Preliminary Engineering Report
for **Lowell Wastewater Treatment Plant Expansion**

prepared for the

TOWN OF LOWELL, INDIANA

April 2024
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EXECUTIVE SUMMARY

The Town of Lowell currently operates a Class III, 4.0 Million Gallon per Day (MGD) activated sludge wastewater treatment plant (WWTP) equipped with a 14-million-gallon (MG) equalization (EQ) basin and a 10 MGD high rate clarification wet weather treatment facility (WWTF). The plant is rated for a total peak wet weather flow of 14 MGD for the entire facility. In addition to the Town of Lowell, this facility provides treatment for the Town of Cedar Lake and the Lake Dalecarlia Regional Waste District.

Recent improvements to the WWTP include a new coarse bar screen (2017), chemical feed for phosphorus removal (2020), and EQ Basin drain line repairs, wet weather flow diversion improvements, and new non-potable water system, UV disinfection equipment and standby generator (2023). Overall, portions of the facility are in fair condition, and the facility meets its National Pollutant Discharge Elimination System (NPDES) permit limits outside of the untreated Combined Sewer Overflow (CSO) events. The facility is working under a CSO Long-Term Control Plan (LTCP) that is to be completed by 2026.

The 2023 average daily flow for the facility was 3.33 MGD, or 83 percent of the plant's hydraulic capacity. Furthermore, the CBOD5 and TSS mass loadings to the facility have exceeded the design capacity from 2017 to present. Given the current average flow and mass loadings, the facility may receive an early warning sewer ban. In addition, much like the rest of Lake County, Lowell and Cedar Lake are experiencing significant residential growth that is far outpacing previous population projections. Both Towns are looking closely at any new Capacity Certification Letters from developers to determine if they can allocate the capacity to new development. To address this situation, a plan is necessary to expand the WWTP's capacity to handle the mass loading and increase the hydraulic capacity for future growth and development. The plant's NPDES permit will be renewed in 2025. It is anticipated the Town of Lowell will be required to continue monitoring for at least one more permit cycle and will eventually be required to meet total nitrogen limits. When regulatory limits are enacted, the plant will require additional modified treatment processes to meet a total nitrogen limit.

Four alternatives have been evaluated as part of this Preliminary Engineering Report. The first – No Action or Optimization of Current Facilities – is deemed not feasible because it cannot address the required additional capacity or future regulations. The second – Regionalization – has also been determined as not feasible due to the distance. Further, surrounding communities find themselves in similar situations as Lowell with unprecedented growth and also have limited available treatment capacity. The last two alternatives center around the biological treatment process at the WWTP. Alternative 3 includes expansion of the existing secondary treatment system, and Alternative 4 includes the replacement of the existing process with an improved option. Alternative 4 has been determined to be the best option and is recommended for implementation. The proposed work would increase the Average Design Flow (ADF) of the WWTP to 8.0 MGD and provide for a Peak Design Flow (PDF) of 13.3 MGD (23.3 MGD with the WWTF). While some of the work is due to aging equipment, the majority is needed as almost all of the treatment processes are undersized for the existing and future conditions. The proposed work includes:

Headworks

- Increased raw sewage pumping capacity
- Improvements to the coarse and fine screens and grit removal
- Electrical and HVAC improvements

EQ Basin

Improvements to the EQ Basin do not affect the overall treatment capacity of the plant, but must be completed because Lowell is currently under an Agreed Order with IDEM for operational and maintenance issues.

- Replace HDPE liner
- Install concrete and asphalt ramp and drives to access the basin for maintenance and cleaning
- Replace surface aerators / mixers
- Install ground water underdrain system

Biological Treatment

Replace existing aeration tanks with a new system that will increase ADF and PDF, and allow for future Total Nitrogen compliance. The system would include:

- One Anoxic tank
- Four new oxidation ditches with fine bubble diffusion, blowers, and mixers
- New RAS / WAS pump station and piping

Secondary Clarifiers

- Four new 50-foot diameter secondary clarifiers

Chemical Phosphorus Removal Modifications

- Switching the existing Phosphorus removal from Ferric Chloride to Alum (to better accommodate chemicals used at the WWTF)
- Transfer pumps and piping connecting the two chemical addition systems

Effluent Pump Station and Metering

- Replace existing Effluent Pump Station and meters with more reliable facilities

UV Disinfection and Post Aeration

- Add an identical UV channel with equipment next to the existing system to double the capacity

Solids Handling

- Add two new aerobic digesters
- Replace aeration and mixing systems in three existing digesters
- Replace existing Belt Filter Press with two new volute presses
- Add covered dried sludge storage

Additionally, there are other various improvements needed in addition to the expansion. These include replacing the EQ basin liner that has been written up as a violation from IDEM inspections (a design for which is already underway), automating the flow diversion structure to mitigate flooding of the headworks basement, replacing the belt filter press with two sludge volute presses and additional sludge handling facilities, and replacement of aging equipment and other miscellaneous items.

Table 0-1 presents a summary of the major proposed improvements components with estimated costs (in 2024 dollars).

Table 0-1 Proposed Improvements and Estimated Cost (Construction and Non-Construction)

Item Description	*Opinion of Total Project Cost*
Biological Treatment Improvements (Bioloop Oxidation Ditch)	$23,700,000
Headworks Improvements	$780,000
EQ Basin Improvements	$4,260,000
Secondary Clarifiers (4 New 50' Diameter Structures)	$7,780,000
Chemical Phosphorus Removal System Upgrades	$144,000
Effluent Pump Station	$1,550,000
Expanded UV Disinfection System	$2,115,000
Solids Handling Improvements	$2,943,000
Construction Costs Subtotal	*$43,300,000*
Non-Construction Costs	*$8,700,000*
Total Estimated Project Cost	**$52,000,000**

1.0 CURRENT CONDITIONS

The Town of Lowell currently operates a Class III, 4.0 MGD extended aeration WWTP with ultraviolet light (UV) disinfection and post aeration. The WWTP uses four aeration basins followed by six clarifiers. The plant is also equipped with a 14-million-gallon wet weather EQ basin. Wet weather flows in excess of the conventional treatment facility design capacity are diverted to the 10 MGD ACTIFLO® WWTF, a single-train High Rate Clarifier (HRC), when the EQ basin is full. The effluent from the ACTIFLO® receives disinfection via a separate dedicated UV system and is discharged with the effluent from the WWTP. Flows exceeding the capacity of the biological treatment process, ACTIFLO® and the capacity of the EQ Basin are discharged through a permitted CSO downstream of the plant's outfall. Sludge is aerobically digested, dewatered via belt filter press, and hauled for land application. A process flow diagram of the existing WWTP is shown in Figure A-2 in Appendix A.

1.1 Collection System

The sanitary sewer collection system served by the Lowell WWTP is comprised of the Town of Cedar Lake's collection system which all flows into the Cedar Lake EQ basin. From this EQ basin, two 12" diameter Parshall Flumes convey Cedar Lake's flow to the Lowell Collection System. A central sanitary sewer interceptor comprised of 42-inch to 48-inch reinforced concrete pipe (RCP) runs from the Cedar Lake flume discharge south through the Town of Lowell to the WWTP. Roughly 11 sanitary collector subbasins tie into the central interceptor. These subbasins consist of sewers ranging from 8-inch diameter to 21-inch diameter polyvinyl chloride (PVC) pipe and vitrified clay pipe (VCP). Lowell currently maintains 5 sanitary lift stations.

1.1.1 Collection System Age & Remaining Useful Life

The central sewer interceptor through Lowell was constructed in 1972. There are limited construction records for the collection system subbasins that are tributary to the central interceptor, but it is assumed that all or most of the subbasins were constructed after the central interceptor. Without more information available, it is not possible to make an accurate assessment of the remainder of the collection system's age and remaining useful life.

1.1.2 Current Capacity and Surcharging Concerns

Presently, the Town's collection system is adequately sized for flow demands seen under most conditions. The collection system and WWTP do experience high wet weather flows, which have exceeded system capacities, particularly at the WWTP itself. However, there are periodically some surcharging issues elsewhere in the collection system. One of the main constraints of the collection system is the WWTP influent pump station, which has a pumping capacity of 15 MGD. However, wet weather flows have exceeded this in the past, resulting in the central interceptor surcharging.

1.1.3 Operating Problems

There are no significant collection system operating issues that have been identified by the Town's staff. Most operation issues are related to the WWTP, discussed in Sections 1.3 and 1.4.

1.2 WWTP Capacity

Based on all influent flows (dry and wet weather), the current WWTP average flow is approaching the plant's design average hydraulic capacity of 4.0 MGD, with some months exceeding this amount. The facility is equipped with a flow EQ basin and wet weather treatment facility (ACTIFLO®), so the amount of incoming flow that is directed to the biological treatment system

can be controlled. However, once the basin is full and the ACTIFLO® is running at full capacity, any excess influent becomes a CSO and is discharged directly to Cedar Creek without treatment beyond screening.

In addition to these hydraulic issues, the plant is receiving wastewater with organic loadings that are much higher than what it was designed for. The WWTP's current NPDES Permit, in effect since 2021, includes monitoring requirements for total nitrogen. It is anticipated that in a subsequent NPDES Permit renewal, a total nitrogen limit will likely be imposed on the Town. This will require additional or modified processes for nitrogen removal. Therefore, a plan is needed for the next phase of expanding the WWTP to increase the design flow and mass loading capacity, to accommodate future flows from commercial and residential growth, and keep the facility in compliance with its NPDES Permit.

1.2.1.1 WWTP Hydraulic Capacity Analysis

For the Lowell WWTP, the facility's average design flow is 4.0 MGD, or roughly 2,800 gallons per minute (gpm). Evaluation of the Monthly Reports of Operation (MRO's) from January 2021 to December 2023 revealed that the WWTP is operating at approximately 82% of its design hydraulic capacity on average. The average daily flow over that period of time was 3.29 MGD, with a maximum day of 33.81 MGD. The addition of the wet weather treatment facility gave the plant a peak wet weather capacity of 14 MGD (4 MGD through the conventional plant, and 10 MGD through the ACTIFLO®). On top of that, when figuring in the storm water pumps at the headworks, a total of 28 MGD can be handled with 4 MGD going to the biological treatment system, 10 MGD to the ACTIFLO®, and 14 MGD to the EQ Basin and out as a CSO discharge to Cedar Creek when the basin is full.

1.2.1.2 Plant Influent Analysis

Analysis of flow meter data indicates that approximately half of the treatment plant's wastewater comes from Cedar Lake. This includes wastewater from both Cedar Lake and the unincorporated area of Lake Dalecarlia. At the upstream end of the interceptor sewer that connects Cedar Lake to Lowell, two EQ Basins provide 14 MG of storage to help mitigate wet weather flows. The EQ basins consist of pre-aerated flow using one aerator, one small basin with four surface aerators, and a large basin with eight surface aerators. These EQ basins are used to control the flowrate during wet weather from Cedar Lake to the treatment plant. From January 2020 through July 2023, the highest daily flow from Cedar Lake reached 9.97 million gallons. This wastewater is conveyed to the WWTP via an interceptor sewer that begins at the Cedar Lake EQ basin as a 30-inch pipe and increases to 48-inch as it runs through Lowell.

Between January 2021 and December 2023, the average effluent flow at the Lowell WWTP was 82% of the ADF (3.29 MGD of 4.0 MGD) and exceeded the design capacity in March 2023. Table 1-1 below shows the Maximum Day Effluent Flow for each month in 2023 to illustrate the variation in flows.

Table 1-1 2023 Monthly WWTP Effluent Flows

Month	Monthly Average Flow (MGD)	Maximum Day Flow (MGD)
January	3.46	4.33
February	3.76	4.49
March	**4.28**	4.79
April	3.74	4.51
May	2.95	3.77
June	2.61	3.18
July	3.31	4.11
August	2.92	4.29
September	2.64	3.24
October	3.64	4.49
November	2.96	3.95
December	3.72	4.51
Average	**3.33**	**4.14**

WWTP flows are significantly influenced by wet-weather, with months of higher flows occurring during times of higher precipitation and snow melt. It is worth noting that 2023 was a much drier year than average. The Lowell collection system is comprised of both combined and sanitary sewers. This would indicate that a significant amount of rainfall-induced inflow and infiltration (I/I) occurs that is not present during drier periods, which has been evidenced by previous evaluations done in the collection system, including flow monitoring in the 1990's and summer of 2018, both of which showed extreme peaks during rain events. Potential sources of inflow and infiltration (I/I) are numerous and could include any of the typical sources listed below.

<u>Possible Sources of Inflow</u>

- Unrecorded/unidentified stormwater curb inlets and catch basins
- Roof drains from homes and older buildings
- Field tiles
- Open sewer lateral cleanouts
- Manholes with open pickholes located below flood-prone areas

Possible Sources of Infiltration

- Leaky sewer joints
  - Offset/pulled apart joints
  - No/poor gaskets
  - Root intrusion
  - Collapsed sewers
- Leaky sewer laterals and connections to sewer main
- Foundation/perimeter drains
- Sump pumps
- Leaky manhole joints and pipe penetrations
- Septic tanks (if not abandoned when connected to sewer)
- Leaky manhole chimneys & frames
  - Poor chimney construction with no seal
  - Offset castings

The Joint Management Operation Board (JMOB), comprised of representatives from both Lowell and Cedar Lake, have recently done CCTV inspections of approximately half of the interceptor sewer to identify sources of infiltration within the pipe. In addition, flow monitoring along the interceptor was done during the summer of 2018 to assess the flows within the Lowell collection system. Lowell plans to investigate other potential sources of I/I through CCTV inspections of collector sewers as time permits, and intends on addressing sources of I/I as it finds them, and as budget allows. The reduction of I/I is addressed in the CSO Long-Term Control Plan (LTCP). Portions of the work that have been done to date to address this and other LTCP identified projects have been summarized in a technical memorandum prepared in January of 2020. A copy of the memo is included in Appendix G.

1.2.2 WWTP Mass Loading Analysis

Based on the review of previous construction permit applications for the Lowell WWTP, the facility is designed for an average $CBOD_5$ concentration of 120 mg/L. From 2021 through 2023, the average influent concentration was 174.5 mg/L. The WWTP has four aeration tanks with a total volume of 221,600 cubic feet. The existing system has a treatment capacity of 3,324 pounds of $CBOD_5$ per day. The average daily $CBOD_5$ loading at the Lowell WWTP from 2021 through 2023 was 4,727 pounds, or 118% of the design loading. The average daily TSS loading was 4,573 pounds per day from 2021 to 2023, which is 143% of the design loading. See Table 1-2 below for a breakdown of average loadings over the last three years. Table 1-3 shows the $CBOD_5$ loadings exceeded the plant's design capacity 63% of the time from 2021 to 2023. TSS loadings exceeded the design capacity 77% of all days on average over the same period.

Table 1-2 2021-2023 Average Mass Loading Compared to Design Loadings

Year	CBOD5 (lbs/day)	TSS (lbs/day)	NH3-N (lbs/day)	Total Phos (lbs/day)
2021	5,338	5,340	373	126
2022	4,621	4,287	428	106
2023	4,230	4,097	481	107
Design Loadings	3,324	3,203	434	141

Table 1-3 Percentage of Days with Mass Loading Exceeding Design Loadings (2021-2023)

Year	CBOD5	TSS	NH3-N	Total Phos
2021	76%	84%	48%	13%
2022	56%	77%	54%	26%
2023	58%	71%	77%	8%
Average	63%	77%	60%	16%

1.3 NPDES Permit

The Town currently holds NPDES Permit No. IN0023621 (included in Appendix C) which is effective through December 31, 2025. This Permit establishes discharge limits for several different parameters, as summarized in Table 1-4.

Table 1-4 Current NPDES Permit Effluent Limits

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Monitoring Requirements	
	Monthly Average	Weekly Average		Monthly Average	Weekly Average		Measurement Frequency	Sample Type
Flow	Report	---	MGD	---	---	---	5 X Weekly	24-Hr. Total
$CBOD_5$								
Summer	500.7	751.1	lbs/day	15	22.5	mg/l	5 X Weekly	24-Hr. Composite
Winter	834.5	1,335.2	lbs/day	25	40	mg/l	5 X Weekly	24-Hr. Composite
TSS:								
Summer	600.8	1,335	lbs/day	18	27	mg/l	5 X Weekly	24-Hr. Composite
Winter	1,001.4	1,502.1	lbs/day	30	45	mg/l	5 X Weekly	24-Hr. Composite
Ammonia-Nitrogen:								
Summer	53.4	80.1	lbs/day	1.6	2.4	mg/l	5 X Weekly	24-Hr. Composite
Winter	60.1	90.1	lbs/day	1.8	2.7	mg/l	5 X Weekly	24-Hr. Composite
Phosphorus	Report	---	lbs/day	1.0	---	mg/l	5 X Weekly	24-Hr. Composite
Nitrogen, Total (as N)	Report	---	lbs/day	Report	---	mg/l	5 X Weekly	24-Hr. Composite

Parameter	Quality or Concentration			Units	Monitoring Requirements	
	Daily Minimum	Monthly Average	Daily Maximum		Measurement Frequency	Sample Type
pH	6.0	---	9.0	s.u.	5 X Weekly	Grab
Dissolved Oxygen:						
Summer	6.0	---	---	mg/L	5 X Weekly	4 Grabs/24-hr.
Winter	5.0	---	---	mg/L	5 X Weekly	4 Grabs/24-hr.
E. Coli	---	125	235	cfu/100 ml	5 X Weekly	Grab

Refer to the complete NPDES Permit in Appendix C for description of annotations.

1.3.1 Impending NPDES Total Nitrogen Limits

IDEM has begun including the monitoring of total nitrogen in all renewed NPDES permits for dischargers of 1.0 MGD or greater. This new requirement will typically include a five-year monitoring period for the duration of the renewed permit. At a subsequent renewal, current indications from IDEM are that total nitrogen limits will be included. It is not known how much time the WWTP will be given to bring the facility into compliance. Lowell's current NPDES permit expires on December 31, 2025.

The WWTP currently has effluent limits for ammonia-nitrogen that must be met and has been doing so with no apparent issues. However, total nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), organic nitrogen and ammonia (all expressed as N). Biological treatment is the only option available for removal of total nitrogen from wastewater. The current treatment processes are not designed for total nitrogen removal. Additional tankage and equipment will be needed to provide anoxic zones for denitrification and recycle of mixed liquor in the biological process. Oxidation ditches, an alternative to and variation of the current extended aeration process, can create anoxic and aerobic zones in the same tank, resulting in simultaneous nitrification/denitrification to achieve total nitrogen removal.

1.4 Plant Facilities and Processes

The Lowell WWTP has gone through multiple improvements over the last several decades, with the last significant expansion in 2005, which included a new headworks building with a perforated plate fine screen and vortex grit system. A new UV system was also installed to replace chlorine disinfection; and sludge handling was upgraded to include a third aerobic digester tank, new belt filter press and a pole barn for biosolids storage. Since that project, a mechanical bar screen was added ahead of the existing perforated plate screen, a chemical phosphorus removal process using Ferric Chloride was installed, the ACTIFLO® wet weather treatment facility was installed in 2013, the UV system was replaced in 2022, and the EQ basin drain line was repaired and the main plant generator was replaced in 2023. Overall, the facility is in fair-to-poor condition but currently meets its NPDES Permit limits, aside from past combined sewer overflow events, the last of which was in 2019.

Some facilities at the Lowell WWTP are nearing the end of their useful life or have presented operational issues. The biological treatment system, particularly the extended aeration process and blowers, shows signs of age and is due for replacement. There have also been several electrical failures at the WWTP headworks likely due to corrosive gas deteriorating electrical wiring and equipment because of the electrical room's connection to the main headworks building. There have also been occurrences of flooding in the headworks basement, causing damage to the motors on the grit system and grit pump, which are not submersible. Additionally, the WWTP's effluent pumps are located outside, and the water seal on one of the pumps broke and ice accumulated in the pump motor in the winter of 2023-2024, resulting in pump failure.

The EQ Basin's liner is deteriorated and torn in multiple places, and the Town has received an Agreed Order to replace the basin liner. A project is currently under design to replace the liner and improve the EQ Basin. The replacement of the liner is proposed to be constructed under the scope of funding associated with this PER.

1.4.1 Headworks

The WWTP headworks is located on Belshaw Road just east of the plant drive entrance. It consists of one mechanical coarse bar screen, one mechanical perforated plate fine screen, a grit removal system, and raw sewage pumping and metering.

1.4.1.1 Screening

All of the influent flow from the interceptor sewer first travels through the 28 MGD mechanical coarse bar screen which was installed in 2017. The purpose of the unit is to remove larger debris from the incoming flow. The equipment itself is in good condition. However, because it was installed outdoors it is susceptible to freezing. The bar screen needs to be raised out of the flow channel during cold weather, which puts greater stress on the downstream perforated plate screen. Since there is no bypass around the unit, it was fitted with a hydraulic lifting mechanism. The concrete supports for the lifting system have been damaged and have recently been repaired. Plant personnel suspect that while the unit was being lowered back into the channel, debris blocked it from being able to reach its final position, causing the damage to the concrete.

Mechanical Coarse Bar Screen

Perforated Plate Fine Screen

The coarse bar screen is followed by a perforated plate fine screen with a rated capacity of 24.6 MGD. There is a manually cleaned bypass bar screen that can be used when this unit is out of service. In general, the perforated plate screen has worked well. However, the operator has noted that debris, including rags, have been getting through to the downstream treatment processes and creating significant maintenance issues. The screenings from the perforated plate screen, which are collected from a channel in the basement of the building, are transported to ground level where they pass through a grinder, followed by an auger/compactor that compresses the material and deposits it into a dumpster for landfill disposal.

1.4.1.2 Grit Removal

After the two screens, wastewater is conveyed through the grit removal process. The purpose of this system is to remove grit (sand, gravel, and other heavy inorganic material) from the wastewater stream. This provides protection from excessive wear on downstream equipment and prevents buildup of the material in the aeration tanks. The 12-foot diameter vortex grit

system can handle flows up to 15 MGD. The material collected by the system is pumped to a grit classifier and dumpster for disposal at the landfill. The entire grit removal system, apart from the classifier, is located in the basement of the headworks building. A bypass channel in the basement can divert flow around the grit system, or convey flow in excess of the grit system's capacity directly to the raw sewage wet well. There have been occurrences of flooding in the headworks basement, causing damage to the motors on the grit system and grit pump, which are not submersible. This is a significant issue, causing long downtimes for the grit removal system, and a potential health hazard for plant staff. The pump capacity is adequate to handle peak hour flows. The manual flow diversion valves described later need to be automated for a quicker adjustment to higher flows. Other than these issues with flooding, there are no immediate issues with the grit removal process.

Grit Removal System (After Flooding of Headworks Basement)

1.4.1.3 Raw Sewage Pumping

On the south end of the headworks structure, the effluent from the grit removal process enters a wet well from which it is pumped either to the biological treatment process, the EQ basin, or the ACTIFLO®. There are a total of seven pumps in the wet well. Pumps No. 1 and No. 2, each rated at 2.8 MGD, convey flow to biological treatment. Pump No. 3, rated at 5.5 MGD, can direct flow to either biological treatment or to the EQ basin and ACTIFLO®. The point of discharge for Pump No. 3 is determined at the headworks by the position of two valves on the interconnection between force mains. Pumps No. 4 and No. 5 are also both rated at 5.5 MGD and can discharge to either the EQ basin or ACTIFLO®. Pumps No. 6 and No. 7 each have a capacity of 12.4 MGD and can convey flow to either the EQ basin or ACTIFLO®, but generally only pump to the EQ basin. The discharge location for Pump No.'s 4, 5, 6, and 7 are determined by valve settings at the headworks and at the wet weather diversion Structure located north of the EQ basin. All of the raw sewage pumps are operated by variable frequency drives (VFD's) located in the electrical room of the headworks. The only current issue with the raw sewage pumping is antiquated electrical and control systems.

In addition to the plant influent, a 12 inch drain line from the EQ basin enters the raw sewage wet well at the headworks. After the EQ basin has been utilized, and flows to the WWTP have subsided, the water stored in the basin returns to the headworks by gravity so it can be conveyed to the biological treatment process. The rate of flow into the wet well from the EQ basin is controlled by a pinch valve and flow meter on the west side of the headworks.

1.4.1.4 Influent Metering

In addition to the flow meter on the drain back line from the EQ basin to the raw sewage wet well, there are three magnetic flow meters associated with the influent flow at the Lowell WWTP. The

first is a 14-inch meter located in the vault adjacent to the wet well on the force main to the biological treatment process, which measures all flow to the conventional treatment system. The second is a 24-inch meter located in a vault approximately 170' southeast of the wet well on the force main to the EQ basin. The third is on the 36-inch force main from Pumps No. 6 and No. 7 to the EQ basin. These meters are calibrated annually and have no immediate issues. Flow data is transmitted to the site's SCADA system.

1.4.1.5 Miscellaneous Headworks Items

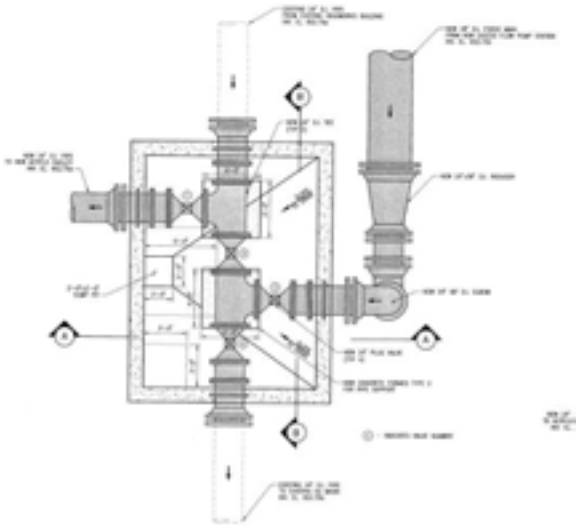
The headworks building was constructed in 2003 and appears to be in good condition. Due to its remote location compared to the WWTP, the headworks has a dedicated standby power generator. To the east of the existing headworks building are several structures associated with the previously abandoned headworks facility. These structures are no longer in use and could be demolished at any time.

1.4.2 Wet Weather Flow Equalization Basin

When influent flows exceed the capacity of the biological treatment process, the additional sewage is pumped to a 14 million gallon EQ basin used to store excess wet weather flows. Other than routine maintenance and repairs, the last major improvements to the basin were completed in 2005.

1.4.2.1 Wet Weather Diversion Structure

All of the flow to the EQ basin and the ACTIFLO® first passes through a wet weather diversion structure located approximately 120 feet north of the northeast corner of the basin. The structure consists of a 12-foot x 16-foot x 7.5-foot deep concrete vault with four 24- inch plug valves used to direct flow to different discharge locations. The 24-inch force main from Raw Sewage Pump Nos. 3, 4, and 5 and the 36-inch force main from Raw Sewage Pump Nos. 6 and 7 enter the vault, with two 24-inch force mains exiting (one to the EQ basin and the other to the ACTIFLO®). Depending on the settings of the four valves, all flow can be sent either to the ACTIFLO® or the EQ basin, or it can be split between the two. In 2022, a building was constructed over the diversion structure, and electric actuators were installed on valves 1 and 2 which allow the operator to control the direction of flow either to the EQ Basin or the WWTF without the need for manually opening and closing them.



Wet Weather Diversion Structure (from 2011 Wet Weather Treatment Project Drawings)

1.4.2.2 Equalization Basin

The top and bottom dimensions of the rectangular basin are approximately 315 feet x 500 feet and 365 feet x 570 feet, with a maximum depth of 14 feet. A channel, roughly 7 feet deeper, runs along the inside east and south sides of the basin. At the southwest end of this channel is a 24-inch pipe used to drain the stored water back to the headworks by gravity when the influent flows

subside. The 24-inch pipe reduces to 12-inch on the west side of the basin as it turns north to the headworks. Along the deepened channel are five surface aerators, 25 HP each, to provide air and mixing within the basin. An overflow structure is located at the mid-point of the east side of the basin. When the water level comes within three feet of the top of the basin, it exits the basin at this overflow and is conveyed north through a 30-inch pipe to the CSO on Cedar Creek. The entire basin floor and sides are sealed with a high density polyethylene (HDPE) liner. Along the north edge of the basin is a concrete ramp for equipment access into the facility.

EQ basin (View from North)

There are several issues with the existing EQ basin, some of which have been included as deficiencies in IDEM inspections. Currently, Surface Aerator No. 1 is not operational and is flipped over and Surface Aerator No. 5 is not working. The HDPE liner has rips or holes in several places. This was reported in the inspection on February 13, 2019. The IDEM inspector rated the liner as unsatisfactory and a violation of Part II.B.1 of the NPDES Permit. The Owner reports that due to the liner not having sufficient thickness, it is difficult to operate equipment within the basin. The bottom of the basin will need to be cleaned out from the channel of solids that have settled during its use. Subsequent inspections have also resulted in unsatisfactory conditions, and the Town of Lowell entered into an Agreed Order on June 27, 2022 requiring repairs to the liner and cleaning of the basin.

1.4.3 High Rate Clarification System – ACTIFLO®

One of the projects included in the CSO Long Term Control Plan (LTCP) included the construction of a new wet weather treatment facility. The ACTIFLO®, a high rate clarification (HRC) system, was installed in 2013 and has a rated capacity of 10 MGD. Raw Sewage Pumps No. 4 and No. 5, each with a capacity of 5.5 MGD, are generally dedicated to conveying the wet weather flow to the ACTIFLO®, with Pump No. 3 serving as a backup. The influent flow to the HRC system is mixed with alum and microsand to form a floc with the solids in the wastewater, quickly settling the material in a clarifier and returning it to the headworks for treatment through the biological process. The effluent is disinfected using a dedicated UV system, blended with the effluent from the biological plant, and discharged to Cedar Creek. Due to the remote location of the system on the south end of the EQ basin, the ACTIFLO® has its own 600 kW backup generator. The operating personnel indicate that the facility works well and produces good quality effluent. However, it is expensive

Actiflo®

to operate due to the amount of chemical it uses (approximately 6,100 gallons of alum over three days). See Table 1-5 for NPDES effluent limitations for the ACTIFLO® system.

Table 1-5 Current NPDES Permit ACTIFLO® Effluent Limits

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Monitoring Requirements	
	Monthly Average	Weekly Average		Monthly Average	Weekly Average		Measurement Frequency	Sample Type
Flow	Report	Report	MGD	---	---	---	Daily	24-Hr. Total
$CBOD_5$	---	---	---	Report	Report	mg/l	Daily	Composite
TSS	---	---	---	Report	Report	mg/l	Daily	Composite

Parameter	Quality or Concentration			Units	Monitoring Requirements	
	Daily Minimum	Monthly Average	Daily Maximum		Measurement Frequency	Sample Type
pH	Report	---	Report	s.u.	Daily	Grab
E. Coli	---	125	235	cfu/100 ml	Daily	Grab

Refer to the complete NPDES Permit in Appendix C for description of annotations.

1.4.4 Biological Treatment – Extended Aeration

1.4.4.1 Aeration Tanks

Lowell's extended aeration process provides single stage nitrification, activated sludge treatment. The system includes four aeration tanks that are typically operated in series (flow from one to the next), but can also be run in parallel (flow split proportionally among all tanks). The four circular aeration tanks of various sizes have been built in phases as the facility was expanded. The volume of each of the aeration tanks is included in Table 1-6.

Table 1-6 Aeration Tank Sizes

Tank No.	*Diameter (feet)*	*Volume (Gallons)*	*Volume (Cubic Feet)*
1	50	220,304	29,453
2	55	266,568	35,637
3	55	266,568	35,637
4	90	904,128	120,873
Total		**1,657,569**	**221,600**

Each aeration tank is fitted with a fine bubble diffuser grid supported on the floor and air is provided by several blowers, which are generally the largest power user at the facility. Aeration Tanks No. 1 and No. 4 share four blowers located in Aeration Building No. 2, and Aerations Tanks No. 2 and No. 3 share three blowers in Aeration Building No. 1.

Aeration Tank No. 4

As outlined in Section 1.1.3, the plant is organically overloaded according to design loadings. Based on 2021 through 2023 $CBOD_5$ loadings, the plant's organic loading rate was 21.33 lbs $CBOD_5$ per day per 1,000 cubic feet of aeration tank, exceeding the design capacity. Over the last three years, the plant has been operating at approximately 118% of its design mass loading.

The concrete aeration tanks appear to be in good condition. However, only the top few feet are exposed above ground as the majority is buried, and the tanks were full at the time of evaluation. Based on previous project drawings, it appears that some of the tanks have been repurposed in the past and converted from some other type of process to aeration.

1.4.4.2 Aeration Control Boxes

Flow control to the aeration tanks is provided by aeration control boxes. These structures have slide gates that are used in different combinations based on whether the system is being operated in parallel or in series. Aeration Control Box No. 1 is no longer used for splitting flow to the aeration tanks. It has been modified to combine effluent flow from Clarifiers No. 1 and No. 2. Aeration Control Box No. 2 has been abandoned in place and is no longer used. Aeration Control Box No. 3 is used to control the flow to Aeration Tanks No. 1 and No. 4. The largest and newest of the four structures is Aeration Control Box No. 4, which was constructed in 2003 and serves to control the flow to Aeration Control Box No. 3 and Aeration Tanks No. 2 and No. 3. This structure also serves as the location where Return Activated Sludge (RAS) from the secondary clarifiers is combined and split to the aeration tanks. The Waste Activated Sludge (WAS) is pumped from this structure to the gravity sludge thickener. Alum (for chemical phosphorus removal) is also fed to the mixed liquor in Aeration Control Box No. 4 prior to it proceeding to the secondary clarifiers. There appear to be no operational issues with the Aeration Control Boxes, although the flow pattern through them and the connecting pipes is complicated. Operating personnel have indicated that the flow diagrams included in previous project drawings do not appear to be completely accurate. Additionally, the abandoned Aeration Control Box No. 2 takes up space and requires unnecessary maintenance.

1.4.4.3 Aeration Tank Miscellaneous

A phosphorus monitoring meter is located at Aeration Tank No. 1. The plant personnel have had issues with its readings. They are currently not using it and dose chemicals based on a fixed concentration. The personnel have expressed interest in upgrading to a flow based chemical dosage for more accurate control and to reduce chemical usage and costs.

1.4.5 Secondary Clarifiers

1.4.5.1 Existing Secondary Clarifiers

The Lowell WWTP has six circular clarifiers of varying sizes and styles. Table 1-7 provides a summary of the dimensions and capacities. Clarifiers No. 1 and No. 2 utilize a rake and plow scraper system for settled sludge removal from the floor. As the equipment in the clarifier rotates,

a series of rakes moves the sludge towards the center of the tank from where it is removed. Clarifiers No. 3 and No. 4 use a siphon suction header for sludge removal. Unlike the scraper system, a collector arm with orifices rotates along the floor and gathers the sludge using differential head pressure. Clarifiers No. 5 and No. 6 use a spiral scraper system which is similar to Clarifiers No. 1 and No. 2 with the exception that the scraper is one piece instead of several separate rakes. Clarifiers No. 1 and No. 2 were the first to be constructed, No. 3 and No. 4 were added later, and No. 5 and No. 6 were installed in 2000.

Table 1-7 Secondary Clarifier Sizes

Clarifier No.	*Diameter (ft)*	*Depth (ft)*	*Surface Area (Square Feet)*	*Volume (Cubic Feet)*
1	40	9	1,256	11,310
2	40	9	1,256	11,310
3	50	9	1,964	17,671
4	50	9	1,964	17,671
5	50	13	1,964	25,525
6	50	13	1,964	25,525
Total*			**9,112**	**97,702**

Clarifier No. 1 Not Included in Totals

Flow from the aeration tanks is split in the mixed liquor splitter box to Clarifiers No. 1 and No. 2 and Final Clarifier Control Box No. 2. Control Box No. 2 then splits the flow to Clarifier Nos. 3, 4, 5 and 6. Control Box No. 2 has space for future expansion of two more clarifiers. Return activated sludge flow is conveyed through pumps at each set of two clarifiers. This flow is pumped back to Aeration Control Box No. 4. Scum that is skimmed from the top of the clarifiers flows to a small wet well at the scum pump station where one pump rated at 200 gpm sends it to the gravity thickener.

Clarifier No. 1

Ten States Standards have several requirements for clarifier sizing, including Surface Loading Rate, Peak Solids Loading Rate, and Weir Loading, all of which are calculated based on the peak flow through the system. The Surface Loading Rate refers to the amount of flow per surface area provided (gpd/ft^2). The Peak Solids Loading Rate is determined by the pounds of suspended solids per surface area provided (lb/day/ft^2). The Weir Loading is the flow rate per foot of weir provided, essentially the circumference of the tank (gpd/linear foot). Table 1-8 provides a summary of the current loadings on Clarifier Nos. 2, 3, 4, 5, and 6 based on a peak flow of 4.0 MGD and peak solids loading of 64,624 lb/day.

Table 1-8 Secondary Clarifier Loadings

	Surface Loading Rate (gpd/ft²)	*Peak Solids Loading Rate (lb/day/ft²)*	*Weir Loading (gpd/lf)*
Ten States Standards Requirement	900	35	30,000
Lowell WWTP Secondary Clarifiers 2, 3, 4, 5, and 6	439	7.1	5,305

Clarifiers No. 1 Not Included in Totals

Overall, the concrete tanks appear to be in good condition. However, only the top portion of the concrete can be viewed because the majority of the structure is buried. Clarifier No. 1, the oldest of the six units, has been out of service for some time and needs new equipment before it can be operated again. However, based on the current flows and loadings, the other five clarifiers are more than enough to provide proper treatment. Additionally, if Clarifier No. 2 is eventually abandoned due to its age, the other four clarifiers are still large enough to handle current peak flows. The only other deficiency noted with the clarifiers was the water depth. Ten States Standards recommends a minimum of 12 feet when part of an activated sludge process. Clarifiers No. 2, No. 3, and No. 4 do not meet this standard, with just 9 feet of depth.

Clarifier No. 5

1.4.5.2 Return and Waste Activated Sludge (RAS/WAS)

A RAS/WAS Pump Station is provided for each pair of secondary clarifiers (No. 1 and No. 2; No. 3 and No. 4; and No. 5 and No. 6). Clarifiers No. 1 and No. 2 have two RAS/WAS pumps with capacities of 465 gpm each. Two pumps have been removed from the RAS/WAS pump station, which used to have a total of four pumps, but were not replaced. Clarifiers No. 3 and No. 4 also have two pumps rated at 830 gpm each. Clarifiers No. 5 and No. 6 have three pumps, all rated at 1,000 gpm. All of the RAS/WAS pumps are controlled by VFD's located at the RAS/WAS pump stations between each set of clarifiers. Assuming Clarifiers No. 1 and No. 2 remain out of service, and with the largest pump in each of the other two stations not operating, the total RAS/WAS flowrate can reach 3,690 gpm, or 5.3 MGD. This is 132% of the design average flow of the WWTP, which is adequate. All of the activated sludge is pumped to Aeration Control Box No. 4 where the majority of the sludge is returned to the aeration tanks by gravity flow. The WAS is pumped from that location to the solids handling process.

1.4.6 Chemical Phosphorus System

In order to meet total phosphorus (TP) limits required by the facility's NPDES Permit, the Lowell WWTP uses chemical addition to precipitate the phosphorus so it settles out in the secondary clarifiers. Ferric Chloride is currently used as the precipitating agent. It is stored in two 2,500 gallon double wall tanks located in the old Chlorine Building. Two chemical feed pumps are used

that can deliver between 0.001 and 15.85 gallons per hour. The chemical can be fed at two different locations in the Aeration Control Box No. 4: 1) Upstream of Aeration Tank No. 4, and 2) Upstream of Aeration Tanks No. 2 and No. 3.

1.4.7 Effluent Pump Station and Metering

Due to the hydraulic profile of the existing facility, when the new UV Disinfection system was installed, it had to be built at a higher elevation than the secondary clarifiers. Under normal conditions, the plant effluent could flow by gravity to the receiving stream. However, during flooded conditions when Cedar Creek is at the top of or out of its banks, gravity flow would have been impeded. Because of the elevation difference between the clarifiers and disinfection system, the clarifier effluent needs to be pumped to the UV channel.

Effluent Pump Station

At some point in the past, the effluent was pumped through pressure filters prior to discharge. This process has since been eliminated and the pump station that was used for the filters was repurposed to convey effluent to the disinfection system. The two pumps are controlled by VFD's. There have been operation issues, including the system not restarting automatically after power failures. Operating personnel have to manually reset the pumps at the lift station. Through a substantially cold period during the winter of 2023/2024, water from the pump seals began to freeze and buildup around the motors (located outdoors). This resulted in the failure of both pumps and controls. Like the raw sewage pumps at the headworks, the effluent pump station is a critical component of the overall treatment system. If the pumps fail, all effluent discharge is stopped, and the water will quickly surcharge the clarifiers.

The plant effluent flow is metered by a magnetic flow meter located on the 12-inch force main from the effluent pump station. The pipe has sufficient length and proper hydraulics, and the meter is believed to provide reliable accuracy.

1.4.8 UV Disinfection & Post-Aeration

Effluent disinfection at the Lowell WWTP is achieved through a single channel ultraviolet (UV) light disinfection system. The channel contains two banks, with each bank containing three modules of eight lamps. This UV system can treat a peak flow of 4 MGD. These banks both have room to add one more module, which could increase the peak flow to 6 MGD. The UV channel discharges through a level control gate to a post-aeration ladder. The concrete channel appears to be in good condition. The UV equipment was replaced in 2021.

UV Disinfection System

1.4.9 Plant Outfall

From the UV disinfection channel and post-aeration, the plant effluent is discharged through a 36-inch outfall pipe. The ACTIFLO® system also discharges to the same pipe downstream from the disinfection system. This 36-inch outfall discharges to Cedar Creek which is a tributary of the Kankakee River.

1.4.10 Solids Handling

Solids handling at a WWTP, or the treatment and disposal of sludge wasted from the secondary clarifiers, is typically a significant part of the process and can be labor intensive. At the Lowell WWTP, solids handling includes WAS pumping, thickening of the sludge via gravity thickener, aerobic digestion, dewatering with a belt filter press, sludge cake storage, and land application. Overall, the Operator has indicated that solids handling is a significant bottleneck in the treatment process.

1.4.10.1 Waste Activated Sludge Pumping

The WAS pumps are located in Aeration Control Box No. 4. As previously noted, the RAS/WAS collected from the secondary clarifiers is pumped to that structure at which point RAS is returned to the aeration tanks by gravity. Two WAS pumps located in the structure convey wasted sludge though a 4-inch force main to the gravity thickener. Each pump is rated at 30 gpm. Flow is measured by a magnetic flow meter located in Aeration Control Box No. 4. The operating personnel have indicated that it would be beneficial to increase the WAS pumping capacity to allow more sludge to be wasted over the course of a day.

1.4.10.2Sludge Gravity Thickener

Waste sludge is first pumped to a 25 foot diameter sludge thickening tank located near the Belt Filter Press building. The gravity thickener operates similar to the secondary clarifiers. The sludge settles to the bottom and is slowly moved to a central collection location by rotating rakes. The floor of a gravity thickener is typically sloped more than a clarifier, with between 1:3 and 1:6 slope. No drawings were available for the gravity thickener at the Lowell WWTP.

While the visible portion of the concrete tank appears to be in good condition, the gravity thickener equipment is past the end of its useful life. The system is also too small. At a wasting rate of 30 gpm, which the operator believes is too low, the retention time in the thickener is only 24 hours (assuming the tank averages 12 ft water depth). At an increased wasting rate, the time in the thickener would be reduced even more. The operator has indicated that if wasting occurs at a steady rate over the course of a day, solids begin escaping over the weirs. They are then returned to the aeration tanks with the supernatant (clear water from the top of the thickener). Essentially, all of those solids that were meant to be wasted were returned back into the biological treatment system.

1.4.10.3 Aerobic Digesters

The thickened sludge is pumped from the gravity thickener to one of the three aerobic digesters located to the south of the belt filter press building. Two aerobic digesters were installed with the original plant, with a third added in 2005. Each digester is 60 feet long by 30 feet wide with a side water depth of 15 feet, resulting in a volume of approximately 201,960 gallons each and 605,880 gallons total. Each digester is partially buried. There are two digester feed pumps located in the basement of the Digester Control Building conveying sludge from the thickener tank. The intended operation is to run the three digesters in parallel, with thickened WAS (TWAS) fed to each tank one at a time until the digester is full. At a feed concentration of 1% solids, this results in a theoretical detention time of 27 days at the design average flow and loading. There are two progressive cavity sludge pumps that convey the digested sludge to the existing belt filter press located in a building just south of the sludge storage/drying bed area.

Aerobic Digester

Plant personnel are dissatisfied with the intensive energy requirements of the digesters. The coarse bubble diffusers used for aerating and mixing are not very efficient. The digesters require much more aeration for mixing the digesters than to meet the oxygen demand. There is a desire to switch to fine bubble diffusers with separate mixing for a more energy efficient system. Additionally, some of the valves in the basement of the Control Building that determine which

digester the sludge is pumped to are not operational. Currently, the digesters cannot be fed one at a time, and are being operated as if they are one tank, making operations difficult.

1.4.10.4 Sludge Dewatering and Storage

The digested sludge is pumped to a 2-meter Ashbrook belt filter press located in the building just north of the aerobic digesters. The belt press receives an average of 164,560 gallons a week. It is generally in good condition but will require a rebuild within the next couple years. The press is also run five or more days a week. With no second belt press for redundancy, there is higher consequence associated with the sole belt press being out of service. The operator has indicated that the press can only be out of service for three days before sludge wasting is affected and digester space becomes limited.

Dewatered Biosolids Storage Area

The existing polymer feed system is a PolyBlend® system. The staff can feed up to 10 gallons per hour (gph) of polymer. The sludge cake from the press is transported to the covered sludge storage area by a conveyor. The storage area is a repurposed sludge drying bed with a pole barn structure built over it to keep the cake dry.

EPA's Part 503 Rules for Biosolids requires 90 days storage for land application. Adequate storage area is provided for the estimated dewatered sludge volume of 104 square feet. For reference, the pole barn has a footprint of 13,440 square feet.

Located north of the sludge storage area are six drying beds that are no longer used for that purpose. Operational staff have indicated that one of these beds needs to remain because they use it for dumping debris from vactor trucks. However, there is potential that the space where the other abandoned beds are located could be used for a maintenance garage, which would require some demolition work.

1.4.11 Non-Potable Water System

The Non-Potable Water (NPW) system uses treated plant effluent to supply water for non-potable uses, such as the spray wash water for the belt filter press and yard hydrants and hose bibs around the plant site. Two NPW pumps are located at the existing NPW supply building. The supply water is from a small circular tank located just south of the UV disinfection channel. The tank was previously utilized as a chlorine contact tank. Effluent is continually bypassed to the tank to maintain levels required to provide enough water for the system. Operating personnel indicate that they sometimes have trouble with algal growth in the tank, most likely due to stagnant water in the open sunlight.

The two NPW pumps were replaced in 2021, and the pump building was replaced with a fiberglass structure.

Non-Potable Water Tank

1.4.12 Plant Monitoring & Controls System

The plant monitoring and controls consists of a SCADA data system which is Remote Terminal Based (RTU) based and primarily provides monitoring of various plant processes and equipment, with limited functions for control and limited flexibility. For example, they can control the valve letting the wastewater out of the Cedar Lake flow EQ basins. The staff does not have significant issues with the controls system other than the manual valves for the plants EQ basin and HRC system.

1.4.13 WWTP Electrical System

There are three emergency standby generators located at the Lowell WWTP: 1) Headworks, 2) ACTIFLO®, and 3) Conventional Treatment Plant inside the Main Service Building, just east of the Administration / Laboratory Building. The first two are relatively new and in good condition, constructed at the same time as the more recent headworks improvements and new WWTF. The third was replaced in 2021, however there are several areas where the gear is antiquated and still needs to be replaced. Operating personnel also indicated that they sometimes have trouble with losing a phase of the three-phase system powering the plant.

