



Elkhart, Illinois

Village of Elkhart - New Sanitary Sewer System & Wastewater Treatment Plant (FGA#22-1092)

**IEPA Preliminary Environmental Impacts Determination (PEID) Public Meeting (IEPA#L17-0472)
- October 16, 2023 @ 6:00 pm, Elkhart Village Hall, 209 Governor Oglesby St, Elkhart, Illinois**

Presenter:

Narendra Patel, PE, PMP® | Senior Project Manager
Fehr Graham – Champaign, Illinois
Illinois PE#062-060002, PMP#3363551

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Key Highlights

- **IEPA Facility Planning – Preliminary Environmental Impact Determination (PEID) approval summary (September 2023)**
 - ✓ **PEID Project Summary Overview**
- **IEPA Facility Planning Report (May 2023)**
 - ✓ **Planning Highlights**
 - ✓ **Environmental Clearances**
- **Questions/Comments**



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

JB PRITZKER, GOVERNOR

JOHN J. KIM, DIRECTOR

Corrected Project Summary and Preliminary Environmental Impacts Determination

Date: **SEP 19 2023**

Loan Applicant: Village of Elkhart

IEPA Loan Project Number: L170472

To all interested persons:

Section 365.330 of the Illinois Procedures for Issuing Loans from the Water Pollution Control Loan Program requires that the Illinois Environmental Protection Agency (IEPA) conduct an assessment of the environmental impacts of proposed wastewater projects to be funded with loans. This review is carried out in conjunction with the Agency's review of the applicant's project plan.

Prior to final approval of the project plan, the public's comments are sought regarding environmental impacts of the proposed project. Unless new information obtained through the public comment process causes reconsideration, the Agency will approve the project plan at the close of the public comment period.

The applicant will make the attached Project Summary and Preliminary Environmental Impacts Determination (PEID) available for public inspection. Within 60 days of receiving this letter, the applicant must conduct a public hearing regarding both the PEID and project planning. Advertisement of the hearing must be made at least 10 days in advance. The advertisement must include the purpose of the project along with the date, time, and location of the hearing. A comment period of at least 10 days shall be provided after the hearing in which written comments may be submitted to the loan applicant or to the IEPA contact person identified in the attached document.

For information purposes only, a copy of this document is being provided to your local newspaper of record.

Your participation in this process is appreciated.

Sincerely,

Gary Bingenheimer, P.E.
Manager
Infrastructure Financial Assistance Section
Bureau of Water

GB:JFPEID - ELKHART - L170472.DOCX

Attachment

Project Summary and Environmental Assessment

The Village of Elkhart has applied to the Illinois Environmental Protection Agency's (IEPA) Water Pollution Control loan program to request funding to help finance a wastewater collection and treatment system improvements project. The following project summary and environmental assessment has been prepared by the IEPA to assist the loan applicant comply with the public notice requirements.

This report is based on information submitted to the IEPA by the Village of Elkhart. Sources of information include the following documents: New Sanitary Sewer System Facility Plan dated May 15, 2023. This information was submitted by the Village of Elkhart and was prepared by Fehr Graham.

Part I – Project Information

Loan Applicant: Village of Elkhart

County: Logan

Project Name: New Sanitary Sewer System Facility Plan

Project Numbers: L170472

Current Population Served: 450

Future Population (20 year): 700

Project Description: The proposed project consists of the construction of a new sanitary sewer collection system consisting of the following: approximately 1,000 feet of 12 inch diameter sanitary sewers; 2,500 feet of 10 inch diameter sanitary sewers; 20,000 feet of 8 inch diameter sanitary sewers; 350 feet of bored and jacked 20 inch steel casting pipe with 12 inch sanitary carrier pipe under Route 66 and the Union Pacific (UP) railroad crossing; 150 feet of bored and jacked 20 inch steel casing pipe with 12 inch sanitary carrier pipe under Elkhart Slough, one (1) duplex submersible sanitary pump station with 1,000 feet of 6 inch forcemain; about eighty (80) 4 foot diameter sanitary manholes; approximately 223 connections (totaling about 12,000 feet) of 6 inch sanitary sewer service connections including sewer services and fittings; and other incidental site improvements items. The project also consists of construction of a new waste water treatment plant (WWTP) consisting of a new headworks building with one (1) fine screen, one (1) bypass manual bar screen, in channel Parshall Flume Flow Measurement, one (1) covered and aerated two-cell lagoon with baffles, covers, aeration diffusion systems, one polishing reactor, two (2) 15 horsepower (each) blowers, chlorine contact tank, chlorine feed system, sodium bisulfite de-chlorination feed system, effluent flow measurement system, process building and an outfall structure near Elkhart Slough. The proposed WWTP will have a Design Average Flow (DAF) of 0.07 million gallons per day (MGD) and a Design Maximum Flow (DMF) of 0.18 MGD.

Project Location: The proposed location of the new WWTP is in the northwestern part of the Village, south of interstate 55 and west of the Elkhart Slough. Maps showing the proposed location of the new WWTP, and the proposed collection system can be seen in the attached project map.

Project Justification: The Village currently relies solely on the individual septic tank treatment and discharge systems rather than a centralized wastewater collection and treatment facilities. Many of these existing septic tanks have likely failed, and the others are expected to fail as they continue to age, leaving homes uninhabitable. This method has many negative impacts that affect almost all facets of a municipality, including pollution of natural resources, discouragement of future economic and cultural development, and a significant decrease in financial security for both the Village and its residents. To mitigate these negative socio-economic and environmental impacts, the Village has decided to consider constructing a new sanitary sewer system and wastewater treatment plant to provide reliable wastewater treatment capabilities to the residents and businesses.

Estimated Construction Start Date: July 2025

Estimated Construction Competition Date: December 2027

Total Project Cost Estimate: \$13,000,400.00 (with contingency)

Part II – Environmental Issues Associated with the Project

Project construction impacts: Temporary adverse environmental impacts such as construction-associated noise, blowing dust, air emissions, traffic disruption, and soil erosion will likely occur during construction.

Illinois Department of Natural Resources: The loan applicant submitted project information to the IDNR EcoCAT website to determine compliance with the Illinois Endangered Species Act, Illinois Natural Areas Preservation Act, the Illinois Wetlands Act, and Title 17 Ill. Adm. Code Parts 1075 and 1090. The Department has concluded that adverse effects are unlikely. However, impacts to North Elkhart Hill Grove and Water Reserve, Elkhart Hill Grove Nature Preserve, and Elkhart Hill Grove Land and Water Reserve are prohibited by state regulation. All necessary precautions to avoid impacts to Dedicated Nature Preserves shall be implemented. This information will be included in the plans and specifications of the project.

Illinois Historic Preservation Division of IDNR: An IDNR letter dated April 5, 2023 indicates that there are no anticipated impacts to historic, architectural, and archaeological resources from the proposed project and that it complies with Section 106 of the National Historic Preservation Act of 1966.

U.S. Army Corps of Engineers (USACE): The loan applicant submitted their project information to the U.S. Army Corps of Engineers (USACE) for their review and determination of requirements related to placement, or excavation, of any dredged or fill materials into rivers, lakes, ponds, large and small streams with perennial, intermittent or ephemeral flow, artificial water bodies and wetlands adjacent to these waters and associated permitting. The U.S. Army Corps of Engineers, Rock Island District letter dated June 2, 2023, indicates that the proposed project appears to fit the category of activities described in Nationwide Permit 58 for Utility Line Activities for Water and Other Substances. The applicant will be required to complete and return the “Completed Work Certification” form upon project completion. This permit will also be included in the plans and specifications of the project.

Part III – Project Affordability for Residents and Utility Customers

Construction:	\$9,964,000
Contingency (10%):	\$996,400
Construction Engineering:	\$878,000
Design Engineering:	\$1,097,000
Professional Services:	\$65,000
<hr/>	
Project Total:	\$13,000,400
UCCGP Grant:	(\$5,000,000)
<hr/>	
Anticipated Loan Amount:	\$8,000,400

The applicant is proposing to finance the project costs with a loan from the IEPA WPCLP and a grant from the IEPA Unsewered Communities Construction Grant Program (UCCGP). A \$8,000,400 loan with an estimated interest rate of 1.81% for a twenty (20) year period, would have an annual repayment of approximately \$477,081.

The loan program rules include provisions for incentives such as reduced interest rates, partial principal forgiveness (a reduction in the amount of principal borrowed that would otherwise have to be repaid), and

extended repayment periods for qualifying applicants. The criteria used to determine incentive qualification are found in Section 365.210 and 365.250 of the Procedures for Issuing Loans from the WPCLP which is available on the Agency's website. The final decision for incentive qualification will be determined at the time a loan agreement is issued using updated Census Bureau and Department of Labor data. The Agency adjusts qualifying criteria annually on July 1st.

Using current data, Applicant is eligible to receive a thirty (30) year loan term, 1.36% small community interest rate, environmental discount rate reduction, and partial loan principal forgiveness. Principal forgiveness is not guaranteed until a loan agreement is issued.

The final loan and annual repayment amounts will be based on the as-bid project costs, and the loan terms in effect on the date the loan agreement is issued.

Source of Loan Repayment: The revenue generated from the user charges is what the Village anticipates to use to repay the loan.

Projected Average Monthly Residential Cost of Service: The proposed sewer flat fee amount is dependent upon the IEPA loan incentives available to the Village. If the Village does not receive any loan principal forgiveness, the new sewer flat fee is anticipated to be \$220.00 per month. If the Village receives the qualifying 15% principal forgiveness loan incentive as well as the IEPA Unsewered Communities Construction Grant, the new sewer flat fee is anticipated to be \$97.00 per month.

Number of Customers or Service Connections: The Village anticipates approximately 223 service connections consisting of 216 residential connections and 7 commercial connections.

Median Household Income (MHI): \$77,500

Financial Impact of the proposed project: In order to determine the financial impact of the proposed project on the community, a percentage comparison of the MHI to the annual cost for water service is utilized. According to the most recent census information, the average MHI of the loan applicant is \$77,500. The projected total annual sewer service cost of \$1,164.00 is 1.50 percent of the MHI for the applicant's sewer users. Any amount less than 2.0 percent is considered to be affordable under State and Federal loan program criteria.

