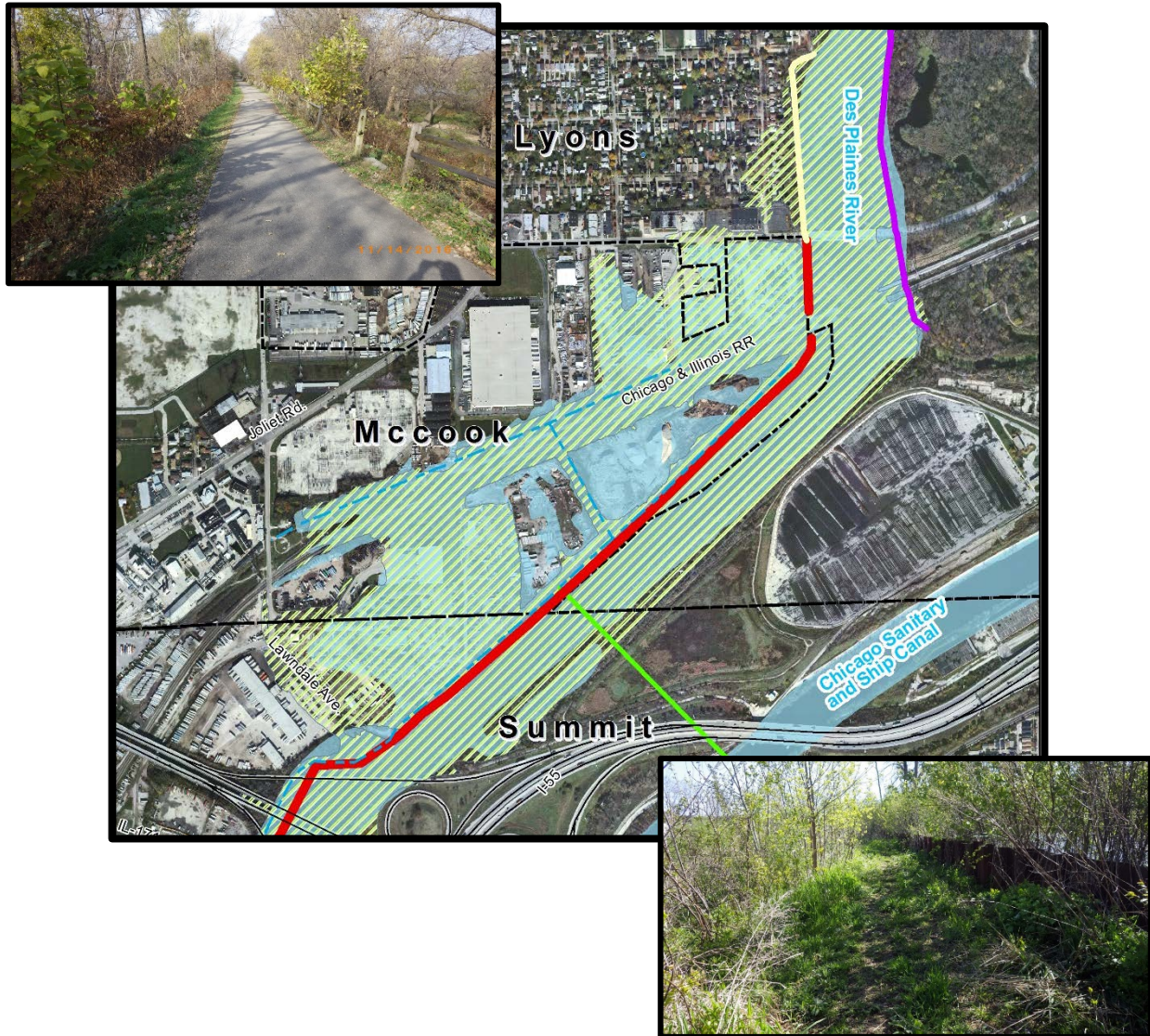


McCook Levee, Illinois
Section 205
Small Flood Risk Management

SECTION 404(b)(1) EVALUATION



US Army Corps
of Engineers®
Chicago District

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SECTION 404(B)(1) EVALUATION