1.5 Existing WWTP Flow Patterns and Hydraulics

1.5.1 WWTP Flow Patterns

All raw sewage from the interceptor sewer enters the existing headworks and is conveyed through the two mechanical screens and grit removal to the raw sewage pumping station wet well. From there, normal dry weather flows, and flows up to 4.0 MGD or slightly higher during wet weather are pumped to the Aeration Control Box No. 4. If the aeration tanks are being run in series, which they typically are, the influent proceeds to Aeration Control Box No. 3, then to Aeration Tank No. 4, followed by Aeration Tank No. 1. From there, the flow goes back to Aeration Control Box No. 4 and is conveyed to the Junction Box located between Aeration Tanks No. 2 and No. 3. The flow is split in that box, with approximately ½ going to Aeration Tank No. 2 and ½ going to Aeration Tank No. 3. Effluent from these two aeration tanks is conveyed to the Mixed Liquor Splitter Box. With Clarifiers No. 1 and No. 2 out of service, which they were at the time of this study, all of the mixed liquor from the aeration tanks flows by gravity to the Final Clarifier Control Box No. 2. At that structure, the flow is split evenly between Clarifiers No. 3, No. 4, No. 5, and No. 6. Activated sludge from the clarifiers is pumped to the Aeration Control Box No. 4, at which point most of it is returned to flows going to the four aeration tanks (by gravity). A portion of the activated sludge is pumped from that structure as WAS.

The effluent from the clarifiers flows by gravity to the Effluent Pump Station (previously referred to as the Filter Feed Pump Station), from where it is pumped to the UV Disinfection Structure. The disinfected effluent then flows by gravity to the receiving stream through the outfall pipe. At times when the non-potable water supply tank is empty, effluent flow is diverted from the UV structure to refill the water supply tank.

The WAS that is pumped from Aeration Control Box No. 4 is conveyed to the existing sludge gravity thickener. The thickened sludge is removed from this tank by a pump in the Digester Control Building and conveyed to one of the three aerobic digesters. From there, it is pumped to the belt filter press in the Sludge Processing Facility. The clear water from the sludge thickener and the belt press are returned to Aeration Control Box No. 4 by gravity to be sent back through the treatment process. The sludge cake is conveyed to the covered storage facility that used to be a drying bed, and then land applied as needed.

When influent flows exceed 4.0 MGD or slightly higher, some of the water at the headworks raw sewage pump station wet well is conveyed to the EQ Basin through a separate force main. When the basin becomes full, the wet weather diversion valves are used to send approximately 10 MGD to the ACTIFLO®. Anything in excess of the conventional treatment facility (4 MGD) and the ACTIFLO®, is pumped to the EQ Basin, which when full overflows to a pipe that conveys the partially treated (screened) water to the CSO outfall on Cedar Creek.

Figure A-2 in Appendix A shows a general layout of the flow diagram for the treatment facility. This diagram was based off previously prepared as-builts from the Phase II construction project built in 2003.

2.0 UTILITY NEEDS

2.1 Service Area Population

The 20-year projected service area for the Town of Lowell can be seen in Figure A-1. The service area includes the town limits of Lowell, Cedar Lake, and a portion of Lake Dalecarlia, and growth is anticipated west of these communities as well as merging between Cedar Lake and Lowell. Historical United States Census population data for the Towns of Lowell and Cedar Lake are summarized in Table 2-1 below. 20-year projections assume an average growth rate for each Town based on Census data from 1980 to 2020.

Table 2-1 Historical Census Population Data

Year	*Population Lowell, IN*	*% Change*	*Population Cedar Lake, IN*	*% Change*
1980	5,827	--	8,754	--
1990	6,430	10%	8,885	1%
2000	7,505	17%	9,279	4%
2010	9,276	24%	11,560	25%
2020	10,680	15%	14,106	22%
2030 (projected)	12,590	16%	16,090	13%
2044 (projected)	15,850	16%	19,330	13%

A study was performed for the Lowell WWTP to estimate wastewater flow demands based on projected commercial, industrial, and residential development within the 20-year projected service area. Exhibits from that study are located in Appendix F. The study looked at planned land usage for currently undeveloped areas based on both Cedar Lake's economic planning update report from 2021, and Lowell's development plans based on the Town's input and a previous master plan from 2015. The study also summarizes all Capacity Certifications that have been issued in recent years. These Capacity Certifications suggest a surge in population growth that exceeds the average growth rate in past decades. For example, approximately 1,500 residential units have been approved in Lowell alone since January 2020. For this reason, population growth as presented in Table 2-1 above is not the sole source of justification for increased wastewater demand used. Refer to the exhibits from the Flow Projections study in Appendix F for further support of proposed design flow demands.

2.2 20-Year Plant Capacity Needs

The following Table 2-2 is a summary of current and anticipated raw sewage flows and characteristics for the 20-year planning period. Seeing as the WWTP is already nearly operating at its peak capacity daily and there is consistent mass overloading at the plant throughout the year, an expansion of hydraulic capacity is already warranted. Reduced usage of the ACTIFLO® Wet Weather Treatment facility and reduced risk of combined sewer overflows at the EQ Basin overflow location are high priorities for the Plant. However, there is also high potential for industrial and commercial growth, spurred in part by large industrial corporation interest. This further increases the need for additional plant hydraulic and mass loading capacity across all plant processes.

Table 2-2 20-year Needs Versus Existing Capacity

Design Criteria	*Current Influent Conditions*[1]	*Anticipated 20-year Influent Conditions*	*Existing Infrastructure Capacity*
Population	24,800 people	35,200 people[2]	--
Daily Average Flow	3.3 MGD	8.0 MGD	4.0 MGD
Peak Daily Flow (Conventional Plant)	4.8 MGD[3]	13.3 MGD (23.3 MGD with ACTIFLO®)	4.0 MGD (14.0 MGD with ACTIFLO®)
$CBOD_5$ Loading	174.5 mg/L	180 mg/L	120 mg/L
	4,727 lbs/day	12,010 lbs/day	4,003 lbs/day
TSS Loading	169.5 mg/L	170 mg/L	96 mg/L
	4,573 lbs/day	11,340 lbs/day	3,203 lbs/day
NH_3N Loading	16.3 mg/L	18 mg/L	13 mg/L
	427 lbs/day	1,200 lbs/day	434 lbs/day
TP Loading	4.21	4.3 mg/L	4.23 mg/L
	113 lbs/day	287 lbs/day	141 lbs/day

Notes:

1. Current influent conditions are based on average influent from MROs for 2021, 2022, and 2023
2. Population estimate based solely on growth rates as shown in Table 2-1. There is evidence to suggest that these growth rates do not accurately reflect growth following 2020 Census.
3. 4.8 MGD was the highest daily flow recorded through the conventional plant between January 2021 and December 2023. The total plant, including flows diverted to the EQ Basin and WWTF has a history of higher peak flows in prior years (e.g. daily flows of 22.7 MGD on January 11, 2020).

2.2.1 WWTP Design Flows

Analysis has been done on future flows through the next 20 years. Based on the town's input and land usage development plans, there are two significant factors that are driving the need for doubling the capacity of the WWTP. The first is the recent, and unprecedented, residential growth that is occurring in both Lowell and Cedar Lake, similar to the rest of the surrounding communities of Lake County. Since the early 2000's, the two Towns have approved Capacity Certification Letters for developments totaling almost 1.5 MGD in additional wastewater flow. The majority of these developments have been residential. Of that total, approximately 897,000 GPD remains to be built. Refer to Appendix F, Exhibit F-1 for a breakdown of developments planned for construction in the near future.

Both communities continue to see an influx of developers looking for more land in the service area to build. As expected, with the steep increase in population growth, both commercial and light industrial developments are showing interest in the Lowell and Cedar Lake areas as well. The Indiana Economic Development Commission has met with Lowell on several occasions recently to discuss promoting areas along the US 41 Corridor for light industrial facilities. Refer to Appendix F, Figures F-1 and F-2 for maps presenting the anticipated areas of future development, categorized by land usage type.

It is anticipated that if the entire area that the two Towns expect to be open for development is built out, the highest projected flow increase from Lowell and Cedar Lake combined could exceed 10 MGD. However, this assumes very aggressive development and expansion, and it is anticipated that the full growth that would result in that volume of wastewater demand will not occur during the 20-year planning period of this report. It is estimated that roughly half of the development area presented in Figures F-1 and F-2 will be developed within the 20-year planning period. Table 2-3 below provides a summary of 20-year flow projections used to size the proposed WWTP expansion.

Table 2-3 20-year Flow Projections

Flow Source	Average Daily Flow (MGD)	Peak Daily Flow[1] (MGD)
Current Flows	3.4	4.8
Developments Under Construction	0.9	1.7
Cedar Lake Future Development	1.8	3.3
Lowell Future Development	1.9	3.5
Total	**8.0**	**13.3**

Notes:

1 Peak flows do not fully account for wet weather conditions.

This has led to the decision to focus on increasing the ADF and PDF of the WWTP from 4.0 MGD to 8.0 MGD and 13.3 MGD respectively. This will ensure that the high residential growth rate now occurring will be covered, with reserve capacity for significant light industrial user(s) that may begin development. The average daily flow capacity that will be planned for is 8.0 MGD with 13.3 MGD peak daily flow through the conventional plant. The EQ Basin and the ACTIFLO® facilities will still be kept online with the same design capacities, giving the overall facility a wet weather treatment capacity of up to 23.3 MGD.

2.2.2 Raw Sewage Characteristics

As shown in Table 2-2 above, the 2021-2023 average influent levels are higher than the concentrations used to design the original facility. This has contributed to the mass overloading of the WWTP. The 2021-2023 average concentrations are in line with low to medium strength municipal waste. It is assumed that the new flow outlined in Table 2-3 will have the same concentrations as the existing flow. Therefore, the proposed design concentrations shown in Table 2-2 are increased to within recent average month concentrations.

2.3 Additional 20-Year Plant Needs

In addition to the plant's current capacity concerns, there are several other pressing facility issues. The first and most critical issue is the failing EQ Basin liner. It is ripped and deteriorated in many locations, and facility staff are unable to adequately clean and maintain the basin due to the liner's poor condition. The Plant has received an Agreed Order, included in Appendix E, to address the issues at the EQ basin. There is a design project currently underway to determine how best to replace the EQ Basin liner and address other concerns with the basin's operation.

The EQ Basin improvements are included under this proposed SRF funded project under the required schedule due to the existing Agreed Order.

The coarse bar screen at the headworks has had issues during winter months in the past due to its outdoor installation and freezing problems. There are times when it must be lifted out of the channel flow to prevent damage to the equipment.

The poor condition of the HVAC system in the headworks building and the configuration of the electrical room there has led to multiple issues with control and other electrical panels. Headworks failures can lead to significant backups in the interceptor sewer and potentially result in sanitary sewer overflows because it takes a significant amount of time to get the raw pumping system back into operation.

As previously outlined, the impending requirement for total nitrogen requirements will need to be addressed by significant modifications to the biological treatment process. Since a capacity increase is already required, this is the ideal time to address deficiencies in the WWTP's ability to meet total nitrogen requirements.

The biosolids handling system does not have redundancy in its mechanical dewatering process. If the existing belt press reaches a point of failure, the facility will be without dewatering capabilities for an extended period of time, and will incur high costs to remove liquid sludge from the plant.

While the WWTF is relatively new and operates well, there have been issues with it running out of chemical (Alum) too quickly, sometimes in just a couple days, requiring the system to be shut down until a new shipment can be received. Also, because it can go for months, or years, without being needed, the Alum can begin to degrade, causing cloudy effluent resulting in insufficient disinfection through the UV system. By changing the Chemical Phosphorus removal process of the conventional plant to Alum, the chemical could be shared between the two systems, ensuring ample volume and fresher material.

Another high priority facility need is the replacement and enclosure of the plant effluent pumps. These pumps are currently located outdoors and have experienced failures due to water leakage and freezing into pump motors. These assets are critical to plant operation and their past failure has risked total plant shut down. Improvements to protect these pumps from the elements is needed for risk mitigation.

2.4 Design Effluent Limits

A Preliminary Effluent Limitation (PEL) letter from IDEM dated May 15, 2020 lists the anticipated effluent limits associated with an increase to 6 MGD average design flow. The anticipated limits are shown below in Table 2-3. The IDEM PEL letter is included in in Appendix D. A request has been made to IDEM for recent scope changes of increasing to an 8 MGD plant, but a PEL has not been issued for the change in capacity yet. The effluent limitations for 8 MGD average design flow are assumed to be the same as those from IDEM's previous PEL for 6.0 MGD until an IDEM response is received, and these are listed in Table 2-3. These will be verified.

The anticipated effluent limits for $CBOD_5$ summer weekly average, and NH3N (ammonia) are slightly different than the limits in the current NPDES Permit. Current limits are shown in parenthesis in Table 2-3. Additionally, IDEM has indicated that it will require Lowell to continue to monitor its Total Nitrogen, as explained previously. No limits have been established at this time.

Table 2-3 Preliminary Effluent Limitations – 6 MGD WWTP

Parameter	Summer		Units	Winter		Units
	Monthly Average	**Weekly Average**		**Monthly Average**	**Weekly Average**	
$CBOD_5$	**15**	**23** *(22.5)*	mg/l	**25**	**40**	mg/l
TSS	**18**	**27**	mg/l	**30**	**45**	mg/l
NH_3N	**1.5** *(1.6)*	**2.3** *(2.4)*	mg/l	**1.6** **(1.8)**	**2.4** **(2.7)**	mg/l
Total-Nitrogen	**Report**	**---**	mg/l	**Report**	**---**	mg/l
Phosphorus	**1.0** *(NA)*	---	mg/l	**1.0** *(NA)*	---	mg/l

Parameter		Quality or Concentration			Units
		Daily Minimum	**Monthly Average**	**Daily Maximum**	
pH		**6.0**	---	**9.0**	s.u.
Dissolved Oxygen	Summer	**6.0**	---	---	mg/L
	Winter	**5.0**	---	---	mg/L
E. Coli		---	**125**	**235**	cfu/100 ml

With a plant expansion to 8 MGD, the Lowell WWTP will likely become a Class IV facility and require seven days a week of monitoring versus the current five days a week. A Class IV facility is designed for a population equivalent (P.E.) of 40,000 or more. At 180 mg/L BOD and 0.17 lb BOD/person, an 8 MGD WWTP would have a P.E. of 70,640.

3.0 EVALUATION OF ALTERNATIVES

The following section presents proposed alternatives to address concerns at the Lowell WWTP. Alternatives 3 and 4 propose improvements to each of the major treatment processes to upgrade the WWTP from a 4.0 MGD to an 8.0 MGD facility, but several of the improvements recommended are also based on the current condition of each treatment process and are unrelated to capacity concerns. The primary difference between Alternatives 3 and 4 is the Biological Treatment process selected. All other proposed plant improvements are the same recommendations for both alternatives, and these are listed in Section 3.5.

The estimated costs shown here are all in 2024 dollars. Expectations are that if any of the projects are completed later, the costs will increase due to inflation and other construction related increases. All probable construction cost opinion tables referenced are included in Appendix B. A summary of project costs, both construction costs and non-construction costs, for the recommended project can be found in Table B-1.

Due to budget constraints, the construction of the proposed improvements may need to be done in phases. In general, the EQ Basin, while not required to increase the design capacity of the facility, needs to be completed on the earliest construction schedule to meet the compliance plan of the current agreed order regarding that process. Other improvements required to increase the overall capacity of the plant (ADF of 8.0 MGD and PDF of 13.3 MGD) should be done as a simultaneous project if economically possible.

3.1 Alternative 1: No Action and/or Existing Facility Optimization

As discussed in Section 2.0, the Lowell WWTP frequently exceeds its current mass loading capacity and is nearly always operating within at least 80% of its hydraulic capacity, not including the EQ basin or ACTIFLO®. The plant receives high wet weather flows, which consistently exceed the plant's capacity. Considering the steady growth in Cedar Lake and Lowell over the past 40 years and the significant increase in residential development within the service area in recent years, the WWTP is in dire need of expansion, not accounting for other plant improvements to address operation and equipment issues. Although Lowell has done a commendable job of optimizing the operation of the WWTP, it will be at an increasing risk of future NPDES permit limit violations and continued Combined Sewer Overflows if the no action alternative is selected because the facility is not big enough to handle the continued growth. The potential for growth within the service area is also completely halted if the no action alternative is selected. Thus, the no action alternative is not a viable option.

3.2 Alternative 2: Regionalization

The Lowell WWTP already serves as a regionalized facility for the towns of Lowell, Cedar Lake, and Lake Dalecarlia. There are no other communities within range of the Lowell WWTP service area that can be feasibly considered for regionalization without significant pumping facilities and abandonment of existing, established WWTPs which are themselves regionalized or serve large communities. The closest WWTP facility to consider for regionalization is the Crown Point Sewage Treatment Plant, which is nearly 12 miles away from the Lowell WWTP. Crown Point had an average influent flow of 4.7 MGD in December 2023, 90% of its design flow capacity per Crown Point's recent MROs. Thus, the regionalization alternative is not a viable option.

3.3 Alternative 3: Existing Extended Aeration Process Modification and Expansion

3.3.1 Biological Treatment

Biological treatment is the most significant process at the plant where options are available for moving forward with improvements and expansion. There are several factors that will influence the selection of the most appropriate option, including:

- Anticipated future hydraulic and mass loadings
- Presumed total nitrogen limits that will be enforced
- Ease of operation
- Capital and O&M Costs

Regarding the presumed total nitrogen limits, total nitrogen limits are far more difficult to meet than the ammonia-nitrogen limits currently enforced in the Town's NPDES permit. The existing extended aeration process is not designed to reduce total nitrogen. On ten separate dates in 2020 (July 29, 30, and 31; and August 3, 4, 5, 6, 7, 10, and 11), the facility tested the effluent for total nitrogen. The testing indicated one result of 12, one of 15, one of 16, three of 19, two of 20, and two of 21 mg/l. A copy of the testing results is included in Appendix H. The testing was done in an independent lab because the current lab at the Lowell plant is not set up to do so. IDEM has not indicated what the anticipated total nitrogen limits will be. It will be dependent on what is found during the monitoring period of the next NPDES Permit. The alternatives described below are based on the assumption that the conventional extended aeration process will not be successful in meeting total nitrogen limits.

3.3.2 Existing Extended Aeration Process Modification and Expansion

The current WWTP has a rated capacity of 4.0 MGD but is also currently mass overloaded. Based on the Ten States Standard of 15 pounds of $CBOD_5$ per 1,000 ft^3 of aeration tank volume, a total volume of 780,000 ft^3 is required in the aeration tanks. The four existing tanks provide 221,600 ft^3, so three new aeration tanks with a total additional volume of 186,000 ft^3 each would be required. This equates to structures with rough dimensions of 175 feet long by 60 feet wide with an 18-foot side water depth (SWD). The hydraulic retention time in all the aeration tanks would be approximately 17.7 hours at 8 MGD. The tanks would have full floor coverage of fine bubble diffusers.

Alternative 3 would also include modifications to the extended aeration process for total nitrogen removal. The Modified Ludzack-Ettinger (MLE) process is a continuous-flow suspended-growth process with an initial anoxic stage (new anoxic tank) followed by an aerobic stage (new and existing aeration tanks – total of 7). Part of the process requires mixed liquor from the end of the aeration tanks to be recycled back to the anoxic tank at a rate of up to four times the design average flow, along with activated sludge returned from the secondary clarifiers at a rate of 100% of the design flow. For an 8 MGD plant, this would require a mixed liquor recycle flow of 32 MGD and a RAS flow of 8 MGD. When combined with the raw sewage at 8.0 MGD, the total influent to the anoxic tank would be 48 MGD. The anoxic tank needs to have a retention time of two to three hours, requiring a structure with a volume of 1.0 million gallons. The tank would be approximately 80 feet by 80 feet x 23 feet deep, and would require multiple mixers.

Additional work required includes:

- Seven new 1,500 SCFM Blowers (installed outside with enclosures),
- Miscellaneous yard piping to connect the new aeration tanks to the existing force main and Aeration Control Box No. 4
- Yard piping replacement to convey the significantly higher flowrates necessary for the new process,
- Demolition of Clarifiers No. 1 and No. 2, along with various small concrete structures,
- New RAS pump station and force main to collect RAS from all clarifiers and return it to the new aeration tanks,
- Mixed liquor recycle pumps in the last existing aeration tank, with a 30-inch force main back to the anoxic tank, and
- All site, electrical, I&C, and SCADA integration.

The new aeration tanks would be constructed on the east side of the drive, adjacent to existing Clarifiers No. 1 and No. 2, and would serve as the first tanks in the biological treatment process.

The estimated construction cost for the Alternative 3 defined here is $21,900,000, with non-construction costs estimated at $4,380,000 for a total of $26,280,000. Refer to Table B-2 for a more detailed breakdown of this cost estimate.

3.4 Alternative 4 – Oxidation Ditch and Other Plant Improvements

3.4.1 Oxidation Ditch

While Alternative 3 for the biological treatment revolves around utilizing as much of the existing structures and equipment, Alternative 4 takes another approach – abandonment of the existing biological treatment and replacement with a new process. Advanced oxidation ditches are proven systems that would work well at the Lowell WWTP. Advantages include:

- It is an extended aeration process, which is very flexible and forgiving.
- Oxidation ditches can handle wide swings in both loadings and flowrates, which is very applicable to the Lowell WWTP.
- All of the mechanical equipment is accessible without taking a tank out of service.

Of the several types of oxidation ditches, the Bioloop by Sanitaire is recommended for the Lowell WWTP. Some advantages and features of the Bioloop include:

- Simple and efficient operation
- Automated control based on ammonia and Dissolved Oxygen (DO) sensors – Blower output increases and decreases based on these levels resulting in more efficient operation and conservation of energy.
- Simultaneous nitrification/denitrification (SNDN) occurs in the same tank, reducing the required size of an anoxic tank prior to the ditch. This also eliminates the need for the recycling of mixed liquor to the anoxic tank. SNDN is made possible in the same tank using both mixers to move the water through the structure and fine bubble diffused air in strategic locations to allow for both aerobic and anoxic zones.
- Power usage is reduced and energy savings are realized due to the low horsepower mixers and turbo blowers which are very efficient and have a wide turndown range for lower flows and loadings. The blowers are also reliable and require little maintenance.

A Sanitaire Bioloop brochure is included in Appendix I.

Alternative No. 4 includes the construction of four oxidation ditches. The structures would be built using common wall construction to reduce the amount of required concrete. The four-ditch configuration would provide an increase in both organic capacity and hydraulic capacity. The Bioloop would be rated for 8.0 MGD average flow and 13.3 MGD peak hourly flow.

The improvements associated with Alternative 4 include:

- One anaerobic tank approximately 51 feet x 51 feet x 21 feet SWD with one 2.0 Hp mixer
- Four new oxidation ditches, each approximately 180 feet x 43 feet x 22 feet
- Oxidation ditch equipment including six 50 Hp Blowers (outdoor installation in enclosures), fine bubble diffusers, and two 7.5 Hp mixers per tank
- Miscellaneous yard piping to connect the new anoxic tank to the existing force main and the oxidation ditches to Final Control Box No. 1
- Demolition of Clarifiers No. 1 and No. 2, Clarifier Control Box No. 1, Aeration Tanks 2 and 3, Aeration Control Boxes No. 1 and No. 2, mixed liquor splitter box, along with various small concrete structures. Aeration Tanks No. 1 and 4 could be left in place for possible repurposing in future expansion work.
- New RAS/WAS pump station and force main to collect RAS from all active clarifiers and return it to the new anaerobic tank, and aerobic digesters
- Site work
- Electrical, instrumentation and controls / SCADA integration

It is anticipated that the new oxidation ditches and anoxic tank would be constructed to the north side of the existing main electric building.

The estimated construction cost for the Alternative 4 defined here is $23,700,000, with non-construction costs estimated at $4,800,000 for a total of $28,400,000. Refer to Table B-3 for a more detailed breakdown of this cost estimate.

3.5 Other WWTP Upgrades

Whether Alternative 3 or 4 is selected for the new improvements that bring the capacity of the Lowell WWTP to 8.0 MGD ADF and 13.3 PDF, additional work at the other main processes will also be required to increase the total capacity of the plant.

3.5.1 Headworks

The grit removal system is functioning well. The motors on the grit drive and the grip pump should be moved from the basement to the ground floor of the headworks building by extending the shafts. This will prevent issues when the basement floods during wet weather.

An increase in the capacity of the raw sewage pumps will be required to increase the hydraulic capacity of the WWTP. Pumps Nos. 1, 2 and 3 will have to be replaced with new units that have a capacity of 13.3 MGD with two pumps operating.

In addition to the new pumps, it is recommended that a new dedicated electrical building be constructed at the headworks to prevent further corrosion issues due to direct connections to the influent channels and wet well. Repairs and modifications to the HVAC system in the existing

headworks building are also required to exhaust sewer gases from the building to prevent further corrosion. This will ensure reliability and long-term operation.

The estimated construction cost for the headworks improvements defined here is $780,000, with non-construction costs estimated at $160,000 for a total of $940,000. Refer to Table B-4 for a more detailed breakdown of this cost estimate.

3.5.2 Wet Weather Flow Equalization Basin

Due to recent write-ups by IDEM and a current Agreed Order regarding the condition of the HDPE liner in the EQ basin and other operational issues, the following work is recommended in the basin:

- Replace the liner with a new HDPE liner (approximately 26,700 square yards).
- A new entrance ramp and asphalt roadway at the lowest areas of the basin are recommended to allow for the entrance of vehicles used to clean debris from the bottom of the basin.
- Replace the existing five surface aerators.
- Install a ground water underdrain system to alleviate water levels under the basin and prevent upheaval of the liner and asphalt portions of the basin bottom.

The estimated construction cost for the EQ basin improvements is $4,260,000, with non-construction costs estimated at $850,000 for a total of $5,110,000. Refer to Table B-5 for a more detailed breakdown of this cost estimate.

3.5.3 High Rate Clarification System – ACTIFLO®

No immediate work is recommended at the wet weather treatment facility. The process is fairly new and does not appear to require any immediate improvements.

3.5.4 Secondary Clarifiers and Activated Sludge Pumping

3.5.4.1 Secondary Clarifiers

Due to the small size, poor condition, and location of Clarifiers No. 1 and No. 2, they are recommended to be removed from service and demolished. They are the oldest of the existing six clarifiers, and neither was in operation at the time of this study. The remaining four existing clarifiers are 50-feet in diameter and are in good operating condition. When increasing to a PDF of 13.3 MGD, four new additional clarifiers will be necessary to accommodate the higher peak flow. At that flow, the Surface Loading Rate would be 849 gpd/ft^2; the Peak Solids Loading Rate would be 34 lb/day/ft^2 at a MLSS of 3,000 mg/L; and the Weir Loading Rate would be 11,660 gpd/LF.

The most logical location for the four new clarifiers would be on the north side of Clarifiers 3 and 4, and the south side of Clarifiers No. 5 and 6. Final Clarifier Control Box No. 2 is set up to split flow to an additional two clarifiers, so it can be utilized for the new structures. A new splitting structure will be required for the other additional clarifiers.

The estimated construction cost for the four new Secondary Clarifiers as defined here is $7,780,000, with non-construction costs estimated at $1,560,000 for a total of $9,340,000. Refer to Table B-6 for a more detailed breakdown of this cost estimate.

3.5.4.2 Return and Waste Sludge Pumping

Clarifiers No. 3 and No. 4 share an activated sludge pump station located between the two structures, as do Clarifiers No. 5 and 6. They independently pump sludge from the clarifiers to the existing Aeration Control Box No. 2. From that structure, the RAS is fed by gravity back to the aeration tanks. Whichever biological treatment alternative is selected, new aeration tanks will be added, and it will be difficult to return sludge to the front of the treatment system from Aeration Control Box No. 2. It is recommended that a new Activated Sludge Pump Station be installed in a central location near the existing and proposed clarifiers. The sludge would be directed by gravity to the new station, and from there pumped to the biological treatment system. The WAS would also be pumped from the same structure and conveyed to the aerobic digesters directly, eliminating the need for the existing WAS pumps in Aeration Control Box No. 2.

The cost of the new RAS/WAS pump station was included under the costs for both Alternatives 3 and 4 for the biological treatment system. Refer to Tables B-2 and B-3.

3.5.5 Chemical Phosphorus System

The chemical feed system for phosphorus removal is in good condition. However, the plant currently uses Ferric Chloride for P removal, and Alum at the Wet Weather Treatment Facility. For a more efficient operation, it is recommended that the Ferric Chloride be replaced with Alum, providing multiple benefits. First, there will be more storage on site, so when the WWTF is operated, it can be run for a longer period of time before needing a new chemical delivery. Second, since the WWTF is only operated on an "as-needed" basis, the Alum stored for its use can often go unused for up to two years at times, and become ineffective. By using Alum for both processes, and installing pumps that could convey chemical between the chemical feed building and the WWTF, the material can be maintained at a much younger age. In addition, re-routing of the discharge locations for the biological process will be required if Alternative No. 4 is selected. The most logical location is Final Clarifier Control Box No. 2. Alum should be added to the flow prior to the flow split among all of the existing and future clarifiers.

The estimated construction cost for the upgrades to the chemical Phosphorus removal system as defined here is $140,000, with non-construction costs estimated at $40,000 for a total of $180,000. Refer to Table B-7 for a more detailed breakdown of this cost estimate.

3.5.6 Effluent Pump Station and Metering

As noted in Sections 1 and 2, the effluent pump station has recently had operational issues. Because it is a critical spart of the treatment system and the current facility is nearing the end of its useful life, it is recommended that the lift station be replaced. A new wet well would be installed with submersible pumps operating on VFD's.

The estimated construction cost for a new effluent pump station is $1,550,000, with non-construction costs estimated at $310,000 for a total of $1,860,000. Refer to Table B-8 for more details.

3.5.7 UV Disinfection & Post-Aeration

Additional disinfection equipment will be needed for a capacity increase beyond the existing 4 MGD peak flow. The current UV Disinfection Structure itself currently has capacity for an additional 2 MGD of peak flow beyond the current peak capacity of the disinfection equipment, 4 MGD. The UV Disinfection structure can be expanded to 10 MGD with structural modifications. A

second, identical structure and equipment should be constructed parallel to the existing to double the capacity. A flow splitting structure will be required upstream of the two channels.

The estimated construction cost for the UV disinfection upgrade as defined here is $2,120,000, with non-construction costs estimated at $420,000 for a total of $2,540,000. Refer to Table B-9 for a more detailed breakdown of this cost estimate.

3.5.8 Solids Handling

3.5.8.1 Waste Activated Sludge Pumping

As noted in Section 3.3.2 and 3.4.1 above, a new activated sludge pump station is recommended and would need to be constructed when the biological treatment system is upgraded. In addition to RAS pumps in this wet well, additional pumps would be installed to discharge the WAS directly to the aerobic digesters, with the existing sludge thickening structure being abandoned. This will eliminate the WAS pumps in Aeration Control Box No. 2.

The costs for the RAS Pump Station and Force Main are included in the costs for the Biological Treatment Alternatives 3 and 4 shown in Tables B-2 and B-3.

3.5.8.2 Sludge Gravity Thickener

With new aerobic digesters, and improved sludge dewatering, it is recommended that the existing sludge thickener be demolished and taken out of the treatment process.

3.5.8.3 Aerobic Digesters

The existing digesters are near capacity for the existing flows. The following work is recommended for the project:

- Replace the existing coarse bubble diffusers in the three existing digesters with fine bubble
- One new mixer in each of the existing digesters
- Sludge pump replacement
- Sludge piping and valve replacement in control building basement
- Construction of a fourth and fifth digester identical to the existing

3.5.8.4 Sludge Dewatering and Storage

With more biosolids production anticipated as flows and loadings begin to increase, the existing belt filter press will not be able to keep up with the sludge production. It also requires a re-build. The Lowell WWTP recently had a volute press brought to the site to run a pilot. With its success, it is recommended that two volute presses be installed to replace the one 2.0 meter belt press. Due to the significantly smaller footprint, an expansion of the dewatering building will not be required, as it would with the addition of a second press. Modifications will be required to the conveyor to transport sludge cake to the storage area.

3.5.8.5 Cost Estimate

The estimated construction cost for Solids Handling and Storage Improvements is $2,940,000, with non-construction costs estimated at $590,000 for a total of $3,530,000. Refer to Table B-10 for a more detailed breakdown of this cost estimate.

3.5.9 Supervisory Control and Data Acquisition (SCADA)

The WWTP currently has a functioning SCADA system for control of the WWTP. The system has been updated as necessary over the years to keep it up to date and operational when new field mounted instrumentation or other equipment was installed. It is recommended that this same approach be taken as further improvements to the WWTP processes are undertaken. Included in the estimated costs for any applicable recommended projects described above in this section are line items for integration of the new improvements into the SCADA system. The annual maintenance cost for the upkeep of SCADA and update/replacement of ancillary instruments and equipment is included in the estimated annual capital expenditures in Tables B-11 and B-12.

3.5.10 Miscellaneous WWTP Improvements

Due to an anticipated increase in the amount of lab work required by Total Nitrogen testing, it is recommended that the existing laboratory be expanded. The expansion of this building should also include space for a larger labor force as the facility will likely require additional staff.

3.6 Net Present Worth Analysis

A cost and effectiveness analysis was completed and meets the minimum requirements of the Water Resources Reform and Development Act of 2014. Appendix L will include the completed Cost and Effectiveness Certificate, once executed by Town's Authorized Representative. Appendix B, Tables B-11 and B-12 give a detailed breakdown of Net Present Worth Analysis for Alternatives 3 and 4. See Table 3-2 below summarizing the Net Present Worth (NPW) Analysis conducted for Alternatives 3 and 4.

Table 3-2 20-Year Net Present Worth Analysis

	Selected Alternative 4	Alternative 3
Capital Cost	$ 43,272,000	$ 41,472,000
Annual O&M Cost	$ 410,000	$ 410,000
Annual O&M Present Worth Cost	$ 6,390,000	$ 6,390,000
Salvage Value	$ 5,340,000	$ 5,010,000
Salvage Value Present Worth	$ 3,259,000	$ 3,057,000
Net Present Worth	**$ 46,400,000**	**$ 44,810,000**
Net Present Worth Compared to Selected Alternative	--	$ (1,590,000)

3.7 Alternative Evaluation Factors

Factors considered in the alternatives evaluation include monetary expenditure for the Town, energy efficiency, nutrient removal efficacy, and operation. In addition to having a lower Net Present Worth than Alternative 3, Alternative 4 also leverages the advantages of the bioloop system to run more efficiently and simplifies operation. While each treatment system is effective, the bioloop system is felt to be more adaptable to changing conditions associated with varying flows and loads.

4.0 PROPOSED PROJECT

The proposed project components and overall project plan are the result of an evaluation of the alternatives outlined in Section 3. The evaluation included the consideration of capital improvement costs, net present value costs, technical feasibility, system reliability, ease of implementation, operation and maintenance consideration, and environmental impacts. For several of the individual processes, such as headworks, effluent pumping, UV disinfection, etc., multiple alternatives were not considered because there is only one obvious, feasible way to improve that process to bring it to the necessary capacity required by the overall outcome of the project.

In addition to increasing the overall hydraulic design capacity of the conventional plant from the current ADF and PDF of 4.0 MGD to an ADF of 8.0 MGD and PDF of 13.3 MGD, the proposed improvements include work that will replace aging structures and equipment to make the facility more reliable and efficient. The current WWTF, with a PDF of 10.0 MGD, will not be altered. Neither will the volume of the EQ Basin. By increasing the PDF of the conventional plant, the EQ Basin and WWTF will not be required as often as it currently is because more incoming wet weather flow will be immediately treated through the main treatment processes. While the volume of the EQ Basin will not be altered, the improvements to that process are also a high priority due to the Agreed Order the Town currently has with IDEM due to a failing liner and inability to keep the basin clean.

Cost estimates for the selected plans are included in Appendix B. The site plan for the proposed project is included in Appendix A, Figure A-3. The SRF Project Financing Plan Form is a sum of the selected cost estimates to provide and display an overall SRF project cost.

4.1 Recommended Project

The recommended project includes Alternative 4 as described in Section 3, along with several improvements to processes that did not have specific alternatives. The work generally includes:

4.1.1 Wet Weather EQ Basin Improvements

The EQ Basin Improvements are considered a high priority portion of the project and needs to move forward so the work is completed by 2026. This may require the work be bid as a separate contract, which is reasonable considering the specialized nature of the HDPE liner replacement work. The improvements include:

- Replacement of the existing HDPE Liner with a new 60-mil liner (approximately 26,700 SY);
- A new entrance ramp (conc) and asphalt roadways at the center of the plateau and deeper trench area to allow for maintenance vehicle access;
- Replacement of five surface aerators / mixers; and
- New underdrain system beneath the liner of the deepest trench areas to mitigate upheaval from rising ground water levels.

4.1.2 Wet Weather Treatment Facility (WWTF) – ACTIFLO®

There are no recommended improvements to the WWTF, with the exception of modifications to the Alum chemical system as a whole. Refer to the Chemical Phosphorus Removal System for further detail.

4.1.3 Headworks Improvements

Recommended improvements to the headworks include both work that is necessary for the capacity expansion, as well as work that is recommended for better operations and maintenance. The work includes:

4.1.3.1 Work Required for Capacity Expansion

- Replacement of Raw Sewage Pumps 1, 2, and 3 with units that are capable of pumping 13.3 MGD with two operating (4,618 gpm each).

4.1.3.2 Work Required for Better Operations and Maintenance

- Construction of a masonry block building (40' x 25') over the coarse bar screen to prevent freezing in winter months;
- Re-Build of existing Fine Screen;
- Construction of a new electric building adjacent to, but separate from, the existing headworks building; and
- Relocation of the existing Grit System Drive and Grip Pump Motors from the basement to the first floor.

4.1.4 Biological Treatment Process

Biological treatment is the most critical process at the Lowell WWTP, as well as the largest bottleneck. It is recommended that the existing process be abandoned and replaced with a new process better designed to handle current and future flows and loadings, as well as provide for the removal of total nitrogen, which is expected on an upcoming NPDES Permit renewal.

- One new concrete Anoxic Tank approximately 51 feet square, and 21 feet deep (18 foot side water depth), and one 2.0 HP mixer.
- Four new concrete Advanced Oxidation Ditches (Basis of Design – Sanitaire Bioloop), each approximately 180 feet long, 43 feet wide, and 22 feet deep, built with common wall construction;
- Biological treatment process equipment including six 50 HP blowers in weather proof enclosures, fine bubble floor diffusers, and two 7.5 HP mixers per ditch;
- New yard piping to connect the raw pumps to the new tanks and the new process to the existing Final Control Box No. 1, and return and waste activated sludge to appropriate discharge locations;
- Demolition of Clarifiers No. 1 and No. 2; Clarifier Control Box No. 1; existing Aeration Tanks 2 and 3, Aeration Control Boxes No. 1 and No. 2, mixed liquor splitter box, along with various small concrete structures;
- New RAS / WAS pump station and force main to collect RAS from all active clarifiers and either return it to the new anoxic tank or waste it to the aerobic digesters;
- Site work; and
- Electrical, Instrumentation and Controls, and SCADA programming and integration.

4.1.5 Secondary Clarifiers

New secondary clarifiers will be required to increase the PDF of the plant to 13.3 MGD. The proposed work includes:

- Demolition of existing Clarifiers No. 1 and No. 2 (included under the Biological Process description above);
- Four new 50-foot diameter secondary clarifiers located adjacent to the existing Clarifiers 3, 4, 5, and 6;
- New RAS / WAS Pump Station (included under the Biological Process description above);

4.1.6 Chemical Phosphorus Removal System

Improvements to the chemical phosphorus removal system are not necessarily required for the capacity expansion of the Lowell WWTP, but would be a significant benefit in the operations of both the conventional plant and the WWTF. The proposed work includes:

- Transition from Ferric Chloride to Alum in the existing Chemical Feed Building (Ferric is currently used for P removal – Alum is used in the operation of the WWTF); and
- Chemical transfer pumps and piping between the Chemical Feed Building and the WWTF to provide the ability to move Alum either to or from both structures.

4.1.7 Effluent Pump Station and Metering

Improvements to the existing Effluent Pumping system are required for the capacity increase of the conventional plant. The proposed work includes:

- New wet well and pump building located adjacent to the existing pump station;
- Three new pumps capable of pumping 13.3 MGD with two operating (4,618 gpm each); and
- New valves, meter, and ancillary structures.

4.1.8 UV Disinfection and Post-Aeration

Improvements to the existing disinfection system are also required for the conventional plant capacity increase. Since the existing equipment in the single channel is new, it is recommended that the work include:

- Mirror the existing system with a new channel and equipment paralleling the structure. The peak capacity of each individual system should be a minimum of 6.65 MGD; and
- New flow splitting structure upstream of the disinfection to receive flow from the Effluent Pump Station and distribute it to the two UV channels.

4.1.9 Solids Handling

Improvements to the solids handling could be phased in as the need continues to rise for more sludge digestion and dewatering. However, the existing belt press is nearing the end of its useful life without a complete rebuild, and there is no redundant dewatering system. The proposed work on the Solids Handling process includes:

- Demolition of the existing sludge gravity thickener (no longer to be used);

- Improvements to the three existing aerobic digesters including:
    - Replacement of course bubble diffusers with fine bubble,
    - One new mixer in each tank,
    - Piping and valve modifications,
    - Sludge Pump replacement;
- Two new aerobic digesters constructed adjacent to and identical to the existing tanks;
- Replacement of one 2-meter belt press with two volute presses, along with modifications to the dewatering building and conveyor system; and
- Additional covered dry-sludge storage area (roof over previously abandoned drying beds).

4.1.10 Electrical and Supervisory Control and Data Acquisition (SCADA)

For all of the improvements recommended as part of the proposed project, associated electrical and SCADA work has been included as a cost under each process.

4.1.11 Miscellaneous Improvements

Expansion of the existing laboratory / administration building is also recommended, however is not necessary as part of the capacity expansion for the plant. As Total Nitrogen requirements become part of the testing process, a larger, more updated laboratory will be required. Also, as the facility is doubling its capacity, more staff is expected.

4.2 Project Costs

The total proposed project cost is $52,000,000. Please refer to Table B-1 in Appendix B for a breakdown of construction and non-construction costs. A 10% contingency is applied to each individual plant process cost estimate (see Tables B2-B10), so each line item of Table B-1 already includes a 10% contingency.

4.3 Property

The Town of Lowell owns the property on which all of the proposed improvements will be constructed. No temporary or permanent easements, or additional property will need to be purchased for the work.

4.4 WWTP Classification

Increasing the capacity of the Lowell WWTP to 8.0 MGD from it's current 4.0 MGD ADF will result in the facility being increased from a Class III to a Class IV plant. The Town currently has an operator with the appropriate certification for the new facility.

4.5 Impacts to CSO's

The Town of Lowell is a CSO community. Historically, when wet weather is experienced, the EQ Basin is filled very quickly, and the WWTF needs to be activated because the conventional plant cannot treat any flows significantly higher than its 4.0 MGD ADF. Once the EQ Basin is full, and the capacity of the WWTF is maximized, any additional flows will leave the facility as an untreated CSO.

By increasing ADF and PDF of the conventional plant to 8.0 MGD and 13.3 MGD respectively, wet weather flow will not have to be diverted to EQ Basin or WWTF until incoming flow exceeds the 13.3 MGD. This will greatly reduce the chance of an untreated CSO. In fact, based on simple

modelling of the EQ Basin and WWTF, a PDF of 13.3 MGD would likely reduce the number of times the WWTF has to be utilized by over 90%.

4.6 Project Schedule

Table 4-3 Proposed Project Schedule

Milestone	Date (Month/Year)
PER Submittal	April 2024
Completion of Environmental Studies	May 2024
Anticipated PER Approval	June 2024
Preliminary Effluent Limitations Request (8 MGD)	April 2024
Preliminary Effluent Limitations Received	July 2024
IDEM Construction Permit Submittal	December 2024
IDEM Construction Permit Approval	February 2025
Front End Document Certification FEDC Submittal to SRF	February 2025
Bid Opening	March 2025
Loan Closing	April 2025
Contract Award	April 2025
Construction Notice to Proceed	May 2025
Project Substantial Completion	January 2026
Initiation of Operation	February 2026

5.0 EVALUATION OF ENVIRONMENTAL IMPACTS

The Town of Lowell is proposing improvements to its existing wastewater treatment plant (WWTP) to address the current average daily flow of water approaching the plant's design hydraulic capacity of 4.0 million gallons per day (MGD). Expansion and improvements to the WWTP will increase the Average Design and Peak Hourly Flow Capacities of the facility to 8.0 and 13.3 MGD. The expansion and improvements will include the following components:

Headworks

- Replacement of Pumps No. 1, 2, and 3 within the existing wet well.
- A new electrical building adjacent to the existing headworks structure.
- Modifications to the Grit Removal System within the existing headworks structure to move the drive and grip pump motors from the basement to the first floor.

EQ Basin

- Replacement of the HDPE Liner within the existing 14 MG basin.
- A new underdrain system beneath the deepest parts of the basin for ground water level control.
- A new ground water pump station located adjacent to the existing diversion structure with force main installed north along the existing CSO outfall pipe, with a new outfall for the groundwater located adjacent to the existing CSO outfall to Cedar Creek.

Biological Treatment

- Construction of an Anoxic Tank and four Advanced Oxidation Ditches located north of the existing main electrical building.
- New blowers on a concrete slab, in weatherproof enclosures along the south side of the new ditches.

Secondary Clarifiers

- Four new 50-foot diameter secondary clarifiers are to be constructed adjacent to the four existing clarifiers at the south end of the site.

Effluent Pump Station

- Replacement of the existing Effluent Pump Station with a new wet well, submersible pumps, valve vault, meter vault, and electrical building adjacent to the existing effluent pump station which will be abandoned.

UV Disinfection

- Construction of one new UV Channel adjacent to the existing, with new disinfection equipment.

Aerobic Digesters

- Two new aerobic digesters connected to the south end of the existing digester tanks.
- Aeration, mixing, and valving improvements to the existing digesters.

Sludge Dewatering

- Replacement of existing belt filter press with two new presses within the existing dewatering building.

Dewatered Sludge Storage

- New covered dewatered sludge storage over existing drying beds to double storage capacity.

Miscellaneous Improvements

- Additional chemical storage in the existing Chemical Phosphorus Removal Building.
- Improvements to Administrative Building and Laboratory.
- Demolition of existing Aeration Tanks (4) and Secondary Clarifiers (2).

The project area is not located near a current brownfield site.

The project area is located within Cedar Creek Township of Lake County, located within the Lowell Quadrangle Map. The Project Area is in Section 35, Township 33 North, Range 9 West. A USGS Topographic Map of the project area is provided in **Appendix A, Figure A-7.1**.

Disturbed and Undisturbed Land

Land Disturbance

The primary land disturbance for the proposed project consists of the demolition of existing treatment systems, improvements to the existing EQ basin, and the construction of new buildings, anaerobic tank, oxidation ditches, secondary clarifiers, effluent pump station, outfall, UV disinfection channel, and aerobic digesters. Approximately three acres of land is expected to be disturbed. The Proposed Project will occur on land previously disturbed by the construction of the WWTP and will not require the use of borrow soils during construction. Sediment removed during construction will be stockpiled and used as backfill. Excess soil that remains from excavation activities will be disposed of properly.