Public comments are invited on the proposed project. For further information contact:

Jillian Fowler, Project Manager
Infrastructure Financial Assistance Section
Illinois Environmental Protection Agency
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
(217)782-2027

Village of Elkhart, IL

Municipal Boundaries

Proposed
WWTP Site

Proposed Sanitary
Sewer System
(Throughout)

700th St
Kennedy St

Elkhart

Kennedy Rd

County Rd 600 E

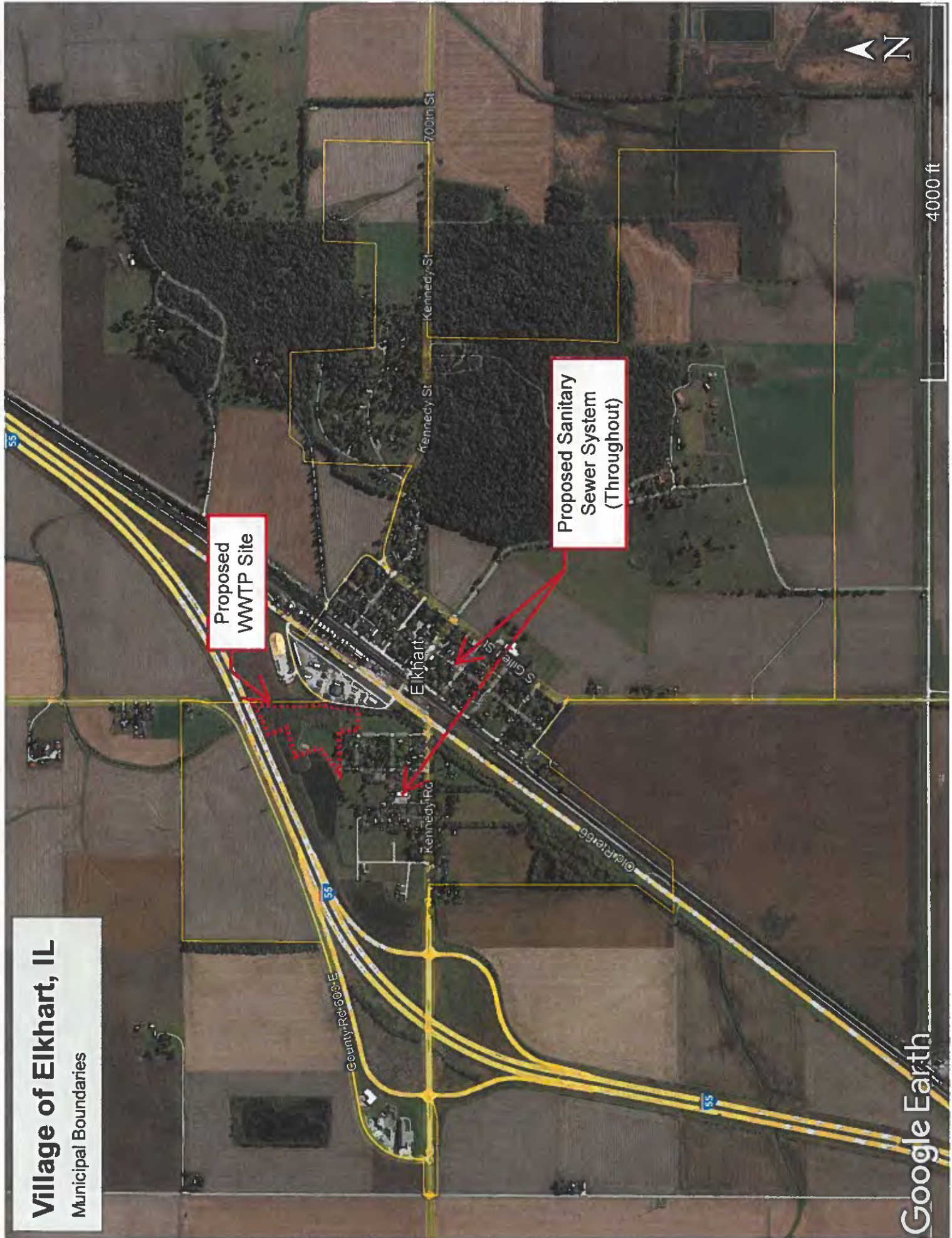
S Gille St

Older Rd



4000 ft

Google Earth



New Sanitary Sewer System Facility Plan

Village of Elkhart



Project #22-1092

May 15, 2023

1610 Broadmoor Drive
Champaign, Illinois 61821

Village of Elkhart
209 Governor Oglesby Street
Elkhart, Illinois 62634

**WASTEWATER FACILITY PLAN
FOR
NEW SANITARY SEWER SYSTEM**

**PREPARED FOR:
VILLAGE OF ELKHART**

**PROJECT NO.: 22-1092
DATE: May 15, 2023**



License Expires: November 30, 2023

SIGNATURE:

Narendra Patel, PE, PMP®, Project Manager

DATE:

5.15.2023

**PREPARED BY:
FEHR GRAHAM**

STATE OF ILLINOIS LICENSE NO. 184-003525

Office Locations

ILLINOIS

Aurora
230 Woodlawn Avenue
Aurora, IL 60506

Champaign
1610 Broadmoor Drive
Champaign, IL 61821

Freeport
101 West Stephenson Street
Freeport, IL 61032

Marion
103 Airway Drive, Suite 3
Marion, IL 62959

Rochelle
515 Lincoln Highway
Rochelle, IL 61068

Rockford
200 Prairie Street, Suite 208
Rockford, IL 61107

Springfield
2160 South Sixth Street, Suite E
Springfield, IL 62703

IOWA

Cedar Rapids
200 5th Avenue SE, Suite 100
Cedar Rapids, IA 52401

Manchester
221 East Main Street, Suite 301
Manchester, IA 52057

West Union
128 South Vine Street
West Union, IA 52175

WISCONSIN

Monroe
1107 16th Avenue
Monroe, WI 53566

Sheboygan
909 North 8th Street, Suite 101
Sheboygan, WI 53081

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Exhibits

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Exhibit C	IEPA Discharge Limits Correspondence
Exhibit D	New Sanitary Sewer System OPPC
Exhibit E	WWTP Alternative 1 – Site Plan, Process Flow, Diagram, and OPPC
Exhibit F	WWTP Alternative 2 – Site Plan, Process Flow, Diagram, and OPPC
Exhibit G	WWTP Alternative 3 – Site Plan, Process Flow, Diagram, and OPPC
Exhibit H	WWTP Alternative 4 – Site Plan, Process Flow, Diagram, and OPPC
Exhibit I	WWTP Alternative 5 – Site Plan, Process Flow, Diagram, and OPPC
Exhibit J	Preliminary Basis of Design
Exhibit K	Salt Watershed 2020/2022 303(d) Information
Exhibit L	Stream Dissolved Oxygen Calculations
Exhibit M	Environmental Clearances
Exhibit N	Wetlands and FIRMette Maps

Exhibit O	Eight Year Financial Projections
Exhibit P	Annual Debt Service Comparison
Exhibit Q	Lemna's LemTec™ Lagoon and LPR Proposal

PART 1: EXECUTIVE SUMMARY

The purpose of this Facility Plan is to assess the feasibility of the new collection system and the WWTP and also to determine the financial impact of building these improvements for the Village of Elkhart (Village). The Village is currently an unsewered community and the residents use individual septic tank systems to treat their wastewater. The proposed project will provide the Village with its own sanitary sewer collection system and wastewater treatment capabilities to align with the goals set by the IEPA and the CWA.

1.1 Applicant and Project Information

The Village is located in Logan County, and is interested in constructing a new collection system and a new WWTP to treat its wastewater. The US Census Bureau shows the 2020 population to be 450 residents. For conservatism, the design year (2053) population is calculated to be about 700. The maps showing general locations of the proposed sanitary sewer system and plant location can be seen in Exhibit A.

1.2 Project Description

The Village currently does not have a sanitary sewer system or a viable method of treating their wastewater, and residents currently use individual septic tanks to treat their wastewater. The proposed project will construct a network of sanitary sewer collection systems in the Village and a new WWTP.

The new sanitary sewer system will generally include construction of approximately 1,000 feet of 12" diameter, 2,500 feet of 10" diameter, and 20,000 feet of 8" diameter sanitary sewers; 350 feet of bored and jacked 20" steel casing pipe with 12" sanitary carrier pipe under Route 66 and the Union Pacific (UP) railroad crossing; 150 feet of bored and jacked 20" steel casing pipe with 12" sanitary carrier pipe under the Elkhart Slough; one duplex submersible sanitary pump station with 1,000 feet of 6" forcemain; about 80 each 4' diameter sanitary manholes; approximately 223 connections (totaling about 12,000 feet) of 6" sanitary sewer service connections including sewer services and fittings, and other incidental site improvements items.

The new WWTP will have a fine screen, bypass manual bar screen, and flow measurement and sampling devices installed in a headworks structure. Screened effluent will go through a covered and aerated two-cell lagoon and polishing reactor as described in later sections of this report as the recommended treatment strategy. The polishing reactor effluent will then be disinfected with chlorine, de-chlorinated and then discharged at the proposed outfall location into Elkhart Slough in compliance with the expected NPDES permit effluent limits.

1.3 Project Justification

The Village currently relies solely on the individual septic tank treatment and discharge systems rather than a centralized wastewater collection and treatment facilities. This method has many negative impacts that affect almost all facets of a municipality, including pollution of natural resources, discouragement of future economic and cultural development, and a significant decrease in financial security for both the Village and its residents. To mitigate these negative socio-economic and environmental impacts, the Village has decided to consider constructing a new sanitary sewer system and wastewater treatment plant to provide reliable wastewater treatment capabilities to the residents and businesses.