I. Project Description

a. Location

The McCook and West Lyons Levees are located on the west bank of the Des Plaines River in western Cook County, including McCook, Lyons and Summit, Illinois. The surrounding area is mostly urbanized, with a strong residential and industrial base. The area is within the Des Plaines River Watershed, defined as Hydrologic Unit Code (HUC) 07120004 by the United States Geological Survey (USGS).

b. Authority and Purpose

This study is authorized under Section 205 of the Flood Control Act of 1948, as amended. Section 205 authorizes the Secretary of the Army, in cooperation with non-federal interests, to plan and construct small flood risk management (FRM) projects. Section 205 projects are part of the U.S. Army Corps of Engineers (USACE) Continuing Authorities Program (CAP). Individual projects are limited to \$10,000,000 in total federal expenditures, including all planning, design, and implementation costs.

This study has been initiated to investigate measures that can address flood risks in the communities of McCook, Lyons, and Summit, Illinois. While two existing levees, locally named the “McCook Levee” and the “West Lyons Levee,” are providing some level of protection for these communities, residual risk remains due to overtopping risk, seepage concerns, and a lack of maintenance and repair of the existing structures. Significant flooding was experienced behind the McCook Levee portion of the project area during a record flood event in April 2013. The source of flooding was identified as levee overtopping. Levee assessments conducted by the USACE have identified stability and seepage issues with both structures in their current conditions and the associated risk of levee failure is considered to be high.

b. General Description

Alternatives 3A and 2Ba were combined to form the recommended plan, as documented in the McCook, Levee Detailed Project Report (DPR).). Rationale for selecting the Preferred Plan is presented in Section 3.6 of the project report. General construction activities and sequencing would include:

(1) Site Preparation: The first task would be to install safety fencing, signage and other safety features in order to keep the public out of the site during heavy construction. Staging areas and access roads would be demarcated. Instructive signage for workers would be set up as well to signify off limit work areas and site restrictions.

(2) Levee Repairs: The recommended plan is to repair and improve segments of the existing McCook Levee and install 3 tie-back levees to form complete levee segments as well as to repair the existing West Lyons Levee. Repair and improvement activities include removal of existing levee encroachments such as trees and placing compacted fill where roots, animal burrows, or other encroachments have compromised the integrity of the levee.

(3) Other Features: The existing culvert at Lawndale will remain partially open, allowing the McCook ditch to continue draining through the Summit conduit. A closure structure will be installed to keep

flows at a level that can be drained through the Summit conduit without causing interior flooding. A new concrete headwall will be constructed at the south entrance to the culvert under Lawndale and a sluice gate will be installed to restrict the flow through Lawndale Ave. This sluice gate will be maintained and operated by MWRDGC.

(4) BMPs: Soil erosion and sediment control measures would be incorporated into the design documents and will comply with local and federal environmental requirements. The minimum measures required at the project site may include:

- Installation of silt fences around graded slopes and stockpile areas
- Protection of the waterway where fill occurs with silt fencing to prevent sediments from traveling into the waterway
- Stabilizing construction entrances to limit soil disturbance at the ingress/egress from the site
- Installing erosion blanket over unprotected finished grades that are to be unplanted for at least two weeks

(5) Recreational Features: Replacement of pedestrian paths on top of the repaired portions of the levee will be completed as part of the project construction.

d. General Description of Fill Material

1) General Characteristics and Purpose of Material

All materials used on levee construction would likely be clays free of foreign debris and contamination, where none of this will be placed in waters of the US or in any type of wetland. Material from off-site sources will be tested to ensure the material is clean and suitable. The only materials being placed within the Waters of the US or specifically, the delineated Riverine - Emergent Marsh, are identified in Table 1.

