



FEMA

March 3, 2023

Environmental Assessment Scoping Document

SECTION ONE: BACKGROUND

1.1 Project Information:

Project ID: HMGP-4489-0019-IL (R) (1)
Recipient: Illinois Emergency Management Agency
Subrecipient: Metropolitan Water Reclamation District of Greater Chicago
Title: Addison Creek Channel Improvements
Address: Hirsch Street in Northlake, Illinois and continues south and east along Addison Creek to Cermak Road in Broadview, Illinois
Locality: Cook County, Illinois
GPS: 42.883810, -87.869138
PLSS: Sections 4, 5, 9, 16, 21 and 22, T39 North, R12 East

1.2 Purpose and Need

The key purpose of the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster.

As part of a Detailed Watershed Plan (DWP) for the Lower Des Plaines River (LDPR) Watershed completed in February 2011, a hydrologic¹ and hydraulic² analysis of the Addison Creek watershed was completed to provide an understanding of flood impacts throughout the watershed in Cook County. In addition, the DWP evaluated economic damages due to flooding and developed alternatives to mitigate flood damages.

This project is needed because of the past flood damages that have been experienced within the Addison Creek watershed. Although this watershed includes several large flood control reservoirs, it is still a highly developed and urbanized area with minimal stormwater detention. The Addison Creek watershed drains an approximately 22 square mile area upstream of its confluence with Salt Creek. The watershed is mainly situated in Cook County with headwaters originating in northeastern DuPage County.

The purpose of the project is to reduce flood damages to approximately 2,200 properties and stabilize the channel to improve water quality along Addison Creek within the defined

¹ A study of rate of precipitation, the quantity of water, the rate of surface runoff, and the timing of its arrival.

² A study of how water flows from one point to the next.

project reach. The communities experiencing flooding along Addison Creek include Broadview, Westchester, Bellwood, Melrose Park, Stone Park, and Northlake. Based on the updated modeling and elevation data taken from newer Cook County LIDAR data, damages were recomputed during the final engineering design.

SECTION TWO: ALTERNATIVE ANALYSIS

The National Environmental Policy Act (NEPA) requires FEMA to evaluate alternatives to the Proposed Action and describe the environmental impacts of each alternative. NEPA also requires an evaluation of the No Action alternative, which is the future condition without the project. This section describes the No Action alternative, the Proposed Action, and alternatives considered but eliminated from further evaluation.

2.1 Alternative 1—No Action

Under the No Action alternative, the Addison Creek channel would not be improved or stabilized. Extensive overbank flooding would continue, and flood damages would likely increase over time. This is a reach with inadequate channel capacity in the existing condition with very degraded and unstable conditions in many reaches. Channel banks would continue to erode, contributing to water quality impairments.

2.2 Alternative 2—Proposed Action

The Proposed Action includes various channel treatments over the approximately 3.5 miles of the existing Addison Creek channel. Design of the proposed channel improvements for Addison Creek involved multiple components and considerations in all aspects of design. To prepare a design that not only meets the goals of the Detailed Watershed Plan (DWP) but also provides an aesthetically pleasing channel, multiple iterations of channel design were developed, evaluated and value engineered with collection of additional data along the way.

The Addison Creek watershed drains approximately 22 square miles upstream of its confluence with Salt Creek. The watershed is mainly situated in Cook County with headwaters originating in northeastern DuPage County. The goal of mitigating flood damages limits the scope alternatives to the reaches from Hirsch Street in Northlake to downstream of Cermak Road (22nd Street) near the confluence with Salt Creek in Broadview.

The Addison Creek channel was broken into segments for analysis and discussion as described below. Figure 1 shows the channel reach segments, and Table 1 summarizes the proposed channel improvements for each.