All of wastewater in the Village is currently treated by the aging and failing individual septic tank systems. These systems are not municipally owned or operated facilities. Septic tank effluent is routed to either on-site percolation fields, undocumented field tiles, or local storm sewers. For the most part, the effluent from private septic tanks is considered to be “partially treated” sewage. The septic tanks remove settleable solids, and that process removes some of the BOD from the raw sewage; however, BOD is not removed in the septic tanks to the degree that is required by Illinois EPA and USEPA regulations. In addition, the degree of TSS removal achieved in septic tanks does not meet current state and federal standards. Furthermore, constituents such as ammonia, nitrogen, and fecal coliform are not removed at all, thereby causing severe de-oxygenation of the receiving stream flows, as well as toxic conditions for fish and various aquatic life, along with the risk for bacterial infection for any wildlife or humans who might come in contact with those contaminated stream flows.

In December 2012, officials from the Logan County Department of Public Health (LCDPH) received a request to make certain inspections of an open ditch along Latham Street and the Union Pacific Railroad right-of-way that passes through the Village in a southwesterly-to-northeasterly direction. That inspection found a rotten egg odor, high turbidities, and high fecal coliform counts in the ditch. On November 26, 2014, the LCDPH issued a letter to the Village relaying its concerns about this issue and requesting an action plan to resolve the issue. On February 22, 2016, and February 23, 2022, the LCDPH issued two additional letters concerning this issue. Copies of these letters are provided in Exhibit B.

Many of the existing septic tanks have likely completely failed, and the others are expected to fail as they continue to age, leaving homes uninhabitable and potentially forcing the Village to pay for the demolition of the properties. When a septic tank fails, a replacement system must be permitted by the Illinois Department of Public Health (IDPH) that meets today’s standards for a leach field. This means that wastewater cannot leave the lot without obtaining an NPDES permit. Most homes in the Village are on lots that are too small to construct a replacement leach field. In this case, the property owners are expected to install an aerated system, which not only requires an IEPA discharge permit, but also costs more than \$20,000 on average, according to the IDPH.

On top of the required permitting and fees, there will also be power, maintenance, and testing costs to run the aerated system. The cost of this type of system exceeds that of a centralized system, which benefits the entire community.

1.4 Estimated Construction Start/Completion Dates

The estimated start date for construction is July 2025 and the project is expected to finish by December 2027. A detailed breakdown of the expected schedule is in Section 9.1 of this report.

1.5 Project Cost Estimate

The proposed project has two parts. The first part involves construction of the sanitary sewer collection system. The second part involves construction of a WWTP which will treat the influent from the collection system. The construction of the collection system is expected to cost approximately \$9,200,000. The construction of the WWTP will be approximately \$3,802,000. This brings the total project cost to approximately \$13,002,000.

1.6 Project Affordability for Residents and Utility Customers

1.6.1 Source of Loan Repayment

As the Village currently does not have a sanitary sewer system and WWTP, a new sewer use and user charge ordinance will need to be adopted to institute a dedicated source of revenue system. The rates should be setup in a way that the revenue generated will be adequate to properly operate and maintain the plant and also to payback an annual debt service for the IEPA loan.

1.6.2 Current Average Monthly Residential Cost of Service

The Village is an unsewered community at this time, so there is no current sewer fee in place.

1.6.3 Project Average Monthly Residential Cost of Service

The Village currently does not have a sanitary sewer treatment system and thus there are no sewer ordinances. The Village obtains its potable water from groundwater from their local municipality, to which the residents pay their monthly water bills.

In support of financing the proposed sanitary sewer system and WWTP and to properly operate and maintain the plant, the following monthly average sewer bill is estimated depending on the various scenarios, factoring in an unsewered community grant and principal forgiveness:

Table 1-1: Proposed Average Sewer Bill Estimation

IEPA Loan Financing	Average Monthly Sewer Bill Amount
No principal forgiveness and no unsewered community grant	\$220
15% principal forgiveness and no unsewered community grant	\$127
\$5,000,000 unsewered community grant and 15% principal forgiveness	\$97

1.6.4 Proposed Monthly Rate of Service Calculation

The proposed sanitary sewer user charge ordinance will need to include sewer charges of at least the monthly sewer bill amount estimated for the respective financial scenario. Assuming no unsewered community grant or principal forgiveness is available to the Village, the monthly sewer use charge is recommended to be a flat fee of \$220 per month per user. If the Village is granted only 15% principal forgiveness, but no unsewered community grant, the monthly sewer flat fee would need to be \$127 per month per user. In the best-case scenario, if the Village is granted a full \$5,000,000 unsewered community grant and 15% principal forgiveness, then the resulting monthly sewer flat fee would need to be \$97 per month per user.

1.6.5 Number of Customers or Service Connections

Reportedly, 223 sewer users will be connected to the new sanitary sewer system.

1.6.6 MHI

The MHI for the Village is \$77,500 as per the 2020 US Census database.

1.6.7 Percentage of MHI to Pay Cost of Service

The Village has an average median household income of \$77,500. If an unsewered community grant and 15% principal forgiveness are not available, the per user monthly sewer flat fee will be \$220, which equates to 3.4 % of MHI and well exceeding the affordability upper value of 2.0% of MHI making the project unaffordable. If an unsewered community grant is not granted, but the Village only 15% principal forgiveness is granted, the per user monthly sewer flat fee will be \$127, equating to 2.0% of MHI, which is the upper threshold value of affordability. This shows how critical it is for the Village to receive a maximum amount of unsewered community grant and maximum amount of principal forgiveness to lower the proposed sewer user cost to more affordable levels. If the Village is awarded a full \$5,000,000 unsewered community grant and additional 15% principal forgiveness, the resulting per user monthly sewer flat fee will be \$97, which equates to 1.5% MHI meeting the affordability guideline and making the project affordable to the Village residents.

1.7 Environmental Review and Impacts

The proposed project will have a positive impact on the water quality of surrounding streams. As mentioned above, a majority of the Village's population uses aging septic tank systems for the treatment of their wastewater. Septic tanks are limited in their ability to treat wastewater. When the partially treated or untreated waste from the failing septic tanks are released into a leach field or into a field tile, the wastewater finds its way into the nearby streams, in turn, polluting the streams and the water bodies they are a tributary to. A new WWTP will treat wastewater to meet the discharge standards set by the facility's NPDES permit. The NPDES permit limits align with the goals of the CWA, thus reducing pollution.

An IDNR EcoCAT signoff was requested for this proposed project on February 6, 2023. The IDNR terminated consultation on February 7, 2023, with the determination that although protected resources may be in the vicinity of the proposed action, adverse effects are unlikely. The signoff and EcoCAT results are included in Exhibit M.

A request for signoff from IDNR's State Historic Preservation Offices (SHPO) was sent on February 23, 2023, for this project. The SHPO signoff was issued on April 5, 2023, with no objection to the proposed project. This correspondence and signoff are included in Exhibit M.

A request for Nationwide Permit (NPW) 58 signoff from the United States Army Corp of Engineers (USACE) was sent on February 23, 2023, for this project, with a follow up on April 12, 2023 and May 4, 2023. To date, the USACE correspondence is awaited. However, based on Fehr Graham's experience with other similar requests where the USACE found such activity to categorically fit the provisions of the NPW 58 (Utility Line Activities for water and other substances) requiring a preconstruction plan be submitted for verification during the design phase. A similar response correspondence is anticipated to be received. Once that response is received, it will be forwarded to the agency. The correspondence with the USACE and an NWP 58 summary are included in Exhibit M.

Tribal signoff requests were also sent out on March 16, 2023 to five separate native tribes that may potentially have tribal lands around the project area. No native tribes issued a response.

2.3.2 Demographics

The 2020 Census shows a population of 450. Most of the areas within the corporate limits are zoned as low density residential. The Village has a few retail establishments, and the surrounding area is primarily agricultural.

2.3.3 Land Use and Zoning

The Village of Elkhart currently does not have any zoning designations for the existing developed sections of the Village. As such, the Village is subject to the zoning ordinances of Logan County. The Village’s municipal boundaries include agricultural, special and manufacturing zoning areas, with the proposed WWTP and sanitary sewer collection system falling within the manufacturing zoning areas.

Currently, the majority of the land use within the Village is for single-family dwellings. However, there is a downtown business section along Governor Oglesby Street east of Latham Street. In addition, it is likely that future development around the Elkhart interchange onto Interstate 55 will be commercial developments and/or light industrial tracts that will take advantage of quick access to that established and well-traveled transportation corridor.

2.3.4 Historical Population

The population of the Village in 1980 was 493. From 1980 to the present, the population has fluctuated minimally with the present 2020 estimate of 450. However, given the increase in population over the last 10 years reflected in the U.S. Census, the Village may continue to see a slight increase in the population once the sanitary sewers and treatment plant infrastructure are in place.

2.3.5 Make Up of Customer Base

Much of the Village’s user base consists of residential users with a few commercial users. This customer base is not expected to see a major change other than a marginal increase in the number of residential users as the Village grows by design year 2053.

2.3.6 Population Projections

Based on U.S. Census data, the Village’s population data is summarized in Table 2-1:

Table 2-1: Design Year (2053) Population Projection

Year	Population
1980	493
1990	475
2000	443 ⁽¹⁾
2010	405 ⁽¹⁾
2020	450 ⁽¹⁾
2030	550 (±)
2040	650 (±)
2050	700 (±)

(1) U.S. Census Bureau, Census Population

Based on a review of available historic data, the population of the Village steadily decreased between 1980 to 2010. However, from 2010 to 2020, the U.S. Census shows the population increased to about 450. As a benefit of having the sanitary sewer infrastructure in place once constructed, the population of

PART 3: EFFLUENT LIMITATIONS

The proposed design of the WWTP is estimated to have a DAF of 0.07 MGD and a DMF of 0.18 MGD as discussed in the later section.

3.1 Current Permits

Because the Village has no existing sanitary sewer system, it currently has no NPDES discharge permit for any wastewater being discharged from the Village. Upon completion of the project's facility planning stages, but before the initiation of design, the Village should apply for said permit. Without an NPDES permit, any new wastewater treatment plant for the Village will not be legally permitted to discharge flow into any receiving stream.

3.2 Water Quality and Effluent Standards

Effluent from the various septic tanks within the Village is discharged into local field tiles, percolation fields, and storm sewers. These conveyance facilities then route these partially treated flows to the nearest receiving stream. The major open body of water within Elkhart is the *Elkhart Slough*, which enters the Village from the south and which flows in a northerly direction out of the Village. Northeast of the Village, the *Elkhart Slough* flows into the *Lake Fork of Salt Creek*. The *Lake Fork* flows northward and discharges into *Salt Creek* at a point about 1.5 miles south of the Logan Correctional Center, which is south of the City of Lincoln. The *Salk Creek* then flows westward and discharges into the *Sangamon River* at a location north of Petersburg. The *Sangamon River* then flows into the *Illinois River* at Beardstown.