Soil excavation will be required during the construction process; therefore, land will be disturbed. The Web Soil Survey program (Web Soil Survey - Home (usda.gov)), developed and maintained by the Natural Resources Conservation Service (NRCS), was referenced to obtain information on the soil types in the Project Area. The Project Area is comprised primarily of Tracy loam, 2 to 6 percent slopes (TcB), Door loam, 0 to 2 percent slopes (DoA), Door loam, 2 to 6 percent slopes (DoB), Milford silt loam, overwash (Mo), Houghton much, drained, 0 to 1 percent slopes (Ca), and Rensselaer loam, sandy substratum (Rn). A Soil Survey Map is provided in **Appendix A**, **Figure A-7.2**.

The total area of land disturbance is expected to exceed one (1) acre; therefore, a Construction Stormwater General Permit (CSGP) from the Indiana Department of Environmental Management (IDEM) for stormwater runoff associated with construction activities that disturb greater than one acre of land will be necessary. Silt fencing, erosion control blankets, and other appropriate erosion and sediment control measures will be utilized to prevent erosion in the areas of construction activity. Discharge from dewatering activities will be filtered or settled to remove sediment and will not be discharged to any waterway, wetland, or stormwater conveyance. Disturbed land will be temporarily seeded if permanent seeding is delayed.

5.1.1 Archaeological Survey

Construction activities in previously undisturbed areas have the potential to affect archeological sites and require an archeological study. The Project is in areas of previously disturbed land and will not require a Phase I Archaeological Reconnaissance. If at any time during the construction phase, artifacts, human remains or other items of archaeological significance are encountered, construction must stop and the Indiana Department of Natural Resources (IDNR), Division of Historic Preservation and Archeology (DHPA) must be contacted.

5.2 Historic Properties

The Proposed Project has been evaluated for the presence of historic and/or architectural structures and landmarks. No historic properties were identified within or near the Project Area using the IDNR Indiana Historic Buildings, Bridges, and Cemeteries Map application (Indiana Historic Buildings, Bridges, and Cemeteries Map - Overview (arcgis.com)) that includes data from the State Historic Architectural and Archaeological Research Database (SHAARD). Therefore, no direct impacts to historic and/or architectural structures land landmarks are expected as part of this project. Refer **Appendix A, Figure A-7.3** for the Historic Sites and Structures Map.

Additionally, no National Historic Landmarks were identified in or near the project area as viewed on the National Parks Service website (List of NHLs by State - National Historic Landmarks (U.S. National Park Service) (nps.gov)).

5.3 Wetlands

Wetlands are areas that are inundated or saturated by water for a period that allows vegetation to grow that is adapted for such soil conditions. Wetlands are identified by having hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland data provided by the U.S. Fish and Wildlife (USFWS) National Wetlands Inventory (NWI) was accessed (arcgis.com) to identify wetlands in the Project Area. Refer to the Wetlands Map provided in **Appendix A**, **Figure A-7.4**. The EQ Basin and the detention pond are identified as wetlands, however, there are not regulated wetlands. The wetland area to the southwest by the new aerobic digesters will be avoided. IDEM and the U.S. Army Corps of Engineers (USACE) regulate construction activities within wetlands. A USACE Section 404 Permit under the Clean Water Act (CWA) and an IDEM Section 401 Water Quality Certification (401/404 Permits) will not be required for wetland disturbances for the Proposed Project.

5.4 Surface Waters

Surface waters include rivers, streams, creeks, lakes, and reservoirs. Surface waters are important sources of wildlife habitat, drinking water, irrigation, power generation and recreation. Data provided by the U.S. Geological Survey, National Hydrograph Dataset was used to identify ephemeral (intermittent) and perennial (permanent) streams. A Surface Waters Map is included in **Appendix A, Figure A-7.5.**

Cedar Creek is located east of the Project Area. However, disturbances in a waterway below the ordinary high-water mark (OHWM) are expected for the new outfall for the Proposed Project, thus the project will require 401/404 Permits. Additionally, regulations were reviewed to determine if the project will impact streams characterized as any of the below:

- Waters of limited use (327 IAC 2-1-11 (a) and 327 IAC 2-1.5-19 (a)) – None in the project area.
- Outstanding State Resource Waters (327 IAC 2-1-11 (b), 327 IAC 2-1.3-3 (d), and 327 IAC 2-1.5-19 (b)) – None in the project area.
- Natural, Scenic Recreational Rivers and Streams (312 IAC 7-2) – None in the project area.
- Salmonid Streams (327 IAC 2-1.5-5(a) (3)) – None in the project area.
- Outstanding River list (INRC 1997 Outstanding Rivers List for Indiana) – None in the project area.

5.5 Groundwater

A sole source aquifer is an underground water supply designated by the United States Environmental Protection Agency (USEPA) as the principal source of drinking water for an area. Due to the limited alternatives of drinking water in these areas, additional project approval by the USEPA is required. According to the USEPA Designated Sole Source Aquifer Map (Sole Source Aquifers (arcgis.com)), the Project Area is not located in the counties associated with a Sole Source Aquifer.

Karst is a landscape formed from the dissolution of soluble rocks, such as limestone, and is characterized by sinkholes, caves, and underground drainage systems. Karst features and underground aquifers are susceptible to pollution and contamination from surface waters. The Project Area does not contain karst features. These underground features are not prevalent for the Project Area per the IndianaMap (IndianaMap).

5.6 Floodplains and Floodways

A floodway is the river and the adjacent land reserved to carry and discharge flood water. The 100-year floodplain is the land along a waterway that has a 1% chance of flooding in a year; the 500-year floodplain has a 0.2% chance. Disturbance that unduly restricts flood waters in these areas must be evaluated for an IDNR Construction in a Floodway Permit. Data provided by the Federal Emergency Management Agency (FEMA) was accessed (arcgis.com) to identify Floodplain and floodway in the Project Area. The Floodplain Map is included in **Appendix A**, **Figure A-7.6**.

Portions of the Proposed Project are located within the 100-year floodplain and floodway of Cedar Creek. This includes the installation of a new groundwater drainage outfall to Cedar Creek. An IDNR Construction in a Floodway Permit is not expected, as the Proposed Project is expected to qualify for the outfall general license (312 IAC 10-5-8). Best management practices required by the conditions of the general license will be implemented as applicable. The Town, through local building codes, the authority of its council or planning commission, or other means, will ensure that the SRF-funded facilities will be protected from the 500-year flood, to two feet above the base flood elevation for non-critical infrastructure, or to three feet above the base flood elevation for critical infrastructure, in accordance with Executive Order 14030.

5.7 Plants and Animals

Endangered, threatened, and rare species are evaluated by the IDNR and the USFWS to protect significant natural areas and the species that depend on those areas. The proposed project was entered into the USFWS's Information for Planning and Consultation (IPaC) system (IPaC: Home (fws.gov)) to obtain an official species list and complete the applicable determination keys. Based on the IPaC submission and the standing analysis for the determination key, the Proposed Project "may effect – not likely to adversely affect" the northern long-eared bat. Tree removal will be avoided where possible. Tree cutting restrictions may be required to minimize the potential for impacts to the Northern Long-Eared Bat. The verification letter with determination key results and official species list provided by the IPaC system are provided in **Appendix J**.

IDNR will be contacted immediately if it is determined a species from the Indiana or Federal List is found to be disturbed by construction activities. The proposed project will be implemented to minimize impacts to non-endangered species and their habitat. Mitigation measures suggested by IDNR, USFWS or other regulatory agencies will be implemented.

5.8 Farmland

The loss of farmland as a natural resource due to construction activities may threaten the ability to produce food in sufficient quantities for the United States. The proposed project will occur in areas previously disturbed by the construction of wastewater structures, driving lanes, utility lines, and site grading. There are no farmed properties within the project area.

5.9 Air Quality

Air pollution is generated from factories, vehicles, equipment and naturally occurring sources such as windblown dust. Short-term air quality impacts for the proposed project may generate dust and noise during construction. The Project Area is in non-residential areas. Mitigation measures include limiting construction activity to daylight hours on weekdays to minimize noise effects. Construction specifications will require that proper control measures be utilized to control wind erosion from construction areas. Proper cleanup practices will be required to reduce the generation of dust and other construction debris. When impacts cannot be avoided, appropriate measures will be utilized.

5.10 Open Space and Recreational Opportunities

Open and recreational spaces are undeveloped areas for public use that enhance the environmental quality of neighborhoods and communities. The project area is not currently used for recreational activities according to local and county websites available and a review of aerial photographs. Construction and operation of the proposed project will neither create nor destroy open space and recreational opportunities.

5.11 Lake Michigan Coastal Program

The Lake Michigan Coastal Program protects areas and properties, improves recreational areas, and revitalizes waterfronts for areas that drain into Indiana's portion of Lake Michigan. The Coastal Program Area map provided on IDEM's website (Lake Michigan Coastal Program Area (in.gov)) was reviewed. The Project Area is not located in the Lake Michigan Coastal Zone.

5.12 National Natural Landmarks

The National Parks Service protects areas recognized as containing outstanding biological and geological resources or examples of natural history. The National Natural Landmarks website (National Natural Landmarks Directory - National Natural Landmarks (U.S. National Park Service) (nps.gov)) identified no National Natural Landmarks within the project area. The construction and operation of the proposed project will not affect local landmarks.

5.13 Mitigation Measures

Erosion control measures will be implemented during all construction activity. Areas disturbed by construction will be restored and revegetated with seeding and other measures, such as erosion control blankets, as necessary. A CSGP for stormwater runoff associated with construction activities is expected to be required for the proposed project since it will disturb more than one acre of land. Tree removal will also be avoided where possible. Tree cutting restrictions may be required to minimize the potential for impacts to the Northern Long-Eared Bat. Mitigation measures include limiting construction activity to daylight hours on weekdays to minimize noise effects. Construction specifications will require that proper control measures be utilized to control wind erosion from construction areas.

5.14 Induced/Secondary Impacts

The Town, through local zoning laws, the authority of its council or planning commission, or other means, will ensure that future development and utility projects connecting to SRF-funded facilities will not adversely affect wetlands, wooded areas, steep slopes, archeological/historical/structural resources, or other sensitive environmental resources. The Town will require new development and utility projects to be constructed within the guidelines of the USFWS, IDNR, IDEM, and other environmental review authorities.

6.0 PUBLIC PARTICIPATION AND LEGAL, FINANCIAL, AND MANAGERIAL CAPABILITY

6.1 Public Hearing

A public hearing will be conducted on May 28, 2024 at 7 p.m. at Lowell Town Hall. Documentation including meeting minutes, a sign-in sheet, and a copy of the Publisher's Affidavit from the newspaper with the Public Hearing notice will be provided in **Appendix K** when available. The Public Hearing notice will be placed in the newspaper once, 10 days prior to the Public Hearing, will state what will be discussed at the Public Hearing, will state the time and place of the Hearing.

6.2 Availability to the Public

A copy of the Preliminary Engineering Report will be provided to the Town for the public to review for 10 days prior to the public hearing until five days after the public hearing.

6.3 Public Comments

All written comments submitted by the public and responses to comments provided by or on behalf of the Participant will be included in **Appendix K** when available. Public comments will be received for five days after the Public Hearing.

6.4 Mailing Labels

Mailing labels for interested parties, public hearing attendees, and local groups, organizations, and agencies will be provided in **Appendix K** after the public hearing is conducted.

6.5 Resolutions

The *Signatory Authorization Resolution* is included in **Appendix** L. The *PER Acceptance Resolution* will be included in **Appendix L**, when available.

6.6 SRF Project Cost and Financing Information

The *SRF Project Financing Information Form* is included in **Appendix L**. The Cost and Effectiveness form will be included once executed by the Authorized Signatory. The Town is asking for $52 million of SRF funding.

6.7 Inter-local Governmental Agreement

The Inter-local Governmental Agreement and its various amendments with Cedar Lake is included in **Appendix L**.

6.8 Utility Regional Planning Meetings

The Town of Lowell last participated in a utility regional planning meeting on May 2, 2024 and will continue to attend regional planning meetings on an annual basis, pursuant to IC 5-1.2-11.5-6.

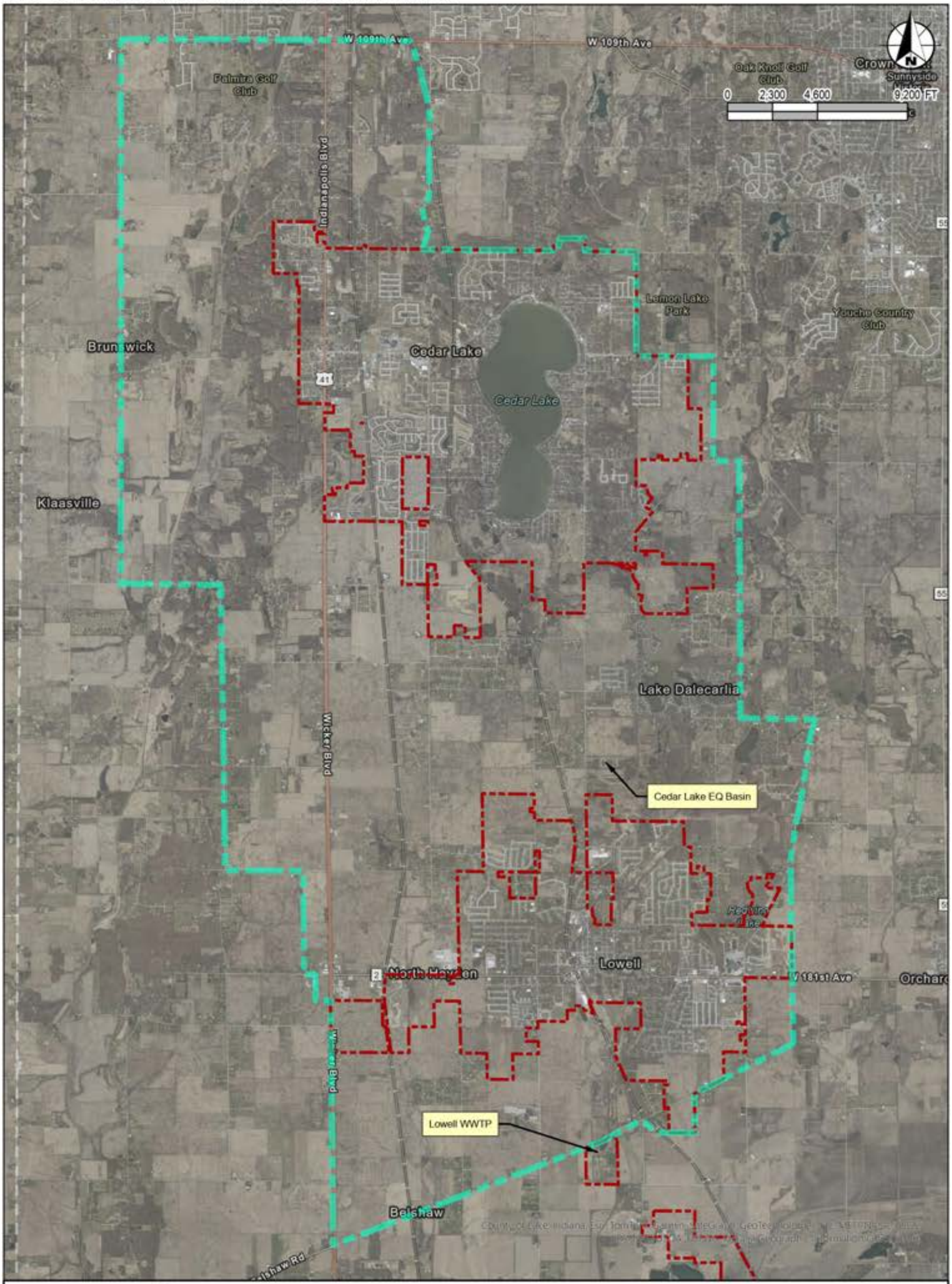
6.9 Asset Management Plan and Fiscal Sustainability Plan

The loan applicant's existing Asset Management Program (AMP) meets the requirements defined by the State Revolving Fund's Asset Management Program Guidelines pursuant to Indiana Code 5-1.2-10-16, and is inclusive of the Fiscal Sustainability Plan (FSP) minimum requirements listed in the Federal Water Pollution Control Act Section 603(d)(1)(E)(i). The completed *Asset Management Program Certification Form* is included in **Appendix L.**

APPENDIX A

FIGURES

J:\Lowell\Client GIS\MAPS\Lowell_SRF_PER\Lowell_SRF_PER.aprx Layout: A-1 SERVICE AREA (3/28/2024, 2:23 PM) User: JohnH



WESSLER ENGINEERING
More than a Project.™

Legend

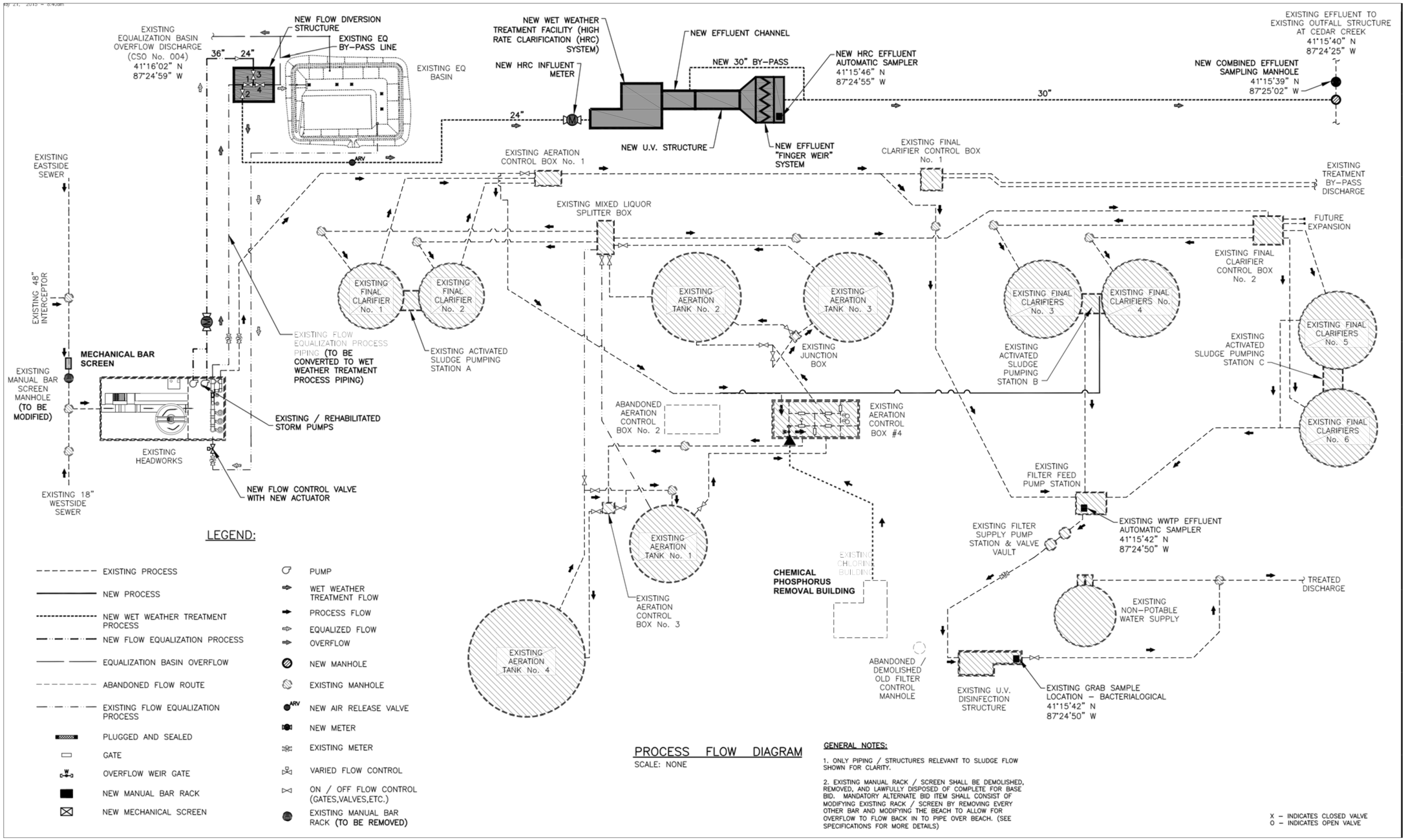
- Est. 20-Year Service Area
- Lowell/Cedar Lake Town Limits

FIGURE A-1
SERVICE AREA BOUNDARY

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01

FIGURE A- 2
WWTP Process Flow Schematic



PROCESS FLOW DIAGRAM
SCALE: NONE

GENERAL NOTES:

1. ONLY PIPING / STRUCTURES RELEVANT TO SLUDGE FLOW SHOWN FOR CLARITY.

2. EXISTING MANUAL RACK / SCREEN SHALL BE DEMOLISHED, REMOVED, AND LAWFULLY DISPOSED OF COMPLETE FOR BASE BID. MANDATORY ALTERNATE BID ITEM SHALL CONSIST OF MODIFYING EXISTING RACK / SCREEN BY REMOVING EVERY OTHER BAR AND MODIFYING THE BEACH TO ALLOW FOR OVERFLOW TO FLOW BACK IN TO PIPE OVER BEACH. (SEE SPECIFICATIONS FOR MORE DETAILS)

X – INDICATES CLOSED VALVE
O – INDICATES OPEN VALVE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

TOWN OF LOWELL
COMBINED SEWER OVERFLOW
OPERATIONAL PLAN

7500 BELSHAW ROAD
LOWELL INDIANA

DATE: 8/24/2018	PROJECT NO.: 16-0094
DRAWN BY:	CHECKED BY: JER

DRAWING STATUS: UPDATED REPORT

SHEET TITLE: WASTEWATER TREATMENT PLANT SCHEMATIC

SHEET NO.: 4-1

TOTAL SHTS: 2

8/24/2018 11:06 AM, Jim Rennard | S:\Project Files\2016\16-0094\Task Order 2 - LTCP Assistance\Exhibits\CSO\OP EXHIBIT\SIFIG 4-1 AND 4-2.dwg

J:\Lowell\Client GIS\MAPS\Lowell_SRF_PER\Lowell_SRF_PER.aprx Layout: A-3 WWTP UPGRADES (3/29/2024, 10:53 AM) User: JohnH

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Legend

Label

- New 50' DIA Secondary Clarifiers
- New Effluent Pump Station
- New Aerobic Digesters & Improvements
- New UV Disinfection Channel & Flow Splitter
- Additional Covered Sludge Storage
- New Advanced Oxidation Ditch System
- New Anaerobic Tank
- <all other values>
- Structures to be Demolished/Abandoned
- WWTP Boundary

FIGURE A-3
WASTEWATER TREATMENT PLANT UPGRADES

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01

WESSLER ENGINEERING

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Legend

- 24K USGS Quadrangle Boundaries
- WWTP Improvements
- Structures to be Demolished/Abandoned
- WWTP Boundary

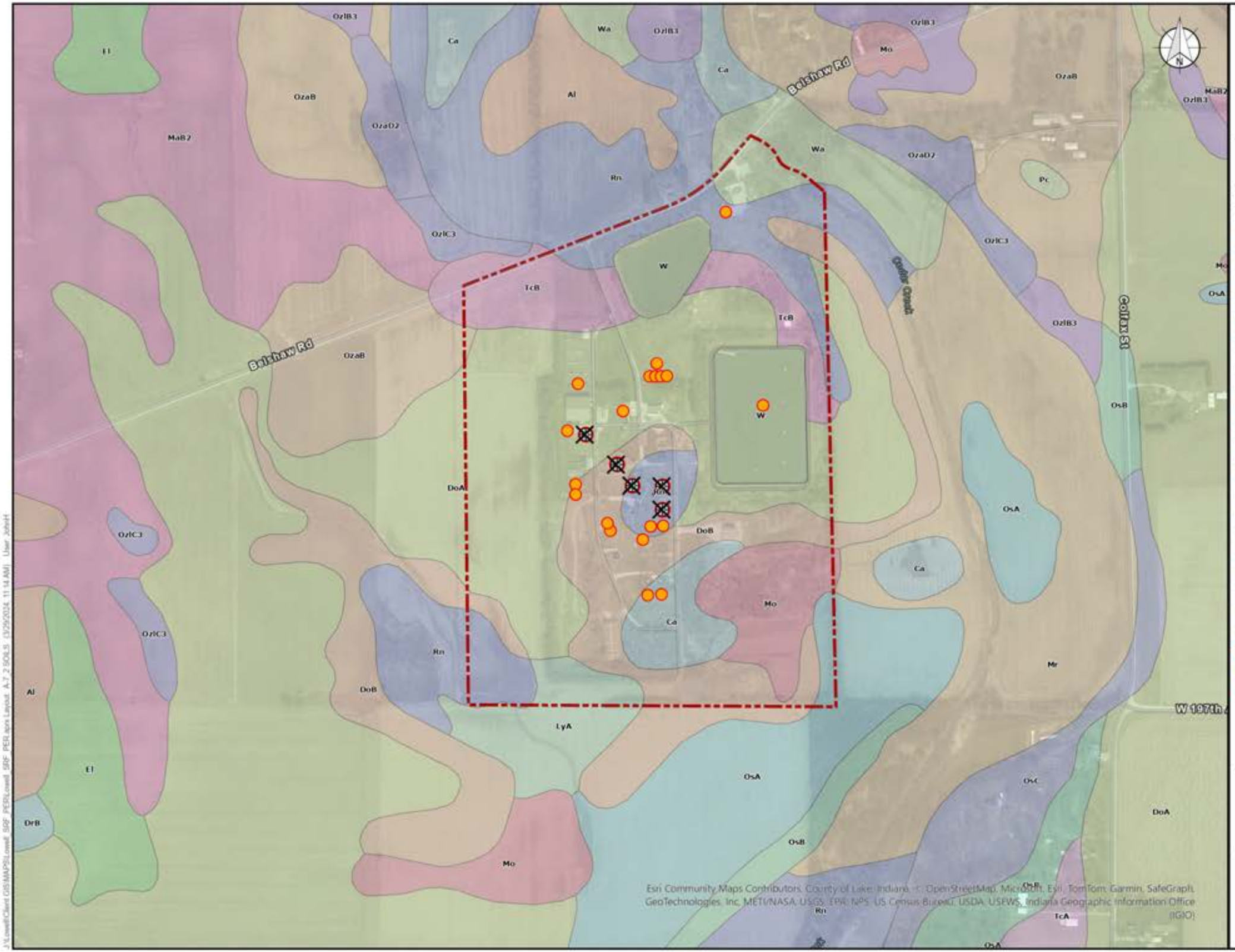
0 400 800 FT

FIGURE A-7.1

USGS Topographic Map

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01



WESSLER ENGINEERING

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Legend

Soil Map Units SSURGO

MUSYM

- Al
- Ca
- DoA
- DoB
- DrB
- El
- LyA
- MaB2
- Mo
- Mr
- OsA
- OsB
- OsC
- OzaB
- OzaD2
- OzlB3
- OzlC3
- Pc
- Rn
- TcA
- TcB
- W
- Wa
- WWTP Boundary
- WWTP Improvements
- Structures to be Demolished/Abandoned

0 400 800 FT

FIGURE A-7.2

Soil Survey Map

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01

J:\Lowell\Client GIS\MAPS\Lowell_SRF_PER\Lowell_SRF_PER.aprx Layout: A-7.2 SOILS (3/29/2024 11:14 AM) User: JohnH

WESSLER ENGINEERING

More than a Project™

Legend

County Survey Sites
- Outstanding
- Notable
- Contributing
- Non-Contributing
- Demolished
- Other
- Cemeteries
- Cemetery Areas

Historic Bridges
- Outstanding
- Notable
- Contributing
- Non-Contributing
- Demolished
- Other

WWTP Boundary

Structures to be Demolished/Abandoned

WWTP Improvements

0 400 800 FT

FIGURE A-7.3

Historic Sites and Structures Map

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01

J:\Lowell\Client GIS\MAPS\Lowell_SRF_PER\Lowell_SRF_PER_mxds Layout: A-7_3 HISTORIC SITES (3/29/2024, 11:17 AM) User: JohnH

WESSLER ENGINEERING

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Legend

- Historic Wetlands (USFWS)
- Wetlands NWI (USFWS)
- WWTP Boundary
- Structures to be Demolished/Abandoned
- WWTP Improvements

FIGURE A-7.4

Wetlands Map

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01

J:\Lowell\Client GIS\MAPS\Lowell_SRF_PER\Lowell_SRF_PER.aprx Layout: A-7.4 WETLANDS (3/29/2024 11:19 AM) User: JohnH

WESSLER ENGINEERING

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Legend

- Named Rivers, Streams, etc (NHD)
- Lake/Pond (NHD)
- Reservoir (NHD)
- Swamp/Marsh (NHD)
- WWTP Boundary
- Structures to be Demolished/Abandoned
- WWTP Improvements

0 400 800 FT

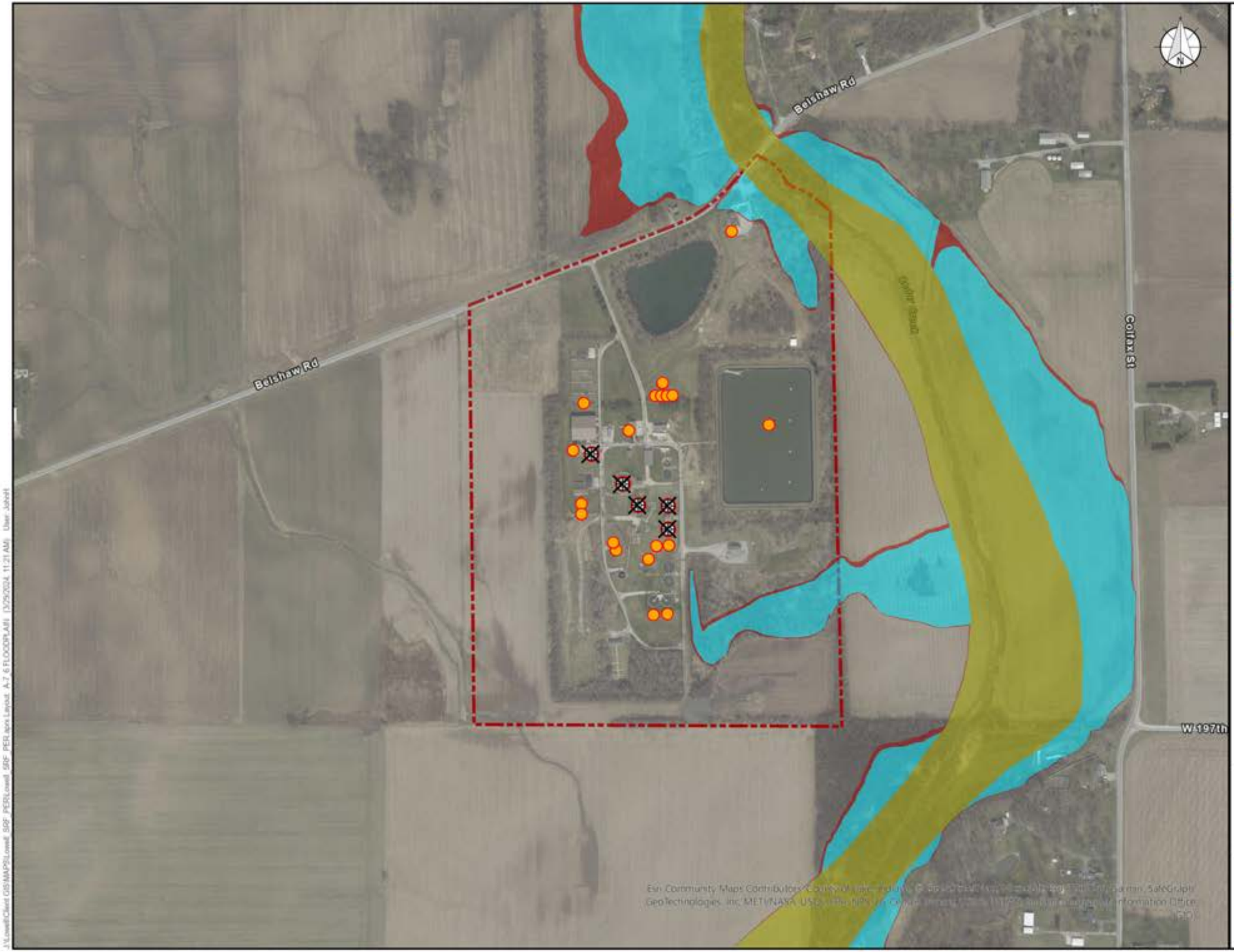
FIGURE A-7.5

Surface Waters Map

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01

J:\Lowell\Client Oil\MAPS\Lowell_SRF_PER\Lowell_SRF_PER.apxx Layout: A-7.5 SURFACE WATERS (3/29/2024 11:20 AM) User: Johnrt



WESSLER ENGINEERING

More than a Project™

Legend

FIRM Flood Hazard Zones 2023

- Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Protected by Levee
- 0.2% Annual Chance Flood Hazard
- WWTP Boundary
- Structures to be Demolished/Abandoned
- WWTP Improvements

0 400 800 FT

FIGURE A-7.7

Floodplain Map

Town of Lowell, Indiana
Preliminary Engineering Report

April 2024
ProjectNo-214419.03.16WW01

J:\Lowell\Client GIS\MAPS\Lowell_SRF_PER\Lowell_SRF_PERLayout_A-7_6 FLOODPLAIN (3/29/2024 11:21 AM) User: JohnH

APPENDIX B

TABLES

TABLE B-1

LOWELL WWTP EXPANSION

SUMMARY OF RECOMMENDED PROJECT COST (ALTERNATIVE 4 & OTHER IMPROVEMENTS)

ENGINEER'S OPINION OF PROBABLE PROJECT COST

DESCRIPTION	TOTAL COST	
Construction Costs [1]		
Biological Treatment System (Alternative 4 - Bioloop Oxidation Ditch)	$	23,700,000
Headworks Improvements	$	780,000
EQ Basin Improvements	$	4,260,000
Secondary Clarifiers (4 New 50' Diameter Structures)	$	7,780,000
Chemical Phosphorus Removal System Upgrades	$	144,000
Effluent Pump Station	$	1,550,000
Expanded UV Disinfection System	$	2,115,000
Solids Handling Improvements	$	2,943,000
Construction Costs Subtotal	$	43,300,000
Non-Construction Costs		
Engineering - Design and Bid	$	5,500,000
Engineering - Construction Administration	$	2,600,000
Engineering - RPR	$	450,000
Financial Counsel	$	50,000
Asset Management Plan Preparation and Updates	$	100,000
Non-Construction Costs Subtotal	$	8,700,000
Probable Total Project Cost	**$**	**52,000,000**

Notes:

1. A 10% contingency is included within each construction line item cost. See Tables B-2 through B-10 for the specific contingency applied to each construction line item.

2.Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-2

LOWELL WWTP EXPANSION

BIOLOGICAL TREATMENT SYSTEM - ALTERNATIVE 3

EXPANSION AND MODIFICATION OF EX. EXTENDED AERATION (8.0 MGD ADF / 13.3 MGD PDF)

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
New Aeration Tanks (Total of 3)				
Concrete Slab	CY	2,300	$ 1,300	$ 2,990,000
Concrete Walls (Exterior)	CY	1,600	$ 1,500	$ 2,400,000
Concrete Walls (Interior)	CY	400	$ 1,500	$ 600,000
Excavation	CY	29,000	$ 37	$ 1,080,000
Dewatering	LS	1	$ 120,000	$ 120,000
Miscellaneous Metals	LS	1	$ 220,000	$ 220,000
Fine Bubble Diffuser Grid	LS	1	$ 775,000	$ 780,000
Blowers (Exterior, in Enclosures)	LS	5	$ 95,000	$ 480,000
Anoxic Tank				
Concrete Slab	CY	525	$ 1,300	$ 690,000
Concrete Walls (Exterior)	CY	450	$ 1,500	$ 680,000
Excavation	LS	12,000	$ 37	$ 450,000
Miscellaneous Metals	LS	1	$ 75,000	$ 80,000
Mixer	LS	1	$ 30,000	$ 30,000
Mixed Liquor Recycle Pumps and Force Main	LS	1	$ 600,000	$ 600,000
Yard Piping	LS	1	$ 850,000	$ 850,000
RAS Pump Station and Force Main	LS	1	$ 1,600,000	$ 1,600,000
Site Work	LS	1	$ 590,000	$ 590,000
Integration of Improvements into SCADA	LS	1	$ 510,000	$ 510,000
Electrical, Instrumentation and Controls	LS	1	$ 2,740,000	$ 2,740,000
Erosion Control / Cleanup	LS	1	$ 1,170,000	$ 1,170,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 1,210,000	$ 1,210,000
Construction Contingencies (10%)	LS	1	$ 1,990,000	$ 1,990,000
Biological Treatment Improvements - Alternative 3 Probable Construction Cost				**$ 21,900,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-3

LOWELL WWTP EXPANSION

BIOLOGICAL TREATMENT SYSTEM - ALTERNATIVE 4

NEW ADVANCED OXIDATION DITCH (8.0 MGD ADF / 13.3 MGD PDF)

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
BioLoop Reactor Tanks - Total of 4 (180' x 43' x 22' Each - Common Wall Construction)				
Concrete Slab	CY	2,100	$ 1,300	$ 2,730,000
Concrete Walls (Exterior)	CY	1,900	$ 1,500	$ 2,850,000
Concrete Walls (Interior)	CY	1,800	$ 1,500	$ 2,700,000
Excavation (Reactors and Anoxic Tank)	CY	28,000	$ 37	$ 1,040,000
Dewatering	LS	1	$ 175,000	$ 180,000
Miscellaneous Metals (Reactors and Anoxic Tank)	LS	1	$ 230,000	$ 230,000
BioLoop Equipment (Reactors and Anoxic Tank)	LS	1	$ 3,000,000	$ 3,000,000
Anoxic Tank (51' x 51' x 23')				
Concrete Slab	CY	340	$ 1,300	$ 450,000
Concrete Walls (Exterior)	CY	320	$ 1,500	$ 480,000
Concrete Walls (Interior)	CY	300	$ 1,500	$ 450,000
Yard Piping	LS	1	$ 330,000	$ 330,000
RAS Pump Station and Force Main	LS	1	$ 1,400,000	$ 1,400,000
Site Work	LS	1	$ 560,000	$ 560,000
Integration of Improvements into SCADA	LS	1	$ 560,000	$ 560,000
Electrical, Instrumentation and Controls	LS	1	$ 2,310,000	$ 2,310,000
Erosion Control / Cleanup	LS	1	$ 910,000	$ 910,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 1,300,000	$ 1,300,000
Construction Contingencies (10%)	LS	1	$ 2,150,000	$ 2,150,000
Biological Treatment Improvements - Alternative 4 Probable Construction Cost				**$ 23,700,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-4

LOWELL WWTP EXPANSION

HEADWORKS IMPROVEMENTS

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
HVAC Improvements	LS	1	$ 90,000	$ 90,000
New Raw Pumps 1, 2, and 3	LS	1	$ 150,000	$ 150,000
Electrical (Including new, separate Electric Building)	LS	1	$ 270,000	$ 270,000
Gas Monitoring Equipment	LS	1	$ 40,000	$ 40,000
I/C, SCADA Integration	LS	1	$ 60,000	$ 60,000
Erosion Control / Cleanup	LS	1	$ 40,000	$ 40,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 55,000	$ 55,000
Construction Contingencies (10%)	LS	1	$ 71,000	$ 71,000
Headworks Improvements - Probable Construction Cost				**$ 780,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-5

LOWELL WWTP EXPANSION

EQ BASIN IMPROVEMENTS

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Clean EQ Basin	LS	1	$ 70,000	$ 70,000
Remove Existing Liner and Dispose	SF	260,000	$ 0.6	$ 156,000
Install New Liner	SF	255,000	$ 2.15	$ 549,000
Soil Removal and Disposal	CY	1,500	$ 60	$ 90,000
Remove Existing Aerators	EA	5	$ 2,000	$ 10,000
Install New Aerators	EA	5	$ 59,000	$ 295,000
Install 6" HDPE Perforated Pipe	LF	2,850	$ 40	$ 114,000
Install 6" HDPE Pipe Force Main	LF	835	$ 50	$ 42,000
#8 Stone	CY	2,500	$ 60	$ 150,000
Geotextile Fabric	SF	131,000	$ 1.5	$ 197,000
6' Dia. Submersible Lift Station	EA	1	$ 500,000	$ 500,000
6' Deep 48" Dia. Manhole	EA	1	$ 10,000	$ 10,000
Grading	SF	65,500	$ 1	$ 66,000
Storm Water Management	EA	1	$ 50,000	$ 50,000
Remove Soil for Concrete Drive, Curbs and Pads	CY	460	$ 100	$ 46,000
Concrete Drive and Curbs and Aerator Pads	CY	290	$ 1,300	$ 377,000
Asphalt Floor	SF	26,200	$ 20	$ 524,000
Unsuitable Soil Replacement	CY	500	$ 60	$ 30,000
Soil Erosion and Sediment Control	LS	1	$ 143,000	$ 143,000
Final Cleanup and Restoration	LS	1	$ 175,000	$ 175,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 279,000	$ 279,000
Construction Contingencies (10%)	LS	1	$ 387,000	$ 387,000
EQ Basin Improvements - Probable Construction Cost				**$ 4,260,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-6

LOWELL WWTP EXPANSION

SECONDARY CLARIFIERS - (4) NEW 50' DIAMETER STRUCTURES

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Concrete Slabs	CY	1,285	$ 1,500	$ 1,930,000
Concrete Walls (Exterior)	CY	620	$ 1,300	$ 810,000
Excavation	CY	10,000	$ 37	$ 370,000
Dewatering	LS	1	$ 100,000	$ 100,000
Miscellaneous Metals	LS	1	$ 75,000	$ 80,000
Clarifier Equipment	EA	4	$ 330,000	$ 1,320,000
Yard Piping	LS	1	$ 200,000	$ 200,000
RAS Pump Station and Force Main - Included under Biological Treatment Process	LS	N/A	--	--
Site Work	LS	1	$ 241,000	$ 241,000
Integration of Improvements into SCADA	LS	1	$ 191,000	$ 200,000
Electrical, Instrumentation and Controls	LS	1	$ 969,000	$ 969,000
Erosion Control / Cleanup	LS	1	$ 416,000	$ 420,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 426,000	$ 430,000
Construction Contingencies (10%)	LS	1	$ 710,000	$ 710,000
Secondary Clarifiers - Probable Construction Cost				**$ 7,780,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-7

LOWELL WWTP EXPANSION

CHEMICAL PHOSPHORUS REMOVAL SYSTEM UPGRADES

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Feed Pump Replacement	LS	1	$ 27,000	$ 27,000
Transfer Piping and Ancillary Structures	CY	1	$ 40,000	$ 40,000
Integration of Improvements into SCADA	LS	1	$ 18,000	$ 18,000
Electrical, Instrumentation and Controls	LS	1	$ 28,000	$ 28,000
Erosion Control / Cleanup	LS	1	$ 9,000	$ 9,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 9,000	$ 9,000
Construction Contingencies (10%)	LS	1	$ 13,000	$ 13,000
Chemical Phosphorus Removal System Upgrades - Probable Construction Cost				**$ 144,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-8

LOWELL WWTP EXPANSION

EFFLUENT PUMP STATION

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Effluent Pump Station				
Wet Well (Re-Used if Possible)	LS	1	$ 875,000	$ 875,000
Valve Vault				
Connections to Existing Yard Piping				
Triplex Pumps and Controls				
Pump Building	LS	1	$ 75,000	$ 75,000
Meter	LS	1	$ 40,000	$ 40,000
Integration of Improvements into SCADA	LS	1	$ 54,000	$ 54,000
Electrical, Instrumentation and Controls	LS	1	$ 182,000	$ 182,000
Erosion Control / Cleanup	LS	1	$ 90,000	$ 90,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 93,000	$ 93,000
Construction Contingencies (10%)	LS	1	$ 141,000	$ 141,000
Effluent Pump Station - Probable Construction Cost				**$ 1,550,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-9

LOWELL WWTP EXPANSION

EXPANDED UV DISINFECTION SYSTEM

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
New Concrete Channel Identical to Existing Structure	LS	1	$ 875,000	$ 875,000
Flow Splitter Box	LS	1	$ 100,000	$ 100,000
UV Disinfection Equipment	LS	1	$ 350,000	$ 350,000
Roof Over UV Structures	LS	1	$ 75,000	$ 75,000
Integration of Improvements into SCADA	LS	1	$ 65,000	$ 65,000
Electrical, Instrumentation and Controls	LS	1	$ 254,000	$ 254,000
Erosion Control / Cleanup	LS	1	$ 100,000	$ 100,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 103,000	$ 103,000
Construction Contingencies (10%)	LS	1	$ 193,000	$ 193,000
Expanded UV Disinfection System - Probable Construction Cost				**$ 2,115,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

TABLE B-10

LOWELL WWTP EXPANSION

SOLIDS HANDLING IMPROVEMENTS

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Existing Aerobic Digester (3) Improvements				
Fine Bubble Diffusers	EA	3	$ 50,000	$ 150,000
New Mixers in Exist. Digesters	EA	3	$ 10,000	$ 30,000
Sludge Pump Replacement	EA	3	$ 25,000	$ 75,000
Sludge Piping and Valve Replacement	LS	1	$ 75,000	$ 75,000
New Digester (2) Construction				
Concrete Slab	CY	338	$ 1,300	$ 440,000
Concrete Walls	CY	386	$ 1,300	$ 502,000
Excavation	CY	3,200	$ 37	$ 119,000
Misc. Metals	LS	1	$ 50,000	$ 50,000
Fine Bubble Diffuser Systems	EA	2	$ 50,000	$ 100,000
Mixer System	EA	2	$ 10,000	$ 20,000
Sludge Pump	EA	2	$ 25,000	$ 50,000
Sludge Dewatering and Storage				
Volute Press	EA	2	$ 200,000	$ 400,000
Sludge Conveyor Modifications	LS	1	$ 50,000	$ 50,000
Electrical, Instrumentation and Controls	LS	1	$ 280,000	$ 280,000
Erosion Control / Cleanup	LS	1	$ 156,000	$ 156,000
Mobilization / Demobilization / Insurance / Bonds	LS	1	$ 178,000	$ 178,000
Construction Contingencies (10%)	LS	1	$ 268,000	$ 268,000
Solids Handling Improvements - Probable Construction Cost				**$ 2,943,000**

Cost Opinions are based on 2024 dollars, and estimated project costs will likely increase with time. In providing these cost opinions, Wessler has no control over costs of labor, equipment and materials, or contractor's methods of pricing. The cost opinions were made based on past similar projects and budget cost information provided by others, without the benefit of design plans and specifications, and are provided on the basis of the Engineer's qualifications and experience. Wessler makes no warranty, expressed or implied, as to the accuracy of such cost opinions as compared to bids or actual costs.