Figure 1. Addison Creek Channel Improvement Stream Reaches

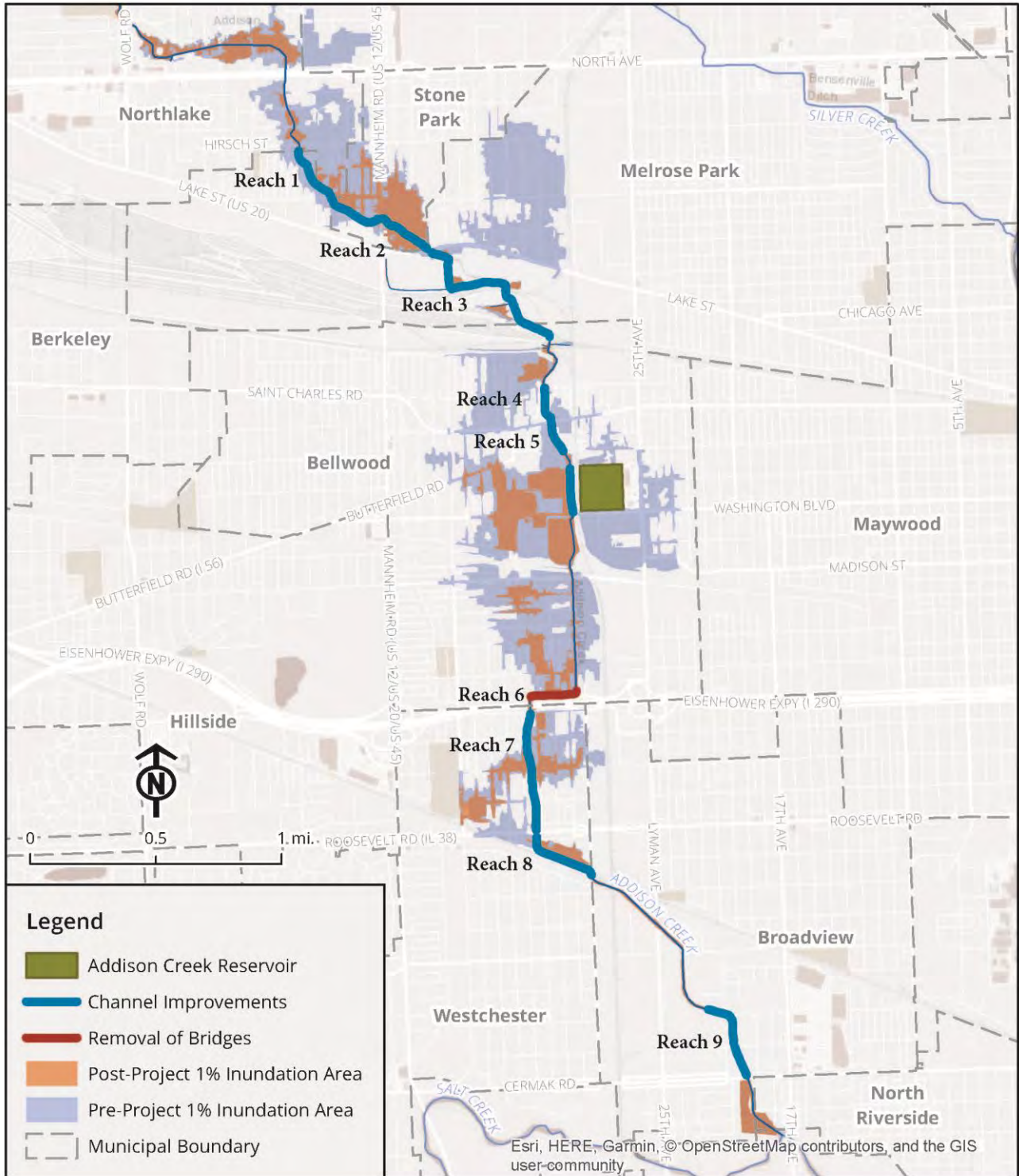


Table 1. Addison Creek Stream Reaches with Proposed Improvement Types

Reach	Reach Segment	Communities	Proposed Improvement Approach
1	Hirsch to Manheim	Northlake, Stone Park, Melrose Park	Open channel ³ and soldier pile wall ⁴ .
2	Manheim to Lake	Stone Park, Melrose Park	Gabion basket ⁵ wall, soldier pile wall.
3	Lake Street to 2 nd UPRR bridge	Melrose Park and Bellwood	Gabion basket wall, soldier pile wall, stream barbs ⁶ , and concrete slope walls under railroad bridge.
4	Grant Ave to St Charles Road	Bellwood	Gabion basket wall.
5	St Charles Road to Oak Street	Bellwood	Gabion basket wall, soldier pile wall.
6	Cernan to Harrison Street	Bellwood	Articulated concrete block ⁷ slope wall, removal of three bridges.
7	Wedgewood Drive to Roosevelt Road	Westchester	Gabion mattress (traditional stone and vegetated) bank stabilization.
8	Roosevelt Road to Gardner Road	Westchester	Gabion basket wall, soldier pile wall, gabion mattress (traditional stone and vegetated) bank stabilization.
9	24th to Cermak Road	Broadview	Gabion mattress (traditional stone and vegetated) bank stabilization.