For the most part, the effluent from private septic tanks is considered to be "partially treated" sewage. The septic tanks remove settleable solids, and that process removes some of the BOD from the raw sewage; however, BOD is not removed in the septic tanks to the degree that is required by IEPA and USEPA regulations. In addition, the degree of TSS removal achieved in septic tanks does not meet current state and federal standards. Furthermore, constituents such as ammonia, nitrogen, and fecal coliform are not removed at all, thereby causing severe de-oxygenation of the receiving stream flows, as well as toxic conditions for fish and various aquatic life, along with the risk for bacterial infection for any wildlife or humans who might come in contact with those contaminated stream flows.

As part of the CWA, all states are required to identify waters that are currently not meeting water quality standards, otherwise known as impaired waters. The IEPA has compiled a list of impaired waters within the state of Illinois and has prioritized them for studies necessary to develop TMDLs for each pollutant of concern. Additionally, the *Elkhart Slough* is not listed in Section 303(d) of the 2020/2022 Illinois Integrated Water Quality Report. The *Elkhart Slough* is not a biologically significant stream at the outfall location and it is not subject to enhanced dissolved oxygen standards. Because it is not listed as an impaired water, *Elkhart Slough* is not subject to any TMDL limits at this time.

3.3 Expected Effluent Limits

In order to obtain the expected effluent limits, Fehr Graham requested the IEPA provide expected effluent limits for design purposes. The IEPA responded in a letter on February 2, 2023, providing expected effluent limits that may be imposed through an NPDES permit. The IEPA correspondence letter can be seen in Exhibit C. Below is a summary of the expected effluent limits for the treatment plant, based on the IEPA discharge limits correspondence:

Table 3-1: Expected Future NPDES Permit Discharge Limits

Parameter	Load Limits, lbs./day DAF (DMF)			Concentration Limits, mg/L		
	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum
Flow (MGD)	0.07 MGD (Monthly Average) and 0.18 MGD (Daily Maximum)					
CBOD₅	5.8 (15)	-	11.7 (30)	10	-	20
Suspended solids	7.1 (18)	-	14 (36)	12	-	24
pH	Shall be in the range of 6.0 to 9.0 standard units					
Fecal coliform	Daily Maximum shall not exceed 400 per 100 mL (May through October)					
Chlorine residual	-	-	-	-	-	0.05
Ammonia – Nitrogen as N:						
March-May/Sept.-Oct.	0.9 (2.3)	2.2 (5.7)	3.3 (8.6)	1.5	3.8	5.7
June-August	0.7 (1.8)	1.8 (4.5)	4.0 (10.4)	1.2	3.0	6.9
Nov.-Feb.	2.3 (6.0)	N/A	4.7 (12.2)	4.0	N/A	8.1
Dissolved Oxygen:				Monthly Average not less than	Weekly Average not less than	Daily Minimum
March-July	-	-	-	N/A	6.0	5.0
August-February	-	-	-	5.5	N/A	3.5

3.4 Other Discharge in the Planning Area

There are no wastewater treatment plant discharge sources reportedly present in the area. The Village has a WTP with a small wastewater flow discharge under the associated NPDES permit number IL0052515.

PART 5: PROPOSED FLOWS AND LOADS

5.1 Collection System Flows and Loads

The proposed project includes a new sanitary sewer system containing several feet of combined 12", 10", and 8" sanitary sewers, about 223 each of new 6" sanitary sewer service connections, sanitary manholes, and one pump station and 6" forcemain.

On the southeast side of town, the land slopes downward toward the northwest to the railroad right-of-way and *Elkhart Slough*. The gravity sanitary sewers would flow northwesterly and follow the ground slope, in order to minimize the depth of cut. In like manner, the land northwest of the *Elkhart Slough* and U.S. Route 66 slopes downward toward the *Elkhart Slough*, so the proposed gravity sewers would slope to the southeast to keep their depth minimized. One duplex submersible sanitary pump station will be provided to lift flows from the collection system to the WWTP area.

Most of the town's water mains are in the alleys. IEPA rules require that sanitary sewers be at least 10 feet away from water mains. Because of that, none of the sewers are proposed to be placed in the alleys. The 12" interceptor sewer in the center of town would have a depth of cover of between 10 feet and 15 feet. The 10" collector sewers would have a range of depths between 8 feet and 12 feet. The remaining 8" sewers would have a depth of cover ranging between 4 feet and 13 feet. The design assumes that at least 36 inches of cover is needed to keep the sanitary sewers below the historic frost line.

The entire sanitary sewer system will flow into a new pump station located near the crossroads of Davis Street and Buttell Street, just west of Route 66. The sewer system average flows are estimated to be 70,000 gpd or 0.07 MGD for the design year 2053, and a maximum flow, at the collection system peaking factor of 4.0, is estimated to be 0.28 MGD. The flow from this pump station will be sent to the WWTP by a new 6" forcemain.

5.2 WWTP Flows and Loads

As mentioned above, since this is a new sanitary sewer system, the flows and loads for a new WWTP are estimated based on the criteria mentioned in, *35 IAC: Part 370: Illinois Recommended Standards For Sewage Works*. The proposed wastewater treatment plant will be designed to handle the following flows and loadings, based on a design population of 700 P.E.

Table 5-1: Twelve-Month Average Flow and Loads

Parameter	Average [mg/L]	Average [lbs./day]	P.E.
DAF	0.07 MGD		700
DMF	0.18 MGD		-
P.F. ⁽¹⁾	2.5		-
BOD ₅	204	119	700
TSS	240	140	700
TKN	30	18	-

⁽¹⁾ Typical WWTP peaking factor of 2.5.

PART 7: PROPOSED PROJECT

7.1 Description of Proposed Project

The proposed project will include the construction of a new sanitary sewer system and a new lagoon type WWTP in the Village. The new proposed treatment plant will have a DAF of 0.07 MGD and a DMF of 0.18 MGD. A summary of the major items to be constructed in this project entails:

A. New Sanitary Sewer System

1. 12" sanitary sewers (all depths), approximately 1,000 feet (±)
2. 10" sanitary sewers (all depths), approximately 2,000 feet (±)
3. 8" sanitary sewers (all depths), approximately 20,000 feet (±)
4. 6" forcemain (all depths), approximately 1,000 feet (±)
5. Bored and jacked 20" steel casing pipe with 12" sanitary carrier pipe under Route 66 and UP railroad crossings, approximately 350 feet (±)
6. Bored and jacked 20" steel casing pipe with 12" sanitary carrier pipe under the *Elkhart Slough*, approximately 150 feet (±)
7. One duplex submersible sanitary pump station
8. 4' diameter sanitary manholes, about 80 total (±)
9. 6" sanitary sewer services, including service connection fitting and appurtenances, approximately 223 services (±)
10. Site restoration, utilities protection, and improvements items.

B. New Wastewater Treatment Plant

1. New headworks building with fine screen, manual bypass bar screen, and parshall flume flow measurement device
2. One covered and aerated two-cell lagoon with baffles, covers, aeration diffusion systems
3. One polishing reactor
4. Two 15HP (each) blowers
5. Chlorine contact tank
6. Chlorine feed system
7. Sodium bisulfite de-chlorination feed system
8. Effluent flow measurement system
9. Process building
10. Outfall structure near *Elkhart Slough*.

7.2 Anti-Degradation Analysis

7.2.1 General Information

This section addresses the anti-degradation aspects and requirements of the project, which are regulated by the 35 Illinois Administrative Code (IAC) Section 302.105 under Title 35 Part 302 – Water Quality Standards. This section of the code was added to Title 35 in December 2002 in order to “protect the existing uses of all waters of the State of Illinois and to maintain the quality of waters with quality that is better than water quality standards, and to prevent unnecessary deterioration of waters of the State.” This Section demonstrates that with the proposed project, the impacts on the water quality in the *Elkhart Slough* will be improved as result of this project when compared to the current condition.

7.2.2 Receiving Stream Description

The proposed new WWTP would be discharged into the *Elkhart Slough* under a new discharge permit that will be obtained. *Elkhart Slough* discharges into the *Lake Fork of Salt Creek*. So far, IEPA has not

PART 8: PROJECT FINANCING

8.1 Current Sewer System Revenue and Expenditures

Since the Village is currently an unsewered community, no sewer system revenue or expenses exist at this time.

8.1.1 Operating Revenue

No operating revenue stream exists at this time. In order to generate adequate revenue to pay for the annual debt service, operation and maintenance costs for the new sanitary sewer system and the WWTP, the Village will need to institute the sewer user revenue stream by adopting a new sewer rate ordinance.

8.1.2 Non-Operative Revenue

No non-operative revenue is present since no sewer system nor sewer revenue stream exists at this time.

8.1.3 Operating Expenses

No operating expenses are incurred at this time. When the Village completes construction of the new sanitary sewer system and WWTP and the new system is in operation, likely in 2027 or so, the annual operating expenses are expected to be about \$110,000 per year, or other negotiated amount associated with operation and maintenance of the new sewer system and WWTP. The proposed sewer rate structure to be adopted will need to cover the adequate revenue to offset the operating expenditure.

8.1.4 Non-Operative Expenses

No non-operative expenses are present at this time since no sewer system nor sewer revenue stream exists at this time.

8.2 Opinion of Probable Cost

The overall project cost is estimated to be \$13,002,000, in which the project cost for the recommended lagoon-based treatment plant is estimated to be \$3,802,000, and the project cost for the new sanitary sewer system is estimated to be \$9,200,000. The overall project cost includes construction contingencies, planning, design, bidding and construction phase engineering, and legal/administration costs. An itemized summary of the proposed project costs is included in the table below:

Table 8-1: Project Cost Estimate Summary

Item	Proposed Sanitary Sewer System	Proposed WWTP	Total
Construction cost	\$7,052,000	\$2,912,000	\$9,964,000
Construction contingencies (10%)	\$706,000	\$292,000	\$998,000
Design engineering (incl. planning)	\$776,000	\$321,000	\$1,097,000
Construction engineering (incl. bidding)	\$621,000	\$257,000	\$878,000
Legal and financial administration	\$45,000	\$20,000	\$65,000
Total Project Cost	\$9,200,000	\$3,802,000	\$13,002,000

The Village intends to obtain funding from IEPA revolving loan under a single loan to fund entire project.

