State Revolving Fund Loan Programs
Drinking Water, Wastewater, Nonpoint Source

ENVIRONMENTAL ASSESSMENT
AND
FINDING OF NO SIGNIFICANT IMPACT

TIPTON MUNICIPAL UTILITIES
WASTEWATER TREATMENT PLANT IMPROVEMENTS

STATE REVOLVING FUND PROJECT # WW14 15 80 02

DATE: August 14, 2014

TARGET PROJECT APPROVAL DATE: September 15, 2014

I. INTRODUCTION

The above entity has applied to the State Revolving Fund (SRF) Loan Program for a loan to finance all or part of the wastewater project described in the Environmental Assessment (EA) attached to this Finding of No Significant Impact (FNSI). As part of facilities planning requirements, an environmental review has been completed which addresses the project's impacts on the natural and human environment. This review is summarized in the attached EA, which can also be viewed at http://www.in.gov/ifa/srf/.

II. PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT (FNSI)

The SRF has evaluated all pertinent environmental information regarding the proposed project and determined that an Environmental Impact Statement is not necessary. Subject to responses received during the 30-day public comment period, and pursuant to Indiana Code 4-4-11, it is our preliminary finding that the construction and operation of the proposed facilities will result in no significant adverse environmental impact. In the absence of significant comments, the attached EA shall serve as the final environmental document.

III. COMMENTS

All interested parties may comment upon the EA/FNSI. Comments must be received at the address below by the target project approval date. Significant comments may prompt a reevaluation of the preliminary FNSI; if appropriate, a new FNSI will be issued for another 30-day public comment period. A final decision to proceed, or not to proceed, with the proposed project shall be effected by finalizing, or not finalizing, the FNSI as appropriate. Comments regarding this document should be sent within 30 days to:

April Douglas
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State Revolving Fund -- IGCN 1275
100 N. Senate Ave.
Indianapolis, IN 46204
317-234-72294
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ENVIRONMENTAL ASSESSMENT

I. PROJECT IDENTIFICATION

Project Name and Address:	**Wastewater Treatment Plant Improvements** Tipton Municipal Utilities 113 Court Street P.O. Box 288 Tipton, IN 46072-0288
SRF Project Number:	WW 14 15 80 02
Authorized Representative:	Rex Boyer, Utility Manager

II. PROJECT LOCATION

Tipton is located in Tipton County, approximately 30 miles north of Indianapolis. The project is the wastewater treatment plant (WWTP) site. The WWTP project will occur in Cicero Township in the Tipton USGS quadrangle, T21N, R4E, SW ¼ Section 12 (see Figure 1.02-1).

III. PROJECT NEED AND PURPOSE

The majority of the sewers in the Tipton Municipal Utilities (TMU) collection system are combined sewers. The combined sewer system has six combined sewer overflows (CSOs) that discharge into Cicero Creek during wet weather events. The collection system also has ten lift stations ranging in capacity from 30 gallons per minute (gpm) up to 525 gpm.

TMU's WWTP is a conventional activated sludge treatment facility rated at an average design flow of 2.0 million gallons per day (MGD) and a peak hourly flow of 4.0 MGD. TMU also provides wastewater treatment services to Sharpsville which is located six miles north of Tipton.

Tipton entered into an Agreed Order with the Indiana Department of Environmental Management (IDEM) on October 6, 2008, to implement the recommendations identified in the city's Long Term Control Plan (LTCP) to control CSOs. IDEM approved the LTCP on November 1, 2010.

Tipton completed the first phase of its LTCP in 2013, which was the elimination of CSOs 007 and 009. In addition, seven of the eleven cross-connections upstream of CSO 006 have been eliminated, and the remaining four cross-connections have been temporarily plugged. The town intends to permanently plug those cross-connections if that action will not cause drainage problems.

The second phase of the LTCP involves the construction of a wet weather primary clarifier to operate in parallel with the WWTP. Data based on flow metering showed that the WWTP will have to treat an estimated sustained flow of 9.0 MGD to meet the capture rate of 88.1 percent of incoming wet weather flows in the LTCP. The flow will be split with the first 4.0 MGD being diverted to the WWTP for full treatment, and flows above 4.0 MGD diverted to a wet weather primary clarifier. After clarification, wet weather flows will be disinfected prior to discharge.