2) Quantity of Material

The majority of fill being placed into the fringe Marsh is 3,000-CY of dolomitic limestone riprap. There will also be two (2) storm sewers replaced.

Table 1 – Riverine Emergent Marsh fill Types, Quantities & Planting Activities

| Area | Bid Item | Quantity | Unit ^a |
|------------------------|---------------------|----------|-------------------|
| Riverine Fringe | | | |
| NA | Fill | | |
| | Riprap Fill | 3,000.0 | CY |
| NA Storm Sewer | | | |
| | 24" RCP Storm Sewer | 15.0 | LF |
| | 39" RCP Storm Sewer | 15.0 | LF |
| | Riprap | 32.0 | CY |

| NA | Planting and clearing | | |
|----|-------------------------------|------|----|
| | Invasive/woody plant clearing | 0.84 | AC |
| | Native plant establishment | 0.84 | AC |

^a CY – Cubic yards; LF – Linear feet; and AC – Acres

3) Source of Material

Inert materials will be obtained from commercial suppliers. The dolomitic limestone is expected to be sourced from the same geologic member as the bed rock within the Des Plaines River.

4) Material Quality

Material from off-site sources are required to be tested to ensure the material is clean and suitable according to USACE Geotechnical Standards.

e. Description of Proposed Discharge Site

1) Location

The yellow line in Figure 1 delineates the area of fill within the .84 acres of Riverine Emergent Marsh.