8.4 Sewer Rates

8.4.1 Number of Users

Currently, the Village has about 223 water users, and the same number is used as the proposed billable sewer users.

8.4.2 Current Average Billed Water Flows

The Village currently receives its potable water from its municipal water supply system. The proposed average sewer billing will be recommended to be based on a flat fee regardless of water usage to be billed to each sewer customer on a monthly basis by the Village staff.

8.4.3 Current Average Monthly Bill

Since the Village is an unsewered community at this time, there is no sewer billing structure in place.

8.4.4 Future Debt Service Charge

The future annual debt service charge associated with this project financed by the IEPA loan for various financial scenarios is estimated using 0.73% interest and 30-year loan term. The 0.73% interest rate is based on the Village being eligible for Small Community Interest Rate (75% of Base Rate) with additional 0.2% discount to add sanitary sewers and treatment plant in the currently unsewered community. Future annual debt service charges for various financing scenarios are summarized in the table below.

Table 8-2: Estimated Annual Debt Service

IEPA Loan Financing	Total Project Cost	Unsewered Community Grant	15% Principal Forgiveness	Total Loan Amount to be paid back	Annual Debt Service (at 0.73%-30 Year Term)
No principal forgiveness/no unsewered community grant	\$13,002,000	-	-	\$13,002,000	\$494,100
With 15% principal forgiveness and no unsewered community grant	\$13,002,000	-	(\$1,950,000)	\$11,052,000	\$420,000
With \$5,000,000 unsewered community grant and 15% principal forgiveness	\$13,002,000	(\$5,000,000)	(\$1,200,000)	\$6,802,000	\$258,500

The detailed estimation of annual debt service for the above scenarios is included in Exhibit P.

8.4.5 Future Average Monthly Bill

In order for the Village to generate adequate revenue to help continue to pay for the future annual debt service, and operation and maintenance expenses for the proposed sanitary sewer system and WWTP, the Village is recommended to institute a new sewer billing revenue mechanism by formally adopting the new sewer use and sewer user charge ordinances. The proposed sewer user charge is recommended to be based on a flat fee per month per user.

The future average monthly bill estimation for three scenarios is summarized below.

Table 8-3: Proposed Average Sewer Bill Estimation

IEPA Loan Financing	Average Monthly Sewer Bill Amount
No principal forgiveness/no unsewered community grant	\$220
With 15% principal forgiveness and no unsewered community grant	\$127
With \$5,000,000 unsewered community grant and 15% principal forgiveness	\$97

8.4.6 Affordability Analysis

The summary of affordability analysis is summarized in the table below.

Table 8-4: Affordability Analysis

IEPA Loan Financing	Average Monthly Sewer Bill Amount	Annualized Sewer User Cost	MHI	Affordability Screener (% of MHI)	Remark (Per EPA Affordability Guide)
No principal forgiveness/no unsewered community grant	\$220	\$2,640	\$77,500	3.4%	≥ 2%; Unaffordable (High Financial Burden)
With 15% principal forgiveness and no unsewered community grant	\$127	\$1,524	\$77,500	2.0%	= 2%; Unaffordable (Mid-Range Financial Burden)
With \$5,000,000 unsewered community grant and 15% principal forgiveness	\$97	\$1,164	\$77,500	1.5%	≤ 1.5%; Affordable

Based on the above affordability comparison, without an unsewered community grant and 15% principal forgiveness, the corresponding annualized sewer service costs result into the affordability screener values of 2% or greater of the Village MHI, making the proposed project clearly unaffordable and justifying a need for the Village to receive the maximum amount of grant and principal forgiveness possible. If the Village is granted a full \$5,000,000 unsewered community grant and 15% principal forgiveness, the resulting annualized sewer service cost represents 1.5% of MHI, which is right at the affordability mark making the proposed project affordable to the Village residents.

8.5 Opinion of Future Replacement Cost

The future probable cost for replacements to various equipment over the 30-year planning period is estimated to be \$52,000 at the end of fifteenth year.

PART 9: PROJECT IMPLEMENTATION

9.1 Project Schedule

Summarized below is a project implementation schedule depicting major milestones with anticipated completion timeframes:

Table 9-1: Implementation Schedule

Task	Completion Date
Complete Facility Plan and submit to IEPA	June 2023
IEPA approval of Facility Plan	October 2023
Completion of project design by Engineer	December 2024
Submit plans and specifications for review and necessary permits	December 2024
Passing necessary debt authorizing, sewer use, and sewer rate ordinances	February 2025
Submit loan application package	February 2025
Advertise for bids	March 2025
Bid opening	May 2025
Construction start date	July 2025
Substantial completion date	July 2027
Final completion date	December 2027

9.2 Village’s Responsibilities

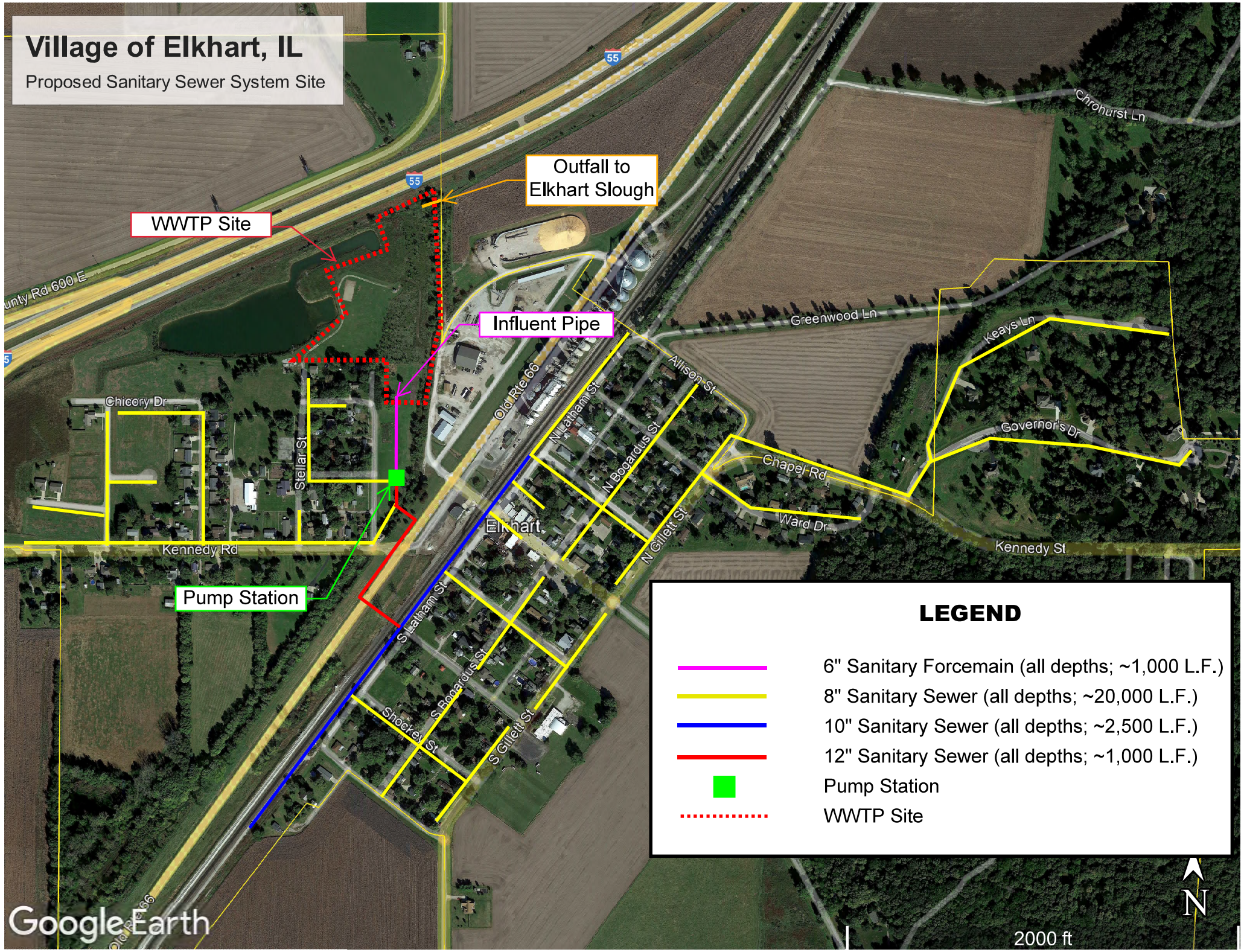
It is the Village’s responsibility to retain the sewer system and WWTP operating staff or the Contract Operator to operate the new facilities and maintain an effluent quality that meets its NPDES permit requirements after it is issued. The Village should take any actions necessary to meet this goal, else the Village be violating environmental laws. Such violations may subject the Village to hefty fines and other legal action by the IEPA and/or USEPA and put a financial burden on the Village. The Village will also need to provide the funds and personnel necessary each year to properly operate and maintain the WWTP. Particular attention should be given to personnel safety at the plant.