In conjunction with the LTCP-related modifications, TMU will address other components at the WWTP: influent screening and comminutors, primary clarification and primary sludge pumping equipment, return activated sludge (RAS) pumps, intermediate filter feed pumps, inadequate sludge storage, the ultraviolet (UV) disinfection system, and the anaerobic digestion system.

The proposed project will be broken into two phases. The first phase will install a wet weather primary clarifier and modify the conventional activated sludge plant to incorporate the Modified Ludzack-Ettinger (MLE) process. The MLE process will provide total nitrogen removal and eliminate operation and maintenance associated with the primary sludge and anaerobic digester processes. The town will also address WWTP components approaching their useful life or not providing adequate capacity.

The second phase involves a four to six month post-construction monitoring period of the effluent from the proposed wet weather primary clarifier to determine if UV disinfection will be effective. IDEM's letter of January 19, 2014, indicates that although IDEM is not officially extending the completion date of the wet weather primary clarifier, it will allow Tipton to conduct the monitoring, provided that the wet weather facility and disinfection system are completed by April, 1, 2017.

IV. PROJECT DESCRIPTION

The proposed project include (see Figure 6.04-2):

A. converting the flow equalization (FEQ) basin to a wet weather primary clarifier;

B. installing a UV disinfection system for the effluent from the wet weather primary clarifier;

C. renovating the influent pumping station to handle a total influent flow of 9.0 MGD;

D. replacing the coarse mechanical screen and comminutor with a mechanical fine screen in the headworks structure;

E. constructing a new structure containing a vortex grit separator;

F. converting three primary clarifiers to anoxic tanks and abandoning an anaerobic digester;

G. installing four dry pit submersible RAS pumps, each having a capacity of 1.0 MGD;

H. replacing the UV disinfection equipment with new equipment in a new effluent structure that includes flood stage pumping; and

I. constructing an above-grade sludge storage tank.

V. ESTIMATED PROJECT COSTS, AFFORDABILITY AND FUNDING

A. Selected Plan Estimated Cost Summary

Construction Components	Costs
Converting the FEQ Basin to Wet Weather Primary Clarifier	$ 245,000
Installing UV Disinfection for Wet Weather Primary Clarifier Flows	576,000
Renovating Influent Pumping Station	718,000
Installing New Mechanical Fine Screen	559,000
Installing New Vortex Grit Removal System	568,000
Converting Primary Clarifiers to Anoxic Tanks and Abandoning Anaerobic Digester	411,000
Installing Dry Pit Submersible Pumps	343,000
Replacing Existing UV Disinfection System	$ 1,079,000
Constructing Liquid Sludge Storage Tank	829,000
Construction Subtotal	**$ 5,328,000**
Contingencies	534,000
Total Estimated Construction Cost	**$ 5,862,000**

Non-Construction Costs	
Administrative & Legal (Bond Counsel)	$ 200,000
Soil Borings	10,000
Engineering Fees	
Design and Bidding	468,960
Contract Administration	235,000
Equipment Startup	20,000
O&M Manual	15,000
Construction Observation	320,000
Non-Construction Subtotal	**$ 1,269,000**
Total Estimated Project Cost	**$ 7,131,000**

B. Tipton will borrow approximately $7,131,000 from the State Revolving Fund Loan Program with a 20-year loan at an interest rate to be determined at the time of loan closing. Monthly user rates and charges may need to be analyzed to determine if adjustments are required for loan repayment.

VI. DESCRIPTION OF EVALUATED ALTERNATIVES

A. Three alternatives were evaluated for the wet weather treatment facility including the "No Action" alternative.

1. "No-Action" Alternative: This alternative was rejected since Tipton's LTCP requires the WWTP to treat an additional 5.0 MGD with a minimum of screening, sedimentation and disinfection.