Reaches 1 and 2

DWP recommendations for Reaches 1 and 2 included channel improvements to lower existing water surface elevations and provide additional conveyance capacity for flood flows to the proposed reservoir south of Lake Street. However, the Bellwood site at 2795 Washington Boulevard was selected in preliminary design for the reservoir instead of the

³ The channel is not fully enclosed, as in a pipe.

⁴ Soldier pile walls consist of wide-flange steel beams drilled or driven vertically into the ground with concrete walls poured between them to help stabilize the sides of an excavated area. For this project, they will help prevent streambank erosion.

⁵ A gabion basket or mattress consists of a wire basket or frame that is filled with rock and is installed along a channel bank to armor the bank and prevent erosion.

⁶ Stream barbs are rock structures installed within the outer portion of a stream channel to direct flow away from streambanks to prevent erosion.

⁷ Articulated concrete block wall consists of concrete blocks attached to each other with cable to help hold up a streambank and prevent erosion, while remaining somewhat flexible.

site located south of Lake Street in Melrose Park that was part of the DWP recommendation. It is still important to lower the existing water surface elevations and provide additional conveyance capacity to decrease overbank flooding, but these two reaches are no longer in close proximity to the reservoir. In addition, coordination has been completed with the Illinois Department of Transportation (IDOT) to design the Lake Street and Mannheim Road structures to accommodate the proposed channel improvements from the DWP. The Lake Street culverts were constructed in 2012 and the Mannheim Road culvert was constructed in 2018. The design criteria for Reaches 1 and 2 are the following:

- Lower and widen the existing channel to provide increased channel conveyance area.
- Minimize overbank flooding.
- Match the design inverts of Lake Street and Mannheim Road bridges based on the previous project coordination with IDOT.

Reaches 3 and 4

DWP recommendations for Reaches 3 and 4 included channel improvements to lower existing water surface elevations to reduce the tail water⁸ on the diversion structure for the proposed reservoir. Floodwaters from Addison Creek will be diverted into the reservoir via this diversion structure when the water surface reaches a set elevation. Reach 3 is partially located in the UPRR Proviso Railroad Yard and there are currently four railroad bridges in the yard. The southernmost bridge has been recently reconstructed without incorporating recommendations from the DWP. The next bridge to the north is a flyover bridge that was also recently reconstructed. Although the bridge is much higher than existing ground along the creek, the flyover bridge has two piers located near the existing top of bank of Addison Creek. Based on the DWP, there are minimal to no damages in the UPRR reaches since there are no structures impacted by flooding. Since bridge work was recently completed without consideration for the DWP recommendations, the DWP project was modified to remove the proposed improvements to the recently reconstructed railroad bridges. Downstream of the UPRR and upstream of St. Charles Road, there are some flood damages that receive benefits from the lower flood elevations in the DWP recommended improvements. The design criteria for Reaches 3 and 4 have been modified from the DWP due to site constraints, the change in the location of the reservoir, and additional coordination and data collection. The design criteria for Reaches 3 and 4 are the following:

- Lower the existing channel where feasible between and through the UPRR bridges without requiring a replacement bridge.
- Minimize overbank flooding in Reach 4.

Reach 5

DWP recommendations for Reach 5 included channel improvements to lower existing water surface elevations and provide additional conveyance capacity to minimize flood damages. The updated reservoir location in Bellwood is situated at the downstream end of this reach at Washington Boulevard. Based on review of the hydraulics through this reach and a detailed site inspection of the area, the design criteria for Reach 5 are:

⁸ Tailwater refers to waters located immediately downstream from a hydraulic structure such as a dam, spillway, bridge, or culvert which water flows are affected by said structure.