The Village should continue future planning so that maintenance and capital improvements can be scheduled and budgeted in an adequate manner. This will reduce the chances of any unexpected financial burden on the users of the Village’s sanitary sewer system. In order to prepare for that occurrence, the Village should hold a public hearing to review the contents of this Facility Planning report along with IEPA’s Preliminary Environmental Impact Determination (PEID) summary. The Village should then submit the PEID public hearing notes and any questions and their answers to IEPA for review and issuance of the formal planning approval. The Village will also adopt a sewer use and user charge ordinance to generate adequate revenue to help pay for the annual debt service associated with the financing of this major capital project, and its annual Operations, Maintenance, and future Replacement costs, and also adopt a debt authorization ordinance to help secure the IEPA revolving loan. It is recommended that the Village authorize the design of this plant improvement project as quickly as possible. The Village should be prepared to complete the following tasks throughout the design of the project:

1. Borrow or allocate money from general funds to begin the design phase.
2. Identify existing available cash on hand.

Village of Elkhart, IL

Proposed Sanitary Sewer System Site



WWTP Site

Outfall to Elkhart Slough

Influent Pipe

Pump Station

LEGEND

- 6" Sanitary Forcemain (all depths; ~1,000 L.F.)
- 8" Sanitary Sewer (all depths; ~20,000 L.F.)
- 10" Sanitary Sewer (all depths; ~2,500 L.F.)
- 12" Sanitary Sewer (all depths; ~1,000 L.F.)
- Pump Station
- WWTP Site



OPPC - NEW SANITARY SEWER SYSTEM (COMMON TO ALL TREATMENT ALTERNATIVES)

NEW SANITARY SEWER SYSTEM

Village of Elkhart, Illinois

Sunday, April 30, 2023

ITEM	DESCRIPTION	EQUIPMENT			TOTAL
		MATERIAL	INSTALLATION	LUMP SUM	
A. NEW SANITARY SEWER SYSTEM					\$ 5,950,000
1	6" PVC SDR35/26 Forcemain to WWTP (all depths, approx. 1,000 LF)			\$ 150,000	\$ 150,000
2	8" PVC SDR35/26 Sanitary Sewers (all depths, approx. 20,000 LF)			\$ 1,500,000	\$ 1,500,000
3	10" PVC SDR35/26 Sanitary Sewers (all depths, approx. 2,500 LF)			\$ 400,000	\$ 400,000
4	12" PVC SDR35/26 Sanitary Sewers (all depths, approx. 1,000 LF)			\$ 160,000	\$ 160,000
5	US Route 66 and IMRR Crossing, with 20" Bored and Jacked Steel Casing Pipe, and 12" PVC SDR35/26 Sanitary Carrier Pipe (approx. 350± L.F.)			\$ 500,000	\$ 500,000
6	Elkhart Slough Crossing, with 20" Bored and Jacked Steel Casing Pipe, and 12" PVC SDR35/26 Sanitary Carrier Pipe (approx. 150± L.F.)			\$ 250,000	\$ 250,000
7	Duplex submersible sanitary pump station			\$ 200,000	\$ 200,000
8	4' Dia. Precast Concrete Manholes (all depths; approx. 80 ea)			\$ 450,000	\$ 450,000
9	Building Service Connections (approx. 223 total; Each containing 6" PVC Service Laterals, Connection, etc)			\$ 800,000	\$ 800,000
10	Remove and Replace Existing Surfaces (Pavements, Bitumin Surfaces; Concrete Sidewalks, Curb & Gutters, etc)			\$ 900,000	\$ 900,000
11	Existing Utilities (Watermains, Gasmains, Storm Sewers, Telephone Line, FO, Cable, etc) Conflict Relocation (all sizes)			\$ 450,000	\$ 450,000
12	Traffic Control, Erosion, & Sediment Controls			\$ 60,000	\$ 60,000
13	Site Clean-up, Grading, Surface Restoration, Seeding & Mulching			\$ 130,000	\$ 130,000
SUBTOTAL					\$ 5,950,000
				SITE EXCAVATION / BACKFILL 2%	\$ 119,000
				SITE ELECTRICAL AND CONTROL 0%	\$ -
				SITE PIPING 0%	\$ -
				CIVIL 2%	\$ 119,000
				MOBILIZATION/DEMOLITION 3%	\$ 179,000
				BONDS AND INSURANCE 1.5%	\$ 90,000
				CONTRACTOR OVERHEAD AND PROFIT 10.0%	\$ 595,000
TOTAL CONSTRUCTION COST					\$ 7,052,000
					CONTINGENCY (10%) \$ 706,000
					DESIGN ENGINEERING (INCL. PLANNING) \$ 776,000
					CONSTRUCTION ENGINEERING \$ 621,000
					LEGAL & FINANCIAL ADMINISTRATION \$ 45,000
OPINION OF PROBABLE PROJECT COST (PLANNING STAGE)					\$ 9,200,000

PRESENT WORTH ANALYSIS	
Annual Operations & Maintenance Costs	\$ 3,000
Total Replacement Costs @ Year 10	\$ -
Total Replacement Costs @ Year 15	\$ -
Total Salvage Value	\$ 3,600,000
P/A Factor	17.169
P/F - 5 year	0.937
P/F - 10 year	0.870
P/F - 15 year	0.806
P/F - 20 year	0.742

OPPC - NEW SANITARY SEWER SYSTEM (COMMON TO ALL TREATMENT ALTERNATIVES)

NEW SANITARY SEWER SYSTEM

Village of Elkhart, Illinois

Sunday, April 30, 2023

ITEM	DESCRIPTION	EQUIPMENT			TOTAL
		MATERIAL	INSTALLATION	LUMP SUM	
				PRESENT WORTH OF O&M COSTS	\$ 52,000
				PRESENT WORTH OF TOTAL REPLACEMENT COSTS	\$ -
				PRESENT WORTH OF SALVAGE VALUE	\$ (2,673,000)
				TOTAL PROBABLE PROJECT PRESENT WORTH	\$ 6,579,000

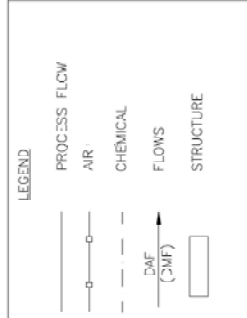
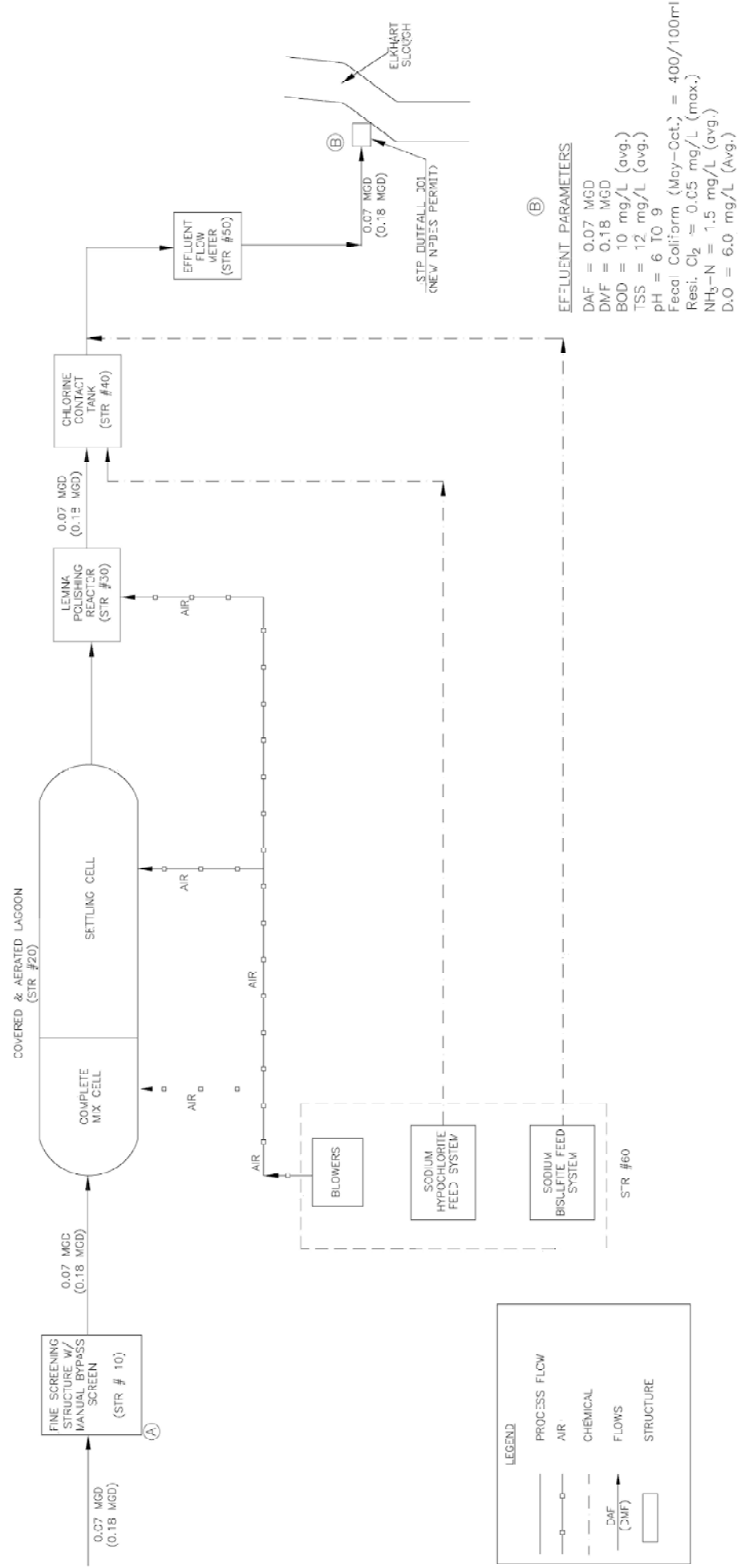
Notes:

1. The above estimate is budgetary in nature and is based on "2023 Dollars". This estimate is intended to present "Rough Order of Magnitude (ROM)" for the preliminary scope items mentioned above for qualitative comparison of the alternates considered in the study, and is prepared based on several assumptions (including post-COVID inflation), which shall be validated during design of this alternative, if so chosen, and the above preliminary cost estimate needs to be updated.

2. Since the Engineer has no control over the cost of labor, materials or equipment, or over the Contractor's method of determining prices, or over competitive bidding, or market conditions, his opinion of Probable Project Cost or Construction Cost that are provided herein are made on the basis of of his experience and qualifications and represent his best judgment as a design professional familiar with the construction industry, but the Engineer cannot and does not guarantee that the proposals, bid or the Construction Cost will not vary from opinions of probable cost prepared by him. If the client wishes greater assurance as to the Construction Cost, he shall employ an independent cost estimator.

(A) INFLUENT PARAMETERS

DAF = 0.07 MGD
 DMF = 0.18 MGD
 BOD = 204 mg/L (avg.)
 TSS = 240 mg/L (avg.)
 TKN = 30 mg/L (avg.)