2. Construction of High Rate Sedimentation System: This system (e.g., Actiflow) would treat wet weather flows. The process includes flocculation of the influent with micro-

sand and polymer to increase the settling velocity. This alternative was rejected based on cost.

3. Convert the FEQ Basin to Wet Weather Primary Clarifier: This alternative will allow the FEQ basin to act as a primary clarifier and discharge the clarified effluent from the basin once it is full. The grit removal equipment will have to be removed to allow the wet weather primary clarifier to function properly. After flows to the WWTP subside, the wastewater from the wet weather primary clarifier will be drained to the WWTP for treatment. Based on cost, this was the selected alternative.

B. Four alternatives were evaluated for wet weather primary clarifier disinfection including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since Tipton's LTCP requires disinfection of wet weather treatment flows.

2. Liquid Chlorine: This alternative uses liquid sodium hypochlorite and liquid sodium thiosulfate for dechlorination. This alternative was rejected based on cost.

3. Gas Chlorine: This alternative uses chlorine gas and sulfur dioxide gas for dechlorination. This alternative was rejected based on cost.

4. UV Disinfection: This alternative includes the addition of an open channel UV structure with equipment for disinfecting wastewater from the Wet Weather Primary Clarifier. This alternative also includes the construction of a wet weather outfall pipe discharging to Cicero Creek. Although the city has concerns with the effectiveness of this alternative, this was the selected alternative.

C. Three alternatives were evaluated for influent pumping including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since influent pumping station does not have enough capacity to handle an estimated peak flow of 9.0 MGD and meet the requirements of the city's LTCP.

2. New Influent Pumping Station: This alternative involves the construction of a new submersible influent pumping station with one pump dedicated to pumping the average dry weather flows and the remaining three pumps dedicated to pumping the dry weather peak flows and the additional wet weather flow to the Wet Weather Primary Clarifier. This alternative was rejected based on cost.

3. Installing New Pumps and Piping in Existing Pump Station: This alternative proposes replacing the three dry pit submersible pumps with three new dry pit submersible pumps. Two of the pumps would be sized to handle 9.0 MGD, while the third would serve as a backup. Based on cost this was the selected alternative.

D. Four alternatives were evaluated for screening at the WWTP including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since the screen does not have enough capacity to handle an estimated peak flow of 9.0 MGD, while meeting the requirements of the city's LTCP.

2. Comminutors: This alternative proposes installation of larger comminutors in the WWTP's influent structure. This alternative was rejected based on cost.

3. Multi-Rake Fine Screen in New Structure: This alternative involves a new mechanical screen in a new structure to replace the coarse mechanical screen and comminutor combination. Installation of a new larger screen would require widening of the influent channel. This alternative was rejected based on cost.

4. Multi-Rake Fine Screen in Existing Structure: This alternative proposes replacing the coarse mechanical screen and comminutor combination in the WWTP's influent structure with two mechanical fine screens. They will be equipped with washer/compactor to wash and dewater screenings. Based on cost this was the selected alternative.

E. Three alternatives were evaluated for grit removal at the WWTP including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since the grit removal system has exceeded its useful life and cannot handle current flows during wet weather events. In addition, the grit removal system is located inside the FEQ basin and will have to be removed for proper operation of the wet weather primary clarifier.

2. Lamella Plate Grit Separator: This alternative involves the construction of a lamella plate grit separator that uses vortex flow and a stacked tray design to capture and settle fine grit following the fine screen. This alternative was rejected based on cost.

3. Vortex Grit Separator: This alternative involves a simple system where flow will be directed tangentially into the grit separator creating a vortex which separates the grit from the organics. The vortex system will be accompanied by a grit classifier and dewatering system. Based on cost this was the selected alternative.

F. Three alternatives were evaluated for primary clarification and digestion including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since the primary clarifiers and their associated equipment have exceeded their useful life. In addition, the anaerobic digester is showing signs of structural deterioration.

2. Renovating Primary Clarifiers and Anaerobic Digester: This alternative involves renovating both the primary clarifiers and anaerobic digester due to poor condition. This alternative was rejected based on cost.