- Lower and widen the existing channel to provide increased channel conveyance area.
- Minimize overbank flooding.
- Water surface elevations throughout this reach cannot be improved significantly solely through work in this reach. Water surface elevations are typically dependent on downstream conditions. Lower water surface elevations will result from lower tail water due to the reservoir and proposed improvements downstream of Reach 5.

Reach 6

This channel segment through Bellwood did not have any proposed improvements in the DWP. Based on additional analysis of this segment during the preliminary engineering phase, it was determined that eight of the culverts in this reach are inadequately sized to convey flood flows and cause significant headloss⁹ through the reach. There is significant overbank flooding through this reach causing flood damages to the residential and industrial structures adjacent to the channel. A coordination meeting with the Village of Bellwood resulted in the discussion of proposed improvements such as bridge removals or replacements throughout this reach to reduce flood stages as bridge supports within the channel also impede flow. In addition, the existing concrete channel slopes are deteriorating and failing and could be a cause of debris deposition in the existing channel potentially blocking water from flowing freely. Design criteria for this reach are below:

- Investigate bridge removals (or replacements with larger structures) to provide additional conveyance.
- Maintain neighborhood connectivity based on coordination meeting with Bellwood.
- Investigate repair and replacement of concrete channel slope walls.

Reaches 7 and 8

DWP recommendations for Reaches 7 and 8 include channel improvements to lower existing water surface elevations. Based on review of the hydraulics and detailed site inspections, it is our understanding that the main causes of head loss through these reaches are the Gardner Road Bridge, the restricted channel width between Gardner and Roosevelt Road, the Roosevelt Road Bridge, and underground utility lines. Addison Creek flows beneath the Gardner Road Bridge and between the abutments of the CNRR Bridge that spans over the Gardner Road Bridge. The Creek makes two 90-degree bends as it passes through and under Gardner Road. During flood events, due to its restrictive opening area through the CNRR Bridge abutments, the Gardner Road Bridge has flood stages above the low chord¹⁰ causing additional headloss through this structure which translates upstream through Reaches 7 and 8. The narrow channel between Gardner and Roosevelt Road leads to some additional headloss that could be alleviated. Finally, the Roosevelt Road Bridge also has flood stages above the low chord causing additional headloss translated upstream through Reach 7. In addition, the DWP recommendations have the proposed water surface elevations tying into the existing water surface elevations at Gardner Road which limits any flood damage benefits through the Village of Westchester. Based on our understanding of these Reaches, the design criteria are below:

⁹ Loss of energy or pressure in water flowing through a pipe caused by friction.

¹⁰ Low chord refers to the lowest elevation of a bridge structure over water.

- Investigate improving the Gardner Road and CNRR Bridges to improve the waterway opening through these structures.
- Investigate improving the waterway opening through Roosevelt Road.
- Investigate lowering (deepening) multiple utility lines in these areas.
- Investigate additional alternatives beyond the scope of the DWP recommendations to provide additional flood damage benefits through the Village of Westchester.

Reach 9

This channel segment through Broadview did not have any proposed improvements in the DWP. Improvements in this reach would lower stages and facilitate upstream improvements. Based on a review of the hydraulics and detailed site inspections, it is our understanding that conveyance improvements could provide additional benefits for Westchester and Broadview. Coordination with and approval from the Illinois Department of Natural Resources Office of Water Resources (IDNR-OWR) is necessary to allow conveyance improvements causing some minor flow increases at Addison Creek's confluence with Salt Creek. The proposed improvements would increase the peak flow but would reduce the duration of that peak flow and increase the separation of peak flows occurring on Addison Creek and the much larger watershed of Salt Creek. This separation will reduce the risk of flooding along Addison Creek when Salt Creek is at peak stage and flow. The design criteria are below:

- Investigate conveyance improvements to reduce flood stages through Westchester and Broadview.
- Investigate conveyance improvements to mitigate flood flow increases due to potential improvements in Reach 6.
- Obtain approval from IDNR-OWR for the proposed conveyance improvements and permitting strategy.