Table B-11: WWTP Alternative No. 3 Cost & Effectiveness Analysis

Life Cycle Cost Analysis		
Capital Costs		
Traditional Treatment Expansion	$	41,472,000
SUBTOTAL CAPITAL COST (PV)	**$**	**41,472,000**
Annual Additional Operation, Maintenance & Replacement Costs		
Annual O,M&R Cost	$	410,000
SUBTOTAL ANNUAL O&M COST (USPW)[1, 2, 3]	**$**	**6,390,000**
Salvage Value @ Year 20		
Equipment (10-year Design Service Life)	$	-
Structures (50-year Design Service Life)	$	4,090,000
Piping (75-year Design Service Life)	$	920,000
SUBTOTAL SALVAGE VALUE @ YR 20	$	5,010,000
SUBTOTAL SALVAGE VALUE (SPPW)[1, 2, 4]	**$**	**3,057,000**
NET PRESENT VALUE OF ALTERNATIVE	**$**	**44,810,000**

Notes & Assumptions:

PV Present Value
USPW Uniform Series Present Worth
SPPW Single Payment Present Worth

(1) Assumes 2.5% "real" interest rate per Appendix C of OMB Circular A-94 (December 2023).
(2) Assumes 20-year planning period.
(3) Only includes additional O&M costs expected as a result of this alternative.
(4) Salvage value only includes equipment, structures and piping that would be added as a part of this project.
(5) The City does not pay for sludge disposal currently, but since that could change at any point in the future it was considered in this analysis.
(6) All probable project costs are based upon 2024 dollars and will likely increase with time. Wessler Engineering makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

Table B-12: WWTP Alternative No. 4 Cost & Effectiveness Analysis

Life Cycle Cost Analysis		
Capital Costs		
Traditional Treatment Expansion	$	43,300,000
SUBTOTAL CAPITAL COST (PV)	**$**	**43,300,000**
Annual Additional Operation, Maintenance & Replacement Costs		
Annual O,M&R Cost	$	410,000
SUBTOTAL ANNUAL O&M COST (USPW)[1, 2, 3]	**$**	**6,390,000**
Salvage Value @ Year 20		
Equipment (10-year Design Service Life)	$	-
Structures (50-year Design Service Life)	$	4,750,000
Piping (75-year Design Service Life)	$	590,000
SUBTOTAL SALVAGE VALUE @ YR 20	$	5,340,000
SUBTOTAL SALVAGE VALUE (SPPW)[1, 2, 4]	**$**	**3,259,000**
NET PRESENT VALUE OF ALTERNATIVE	**$**	**46,430,000**

Notes & Assumptions:

PV Present Value

USPW Uniform Series Present Worth

SPPW Single Payment Present Worth

(1) Assumes **2.5%** "real" interest rate per Appendix C of OMB Circular A-94 (February 2018).

(2) Assumes 20-year planning period.

(3) Only includes additional O&M costs expected as a result of this alternative.

(4) Salvage value only includes equipment, structures and piping that would be added as a part of this project.

(5) The City does not pay for sludge disposal currently, but since that could change at any point in the future it was considered in this analysis.

(6) All probable project costs are based upon 2018 dollars and will likely increase with time. Wessler Engineering makes no warranty, expressed or implied, as to the accuracy of such cost estimates as compared to bids or actual costs.

APPENDIX C

2020 FINAL NPDES PERMIT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

September 17, 2020

VIA ELECTRONIC MAIL

Mr. Mike Gruszka, President
Town Council of Lowell
501 East Main Street
Lowell, IN 46356

Dear Mr. Gruszka:

Re: Final NPDES Permit No. IN0023621
Town of Lowell Wastewater Treatment Plant
Lake County

Your application for a National Pollutant Discharge Elimination System (NPDES) permit has been processed in accordance with Sections 402 and 405 of the Federal Water Pollution Control Act as amended, (33 U.S.C. 1251, et seq.), and IDEM's permitting authority under IC 13-15. The enclosed NPDES permit covers your discharges to Cedar Creek. All discharges from this facility shall be consistent with the terms and conditions of this permit.

One condition of your permit requires monthly reporting of several effluent parameters. You are required to submit both federal discharge monitoring reports (DMRs) and state Monthly Reports of Operation (MROs) on a routine basis. The MRO form is available on the internet at the following web site: http://www.in.gov/idem/cleanwater/2396.htm.

Once you are on this page, select the "IDEM Forms" page and locate the version of the MRO applicable to your plant under the "Wastewater Facilities" heading. We recommend selecting the "XLS" version as it will complete all of the calculations on the data entered.

All NPDES permit holders are required to submit their monitoring data to IDEM using NetDMR. Please contact Rose McDaniel at (317) 233-2653 or Helen Demmings at (317) 232-8815 if you would like more information on NetDMR. Information is also available on our website at http://IN.gov/idem/cleanwater/2422.htm.

Another condition which needs to be clearly understood concerns violation of the effluent limitations in the permit. Exceeding the limitations constitutes a violation of the permit and may bring criminal or civil penalties upon the permittee. (See Part II.A.1 and II.A.11 of this permit). It is very important that your office and treatment operator understand this part of the permit.

Please note that this permit issuance can be appealed. An appeal must be filed under procedures outlined in IC 13-15-6, IC 4-21.5, and the enclosed public notice. The appeal must be initiated by filing a petition for administrative review with the Office of

Environmental Adjudication (OEA) within fifteen (15) days of the emailing of an electronic copy of this letter or within eighteen (18) days of the mailing of this letter by filing at the following addresses:

Director
Office of Environmental Adjudication
Indiana Government Center North
Room N103
100 North Senate Avenue
Indianapolis, Indiana 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
Room 1301
100 North Senate Avenue
Indianapolis, Indiana 46204

The permit should be read and studied. It requires certain action at specific times by you, the discharger, or your authorized representative. One copy of this permit is also being sent to your operator to be kept at the treatment facility. You may wish to call this permit to the attention of your consulting engineer and/or attorney.

If you have any questions concerning your NPDES permit, please contact Evan Fall at 317/234-3840 or efall@idem.IN.gov. More information on the appeal review process is available at the website for the Office of Environmental Adjudication at http://www.in.gov/oea.

Sincerely,

Jerry Dittmer, Chief
Permits Branch
Office of Water Quality

Enclosures
cc: Don Woodard, Certified Operator

STATE OF INDIANA

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

AUTHORIZATION TO DISCHARGE UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Act"), Title 13 of the Indiana Code, and regulations adopted by the Water Pollution Control Board, the Indiana Department of Environmental Management (IDEM) is issuing this permit to the

TOWN OF LOWELL

hereinafter referred to as "the permittee." The permittee owns and/or operates the **Town of Lowell Wastewater Treatment Plant**, a major municipal wastewater treatment plant located at 7500 Bellshaw Road, Lowell, Indiana, Lake County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters named Cedar Creek in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. The permittee is also authorized to discharge from one (1) combined sewer overflow outfall and one (1) wet weather treatment facility listed in Attachment A of this permit, to receiving waters named Cedar Creek in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in this permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: January 1, 2021.

Expiration Date: December 31, 2025.

In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and application forms as are required by the Indiana Department of Environmental Management. The application shall be submitted to IDEM at least 180 days prior to the expiration date of this permit, unless a later date is allowed by the Commissioner in accordance with 327 IAC 5-3-2 and Part II.A.4 of this permit.

Issued on September 17, 2020, for the Indiana Department of Environmental Management.

Jerry Dittmer, Chief
Permits Branch
Office of Water Quality

TREATMENT FACILITY DESCRIPTION

The permittee currently operates a Class III, 4.0 MGD conventional activated sludge treatment facility with ultraviolet light disinfection. The facility is equipped with a 14 million gallon wet weather equalization basin. Wet weather flows in excess of the conventional WWTP design capacity and equalization basins are diverted to a 10 MGD single-train high rate clarification facility (ACTIFLOW® Process. Effluent from the high rate clarification facility receives process dedicated U.V. disinfection. The total peak weather flow for the POTW (Conventional WWTP & ACTIFLOW®) is 14 MGD.

Bacteriological samples are taken from the effluent end of the dedicated U.V. disinfection structure. All other parameters are sampled at a sampling manhole located at the confluence point of the treated wet weather flow and the conventional WWTP (reference flow schematic in Fact Sheet). Bacteriological samples for the conventional WWTP are taken at the effluent end of the facility's U.V. disinfection structure. All other parameters are sampled at a final effluent sampling structure located downstream of the conventional POTW U.V. structure (reference flow schematic in Fact Sheet).

Biosolids produced by the POTW are treated with aerobic digestion, dewatered via a belt filter press and disposed of in accordance with 329 IAC 10, 327 IAC 6.1 and 40 CFR Part 503. The permittee maintains a Land Application Permit (INLA000071).

The facility provides wastewater treatment for two (2) satellite communities (Lake Dalecarlia RWD and Cedar Lake).

The collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) (004); one (1) Wet Weather Treatment Facility (WWTF) outfall (102); and one (1) bypass point (101). The CSO and wet weather treatment facility outfall locations have been identified and permitted with provisions in Attachment A of the permit. The bypass point is identified in and is subject to the requirements contained in Part II.B.2 of the permit.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee shall take samples and measurements at a location representative of each discharge to determine whether the effluent limitations have been met. Refer to Part I.B of this permit for additional monitoring and reporting requirements.

1. Beginning on the effective date of this permit, the permittee is authorized to discharge from Outfall 001, which is located at Latitude: 41° 15' 40" N, Longitude: 87° 24' 45" W. The discharge is subject to the following requirements:

TABLE 1

	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
Parameter	**Monthly Average**	**Weekly Average**	**Units**	**Monthly Average**	**Weekly Average**	**Units**	**Measurement Frequency**	**Sample Type**
Flow [1]	Report	----	MGD	----	----	----	5 X Weekly	24-Hr. Total
$CBOD_5$								
Summer [2]	500.7	751.1	lbs/day	15	22.5	mg/l	5 X Weeky	24-Hr. Comp.
Winter [3]	834.5	1,335.2	lbs/day	25	40	mg/l	5 X Weekly	24-Hr. Comp.
TSS								
Summer [2]	600.8	901.3	lbs/day	18	27	mg/l	5 X Weekly	24-Hr. Comp.
Winter [3]	1,001.4	1,502.1	lbs/day	30	45	mg/l	5 X Weekly	24-Hr. Comp.
Ammonia-nitrogen								
Summer [2]	53.4	80.1	lbs/day	1.6	2.4	mg/l	5 X Weekly	24-Hr. Comp.
Winter [3]	60.1	90.1	lbs/day	1.8	2.7	mg/l	5 X Weekly	24-Hr. Comp.
Phosphorus	Report	----	lbs/day	1.0	----	mg/l	5 X Weekly	24-Hr. Comp.
Nitrogen, Total (as N) [4]	Report	----	lbs/day	Report	----	mg/l	Monthly	24-Hr. Comp.

TABLE 2

	Quality or Concentration				Monitoring Requirements	
Parameter	**Daily Minimum**	**Monthly Average**	**Daily Maximum**	**Units**	**Measurement Frequency**	**Sample Type**
pH [5]	6.0	----	9.0	s.u.	5 X Weekly	Grab
Dissolved Oxygen [6]						
Summer [2]	6.0	----	----	mg/l	5 X Weekly	3 Grabs/24-Hrs.
Winter [3]	5.0	----	----	mg/l	5 X Weekly	3 Grabs/24-Hrs.
E.coli [7]	----	125 [8]	235 [9]	cfu/100 ml	5 X Weekly	Grab

[1] Effluent flow measurement is required per 327 IAC 5-2-13. The flow meter(s) shall be calibrated at least once every twelve months.

[2] Summer limitations apply from May 1 through November 30 of each year.

[3] Winter limitations apply from December 1 through April 30 of each year.

[4] Total Nitrogen shall be determined by testing Total Kjeldahl Nitrogen (TKN) and Nitrate + Nitrite and reporting the sum of the TKN and Nitrate + Nitrite results (reported as N). Nitrate + Nitrite can be analyzed together or separately. Monitoring for Total Nitrogen is required in the effluent only.

The following EPA methods are recommended for use in the analysis of TKN and Nitrate + Nitrite. Alternative approved 40 CFR 136 methods may be utilized.

Parameter	Method
TKN	350.1, 351.1, 351.2
Nitrate	300.0, 300.1, 352.1
Nitrite	300.1, 353.2
Nitrate + Nitrite	300.0, 300.1, 353.2

[5] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Report of Operation forms.

[6] The daily minimum concentration of dissolved oxygen in the effluent shall be reported as the arithmetic mean determined by summation of the three (3) daily grab sample results divided by the number of daily grab samples. These samples are to be collected over equal time intervals.

[7] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (*E. coli*) do not occur from April 1 through October 31, annually.

The *Escherichia coli* (*E. coli*) limitations apply from April 1 through October 31 annually. IDEM has specified the following methods as allowable for the detection and enumeration of *Escherichia coli* (*E. coli*):

1. Coliscan MF® Method
2. EPA Method 1603 Modified m-TEC agar
3. mColi Blue-24®
4. Colilert® MPN Method or Colilert-18® MPN Method

[8] The monthly average *E. coli* value shall be calculated as a geometric mean. Per 327 IAC 5-10-6, the concentration of *E. coli* shall not exceed one hundred twenty-five (125) cfu or mpn per 100 milliliters as a geometric mean of the effluent samples taken in a calendar month. No samples may be excluded when calculating the monthly geometric mean.

[9] If less than ten samples are taken and analyzed for *E. coli* in a calendar month, no samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. However, when ten (10) or more samples are taken and analyzed for *E. coli* in a calendar month, not more than ten percent (10%) of those samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. When calculating ten percent, the result must not be rounded up. In reporting for compliance purposes on the Discharge

Monitoring Report (DMR) form, the permittee shall record the highest non-excluded value for the daily maximum.

2. Minimum Narrative Limitations

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

a. including the mixing zone, to contain substances, materials, floating debris, oil, scum or other pollutants:

(1) that will settle to form putrescent or otherwise objectionable deposits;

(2) that are in amounts sufficient to be unsightly or deleterious;

(3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;

(4) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;

(5) which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.

b. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. Data on Plant Operation

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation

Form, as appropriate, in accordance with 327 IAC 5-2-13. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by this permit.

3. Reporting per Monitoring Period

The permittee shall submit accurate monitoring reports to the Indiana Department of Environmental Management containing results obtained during each monitoring period and shall be submitted no later than the 28th day of the month following each completed monitoring period. Each monitoring period report shall be submitted no less than annually and no more than monthly, as per parameter measurement frequency listed. These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Report of Operation (MRO). Permittees with combined sewer overflow discharges must also submit the CSO Monthly Report of Operation to IDEM by the 28th day of the month following each completed monitoring period. All reports shall be submitted electronically by using the NetDMR application, upon registration, receipt of the NetDMR Subscriber Agreement, and IDEM approval of the proposed NetDMR Signatory. Access the NetDMR website (for initial registration and DMR/MMR submittal) via CDX at: https://cdx.epa.gov/. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit.

A calendar week will begin on Sunday and end on Saturday. Partial weeks consisting of four or more days at the end of any month will include the remaining days of the week, which occur in the following month in order to calculate a consecutive seven-day average. This value will be reported as a weekly average or seven-day average on the MRO for the month containing the partial week of four or more days. Partial calendar weeks consisting of less than four days at the end of any month will be carried forward to the succeeding month and reported as a weekly average or a seven-day average for the calendar week that ends with the first Saturday of that month.

4. Definitions

a. Calculation of Averages

Pursuant to 327 IAC 5-2-11(a)(5), the calculation of the average of discharge data shall be determined as follows: For all parameters except fecal coliform and *E. coli*, calculations that require averaging of sample analyses or measurements of daily discharges shall use an arithmetic mean unless otherwise specified in this permit. For fecal coliform, the monthly average

discharge and weekly average discharge, as concentrations, shall be calculated as a geometric mean. For *E. coli*, the monthly average discharge, as a concentration, shall be calculated as a geometric mean.

b. Terms

(1) "Monthly Average" -The monthly average discharge means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month. The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

(2) "Weekly Average" - The weekly average discharge means the total mass or flow weighted concentration of all daily discharges during any calendar week for which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar week. The average weekly discharge limitation is the maximum allowable average weekly discharge for any calendar week.

(3) "Daily Maximum" - The daily maximum discharge limitation is the maximum allowable daily discharge for any calendar day. The "daily discharge" means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that represents the calendar day for purposes of sampling.

(4) "24-hour Composite" - A 24-hour composite sample consists of at least three (3) individual flow-proportioned samples of wastewater, taken by the grab sample method over equal time intervals during the period of operator attendance or by an automatic sampler, and which are combined prior to analysis. A flow proportioned composite sample shall be obtained by:

(a) recording the discharge flow rate at the time each individual sample is taken,

(b) adding together the discharge flow rates recorded from each individual sampling time to formulate the "total flow value,"

(c) dividing the discharge flow rate of each individual sampling time by the total flow value to determine its percentage of the total flow value, and

(d) multiplying the volume of the total composite sample by each individual sample's percentage to determine the volume of that individual sample which will be included in the total composite sample.

Alternatively, a 24-hour composite sample may be obtained by an automatic sampler on an equal time interval basis over a twenty-four hour period provided that a minimum of 24 samples are taken and combined prior to analysis. The samples do not need to be flow-proportioned if the permittee collects samples in this manner.

(5) $CBOD_5$: Five-day Carbonaceous Biochemical Oxygen Demand

(6) TSS: Total Suspended Solids

(7) *E. coli*: *Escherichia coli* bacteria

(8) The "Regional Administrator" is defined as the Region V Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.

(9) The "Commissioner" is defined as the Commissioner of the Indiana Department of Environmental Management, located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.

(10) Limit of Detection or LOD is defined as a measurement of the concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix. The LOD is equivalent to the Method Detection Level or MDL.

(11) Limit of Quantitation or LOQ is defined as a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration above the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also called the limit of quantification or quantification level.

(12) Method Detection Level or MDL is defined as the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by the procedure set forth in 40 CFR Part 136, Appendix B. The method detection level or MDL is equivalent to the LOD.

5. Test Procedures

The analytical and sampling methods used shall conform to the version of 40 CFR 136 incorporated by reference in 327 IAC 5. Different but equivalent methods are allowable if they receive the prior written approval of the Commissioner and the U.S. Environmental Protection Agency. When more than one test procedure is approved for the purposes of the NPDES program under 40 CFR 136 for the analysis of a pollutant or pollutant parameter, the test procedure must be sufficiently sensitive as defined at 40 CFR 122.21(e)(3) and 122.44(i)(1)(iv).

6. Recording Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record and maintain records of all monitoring information on activities under this permit, including the following information:

a. The exact place, date, and time of sampling or measurements;

b. The person(s) who performed the sampling or measurements;

c. The dates and times the analyses were performed;

d. The person(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of all required analyses and measurements.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monthly Discharge Monitoring Report and on the Monthly Report of Operation form. Such increased frequency shall also be indicated on these forms. Any such additional monitoring data which indicates a violation of a permit limitation shall be followed up by the permittee, whenever feasible, with a monitoring sample obtained and analyzed pursuant to approved analytical methods. The results of the follow-up sample shall be reported to the Commissioner in the Monthly Discharge Monitoring Report.

8. Records Retention

   All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three-year period shall be extended:

   a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or

   b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

C. REOPENING CLAUSES

In addition to the reopening clause provisions cited at 327 IAC 5-2-16, the following reopening clauses are incorporated into this permit:

1. This permit may be modified or, alternately, revoked and reissued after public notice and opportunity for hearing to incorporate effluent limitations reflecting the results of a wasteload allocation if the Department of Environmental Management determines that such effluent limitations are needed to assure that State Water Quality Standards are met in the receiving stream.

2. This permit may be modified due to a change in sludge disposal standards pursuant to Section 405(d) of the Clean Water Act, if the standards when promulgated contain different conditions, are otherwise more stringent, or control pollutants not addressed by this permit.

3. This permit may be modified, or, alternately, revoked and reissued, to comply with any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:

   a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   b. controls any pollutant not limited in the permit.

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Provide Information

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the facility that:

a. could significantly change the nature of, or increase the quantity of, pollutants discharged; or

b. the Commissioner may request to evaluate whether such cause exists.

In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit a renewal of this permit in accordance with 327 IAC 5-3-2(a)(2). It is the permittee's responsibility to obtain and submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or operation from which a discharge of pollutants occurs is responsible for applying for and obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. The application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if:

a. permission is requested in writing before such deadline;

b. IDEM grants permission to submit the application after the deadline; and

c. the application is received no later than the permit expiration date.

As required under 327 IAC 5-2-3(g)(1) and (2), POTWs with design influent flows equal to or greater than one million (1,000,000) gallons per day and POTWs with an approved pretreatment program or that are required to develop a pretreatment program, will be required to provide the results of whole effluent toxicity testing as part of their NPDES renewal application.

5. Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date.

b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner.

c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities

of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d). However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility.

d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

6. Permit Actions

In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge controlled by the permittee (e.g., plant closure, termination of the discharge by connecting to a POTW, a change in state law or information indicating the discharge poses a substantial threat to human health or welfare).

Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of, pollutants discharged; or

2. the commissioner may request to evaluate whether such cause exists.

7. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or an invasion of rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not preempt any duty to obtain any other state, or local assent required by law for the discharge or for the construction or operation of the facility from which a discharge is made.

8. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

9. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

10. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act or state law.

11. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Environmental Rules Board is liable for a civil penalty not to exceed twenty-five thousand dollars ($25,000) per day of any violation.

Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department’s personnel or

designated agent in the performance of an inspection or investigation performed under IC 13-14-2-2 commits a class C infraction.

Pursuant to IC 13-30-10-1.5(e), a person who willfully or negligently violates any NPDES permit condition or filing requirement, or any applicable standards or limitations of IC 13-18-3-2.4, IC 13-18-4-5, IC 13-18-12, IC 13-18-14, IC 13-18-15, or IC 13-18-16, commits a Class A misdemeanor.

Pursuant to IC 13-30-10-1.5(i), an offense under IC 13-30-10-1.5(e) is a Level 4 felony if the person knowingly commits the offense or knows that the commission of the offense places another person in imminent danger of death or serious bodily injury. An offense under IC 13-30-10-1.5(e) is a Level 3 felony if it results in serious bodily injury to any person, and a Level 2 felony if it results in death to any person.

Pursuant to IC 13-30-10-1.5(g), a person who willfully or recklessly violates any applicable standards or limitations of IC 13-18-8 commits a Class B misdemeanor.

Pursuant to IC 13-30-10-1.5(h), a person who willfully or recklessly violates any applicable standards or limitations of IC 13-18-9, IC 13-18-10, or IC 13-18-10.5 commits a Class C misdemeanor.

Pursuant to IC 13-30-10-1, a person who knowingly or intentionally makes any false material statement, representation, or certification in any NPDES form, notice, or report commits a Class B misdemeanor.

12. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(10), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10-1, provides that any person who knowingly or intentionally (a) destroys, alters, conceals, or falsely certifies a record, (b) tampers with, falsifies, or renders inaccurate or inoperative a recording or monitoring device or method, including the data gathered from the device or method, or (c) makes a false material statement or representation in any label, manifest, record, report, or other document; all required to be maintained under the terms of a permit issued by the department commits a Class B misdemeanor.

13. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any

limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

14. Operator Certification

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7. The permittee shall designate one (1) person as the certified operator with complete responsibility for the proper operations of the wastewater facility.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), “responsible charge” means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

15. Construction Permit

Except in accordance with 327 IAC 3, the permittee shall not construct, install, or modify any water pollution treatment/control facility as defined in 327 IAC 3-1-2(24). Upon completion of any construction, the permittee must notify the Compliance Data Section of the Office of Water Quality in writing.

16. Inspection and Entry

In accordance with 327 IAC 5-2-8(8), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a

representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a point source, regulated facility, or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;

c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and

d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

17. New or Increased Discharge of Pollutants

This permit prohibits the permittee from undertaking any action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

a. Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the submittal of an antidegradation demonstration.

b. An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6.

B. MANAGEMENT REQUIREMENTS

1. Facility Operations, Maintenance, and Quality Control

a. In accordance with 327 IAC 5-2-8(9), the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances, i.e., equipment used for measuring and determining compliance) for collection and treatment that are:

(1) installed or used by the permittee; and

(2) necessary for achieving compliance with the terms and conditions of the permit.

Neither 327 IAC 5-2-8(9), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit. This provision also does not prohibit taking redundant treatment units off line, provided that the permittee is at all times: maintaining in good working order and efficiently operating all facilities and systems; providing best quality effluent; and achieving compliance with the terms and conditions of the permit.

b. The permittee shall operate the permitted facility in a manner which will minimize upsets and discharges of excessive pollutants. The permittee shall properly remove and dispose of excessive solids and sludges.

c. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.

d. Maintenance of all waste collection, control, treatment, and disposal facilities shall be conducted in a manner that complies with the bypass provisions set forth below.

e. Pursuant to 327 IAC 5-22-10(1), the permittee is responsible for providing adequate funding for and oversight of the wastewater treatment plant and collection system to ensure proper operation, maintenance, management, and supervision.

f. Any extensions to the sewer system must continue to be constructed on a separated basis. Plans and specifications, when required, for extension of the sanitary system must be submitted to the Facility Construction and Engineering Support Section, Office of Water Quality in accordance with 327 IAC 3-2-2. There shall also be an ongoing preventative maintenance program for the sanitary sewer system.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(12):

a. Terms as defined in 327 IAC 5-2-8(12)(A):

(1) “Bypass” means the intentional diversion of a waste stream from any portion of a treatment facility.

(2) “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypasses, as defined above, are prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless:

(1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, as defined above;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part II.B.2.d; or

(4) The condition under Part II.B.2.f below is met.

c. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the “Spill Response and Reporting Requirements” in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

d. The permittee must provide the Commissioner with the following notice:

(1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.

(2) The permittee shall orally report an unanticipated bypass within 24 hours of becoming aware of the bypass event. The permittee must also provide a written report within five (5) days of the time the permittee becomes aware of the bypass event. The written report must contain a description of the noncompliance (i.e. the bypass) and its cause; the period of

noncompliance, including exact dates and times; if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the bypass event. If a complete email submittal is sent within 24 hours of the time that the permittee became aware of the unanticipated bypass event, then that report will satisfy both the oral and written reporting requirement.

e. The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.b. The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.

f. The permittee may allow any bypass to occur that does not cause a violation of the effluent limitations in the permit, but only if it also is for essential maintenance to ensure efficient operation. These bypasses are not subject to the provisions of Part II.B.2.b., d and e of this permit.

g. The wastewater treatment facility has the following outfalls which have been identified as a bypass, the use of which is prohibited except in compliance with the above provisions:

Outfall No.	Location	Receiving Stream
101	Line between headworks and equalization basin Latitude: 41° 15' 54" N Longitude: 87° 24' 59" W	Cedar Creek via Outfall 004

3. Upset Conditions

Pursuant to 327 IAC 5-2-8(13):

a. “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this subsection, are met.

c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:

(1) An upset occurred and the permittee has identified the specific cause(s) of the upset;

(2) The permitted facility was at the time being operated in compliance with proper operation and maintenance procedures;

(3) The permittee complied with any remedial measures required under "Duty to Mitigate", Part II.A.2; and

(4) The permittee submitted notice of the upset as required in the "Incident Reporting Requirements," Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal.

a. Collected screenings, slurries, sludges, and other such pollutants shall be disposed of in accordance with provisions set forth in 329 IAC 10, 327 IAC 6.1, or another method approved by the Commissioner.

b. The permittee shall comply with existing federal regulations governing solids disposal, and with applicable provisions of 40 CFR Part 503, the federal sludge disposal regulation standards.

c. The permittee shall notify the Commissioner prior to any changes in sludge use or disposal practices.

d. The permittee shall maintain records to demonstrate its compliance with the above disposal requirements.

5. Power Failures

In accordance with 327 IAC 5-2-10 and 327 IAC 5-2-8(14) in order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, or

b. shall halt, reduce or otherwise control all discharge in order to maintain compliance with the effluent limitations and conditions of this permit upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit.

6. Unauthorized Discharge

Any overflow or release of sanitary wastewater from the wastewater treatment facilities or collection system that results in a discharge to waters of the state and is not specifically authorized by this permit is expressly prohibited. These discharges are subject to the reporting requirements in Part II.C.3 of this permit.

C. REPORTING REQUIREMENTS

1. Planned Changes in Facility or Discharge

Pursuant to 327 IAC 5-2-8(11)(F) and 5-2-16(d), the permittee shall give notice to the Commissioner as soon as possible of any planned alterations or additions to the facility (which includes any point source) that could significantly change the nature of, or increase the quantity of, pollutants discharged. Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited. Material and substantial alterations or additions to the permittee's operation that were not covered in the permit (e.g., production changes, relocation or combination of discharge points, changes in the nature or mix of products produced) are also cause for modification of the permit. However those alterations which constitute total replacement of the process or the production equipment causing the discharge converts it into a new source, which requires the submittal of a new NPDES application.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(10), 327 IAC 5-2-13, and 327 IAC 5-2-15, monitoring results shall be reported at the intervals and in the form specified in “Data On Plant Operation”, Part I.B.2.

3. Incident Reporting Requirements

Pursuant to 327 IAC 5-2-8(11) and 327 IAC 5-1-3, the permittee shall orally report to the Commissioner information on the following incidents within 24 hours from the time permittee becomes aware of such occurrence. If the incident meets the emergency criteria of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

a. Any unanticipated bypass which exceeds any effluent limitation in the permit;

b. Any emergency incident which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the incident by calling 317/233-7745 (888/233-7745 toll free in Indiana). This number should only be called when reporting these emergency events;

c. Any upset (as defined in Part II.B.3 above) that exceeds any technology-based effluent limitations in the permit;

d. Any release, including basement backups, from the sanitary sewer system (including satellite sewer systems operated or maintained by the permittee) not specifically authorized by this permit. Reporting of known releases from private laterals not caused by a problem in the sewer system owned or operated by the permittee is not required under Part II.C.3, however, documentation of such events must be maintained by the permittee and available for review by IDEM staff; or

e. Any discharge from any outfall from which discharge is explicitly prohibited by this permit as well as any discharge from any other outfall or point not listed in this permit.

The permittee can make the oral reports by calling 317/232-8670 during regular business hours and asking for the Compliance Data Section, or by calling (317/233-7745) (888/233-7745 toll free in Indiana) during non-business hours. A written submission shall also be provided within five (5) days of the time the

permittee becomes aware of the circumstances. The written submission shall contain: a description of the event and its cause; the period of occurrence, including exact dates and times, and, if the event has not concluded, the anticipated time it is expected to continue; and steps taken or planned to reduce, mitigate and eliminate the event and steps taken or planned to prevent its recurrence. The Commissioner may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. Alternatively the permittee may submit a "Bypass Overflow/Incident Report" (State Form 48373) or a "Noncompliance Notification Report" (State Form 54215), whichever is appropriate, to IDEM at wwreports@idem.IN.gov. If a complete submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then that report will satisfy both the oral and written reporting requirements.

4. Other Noncompliance

Pursuant to 327 IAC 5-2-8(11)(D), the permittee shall report any instance of noncompliance not reported under the "Incident Reporting Requirements" in Part II.C.3 at the time the pertinent Discharge Monitoring Report is submitted. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance.

5. Other Information

Pursuant to 327 IAC 5-2-8(11)(E), where the permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the Commissioner, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5 2 8(15):

a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:

(1) For a corporation: by a principal executive defined as a president, secretary, treasurer, any vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making functions for the corporation or the manager of one or more manufacturing, production, or operating facilities employing more than two hundred fifty (250) persons or having gross annual sales or expenditures

exceeding twenty-five million dollars ($25,000,000) (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a federal, state, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.

b. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above.

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

(3) The authorization is submitted to the Commissioner.

c. Electronic Signatures. If documents described in this section are submitted electronically by or on behalf of the NPDES-regulated facility, any person providing the electronic signature for such documents shall meet all relevant requirements of this section, and shall ensure that all of the relevant requirements of 40 CFR part 3 (including, in all cases, subpart D to part 3) (Cross-Media Electronic Reporting) and 40 CFR part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

d. Certification. Any person signing a document identified under paragraphs a and b of this section, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Availability of Reports

   Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. Penalties for Falsification of Reports

   IC 13-30 and 327 IAC 5-2-8(15) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. Progress Reports

   In accordance with 327 IAC 5-2-8(11)(A), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

10. Advance Notice for Planned Changes

    In accordance with 327 IAC 5-2-8(11)(B), the permittee shall give advance notice to IDEM of any planned changes in the permitted facility, any activity, or other circumstances that the permittee has reason to believe may result in noncompliance with permit requirements.

11. Additional Requirements for POTWs and/or Treatment Works Treating Domestic Sewage

    a. All POTWs shall identify, in terms of character and volume of pollutants, any significant indirect discharges into the POTW which are subject to pretreatment standards under section 307(b) and 307 (c) of the CWA.

    b. All POTWs must provide adequate notice to the Commissioner of the following:

       (1) Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to section 301 or 306 of the CWA if it were directly discharging those pollutants.

(2) Any substantial change in the volume or character of pollutants being introduced into that POTW by any source where such change would render the source subject to pretreatment standards under section 307(b) or 307(c) of the CWA or would result in a modified application of such standards.

As used in this clause, “adequate notice” includes information on the quality and quantity of effluent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of the effluent to be discharged from the POTW.

c. This permit incorporates any conditions imposed in grants made by the U.S. EPA and/or IDEM to a POTW pursuant to Sections 201 and 204 of the Clean Water Act, that are reasonably necessary for the achievement of effluent limitations required by Section 301 of the Clean Water Act.

d. This permit incorporates any requirements of Section 405 of the Clean Water Act governing the disposal of sewage sludge from POTWs or any other treatment works treating domestic sewage for any use for which rules have been established in accordance with any applicable rules.

e. POTWs must develop and submit to the Commissioner a POTW pretreatment program when required by 40 CFR 403 and 327 IAC 5-19-1, in order to assure compliance by industrial users of the POTW with applicable pretreatment standards established under Sections 307(b) and 307(c) of the Clean Water Act. The pretreatment program shall meet the criteria of 327 IAC 5-19-3 and, once approved, shall be incorporated into the POTW’s NPDES permit.

12. Electronic Reporting

IDEM is currently developing the technology and infrastructure necessary to allow compliance with the EPA Phase 2 e-reporting requirements per 40 CFR 127.16 and to allow electronic reporting of applications, notices, plans, reports, and other information not covered by the federal e-reporting regulations.

IDEM will notify the permittee when IDEM’s e-reporting system is ready for use for one or more applications, notices, plans, reports, or other information. This IDEM notice will identify the specific applications, notices, plans, reports, or other information that are to be submitted electronically and the permittee will be required to use the IDEM electronic reporting system to submit the identified application(s), notice(s), plan(s), report(s), or other information.

See Part I.B.3., Monthly Reporting, for the electronic reporting requirements for the monthly monitoring reports such as the Discharge Monitoring Report (DMR), Monthly Report of Operation (MRO) and Monthly Monitoring Report (MMR).

13. Trucked or Hauled Pollutants

The permittee shall prohibit the introduction of trucked or hauled pollutants into the treatment works, except under the following conditions:

a. The permittee has provided prior written permission to the person seeking to discharge the hauled or trucked pollutants into the treatment works;

b. The person seeking to discharge the hauled or trucked pollutants into the treatment works possesses a valid wastewater management permit and valid vehicle licenses, as required by IDEM;

c. The pollutants that are introduced are limited to domestic sanitary wastewaters;

(1) The introduction of trucked or hauled in industrial wastewaters into the treatment works is prohibited, unless the permittee receives approval per (2) below;

(2) The permittee must notify and receive approval of the department prior to the acceptance of the industrial wastewater in accordance with Part II.A.3, Part II.C.1 and Part II.C.10 of this permit;

d. The pollutants are introduced into the treatment works via a discharge point designated by the permittee.

14. Hauled Waste Requirements

In the event that the permittee allows the introduction of trucked or hauled pollutants under the conditions specified in item 13 above, the permittee shall:

a. Obtain and retain, for a minimum of forty-eight hours, samples that are representative of the hauled or trucked pollutants;

b. Analyze the samples obtained pursuant to item “a” above in the event that the permittee believes or has reason to believe that the hauled or trucked pollutants may be causing and/or contributing to pass-through and/or interference;

c. Maintain records, for each discharge of trucked or hauled pollutants into the treatment works, of the following:

(1) Name of the person discharging the trucked or hauled pollutants;

(2) Wastewater management permit number (if applicable) and vehicle license number and expiration date;

(3) Origination, volume, and nature of the trucked or hauled pollutants;

(4) Date and time of the discharge;

(5) Any sampling conducted; and

(6) Analytical Results, if any.

D. ADDRESSES

1. Municipal NPDES Permits Section

Indiana Department of Environmental Management
Office of Water Quality – Rm 1255
Municipal NPDES Permits Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Municipal NPDES Permits Section:

a. NPDES permit applications (new, renewal or modifications) with fee

b. Preliminary Effluent Limits request letters

c. Comment letters pertaining to draft NPDES permits

d. NPDES permit transfer of ownership requests

e. NPDES permit termination requests

f. Notifications of substantial changes to a treatment facility, including new industrial sources

g. Combined Sewer Overflow (CSO) Operational Plans

h. CSO Long Term Control Plans (LTCP)

i. Stream Reach Characterization and Evaluation Reports (SRCER)

j. Streamlined Mercury Variance Annual Reports

2. Facility Construction and Engineering Support Section

Indiana Department of Environmental Management
Office of Water Quality – Rm 1255
Facility Construction and Engineering Support Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Facility Construction and Engineering Support Section:

a. Construction permit applications with fee

3. Compliance Data Section

Indiana Department of Environmental Management
Office of Water Quality – Rm 1255
Compliance Data Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Compliance Data Section:

a. Discharge Monitoring Reports (DMRs)

b. Monthly Reports of Operation (MROs)

c. Monthly Monitoring Reports (MMRs)

d. CSO MROs

e. Gauging station and flow meter calibration documentation

f. Compliance schedule progress reports

g. Completion of Construction notifications

h. Whole Effluent Toxicity (WET) Testing reports

i. Notification of two (2) consecutive failed WETTs and the intent to begin implementation of a TRE

j. Notification of initiation of a TRE

k. TRE plans and progress reports

l. TRE final report

m. Bypass/Overflow Reports

n. Anticipated Bypass/Overflow Reports

4. Pretreatment Group

Indiana Department of Environmental Management
Office of Water Quality – Rm 1255
Compliance Data Section – Pretreatment Group
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Pretreatment Group:

a. Organic Pollutant Monitoring Reports

b. Significant Industrial User (SIU) Quarterly Noncompliance Reports

c. Pretreatment Program Annual Reports

d. Sewer Use Ordinances

e. Enforcement Response Plans (ERP)

f. Sludge analytical results

ATTACHMENT A

Precipitation Related Combined Sewer Overflow Discharge Authorization Requirements

I. Discharge Authorization

Combined Sewer Overflows are point sources subject to both technology-based and water quality-based requirements of the Clean Water Act and state law. The permittee is authorized to have wet weather discharges from outfall(s) listed below subject to the requirements and provisions of this permit, including Attachment A.

Outfall	Location	Receiving Water
004	Equalization Basin Overflow 41° 16’ 02” N 87° 24’ 55” W	Cedar Creek

Monitoring for the purpose of reporting on the CSO Monthly Report of Operation (State Form 50546 (R4/9-15)) shall be conducted at a location representative of untreated CSO discharges. Monitoring from a CSO regulator structure contributing flow to the CSO outfall is acceptable provided flows at this location are representative and comprised of untreated CSO flows ultimately discharged through the CSO outfall. *Monitoring at the CSO outfall is considered representative except in those instances where non-CSO flows (treated effluents, separate stormwater, etc.) are also discharged through a common outfall. All non-CSO flows shall be excluded from reporting on the CSO Monthly Report of Operation.*

II. Wet Weather Treatment Facility Effluent Limitations and Monitoring Requirements

A. The permittee is authorized to discharge treated combined sewage from Outfall 102 when influent flows exceed the Wastewater Treatment Plant (WWTP) peak hourly design rate and wet weather equalization basin capacity. Outfall 102 is located at Latitude: 41° 15' 40" N, Longitude: 87° 25' 1" W. Discharge from 102 recombines with the WWTP flow and discharges to Cedar Creek via Outfall 001. Flow from 102 is sampled separately from the WWTP flow. Any discharge from Outfall 102 is subject to the requirements and provisions of this permit including the following requirements.

TABLE 1

	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
Parameter [5]	**Daily Maximum**	**Monthly Average**	**Units**	**Daily Maximum**	**Monthly Average**	**Units**	**Measurement Frequency**	**Sample Type**
Flow [1]	Report	Report	MGD	----	----	----	Daily	24-Hr. Total
$CBOD_5$	----	----	----	Report	Report	mg/l	Daily	Composite [4]
TSS	----	----	----	Report	Report	mg/l	Daily	Composite [4]

TABLE 2

	Quality or Concentration				Monitoring Requirements	
Parameter [5]	**Daily Minimum**	**Monthly Average**	**Daily Maximum**	**Units**	**Measurement Frequency**	**Sample Type**
pH [6]	Report	----	Report	s.u.	Daily	Grab
E. coli [2] [3]	----	125	235	cfu/100 ml	Daily	Grab

[1] Effluent flow measurement is required per 327 IAC 5-2-13. The flow meter(s) shall be calibrated at least once annually.

[2] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (fecal coliform or *E. coli*) do not occur from April 1 through October 31, annually.

The *E. coli* limitations and monitoring requirements apply from April 1 through October 31 annually. The monthly average *E. coli* value shall be calculated as a geometric mean. IDEM has specified the following methods as allowable for the detection and enumeration of Escherichia coli (*E. coli*):

1. Coliscan MF® Method
2. EPA Method 1603 Modified m-TEC agar
3. mColi Blue-24®
4. Colilert® MPN Method or Colilert-18® MPN Method

[3] For *E. coli*, the daily maximum shall be the geometric mean of all grab samples on any discharge day, provided that three (3) or more grab samples are collected. If less than three (3) grab samples are taken then the arithmetic mean shall be reported. The *E. coli* monthly average shall be the geometric mean of all grab samples collected during the month, provided that five (5) or more grab samples are collected. The goal of the effluent monitoring program is to collect at least three (3) grab samples during each discharge event, and the samples shall be collected at shorter

intervals at the onset of the event, if the permittee estimates that the event duration may be less than 6 hours.

If there are discharges on four (4) or more days, then the monthly average shall be reported on the Discharge Monitoring Report (DMR). For discharges of four (4) or more days during a calendar month, then the monthly average *E. coli* value shall be calculated as a geometric mean of all grab samples collected and reported on the DMR.

[4] Effluent composite sampling, either by automatic sampler collecting samples at set intervals or by grab samples collected during discharges from the wet weather treatment component, shall be representative of the discharge and of sufficient quantity to ensure that the parameters of Table 1 of Attachment A can be measured; shall be initiated within 30 minutes from the beginning of a discharge event; and shall continue at intervals determined by the permittee, but no less than every 2 hours during the duration of the event. If an event lasts for more than 24 hours a new sampling period shall be initiated. Analysis for the parameters identified in Table 1 of Attachment A shall be from the composite sample collected as described above.

[5] For purposes of reporting on a discharge event which lasts less than 24 hours, but occurs during two calendar days, the pollutant concentrations for the event shall be reported as daily values on the day when the majority of the discharge occurred.

[6] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the minimum or maximum pH value of any individual sample during the month on the Discharge Monitoring Report forms.

B. At all times the discharge from any and all CSO outfalls herein shall not cause receiving waters:

1. including the mixing zone, to contain substances, materials, floating debris, oil, scum, or other pollutants:

   a. that will settle to form putrescent or otherwise objectionable deposits;
   b. that are in amounts sufficient to be unsightly or deleterious;
   c. that produce color, visible oil sheen, odor, or other conditions in such a degree as to create a nuisance;
   d. which are in amounts sufficient to be acutely toxic to, or otherwise severely injure or kill aquatic life, other animals, plants, or humans;

e. which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.

2. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

C. Dry weather discharges from any portion of the sewer collection system, except WWTP outfall No. 001, are prohibited. If such a prohibited discharge should occur, the permittee is required to report the discharge in accordance with the provisions in Part II.C.3 of this permit.

III. Monitoring and Reporting Requirements

The permittee shall complete and submit accurate monitoring reports to the Indiana Department of Environmental Management. The permittee shall submit data specified on the CSO Monthly Report of Operation (MRO) for untreated CSO events (State Form 50546 (R4/9-15)), including but not limited to, WWTP data, precipitation data, and performance data for all discharges from untreated CSO Outfalls identified in Part I of this Attachment A. Submitted CSO MROs shall contain results obtained during each month (a monitoring period) and shall be submitted no later than 28 days following each completed monitoring period. All NPDES permit holders are now required to submit their monitoring data to IDEM using NetDMR.

The permittee shall monitor discharges from Outfall 102 in accordance with both Discharge Monitoring Report (DMR) forms and Monthly Monitoring Report (MMR) for WWTF forms provided by IDEM (State Form 56109). Submitted DMRs and MMRs shall contain results obtained during each month (a monitoring period) and shall be submitted no later than 28 days following each completed monitoring period. Discharge data from Outfall 102 shall not be included on the CSO MRO form for untreated CSO events (State Form 50546 (R4/9-15)).

IV. CSO Operational Plan

A. The permittee shall comply with the following minimum technology-based controls, in accordance with EPA's National CSO Control Policy:

1. The permittee shall implement proper operation and regular maintenance programs for the sewer system and the CSOs. The purpose of the operation and maintenance programs is to reduce the magnitude, frequency and duration of CSOs. The programs shall consider regular

sewer inspections; sewer, catch basin, and regulator cleaning; equipment and sewer collection system repair or replacement, where necessary; and disconnection of illegal connections.

2. The permittee shall implement procedures that will maximize the use of collection system for wastewater storage that can be accommodated by the storage capacity of the collection system in order to reduce the magnitude, frequency and duration of CSOs.
3. The permittee shall review and modify, as appropriate, its existing pretreatment program to minimize CSO impacts from non-domestic users. The permittee shall identify all industrial users that discharge to the collection system upstream of any CSO outfalls; this identification shall also include the pollutants in the industrial user's wastewater and the specific CSO outfall(s) that are likely to discharge the wastewater.
4. The permittee shall operate the POTW at the maximum treatable flow during all wet weather flow conditions to reduce the magnitude, frequency and duration of CSOs. The permittee shall deliver all flows to the treatment plant within the constraints of the treatment capacity of the POTW.
5. Dry weather overflows from CSO outfalls are prohibited. Each dry weather overflow must be reported to IDEM as soon as the permittee becomes aware of the overflow. When the permittee detects a dry weather overflow, it shall begin corrective action immediately. The permittee shall inspect the dry weather overflow each subsequent day until the overflow has been eliminated.
6. The permittee shall implement measures to control solid and floatable materials in CSO discharges.
7. The permittee shall implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters.
8. The permittee shall implement a public notification process to inform citizens of when and where CSO discharges occur and their impacts. This notification must also be done in accordance with 327 IAC 5-2.1.
9. The permittee shall monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

B. The permittee's implementation of each of the minimum controls in Part IV.A of this Attachment A shall be documented in its approved CSO Operational Plan (CSOOP). The permittee shall update the CSOOP, as necessary, to reflect changes in its operation or maintenance practices; changes to measures taken to implement the above minimum requirements; and changes to the treatment plant or collection system, including changes in collection system flow characteristics, collection system or WWTP capacity or discharge characteristics (including volume, duration, frequency and pollutant concentration). All updates to the CSOOP must be submitted to IDEM, Office of Water Quality, Municipal NPDES Permits Section for approval.

The CSOOP update(s) shall include a summary of the proposed revisions to the CSOOP as well as a reference to the page(s) that have been modified. Any CSOOP updates shall not result in:

1. a lower amount of flow being sent to and through the plant for treatment, or
2. more discharges (measured either by volume, duration, frequency, or pollutant concentration) occurring from the CSO outfalls.

The permittee shall maintain a current CSO Operational Plan, including all approved updates, on file at the POTW.

V. Sewer Use Ordinance Review/Revision and Enforcement

The permittee's Sewer Use Ordinance must contain provisions which: (1) prohibit introduction of inflow sources to any sanitary sewer; (2) prohibit construction of new combined sewers outside of the existing combined sewer service area; and (3) provide that for any new building the inflow/clear water connection to a combined sewer shall be made separate and distinct from sanitary waste connection to facilitate disconnection of the former if a separate storm sewer subsequently becomes available. The permittee shall continuously enforce these provisions.