(B) EFFLUENT PARAMETERS

DAF = 0.07 MGD
 DMF = 0.18 MGD
 BOD = 10 mg/L (avg.)
 TSS = 12 mg/L (avg.)
 pH = 6 TO 9
 Fecal Coliform (May-Cet.) = 400/100ml
 Resi. Cl₂ = 0.05 mg/L (max.)
 NH₃-N = 1.5 mg/L (avg.)
 D.O = 6.0 mg/L (Avg.)

EXHIBIT - ALTERNATIVE #1 PROCESS FLOW DIAGRAM
 (PRELIMINARY - FOR INFORMATION ONLY)

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PROPOSED STRUCTURES

- STR # 10 INFLUENT SCREENING STRUCTURE
- STR # 20 COVERED & AERATED LAGOON
(COMPLETE MIX & SETTLING CELL)
- STR # 30 POLISHING REACTOR STRUCTURE
- STR # 40 CHLORINE CONTACT TANK
- STR # 50 EFFLUENT METERING STRUCTURE
- STR # 60 PROCESS BUILDING

EXHIBIT – PROPOSED ALTERNATIVE #1 SITE PLAN
(PRELIMINARY – FOR INFORMATION ONLY)

FEHR GRAHAM

ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 154-003525

ILLINOIS
IOWA
WISCONSIN

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OPPC - ALTERNATIVE 1 - COVERED-AERATED LAGOON & POLISHING REACTOR PROCESS (LEMNA™ OR EQUAL)
NEW WASTEWATER TREATMENT PLANT
Village of Elkhart, Illinois
Sunday, April 30, 2023

ITEM	DESCRIPTION	EQUIPMENT			TOTAL
		MATERIAL	INSTALLATION	LUMP SUM	
10 Influent Fine Screening (Headworks) Structure					\$ 492,000
1	Concrete Structure (Complete)			\$ 300,000	\$ 300,000
2	Pole-Barn Headworks Building (Complete)			\$ 80,000	\$ 80,000
3	Influent Flow Meter	\$ 10,000	20%		\$ 12,000
4	Manual Bar Screen			\$ 5,000	\$ 5,000
5	Fine Screen	\$ 60,000	50%		\$ 90,000
6	Building Electrical & HVAC			\$ 5,000	\$ 5,000
20 Covered-Aerated Lagoons (Lemna™ or Equal)					\$ 310,000
7	0.84 MG Lagoon (with Liner)			\$ 60,000	\$ 60,000
8	LemTec Lagoon Equipment (Baffle, Covers, and Diffusers)	\$ 200,000	20%		\$ 240,000
9	Lagoon Piping & Ancillaries			\$ 10,000	\$ 10,000
30 Polishing Reactor Structure					\$ 340,000
10	Concrete Structure, 7'x23'x12' (Complete)			\$ 150,000	\$ 150,000
11	Lemna's LPR Media (954 cf) & Equipment	\$ 150,000	20%		\$ 180,000
12	Controls & Instrumentation			\$ 10,000	\$ 10,000
40 Chlorine Contact Tank					\$ 370,000
13	Concrete Structure, 1,900 gal (Complete)			\$ 200,000	\$ 200,000
14	Effluent Pump Station (150 gpm rated) & Discharge Forcemain (@ 100 LF)			\$ 170,000	\$ 170,000
50 Effluent Flow Metering Structure					\$ 22,000
15	Concrete Structure (Complete)			\$ 10,000	\$ 10,000
16	Effluent Flow Meter	\$ 10,000	20%		\$ 12,000
60 Process Building					\$ 646,000
17	Process Building (Complete)			\$ 500,000	\$ 500,000
18	Blowers (2-15HP ea), Controls, & Instrumentation	\$ 30,000	50%		\$ 45,000
19	Sodium Hypochlorite Feed Equipment	\$ 15,000	20%		\$ 18,000
20	Sodium Bi-sulfite Feed Equipment	\$ 15,000	20%		\$ 18,000
21	Laboratory Equipment			\$ 25,000	\$ 25,000
22	Plant Controls & Instrumentation			\$ 25,000	\$ 25,000
23	Building Electrical & HVAC			\$ 15,000	\$ 15,000
				SUBTOTAL	\$ 2,180,000
				SITE EXCAVATION / BACKFILL 6%	\$ 131,000
				SITE ELECTRICAL AND CONTROL 3%	\$ 66,000
				SITE PIPING 5%	\$ 109,000
				CIVIL 5%	\$ 109,000
				MOBILIZATION/DEMOLITION 3%	\$ 66,000
				BONDS AND INSURANCE 1.5%	\$ 33,000
				CONTRACTOR OVERHEAD AND PROFIT 10.0%	\$ 218,000
				TOTAL CONSTRUCTION COST	\$ 2,912,000
				CONTINGENCY (10%)	\$ 292,000
				DESIGN ENGINEERING (INCL. PLANNING)	\$ 321,000
				CONSTRUCTION ENGINEERING	\$ 257,000
				LEGAL & FINANCIAL ADMINISTRATION	\$ 20,000
				OPINION OF PROBABLE PROJECT COST (PLANNING STAGE)	\$ 3,802,000

OPPC - ALTERNATIVE 1 - COVERED-AERATED LAGOON & POLISHING REACTOR PROCESS (LEMNA™ OR EQUAL)
NEW WASTEWATER TREATMENT PLANT
Village of Elkhart, Illinois
Sunday, April 30, 2023

ITEM	DESCRIPTION	EQUIPMENT			TOTAL
		MATERIAL	INSTALLATION	LUMP SUM	
<u>PRESENT WORTH ANALYSIS</u>					
				Annual Operations & Maintenance Costs	\$ 115,075
				Total Replacement Costs @ Year 10	\$ -
				Total Replacement Costs @ Year 15	\$ 65,000
				Total Salvage Value	\$ 1,734,600
				P/A Factor	17.169
				P/F - 5 year	0.937
				P/F - 10 year	0.870
				P/F - 15 year	0.806
				P/F - 20 year	0.742
PRESENT WORTH OF O&M COSTS					\$ 1,976,000
PRESENT WORTH OF TOTAL REPLACEMENT COSTS					\$ 52,000
PRESENT WORTH OF SALVAGE VALUE					\$ (1,288,000)
TOTAL PROBABLE PROJECT PRESENT WORTH					\$ 4,542,000

Notes:

1. The above estimate is budgetary in nature and is based on "2022 Dollars". This estimate is intended to present "Rough Order of Magnitude (ROM)" for the preliminary scope items mentioned above for qualitative comparison of the alternates considered in the study, and is prepared based on several assumptions (including post-COVID inflation), which shall be validated during design of this alternative, if so chosen, and the above preliminary cost estimate needs to be updated.

2. Since the Engineer has no control over the cost of labor, materials or equipment, or over the Contractor's method of determining prices, or over competitive bidding, or market conditions, his opinion of Probable Project Cost or Construction Cost that are provided herein are made on the basis of his experience and qualifications and represent his best judgment as a design professional familiar with the construction industry, but the Engineer cannot and does not guarantee that the proposals, bid or the Construction Cost will not vary from opinions of probable cost prepared by him. If the client

Applicant: Elkhart
Contact: Alina Lusebrink
Address: PO Box 20
Elkhart, IL 62634

IDNR Project Number: 2309870
Date: 02/06/2023
Alternate Number: 22-1092

Project: New Sanitary Sewer System
Address: Throughout the Village, Elkhart

Description: The Village currently does not have a sanitary sewer system and a viable method of treating their wastewater, and residents currently use individual septic tanks to treat their wastewater. The proposed project will construct a network of sanitary sewer collection systems in the Village and a new WWTP.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

- Elkhart Hill INAI Site
- Elkhart Hill Grove Land And Water Reserve
- Elkhart Hill Grove Nature Preserve
- North Elkhart Hill Grove Land And Water Reserve

Wetland Review (Part 1090)

The Illinois Wetlands Inventory shows wetlands within 250 feet of the project location.

An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

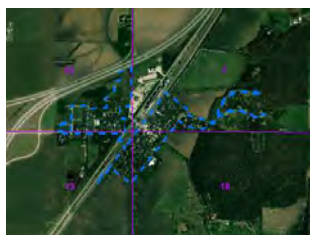
Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Logan

Township, Range, Section:

- 18N, 3W, 7
- 18N, 3W, 18
- 18N, 4W, 12
- 18N, 4W, 13



IL Department of Natural Resources

Contact

Adam Rawe
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction

IL Environmental Protection Agency
Permit Section
1021 North Grand Ave. East
P.), Box 19276
Springfield, Illinois 62794 -9276

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.
2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.
3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

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EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

Alina Lusebrink

From: Rawe, Adam <Adam.Rawe@illinois.gov>
Sent: Tuesday, February 7, 2023 9:35 AM
To: Alina Lusebrink
Cc: Parrott, Melissa
Subject: EcoCAT 2309870 New Sanitary Sewer System
Attachments: 2309870 New Sanitary Sewer System.pdf

Ms. Lusebrink,

The Department completed its review of your consultation request and determined adverse impacts to state listed species and natural areas are unlikely. However, the project does come close to several Dedicate Nature Preserves and project related impacts are prohibited to these areas.

Thank you

Adam Rawe
Resource Planner, Impact Assessment Section
Office of Realty and Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271
adam.rawe@illinois.gov
(217)785-4991

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Illinois
Department of
**Natural
Resources**

JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271

www.dnr.illinois.gov

Logan County
Elkhart

PLEASE REFER TO: SHPO LOG #008022323

WWTP - Between I-55 & Old Route 66; Mains - Various locations throughout village

Section:12-Township:18N-Range:4W, Section:13-Township:18N-Range:4W, Section:7-Township:18N-Range:3W, Section:18-Township:18N-Range:3W

IEPA LOAN

*New construction, wastewater collection & treatment system (septic replacement)

April 5, 2023

Michelle Brown
Fehr Graham
1610 Broadmoor Dr.
Champaign, IL 61821

Dear Ms. Brown:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance. If further assistance is needed contact Jeff Kruchten, Chief Archaeologist at 217/785-1279 or Jeffery.kruchten@illinois.gov.