2.3 Alternatives Considered and Eliminated from Further Analysis

To meet the basic purpose and need, alternative project locations are not viable alternatives. Projects must be located along this reach of Addison Creek to affect the flood damages in this locality. So, as part of the preliminary engineering, detailed evaluation of the DWP recommended treatments was completed to determine the extent and types of improvements for each reach throughout the Addison Creek project limits. To meet the recommended benefits set forth in the DWP, a detailed analysis of potential alternative treatments was conducted. Below, we have summarized Section 4.2 of the Preliminary Design Report for engineering contract 11-187-5C to provide a succinct summary of why alternatives were not utilized.

Storage Alternatives

For many of the reaches, either there was a minimal amount of potential storage that wouldn't be worth the cost to implement, significant property would have to be acquired to provide any benefit, storage was not preferred based on adjacent property constraints, or there were no viable options to purchase property for flood storage.

In Reach 5, available properties (commercial, residential, and industrial) were investigated in preliminary design to determine if there were viable options to purchase property and potentially provide additional flood storage. Based on this research and discussions with

Village of Bellwood, a reservoir location was selected, designed, and constructed by MWRD under a separate contract. The location of the newly constructed reservoir is just north of Washington Boulevard and east of the railroad tracks.

Hydraulic Structure Alternatives

For most reaches, either no work was planned for hydraulic structures or proposals were eliminated due to revisions to the proposed channel improvements. For others, like Reach 4, there should be no detrimental effect of lowering a stream bed under a bridge,

In Reach 6, alternatives considered included either replacing existing culverts with larger bridges or removing the culvert crossings altogether. Three bridge options were considered; however, it was determined that removing several crossings without replacing them offered the most cost-effective option. With the high number of existing crossings in this neighborhood, the neighborhood impacts resulting from three bridge removals were considered minimal relative to the benefits of additional flood relief.

In Reach 7, channel lowering through Roosevelt Road was proposed. However, the Roosevelt Road bridge plans from IDOT show a 24-inch sanitary sewer going under the bridge that has the casing sticking out of the ground. If the ground under Roosevelt Road was lowered, then the sanitary sewer would also need to be lowered. The cost to lower the sanitary sewer was greater than the benefits that it would provide.

Three options were considered in Reach 8 to improve the hydraulic opening of the Gardner Road Bridge and CN Railroad Bridge. Each of these options was tested in the hydraulic model. The hydraulic benefits of modifying the structure were very minor compared to the cost of the improvements. The attention was then focused on improvements that could be implemented in Reach 9 that would further benefit Reach 8, rather than modifying Gardner Road.

Conveyance Alternatives

Various conveyance alternatives were considered in almost all the reaches. Many of them involved widening channels and bank extension. These channel improvements were typically determined not feasible due to the property that would have to be acquired. Either due to required acquisitions, relocation of utilities, or from alternatives eliminated in other reaches, many alternatives did not provide enough benefit to justify the cost. Other conveyance alternatives were eliminated due to the safety issues and any possible impacts they would have to residential, industrial, or other private property.

When evaluating possible retaining walls in Reaches 1 and 2, a sheet pile wall was eliminated from further consideration due to the presence of fractured bedrock. It was determined that a soldier pile wall would be a more appropriate solution in these areas due to easier installation by avoiding the possibility of having to penetrate the fractured bedrock. As in the case of Reach 4, for example, sheet pile walls were often eliminated from further discussion as they are much more invasive compared to soldier pile walls.

SECTION THREE: AFFECTED ENVIRONMENT

The Proposed Action area is approximately 52 acres in size and would affect the Addison Creek channel and riparian zone through the communities of Broadview, Westchester, Bellwood, Melrose Park, Stone Park, and Northlake. The project area is highly urbanized, and the riparian corridor is degraded. Addison Creek has been fully channelized in the past for stormwater management purposes and has steep and eroded banks along most of its

length. Some portions of the channel also have stream banks that have been armored with concrete debris, cement, or other structural features. Other sections of streambank contain narrow wetland shelves that periodically flood and support a predominance of wetland vegetation. Much of the natural portion of the corridor consists of low-quality woodland, shrubland, old field, or degraded wet meadow. The channel bottom is quite variable with soft sediments present in some locations. It is considered a very low-quality stream biologically.

3.1 Preliminary Screening of Assessment Categories:

The alternatives listed above are likely to result in impacts governed by the federal laws and executive orders listed below. The following items will require closer coordination with the appropriate agencies to identify and mitigate potentially significant impacts.