3. Converting Primary Clarifier Tanks to Anoxic Tanks: This alternative will use the converted primaries (i.e., anoxic tanks) in combination with the aeration tanks as an anoxic-aerobic type of activated sludge process or the MLE process. Converting the primaries to anoxic tanks eliminates primary sludge and, consequently, the need for the anaerobic digester. The components of the anaerobic digester will be demolished or

abandoned in place, while the digester tank may be used for wet weather storage tank. Based on cost this was the selected alternative.

G. Four alternatives were evaluated for the replacement of RAS pumps including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since the RAS screw pumps have exceeded their useful service life, require intensive maintenance and are inefficient.

2. Replace Existing Screw Pumps: This alternative includes replacing the three existing screw pumps in kind. This alternative was rejected based on cost.

3. Install Submersible Pumps: This alternative will replace the screw pumps with submersible pumps, which will fit in the screw pump well. This alternative was rejected due to cost.

4. Install Dry Pit Submersible Pumps: This alternative involves the removal of the RAS screw pumps and the removal of the sludge pumps. The proposed dry pit submersible pumps will be installed in the same building (i.e., the sludge pump and blower building), which will give staff the ability to pump either RAS or sludge from a central location. Based on cost this was the selected alternative.

H. Two alternatives were evaluated for liquid storage including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since the WWTP currently has limited sludge storage capacity.

2. Liquid Storage Tank: This alternative proposes the construction of an above grade sludge storage tank with a volume of approximately 650,000 gallons. This volume will provide a minimum of 150 days of sludge storage on-site including 60 days digestion. Based on cost this is the selected alternative.

I. Three alternatives were evaluated for disinfection at the WWTP including the "No Action" alternative.

1. "No Action" Alternative: This alternative was rejected since the current UV equipment is approaching the end of its useful service life, and the structure does not meet flood protection requirements, based on the latest flood maps. If no action were taken, disinfection operations would not be operational during a 25-year flood and the equipment would not be protected during a 100-year flood.

2. Convert to Liquid Chlorine: This alternative would involve refurbishing the existing chlorine contact channels so they will have capacity to treat 4.0 MGD with a 15-minute minimum contact time. This alternative was rejected based on cost.

3. Replace Existing UV Disinfection System: This alternative involves replacing the UV disinfection equipment with new equipment that will include two banks of UV lamps with a design capacity of 4.0 MGD. The new UV equipment will be installed in a new effluent structure that will be located south of the aerobic digesters. The walls will be constructed high enough to provide protection from a 100-year flood and flood stage effluent pumps would maintain operation during a 25-year flood. A new outfall pipe

would also be constructed from the new effluent structure to Cicero Creek and the existing outfall pipe will be abandoned. Based on cost this is the selected alternative.

VII. Environmental Impacts of the Feasible Alternatives

A. Direct Impacts of Construction and Operation

Undisturbed/Disturbed Land: The proposed WWTP improvements will occur on the previously disturbed WWTP site.

Structural Resources (see figures 5.02-1 and 5.02-3): Construction and operation of the project will not alter, demolish or remove historic properties. If any visual or audible impacts to historic properties occur, they will be temporary and will not alter the characteristics that qualify such properties for inclusion in or eligibility for the National Register of Historic Places. The SRF's finding pursuant to the Section 106 of the national Historic Preservation Act is: "no historic properties affected."

Plants and Animals: The proposed project will not affect state- or federally-listed endangered species or their habitat.

Prime Farmland: The proposed project will not cause a conversion of prime farmland.

Wetlands: The proposed modifications to the WWTP will not affect wetlands.

100-Year Floodplain: The proposed project will not affect the 100-year floodplain.

Surface Waters: The proposed project will require constructing two new outfalls and abandoning one outfall to Cicero Creek. One outfall will serve the wet weather primary clarifier, and the other outfall will serve the proposed disinfection structure. The proposed projects will not adversely affect outstanding state resource waters listed in 327 IAC 2-1.3-3(d), exceptional use streams listed in 327 IAC 2-1-11(b), or Natural, Scenic and Recreational Rivers and Streams listed in 312 IAC 7-2, Salmonid Streams listed in 327 IAC 2-1.5-5(a)(3), or waters on the Outstanding Rivers list (Natural Resources Commission Non-Rule Policy Document).