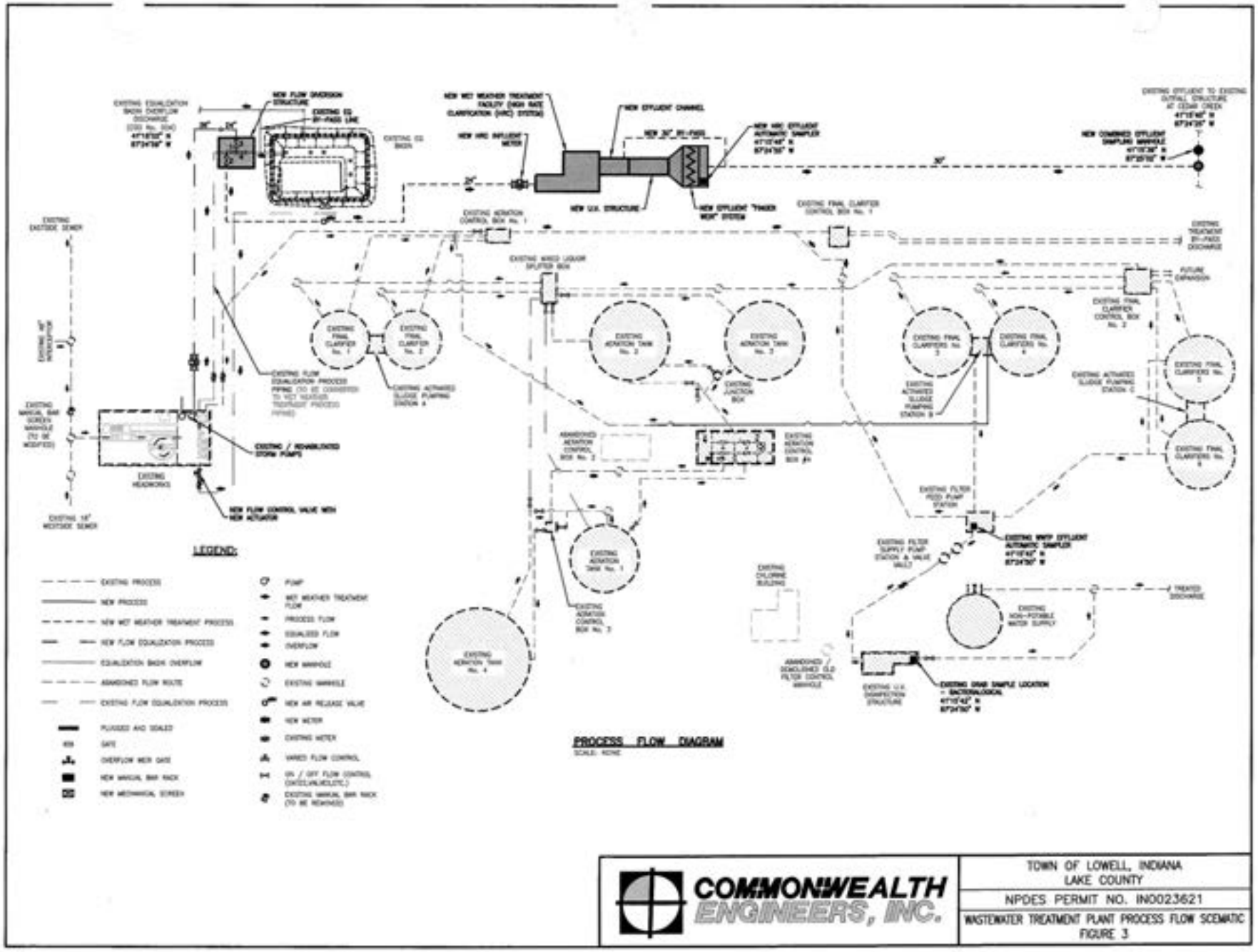
VI. Reopening Clauses

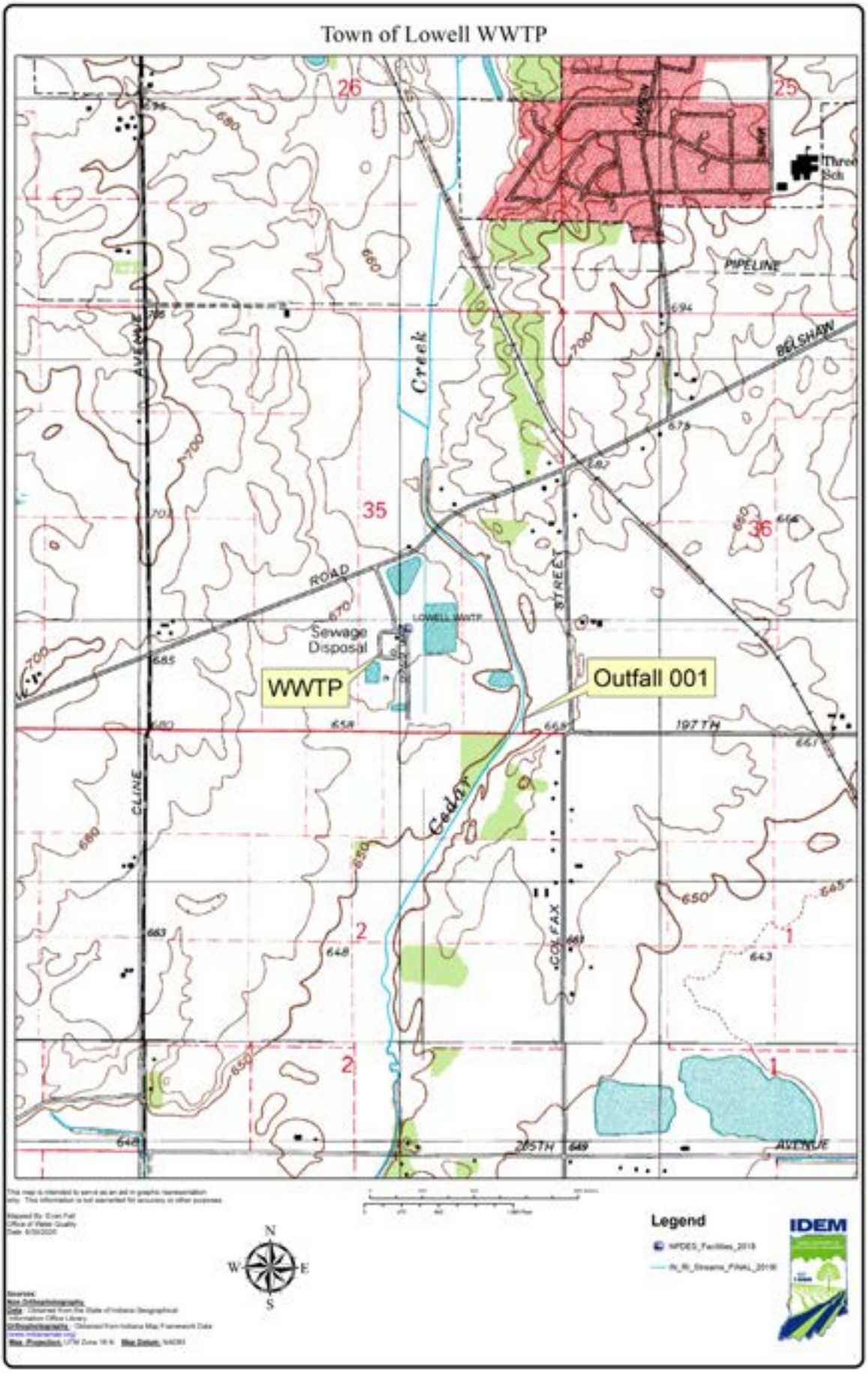
A. This permit may be reopened to address changes in the EPA National CSO Policy or state or federal law.
B. The permit may be reopened, after public notice and opportunity for hearing, to incorporate applicable provisions of IC 13-18.

National Pollutant Discharge Elimination System
Fact Sheet for the Town of Lowell Wastewater Treatment Plant
Draft: July 14, 2020
Final: August 31, 2020

Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

Permittee:	Town of Lowell Mr. Mike Gruszka, Town Council President 501 East Main Street Lowell, Indiana 46356 mgruszka@lowell.net; 219/552-4601
Existing Permit Information:	Permit Number: IN0023621 Expiration Date: December 31, 2020
Facility Contact:	Mr. Don Woodward, Certified Operator dtwoody@att.net; 219/696-0343
Facility Location:	7500 Belshaw Road Lowell, Indiana 46356 Lake County
Receiving Stream:	Cedar Creek
GLI/Non-GLI:	Non-GLI
Proposed Permit Action:	Renewal
Date Application Received:	June 18, 2020
Facility Category	NPDES Major Municipal
Permit Writer:	Evan Fall, Environmental Manager efall@idem.in.gov; 317/234-3840


LEGEND:
EXISTING PROCESS
NEW PROCESS
NEW WET WEATHER TREATMENT PROCESS
NEW FLOW EQUALIZATION PROCESS
EQUALIZATION BASIN OVERFLOW
ABANDONED FLOW ROUTE
EXISTING FLOW EQUALIZATION PROCESS
PLUGGED AND SEALED
GATE
OVERFLOW WEIR GATE
NEW MANUAL BAR RACK
NEW MECHANICAL SCREEN
PUMP
WET WEATHER TREATMENT FLOW
PROCESS FLOW
EQUALIZED FLOW
OVERFLOW
NEW MANHOLE
EXISTING MANHOLE
NEW AIR RELEASE VALVE
NEW METER
EXISTING METER
VARIED FLOW CONTROL
ON / OFF FLOW CONTROL (GATE/VALVE/ETC.)
EXISTING MANUAL BAR RACK (TO BE REMOVED)
PROCESS FLOW DIAGRAM
SCALE: NONE
COMMONWEALTH ENGINEERS, INC.
TOWN OF LOWELL, INDIANA
LAKE COUNTY
NPDES PERMIT NO. IN0023621
WASTEWATER TREATMENT PLANT PROCESS FLOW SCEMATIC
FIGURE 3


Town of Lowell WWTP
WWTP
Outfall 001
Sewage Disposal
LOWELL WWTP
Cedar Creek
PIPELINE
CLINE AVENUE
COLFAX STREET
ROAD
197TH AVENUE
Legend
IDEM

*Outfall Location	Latitude:	41° 15' 40" N
	Longitude:	87° 24' 45" W

*These coordinates have been updated from the previous permit to correctly reflect the location of Outfall 001, in accordance with information provided by the permittee.

NPDES Permit No. IN0023621

Background

This is the proposed renewal of the NPDES permit for the Town of Lowell Wastewater Treatment Plant which was issued on July 31, 2015 and has an expiration date of December 31, 2020. The permittee submitted an application for renewal which was received on June 18, 2020. The permittee currently operates a Class III, 4.0 MGD conventional activated sludge treatment facility with ultraviolet light disinfection. The facility is equipped with a 14 million gallon wet weather equalization basin. Wet weather flows in excess of the conventional WWTP design capacity and equalization basins are diverted to a 10 MGD single-train high rate clarification facility (ACTIFLOW® Process). Effluent from the high rate clarification facility receives process dedicated U.V. disinfection. The total peak weather flow for the POTW (Conventional WWTP & ACTIFLOW®) is 14 MGD.

Bacteriological samples are taken from the effluent end of the dedicated U.V. disinfection structure. All other parameters are sampled at a sampling manhole located at the confluence point of the treated wet weather flow and the conventional WWTP (reference flow schematic in Fact Sheet). Bacteriological samples for the conventional WWTP are taken at the effluent end of the facility's U.V. disinfection structure. All other parameters are sampled at a final effluent sampling structure located downstream of the conventional POTW U.V. structure (reference flow schematic in Fact Sheet).

Biosolids produced by the POTW are treated with aerobic digestion, dewatered via a belt filter press and disposed of in accordance with 329 IAC 10, 327 IAC 6.1 and 40 CFR Part 503. The permittee maintains a Land Application Permit (INLA000071).

The facility provides wastewater treatment for two (2) satellite communities (Lake Dalecarlia RWD and Cedar Lake).

Collection System

The collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) location; one (1) Wet Weather Treatment Facility (WWTF) outfall; and one (1) bypass point. The CSO location and WWTF outfall have been identified and permitted with provisions in Attachment A of the permit. The bypass point is identified in and is subject to the requirements contained in Part II.B.2 of the permit.

Within Attachment A of the renewal permit, information for CSO 004 and WWTF Outfall 102 have been changed from the previous permit. The physical location of CSO Outfall

004 and WWTF Outfall102 have not changed; however, the location coordinates have been changed in the renewal to provide a more accurate description of the outfall locations.

CSO Statutory or Regulatory Basis for Permit Provisions

CSOs are point sources subject to NPDES permit requirements, including both technology-based and water quality-based requirements of the CWA and state law. Thus the permit contains provisions IDEM deems necessary to meet water quality standards, as well as technology-based treatment requirements, operation and maintenance requirements, and best management practices. This permit is based on various provisions of state and federal law, including (1) Title 13 of the Indiana Code; (2) the water quality standards set forth in 327 IAC 2-1.5; (3) the NPDES rules set forth in 327 IAC 2 and 327 IAC 5, including 327 IAC 5-2-8 and 327 IAC 5-2-10; and (4) section 402(q) of the CWA (33 USC § 1342), which requires all permits or orders issued for discharges from municipal CSOs to conform with the provisions of EPA's National CSO Control Policy (58 Fed. Reg. 18688, April 19, 1994). EPA's CSO Policy contains provisions that, among other things, require permittees to develop and implement minimum technological and operational controls and long term control plans to meet state water quality standards. The permit's penalty provisions are based in large part on IC 13-30. In addition to the regulatory provisions previously cited, the data collection and reporting requirements are based in part on 327 IAC 5-1-3, 327 IAC 5-2-13 and section 402(q) of the CWA. The long term control plan provisions were included to ensure compliance with water quality standards.

Explanation of Effluent Limitations and Conditions

The effluent limitations set forth in Part II of Attachment A are derived in part from the narrative water quality standards set forth in 327 IAC 2-1-6. The narrative standards are minimum standards that apply to all waters at all times, and therefore are applicable to all discharges of pollutants. Because EPA has not issued national effluent limitation guidelines for this category of discharges, the technology-based BAT/BCT provisions are based on best professional judgment (BPJ) in addition to section 402(q) of the CWA. (CSO discharges are not subject to the secondary treatment requirements applicable to publicly owned treatment works because overflow points have been determined to not be part of the treatment plant. Montgomery Environmental Coalition v. Costle, 646 F.2d 568 (D.C. Cir. 1980).)

CSO Long Term Control Plan Requirements

The Town of Lowell is currently implementing their approved CSO Long Term Control Plan (LTCP). The LTCP included two early action projects, construction of a 14 million gallon equalization (EQ) basin and improvements to the existing headworks and existing 14 million gallon EQ basin. The LTCP includes the construction of a 10 million gallon Wet Weather Treatment Facility (WWTF); evaluation of existing rain gauges and installation of additional rain gauges; operational review of the WWTF and influent flow monitoring; a sanitary sewer system evaluation of the interceptor and combined sewer area; and rehabilitation of the interceptor and combined sewer area.

The LTCP has an implementation schedule of approximately 15 years and is expected to comply with IDEM's Nonrule Policy Document (NPD) Water-016. Full LTCP implementation is anticipated to be completed in 2021. The implementation schedule is enforced through Agreed Order Case No. 2006-16199-W.

Spill Reporting Requirements

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.c. and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedences that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedance to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

Solids Disposal

The permittee is required to dispose of its sludge in accordance with 329 IAC 10, 327 IAC 6.1, or 40 CFR Part 503. The permittee maintains a land application permit (INLA000071) for the disposal of solids.

Receiving Stream

The facility discharges to Cedar Creek via Outfall 001. The receiving water has a seven day, ten year low flow ($Q_{7,10}$) of 2.25 cubic feet per second (1.45 MGD) at the outfall location.

The receiving stream is designated for full body contact recreational use and shall be capable of supporting a well-balanced warm water aquatic community in accordance with 327 IAC 2-1.

The receiving stream, Cedar Creek (Assessment Unit #INK01D6_08), was assessed but not listed on Indiana's 2018 303(d) list of impaired waters. However, the facility and receiving stream have been incorporated into the Total Maximum Daily Load (TMDL) report for the Kankakee/Iroquois River Watershed, which addresses *Escherichia coli* (*E. coli*). The TMDL report was approved by US EPA on September 29, 2009 and revised on January 13, 2020. As a result, this assessment unit for the receiving stream is characterized as a Category 4A for *E. coli*.

The report finds Indiana's Water Quality Standards (WQS) to be an acceptable approach as numeric water quality targets. The *E. coli* targets of 125 cfu/100 ml (based on geometric mean) and 235 cfu/100 ml (based on single sample maximum) identified in the TMDL are consistent with Indiana's WQSs. The permittee originally received an *E. coli* limit during the 2005 permit issuance. Therefore, this permit is in accordance with the assumptions and intent of the Kankakee/Iroquois River Watershed TMDL.

Industrial Contributions

There is no industrial flow to the wastewater treatment plant. This NPDES permit does not authorize the facility to accept industrial contributions until the permittee has provided the Indiana Department of Environmental Management with a characterization of the waste, including volume amounts, and this Office has determined whether effluent limitations are needed to ensure the State water quality standards are met in the receiving stream.

Antidegradation

Indiana's Antidegradation Standards and Implementation procedures are outlined in 327 IAC 2-1.3. The antidegradation standards established by 327 IAC 2-1.3-3 apply to all surface waters of the state. The permittee is prohibited from undertaking any deliberate action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless information is submitted to the commissioner demonstrating that the proposed new or increased discharge will not cause a significant lowering of water quality, or an antidegradation demonstration submitted and approved in accordance 327 IAC 2-1.3-5 and 2-1.3-6.

The NPDES permit does not propose to establish a new or increased loading of a regulated pollutant; therefore, the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 do not apply to the permitted discharge.

Effluent Limitations and Rationale

The effluent limitations proposed herein are based on Indiana Water Quality Standards, NPDES regulations, a Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 17, 1998, and the NPDES permit issued on September 30, 1993. These limits are in accordance with antibacksliding regulations specified in 327 IAC 5-2-10(a)(11)(A). Monitoring frequencies are based upon facility size and type. IDEM has waived the 85% removal requirement for $CBOD_5$ and TSS under the provisions of 40 CFR 133.103(a). The periodic improvements required under the permittee's LTCP would make the percent removal level a dynamic measurement and any limitation based on percent removal impractical.

The final effluent limitations to be limited and/or monitored include: Flow, Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Total Suspended Solids (TSS), Ammonia-nitrogen

(NH_3-N), phosphorus, total nitrogen, pH, Dissolved Oxygen (DO), and *Escherichia coli* (*E. coli)*.

Final Effluent Limitations

The summer monitoring period runs from May 1 through November 30 of each year and the winter monitoring period runs from December 1 through April 30 of each year. The disinfection season runs from April 1 through October 31 of each year.

The mass limits for $CBOD_5$, TSS, and ammonia-nitrogen are calculated by multiplying the average design flow (in MGD) by the corresponding concentration value and by 8.345.

Flow

Flow is to be measured five (5) times weekly as a 24-hour total. Reporting of flow is required by 327 IAC 5-2-13.

$CBOD_5$

$CBOD_5$ is limited to 15 mg/l (500.7 lbs/day) as a monthly average and 22.5 mg/l (751.1 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, $CBOD_5$ is limited to 25 mg/l (834.5 lbs/day) as a monthly average and 40 mg/l (1,335.2 lbs/day) as a weekly average.

Monitoring is to be conducted five (5) times weekly by 24-hour composite sampling. The $CBOD_5$ concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 17, 1998, and are the same as the concentration limitations found in the facility's previous permit.

TSS

TSS is limited to 18 mg/l (600.8 lbs/day) as a monthly average and 27 mg/l (901.3 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, TSS is limited to 30 mg/l (1,001.4 lbs/day) as a monthly average and 45 mg/l (1,502.1 lbs/day) as a weekly average.

Monitoring is to be conducted five (5) times weekly by 24-hour composite sampling. The TSS concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 17, 1998, and are the same as the concentration limitations found in the facility's previous permit.

Ammonia-nitrogen

Ammonia-nitrogen is limited to 1.6 mg/l (53.4 lbs/day) as a monthly average and 2.4 mg/l (80.1 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, ammonia-nitrogen is limited to 1.8 mg/l (60.1 lbs/day) as a monthly average and 2.7 mg/l (90.1 lbs/day) as a weekly average.

Monitoring is to be conducted five (5) times weekly by 24-hour composite sampling. The ammonia-nitrogen concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 17, 1998 and the NPDES permit issued on September 30, 1993. These are the same as the concentration limitations found in the facility's previous permit.

Phosphorus

Excessive phosphorus in the discharge from wastewater treatment plants can result in harmful algal blooms that negatively impact fish habitat, cause fish kills, lower dissolved oxygen, and pose public health concerns related to increased exposure to toxic microbes. The effects of nutrient pollution can be observed both in local waters as well as downstream waters. IDEM has calculated that sanitary wastewater treatment plants with average design flows greater than or equal to 1 MGD constitute a significant percentage of the total load of phosphorus discharged to Indiana's waterways from sanitary wastewater treatment plants.

Consistent with IDEM's current Nonrule policy (WATER-019-NPD) which applies phosphorus reduction requirements to POTWs with average design flows greater than or equal to 1 MGD, monitoring requirements and an effluent limitation for phosphorus have been included in the permit renewal. Phosphorus is limited to 1.0 mg/l as a monthly average. Monitoring is to be conducted five (5) times weekly by 24-hour composite sampling.

Total Nitrogen

Nutrient pollution is one of our Nation's top environmental challenges and considerations for addressing it continue to be a priority for IDEM. Nutrient pollution can lead to public health issues and impacts the economy and is of particular concern with regard to harmful algal blooms in the State of Indiana and harmful algal blooms and hypoxia problems in further downstream waters. Of particular concern in further downstream waters is the loadings of the nutrient nitrogen.

In response to the nutrient pollution concerns, the U.S. EPA released a memorandum on September 22, 2016 entitled "Renewed Call to Action to Reduce Nutrient Pollution and Support Incremental Actions to Protect Water Quality and Public Health", which can be found at the following web address: https://www.epa.gov/sites/production/files/2016-09/documents/renewed-call-nutrient-memo-2016.pdf. EPA recommends all major sanitary dischargers begin monitoring for total nitrogen. To begin the process of total nitrogen data

collection, IDEM is proposing that all major sanitary dischargers with average design flow ratings of 1.0 MGD or greater begin monitoring for total nitrogen.

The permit requires that total nitrogen be monitored and report at a minimum of one (1) time monthly. Both the concentration and associated loading values must be reported. Total nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and Nitrate + Nitrite Nitrogen and reporting the sum of the TKN and Nitrate + Nitrite results (reported as N). Nitrate + Nitrite can be analyzed together or separately.

pH

The pH limitations have been based on 40 CFR 133.102 which is cross-referenced in 327 IAC 5-5-3.

To ensure conditions necessary for the maintenance of a well-balanced aquatic community, the pH of the final effluent must be between 6.0 and 9.0 standard units in accordance with provisions in 327 IAC 2-1-6(b)(2).

pH must be measured five (5) times weekly by grab sampling. These pH limitations are the same as the limitations found in the facility's previous permit.

Dissolved Oxygen

Dissolved oxygen shall not fall below 6.0 mg/l as a daily minimum average during the summer monitoring period. During the winter monitoring period, dissolved oxygen shall not fall below 5.0 mg/l as a daily minimum average.

These dissolved oxygen limitations are based on the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 17, 1998, and are the same as the concentration limitations found in the facility's previous permit. Dissolved oxygen measurements must be based on the average of three (3) grab samples taken within a 24-hr. period. This monitoring is to be conducted five (5) times weekly.

E. coli

The *E. coli* limitations and monitoring requirements apply from April 1 through October 31, annually. *E. coli* is limited to 125 count/100 ml as a monthly average, and 235 count/100 ml as a daily maximum. The monthly average *E. coli* value shall be calculated as a geometric mean. This monitoring is to be conducted five (5) times weekly by grab sampling. These *E. coli* limitations are set in accordance with regulations specified in 327 IAC 5-10-6.

Mercury

Effluent mercury data was evaluated as part of the NPDES permit renewal. The evaluation of the monitoring data revealed that the discharge from the wastewater

treatment plant did not show potential to exceed the water quality criterion for mercury within the receiving waters. Therefore, effluent limitations and monitoring requirements for mercury have been removed from the permit.

Whole Effluent Toxicity Testing

The permittee submitted a Whole Effluent Toxicity Tests (WETT) with the renewal application as required in 327 IAC 5-2-3(g). No toxicity was exhibited.

Backsliding

None of the concentration limits included in this permit conflict with antibacksliding regulations found in 327 IAC 5-2-10(a)(11)(A), therefore, backsliding is not an issue.

Reopening Clauses

Three (3) reopening clauses were incorporated into the permit in Part I.C. One clause is to incorporate effluent limits from any further wasteload allocations performed; a second clause is to allow for changes in the sludge disposal standards; and a third clause is to incorporate any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act.

Compliance Status

The permittee entered into an Agreed Order (Order No. 2006-16199-W) with this Office on December 5th, 2006. The Agreed Order cites the permittee for Combined Sewer Overflow (CSO) discharges and contains an order for the permittee to implement a CSO Long-Term Control Plan.

The current Long-Term Control Plan implementation schedule was recently revised on September 24, 2018. The projects within the LTCP Implementation Schedule did not change; however due to issues with the contractor completing the Sanitary Sewer System Evaluation Study of the Interceptor, the Town is proceeding with combining the televising/evaluation and the rehabilitation of the Interceptor into one contract with a different contractor.

The revised LTCP Implementation Schedule does not change the overall schedule length or the level of control approved in the original LTCP, which is currently scheduled to be completed on October 1, 2022.

Expiration Date

A five-year NPDES permit is proposed.

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO. 20200729 – IN0023621 – D
DATE OF NOTICE: JULY 29, 2020
DATE RESPONSE DUE: AUGUST 28, 2020

The Office of Water Quality proposes the following NPDES DRAFT PERMIT:

MAJOR – RENEWAL

LOWELL (town) WWTP, Permit No. IN0023621, LAKE COUNTY, 7500 Belshaw Rd, Lowell, IN. This municipal facility discharges 4.0 million gallons daily of sanitary & combined sewer wastewater into Cedar Creek. Permit Manager: Evan Fall, 317/234-3840, efall@idem.in.gov. Posted online at https://www.in.gov/idem/6408.htm.

PROCEDURES TO FILE A RESPONSE

Draft can be viewed or copied (10¢ per page) at IDEM/OWQ NPDES PS, 100 North Senate Avenue, (Rm 1203) Indianapolis, IN, 46204 (east end elevators) from 9 – 4, Mon - Fri, (except state holidays). A copy of the Draft Permit is on file at the local County Health Department. Please tell others you think would be interested in this matter. For your rights & responsibilities see: Public Participation Guide: http://www.in.gov/idem/5474.htm or Citizens' Guide to IDEM: https://www.in.gov/idem/6900.htm.

Response Comments: The proposed decision to issue a permit is tentative. Interested persons are invited to submit written comments on the Draft permit. All comments must be postmarked no later than the Response Date noted to be considered in the decision to issue a Final permit. Deliver or mail all requests or comments to the attention of the Permit Writer at the above address, (mail code 65-42 PS).

To Request a Public Hearing:
Any person may request a Public Hearing. A written request must be submitted to the above address on or before the Response Date noted. The written request shall include: the name and address of the person making the request, the interest of the person making the request, persons represented by the person making the request, the reason for the request and the issues proposed for consideration at the Hearing. IDEM will determine whether to hold a Public Hearing based on the comments and the rationale for the request. Public Notice of such a Hearing will be published in at least one newspaper in the geographical area of the discharge and sent to anyone submitting written comments and/or making such request and whose name is on the mailing list at least 30 days prior to the Hearing.

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO: 20200917 – IN0023621 – F
DATE OF NOTICE: SEPTEMBER 17, 2020

The Office of Water Quality issues the following NPDES FINAL PERMIT:

MAJOR – RENEWAL

LOWELL (town) WWTP, Permit No. IN0023621, LAKE COUNTY, 7500 Belshaw Rd, Lowell, IN. This municipal facility discharges 4.0 million gallons daily of treated sanitary & combined sewer wastewater into Cedar Creek. Permit Manager: Evan Fall, 317/234-3840, efall@idem.in.gov.

Notice of Right to Administrative Review [Permits]

If you wish to challenge this Permit, you must file a Petition for Administrative Review with the Office of Environmental Adjudication (OEA), and serve a copy of the Petition upon IDEM. The requirements for filing a Petition for Administrative Review are found in IC 4-21.5-3-7, IC 13-15-6-1 and 315 IAC 1-3-2. A summary of the requirements of these laws is provided below.

A Petition for Administrative Review must be filed with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the issuance of this notice (eighteen (18) days if you received this notice by U.S. Mail), and a copy must be served upon IDEM. Addresses are:

Director
Office of Environmental Adjudication
Indiana Government Center North
100 North Senate Avenue - Room N103
Indianapolis, Indiana 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue - Room 1301
Indianapolis, Indiana 46204

The Petition must contain the following information:

1. The name, address and telephone number of each petitioner.
2. A description of each petitioner's interest in the Permit.
3. A statement of facts demonstrating that each petitioner is:
    a. a person to whom the order is directed;
    b. aggrieved or adversely affected by the Permit;
    c. entitled to administrative review under any law.
4. The reasons for the request for administrative review.
5. The particular legal issues proposed for review.
6. The alleged environmental concerns or technical deficiencies of the Permit.
7. The Permit terms and conditions that the petitioner believes would be appropriate and would comply with the law.
8. The identity of any persons represented by the petitioner.
9. The identity of the person against whom administrative review is sought.
10. A copy of the Permit that is the basis of the petition.
11. A statement identifying petitioner's attorney or other representative, if any.

Failure to meet the requirements of the law with respect to a Petition for Administrative Review may result in a waiver of your right to seek administrative review of the Permit. Examples are:

1. Failure to file a Petition by the applicable deadline;
2. Failure to serve a copy of the Petition upon IDEM when it is filed; or
3. Failure to include the information required by law.

If you seek to have a Permit stayed during the Administrative Review, you may need to file a Petition for a Stay of Effectiveness. The specific requirements for such a Petition can be found in 315 IAC 1-3-2 and 315 IAC 1-3-2.1.
Pursuant to IC 4-21.5-3-17, OEA will provide all parties with Notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action. If you are entitled to Notice under IC 4-21.5-3-5(b) and would like to obtain notices of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action without intervening in the proceeding you must submit a written request to OEA at the address above. More information on the appeal review process is available on the website for the Office of Environmental Adjudication at http://www.in.gov/oea.

MUNICIPAL NPDES PERMIT COMPLETENESS CHECKLIST & SUBMITTAL FORM

MAIL TO:
Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

NPDES PERMIT No. IN00 23621

Facility Name: Town of Lowell WWTP

Mailing Address: 501 East Main Street
Lowell, IN. 46356

Facility Location: 7500 Belshaw Road
Lowell, IN. 46356

Contact & Telephone: 219-696-0343 Phone: (19) 696-0343

REC'D 6-18-20 ACCTS REC

REQUIRED INFORMATION

REQUIRED WITH ALL APPLICATIONS	TECHNICAL APPLICATIONS
X $50.00 Permit Application Fee	X Whole Effluent Toxicity Test
X Affected Parties Identification Form	X Major Municipal Application / EPA Form
X Request for Information Form	___ Semi Public / Minor Municipal

*** An issued Construction Approval is required with all applications for a *new* NPDES permitted facility.**

The Permit Fee, Affected Parties Form and Request for Information Forms are required with all applications. Whole Effluent Toxicity Testing is required for all major facility renewal applications in accordance with regulations specified in 327 IAC 5-2-3(g)(1) and (2). Please check the information that is included, and insure that all forms are completely filled out with date and signature.

(Account No. & Revenue Code: 2830-411200-100600)

IN0023621 061520
CST 2572 NPDES
$50.00

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno L. Pigott
Commissioner

TO: All NPDES Permit Applicants

FROM: NPDES Permit Section
Office of Water Quality

SUBJECT: Request for Information

We request that you fill in the blanks on this form and return it along with your NPDES PERMIT application. The information provided will be helpful in our personal contact with officials of our municipality or other facilities in assuring prompt delivery of correspondence, etc. Thank you for your cooperation.

I. CURRENT NPDES PERMIT NO. IN00 23621 (New applicants will be assigned a number later)

II. WASTEWATER TREATMENT PLANT FACILITY LOCATION ADDRESS (PHYSICAL LOCATION OF FACILITY)

Facility Name: Town of Lowell WWTP

Address: 7500 Belshaw Road

City: Lowell State: IN. Zip: 46356

III. MAILING ADDRESS IF DIFFERENT FROM FACILITY LOCATION

Address: 501 East Main Street

City: Lowell State: IN Zip: 46356

IV. OWNER OR LEGALLY RESPONSIBLE PARTY (TOWN BOARD/COUNCIL PRESIDENT, MAYOR, SUPERINTENDENT)

Name: Mike Gruszka Title: Town Council President

Address: 501 East Main Street

City: Lowell State: IN. Zip: 46356

E-mail Address: mgruszka@lowell.net Phone: (219) 552-4601

V. WASTEWATER TREATMENT PLANT CERTIFIED OPERATOR

Name: Don Woodard Certification #: 12933 Classification: IV

E-mail Address: dtwoody@att.net Work Phone: (219) 696-0343

AMENDED
TREATMENT FACILITY DESCRIPTION
TOWN OF LOWELL POTW
NPDES PERMIT NO. IN0023621

The Permittee currently operates a Class III, 4.0 MGD conventional activated sludge treatment facility with ultraviolet light disinfection. The facility is equipped with a 14 million gallon wet weather equalization basin.

Wet weather flows in excess of the conventional WWTP design capacity and equalization basins are diverted to a 10 MGD single-train high rate clarification facility (ACTIFLOW® Process), designed to provide a level of wet weather effluent quality equivalent to secondary treatment. Effluent from the high rate clarification facility receives process dedicated U.V. disinfection. The total peak weather flow for the POTW (Conventional WWTP & ACTIFLOW®) is 14 MGD. Bacteriological samples are taken from the effluent end of the dedicated U.V. disinfection structure. All other parameters are sampled at a sampling manhole located at the confluence point of the treated wet weather flow and the conventional WWTP (reference flow schematic in Fact Sheet).

Bacteriological samples for the conventional WWTP are taken at the effluent end of the facility's U.V. disinfection structure. All other parameters are sampled at a final effluent sampling structure located downstream of the conventional POTW U.V. structure (reference flow schematic in Fact Sheet).

Biosolids produced by the POTW are treated with aerobic digestion, dewatered via a belt filter press and disposed of in accordance with 329 IAC 10, 327 IAC 6.1 and 40 CFR Part 503. The Permittee maintains a Land Application Permit (INLA000071).

The facility provides wastewater treatment for two (2) satellite communities (Lake Delecarlia RWD and Cedar Lake).

The collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) location and one bypass point (101). The CSO location has been identified and permitted with provisions in Attachment A of the permit. The bypass point is identified in and is subject to the requirements contained in Part II.B.2 of the permit.

TO: **All NPDES Permit Applicants**

FROM: NPDES Permit Section
Office of Water Quality

SUBJECT: Request for Information

We request that you fill in the blanks on this form and return it along with your NPDES PERMIT application. The information provided will be helpful in our personal contact with officials of our municipality, industry or other facility in assuring prompt delivery of correspondence, etc. Thank you for your cooperation.

I. CURRENT NPDES PERMIT NO. IN00 23621 (New applicants will be assigned a number later)

II. WASTEWATER TREATMENT PLANT FACILITY LOCATION ADDRESS (PHYSICAL LOCATION OF FACILITY)

Facility Name: Town of Lowell Wastewater Treatment Facility

Address: 7500 Belshaw Road

City: Lowell State: IN Zip: 46356

III. MAILING ADDRESS IF DIFFERENT FROM FACILITY LOCATION

Address: 501 East Main Street

City: Lowell State: IN Zip: 46356

IV. OWNER OR LEGALLY RESPONSIBLE PARTY (TOWN BOARD/COUNCIL PRESIDENT, MAYOR, SUPERINTENDENT)

Name: Mike Gruska Title: Town Board President

Address: 723 Seminole Drive

City: Lowell State: IN Zip: 46356

Phone: (219)696-7794

V. WASTEWATER TREATMENT PLANT CERTIFIED OPERATOR

Name Donald Woodard Certification #: 12933

Address: 10690 Illinois Street

City: Crown Point State: IN Zip: 46307

Work Phone(219) 696-0343 Classification: IV

(Account No. & Revenue Code: 2830-411200-100600) updated 2005 sc

IDENTIFICATION OF POTENTIALLY AFFECTED PARTIES
State Form 49456 (R2 / 3-15)
Approved by State Board of Accounts, 2009

IDEM
Office of Water Quality, Permits Branch
100 North Senate Ave.
MC 65-42PS
Indianapolis, IN 46204-2251

The Administrative Orders and Procedures Act (AOPA) IC 4-21.5-3-5(b), requires that the Indiana Department of Environmental Management (IDEM) give notice of its decision on your application to the following persons:

a) Each person to whom the decision is specifically directed;
b) Each person to whom a law requires notice to be given;
c) Each competitor who has applied to the IDEM for a mutually exclusive license, if issuance is the subject of the decision and the competitor's application has not been denied in an order for which all rights to judicial review have been waived or exhausted;
d) Each person who has provided the IDEM with a written request for notification of the decision;
e) Each person who has a substantial and direct proprietary interest in the issuance of the (permit/variance);
f) Each person whose absence as a party in the proceeding concerning the (permit/variance) decision would deny another party complete relief in the proceeding or who claims an interest related to the issuance of the (permit/variance) and is so situated that the disposition of the matter, in the person's absence may:
    1) As a practical matter impair or impede the person's ability to protect that interest, or
    2) Leave any other person who is a party to a proceeding concerning the permit subject to a substantial risk of incurring multiple or otherwise an inconsistent obligation by reason of the person's claimed interest.

IC 4-21.5-3-5(f) provides that we may request your assistance in identifying these people.

Additionally, IC 13-15-3-1 requires IDEM to send notice that the permit application has been received by the department to the following:

a) The board of county commissioners of a county affected by the permit application and
b) The mayor of a city that is affected by the permit application, or
c) The president of a town council of a town affected by the permit application.

Please provide on the following form the names of those persons affected by these statutes, and include mailing labels with your application. These mailing labels should have the names and addresses of the affected parties along with our mailing code (65-42PS) listed above each affected party listing.

Example: 65-42PS
John Doe
111 Circle Drive
City, State, Zip Code

II. Please complete this form by signing the following statement.

I certify to the best of my knowledge I have listed all potentially affected parties, as defined by IC 4-21.5.
Signature: Printed name: Don Woodard Date: 06/12/20
Facility Name: Town of Lowell WWTP
Facility Address: 7500 Belshaw Road, Lowell, IN. 46356

III. Type of Action (check one)

X NPDES Permit-327 IAC 5
□ Land Application Permit-327 IAC 6.1
□ Confined Feeding Approval-IC 13-18-10
□ Sewer Ban Waiver Request-327 IAC 4
□ Operator Certification-327 IAC 5-22
□ Pretreatment Permit -327 IAC 5
□ Construction Permit-327 IAC 3

If Fee Is Required, Return To: (include NPDES permit No. on check)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, IN 46204-2251

If No Fee Is Required, Return To:
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Water Quality – Mail Code 65-42
Municipal Permit Section
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

Please provide on the following form the names of those persons affected by these statutes, and include mailing labels with your application. These mailing labels should have the names and addresses of the affected parties along with our mailing code (65-42PS) listed above each affected party listing.

Example: 65-42PS
John Doe
111 Circle Drive
City, State, Zip Code

I. Identification of Potentially Affected Persons

Please list here any and all persons whom you have reason to believe have a substantial or proprietary interest in this matter, or could otherwise be considered to be potentially affected under the law. Failure to notify any person who is later determined to be potentially affected could result in voiding our decision on procedural grounds. To ensure conformance with AOPA and to avoid reversal of a decision, please list all such parties. The letter attached to this form will further explain the requirements under the AOPA. Attach additional names and addresses on a separate sheet of paper, as needed. Please indicate below the type of action you are requesting.

Name: John & Genevieve Bank	Name: John & Judy Kiethley
Street: 3641 W. Ridge Road	Street: 10770 W. 205th Ave.
City/State/Zip: Gary, IN. 46406	City/State/Zip: Lowell, IN. 46356
Name: Carleson Farms	Name: Linda Liewellyn
Street: 24 Marble Street	Street: 6812 Belshaw Road
City/State/Zip: Hammond, IN. 46327	City/State/Zip: Lowell, IN. 46356
Name: Kenneth & Barbera Craft	Name: Maryann Liewellyn
Street: 19306 Colfax Street	Street: 6405 Belshaw Road
City/State/Zip: Lowell, IN. 46356	City/State/Zip: Lowell, IN. 46356
Name: James & Angela Fletcher	Name: John Phillips
Street: 19908 Colfax Street	Street: 19503 Cline Avenue
City/State/Zip: Lowell, IN. 46356	City/State/Zip: Lowell, IN. 46356
Name: Jack & Elizabeth Huber	Name: Steven Craig Smith
Street: 19864 Colfax Street	Street: 19822 Colfax Street
City/State/Zip: Lowell, IN. 46356	City/State/Zip: Lowell, IN. 46356
Name: F.Scott & BettyJean Klechle	Name: Joshua & Megan Kovach
Street: 19910 Colfax Street	Street: 6706 Belshaw Road
City/State/Zip: Lowell, IN. 46356	City/State/Zip: Lowell, IN. 46356
Name: Richard & Hazel Kiethley	Name: Dana Liewellin
Street: 20002 Colfax Street	Street: 6808 Belshaw Road
City/State/Zip: Lowell, IN. 46356	City/State/Zip: Lowell, IN. 46356

Please provide on the following form the names of those persons affected by these statutes, and include mailing labels with your application. These mailing labels should have the names and addresses of the affected parties along with our mailing code (65-42PS) listed above each affected party listing.

Example: 65-42PS
John Doe
111 Circle Drive
City, State, Zip Code

I. Identification of Potentially Affected Persons

Please list here any and all persons whom you have reason to believe have a substantial or proprietary interest in this matter, or could otherwise be considered to be potentially affected under the law. Failure to notify any person who is later determined to be potentially affected could result in voiding our decision on procedural grounds. To ensure conformance with AOPA and to avoid reversal of a decision, please list all such parties. The letter attached to this form will further explain the requirements under the AOPA. Attach additional names and addresses on a separate sheet of paper, as needed. Please indicate below the type of action you are requesting.

Name: Don Woodard	Name: Mike Gruska
Street: 10690 Illinois St.	Street: 723 Seminole Dr.
City/State/Zip: Crown Point, IN. 46307	City/State/Zip: Lowell, IN. 46356
Name:	Name:
Street:	Street:
City/State/Zip: H	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:
Name:	Name:
Street:	Street:
City/State/Zip:	City/State/Zip:

Form Approved OMB No. 2040-0086
Approval expires 7-31-88

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

STANDARD FORM A - MUNICIPAL

SECTION I APPLICANT AND FACILITY DESCRIPTION

Unless otherwise specified on this form all items are to be completed. If an item is not applicable indicate "NA"

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

Please Print or Type

1.	Legal Name of Applicant (See instructions)	101	Town of Lowell Wastewater Treatment Plant
2.	Mailing Address of Applicant (See instructions)		
	Number and Street	102a	7500 Belshaw Road
	City	102b	Lowell
	State	102c	Indiana
	Zip Code	102d	46356
3.	Applicant's Authorized Agent (See instructions)		
	Name and Title	103a	Donald T. Woodard Director of Wastewater Treatment
	Number and Street	103b	10690 Illinois St.
	City	103c	Crown Point
	State	103d	Indiana
	Zip Code	103e	46307
	Telephone	103f	219 - 512 - 3790 Area Code Number
4.	Previous Application If a previous application for a permit under the National Pollutant Discharge Elimination System has been made, give the date of application	104	2015 (YR) 04 (MO) 24 (DAY)

I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete and accurate.

Donald T. Woodard Printed Name of Person Signing		102e	Director of Wastewater Treatment Title
 Signature of Applicant or Authorized Agent		102f	20 (YR) 06 (MO) 12 (DAY) Date Application Signed

18 U.S.C. Section 1001 provides that:
Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statement or representation, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

5. Facility (see instructions)
Give the name, ownership, and physical location of the plant or other operating facility where discharge(s) presently occur(s) or will occur.

Name	105a	Town of Lowell Wastewater Treatment Plant
Ownership	105b	X Public ___ Private ___ Both Public and Private
Federal Facility	105c	___ Yes X No
GSA Inventory Control Number	105d	N/A
Location: Number and Street	105e	7500 Belshaw Road
City	105f	Lowell
County	105g	Lake
State	105h	Indiana

6. Discharge to Another Municipal Facility (See instructions)

a. Indicate if part of your discharge is into a municipal waste transport system under another responsible organization. If yes, complete the rest of this item and continue with item 7. If no, go directly to item 7. 106a ___ Yes X No

b. Responsible Organization Receiving Discharge

Name	106b	
Number and Street	106c	
City	106d	
State	106e	
Zip Code	106f	

c. Facility which Receives Discharge
Give the name of the facility (Waste treatment plant) which receives and is ultimately responsible for treatment of the discharge from your facility. 106g

d. Average Daily Flow to Facility (mgd) Give your average daily flow into the receiving facility. 106h ___ mgd

7. Facility Discharges, Number and Discharge Volume (see instructions)
Specify the number of discharges described in this application and the volume of water discharged or lost to each of the categories below. Estimate average volume per day in million gallons per day. Do not include intermittent or noncontinuous overflows, bypasses or seasonal discharges from lagoons, holding ponds, etc.

EPA Form 7750-22 (7-73)

Form Approved OMB No. 2040-0086
Approval expires 7-31-88

			Number of Discharge Points		Total Volume Discharged, Million Gallons Per Day
To:	Surface Water	107a1	1	107a2	4.00
	Surface Impoundment with no Effluent	107b1		107b2	
	Underground Percolation	107c1		107c2	
	Well (Injection)	107d1		107d2	
	Other	107e1		107e2	
Total Item 7		107f1		107f2	
If "Other" is specified, describe		107g1			

If any of the discharges from this facility are intermittent, such as from overflow or bypass points, or are seasonal or periodic from lagoons, holding ponds, etc., complete Item 8.

8. Intermittent Discharges

a.	Facility bypass points indicate number of bypass points for the facility that are discharge points. (See instructions)	108a	1
B.	Facility Overflow Points Indicate the number of overflow points to a surface water for the facility. (See instructions)	108b	1
C.	Seasonal or Periodic Discharge Points Indicate the number of points where seasonal discharges occur from holding ponds, lagoons, etc.	108c	0

9. Collection System Type
Indicate the type and length (in miles) of the collection system used by this facility. (See instructions)

Separate Storm		109a	SST
Separate Sanitary			SAN
Combined Sanitary and Storm			CSS
Both Separate Sanitary and Combined Sewer Systems			BSC
Both Separate Storm and Combined Sewer Systems			SSC
Length		109b	565 Miles

10. Municipalities or Areas Served (See instructions)

	Name		Actual Population Served
	Town of Lowell	110a	9,743
	Cedar Lake	110a	12,743
	Lake Dalecarlia	110a	1,355
		110a	
		110a	
Total Population Served		110c	23,841

11. Average Daily Industrial Flow
Total estimated average daily waste flow from all industrial sources.

111 0 Mgd

Note: All major industries (as defined in Section IV) discharging to the municipal system must be listed in Section IV.

12. Permits, Licenses and Applications
List all existing, pending or denied permits, licenses and applications related to discharges from this facility. (See instructions)

	Issuing Agency	For Agency Use	Type of Permit or License	ID Number	Date Filed YR/MO/DA	Date Issued YR/MO/DA	Date Denied YR/MO/DA	Expiration Date YR/MO/DA
112	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.	IDEM		NPDES	IN0023621	4/24/2015	7/31/2015		20/12/31
2.	IDEM		Land App.	IN000071	1/5/2018	9/14/2018		28/8/31
3.								