- Clean Water Act (CWA)
- Clean Air Act (CAA)
- Endangered Species Act (ESA)
- Executive Order 11988 – Floodplains
- Executive Order 11990 – Wetlands
- Executive Order 12898 – Environmental Justice for Low Income & Minority Populations
- Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments
- National Historic Preservation Act (NHPA)

3.2 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are actions that may affect projected impacts of a proposal and are not remote or speculative. An action may be reasonably foreseeable even in the absence of a specific proposal.

In conversations with the communities within the project reach, MWRD has become aware of the following projects that may occur in the foreseeable future as a result of this project. These are primarily other improvements to the local infrastructure that may be more feasible with the reduced flood damages and frequency of flooding that will result from this project.

During design of the Addison Creek Channel Improvements, the local communities and IDOT have replaced several bridges along Addison Creek that included King Arthur Court, Prater Avenue, Roy Avenue, Le Moyne, Mannheim Road, and Lake Street. IDOT is currently replacing the bridge at Cermak, and Westchester is currently replacing the bridge at Gladstone. The local communities also have plans to replace the bridges at Palmer Avenue, Parkview Drive, Hirsch Street, Wedgewood Drive, and 21st Street. IDOT is also planning to reconstruct I-290 when funding becomes available.

In addition, it is anticipated that there may be additional roadway and bridge improvements made by local governmental jurisdictions that MWRD is not specifically aware of. Private property improvements (businesses and residences) along the project reach may occur due to the reduction in flood damages. These improvements are difficult to quantify but would be reasonably foreseeable along the project reach.

SECTION FOUR: REFERENCES

- Christopher B. Burke Engineering Ltd. 2011. Detailed Watershed Plan for the Lower Des Plaines River Watershed: Volume 1.
- Hey and Associates, Inc. 2018. Application for Section 404 Permit Authorization, Addison Creek Channel Improvements LRC-2014-674.
- Hey and Associates, Inc. 2017. Preliminary Design Report Addison Creek Channel Improvements Contract 11-187-5C.
- Metropolitan Water Reclamation District of Greater Chicago. 2022. Addison Creek Channel Improvements, SSA: Volume 3 of 3; Book 1 of 2.
- Metropolitan Water Reclamation District of Greater Chicago. 2022. Addison Creek Channel Improvements, SSA: Volume 3 of 3; Book 2 of 2.

SECTION FIVE: AGENCY CONSULTATION

The Tribal Nations and agencies listed below have been provided a copy of this document or will be notified of this project through FEMA Region 5 standard consultation procedures as directed under individual environmental laws and Executive Orders.

City of Northlake, Illinois
Village of Melrose Park, Illinois
Village of Stone Park, Illinois
Village of Bellwood, Illinois
Village of Westchester, Illinois
Village of Broadview, Illinois
Illinois Department of Transportation
Lower Des Plaines River Watershed Planning Council
Cook County Department of Emergency Management & Regional Security
Illinois Department of Natural Resources Office of Resource Conservation
Illinois Department of Natural Resources Office of Water Resources
Illinois Department of Natural Resources Historic Preservation Division
Illinois Emergency Management Agency
Illinois Environmental Protection Agency
US Army Corps of Engineers, Chicago District
US Environmental Protection Agency, Region 5
US Fish and Wildlife Service, Chicago Ecological Services Field Office
US Housing and Urban Development, Regional Environmental Officer
Citizen Potawatomi Nation
Delaware Tribe of Indians
Forest County Potawatomi Community of Wisconsin
Hannahville Indian Community
Ho-Chunk Nation
Miami Tribe of Oklahoma
Pokagon Band of Potawatomi Indians

Prairie Band Potawatomi Nation
Shawnee Tribe

SECTION SIX: FEMA CONTACT INFORMATION

Anyone interested in providing comments on this document may respond as noted below before April 3, 2023. Be sure to provide your name and contact information along with your comments.

Respond by Mail:

Federal Emergency Management Agency, Region 5
c/o Duane Castaldi, Regional Environmental Officer
536 South Clark Street, 6th Floor
Chicago, IL 60605-1521

Respond by Email:

Send comments to fema-r5-environmental@fema.dhs.gov, ATTENTION: Addison Creek Channel Improvements.