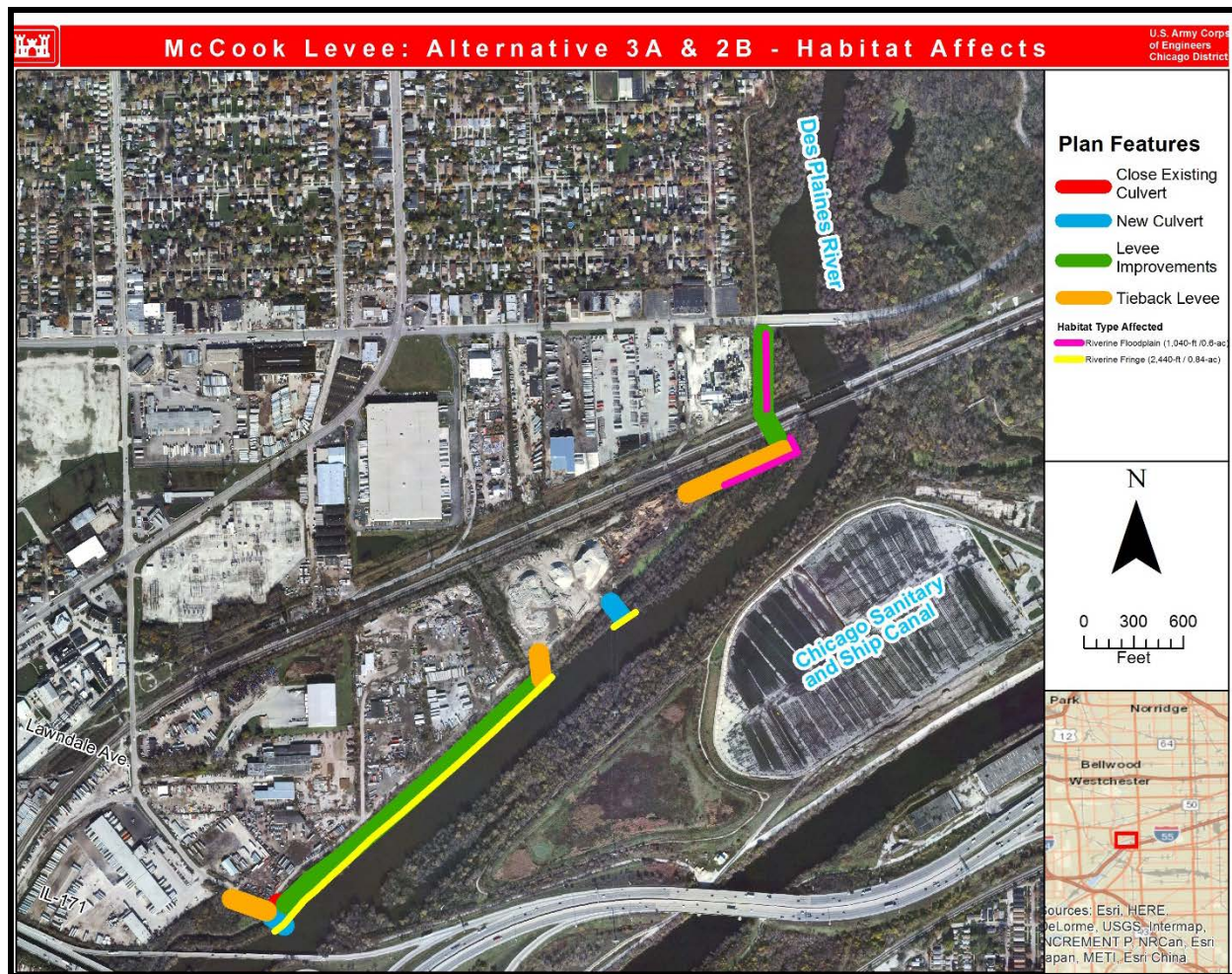


Figure 1 – Wetland Delineation in Yellow; .84-acres of Riverine – Emergent Marsh

2) Size, Type, Habitat and Wetland Delineation

The Des Plaines River in this reach is naturally a bedrock river (Figure 3), which is classified as Riverine – Rock Bottom (Cowardin et al. 1979). Quiescent margins along the stream banks have wetland vegetation in the form of Riverine – Emergent Marsh and within the river channel, loose silty cobble areas colonized by Riverine – Aquatic Bed of Water Willow (*Justicia americana*) (Cowardin 1979). The only wetland extant that will be affected within the study area is along the toe of the existing McCook Levee (Figure 2), which was induced after the existing levee was constructed by material sloughing off of the levee and silt settling out from river wash load. This unconsolidated material has allowed a Reed Canary Grass fringe to form.



Figure 2 - Riverine –Emergent Marsh; Reed Canary Grass Fringe Wetland along McCook Levee Toe