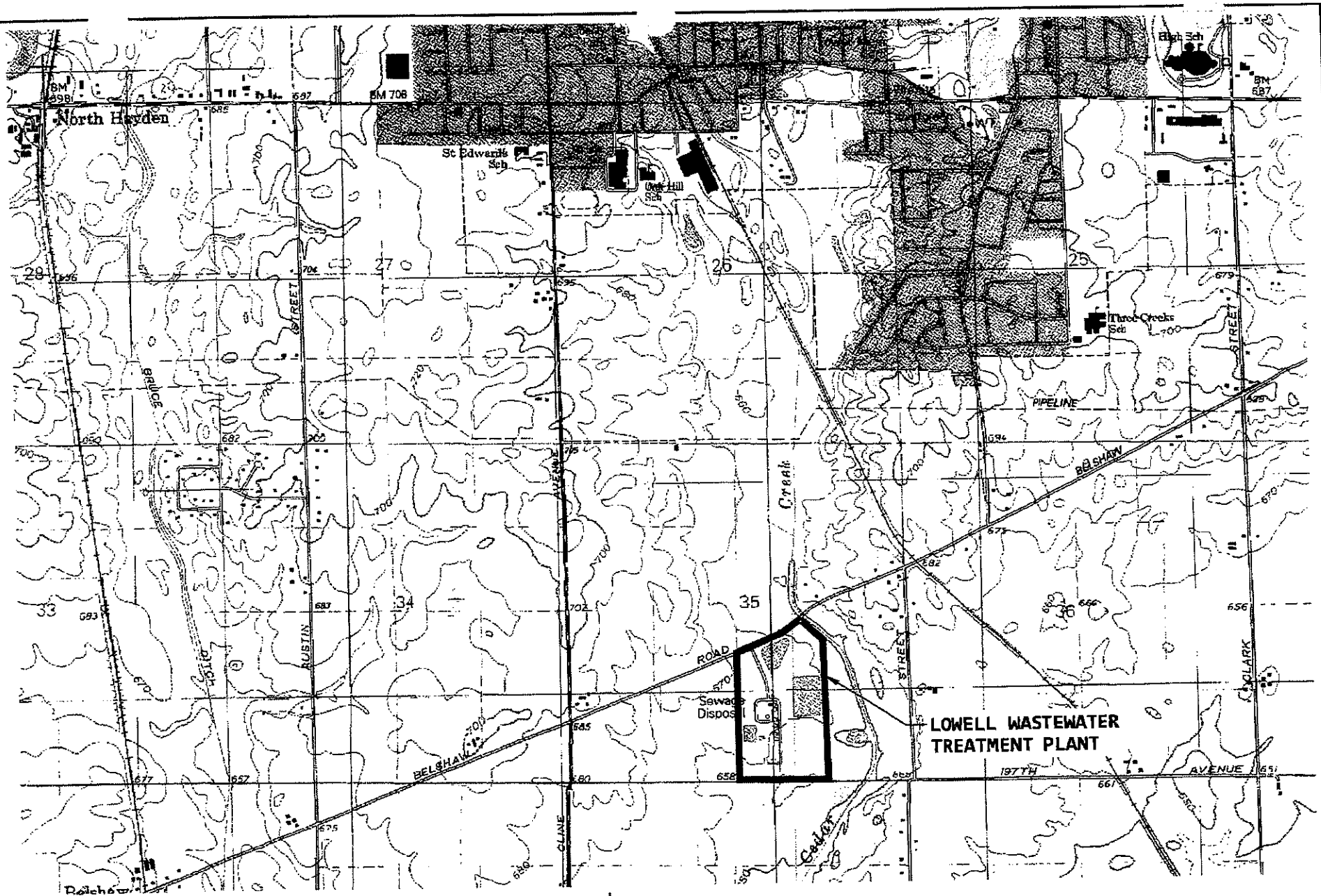
13. Maps and Drawings
Attach all required maps and drawings to the back of this application. (See instructions)

14. Additional Information

114	Item Number	Information
	Figure 1	Wastewater Treatment Plant - Topographical Map
	Figure 2	Wastewater Treatment Plant - Aerial Layout Map
	Figure 3	Wastewater Treatment Plant ProcessFlow Schematic

* U.S. GOVERNMENT PRINTING OFFICE: 1975-628-068/448 3-1

Figure 1
Wastewater Treatment Plant - Topographical Map



TOWN OF LOWELL, INDIANA

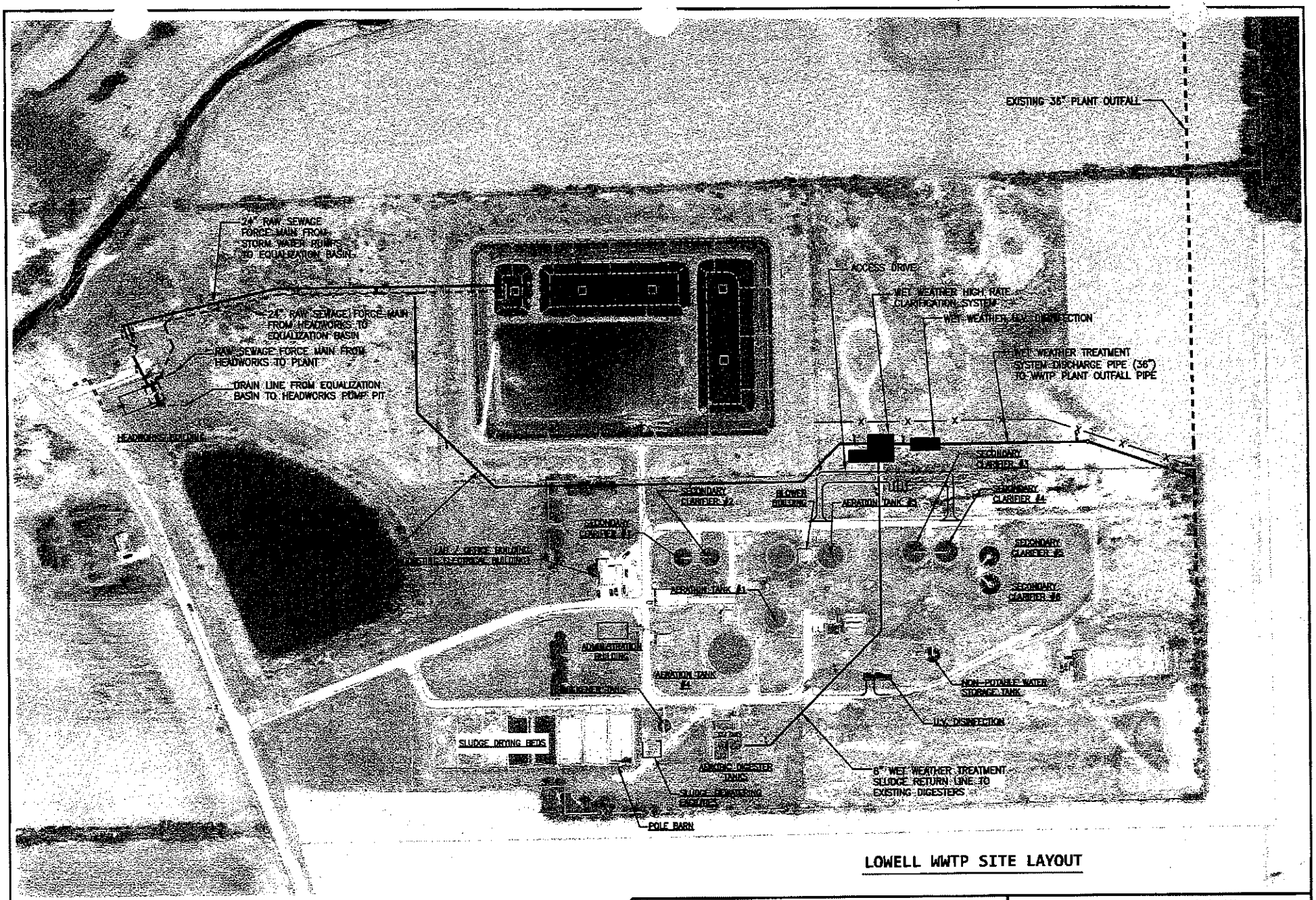
APPROX. SCALE: 1"=2000'

2000' 0 2000'

COMMONWEALTH ENGINEERS, INC.

TOWN OF LOWELL, INDIANA
LAKE COUNTY
NPDES PERMIT NO. IN0023621
TOPOGRAPHIC LOCATION MAP
FIGURE 1

Figure 2
Wastewater Treatment Plant - Aerial Layout Map



LOWELL WWTP SITE LAYOUT

APPROX. SCALE: 1"=250'

250' 0 250'

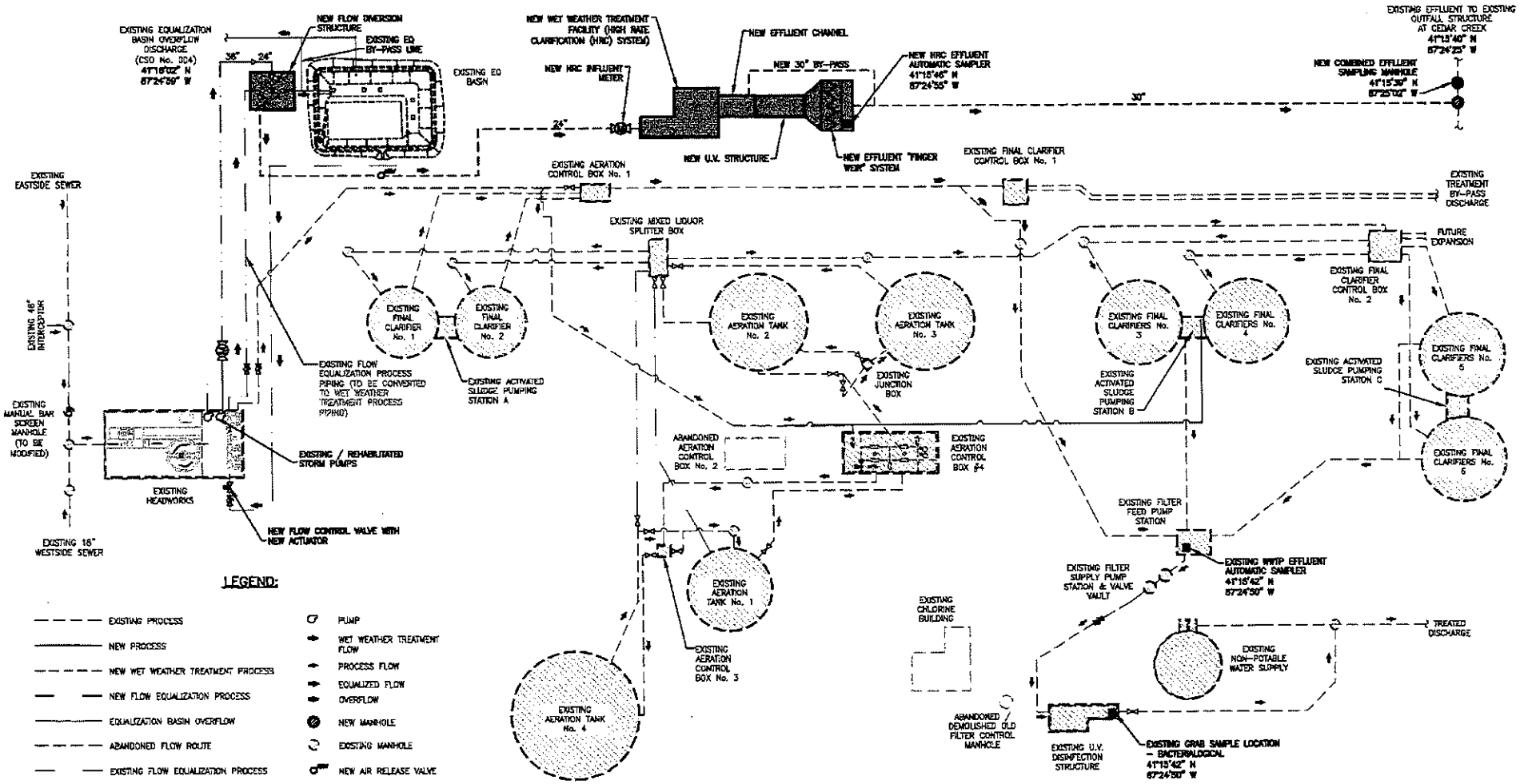
COMMONWEALTH ENGINEERS, INC.

TOWN OF LOWELL, INDIANA
LAKE COUNTY

NPDES PERMIT NO. IN0023621

AERIAL LAYOUT MAP
FIGURE 2

Figure 3
Wastewater Treatment Plant Process Flow Schematic



PROCESS FLOW DIAGRAM

SCALE: NONE

COMMONWEALTH ENGINEERS, INC.

TOWN OF LOWELL, INDIANA
LAKE COUNTY

NPDES PERMIT NO. IN0023621

WASTEWATER TREATMENT PLANT PROCESS FLOW SCEMATIC
FIGURE 3

Form Approved OMB No.158-R0100

STANDARD FORM A - MUNICIPAL

SECTION II BASIC DISCHARGE DESCRIPTION

Complete this section for each present or proposed discharge indicated in Section I, Items 7 and 8, that is to surface waters. This includes discharges to other municipal sewerage systems in which the waste water does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. Separate descriptions of each discharge are required even if several discharges originate in the same facility. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. And Name
   a. Discharge Serial No. (See instructions) — 201a: 001
   b. Discharge Name Give name of discharge, if any (See instructions) — 201b: Lowell Wastewater Treatment Plant Outfall
   c. Previous Discharge Serial No. If a previous NPDES permit Application was made for this discharge (Item 4 Section I) provide previous discharge seriel number — 201c: 001

2. Discharge Operating Dates
   a. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date the discharge will begin. — 202a: Year and Month
   b. Discharge to End Date If the discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end. Give reason for discontinuing this discharge in Item 17. — 202b: Year and Month

3. Discharge Location
   Name the political boundaries within which the point of discharge is located

			Agency Use	
State	203a	Indiana	203d	
County	203b	Lake	203e	
City or Town (if applicable)	203c	Lowell	203f	

4. Discharge Point Description (See instructions)
   Discharge is into (check one)

Stream (includes ditches, arroyos, and other watercourses)	204a	X	STR
Estuary			EST
Lake			LKE
Ocean			OCE
Well (injection)			WEL
Other			OTH
If "other" is checked, specify type	204b		

5. Discharge Point - Lat/Long
   State the precise location of the point of discharge to the nearest second. (See instructions)

		DEG	MIN	SEC
Latitude	205a	40	15	40
Longitude	205b	87	24	25

DISCHARGE SERIAL NUMBER

001

6. Discharge Receiving Water Name
Name the waterway at the point of discharge. (See instructions) 206a: Cedar Creek

For Agency Use

Major	Minor	Sub

For Agency Use

303e

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete in item 7. 206b

7. Offshore Discharge
a. Discharge distance from shore 207a _____ Feet
b. Discharge depth below water surface 207b _____ Feet

If discharge is from a bypass or an overflow point or is a seasonal discharge from a lagoon, holding pond, etc., complete items 8, 9 or 10, as applicable, and continue with item 11.

8. Bypass Discharge (see instructions)

a. Bypass Occurrence
Check when bypass occurs

		Yes	No
Wet weather	208a1		X
Dry weather	208a2		X

b. Bypass Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	N/A	Times per year
Dry weather	208b2	N/A	Times per year

c. Bypass Duration
Average bypass duration in hours

Wet weather	208c1	N/A	Hours
Dry weather	208c2	N/A	Hours

d. Bypass Volume
Average volume per bypass

Wet weather	208d1	N/A	Thousand gallons per incident
Dry weather	208d2	N/A	Thousand gallons per incident

e. Bypass Reasons
Give reasons why bypass occurs 308e

Proceed to Item 11

9. Overflow Discharge (see instructions)
a. Overflow Occurrence
Check when overflow occurs

		Yes	No
Wet weather	209a1		X
Dry weather	209a2		X

b. Overflow Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	Times per year
Dry weather	208b2	Times per year

EPA Form 7550-22 (7-73)

Form Approved OMB No.158-R0100

DISCHARGE SERIAL NUMBER

001

c. Overflow Duration
Average duration in hours

Wet weather	209c1	N/A	Hours
Dry weather	209c2	N/A	Hours

d. Overflow Volume
Average volume per overflow incident in thousand gallons

Wet weather	209d1	N/A	Thousand gallons per incident
Dry weather	209d2	N/A	Thousand gallons per incident

Proceed to Item 11

10. Seasonal/Periodic Discharges

a. Seasonal/periodic Discharge Frequency. If discharge is intermittent from a holding pond, lagoon, etc., give the actual or approximate number of times this discharge occurs per year.

210a N/A Times per year

b. Seasonal/Periodic Discharge Volume. Give the average volume per discharge occurrence in thousand gallons.

210b N/A Thousand gallons per discharge occurrence

c. Seasonal/Periodic Discharge Duration. Give the average duration of each discharge occurrence in days.

210c _____ Days

d. Seasonal/Periodic Discharge Occurrence - Months. Check the months during the year when the discharge normally occurs.

210d

Jan	Feb	Mar
Apr	May	Jun
Jul	Aug	Sep
Oct	Nov	Dec

11. Discharge Treatment

a. Discharge Treatment Description
Describe waste abatement practices used on this discharge with a brief narrative.
(See instructions)

211a The Town of Lowell owns and operates a Class III, 4.0 MGD activated sludge treatment facility with ultraviolet light disinfection. The facility is equipped with a 14 million gallon wet weather equalization basin. The facility provides wastewater treatment for two (2) satellite communities(Lake Dalecarlia RWD & Cedar Lake). Wet weather flows in excess of the conventional Wastewater Treatment Plant(WWTP) design capacity and equalization basin are diverted to a 10 MGD single-train high rate clarification facility (Actiflo), to provide a level of wet weather effluent quality equivalent to secondary treatment. Effluent from the Actiflo receives process dedicated UV disinfection. Bacteriological samples for the conventional WWTP and Actiflo facility are taken respectively from the effluent end of each of the dedicated UV disinfection structures.

DISCHARGE SERIAL NUMBER

001

b.	Discharge Treatment Codes Using the codes listed in Table I of the Instruction Booklet, describe the waste abatement processes applied to this discharge in the order in which they occur, if possible. Separate all codes with commas except where slashes are used to designate parallel operations.	211b	Wastewater Treatment Plant (outfall 001): S (Screens), J (Equalization), M (Metering), AS (Activated Sludge Treatment), N (Final Settling Tanks), P (UV Disinfection), DA (Mechanical Aeration(Aerobic Digestion), T (Sludge Thickener), V (Mechanical Dewatering), B (Sludge Drying Beds), WP (Phosphorus Removal). Pollutant Removal Codes: WS (Suspended Solids Removal), WNS (Ammonia Stripping), Sludge Disposal: XD (Via land Application).	

If this discharge is from a municipal waste treatment plant (not an overflow or bypass) complete Items 12 and 13

12. Plant Design and Operation Manuals Check which of the following are currently available

a.	Engineering Design Report	212a	X	
b.	Operation & Maintenance Menual	212b	X	

13. Plant Design Data (see instructions)

a.	Plant Design Flow (mgd)	313a	4	mgd
b.	Plant Design BOD Removal (%)	213b	98	%
c.	Plant Design N Removal (%)	213c	99	%
d.	Plant Design P Removal (%)	213d	84	%
e.	Plant Design SS Removal (%)	213e	97	%
f.	Plant Began Operation (year)	213f	1964	year
g.	Plant Last Major Revision (year)	213g	2013	year

— Avgd From 2019 MRO's

EPA Form 7550-22 (7-73)

Form Approved OMB No.156-R0100

DISCHARGE SERIAL NUMBER

001

14. Description of Influent and Effluent (see instructions)

	Influent	Effluent					
Parameter and Code 214	Annual Average Value (1)	Annual Average Value (2)	Lowest Monthly Average Value (3)	Highest Monthly Average Value (4)	Frequency of Analysis (5)	Number of Analyses (6)	Sample Type (7)
Flow Million gallons per day 50050	4.202	3.693	2.637	4.642	Daily	Cont.	N/A
pH Units 00400	N/A	N/A	7.4	7.9	5x/wk	261	Grab
Temperature (winter) °F 74026	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Temperature (summer) °F 74027	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fecal Streptococci Bacteria Number/100 ml 74054 (Provide if available)				N/A	N/A	N/A	N/A
Fecal Coliform Bacteria Number/100 ml 74055 (Provide if available)				N/A	N/A	N/A	N/A
Total Coliform Bacteria Number/100 ml 74056 (Provide if available)				114	5x/wk	154	Grab
BOD 5-day mg/l 00310	154	3.15	1.01	6.33	5x/wk	259	Comp.
Chemical Oxygen Demand (COD) mg/l 00340 (Provide if available **OR** Total Organic Carbon (TOC) mg/l 00680 (Provide if available) (Either analysis is acceptable)	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Chlorine-Total Residual mg/l 50060	N/A	N/A	N/A	N/A	N/A	n/a	N/A

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER

001

14. Description of Influent and Effluent (see instructions) (Continued)

	Influent	Effluent					
Parameter and Code 214	Annual Average Value (1)	Annual Average Value (2)	Lowest Monthly Average Value (3)	Highest Monthly Average Value (4)	Frequency of Analysis (5)	Number of Analyses (6)	Sample Type (7)
Total Solids mg/l 50500	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids mg/l 70300	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Suspended Solids mg/l 00530	212	6.4	1.1	15.6	5x/wk	263	Comp.
Settleable Matter (Residue) ml/l 00545	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ammonia (as N) mg/l 00610 (Provide if available)	9.65	0.045	0.02	0.06	5x/wk	264	Comp.
Kjeldahl Nitrogen mg/l 00625 (Provide if available)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrite (as N) mg/l 00620 (Provide if available)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrite (as N) mg/l 00615 (Provide if available)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Phosphorus Totel (as P) mg/l 00665 (Provide if available	3.9	0.35	0.10	0.76	5x/wk	264	Comp.
Dissolved Oxygen (DO) mg/l 00300	N/A	8.4	7.1	9.8	7x/wk	365	Grab

EPA Form 7550-22 (7-73)

Form Approved OMB No.158-R0100

DISCHARGE SERIAL NUMBER

001

15 Additional Wastewater Characteristics

Check the box next to each parameter if it is present in the effluent. (See instructions)

Parameter (215)	Present	Parameter (215)	Present	Parameter (215)	Present
Bromide 71870		Cobalt 01037		Thallium 01059	
Chloride 00940		Chromium 01034		Titanium 01152	
Cyanide 00720		Copper 01042		Tin 01102	
Fluoride 00951		Iron 01045		Zinc 01092	
Sulfide 00745		Lead 01051		Algicides* 74051	
Aluminum 01105		Manganese 01055		Chlorinated organic compounds* 74052	
Antimony 01097		Mercury 71900	X	Oil and grease 00550	
Arsenic 01002		Molybdenum 01062		Pesticides* 74053	
Beryllium 01012		Nickel 01067		Phenols 32730	
Barium 01007		Selenium 01147		Surfactants 328260	
Boron 01022		Silver 01077		Radioactivity* 74050	
Cadmium 01027					

*Provide specific compound and/or element in Item 17, if known.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels*, 2nd Edition, Environmental Protection Agency, Washington, DC 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, fungicide, and rodenticide Act.

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER

001

16. Plant Controls
Check if the following plant controls are available for this discharge

316		
Alternate power source for major pumping facility including those for collection system lift stations	X	APS
Alarm for power or equipment failure	X	ALM

17. Additional Information

317	Item Number	Information

EPA Form 7550-22 (7-73)

U.S. GOVERNMENT PRINTING OFFICE: 1975-627-728/394 3-1

Form Approved OMB No.158-R0100

STANDARD FORM A - MUNICIPAL

SECTION II BASIC DISCHARGE DESCRIPTION

Complete this section for each present or proposed discharge indicated in Section I, Items 7 and 8, that is to surface waters. This includes discharges to other municipal sewerage systems in which the waste water does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. Separate descriptions of each discharge are required even if several discharges originate in the same facility. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. And Name
   a. Discharge Serial No. (See instructions) — 201a: 102
   b. Discharge Name Give name of discharge, if any (See instructions) — 201b: Wet Weather Treatment Facility
   c. Previous Discharge Serial No. If a previous NPDES permit Application was made for this discharge (Item 4 Section I) provide previous discharge serial number — 201c: 102

2. Discharge Operating Dates
   a. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date the discharge will begin. — 202a: N/A (Year and Month)
   b. Discharge to End Date If the discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end. Give reason for discontinuing this discharge in Item 17. — 202b: N/A (Year and Month)

3. Discharge Location
   Name the political boundaries within which the point of discharge is located

		Agency Use	
State	203a: Indiana	203d	
County	203b: Lake	203e	
City or Town (If applicable)	203c: Lowell	203f	

4. Discharge Point Description (See instructions)
   Discharge is into (check one)

Stream (includes ditches, arroyos, and other watercourses)	204a	STR
Estuary		EST
Lake		LKE
Ocean		OCE
Well (injection)		WEL
Other	X	OTH
If "other" is checked, specify type	204b: Combines with effluent from plant through outfall 001. Compliance Monitoring Conducted Separately	

5. Discharge Point - Lat/Long
   State the precise location of the point of discharge to the nearest second. (See instructions)

		DEG	MIN	SEC
Latitude	205a	41	15	46
Longitude	205b	87	24	55

EPA Form 7660-22 (7-73)

THIS SECTION CONTAINS 8 PAGES

DISCHARGE SERIAL NUMBER

102

6. Discharge Receiving Water Name
Name the waterway at the point of discharge. (See instructions)

206a Cedar Creek

For Agency Use

Major	Minor	Sub

For Agency Use

303e

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete in Item 7.

206b

7. Offshore Discharge

a. Discharge distance from shore 207a _____ Feet

b. Discharge depth below water surface 207b _____ Feet

If discharge is from a bypass or an overflow point or is a seasonal discharge from a lagoon, holding pond, etc., complete Items 8, 9 or 10, as applicable, and continue with Item 11.

8. Bypass Discharge (see instructions)

a. Bypass Occurrence
Check when bypass occurs

		Yes	No
Wet weather	208a1		X
Dry weather	208a2		X

b. Bypass Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	N/A	Times per year
Dry weather	208b2	N/A	Times per year

c. Bypass Duration
Average bypass duration in hours

Wet weather	208c1	N/A	Hours
Dry weather	208c2	N/A	Hours

d. Bypass Volume
Average volume per bypass

Wet weather	208d1	N/A	Thousand gallons per incident
Dry weather	208d2	N/A	Thousand gallons per incident

e. Bypass Reasons
Give reasons why bypass occurs 308e _____

Proceed to Item 11

9. Overflow Discharge (see instructions)

a. Overflow Occurrence
Check when overflow occurs

		Yes	No
Wet weather	209a1	X	
Dry weather	209a2		X

b. Overflow Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	7	Times per year (2019) (MRO's)
Dry weather	208b2	0	Times per year

EPA Form 7550-22 (7-73)

DISCHARGE SERIAL NUMBER

102

c. Overflow Duration
Average duration in hours

Wet weather	209c1	N/A	Hours
Dry weather	209c2	0	Hours

d. Overflow Volume
Average volume per overflow incident in thousand gallons

Wet weather	209d1	6.46 MG	Thousand gallons per incident
Dry weather	209d2	0	Thousand gallons per incident

Proceed to Item 11

10. Seasonal/Periodic Discharges

a. Seasonal/periodic Discharge Frequency. If discharge is intermittent from a holding pond, lagoon, etc., give the actual or approximate number of times this discharge occurs per year.

	210a	7	Times per year

b. Seasonal/Periodic Discharge Volume. Give the average volume per discharge occurrence in thousand gallons.

	210b	6.46 MG	Thousand gallons per discharge occurrence

c. Seasonal/Periodic Discharge Duration. Give the average duration of each discharge occurrence in days.

	210c	3	Days

d. Seasonal/Periodic Discharge Occurrence - Months. Check the months during the year when the discharge normally occurs.

210d		Jan	X	Feb		Mar
	X	Apr	X	May	X	Jun
		Jul		Aug		Sep
	X	Oct	X	Nov		Dec

11. Discharge Treatment

a. Discharge Treatment Description
Describe waste abatement practices used on this discharge with a brief narrative.
(See instructions)

211a

When the capacity of the WWTP and the Equalization Basin are maximized, flows will be diverted to the new wet weather treatment facility (Actiflo). Flows will receive coagulation, flocculation, settling(to provide a level of secondary treatment) and U.V. disinfection for wet weather flows before discharging via outfall 102 and ultimately to Cedar Creek.

Form Approved OMB No.158-R0100

STANDARD FORM A - MUNICIPAL

SECTION II BASIC DISCHARGE DESCRIPTION

Complete this section for each present or proposed discharge indicated in Section I, Items 7 and 8, that is to surface waters. This includes discharges to other municipal sewerage systems in which the waste water does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. Separate descriptions of each discharge are required even if several discharges originate in the same facility. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. And Name
   a. Discharge Serial No. (See instructions) — 201a: 004
   b. Discharge Name Give name of discharge, if any (See instructions) — 201b: CSO-004-Emergency EQ basin outfall (When all capacity exceed
   c. Previous Discharge Serial No. If a previous NPDES permit Application was made for this discharge (Item 4 Section I) provide previous discharge serial number — 201c: 004

2. Discharge Operating Dates
   a. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date the discharge will begin. — 202a: N/A (Year and Month)
   b. Discharge to End Date If the discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end. Give reason for discontinuing this discharge in Item 17. — 202b: N/A (Year and Month)

3. Discharge Location
   Name the political boundaries within which the point of discharge is located

		Agency Use	
State	203a: Indiana	203d	
County	203b: Lake	203e	
City or Town (if applicable)	203c: Lowell	203f	

4. Discharge Point Description (See instructions)
   Discharge is into (check one) — 204a

Stream (includes ditches, arroyos, and other watercourses)	X	STR
Estuary		EST
Lake		LKE
Ocean		OCE
Well (injection)		WEL
Other		OTH

   If "other" is checked, specify type — 204b:

5. Discharge Point - Lat/Long
   State the precise location of the point of discharge to the nearest second. (See instructions)

		DEG	MIN	SEC
Latitude	205a	87	24	55
Longitude	205b	41	16	2

EPA Form 7550-22 (7-73)

THIS SECTION CONTAINS 8 PAGES

DISCHARGE SERIAL NUMBER

004

6. Discharge Receiving Water Name
Name the waterway at the point of discharge. (See instructions)

206a: Cedar Creek

For Agency Use

Major	Minor	Sub

For Agency Use

303e

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete in Item 7.

206b

7. Offshore Discharge

a. Discharge distance from shore — 207a: _____ Feet

b. Discharge depth below water surface — 207b: _____ Feet

If discharge is from a bypass or an overflow point or is a seasonal discharge from a lagoon, holding pond, etc., complete Items 8, 9 or 10, as applicable, and continue with Item 11.

8. Bypass Discharge (see instructions)

a. Bypass Occurrence
Check when bypass occurs

		Yes	No
Wet weather	208a1		X
Dry weather	208a2		X

b. Bypass Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	N/A	Times per year
Dry weather	208b2	N/A	Times per year

c. Bypass Duration
Average bypass duration in hours

Wet weather	208c1	N/A	Hours
Dry weather	208c2	N/A	Hours

d. Bypass Volume
Average volume per bypass

Wet weather	208d1	N/A	Thousand gallons per incident
Dry weather	208d2	N/A	Thousand gallons per incident

e. Bypass Reasons
Give reasons why bypass occurs — 308e: When the capacity of the main plant, the ACTIFLO wet weather facility & EQ basin are exceeded.

Proceed to Item 11

9. Overflow Discharge (see instructions)

a. Overflow Occurrence
Check when overflow occurs

		Yes	No
Wet weather	209a1	X	
Dry weather	209a2		X

b. Overflow Frequency
Actual or approximate number of bypass incidents per year

Wet weather	208b1	0	Times per year
Dry weather	208b2	0	Times per year

EPA Form 7550-22 (7-73)

Form Approved OMB No.158-R0100

DISCHARGE SERIAL NUMBER

004

c. Overflow Duration
Average duration in hours

Wet weather	209c1	0	Hours
Dry weather	209c2	N/A	Hours

d. Overflow Volume
Average volume per overflow incident in thousand gallons

Wet weather	209d1	0	Thousand gallons per incident
Dry weather	209d2	0	Thousand gallons per incident

Proceed to Item 11

10. Seasonal/Periodic Discharges

a. Seasonal/periodic Discharge Frequency. If discharge is intermittent from a holding pond, lagoon, etc., give the actual or approximate number of times this discharge occurs per year.

210a: 0 Times per year

b. Seasonal/Periodic Discharge Volume. Give the average volume per discharge occurrence in thousand gallons.

210b: 0 Thousand gallons per discharge occurrence

c. Seasonal/Periodic Discharge Duration. Give the average duration of each discharge occurrence in days.

210c: 0 Days

d. Seasonal/Periodic Discharge Occurrence - Months. Check the months during the year when the discharge normally occurs.

210d

Jan	Feb	Mar
Apr	May	Jun
Jul	Aug	Sep
Oct	Nov	Dec

11. Discharge Treatment

a. Discharge Treatment Description
Describe waste abatement practices used on this discharge with a brief narrative.
(See instructions)

211a

The equaliztion basin is used fo storage under wet weather events after the WWTP is maximized. When flows subside, the volume of the equalization basin is bled back to the WWTP for full treatment. When the capacity of the equalization basin is exceeded, flows are transported to the new wet weather treatment facility (ACTIFLO) designed to provide a level of secondary treatment for wet weather flows. Effluent from the high rate clarification facility receives U.V. disinfection. When the capacity of all facilities are exceeded,treatment consist of primary settling from the previously described equalization facility before discharging.

II. Please complete this form by signing the following statement.

I certify to the best of my knowledge I have listed all potentially affected parties, as defined by IC 4-21.5.		
Signature: [signature]		
Printed name: Michael J Gruszka	Date: 7-8-20	
Facility name: Town of Lowell WWTP		
Facility address: 7500 Bolshaw Rd.		
Facility city: Lowell	Facility state: IN	ZIP code: 46356

III. Type of Action (check one)

☑ NPDES Permit-327 IAC 5

☐

☐

Mail to:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Water Quality– Mail Code 65-42
Municipal NPDES Permits Section
100 North Senate Avenue
Indianapolis, IN 46204-2251

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0407

Project Description

WET TEST - DAY 1

For:

Don Woodard

Town of Lowell

501 East Main Street, P.O. Box 157

Lowell, IN 46356

Bonnie Feil

Bonnie Feil

Project Manager Assistant

Friday, April 17, 2020

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Chicagoland. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0407

Town of Lowell

Don Woodard
501 East Main Street, P.O. Box 157
Lowell, IN 46356

Project Name: WET TEST - DAY 1

Project / PO Number: N/A
Received: 03/09/2020
Reported: 04/17/2020

Project Special Information

L01477-030920

Case Narrative

WET Analysis:
Samples requiring WET analysis were submitted to Microbac Laboratories Kentucky Testing Division in Louisville , KY. Their results are incorporated into this report.

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Plant EFF	20C0407-01	Aqueous			03/09/20 09:00	03/09/20 14:30

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0407

Analytical Testing Parameters

Client Sample ID:	
Sample Matrix:	
Lab Sample ID:	**Collection Date:**

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
	Result	**UNC**	**MDA**	**Units**	**Note**	**Prepared**	**Analyzed**	**Analyst**
Surrogate:			% Rec					
				% Rec				

Definitions

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 2.7°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

Report Comments

Reviewed and Approved By:

Bonnie Feil

Bonnie Feil
Project Manager Assistant
bonnie.feil@microbac.com
04/17/2020 10:32

MICROBAC®

250 West 84th Drive
Merrillville, IN 46410
(219) 769-8378

CHAIN OF CUSTODY RECORD

Number _____
Instructions on back

TO BE COMPLETED BY MICROBAC
Temperature Upon Receipt (°C) 2.9 -.2 = 2.7°
Therm ID
Holding Time
Samples Received on Ice? ☒ Yes ☐ No ☐ N/A
Custody Seals Intact? ☐ Yes ☐ No ☒ N/A

Lab Report Address	Invoice Address	Turnaround Time
Client Name: Town of Lowell	Client Name: Same	☒ Routine (5 to 7 business days) ☐ RUSH* (notify lab)
Address: 501 E Main Street	Address:	
City, State, Zip: Lowell, IN 46356	City, State, Zip:	(needed by)
Contact: Don Woodward	Contact:	Report Type
Telephone No.: (219) 696-5050	Telephone No.:	☐ Results Only ☐ Level 1 ☐ Level 2 ☒ Level 3 ☐ Level 4 ☐ EDD

Send Report via: ☐ Mail ☐ Fax ☒ e-mail (address)
Send Invoice via: ☐ Mail ☐ Fax ☒ e-mail (address)

Project: CHRONIC WET TEST - Both Species
Location: wwtp@lowell.net
PO No.:
Compliance Monitoring? ☒ Yes ☐ No
☐ Agency/Program

Sampled by (PRINT): PSG
Sampler Signature:
Sampler Phone No.: 219 769 8378

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)
** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

0C0407 Bonnie Feil
own of Lowell - Lowell, IN
01477-030920
3/09/2020

REQUESTED ANALYSIS

Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	Chronic WETT	Alkalinity	METALS	20C0407 Additional Notes
PLANT EFF	3-9-20	0900	1	Aq	C	U	X	X	X	101

Possible Hazard Identification ☐ Hazardous ☐ Non-Hazardous ☐ Radioactive
Sample Disposition ☐ Dispose as appropriate ☐ Return ☐ Archive

Comments
WET TEST - DAY ONE
DATE STARTED - 3-8-20

Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
	3-9-20 1430		
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
			3/9/2020 1430

rev.12/26/2017

Page 1 of 1

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CERTIFICATE OF ANALYSIS

L0C0570

Microbac Laboratories, Inc. - Chicagoland
Bonnie Feil
250 W. 84th Drive
Merrillville, IN 46410

Date Reported	03/19/2020
Date Due	03/19/2020
Date Received	03/10/2020
Customer #	E9012

Biomonitoring - Chronic

Analysis	OOC	Qualifier	Result	Units	Min	Max	Method	Rpt Limit	Analysis Date	Tech
Sample: 01 **20C0407 - Day 1**									**Sampled** 03/09/2020 @ 9:00	
Sampled By Customer										
Toxicity, Chronic - C. dubia			<1.00	TU			EPA 821-R-02-013	1.00	03/19/2020 14:43	BIO
Toxicity, Chronic - P. promelas			<1.00	TU			EPA 821-R-02-013	1.00	03/19/2020 14:43	BIO
Alkalinity to pH 4.5, Total as CaCO3			280	mg/L			SM 2320B	5.0	03/13/2020 9:33	LMS
Chlorine, Total Residual		H1	0.060	mg/L			HACH 8167	0.020	03/12/2020 13:02	CCK
Hardness Pkg. By ICP										
Calcium			83	mg/L			EPA 200.7	0.50	03/13/2020 20:19	JSW
Magnesium			42	mg/L			EPA 200.7	0.50	03/13/2020 20:19	JSW
Hardness, Total as CaCO3			380	mg/L			SM 2340B	2.1	03/13/2020 20:19	JSW

Qualifier Definitions

H1 Sample received outside of holding time for these analytes.

Report Comments

Reviewed and Approved By:

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Blair Schneider
Analyst I
Reported: 03/19/2020 14:46

Microbac Laboratories, Inc. - Chicagoland

MICROBAC®

L0C0570 Blair Schneider

SUBCONTRACT ORDER

20C0407

SENDING LABORATORY:

Microbac Laboratories, Inc. - Chicagoland
250 West 84th Drive
Merrillville, IN 46410
Phone: 219.769.8378
Lab Manager: Bonnie Feil
Email: bonnie.feil@microbac.com

RECEIVING LABORATORY:

Microbac - KTL
3323 Gilmore Industrial Blvd.
Louisville, KY 40213-
Phone: (502) 962-6400

Project Info:

Project Name: WETT Test
Project No: L01477-030920

Client: Town of Lowell - Lowell, IN
Project Type: ENV-Misc
Project Location: Indiana

Report TAT: **5**
Due: **03/16/2020 23:59**

Sample ID: 20C0407-01
Matrix: Aqueous

Sampled: 03/09/2020 09:00
Sampler:

Analysis	Method	Analysis Due	Expires	Network $
SUB_1	Sub	03/16/2020 23:59	03/16/2020 09:00	$ 1,200.00

Containers Supplied:
A: 2½Gal-Cubitainer LDPE

Nicole Leonard 3/20/1700 Fedex
Released By Date Received By Date

Fedex CyLaFollette 3/10/2020 1058 0.5 L24
Released By Date Received By Date

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0501

Project Description

WET TEST - DAY 2

For:

Don Woodard

Town of Lowell

501 East Main Street, P.O. Box 157

Lowell, IN 46356

Bonnie Feil

Bonnie Feil

Project Manager Assistant

Friday, April 17, 2020

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Chicagoland. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

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Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0501

Town of Lowell

Don Woodard
501 East Main Street, P.O. Box 157
Lowell, IN 46356

Project Name: WET TEST - DAY 2

Project / PO Number: N/A
Received: 03/11/2020
Reported: 04/17/2020

Project Special Information

L01477-030920

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Plant EFF	20C0501-01	Aqueous			03/11/20 09:00	03/11/20 10:00

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0501

Analytical Testing Parameters

Client Sample ID: Plant EFF
Sample Matrix: Aqueous
Lab Sample ID: 20C0501-01 **Collection Date:** 03/11/2020 9:00

Analyses Subcontracted to: Microbac Laboratories, Inc., Louisville

Biomonitoring	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 821-R-02-013								
Toxicity, Chronic - C. dubia	<1.00	1.00	TU	1		03/10/20 1348	03/19/20 1443	BIO
Toxicity, Chronic - P. promelas	<1.00	1.00	TU	1		03/10/20 1423	03/19/20 1443	BIO

Definitions

RL: Reporting Limit
TU: Toxicity Unit

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 6.2°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

Report Comments

Reviewed and Approved By:

Bonnie Feil

Bonnie Feil
Project Manager Assistant
bonnie.feil@microbac.com
04/17/2020 10:34

20C0501
Town of Lowell - Lowell, IN
3-11-20
03/11/2020
Bonnie Fell

ROBAC*

250 West 84th Drive
Merrillville, IN 46410
(219) 769-8378

CHAIN OF CUSTODY RECORD

Number _____
Instructions on back

t Address	Invoice Address	Turnaround Time	TO BE COMPLETED BY MICROBAC
ıe: Town of Lowell	Client Name: Same	☒ Routine (5 to 7 business days)	Temperature Upon Receipt (°C) 6.4
501 E Main Street	Address:	☐ RUSH* (notify lab)	Therm ID 0.2
., Zip: Lowell, IN 46356	City, State, Zip:	(needed by)	Holding Time 6.2°C
Don Woodward	Contact:	Report Type	Samples Received on Ice? ☐ Yes ☐ No ☐ N/A
: No.: (219) 696-5050	Telephone No.:	☐ Results Only ☐ Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4 ☐ EDD	Custody Seals Intact? ☐ Yes ☐ No ☐ N/A

ort via: ☐ Mail ☐ Fax ☐ e-mail (address) — Send Invoice via: ☐ Mail ☐ Fax ☐ e-mail (address)

CHRONIC WET TEST - Both Species — Location: wwtp@lowell.net — PO No.: — Compliance Monitoring? ☐ Yes ☐ No ☐ Agency/Program

oy (PRINT): PBG — Sampler Signature: [signature] — Sampler Phone No.: 219 769 8378

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	Chronic WETT	Alkalinity	Metals						20C0501 Additional Notes
Day 2	PLANT EFF	3-11-20	0900	1	Aq	C	U,U,1	X	X	X						-01

Possible Hazard Identification ☐ Hazardous ☐ Non-Hazardous ☐ Radioactive — Sample Disposition ☐ Dispose as appropriate ☐ Return ☐ Archive

Comments
WET TEST - DAY TWO
DATE STARTED 3-10-20

Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
[signature]	3-11-20 1000		
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
		Frank Strug	3-11-2020 1000

rev.12/26/2017

Page 1 of 1

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CERTIFICATE OF ANALYSIS

L0C0792

Microbac Laboratories, Inc. - Chicagoland
Bonnie Feil
250 W. 84th Drive
Merrillville, IN 46410

Date Reported	03/20/2020
Date Due	03/23/2020
Date Received	03/12/2020
Customer #	E9012

Biomonitoring - Chronic

Analysis	OOC	Qualifier	Result	Units	Min	Max	Method	Rpt Limit	Analysis Date	Tech
Sample: 01 **20C0501-01 (Plant EFF)**									**Sampled** 03/11/2020 @ 9:00	
Sampled By Cu`										
Toxicity, Chronic - C. dubia			<1.00	TU			EPA 821-R-02-013	1.00	03/19/2020 14:43	BIO
Toxicity, Chronic - P. promelas			<1.00	TU			EPA 821-R-02-013	1.00	03/19/2020 14:43	BIO

Qualifier Definitions

Report Comments

Reviewed and Approved By:

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Blair Schneider
Analyst I
Reported: 03/20/2020 16:16

Microbac Laboratories, Inc. - Chicagoland

MICROBAC®

L0C0792 David Lester

SUBCONTRACT ORDER

20C0501

SENDING LABORATORY:

Microbac Laboratories, Inc. - Chicagoland
250 West 84th Drive
Merrillville, IN 46410
Phone: 219.769.8378
Lab Manager: Bonnie Feil
Email: bonnie.feil@microbac.com

RECEIVING LABORATORY:

Microbac - KTL
3323 Gilmore Industrial Blvd.
Louisville, KY 40213-
Phone: (502) 962-6400

Project Info:

Project Name: WETT Test
Project No: 3-11-20

Client: Town of Lowell - Lowell, IN
Project Type: ENV-Misc
Project Location: Indiana

Report TAT: **5**
Due: **03/18/2020 23:59**

Sample ID: 20C0501-01
Matrix: Aqueous

Sampled: 03/11/2020 09:00
Sampler:

Analysis	Method	Analysis Due	Expires	Network $
SUB_1	Sub	03/18/2020 23:59	03/18/2020 09:00	$ 400.00

Containers Supplied:
A: 2½Gal-Cubitainer LDPE

Frank Strug 3-11-2020 1700 Fedex
Released By Date Received By Date

Fedex
Released By Date Received By Date

CJ La Follette 3/12/2020 1131
2:5 L24

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0648

Project Description

WET TEST - DAY 3

For:

Don Woodard

Town of Lowell

501 East Main Street, P.O. Box 157

Lowell, IN 46356

Bonnie Feil

Bonnie Feil

Project Manager Assistant

Friday, April 17, 2020

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Chicagoland. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0648

Town of Lowell

Don Woodard
501 East Main Street, P.O. Box 157
Lowell, IN 46356

Project Name: WET TEST - DAY 3

Project / PO Number: N/A
Received: 03/13/2020
Reported: 04/17/2020

Project Special Information

L01477-030920

Case Narrative

WET Analysis:
Samples requiring WET analysis were submitted to Microbac Laboratories Kentucky Testing Division in Louisville , KY. Their results are incorporated into this report.