Groundwater: Construction of the proposed improvements project will not affect groundwater quality.

Air Quality: Dust and noise will be temporary impacts during construction activities.

Open Space and Recreational Opportunities: The proposed project's construction and operation will neither create nor destroy open space and recreational opportunities.

Lake Michigan Coastal Program: The proposed project will not affect the Lake Michigan Coastal Zone.

National Natural Landmarks: The construction and operation of the proposed project will not affect National Natural Landmarks.

B. Indirect Impacts

Tipton's Preliminary Engineering Report (PER) states: *TMU, through the authority of its council, planning commission or other means, will ensure that future development, as well as future collection system or treatment works projects connecting to facilities funded by the State Revolving Fund will not adversely affect wetlands, wooded areas, steep slopes, archaeological/historical/structural resources, or other sensitive environmental resources. TMU will require new development and treatment works projects to be constructed within the guidelines of the USFWS, IDNR, IDEM, and other environmental review authorities.*

C. Comments from Environmental Review Authorities

The Indiana Department of Natural Resources (IDNR) Division of Historic Preservation and Archaeology, in correspondence dated July 2, 2014, stated:

> *Pursuant to IC 13-18-21 and 327 IAC 14 and Section 106 of the National Historic Preservation Act (16 U.S.C. § 470F) and 36 C.F.R. Part 800, the Indiana State Historic Preservation Officer ("Indiana SHPO") is conducting an analysis of the materials dated September 18, 2013 and received by the Indiana SHPO on June 5, 2014, for the above indicated project in Tipton, Tipton County, Indiana.*
>
> *Based on our analysis, it has been determined that no historic properties will be altered, demolished, or removed by the proposed project provided that all proposed project activities remain within previously disturbed areas.*
>
> *If any archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and 29) requires that the discovery must be reported to the Department of Natural Resources within two (2) business days. In that event, please call (317) 232-1646. Be advised that adherence to Indiana Code 14-21-1-27 and 29 does not obviate the need to adhere to applicable federal statutes and regulations.*

The Natural Resources Conservation Service, in correspondence dated June 21, 2013 stated: "*The project...will not cause conversion of prime farmland.*"

Since environmental impacts are minimal for this project, the U.S. Fish and Wildlife Service and the IDNR Environmental Unit were not contacted for comment. The town's consultant will coordinate with the IDNR to see if permits are needed.

VIII. Mitigation Measures

The city's PER states: *No long-term negative erosion, siltation, air quality or odor impacts are expected from this project.*

The contractor will take care to install the proposed outfalls with minimal disturbance to the scrub/shrub habitat near Cicero Creek.

The contractor will be encouraged to water key construction corridors as needed to control excess dust, and construction activities will be limited to daylight hours to minimize noise impacts.

