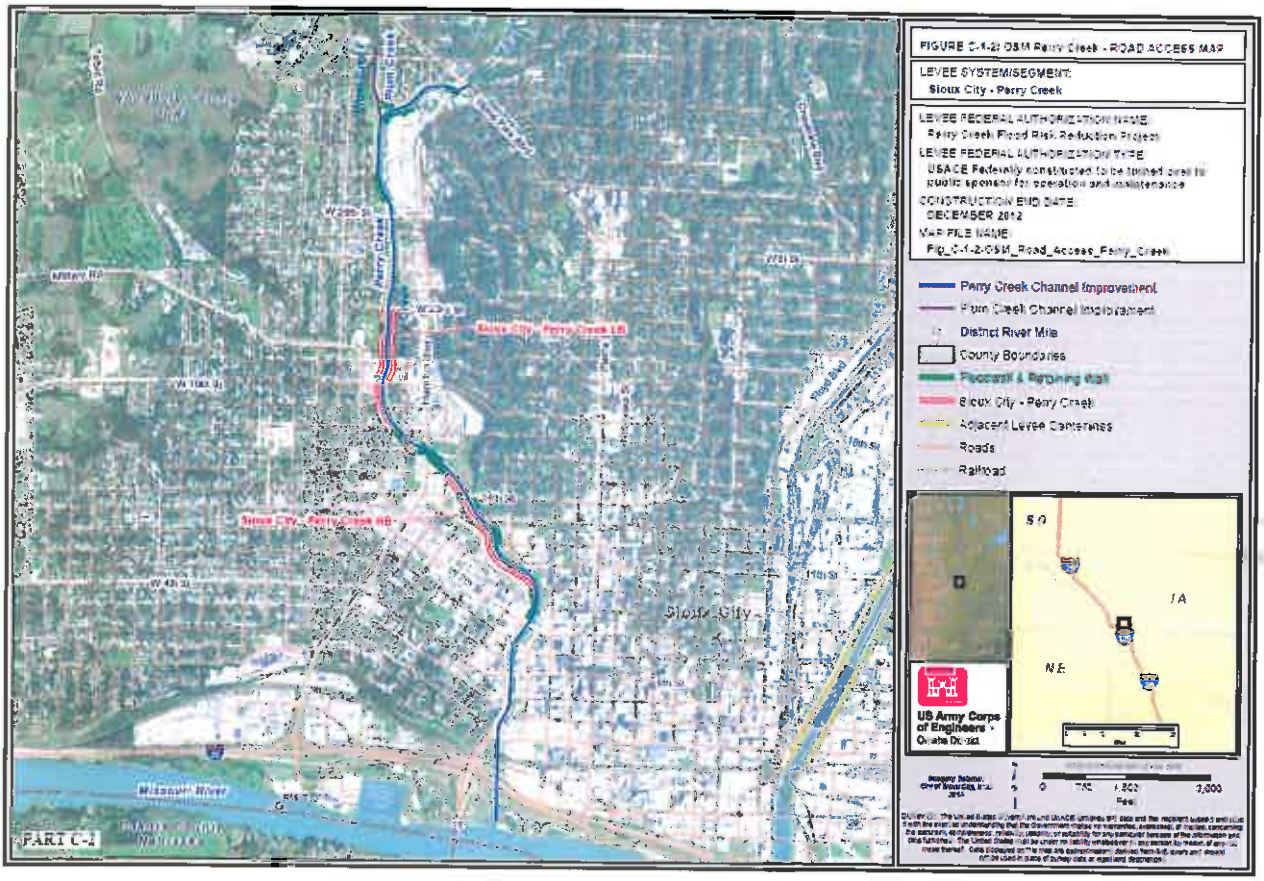

Figure 92. Perry Creek Flood Risk Reduction Project

Project Features: The Perry Creek Flood Risk Reduction Project consists of an outlet structure (chute and stilling basin) at the Perry Creek – Missouri River confluence; an underground conduit; a transition structure (uncovered concrete-lined U-shaped channel); an entrance structure for controlling flows into the conduit; channel widening; bridges over Perry Creek at 7th Street, Bluff Street, 14th Street, Geneva Street, West 19th Street, West 23rd Street, and West 28th Street; constructed levees; a box culvert on Plum Creek; floodwalls and retaining walls; storm drains with flap gates; drainage structures (reinforced concrete pipe, timber piles, pipe support members, flap gates, and riprapped outlet basin); a gatewell structure with a manually-operated sluice gate assembly and concrete outlet structure; a flood warning system; approximately three miles of hiking/biking trails, six connecting trails, four pedestrian bridges over Perry Creek, and one pedestrian underpass at 5th Street; and mitigation trees, shrubs, and native grasses. A view of a portion of the flood control project is provided in Figures A-2 and A-3.

Figure A-2. Perry Creek Flood Risk Reduction Project (Looking upstream from 19th Street at Perry Creek Left and Right Bank Levees)

Figure A-3. Perry Creek Flood Risk Reduction Project (Looking downstream from West Clifton Avenue at a Portion of the Plum Creek Project Feature)

Existing Conditions:

Water Quality: The beneficial uses of Perry Creek and Plum Creek include aquatic life support. Perry Creek and Plum Creek are listed as a Category 5b-t waterbody, which designates the waterbody as having a biological impairment but the impairment is tentative and in need of additional monitoring to confirm the impairment. Aquatic life is impaired with the stressor

suspected of being biological IBI (Index of Biotic Integrity – stressor believed to stem from natural causes). Iowa considers the impairment to have a relatively low social impact and a relatively high cost for TMDL development. As such, Iowa places TMDL development for these waterbody as Priority IV.

Aquatic Species: Aquatic species likely found within Perry and Plum creeks include: creek chub, bigmouth shiner, sand shiner, green shiner, white sucker, Johnny darter, central stoneroller, common shiner, fathead minnow, bluntnose minnow, channel catfish, largemouth bass, common carp, flathead chub, quillback carpsucker, red shiner, shorthead redhorse, and stonecat.

Noise: Sources of noise include urban disturbances such as automobiles, construction, and industry.

Wetlands: The USFWS NWI Database revealed scattered freshwater forested/shrub wetlands and freshwater emergent wetlands along Perry Creek and Plum Creek.

Threatened and Endangered Species: Western prairie fringed orchid, prairie bush clover, least tern, piping plover, northern long-eared bat, and pallid sturgeon are known to occur in Woodbury County, Iowa. Due to the existing vegetative conditions (brome grass) and on-going maintenance activities that occur along the civil works project site, western prairie fringed orchid, prairie bush clover, and northern long-eared bat are unlikely to occur where proposed alterations would be made. The absence of sandbars within Perry and Plum creeks prevent the interior least tern and piping plover from establishing residence near the civil works project. Due to the limited big river features like those found in the Missouri River, the pallid sturgeon likely does not occur in association with this civil works project.