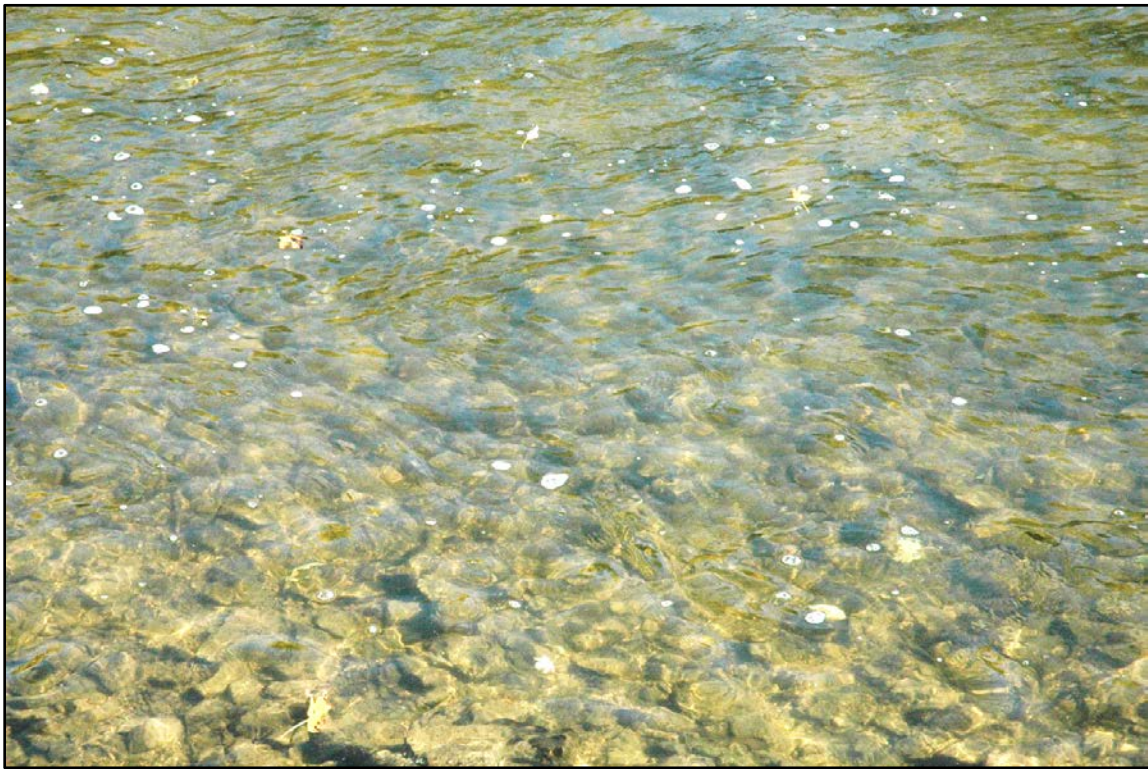


Figure 3 - Riverine - Rock Bottom; Des Plaines River Dolomitic Limestone Bedrock & Cobble Substrates within Study Area.

3) Timing and Duration of Discharge

Construction of the project may begin as early as 2020 and would span several months to a year as a conservative estimate. Fill will be placed within the first year of the project.

f. Description of Placement Method

Fill would be placed through the use of backhoes, bulldozers, and other large and small excavation and earthmoving equipment.

II. Factual Determinations

a. Physical Substrate Determinations

1) Substrate Elevation and Slope

Riverine – Emergent: The emergent marsh fringe slopes into the river at about 1:5 slope.

Riverine – Rock Bottom: The substrates of the Des Plaines River bottom are of moderate to low gradient.

2) Predominant Soil Types

The predominant soil types within the project area are outlined in section 2.2.3 of the DPR. The natural former soil type was Sawmill; however, this type was removed or mixed during the construction of the levees in the early 1900s. The resulting Riverine – Emergent Marsh of Reed Canary Grass occurs from the toe of the levee clays being continually inundated by the river proper, and probably mixed with some wash load silts. The impact of the fill material will be negligible to natural wetland soils because they no longer occur within the levee zone.

3) Fill Material Movement

There would be no significant movement of fill materials after construction.

4) Physical Effects on Benthos

The fill may have effects on those benthic invertebrates living within the Reed Canary Grass fringe, however, these are considered temporary and minor. Reed Canary Grass is known to have little to no value for native species and is eradicated to support ecological restoration. The change in wetland type from Riverine - Emergent to Riverine – Rock Bottom may actually increase the species richness and abundance of benthic macroinvertebrates to be similar to the adjacent natural Rock Bottom wetland type.

5) Other Effects

Other adverse effects are not expected.

6) Actions Taken to Minimize Impacts

The alternative selection analysis reduced the effective area of impact by ~0.5 acres; this was accomplished by only repairing those segments of levee that were in significant need.

Erosion controls and best management practices (BMPs) will be implemented onsite in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges from construction sites and the Illinois Urban Manual. Sediment and erosion will be controlled during construction activities and until the project area is stabilized with native grasses and forbs.

b. Water Circulation, Fluctuation, and Salinity Determinations

1) Water

(a) Salinity

Not applicable, although the waterway ecosystems within the study area are adversely affected by unnatural salinity inputs such as road salt, which is evident from electrofishing survey efforts.