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Plant EFF	20C0648-01	Aqueous			03/13/20 09:00	03/13/20 10:00

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20C0648

Analytical Testing Parameters

Client Sample ID:
Sample Matrix:
Lab Sample ID: **Collection Date:**

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
	Result	**UNC**	**MDA**	**Units**	**Note**	**Prepared**	**Analyzed**	**Analyst**
Surrogate:			% Rec					
				% Rec				

Definitions

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.7°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

Report Comments

Reviewed and Approved By:

Bonnie Feil

Bonnie Feil
Project Manager Assistant
bonnie.feil@microbac.com
04/17/2020 10:35

ROBAC*
250 West 84th Drive
Merrillville, IN 46410
(219) 769-8378

CHAIN OF CUSTODY RECORD

Number _____
Instructions on back
TO BE COMPLETED BY MICROBAC
Temperature Upon Receipt (°C) 4.9-.2=4.7°
Therm ID
Holding Time
Samples Received on Ice? ☑ Yes ☐ No ☐ N/A
Custody Seals Intact? ☐ Yes ☐ No ☒ N/A

t Address
ne: Town of Lowell
501 E Main Street
e, Zip: Lowell, IN 46356
Don Woodward
e No.: (219) 696-5050

Invoice Address
Client Name: Same
Address:
City, State, Zip:
Contact:
Telephone No.:

Turnaround Time
☒ Routine (5 to 7 business days)
☐ RUSH* (notify lab)
(needed by)
Report Type
☐ Results Only ☐ Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4 ☐ EDD

ort via: ☐ Mail ☐ Fax ☐ e-mail (address)
Send invoice via: ☐ Mail ☐ Fax ☐ e-mail (address)

CHRONIC WET TEST - Both Species
Location: wwtp@lowell.net
PO No.:
Compliance Monitoring? ☑ Yes ☐ No
☐ Agency/Program

by (PRINT): PSG
Sampler Signature:
Sampler Phone No.: 219 769 8378

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)
** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	Chronic WETT	Alkalinity	Metals						20C0648 Additional Notes
Day 3	PLANT EFF	3-13-20	0900	5	Aq	C	U,U,1	X	X	X						-01

Possible Hazard Identification ☐ Hazardous ☐ Non-Hazardous ☐ Radioactive
Sample Disposition ☐ Dispose as appropriate ☐ Return ☐ Archive

Comments
WET TEST - DAY THREE
DATE STARTED 3-12-20

Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
	3-13-20 1000		
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time

rev.12/26/2017

20C0648 Bonnie Fell
Town of Lowell - Lowell, IN
3-12-20
03/13/2020

ROBAC*

250 West 84th Drive
Merrillville, IN 46410
(219) 769-8378

CHAIN OF CUSTODY RECORD
Number
Instructions on back
TO BE COMPLETED BY MICROBAC
Temperature Upon Receipt (°C) 4.9-.2=4.7°
Therm ID
Holding Time
Samples Received on Ice? ☑ Yes ☐ No ☐ N/A
Custody Seals Intact? ☐ Yes ☐ No ☒ N/A

t Address
ne: Town of Lowell
501 E Main Street
e, Zip: Lowell, IN 46356
Don Woodward
e No.: (219) 696-5050

Invoice Address
Client Name: Same
Address:
City, State, Zip:
Contact:
Telephone No.:

Turnaround Time
☒ Routine (5 to 7 business days)
☐ RUSH* (notify lab)
(needed by)
Report Type
☐ Results Only ☐ Level 1 ☐ Level 2 ☒ Level 3 ☐ Level 4 ☐ EDD

ort via: ☐ Mail ☐ Fax ☐ e-mail (address)
Send Invoice via: ☐ Mail ☐ Fax ☐ e-mail (address)

CHRONIC WET TEST - Both Species
Location: wwtp@lowell.net
PO No.:
Compliance Monitoring? ☐ Yes ☐ No
☐ Agency/Program

by (PRINT): PSG
Sampler Signature:
Sampler Phone No.: 219 769 8378

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)
** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	Chronic WETT	Alkalinity	Metals						20C0648 Additional Notes
Day 3	PLANT EFF	3-13-20	0900	5	Aq	C	U,U,1	X	X	X						-01

Possible Hazard Identification ☐ Hazardous ☐ Non-Hazardous ☐ Radioactive
Sample Disposition ☐ Dispose as appropriate ☐ Return ☐ Archive

Comments
WET TEST - DAY THREE
DATE STARTED 3-12-20

Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
	3-13-20 1000		
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
		Frank Berry	3-13-2020 1000

rev.12/26/2017

Page ____ of ____

MICROBAC®

CERTIFICATE OF ANALYSIS

L0C0862

Microbac Laboratories, Inc. - Chicagoland
Bonnie Feil
250 W. 84th Drive
Merrillville, IN 46410

Date Reported	04/16/2020
Date Due	03/25/2020
Date Received	03/14/2020
Customer #	E9012

Biomonitoring - Chronic

Analysis	OOC	Qualifier	Result	Units	Min	Max	Method	Rpt Limit	Analysis Date	Tech
Sample: 01 **Sample #3**									**Sampled** 03/09/2020 @ 9:00	
Sampled By Tanner Green										
Toxicity, Chronic - C. dubia			<1.00	TU			EPA 1002.0 - Ceriodaphnia dubia Chronic Toxicity	1.00	03/19/2020 14:43	BIO
Toxicity, Chronic - P. promelas			<1.00	TU			EPA 1000.0 - Fathead Minnow Chronic Toxicity	1.00	03/19/2020 14:43	BIO
Alkalinity to pH 4.5, Total as CaCO3			260	mg/L			SM 2320 B-2011	5.0	03/20/2020 10:12	LMS
Chlorine, Total Residual		H1	0.040	mg/L			HACH 8167	0.020	03/23/2020 12:57	CCK
Hardness Pkg. By ICP										
Calcium			78	mg/L			EPA 200.7, Rv. 4.4 (1994)	0.50	03/24/2020 19:07	JSW
Magnesium			38	mg/L			EPA 200.7, Rv. 4.4 (1994)	0.50	03/24/2020 19:07	JSW
Hardness, Total as CaCO3			350	mg/L			SM 2340 B-2011	2.1	03/24/2020 19:07	JSW

Qualifier Definitions

H1 Sample received outside of holding time for these analytes.

Report Comments

Reviewed and Approved By:

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Blair Schneider
Analyst I
Reported: 04/16/2020 13:15

Microbac Laboratories, Inc. - Chicagoland

MICROBAC®

L0C0862 Blair Schneider

SUBCONTRACT ORDER

20C0648

SENDING LABORATORY:

Microbac Laboratories, Inc. - Chicagoland
250 West 84th Drive
Merrillville, IN 46410
Phone: 219.769.8378
Lab Manager: Bonnie Feil
Email: bonnie.feil@microbac.com

RECEIVING LABORATORY:

Microbac - KTL
3323 Gilmore Industrial Blvd.
Louisville, KY 40213-
Phone: (502) 962-6400

Project Info:

Project Name: WETT Test
Project No: 3-12-20

Client: Town of Lowell - Lowell, IN
Project Type: ENV-Misc
Project Location: Indiana

Report TAT: **5**
Due: **03/20/2020 23:59**

Sample ID: 20C0648-01
Matrix: Aqueous

Sampled: 03/13/2020 10:00
Sampler:

Analysis	Method	Analysis Due	Expires	Network $
SUB_1	Sub	03/20/2020 23:59	03/20/2020 10:00	$ 400.00

Containers Supplied:
A: Misc. Container
B: Misc. Container
C: Misc. Container
D: 250ml-Bottle HDPE-HNO3
E: 250ml-Bottle HDPE

4.2°C L-24 (SB)
on ice

Nicole Rausch 3/13/20 1700 — Fedex
Released By — Date — Received By — Date

FedEx — 0.4c — 3/14/20 8:45
Released By — Date — Received By — Date

FACILITYY NAME: TOWN OF LOWELL WASTEWATER TREATMENT FACILTY

NPDES#: IN0023621

EFFLUENT DATA

DATE M/D/Y	EFFLUENT MERCURY DAILY MAXIMUM NG/L	EFFLUENT MERCURY MONTHLY AVERAGE NG/L
02/19/19	<0.500	
02/19/19	0.650	0.575
04/23/19	<0.500	
04/23/19	0.865	0.683
06/18/19	<0.500	
08/19/19	<0.500	<0.500
10/21/19	<0.500	
12/13/19	<0.500	
12/13/19	<0.500	<0.500
02/16/18	1.170	
02/16/18	1.390	1.280
04/13/18	2.330	
04/13/18	0.509	1.420
06/27/18	0.915	
06/27/18	0.553	0.734
08/30/18	<0.5	
08/30/18	<0.5	<0.05
10/04/18	<0.5	
10/04/18	0.563	0.532
12/07/18	ND	ND
12/07/18	ND	ND
02/22/17	ND	ND
02/22/17	ND	ND
04/14/17	0.822	
04/14/17	0.907	0.865
06/12/17	1.860	
06/12/17	0.852	1.356
08/23/17	0.610	
08/23/17	0.545	0.578
10/17/17	ND	
10/17/17	ND	ND
12/21/17	1.390	
12/21/17	ND	0.695

FACILITYY NAME: TOWN OF LOWELL WASTEWATER TREATMENT FACILTY

NPDES#: IN0023621

EFFLUENT DATA

DATE M/D/Y	EFFLUENT MERCURY DAILY MAXIMUM NG/L	EFFLUENT MERCURY MONTHLY AVERAGE NG/L
2/5/16	0.844	0.844
4/10/16	2.890	2.890
6/6/16	1.870	1.870
8/8/16	2.330	2.330
10/10/16	1.600	1.600
12/8/16	1.088	1.088
2/8/15	1.070	1.070
4/8/15	1.610	1.610
6/5/15	2.070	2.070
8/8/15	1.310	1.310
10/10/15	1.360	1.360
12/5/15	2.750	2.750

Fall, Evan

From: Don Woodard <dtwoody@att.net>
Sent: Friday, July 10, 2020 8:56 AM
To: Fall, Evan
Subject: Re: GPS Locations
Attachments: Signature Page.pdf

The current locations are correct. Attached is the signature page.

On Thursday, July 9, 2020, 12:09:08 PM CDT, Fall, Evan <efall@idem.in.gov> wrote:

I've been going through this trying to wrap my mind around it…

• Outfall #101 is really just for the location of the bypass point at the "line between the headworks and equalization basin", as noted in the 2015 permit. So the GPS coordinates are to be located it looks like on the north side of the equalization basin, as is noted in the submitted flow diagram. These coordinates are from the 2015 permit, but may need updated. It is hard to tell on the maps where exactly it is taking place so feel free to offer a better location or set of coordinates if you would like.

• CSO Outfall #004 is to be located where the outfall structure exists on the receiving stream. The coordinates from the map I sent you are actually from your application and I believe them to be more accurate than from previous permits that placed it farther west.

• Outfall #102 for the wet weather facility I changed the coordinates to be where the outfall structure combines with outfall 001, according to a map you provided in your application where it appears to take place along a tree line on the south side. Your application had placed it just south of the southeastern corner of the equalization basin.

I have attached another map showing outfalls 101, 004, 102 again to hopefully make things more clear.

All I need is confirmation that the locations of these outfalls are correct. If you believe these to be correct then I will include them in the permit and fact sheet with a note saying that they have been updated – no further action will be needed.

Let me know what you think and feel free to propose any corrections. If there are instances regarding reference back to your previous permit that you would like to cover then you can send the page numbers and I'll look over them.

From: Don Woodard [mailto:dtwoody@att.net]
Sent: Thursday, July 9, 2020 10:48 AM
To: Fall, Evan <EFall@idem.IN.gov>
Subject: GPS Locations

I have some problems for you.

Outfall 004 is the overflow for the retention basin here at the plant. You show 004 as the cso discharge bypassing the plant and the storage basin. That outfall is listed as #101 in previous permit.

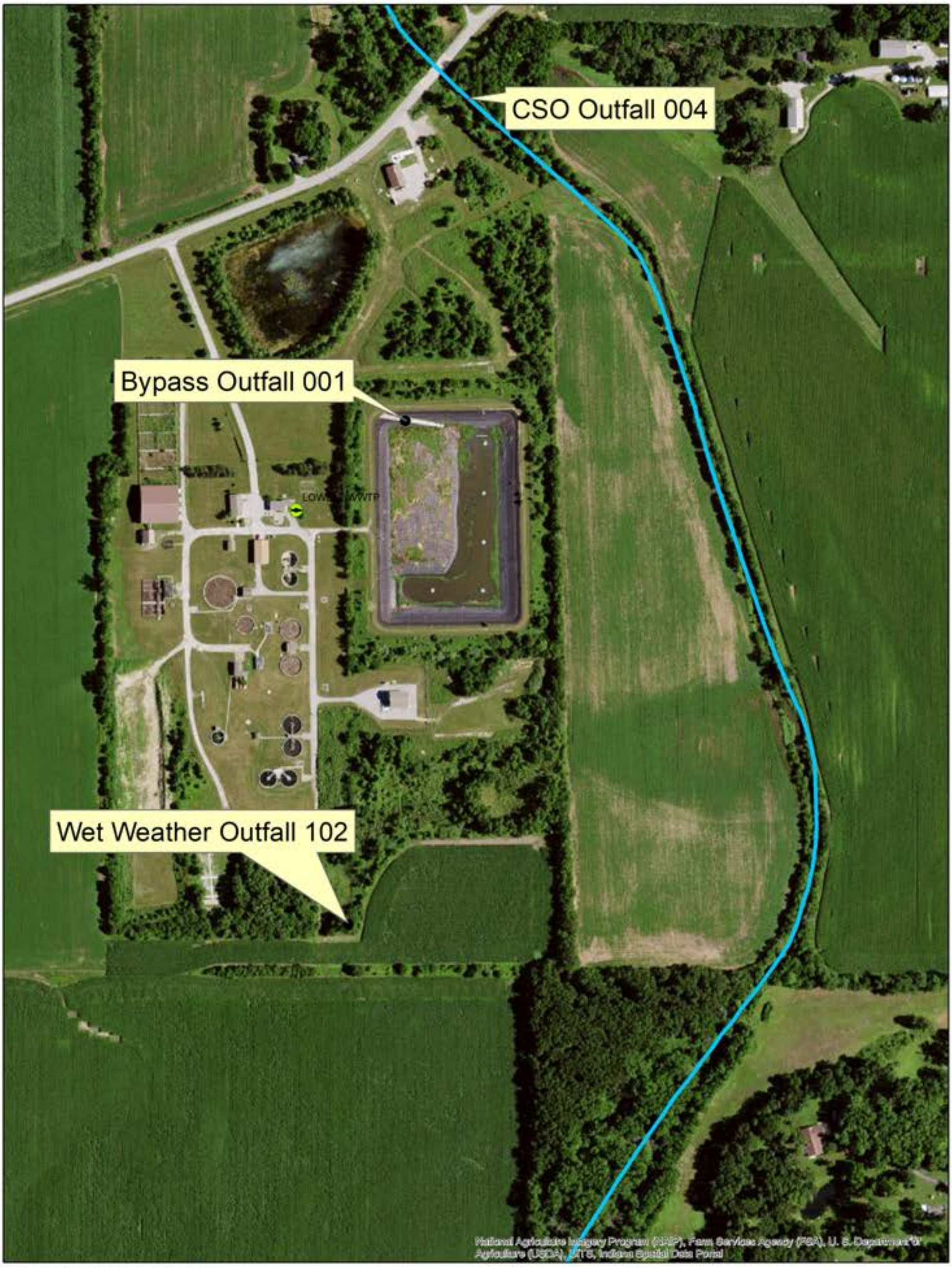
Outfall #102 (wet weather treatment facility, Actiflo) is listed in our current permit as what I submitted to you.

Outfall 001 gps location seems to be correct.

In the current permit outfall 101 is listed as the location you have as outfall 004.

How should I go about correcting this?

Lowell Outfall Locations



This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By: Evan Fall
Office of Water Quality
Date: 7/9/2020

0 115 230 460 Feet

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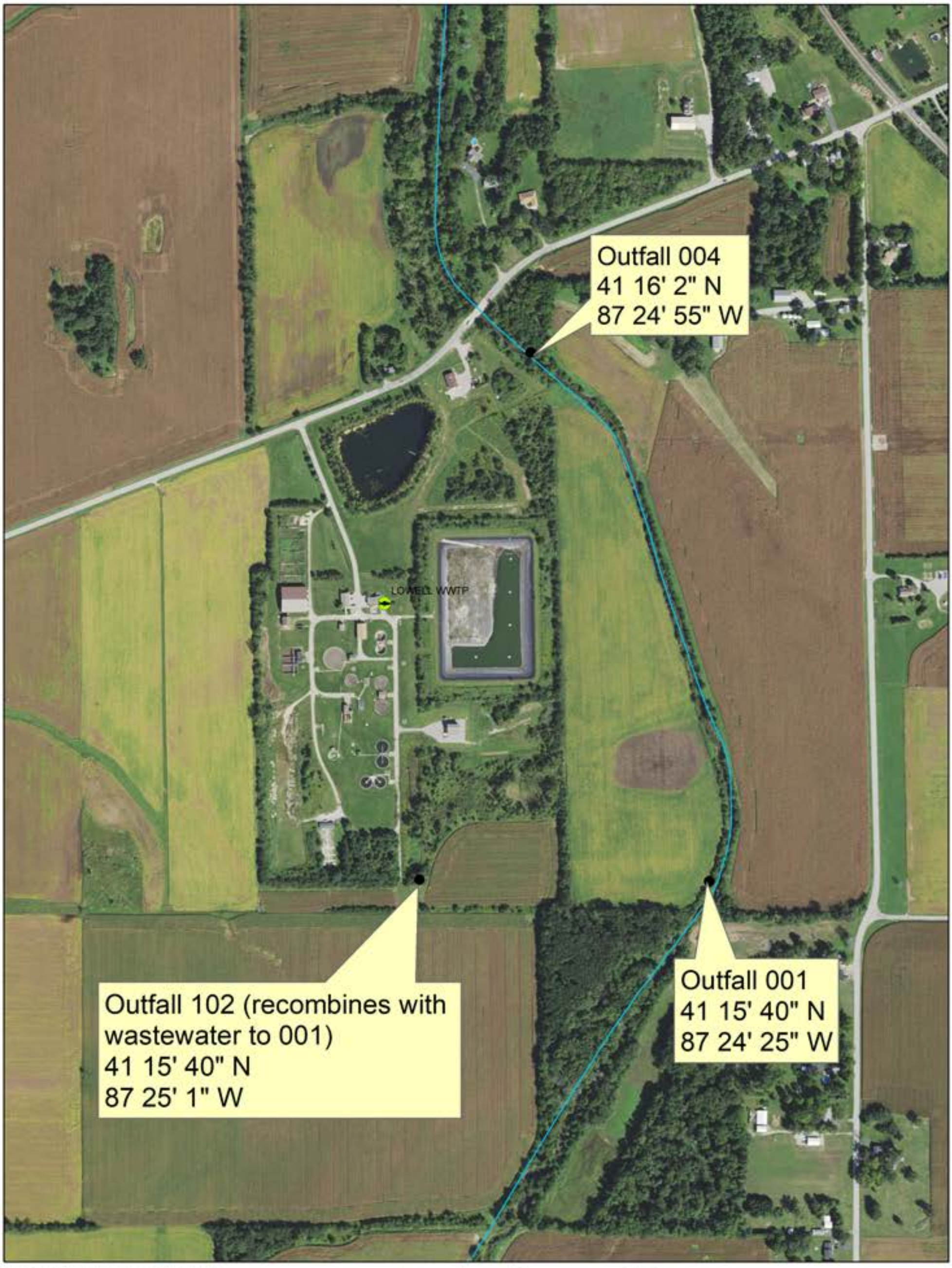
Legend

IN_RI_Streams_FINAL_2019(

IDEM

Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

Lowell WWTP Outfall Locations



This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By: Evan Fall
Office of Water Quality
Date: 6/29/2020

0 175 350 700 Feet

N
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Legend

IN_RI_Streams_FINAL_2019

IDEM

Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

RPE Pre-Screening Worksheet with Specific CV

Facility Name: Town of Lowell WWTP | **NPDES #: IN0023621**

Permit Manager: Evan Fall | **Date: 7/7/20**

CORRECT DATA

Date	Mercury (ug/l) Daily Maximum	[Parameter #1] Monthly Average	Date	[Parameter #2] Daily Maximum	[Parameter #2] Monthly Average
m/d/y	ug/L	ug/L	m/d/y	mg/L	mg/L
10/4/2018	0.532				
8/30/2018	0.500				
6/27/2018	0.734				
4/13/2018	2.330				
2/16/2018	1.280				
12/21/2017	1.390				
10/17/2017	0.500				
8/23/2017	0.578				
6/12/2017	1.356				
4/14/2017	0.865				
2/22/2017	0.500				
12/8/2016	1.088				
10/10/2016	1.600				
8/8/2016	2.330				
6/6/2016	1.870				
4/10/2016	2.890				
2/5/2016	0.844				
12/5/2015	2.750				
10/10/2015	2.330				
8/8/2015	1.310				
6/5/2015	2.070				
4/8/2015	1.610				
2/8/2015	1.070				

Number	32				
Max	2.8900				
Average	1.1646				
St. Dev.	0.7488				
CV	0.64				
Mult	1.2				
PEQ	3.4680				
PEL	12				
RPE?	NO				

ACTUAL DATA

Date	[Parameter #1] Daily Maximum	[Parameter #2] Monthly Average
m/d/y	mg/L	mg/L
4/23/2019	0.865	0.865
2/19/2019	0.650	0.575
2/19/2019	<0.500	
12/7/2018	ND	ND
10/4/2018	0.563	0.532
10/4/2018	<0.5	
8/30/2018	<0.5	<0.5
6/27/2018	0.553	0.734
6/27/2018	0.915	
4/13/2018	2.330	2.330
2/16/2018	1.390	1.280
2/16/2018	1.170	
12/21/2017	1.390	1.390
10/17/2017	ND	ND
8/23/2017	0.545	0.578
8/23/2017	0.610	
6/12/2017	0.852	1.356
6/12/2017	1.860	
4/14/2017	0.907	0.865
4/14/2017	0.822	
2/22/2017	ND	ND
2/22/2017	ND	
12/8/2016	1.550	1.088
12/8/2016	0.627	
10/10/2016	1.600	1.600
8/8/2016	3.190	2.330
8/8/2016	1.470	
6/6/2016	1.870	1.870
4/10/2016	3.100	2.890
4/10/2016	2.680	
2/5/2016	0.844	0.844
12/5/2015	2.660	2.750
12/5/2015	2.850	
10/10/2015	2.230	2.330
8/8/2015	1.110	1.310
8/8/2015	1.510	
6/5/2015	1.920	2.070
6/5/2015	2.220	
4/8/2015	2.390	1.610
4/8/2015	0.841	
2/8/2015	1.07	1.070

Reviewer: *John Donnellon*

Date: 7/8/2020

State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: February 17, 1998

WLA# 000289

Thru: Gus Jumawan, Chief
Modeling and Engineering Section

To: Gale Ferris
NPDES Municipal and Semi-Public Permit Section

From: Mustafa Ak
Modeling and Engineering Section

Subject: Wasteload Allocation Analysis Update for the Lowell WWTP, Lake County.

In response to your attached WLA request sheet, the March 24, 1992 wasteload allocation analysis (WLA) for the Lowell Wastewater Treatment Plant (WWTP) has been updated to reflect the recent changes in ammonia criteria, design flows and receiving waterbody Q7-10. Existing facility is a 4.0 MGD, Class III, activated sludge-type plant and discharges its effluent into the Cedar Creek. It is planned to upgrade the design flow to 5.0 MGD. The receiving stream has an updated Q7-10 low-flow of 2.25 cfs. The discharger is in the Kankakee River basin and it is not in GLI area.

In the ammonia -N analyses, 4.0 and 5.0 MGD plant design flows have been simulated as per attached letter by the Consulting Engineer of the facility. Results of the ammonia-N analyses for the above design flows applying the new ammonia rule are shown in the attached tables. For the design flow of 4.0 mgd summer ammonia limitations are 1.72 / 4.0 mg/l (AML / DML) and winter limitations are 1.76 / 4.11 mg/l (AML / DML). For the design flow of 5.0 mgd summer ammonia limitations are 1.67 / 3.88 mg/l (AML / DML) and winter limitations are 1.71 / 3.98 mg/l (AML / DML). Previous CBOD5 effluent limitations of 15.0 mg/l for summer and 25.0 mg/l for winter are still protective for 4.0 and 5.0 MGD flows. TSS effluent limitations of 18.0 mg/l for summer and 30.0 mg/l for winter; DO limitations of 6.0 mg/l for summer and 5.0 mg/l for winter are recommended for both design flows. P removal should be determined by reviewing the Rule 327 IAC 5-10-2. Attached Discharge Monitoring Report (DMR) data from 1994 thru present shows that in some months the plant violated its ammonia, e-coli, and TSS limitations.

ma/GJ/ma

Attachments

APPENDIX D

IDEM PRELIMINARY EFFLUENT LIMITATIONS LETTER (6 MGD WWTP)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

May 21, 2020

VIA ELECTRONIC MAIL

Mr. Jonathan Borgers, Senior Project Manager
Wessler Engineering
6219 South East St.
Indianapolis, IN 46227

Dear Mr. Borgers:

Re: Preliminary Effluent Limitations
For the Proposed Facility Expansion
Town of Lowell Wastewater Treatment Plant
NPDES Permit No. IN0023621
Lake County

This letter is in response to your request for preliminary effluent limitations (PELs) for a proposed expansion of the Town of Lowell Wastewater Treatment Plant (WWTP). As indicated in your request, the expansion will consist of modifying the Class III, 4.0 MGD activated sludge treatment facility to a 6.0 MGD treatment plant. The facility would continue to discharge via the existing outfall location to Cedar Creek. The $Q_{7,10}$ low-flow of the receiving stream at the point of discharge is considered to be 2.2 cfs..

Non-significant Lowering Limitations

A Wasteload Allocation (WLA002473) analysis was performed by this Office's staff on May 11, 2020 for the proposed facility expansion. The following effluent limits are appropriated for the aforementioned extended aeration treatment facility with an average design flow of 6.0 MGD with continuous discharge to Cedar Creek *that will not cause a significant lowering of water quality for ammonia-nitrogen.* The non-significant lowering limitations are as follows:

Table 1

Parameter	Summer		Winter		Units
	Monthly Average	Weekly Average	Monthly Average	Weekly Average	
$CBOD_5$	15	23	25	40	mg/l
TSS	18	27	30	45	mg/l
Ammonia-N	1.5	2.3	1.6	2.4	mg/l
Phosphorus	1.0	----	1.0	----	mg/l
Nitrogen, Total (as N)	Report	----	Report	----	mg/l

Table 2

Parameter	Daily Minimum	Monthly Average	Daily Maximum	Units
pH	6.0	----	9.0	s.u
Dissolved Oxygen				
Summer	6.0	----	----	mg/l
Winter	5.0	----	----	mg/l
E. coli	----	125	235	count/100mL

If the effluent limitations in Tables 1 and 2 are accepted, an antidegradation demonstration would not be required.

For the above referenced discharge scenario, the following requirements will apply: Flow must be measured. The mass limits for $CBOD_5$ and ammonia-N (NH3-N) are calculated by multiplying the average design flow (in MGD) by the corresponding concentration value and by 8.345. Summer effluent limitations apply from May 1 through November 30 of each year. Winter effluent limitations apply December 1 through April 30 of each year.

The effluent limitations for *E. coli* are 125 count/100 mls as a monthly average calculated as a geometric mean and 235 count/100 mls as a daily maximum. The *E.coli* limits apply from April 1 through October 31 of each year.

If the PELs specified above are not acceptable to the discharger, then alternate limitations may be pursued. To pursue alternate limitations, an assessment of alternative feasible treatment technologies comparing the expected effluent concentrations with the expected capital and maintenance costs for each alternative, and the corresponding expected new or increased loading above the level generated by the effluent limits specified above must be submitted for review. The assessment must also include an affordability analysis and justification for selecting the most cost-effective treatment plant design that is affordable. In no case will limitations be approved which will result in exceedances of State water quality standards.

The water quality-based limits set forth in this letter are based on the Indiana water quality standards in effect at this time and may not be the final limits once the NPDES permit is issued. If the water quality standards are modified by the Water Pollution Control Board and new water quality standards become effective prior to the date the NPDES permit for your facility is actually issued, then the IDEM is required by law to issue the NPDES permit with limits based on the new standards.

Also, note that these preliminary effluent limitations are based upon a wasteload allocation analysis which mainly evaluated the typical conventional pollutants. Since the wastestream has not been fully characterized, IDEM reserves the right to establish effluent limitations for additional pollutant parameters as deemed necessary. This letter does not guarantee the approval of any permits.

If you have any questions regarding construction permits associated with the proposed facility upgrade, please contact Missy Nunnery at 317-232-5579. The NPDES permit modification will not be issued to reflect the upgrade until the construction permit is finalized. At a minimum, the modification request should be submitted at least 180 days prior to completion of the upgrade activities. Please be advised that the modification request must be accompanied by a $50.00 fee in accordance with IC 13-18-20-12.

In addition, Indiana Code 13-18-26 requires the permit applicant to certify that the following documents have been prepared and completed for new facilities and/or facility expansions with a design capacity above 0.10 MGD:

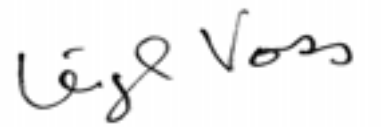
· A Life Cycle Cost-Benefit Analysis, as described in IC 13-18-26-3;
· A Capital Asset Management Plan, as described in IC 13-18-26-4; and
· A Cybersecurity Plan, as described in IC 13-18-26-5.

The certification of completion must be submitted to IDEM along with the permit application, and must be notarized. IDEM will not issue a permit to an applicant that is subject to IC 13-18-26 if the required certification is not included with the application packet, as required by IC 13-18-26-1(b).

The plans and analyses must be reviewed and revised (as necessary) at least once every five years. A new certification must be submitted to IDEM (with the NPDES renewal application) if any plan or analysis is revised during the five-year review.

If there are any questions regarding the antidegradation requirements or NPDES permit requirements, please feel free to contact Nicholas Eilerman at 317/232-8619 or neilerma@idem.IN.gov.

Sincerely,



Leigh Voss, Chief
Municipal NPDES Permits Section
Office of Water Quality

APPENDIX E

AGREED ORDER AND COMPLIANCE PLAN

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

July 12, 2022

Via Certified Mail No.: 7017 0190 0000 9497 1676

Todd Angerman, Town Council President
Town of Lowell
501 E. Main Street
Lowell, IN 46356

Dear Mr. Angerman:

Re: Adoption of Agreed Order
Indiana Department of
Environmental Management
v.
Town of Lowell
NPDES Permit No. IN0023621
Case No. 2022-28595-W
Lowell, Lake County

This is to inform you that the Agreed Order in the above-referenced case has been approved and adopted by the Indiana Department of Environmental Management. A copy of the Agreed Order is enclosed.

Please note the terms of compliance contained in the Agreed Order. The time frames for compliance are effective upon your receipt of this correspondence (Effective Date). Please note that the civil penalty is due within 30 days after the effective date of the Agreed Order. Payment should be made payable to the "Environmental Management Special Fund" and sent to:

Indiana Department of Environmental Management
Accounts Receivable
IGCN, Room N1340
100 N. Senate Avenue
Indianapolis, IN 46204

Please include the Case Number *2022-28595-W* on the front of the check.

If you have any questions, please contact Aletha Lenahan, Environmental Manager, Water Enforcement Section, at 317-232-8407 or via email at alenahan@idem.in.gov.

Sincerely,

Amari Farren

Amari Farren, Chief
Water Enforcement Section
Office of Water Quality

Enclosures

cc: Lake County Health Department
http://www.in.gov/idem

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
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(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov
Eric J. Holcomb, *Governor*
Brian C. Rockensuess, *Commissioner*

STATE OF INDIANA)
) SS:
COUNTY OF MARION)

BEFORE THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT,

Complainant,

v.

TOWN OF LOWELL,

Respondent.

Case No. 2022-28595-W

AGREED ORDER

Complainant and Respondent desire to settle and compromise this action without hearing or adjudication of any issue of fact or law, and consent to the entry of the following Findings of Fact and Order. Pursuant to Indiana Code (IC) 13-30-3-3, entry into the terms of this Agreed Order does not constitute an admission of any violation contained herein. Respondent's entry into this Agreed Order shall not constitute a waiver of any defense, legal or equitable, which Respondent may have in any future administrative or judicial proceeding, except a proceeding to enforce this order.

I. FINDINGS OF FACT

1. Complainant is the Commissioner (Complainant) of the Indiana Department of Environmental Management (IDEM), a department of the State of Indiana created by IC 13-13-1-1.

2. Respondent owns and/or operates The Town of Lowell Wastewater Treatment Plant (WWTP) and collection system, located at 7500 Belshaw Road, Lowell, Lake County, Indiana (the Site).

3. Respondent is authorized by National Pollutant Discharge Elimination System (NPDES) Permit Number IN0023621 (the Permit) to discharge wastewater treated in accordance with the terms and conditions of the Permit from the WWTP, into waters of the State named Cedar Creek, via Outfall 001. The

collection system is comprised of combined sanitary and storm sewers with one (1) Combined Sewer Overflow (CSO) (004) and one (1) Wet Weather Treatment Facility (WWTF) outfall (102). The CSO and WWTF outfall locations have been identified and permitted with provisions in Attachment A of the Permit.

4. IDEM has jurisdiction over the parties and the subject matter of this action pursuant to IC 13-30-3.

5. Pursuant to IC 13-30-3-3, IDEM issued a Notice of Violation via Certified Mail/personal service to:

   Todd Angerman, Town Council President
   Town of Lowell
   501 E. Main Street
   Lowell, IN 46356

6. During an investigation conducted by representatives of IDEM, violations were found, as described below.

7. 327 Indiana Administrative Code (IAC) 5-2-8(1), states the permittee shall comply with all terms and conditions of the Permit. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action by IDEM.

8. Pursuant to 327 IAC 5-2-8(9) and Part II.B.1 of the Permit, the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for collection and treatment that are:

   (1) Installed or used by the permittee; and
   (2) Necessary for achieving compliance with the terms and conditions of the Permit.

   During inspections on March 23, 2020, and January 11, 2022, IDEM's representatives observed and noted that Respondent failed to properly maintain the CSO equalization basin. Specifically, Respondent failed to remove solids, trees, and debris from the CSO equalization basin, and holes in the CSO equalization basin liner were also noted that could cause or contribute to cause contamination in the environment, in violation of 327 IAC 5-2-8(9), and Part II.B.1 of the Permit.

9. On March 30, 2020, and January 18, 2022, IDEM sent Inspection Summary Letter(s) to Respondent outlining violations at the WWTP noted above. The letters required a response detailing actions taken to correct the violations. IDEM received responses to the letters explaining compliance actions Respondent took

or would take to address the violations. However, the responses did not adequately address the violations noted above at the WWTP.

10. Orders of the Commissioner are subject to administrative review by the Office of Environmental Adjudication under IC 4-21.5; however, in recognition of the settlement reached, Respondent acknowledges notice of this right and waives any right to administrative and judicial review of this Agreed Order.

II. ORDER

1. This Agreed Order shall be effective (Effective Date) when it is adopted by Complainant or Complainant's delegate (as evidenced by signature), and the adopted Agreed Order has been received by Respondent. This Agreed Order shall have no force or effect until the Effective Date. In addition to addressing the violations cited in Paragraphs 7 and 8 of the Findings of Fact above, this Agreed Order also addresses any additional violations of these same rules that may have occurred subsequent to the issuance of the Notice of Violation and prior to the Effective Date.

2. Respondent shall comply with rules and statutes listed in the findings above at issue.

3. Within 30 days of the Effective Date, Respondent shall develop and submit to IDEM for approval a Compliance Plan (CP), which identifies actions that Respondent will take to achieve and maintain compliance with the Permit, specifically including the actions Respondent will take to:

   A. Assure proper maintenance of the CSO equalization basin, specifically removal and disposal of solids, trees, and debris from the equalization basin, and repair of the liner; and
   B. Develop and implement a preventative maintenance program for the equalization basin and all related WWTP equipment and document all maintenance (preventative and repair) in a permanent record; which includes methods and milestone dates for solids, debris, and tree removal, and liner repair.

   The CP shall include an implementation and completion schedule, including specific milestone dates.

   Respondent shall notify IDEM in writing of variations to the approved CP.

4. Respondent shall, after completion of the work required pursuant to the approved CP from Paragraph 3 above, demonstrate 12-consecutive months of compliance (Compliance Demonstration) with the terms and conditions of the Permit.

5. In the event that violation(s) occur during the Compliance Demonstration, within 30 days of the violation, Respondent shall develop and submit to IDEM, for approval, an Additional Action Plan (AAP) which identifies the additional actions that Respondent will take to achieve and maintain compliance with the terms and conditions of the Permit. The AAP, if required, shall include an implementation and completion schedule, including specific milestone dates.

6. The plans required by Order Paragraphs 3 and 5 are subject to IDEM approval. In the event IDEM determines that any plan or any modified plan submitted by Respondent is deficient or otherwise unacceptable, Respondent shall revise and resubmit the plan to IDEM in accordance with IDEM's notice. After three submissions of such plan by Respondent, IDEM may seek civil enforcement of this Order.

7. Respondent, upon receipt of written notification from IDEM, shall immediately implement the approved plan(s) and adhere to the milestone dates therein. The approved CP and AAP shall be incorporated into the Agreed Order and shall be deemed an enforceable part thereof.

   Following completion of the actions included in the AAP, the 12-month Compliance Demonstration, as specified in Paragraph 5 above, will re-start. Failure to achieve compliance at the conclusion of work under an AAP may subject Respondent to additional enforcement action.

8. Beginning upon receipt of approval of the CP or AAP and continuing until the successful completion of implementation of the approved CP or AAP, Respondent shall submit to IDEM regular progress reports identifying compliance actions implemented and completion of each required milestone in the CP or AAP. The frequency of progress report submittals shall be specified in IDEM's written notification to Respondent of the plan approval and will be based on the proposed milestones in the approved plan(s).

9. Beginning on the Effective Date and continuing until the successful completion of the approved CP, Respondent shall, at all times, operate its existing WWTP as efficiently and effectively as possible.

10. All submittals required by this Agreed Order, unless Respondent is notified otherwise in writing by IDEM, shall be sent to:

Aletha Lenahan, Enforcement Case Manager
Office of Water Quality – IGCN 1255
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, IN 46204-2251

11. Respondent is assessed and agrees to pay a civil penalty of Two Thousand, Seven Hundred Fifty Dollars ($2,750). Said penalty amount shall be due and payable to the "Environmental Management Special Fund" within 30 days of the Effective Date, the 30th day being a "Due Date."

12. In the event the terms and conditions of the following paragraphs are violated, IDEM may assess, and Respondent shall pay the corresponding stipulated penalty:

Paragraph	Violation	Stipulated Penalty
3	Failure to submit the CP within the required time period.	$250 per week late, or part thereof.
4	For violations of terms and conditions of the Permit during the Compliance Demonstration.	$400 per violation
5	Failure to submit the AAP, if required, within the given time period.	$500 per week late, or part thereof.
6	Failure to modify the CP and/or AAP, if required, within the given time period.	$500 per week late, or part thereof.
7	Failure to meet and/or implement any milestone date set forth in the approved CP or AAP.	$500 per week late, or part thereof.
8	Failure to submit to IDEM a written progress report as specified in the CP or AAP approval letter.	$150 per week late, or part thereof.
10	Failure to operate the WWTP as efficiently and effectively as possible prior to Compliance Demonstration.	$200 per violation.

13. Stipulated penalties shall be due and payable no later than the 30th day after Respondent receives written notice that IDEM has determined a stipulated penalty is due, the 30th day being a "Due Date." IDEM may notify Respondent at any time that a stipulated penalty is due. Failure to notify Respondent in writing in a timely manner of a stipulated penalty assessment shall not waive IDEM's right to collect such stipulated penalty or preclude IDEM from seeking additional relief against Respondent for violation of this Agreed Order. Neither assessment nor payment of stipulated penalties shall preclude IDEM from seeking additional

relief against Respondent for a violation of this Agreed Order. Such additional relief includes any remedies or sanctions available pursuant to Indiana law, including, but not limited to, civil penalties pursuant to IC 13-30-4.

14. Civil and stipulated penalties are payable by check to the "Environmental Management Special Fund." Checks shall include the Case Number 2022-28595-W of this action and shall be mailed to:
Indiana Department of Environmental Management
Accounts Receivable
IGCN, Room N1340
100 N. Senate Avenue
Indianapolis, IN 46204

15. This Agreed Order shall apply to and be binding upon Respondent, its successors, and assigns. Respondent's signatories to this Agreed Order certify that they are fully authorized to execute this Agreed Order and legally bind the party they represent. No change in ownership, corporate, or partnership status of Respondent shall in any way alter its status or responsibilities under this Agreed Order.

16. In the event that the monies due to IDEM pursuant to this Agreed Order are not paid on or before their Due Date, Respondent shall pay interest on the unpaid balance and any accrued interest at the rate established by IC 24-4.6-1. The interest shall be computed as having accrued from the Due Date until the date that Respondent pays any unpaid balance. The interest shall continue to accrue on the first of each month until the civil penalty and any interest accrued are paid in full. Such interest shall be payable to the "Environmental Management Special Fund," and shall be payable to IDEM in the manner specified above.

17. In the event that any terms of this Agreed Order are found to be invalid, the remaining terms shall remain in full force and effect and shall be construed and enforced as if this Agreed Order did not contain the invalid terms.

18. Respondent shall provide a copy of this Agreed Order, if in force, to any subsequent owners or successors before ownership rights are transferred. Respondent shall ensure that all contractors, firms, and other persons performing work under this Agreed Order comply with the terms of this Agreed Order.

19. This Agreed Order is not and shall not be interpreted to be a permit or a modification of an existing permit. This Agreed Order, and IDEM's review, or approval of any submittal made by Respondent pursuant to this Agreed Order, shall not in any way relieve Respondent of its obligation to comply with the requirements of its applicable permits or any applicable Federal or State law or regulation.

20. Complainant does not, by his approval of this Agreed Order, warrant or aver in any manner that Respondent's compliance with any aspect of this Agreed Order will result in compliance with the provisions of any permit, order, or any applicable Federal or State law or regulation. Additionally, IDEM or anyone acting on its behalf shall not be held liable for any costs or penalties Respondent may incur as a result of Respondent's efforts to comply with this Agreed Order.

21. Nothing in this Agreed Order shall prevent or limit IDEM's rights to obtain penalties or injunctive relief under any applicable Federal or State law or regulation, except that IDEM may not, and hereby waives its right to seek additional civil penalties for the same violations specified in the Notice of Violation.

22. Nothing in this Agreed Order shall prevent IDEM (or anyone acting on its behalf) from communicating with the United States Environmental Protection Agency (US EPA) or any other agency or entity about any matters relating to this enforcement action. IDEM or anyone acting on its behalf shall not be held liable for any costs or penalties Respondent may incur as a result of such communications with the US EPA or any other agency or entity.

23. This Agreed Order shall remain in effect until Respondent has complied with the terms and conditions of this Agreed Order and IDEM issues a Resolution of Case (close out) letter to Respondent.

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TECHNICAL RECOMMENDATION:
Department of Environmental Management

By: Amari Farren

Amari Farren, Chief
Water Enforcement Section
Office of Water Quality

Date: June 1, 2022

RESPONDENT:
Town of Lowell

By:

Printed: Todd Angerman
Title: President
~~Lowell Town Council~~

Date: 06/27/2022

COUNSEL FOR RESPONDENT:

By:

Date: 6/29/22

APPROVED AND ADOPTED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT THIS 11th DAY OF July, 2022

For the Commissioner:

Martha Clark Mettler

Martha Clark Mettler
Assistant Commissioner
Office of Water Quality

TOWN OF LOWELL
CULTIVATING COMMUNITY

May 8, 2023

Ms. Aletha Lenahan, Enforcement Case Manager
Office of Water Quality, IGCN 1255
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, IN 46204-2251

Subject: Agreed Order: Case No. 2002-28595-W
Compliance Plan Schedule Update

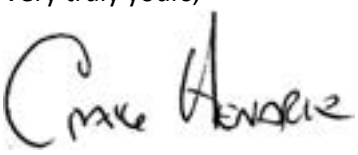
Dear Ms. Lenahan:

The Town of Lowell has decided to take a different direction in the rehabilitation of our existing EQ Basin. Rather than replacing the existing liner, we wish to reconstruct the entire basin into one that is more easily maintainable. After further investigation we have determined the existing basin is constructed such that we are not able to remove the solids lying on the bottom of the channel without damaging the liner. Solids are supposed to stay suspended using the mixers until the stored flow could returned back toward the headworks via the drain line. As you know, several of the mixers are not operating and the drain line has been restricted with debris. The inability to keep solids suspended has caused the accumulation of debris in the bottom of the basin. Additionally, the existing basin does not have a secondary or redundant basin to allow for bypassing flow for maintenance reasons.

I have revised the Compliance Plan Schedule to accommodate the construction of a new EQ basin that meets our current and future needs. We have already engaged our design consultant and plan to begin work immediately. We will continue to perform the maintenance tasks identified in the Compliance Plan.

We hope this Plan and schedule meet with your satisfaction. If you have any questions, feel free to contact me by telephone at 219.696.7794 or by email at chendrix@lowell.net.

Very truly yours,



Craig Hendrix, PE
Town Manager/Town Engineer

Town of Lowell, Lake County, Indiana
Compliance Plan for the Maintenance of the CSO Equalization Basin
Agreed Order: Case No. 2022-28595-W
Revised 5.8.23

Action Item	Action Item Description	Proposed Start Date	Proposed Completion Date	Current Status	Action Item Summary
1	Removal of Vegetation/Temporary Repairs to Liner			complete	During an IDEM Compliance Evaluation, vegetation was noted growing through tears in the liner. Since the inspection, Lowell has removed the vegetation growing through the tears in the liner, and has made temporary repairs, including the installation of HDPE patches over the holes to prevent potential leackage and further damage due to vegetation growth.
2	Inspection of EQ Basin Liner	8.1.22	Weekly	ongoing	Conduct weekly inspections of the EQ Basin and its liner. Repair damaged areas.
3	Repair Basin Mixers			elimated	Lowell has engaged an engineering consultant to prepare design drawings to construct an new EQ Basin rather than repairing and maintaining the existing basin.
4	EQ Basin Drain Line Modifications	7.31.22	8.1.23	Project was awarded to Bowen Engineering. It is currently under construction.	This item was included in our proposed Addendum to our LTCP dated August, 2022. This item includes modifications to the EQ Basin drain line. The existing basin drain line is not operating properly. It is suspected that over time debris has settled out in the pipe, significantly reducing it's carrying capacity. The original design did not include any means of accessing or cleaning the pipe. Improved valving and cleanouts are being added to allow for jetting of the line, as well as access for inspection by CCTV. The drain will be cleaned to restore it to its original capacity. Once the mixer is repaired, and the drain line has been improved, flow from the basin should be able to be move through the system at a higher flow rate, keeping the debris in suspension, which will make debris removal from the basin after storm events less intensive.
5	EQ Basin Debris Removal			eliminated	Debris removal and disposal will be accomplished during the EQ Basin reconstruction project.
6	EQ Basin Reconstruction	8.22.22	11.1.25	Project in development stage	Lowell intends to reconstruct the existing EQ Basin. The current EQ Basin does not allow for routine maintenance. There is no structural bottom that would facilitate the use of debris removal equipment without destroying the existing liner. The EQ Basin has no secondary (redundant) storage area to allow for transfer and storage of incomming flow while performing maintenance within the main storage area. The current EQ Basin is gravity drained back to the headworks where it is reintroduced with influent flow and into the plant for treatment. A pump station is proposed to allow stored flow to be pumped to the wet weather treatment facility instead of the headworks when conditions allow.
6.1	Preliminary Engineering/Project Development	4.24.23	8.24.23	Design Consultant Engaged	EQ Basin Reconstruction project development and preliminary engineering. Development of preliminary engineering cost estimates.
6.2	Financial Analysis/Rate Modifications	8.24.23	4.22.24		Determination of revised user rates. Bond development.
6.3	Final Design	8.24.23	5.24.24		Prepare final design documents. Prepare bidding documents.
6.4	Bidding/Construction	8.22.24	11.1.25		Reconstruction of the EQ Basin and associated projects.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

August 31, 2022

Todd Angerman, Town Council President
Town of Lowell
501 E. Main Street
Lowell, IN 46356

Dear Mr. Angerman:

Re: Approval of Compliance Plan
Commissioner, Indiana Department of Environmental Management
v.
Town of Lowell
NPDES Permit No. IN0023621
Case No. 2022-28595-W
Lowell, Lake County

The Indiana Department of Environmental Management (IDEM) has completed the review of the Town of Lowell's Compliance Plan. It is hereby approved and incorporated into the Agreed Order and shall be deemed an enforceable part thereof. The Town of Lowell should continue to implement the approved Compliance Plan and adhere to all milestone dates contained therein.