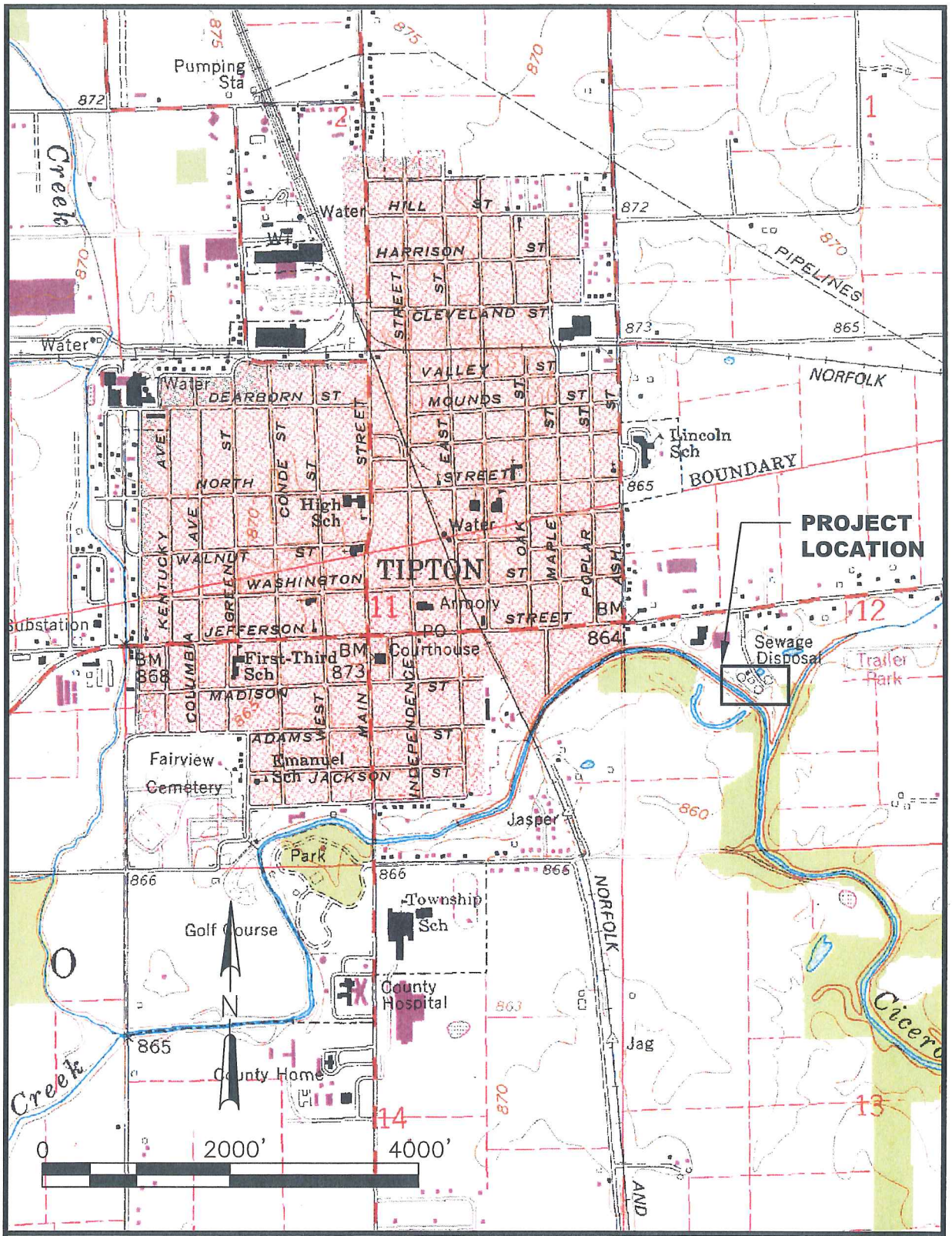
If dewatering is required because of high groundwater, appropriate mitigation measures will be used to ensure dewater flows do not introduce solids to surface waters.

Best management practices will be implemented during construction to reduce or eliminate waterway siltation and contamination from construction activities.

The contractor will be instructed to comply with the NPDES [National Pollution Discharge Elimination System] *Erosion Control Permit to prohibit sediment from being transported to nearby surface waters.*

IX. PUBLIC PARTICIPATION

A public hearing was held at the Tipton Municipal Utilities business office at 4:00 PM on July 15, 2013, to discuss the Utilities PER and the recommended WWTP upgrades to reduce CSO discharges from their combined sewer system. Only one person from the public attended the hearing. There were no comments raised at the hearing and no comments received in the 5-day post-hearing comment period.