(b) Water Chemistry

Since substrates indicative of the Riverine – Rock Bottom ecotype are being used, dolomitic limestone, no adverse water chemistry changes are expected.

(c) Clarity

The proposed plan is not expected to have any significant impacts to water clarity due to the small nature of the project. The use of BMPs will minimize any temporary construction impacts.

(d) Color

The proposed fill activities will have no significant impacts on water color.

(e) Odor

The existing condition of the Des Plaines River odor is that of mild effluent. The proposed fill activities will have no significant impacts on water odor.

(f) Taste

Des Plaines River water is non-potable. No effects are expected.

(g) Dissolved Gas Levels

No effects are expected.

(h) Nutrients

The Des Plaines River watershed is largely agricultural in the headwaters, and urbanized in the lower reaches. This combination of agricultural nutrients and waste water nutrients has provided an excess of unnatural nutrient to the Des Plaines River, which is evident during summer month coloration and odors. The vast amounts of European Buckthorn along the entire Des Plaines River also contributes to adverse nutrient conditions by providing relatively noxious Coarse Particulate Organic Matter (CPOM). Due to the small footprint of the project, it will not provide any long-term significant additions or reductions in nutrients, but will remove European Buckthorn leaves and berries as a CPOM source.

(i) Eutrophication

The existing condition of the Des Plaines River is slightly eutrophic, especially during the summer months of some years. The proposed fill activity of clean dolomitic limestone will have no significant long-term impacts.

(j) Other

The proposed fill activity is not expected to have any significant long-term effects to other system components not specifically defined above.

2) Current Patterns and Circulation

The current patterns and circulation of the Des Plaines River will not be altered or adversely affected by the proposed project.

(a) Current Patterns and Flow

No change due to project implementation.

(b) Velocity

No change in water velocity of the adjacent Des Plaines River.

(c) Stratification

There are no anticipated adverse effects to lotic stratification.

(d) Hydrologic Regime

The hydrology of the study area is dictated by an agricultural headwater and highly impervious urban surfaces within the lower segments. Normal to low flows are dictated by waste water treatment discharge and floods are dictated by rainfall amount and location. No affects to the hydrologic regime are expected. Changes in the water surface profile, flood profiles, groundwater, or open acres of water are not expected.

3) Normal Water Level Fluctuations

The proposed fill activity will not have an impact on normal water level fluctuations.

4) Salinity Gradients

Not applicable to freshwater environments, although the system is adversely affected by the use of road salts.

5) Actions that will be taken to Minimize Impacts

No special measures would be taken to minimize the temporary impacts on water circulation and fluctuation since there are no predicted adverse effects.

c. Suspended Particulate/Turbidity Determinations

1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Fill Site.

There would be minor, short-term increases in suspended particulates and turbidity levels in the immediate area of the proposed fill activity during construction. These effects are considered negligible compared to the conditions during a storm/flood. Erosion control features and BMPs will be used to eliminate or minimize impacts.

2) Effects on Chemical and Physical Properties of the Water Column

(a) Light Penetration

No effects are expected.

(b) Dissolved Oxygen

No effects are expected.

(c) Toxic Metals and Organics

No effects are expected.

(d) Pathogens

No effects are expected.

(e) Aesthetics

No effects on the aesthetics of the project area are expected.

(f) Other

No effects are expected.

3) Effects on Biota

(a) Primary Production, Photosynthesis

No effects are expected.

(b) Suspension/Filter Feeders

No effects are expected.

(c) Sight Feeders

No effects are expected.

4) Actions Taken to Minimize Impacts

Natural fiber erosion control fabric, silt fencing, and stabilizing native vegetation, as appropriate, would be implemented to eliminate or minimize impacts.

d. Contaminant Determinations

Any fill materials will be clean and inert and shall not exceed maximum background concentration levels of anthropogenic compounds in the Chicago area. The proposed fill material, therefore, would not introduce any new contaminants into the Des Plaines River watershed.