Sincerely,

Carey L. Mayer, AIA
Deputy State Historic
Preservation Officer



REPLY TO
ATTENTION OF

**DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, ROCK ISLAND DISTRICT
PO BOX 2004 CLOCK TOWER BUILDING
ROCK ISLAND, ILLINOIS 61204-2004**

June 2, 2023

Regulatory Division

SUBJECT: CEMVR-RD-2023-0356

Village of Elkhart
C/O Michelle Brown, Fehr Graham
1610 Broadmoor Drive
Champaign, Illinois 61821

Dear Ms. Brown:

Our office has reviewed your application received March 7, 2023, concerning the proposed project to upgrade utility line through emplacement of an outfall structure and effluent pipeline. This project impacts ~0.01 of stream through emplacement of the outfall structure while the effluent pipeline has no effect to wetland or stream as it utilizes boring. The project is located in Section 12, Township 18 North, Range 4 West, Logan County, Illinois.

Your project is authorized under Nationwide Permit No. 58 – Utility Line Activities for Water and Other Substances, provided you meet the permit conditions for the nationwide permits, which are included in the Fact Sheets. The IL fact sheets include all information regarding Nationwide Permits for projects occurring within the Rock Island District in Illinois are found here:

www.mvr.usace.army.mil/Portals/48/docs/regulatory/2022%20Nationwide%20Permits/Illinois%20Fact%20Sheet%209.pdf?ver=9XE8dTX6LeXU1WpOK3hE3A%3d%3d

The Corps has also made a determination of no effect on federally threatened and endangered species or critical habitat. The Illinois Environmental Protection Agency (IEPA) has also issued Section 401 Water Quality Certification with conditions for this nationwide permit. Please note these additional conditions included in the Fact Sheet. The decision regarding this action is based on information found in the administrative record, which documents the District's decision-making process, the basis for the decision, and the final decision.

This verification is valid until March 14, 2026, unless the nationwide permit is modified, reissued, or revoked. It is your responsibility to remain informed of changes to the nationwide permit program. We will issue a public notice announcing any changes if and when they occur. Furthermore, if you commence or are under contract to commence this activity before the date the nationwide permit is modified or revoked, you will have twelve months from that date to complete your activity under the present terms and conditions of this nationwide permit. If the project plans change, you should contact our office for another determination.

This authorization does not eliminate the requirement that you must still acquire other applicable Federal, state, and local permits. If you have not already coordinated your project with the Illinois Department of Natural Resources – Offices of Water Resources, please contact

them at 217/782-3863 to determine if a floodplain development permit is required for your project.

You may contact the IEPA Facility Evaluation Unit at 217/782-3362 to determine whether additional authorizations are required from the IEPA. Please send any electronic correspondence to Epa.401.docs@illinois.gov.

You are required to complete and return the enclosed "Completed Work Certification" form upon completion of your project in accordance with General Condition No. 30 of the nationwide permits.

Should you have any questions, please contact our Regulatory Division by letter, telephone Tyler Hedeem at 309/794-5651, or email tyler.h.hedeem@usace.army.mil.

Sincerely,



Aurora Scott
Chief, Eastern Branch
Regulatory Division

When the structure(s) or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s), of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

Transferee

Date

Copies Furnished:

Mr. William Milner, P.E.
Section Chief - Downstate Regulatory Programs
Illinois Department of Natural Resources Office of Water Resources
1 Natural Resources Way
Springfield, Illinois 62702
bill.milner@illinois.gov

COMPLETED WORK CERTIFICATION

Permit Number: CEMVR-RD-2023-0356

Name of Permittee: Village of Elkhart

County/State: Logan / Illinois

Date of Issuance: June 2nd 2023

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification, and return it to the following address:

U.S. Army Engineer District, Rock Island
ATTN: Regulatory Division
Clock Tower Building
Post Office Box 2004
Rock Island, Illinois 61204-2004

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above reference permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

TH

VILLAGE OF ELKHART
PO BOX 20
ELKHART ILLINOIS 62634
elkhart2010@gmail.com

February 22, 2023

Lester Randall, Chairman
Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas
824 111th Drive
Horton, KS 66439
Lester.Randall@ktik-nsn.gov

Re: Section 106 Review – Village of Elkhart/Logan County

Dear Mr. Randall:

The Village of Elkhart will apply for funding from the Illinois Environmental Protection Agency (IEPA) for a new wastewater collection and treatment system. IEPA provides low interest loans through the State Revolving Fund (SRF), which receives annual federal capitalization funding from USEPA. Prior to receiving planning approval, IEPA requires review of all projects to assure compliance with federal cross-cutting authorities, including Section 106 of the National Historic Preservation Act (NHPA).

In cooperation with IEPA, our municipality will conduct a review of this proposed project's location to comply with Section 106 of the National Historic Preservation Act according to procedures outlined in 36 CFR Part 800. Due to tribal interests in Logan County, IL, we invite you to be a consulting party in this review to help identify properties in the project area that may have historical, religious, or cultural significance to your tribe. If such properties are identified and the project has the potential to impact historical or cultural resources, we request guidance regarding how to avoid, minimize, or mitigate any adverse effects.

Information regarding the project is attached. If you would like to be a consulting party on this project, please respond to this letter within 30 days. Your response should include any concerns about the impact of this project. We value your opinion and if you have further questions regarding this project, please contact Michelle Brown at mbrown@fehrgraham.com or 217.352.7688.

Sincerely,



Lyle Fout
Village President
Village of Elkhart, Illinois

Attachments: Project Location Maps

VILLAGE OF ELKHART
PO BOX 20
ELKHART ILLINOIS 62634
elkhart2010@gmail.com

February 22, 2023

Darwin Kaskaske, Chairman
Kickapoo Tribe of Oklahoma
PO Box 70
McCloud, OK 74851
darwin.kaskaske@okkt.net

Re: Section 106 Review – Village of Elkhart/Logan County

Dear Mr. Kaskaske:

The Village of Elkhart will apply for funding from the Illinois Environmental Protection Agency (IEPA) for a new wastewater collection and treatment system. IEPA provides low interest loans through the State Revolving Fund (SRF), which receives annual federal capitalization funding from USEPA. Prior to receiving planning approval, IEPA requires review of all projects to assure compliance with federal cross-cutting authorities, including Section 106 of the National Historic Preservation Act (NHPA).

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Sincerely,



Lyle Fout
Village President
Village of Elkhart, Illinois

Attachments: Project Location Maps

cc: Kent Collier, NAGPRA, Kickapoo Tribe of Oklahoma, PO Box 70, McCloud, OK 74851,
pamwesley@kickapootribeofoklahoma.com

VILLAGE OF ELKHART
PO BOX 20
ELKHART ILLINOIS 62634
elkhart2010@gmail.com

February 22, 2023

Ron Corn Sr., Chairman
Menominee Indian Tribe of Wisconsin
PO Box 910
Keshena, WI 54135-0910
chairman@mitw.org

Re: Section 106 Review – Village of Elkhart/Logan County

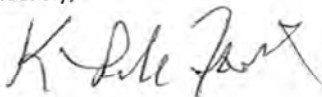
Dear Mr. Corn:

The Village of Elkhart will apply for funding from the Illinois Environmental Protection Agency (IEPA) for a new wastewater collection and treatment system. IEPA provides low interest loans through the State Revolving Fund (SRF), which receives annual federal capitalization funding from USEPA. Prior to receiving planning approval, IEPA requires review of all projects to assure compliance with federal cross-cutting authorities, including Section 106 of the National Historic Preservation Act (NHPA).

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Sincerely,



Lyle Fout
Village President
Village of Elkhart, Illinois

Attachments: Project Location Maps

cc: David Grignon, THPO, Menominee Indian Tribe of Wisconsin, PO Box 910, Keshena, WI 54135-0910,
mitwadmin@mitw.org

VILLAGE OF ELKHART
PO BOX 20
ELKHART ILLINOIS 62634
elkhart2010@gmail.com

February 22, 2023

Douglas Lankford, Chief
Miami Tribe of Oklahoma
PO Box 1326
Miami, OK 74355
dlankford@miamination.com

Re: Section 106 Review – Village of Elkhart/Logan County

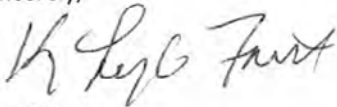
Dear Mr. Lankford:

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Sincerely,



Lyle Fout
Village President
Village of Elkhart, Illinois

Attachments: Project Location Maps

cc: Diane Hunter, THPO, Miami Tribe of Oklahoma, PO Box 1326, Miami, OK 74355,
dhunter@miamination.com

VILLAGE OF ELKHART
PO BOX 20
ELKHART ILLINOIS 62634
elkhart2010@gmail.com

February 22, 2023

Andrea A. Hunter, Director and THPO
Osage Nation
627 Grandview Avenue
Pawhuska, OK 74056
ahunter@osagenation-nsn.gov

Re: Section 106 Review – Village of Elkhart/Logan County

Dear Ms. Hunter:

The Village of Elkhart will apply for funding from the Illinois Environmental Protection Agency (IEPA) for a new wastewater collection and treatment system. IEPA provides low interest loans through the State Revolving Fund (SRF), which receives annual federal capitalization funding from USEPA. Prior to receiving planning approval, IEPA requires review of all projects to assure compliance with federal cross-cutting authorities, including Section 106 of the National Historic Preservation Act (NHPA).

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Sincerely,



Lyle Fout
Village President
Village of Elkhart, Illinois

Attachments: Project Location Maps

cc: Geoffrey Standing Bear, Principal Chief, Osage Nation, PO Box 779, Pawhuska, OK 74056,
gstandingbear@osagenation-nsn.gov



The Village of Elkhart, Illinois
Founded 1855

Questions / Comments

Written comments may be submitted to:

Loan Applicant Contact

Lyle Fout, Village President
Village of Elkhart
209 Governor Oglesby Street
Elkhart, IL 62634

IEPA Project Contact

Jillian Fowler, IFAS Project Manager
Illinois EPA, BOW
1021 N. Grand Avenue East
Springfield, IL 62794

INSIGHT • EXPERIENCE • RESULTS