USGS QUADRANGLE MAP
PROJECT LOCATION

WWTP IMPROVEMENTS PER
TIPTON MUNICIPAL UTILITIES
TIPTON COUNTY, INDIANA

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FIGURE 1.02-1

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RECOMENDED ALTERNATIVES

WWTP IMPROVEMENTS PER
TIPTON MUNICIPAL UTILITIES
TIPTON COUNTY, INDIANA

Revised June 2014

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FIGURE 6.04-2
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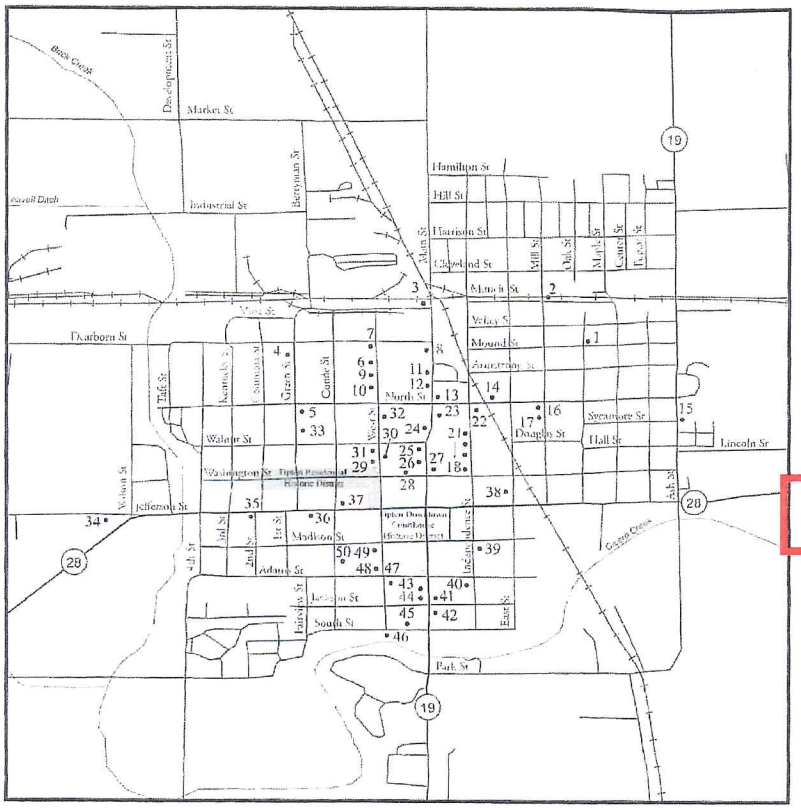
Tipton Scattered Sites (23001-050)



Samuel King, one of the first settlers to purchase land in Tipton County, offered the county government one hundred acres for the county seat. Tipton's original 1844 plat contained twenty blocks and 162 lots, and the town was originally known as Canton. Upon discovery of another Indiana town named Canton, the town name quickly changed to Tipton, after the new county and General John Tipton, who served in the War of 1812 and later as an Indian agent. Tipton developed slowly in its first years, hampered by a lack of accessible roads and a cholera epidemic in 1854. Eventually, the town was incorporated in 1872, but then incorporated as a city in 1884.

The first boost in Tipton's economy occurred after the completion of the Peru and Indianapolis Railroad in 1854, which connected the town to Indianapolis and the Wabash and Erie Canal. Another rail line arrived in the 1870s, operated by the Lake Erie & Western Railroad. The former Lake Erie & Western Railroad station (23003) still stands where the railroad tracks and Main Street intersect in [illegible] Tipton.

The downtown district in Tipton [illegible] by the county courthouse. As [illegible] to a variety to small shops, grocers, banks, hotels, taverns, and mercantile establishments. In addition, the town boasted canning factories, a preserve factory, buggy factories, and a large broom factory. The late 1800s also brought a series of modern updates to the town. In 1888 the town gained natural gas lighting, in 1890 the streets were first paved with bricks, and the electric and water company arrived in 1898. The Lake Erie & Western Railroad also employed many residents at its local company shops, roundhouse, and turntable. These facilities served the line as a division terminal until 1933; the roundhouse was demolished at the end of WWII.