A sediment sample collected as part of a previous roadway modification study suggests that the sediment in McCook Ditch may contain levels of iron, lead, and chromium above the State of Illinois CCDD clean fill standards. All the reported sediment analytical results are within the State of Illinois risk-based closure value for residential properties, the most restrictive human health risk standards used for State voluntary cleanup actions. If disturbance and/or removal of the sediment is required for construction of the project, the material will be used either managed on site or taken to a landfill.

e. Aquatic Ecosystem and Organism Determinations

1) Effects on Plankton

No effects are expected to the existing conditions.

2) Effects on Benthos

Minor change of benthic community from those that can live in Reed Canary Grass and levee clays, to those that are lithophilic and can colonize dolomitic limestone.

3) Effects on Nekton

No effects are expected to the existing conditions.

4) Effects on Aquatic Food Web

No effects are expected to the existing conditions.

5) Effects on Special Aquatic Sites

No effects are expected to the existing conditions.

Mud Flats – none present; no impact

Vegetated Shallows – decrease in Reed Canary Grass fringe wetland (.84-ac)

Rock Bottom – increase in .84 of dolomitic Rock Bottom substrata

Aquatic Bed – potential increase of Water Willow; on riprap fill if planted or natural colonization

Coral Reefs – not applicable to freshwater environments

Riffle and Pool Complexes – none present within study area; no impact

6) Threatened and Endangered Species

Federal T&E Species

Federally-listed Threatened, Endangered, Proposed and Candidate Species were reviewed for the project area by the Chicago District (<http://www.fws.gov/midwest/endangered/section7/index.html>). The following federally listed species, status and their critical habitats are identified by the USFWS as occurring within Cook County:

- Piping plover (*Charadrius melodus*) – Endangered – Wide, open, sandy beaches with very little grass or other vegetation.
- Red knot (*Calidris canutus rufa*) – Threatened – Only actions that occur along coastal areas or large wetland complexes during migratory window of May 1 - September 30
- Eastern massasauga (*Sistrurus catenatus*) – Candidate – Graminoid dominated plant communities (fens, sedge meadows, peatlands, wet prairies, and shrublands).
- Hine’s emerald dragonfly (*Somatochlora hineana*) – Endangered – Spring-fed wetlands, wet meadows, and marshes.
- Rattlesnake-master borer moth (*Papaipema eryngii*) – Candidate – Undisturbed prairie and woodland openings that contain their only food plant, rattlesnake-master (*Eryngium yuccifolium*).
- Eastern prairie fringed orchid (*Platanthera leucophaea*) – Threatened – Moderate to high quality wetlands, sedge meadow, marsh, and mesic to wet prairie.
- Leafy-prairie clover (*Dalea foliosa*) – Endangered – Prairie remnants on thin soil over limestone.
- Mead’s milkweed (*Asclepias meadii*) – Threatened – Late successional tallgrass prairie, tallgrass prairie converted to hay meadow, and glades or barrens with thin soil.

- Northern long-eared bat (*Myotis septentrionalis*) – Threatened – Hibernates in caves and mines, swarms in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods.
- Rusty Patched Bumble Bee (*Bombus affinis*) – Endangered – Grasslands and tallgrass prairies of the Upper Midwest and Northeast. Nesting sites typically occur underground in abandoned rodent tunnels and dens, or in clumps of grasses.

Information provided in the McCook Levee Section 205 Detailed Project Report and Integrated Environmental Assessment illustrates that there are no Federally Endangered and Threatened species or their critical habitats occurring within the study area. Based on this, the USACE has determined “no effects” to Federally Endangered and Threatened Species and/or their critical habitats. The study team has coordinated with the U.S. Fish & Wildlife Service, whom responded in an email dated 17 July 2017. Concurrence with USACE’s determination of “no effects” is anticipated.

State T&E Species

State Threatened & Endangered species or their critical habitat do not occur within the study area. Based on this, the USACE has determined “no effects” to State Endangered and Threatened Species and/or their critical habitats. The study team has coordinated with the Illinois Department of Natural Resources in a letter dated 14 June 2017 and expects concurrence with USACE’s determination of “no effects”.

7) Other Wildlife

Migratory birds will be considered during construction. Certain work/activity types will be avoided during spring and fall migratory periods that are considered disruptive to migratory birds utilizing the Des Plaines River corridor.

8) Actions to Minimize Impacts

Erosion controls and best management practices will be implemented onsite in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges from construction sites and the Illinois Urban Manual. Sediment and erosion will be controlled during construction activities and until the project area is stabilized with native grasses and forbs.

f. Proposed Disposal/Discharge Site Determinations

1) Mixing Zone Determination

A mixing zone is not applicable to this project as no violation of applicable water quality standards is expected during construction.

2) Determination of Compliance with Applicable Water Quality Standards

The proposed projects would not cause significant or long-term degradation of water quality within the Des Plaines River watershed and would comply with all applicable water quality standards.

3) Potential Effects on Human use Characteristics

(a) Municipal and Private Water Supply

No effects are expected from the proposed fill activity.

(b) Recreational and Commercial Fisheries

No effects are expected from the proposed fill activity; however, the increase in Riverine – Rock Bottom along the toe of the levee could increase sport fishes such as Rockbass and Smallmouth Bass.

(c) Water Related Recreation

No effects are expected from the proposed fill activity.

(d) Aesthetics

No effects are expected from the proposed fill activity.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

No effects are expected from the proposed fill activity.

g. Determination of Cumulative Effects on the Aquatic Ecosystem

Overall, there are no significant long-term adverse effects expected to the aquatic ecosystem. The project area was already degraded by human disturbance in the early 1900s. The .84 acres of Riverine – Emergent wetland, which was induced by the existing levee, consists only of a highly invasive species that is typically eradicated during ecosystem restoration projects due to its adverse effects on native biota and floodplain dynamics. Also, habitat provided by this degraded wetland fringe is not being totally lost, but converted to Riverine – Rock Bottom.

h. Determination of Secondary Effects on the Aquatic Ecosystem

No adverse significant impacts to the Des Plaines River ecosystem are expected as a result of the proposed activity.

i. Findings of Compliance or Non-Compliance with Restrictions on Discharge

a. No adaptation of the Section 404(b)(1) guidelines was made for this evaluation.

b. No practical alternatives are available that produce fewer adverse aquatic impacts than the proposed plan.

c. The proposed project would comply with applicable water quality standards.

d. The project is in compliance with applicable Toxic Effluent Standards under Section 307 of the Clean Water Act; with the Endangered Species Act of 1973; with the National Historic Preservation Act of 1966; and with the Marine Protection, Research, and Sanctuaries Act of 1972.

e. The proposed fill activity would have no significant adverse impact on human health or welfare, including municipal and private water supplies, recreational and commercial fisheries, plankton, fish, shellfish, or wildlife communities (including community diversity, productivity, and stability), special aquatic sites, or recreational, aesthetic, and economic values.

f. Typical erosion control measures would be taken to minimize construction impacts other than selection of the least environmentally damaging construction alternative.

g. On the basis of the Guidelines, the proposed site for the discharge of fill material is specified as complying with the requirements of these guidelines and those set forth in Regional Permit 5, with the inclusion of appropriate and practical conditions to minimize pollution or adverse impacts to the aquatic ecosystem.

a. Conclusions

Based on all of the above, the proposed action is determined to be in compliance with the Section 404(b)(1) Guidelines, subject to appropriate and reasonable conditions, to be determined on a case-by-case basis, to protect the public interest. Based on the removal of a large area of highly invasive and noxious plant species, and replacing them with native grasses and flowers, the area is expected to have improvements in riparian zone health and native biodiversity. Not net loss of wetland or natural habitats are expected.