With a strong commercial district and ample manufacturing opportunities, Tipton grew and vast neighborhoods were built. Tipton contains a wide variety of residential resources. The earliest neighborhoods are of

PROPOSED WWTP IMPROVEMENTS CONSTRUCTION LIMITS

N

NO SCALE

HISTORICAL SITES MAP

WWTP IMPROVEMENTS PER
TIPTON MUNICIPAL UTILITIES
TIPTON COUNTY, INDIANA

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FIGURE 5.02-1

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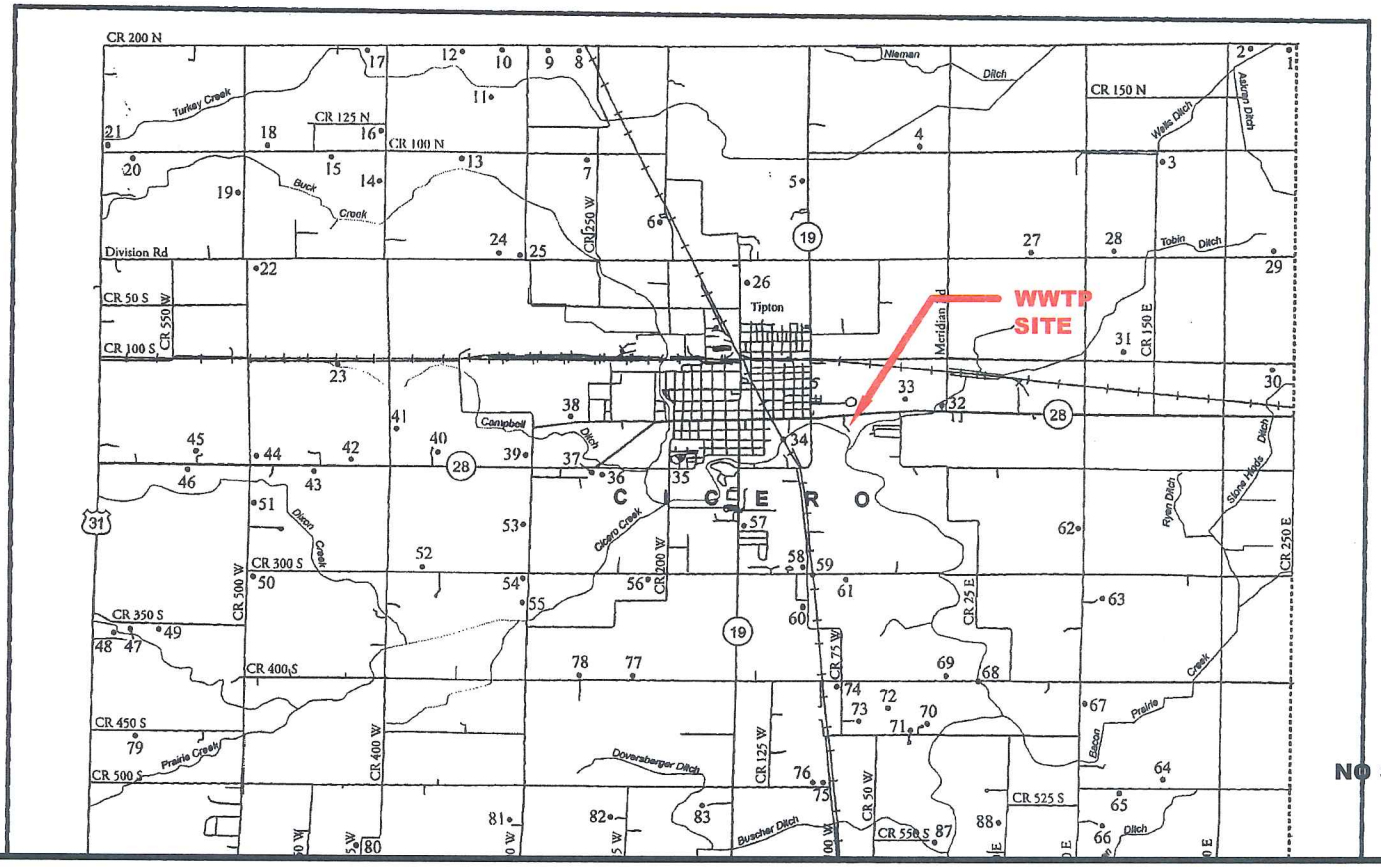
Cicero Township (20001-089)



HISTORICAL SITES MAP
CICERO TOWNSHIP

WWTP IMPROVEMENTS PER
TIPTON MUNICIPAL UTILITIES
TIPTON COUNTY, INDIANA

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FIGURE 5.02-3

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