If you have any questions, please contact Aletha Lenahan, Case Manager, Water Enforcement Section, at (317) 232-8407 or alenahan@idem.in.gov.

Sincerely,

Amari Farren

Amari Farren, Chief
Water Enforcement Section
Office of Water Quality

Enclosure

cc: http://www.in.gov/idem

Town of Lowell, Lake County, Indiana
Compliance Plan for the Maintenance of the CSO Equalization Basin
Agreed Order: Case No. 2022-28595-W
Revised 8/26/2022

Action Item	Action Item Description	Proposed Start Date	Proposed Completion Date	Current Status	Action Item Summary
1	Removal of Vegetation/Temporary Repairs to Liner			complete	During an IDEM Compliance Evaluation, vegetation was noted growing through tears in the liner. Since the inspection, Lowell has removed the vegetation growing through the tears in the liner, and has made temporary repairs, including the installation of HDPE patches over the holes to prevent potential leakage and further damage due to vegetation growth.
2	Inspection of EQ Basin Liner	8.1.22	Weekly	ongoing	Conduct weekly inspections of the EQ Basin and its liner. Repair damaged areas.
3	Repair Basin Mixers	8.1.22	8.1.23	Getting quotes from repair contractors	One of the basin mixers at the basin outlet is not working properly. These mixers help keep solids suspended while draining. Lowell will repair the mixer so the solids/debris remaining in the basin can be resuspended for removal.
4	EQ Basin Drain Line Modifications	7.31.22	8.1.23	Project was awarded to Bowen Engineering. It is currently under construction.	This item was included in our proposed Addendum to our LTCP dated August, 2022. This item includes modifications to the EQ Basin drain line. The existing basin drain line is not operating properly. It is suspected that over time debris has settled out in the pipe, significantly reducing it's carrying capacity. The original design did not include any means of accessing or cleaning the pipe. Improved valving and cleanouts are being added to allow for jetting of the line, as well as access for inspection by CCTV. The drain will be cleaned to restore it to its original capacity. Once the mixer is repaired, and the drain line has been improved, flow from the basin should be able to be move through the system at a higher flow rate, keeping the debris in suspension, which will make debris removal from the basin after storm events less intensive.
5	EQ Basin Debris Removal	8.1.23	Ongoing through basin liner replacement11.1.25	Schedule development	Debris removal can be accomplished utilizing two methods - mechanized removal and washing. The existing liner is deteriorating and needs to be replaced. Mechanized removal was halted several years ago out of fear of damaging the liner. Washing is difficult due to the lack of any source of water or equipment capable of producing the pressure and flow necessary to wash the material to the basin drain. Additionally, the ability to remove debris from the basin will be limited during the repair of the basin drain line. Lowell will work during the drain line repair period to develop a basin cleaning plan to be submitted to IDEM for review at a later date.
6	EQ Basin Liner Replacement	8.22.22	11.1.25	Project in development stage	
6.1	Preliminary Engineering/Project Development	8.22.22	8.22.23		EQ Basin liner project development and preliminary engineering. Development of preliminary engineering cost estimates.
6.2	Financial Analysis/Rate Modifications	8.22.22	1.22.24		Determination of revised user rates. Bond development.
6.3	Final Design	8.22.23	8.22.24		Prepare final design documents. Prepare bidding documents.
6.4	Bidding/Construction	8.22.24	11.1.25		Construction of liner replacement and associated projects.

APPENDIX F

LOWELL ANTICIPATED DEVELOPMENT TABLES AND FIGURES

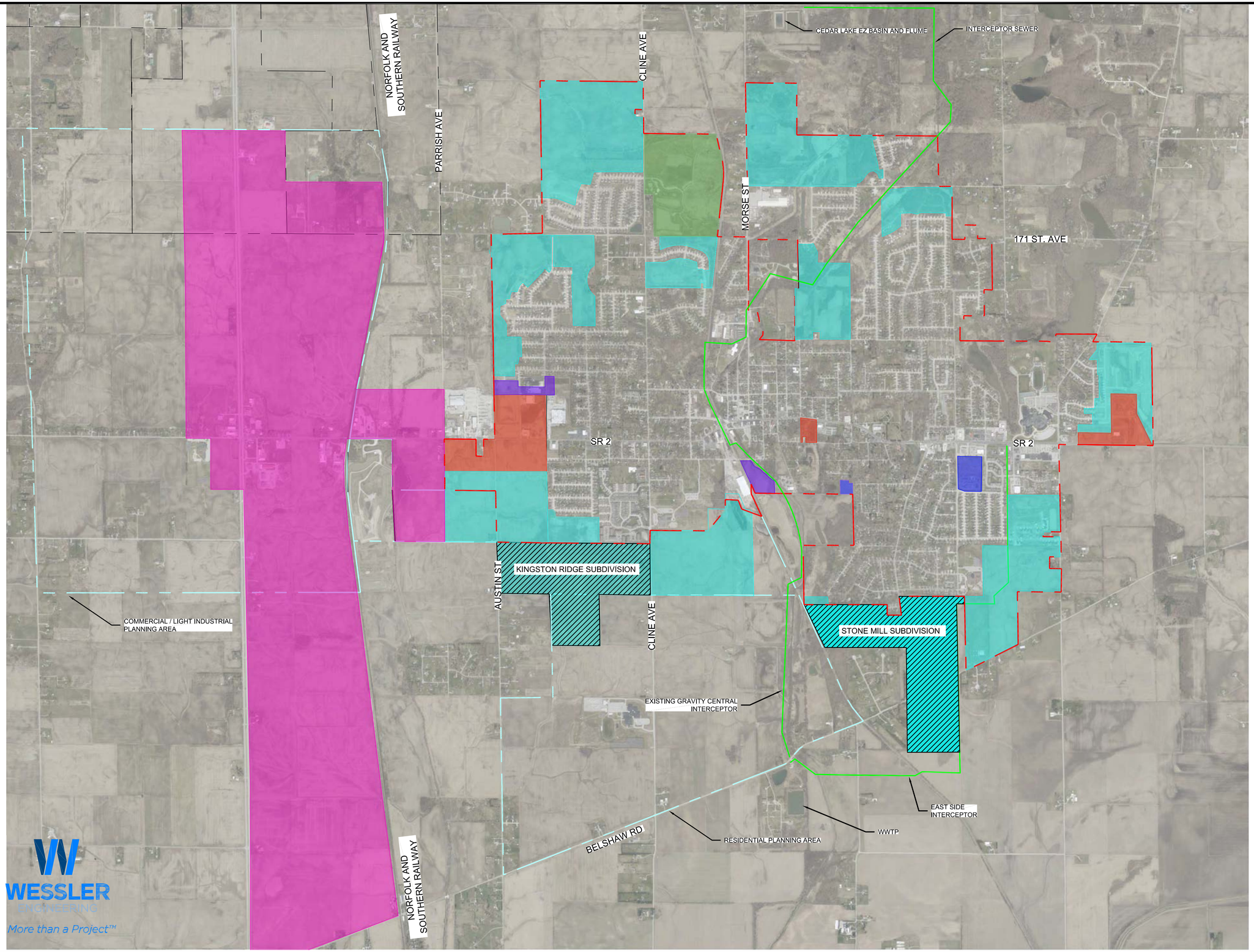
Estimated Remaining Flow from Residential Developments Under Construction
Updated March 25, 2024

Subdivision / Development Name	Capacity Certification Letter Date	Average Design Flow (GPD)	Total Number of Units	Status	Estimated Flow Remaining to be Added to System (GPD)
Lowell					
The Preserve Subdivision, Unit 6		10,850	35	Approx. 8 Lots Remain	2,480
Meadows of Cedar Creek Subdivision	7/8/2003	32,860	106	Approx. 21 Lots Remain	6,510
Spring Run PUD, Phase 2		26,350	83	Approx. 67 Lots Remain	20,770
Spring Run PUD, Phase 3		25,110	81	No Final Plat	25,110
Freedom Springs Subdivision		39,900	129	Approx. 79 Lots Remain	24,490
Graythorne Subdivision	1/30/2020	29,450	95	Approx. 75 Lots Remain	23,250
Beverly Estates - Unit II	2/18/2020	30,690	99	Approx. 50 Lots Remain (Including Unit 1)	15,500
Heritage Falls - Phase 4	12/28/2020	23,870	77	Approx. 23 Lots Remain in Phase 4 and Unity	7,130
Sierra Ridge Unit 2, Phases 2-7	1/14/2021	45,570	147	Approx. 125 Lots Remain	38,750
Redwing Lake Estates Subdivision	7/19/2021	3,100	10	Under Construction	3,100
Freedom Lakes - Unit 1 Subdivision	6/6/2023	11,160	36	No Work Started	11,160
Kingston Ridge Residential Community	6/19/2023	135,470	437	Phase 1 Platted; Under Construction	135,470
Villas and Legacy Village Center at Cedar Creek	6/20/2023	7,760	44	No Work Started	7,760
Stone Mill[1]		170,810	551	Preliminary Plat Approved	170,810
Total Estimated Flow Remaining to be Added to the Wastewater System from Residential Developments Under Construction in the Town of Lowell					**492,290**
Cedar Lake					
August Oaks - Unit 1		*4,030*	13	Approx. 1 Lot Remains	310
August Oaks - Unit 2		*5,580*	18	Approx. 1 Lot Remains	310
Lakeview Point, Phase 1		*2,790*	9	Approx. 2 Lots Remain	620
Lynnsway Cottage Homes		*11,160*	36	Approx. 2 Lots Remain	620
Monastery Woods[2]		*68,510*	221	100 Units Remain to be Built	31,000
Offshore Estates[2]		*3,100*	10	4 Units Remain to be Built	1,240
Robin's Nest Subdivision, Unit 4	5/15/2002	11,160	36	Approx. 1 Lot Remains	310

Subdivision / Development Name	Capacity Certification Letter Date	Average Design Flow (GPD)	Total Number of Units	Status	Estimated Flow Remaining to be Added to System (GPD)
Cedar Lake (Continued)					
Beacon Pointe[2]		146,630	473	127 Units Remain to be Built	39,370
Deerview[2]		12,400	40	1 Unit Remains to be Built	310
Winding Creek Estates - Unit 2	10/11/2004	9,300	32	Approx. 3 Lots Remain	930
Krystal Oak	1/25/2005	34,100	110	Approx. 2 Lots Remain	620
Lynnsway Subdivision	3/9/2006	81,840	278	Approx. 2 Lots Remain	620
Summer Winds[2]		32,550	105	18 Units Remain to be Built	5,580
Birchwood[2]	7/29/2019	42,470	99	6 Units Remain to be Built	1,860
Centennial Estates[2]	1/13/2020	29,760	54	7 Units Remain to be Built	2,170
Centennial Villas[2]	7/18/2020	*29,760*	96	40 Units Remain to be Built	12,400
Farmington Meadows - Phase 2	7/22/2020	13,020	42	Under Construction	13,020
Lakeview Subdivision[2]	7/28/2021	9,000		2 Units Remain to be Built	620
Oak Brook[2]		34,100	110	88 Units Remain to be Built	27,280
Lakeside[2]		232,500	750	696 Units Left to be Built	215,760
Railside Business Park[2]	5/4/2023	14,000	28	27 Units Remain to be Built	13,500
Lakeview Business Park[2]		5,580	18	18 Units Remain to be Built	5,580
Harvest Creek[2]		30,380	98	98 Units Remain to be Built	30,380
Total Estimated Flow Remaining to be Added to the Wastewater System from Residential Developments Under Construction in the Town of Cedar Lake					**404,410**
Total Estimated Flow For Residential Developments Under Construction in the Service Area					**896,700**

[1] *The Stone Mill Subdivision has a Preliminary Plat completed, and the area has been zoned. A Capacity Certification has not yet been submitted for it. Flows are based on the number of lots shown in the Preliminary Plat.*

[2] Subdivisions updated based on information provided by Cedar Lake in February 2024. In these developments, 667 of the remaining units to be built are on the West Side; and of those, 428 units have not received Final Plat (currently approved at Preliminary Plat level). 703 of the remaining units to be built are on the East Side; and of those, 641 units have not received Final Plat (currently approved at Preliminary Plat level).



N

0 600 1200 2400 FT
1"=1200'

LEGEND:

LEGEND:

- LOW DENSITY RESIDENTIAL - SUBDIVISION ALREADY PLATTED OR PLANNED
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL RETAIL
- MIXED LIGHT INDUSTRIAL / RETAIL
- INDUSTRIAL
- PUBLIC / SEMI-PUBLIC
- PARKS / OPEN SPACE
- TOWN LIMITS

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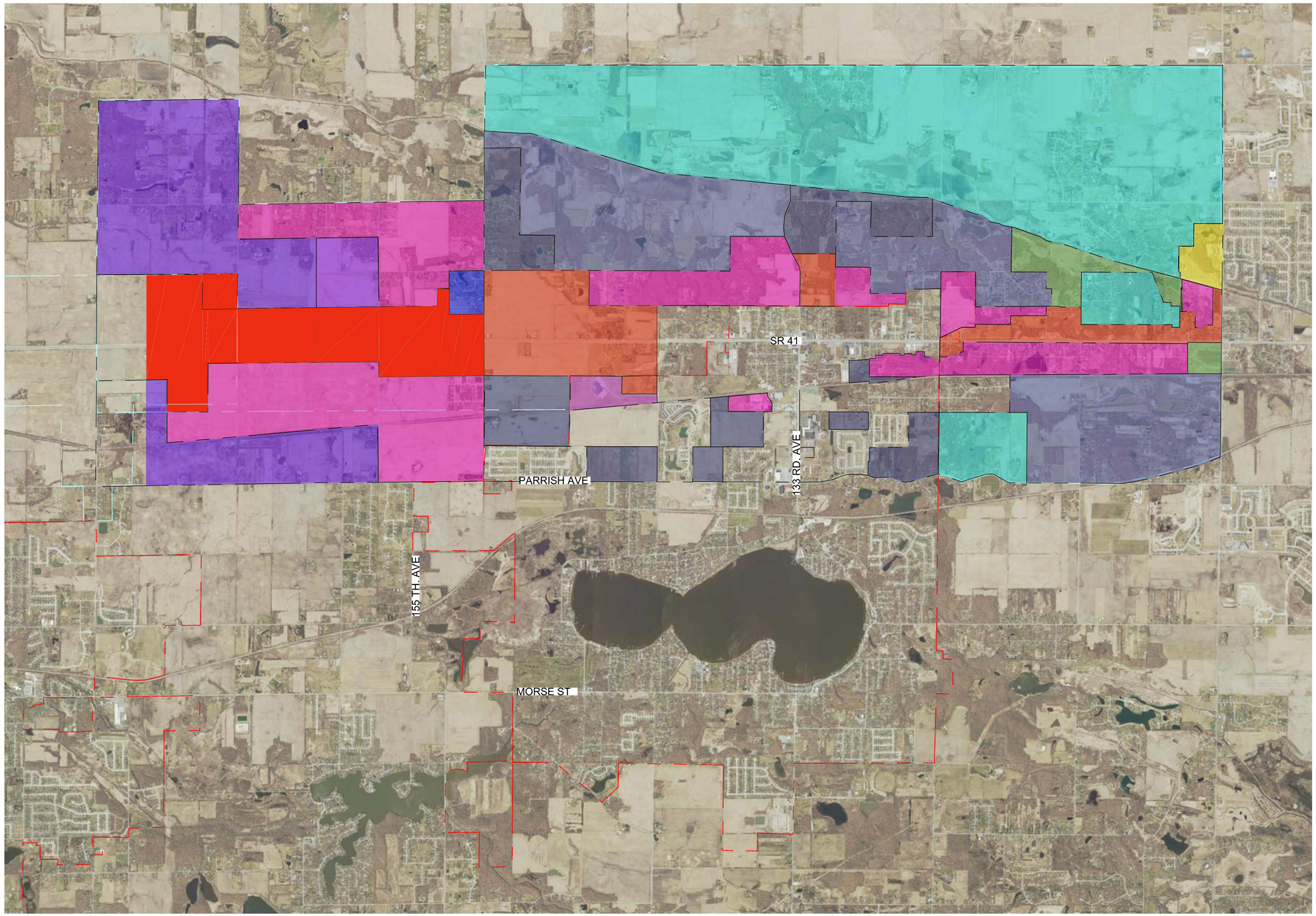
FIGURE F-1
LOWELL ANTICIPATED DEVELOPMENT MAP

WASTEWATER SYSTEM EXPANSION
FOR THE CITY OF LOWELL, INDIANA

OCTOBER 2023
XXXXXXX-01-001
PG. 1



N

0 1000 2000 4000 FT
1"=2000'

LEGEND:

- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL RETAIL
- OFFICE
- INDUSTRIAL
- PUBLIC / SEMI-PUBLIC
- PARKS / OPEN SPACE
- TOWN LIMITS
- PLANNING AREA LIMITS

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FIGURE F-2
CEDAR LAKE ANTICIPATED DEVELOPMENT MAP

WASTEWATER SYSTEM EXPANSION
FOR THE CITY OF LOWELL, INDIANA

OCTOBER 2023
179815-01-001
PG. 1

APPENDIX G

LONG-TERM CONTROL PLAN WORK UPDATE – TECHNICAL MEMO DATED JANUARY 29, 2020

WESSLER ENGINEERING

More than a Project™

TECHNICAL MEMORANDUM

To: Town of Lowell, Indiana

From: Jon Borgers, P.E.
Wessler Engineering, Inc.

Date: January 29, 2020

Subject: Long Term Control Plan Work Update

Project No.: 214419.03.02

Background

The Town of Lowell submitted a Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) to the Indiana Department of Environmental Management (IDEM) in 2003 outlining proposed projects aimed at reducing the number and extent of CSO's occurring at its Wastewater Treatment Plant (WWTP). The projects identified in the original LTCP included:

- Phase I – Construction of a 14-million gallon equalization basin at the Town of Cedar Lake
- Phase II – Improvements at the Lowell WWTP including modifications and improvements to the headworks and existing equalization basin.
- Phase III – Rehabilitation of the existing interceptor sewer and evaluation of the existing combined sewer areas.
- Phase IV – Rehabilitation of the combined sewer subsystems, as deemed necessary based on the Phase III investigations.
- Phase V – Construction of an end-of-pipe treatment system at the WWTP to handle excessive wet weather flows that cannot be treated by the WWTP.

Subsequent revisions to the plan and schedule also included the evaluation of existing rain gauges and the installation of new rain gauges, which have been completed.

Since the initial submittal of the LTCP, the Town has been working towards satisfying the requirements included in the implementation schedule. This technical memo serves as a summary and update of that work, and projection of future work that will need to be completed.

LTCP Project Implementation

Phase I

The work included under Phase I has been completed, and consisted of the construction of the equalization basin on the south side of Cedar Lake, the purpose of which is to "dampen" the wet weather flows from Cedar Lake's collection system and reduce the spikes in flow to allow the WWTP to process as much influent as possible during rain events. The work was finished in early 2003.

Phase II

The work included under Phase II has also been completed. Improvements at the headworks included a new mechanical bar screen, grit removal system, and new pumps and piping modifications to allow for transfer of excessive flows to and from the existing equalization basin.

Phase III

A portion of the proposed work regarding the interceptor sewer, which ranges in size from 30-inch diameter to 48-inch, has been completed.

Interceptor Closed-Circuit Television (CCTV) Inspections

The Town of Lowell contracted with Bloodhound, LLC for the televising of the entire interceptor sewer, approximately 26,155 feet based on maps prepared by a previous consultant. The work was started in January of 2017, and continued off and on through December of 2017. Due to issues with accessing the sewer in areas where the ground was wet or dense vegetation prevented the mobilization of equipment, and inability to enter some buried manholes in farm fields, only a portion of the system was inspected. A total of 12,713 feet (approximately 49%) has been televised. Attachment A indicates the areas of the interceptor that have been inspected.

The inspection videos and logs have been reviewed by two consultants, Shrewsberry & Associates, LLC and Wessler Engineering. A copy of the reviews are included as Attachments B and C. Overall, the condition of the reinforced concrete pipe is good. There are a few areas where active infiltration, or evidence of infiltration, could be seen, but the pipe appears to be structurally sound and the extent of the infiltration looks to be minimal. This has also been reinforced by flow monitoring that was done in 2018 and will be discussed further in this memo.

Based on the positive results of the inspection of approximately half of the interceptor, it is recommended that the remaining portions of the sewer do not need to be televised at this time. The resources that would have been used to complete the televising work could be implemented elsewhere in the collection system or WWTP to achieve higher impact on infrastructure improvement. If issues such as blockages or suspected inflow and infiltration (I/I) arise in the future, it would be prudent to continue CCTV investigations on an as-needed basis.

Collection System Flow Monitoring

During the summer of 2018, the Town of Lowell contracted with ADS Environmental Services to install several flow meters within the interceptor and at points where the Lowell collection system connects to it. In 1998, Commonwealth Engineers, Inc. also prepared a similar flow monitoring report.

During the 2018 monitoring period, which included the months of June through August, there was one significant rain event that occurred on July 4th and 5th. Concentrating on the time period between June 27th and July 10th to analyze the effects of wet weather on the system, the data indicates that excessive I/I is most likely entering the collection systems of Lowell and Cedar Lake, rather than the interceptor sewer itself. The seven days from June 27th to July 3rd have been used to estimate the dry weather flows in the system. There was no recorded rain during that time period, with minor precipitation occurring the week before. On July 4th and 5th, a total of 0.37" and 1.75" of rain was recorded respectively in Lowell. Significant spikes in the flows were associated with those events, particularly on July 5th.

Attachment D is an excerpt from the 2018 ADS Flow Monitoring report that gives a general location of the meters. The subsequent hydrographs included as Attachment E show the flow measured at each location over the two-week period from June 27th to July 10th, 2018. The immediate increases in flow, particularly on July 5th after the 1.75" of rain indicate that the system is very susceptible to inflow. Infiltration is also an issue, but it appears that the flows do return to normal within a couple days. This may also be a function of the ground not being saturated at the time of the rain event. It is unclear what the subsurface conditions were at that time.

Attachment F is a summary of particular interest regarding the interceptor sewer. It shows both time periods from June 27th to July 3rd and July 4th to July 10th, giving total flow for the seven-day periods, average daily flow, and maximum and minimum flows measured at each metering location. In the table's second row from the bottom, the total flow entering the interceptor from approximately all of the connection points with the sanitary sewer collection system (both Lowell and Cedar Lake) is given. The bottom row shows the difference between the total flow entering the interceptor from the sub basins and the total flow measured at the end of the interceptor as it entered the WWTP. This difference would approximately indicate the amount of I/I that is entering just the interceptor sewer. During the dry weather week, the difference was actually a negative number, likely due to slightly inaccurate flow measurements. During the wet weather week, an additional 0.204 million gallons (MG) was recorded in the interceptor. If this was strictly I/I in the interceptor, it would account for only 0.8% of the total flow (25.665 MG) measured that week.

Based on this flow information, and the partial CCTV inspections, it appears that the interceptor does not have excessive I/I issues. To reduce wet weather flows more effectively, it is recommended that the Town concentrate on the collection system sub basins as outlined further in this memo.

In an effort to correlate the flow data from the 1998 and 2018 flow monitoring, Attachment G is included. The figure is an excerpt from a Sanitary Collection System Evaluation report prepared by SEH in 2015. The flow data shown on the figure (in blue rectangles) was based on the 1998 flow monitoring. The locations of the meters used for that project roughly correspond to the locations used in 2018. The flow data in the red outlined boxes is from the 2018 study.

Phase IV

No work has yet been done with regards to the evaluation or rehabilitation of the Lowell sanitary sewer collection system. The LTCP indicates that a focus will be on the areas that used to, or currently have, combined sewers. Based on the data from the 1998 and 2018 flow monitoring, it would appear that the areas identified as Sub-Systems 4 and 6 in the 2015 SEH report would likely be the best places to focus. This is also reinforced by input that has been received from the public and conditions witnessed during rain events in that part of the Town, generally identified as north of State Road 2 and west of Nichols St. Refer to the "Recommendations" section at the end of this memo with regards to the sanitary sewer collection system.

Phase V

The work identified as part of Phase V in the original LTCP has been completed. It included the construction of a CSO treatment facility (ActiFlow) located at the WWTP. The original LTCP had this as the last step, and it was going to be sized accordingly after the rest of the work was done and any reduction in wet weather flow was analyzed. It is not clear based solely on prior correspondence why this Phase was moved ahead of the collection system and interceptor work. The ActiFlow was put in operation in 2014.

Based on correspondence to and from IDEM, the Lowell WWTP is required to handle wet weather flows resulting from up to and including a 1-year, 1-hour storm event (approximately 1.2 inches per hour). The ActiFlow can be operated when a 1-year, 1-hour storm event occurs, and must be able to treat flows resulting from a 10-year, 1-hour storm (approximately 2.0 inches per hour). Flows from any storm events beyond the 10-year, 1-hour can result in a CSO at the permitted discharge location. The Town had no way of measuring the rain intensity required to show when a 1-year, 1-hour or 10-year, 1-hour storm event was occurring until the rain gauge at the WWTP was connected to SCADA in January of 2020. At this time, the ActiFlow is strictly operated on the basis of incoming flow. When the EQ basin is full and the WWTP treatment processes have been maximized, any additional influent is directed to the ActiFlow.

During 2019, based on the Town's Monthly Monitoring Reports (MMR) for Wet Weather Treatment Facilities, the ActiFlow was operational a total of 26 days during February, April, May, June, September, October, and November. According to the Operator, the facility has been treating the wet weather flows effectively during 2019, and the system has only been used when it was needed due to the WWTP being at its maximized capacity and the equalization basin being full. There is no way to correlate the use of the wet weather treatment system during 2019 with regards to the size of the storm event since the rainfall intensity could not be measured.

Recommendations

Based on the work that has been done since the LTCP was approved by IDEM, and the results of the investigations that have taken place thus far, Wessler offers the following recommendations:

- No further evaluation of the Interceptor Sewer unless conditions warrant inspections otherwise. If the Town wishes to address some of the I/I issues identified in the review of the CCTV videos, it might be of some benefit, but focusing on other areas in the collection system would likely be more cost effective. This recommendation should be taken to IDEM to clarify that the investigation of the system is complete, and no further work is warranted.
- Regarding the wet weather treatment facility (ActiFlow), now that the rain gauge at the WWTP is capable of indicating rainfall intensity, it is recommended that the operation of the facility be carefully monitored in correlation to the rainfall. This will help indicate if the system is being operated as required by IDEM to treat only flows resulting from a 1-year, 1-hour storm event or above. If this can be shown, it is also recommended that the Town request IDEM to evaluate the current status of the Agreed Order and determine if the requirements have been satisfied without further I/I reduction in the collection system.
- In an effort to reduce I/I in the system, it is recommended that the sanitary sewer collection system in the Town of Lowell be investigated further, including manhole inspections, CCTV evaluations, and other wet weather investigations. The focus should likely start with the areas north of State Road 2 and west of Nichols St. The current LTCP approved Implementation Schedule requires the construction of improvements to the collection system be started in October of 2020 and complete by October of 2021. As noted above, if the ActiFlow is able to treat wet weather flows resulting from a 1-year, 1-hour up to a 10-year, 1-hour storm event, IDEM should be asked that the collection system investigations and rehabilitation be removed from the LTCP requirements. However, even if this is achieved, it is recommended that the Town continue with some form of I/I reduction program to help alleviate stress on the collection system and free up capacity at the WWTP. If IDEM does not agree

to remove the collection system work from the LTCP requirements, it is likely that a time extension will be required due to the extent of work needed.

- Wessler is currently evaluating the Lowell WWTP and preparing a report with recommendations on short- and long-term improvements needed to maintain compliance with its NPDES Permit, as well as address capacity issues for future development in Lowell and Cedar Lake. Based on this evaluation, further recommendations at the WWTP may be made that would help increase the treatment capacity of wet weather flows with the intent of reducing the operations of the ActiFlow.

END

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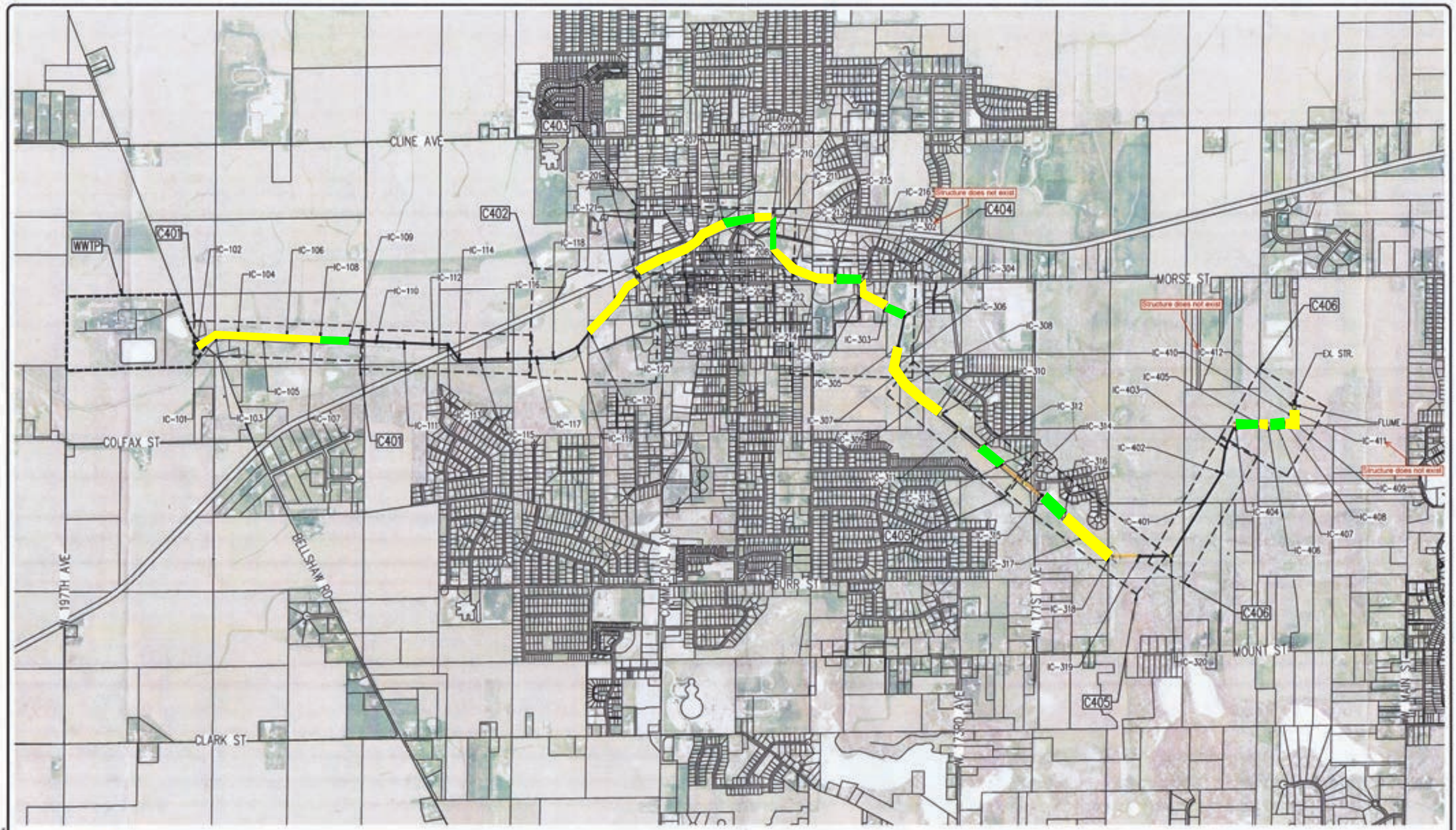
cc: File



A C101 OVERALL INTERCEPTOR
Scale: 1" = 800'-0"

LEGEND

- Full Sewer Section has been provided on video
- Partial Sewer Section has been provided on video
- Structure video has been provided

NOTE:

1) CONTRACTOR SHALL PERFORM AN AS-BUILT SURVEY OF THE INTERCEPTOR PROVIDING RIM AND INVERT ELEVATIONS ALONG WITH STATE PLANE COORDINATES OF RIMS AND PROVIDE TO OWNER.
2) MANHOLE RIM AND INVERT ELEVATIONS SHOWN IN PLANS ARE BASED UPON DESIGN OR AS-BUILT DRAWINGS, WHICH ARE AVAILABLE UPON REQUEST.
3) PORTIONS OF THE INTERCEPTOR ARE LOCATED WITHIN A FLOODWAY AND ARE UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF NATURAL RESOURCES. CONTRACTOR SHALL NOT CUT ANY TREES SUITABLE FOR INDIANA BAT ROOSTING (GREATER THAN 3 INCHES DBH, LIVING, OR DEAD, WITH LOOSE HANGING BARK) BETWEEN APRIL 1 AND SEPTEMBER 30.
4) ACCESS TO AN INDIVIDUAL PROPERTY MUST BE GRANTED BY THE ENGINEER AND SHALL BE IN THE FORM OF A RIGHT-OF-ENTRY SIGNED BY THE OWNER.
5) PIPE SIZES ARE AS FOLLOWS:
   A) 48" RCP FROM STR. IC-101 TO IC-216
   B) 42" RCP FROM STR. IC-216 TO IC-316
   C) 42" ABCMP FROM STR. IC-316 TO IC-320
   D) 30" ABCMP FROM STR. IC-320 TO EX. STR.

BAR IS ONE INCH ON ORIGINAL DRAWING

ATTACHMENT A
TELEVISED INTERCEPTOR

NO. | DATE | DESCRIPTION

abrams aberg

TOWN OF LOWELL, IN
INTERCEPTOR TELEVISING & LOCATING

DATE: 08/09/16
DRAWN BY: RLH
DRAWING FILE:
PROJECT NO.: 16-0094
SHEET TITLE: OVERALL SHEET
SHEET NO.: C101
TOTAL SHTS.

Sewer Televising Review

ATTACHMENT B
SHREWSBERRY INTERCEPTOR
CCTV REVIEW

shrewsberry

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
IC-412	IC-409	RCP	Circular	30	1/10/2017	IC-412 - IC-409_0000.mp4	0:24:25	0	AMH										
								0	MWL				10						
								0	SAV	S01					7	5	2		
								367		F01									
								0.6	CS					J	9	12	2		
								7	DAZ	S02			25		7	5		**4**	most pronounced at joints, may be peeling surface coating
								367		F02									
								367	AMH										
IC-409	IC-408	RCP	Circular	30	1/10/2017	IC-408 - IC-409.mp4	0:16:34	0	AMH										
								0	MWL				30						
								0	SAV	S01					7	5	2		
								141.78		F01									
								13.72	DAZ	S02			10		11	1		2	may be peeling surface coating
								29.4		F02									
								14.32	MWM				40						
								36.34	DAZ	S02			25		8	4		**4**	may be peeling surface coating
								141.78		F02									
								37	RTB				1/2" thick		3	4		3	
								39	MGO										change in flow from rough to smooth indicates submerged debris
								141.78	AMH										
IC-408	IC-407	RCP	Circular	30	1/10/2017	IC-408 - IC-407_0000.mp4	0:11:48	0	AMH										
								0	MWL				30						
								0	SAP	S01							3		
								114.4		F01									
								14.9	DAE	S02			20		10	2		3	
								114.4		F02									
								98.18	MWM				50						
								144.4	OBZ				25		6			**4**	Unknown submerged obstacle cannot be seen due to water level
								114.4	MSA										Submerged obstacle
IC-407	IC-406	RCP	Circular	30	1/11/2017	IC-406 - IC-407.mp4	0:39:20	0	AMH										
								0	MWL				40						
								0	SAV	S01					8	4	2		
								21		F01									
								21	SAP	S02							3		
								324.19		F02									
								21	RFJ					J	1			1	
								30	JSM						4		3		Separation is barely one pipe wall thickness at 4 o'clock
								60	RFJ					J	12	2		1	
								65	RFJ					J	12	2		1	
								88	RFJ					J	1	2		1	
								105	JSM						4		3		Separation is barely one pipe wall thickness at 4 o'clock and 8 o'clock
								112	JSM						4		3		Separation is barely one pipe wall thickness at 4 o'clock and 8 o'clock
								130	DAZ	S03			20		10	2		3	
								324.19		F03									
								188	JSM						8		3		Separation is barely one pipe wall thickness at 4 o'clock and 8 o'clock
								208	MWM				50						
								225	JSM						8		3		Separation is barely one pipe wall thickness at 4 o'clock and 8 o'clock
								233	JSM						8		3		Separation is barely one pipe wall thickness at 4 o'clock and 8 o'clock
								315	MGP					J					Missing Grout at Joint
								323	JSM						8		3		Separation is barely one pipe wall thickness at 4 o'clock and 8 o'clock
								324.19	OBZ				15		6			3	Unknown submerged obstacle cannot be seen due to water level
								324.19	MSA										Submerged obstacle
IC-406	IC-405	RCP	Circular	30	1/11/2017	IC-406 - IC-405_0000.mp4	0:43:58	0	AMH										
								0	MWL			30							
								0	SAV	S01					8	4	2		
										F02									
								35.35	MGP					J					Missing Grout at Joint
								42.28	IWJ					J	4	5		2	Rust colored substance is attached at joint weep
								70	MWM				45						
								80	RFJ					J	12			1	
								94	JSM		3"						3		Visible change in flow pattern

Sewer Televising Review

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Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								104	MGO					J			3		Missing grout at joint
								118	CM					J	4	5	3		
								118	MGO					J					Missing grout at joint
								126	MGO					J					Missing grout at joint
								133	CM					J	4	5	3		
								141	CM					J	4	5	3		
								148	CM					J	4	5	3		
								155	CM					J	4	5	3		
								163	JSM		3"						3		also some cracks near joint
								171	JSL		4"						**4**		
								178	JSM		3"						3		
								186	JSL		4"						**4**		
								194	JSM		3"						3		
								201	JSM		3"						3		
								209	JSM		3"						3		Visible change in flow pattern
								209	DAE				20	J	11	1	3		
								216	JSM		3"						3		also some cracks near joint
								224	JSM		3"						3		
								231	JSM		3"						3		
								239	JSM		3"						3		also some cracks near joint
								245	IRJ					J	11			**4**	
								245	DAR				5	J	12			2	
								252	JSL		4"						**4**		
								261	JSM		3"						3		
								269	CM					J	4	5	3		also Joint Separation Medium
								276	CM					J	3	5	3		also Joint Separation Medium
								284	CM					J	8	5	3		also Joint Separation Medium
								292	CM					J	8	5	3		also Joint Separation Medium
								299	CM					J	8	5	3		also Joint Separation Medium
								307	JSM		3"						3		
								315	JSM		3"						3		
								323	JSM		3"						3		
								330	JSM		3"						3		
								337	JSM		3"						3		
								346	JSM		3"						3		
								353	JSM		3"						3		
								361	JSL		4"						**4**		
								361	DAR				5	J	3			2	
								368	JSM		3"						3		
								376	JSL		4"						**4**		also some cracks near joint
								383	CM					J	8	5	3		
								391	JSM		2"						3		also some cracks near joint
								398	CM					J	8	5	3		also Joint Separation Medium
								406	CM					J	8	5	3		also Joint Separation Medium
								413	CM					J	8	5	3		
								421	CM					J	8	5	3		also Joint Separation Medium
								426	AMH										
IC-405	IC-404	RCP	Circular	30	2/6/2017	IC-405 - IC-404_0000.mp4	0:28:30	0	AMH										
								0	MWL				30						
								0	SAV	S01					8	4	2		
										F02									
								5	CM					J	8	4	3		
								13.5	CM					J	8	4	3		
								21.3	CM					J	8	4	3		
								29.3	CM					J	8	4	3		
								36.5	CM					J	8	4	3		
								43.3	CM					J	8	4	3		
								51.2	JSM		3"						3		
								59	JSM		2"						3		
								66.5	JSM		2"						3		
								74.3	CM					J	8	4	3		

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Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								82	CM					J	8	4	3		
								89.5	JSM		3"						3		also some cracks near joint
								97	JSM		2"						3		also some cracks near joint
								104.4	JSM		2"						3		also some cracks near joint
								104.4	JSM		2"						3		also some cracks near joint
								112	JSM		2"						3		also some cracks near joint
								119.5	CM					J	8	4	3		
								127.3	CM					J	8	4	3		
								134.3	CM					J	8	4	3		
								142	JSM		3"						3		
								149.4	JSM		3"						3		
								157	CM					J	8	4	3		
								164.5	JSM		2"						3		also some cracks near joint
								172.8	CM					J	8	4	3		slight joint separation at 11 to 1 o'clock
								180.4	CM					J	8	4	3		slight joint separation at 11 to 1 o'clock
								187.5	CM					J	8	4	3		slight joint separation at 11 to 1 o'clock
								195	CM					J	3	4	3		
								202.8	CM					J	3	4	3		slight joint separation at 11 to 1 o'clock
								210	CM					J	3	4	3		slight joint separation at 8 to 9 o'clock
								217.3	JSM		2"						3		also some cracks near joint
								224.7	JSM		2"						3		
								224.7	ISSR				5		12	1		2	
								232.8	JSM		3"				8	4	3		
								247.7	JSM		2"				8	11	3		
								254.8	JSM		3"				8	11	3		
								263	JSM		2"				8	11	3		
								270	JSM		2"				8	11	3		
								285	CM					J	8	4	3		
								292.4	JSM		2"						3		also some cracks near joint
								300	JSM		2"						3		
								300	ISSR				5		12	1		2	
								307.4	JSM		2"						3		
								322.9	CM					J	8	4	3		
								330.8	JSM		3"						3		also some cracks near joint
								338	ISSR				5		4	5		2	
								338	JSM		2"						3		
								345	JSM		2"				8	9	3		
								352.9	JSM		2"				11	4	3		
								360.7	JSM		2"				8	1	3		
								368	JSM		3"				11	4	3		also some cracks near joint
								376.1	JSM		2"				11	4	3		also some cracks near joint
								383.1	JSM		2"				11	4	3		also some cracks near joint
								389.4	IRJ					J	11			**4**	
								389.4	JSL		8"						**4**		Rust colored build up from 8 to 11 o'clock
								393	MGO										flow pattern change, smooth to tubulent
								393	MWL				50						
								399	JSM		3"				3	4	3		Rust colore buildup in separation area
								406.5	IDJ					J	12			3	
								406.5	JSL		6"						**4**		
								406.5	DAR				10		12			2	
								408	MWL				60						
								412	MWL				70						
								414.7	JSL		4"						**4**		
								418	MWL				80						
								421	IDJ					J	11	1		3	
								421	JSL		6"						**4**		
								421	DAR				10		12			2	
								423	MCU									**4**	
								423	MSA										
IC-319	IC-318	RCP	Circular	42	2/15/2017	IC-319 - IC-318_0000.mp4	0:02:08	0	AMH										
								0	MWL				35						

Sewer Televising Review

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Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								0	MSA										Debris blocking path
IC-318	IC-317	RCP	Circular	42	2/14/2017	IC-318 - IC-317 (2)_0000.mp4	0:17:29	0	AMH										
								0	MWL				40						
								0	SRI	S01					8	4	1		
								176.8		F01									
								7	MWM				55						
								28.8	DAR				10		11			2	
								35.9	DAE				20	J	8	4		3	
								51.6	DAE				20	J	8	12		3	
								74	DAE				20	J	8	4		3	
								96.8	DAE				20	J	8	4		3	
								96.8	IDJ						11	12		3	
								112.2	DAE				20	J	3	4		3	
								112.2	IDJ					J	3	4		3	
								141.8	IDJ					J	8	9		3	
								149.4	ISJ					J	2	4		1	
								165.1	ISJ					J	8	9		1	
								174.74	MCU										
								176.8	MSA										
IC-318	IC-317	RCP	Circular	42	2/14/2017	IC-317 - IC-318_0001.mp4	0:35:35	0	AMH										
								0	MWL				15						
								0	SRI	S01					7	5	1		
								382.38		F01									
								7.3	DAE				30		2	5		**4**	
								8	MWL				30						
								14.5	DAE				30		2	5		**4**	
								37.6	CS					J	1	2	2		
								74.8	DAE				15		7	5		3	
								87	MWL				40						
								90.7	FS					J	4	5	3		
								98.2	FS					J	4	5	3		
								112.9	DAE				15	J	4	5		3	
								112.9	ISJ					J	8	9		1	
								121.2	IRJ					J	4	5		**4**	
								121.2	DAE				15	J	4	5		3	
								129.5	ISJ					J	7	9		1	
								135.8	IWJ					J	4	5		2	
								143.7	FC					J	3	5	2		
								151.3	FC					J	3	5	2		
								158.9	FC					J	3	5	2		
								160	DAGS	S02			10		8	4		2	at water level
								200		F02									
								166.6	FC					J	4	5	2		
								166.6	FC					J	7	8	2		
								174.2	DAE				15	J	3	5		3	
								203.9	ISJ					J	3	5		1	
								212.2	DAE				20	J	8	4		3	
								227	FC					J	3	5	2		
								242.5	IWJ					J	4	5		2	
								242.5	IDJ					J	8	9		3	
								250	IWJ					J	3	5		2	
								265	IDJ					J	8	9		3	
								272.5	DAE				20	J	3	5		3	
								280.2	ISJ					J	9	12		1	
								287.6	DAE				20		2	5		3	
								287.6	ISJ					J	8	9		1	
								302.6	FC					J	2	5	2		
								311	ISJ					J	8	9		1	
								325.8	ISJ					J	1	2		1	
								348.2	DAR				10	J	8	9		2	
								348.2	DAE				25	J	8	1		**4**	

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shrewsberry

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								355.7	IWJ					J	7	9		2	
								363.5	DAR				10	J	1	2		2	
								363.5	DAE				25	J	8	4		**4**	
								371.5	DAE				25	J	8	4		**4**	
								382.38	OBZ				10		6			2	camera stuck on submerged obstacle
								382.38	MSA										camera cord gets caught on obstacle while in reverse
IC-317	IC-316	RCP	Circular	42	2/14/2017	IC-316 - IC-317_0000.mp4	0:45:55	0	AMH										
								0	MWL				30						
								0	SRI	S01					8	4		1	
								451		F01									
								4.3	IRJ					J	12			**4**	
								4.3	DAE				15	J	8	4		3	
								12.2	IRJ					J	10	11		**4**	
								12.2	DAE				20	J	9	11		3	
								50.6	DAE				20	J	1	4		3	
								80.5	IWJ					J	3	5		2	
								119	ISJ					J	8	4		1	
								179	DAE				10	J	3	5		2	
								186.9	DAE				10	J	3	5		2	
								193.7	DAE				10	J	11	1		2	
								209.2	IRJ					J	10	1		**4**	
								209.2	DAE				25	J	8	4		**4**	
								232.1	IWJ					J	3	4		2	
								232.1	DAE				25	J	8	1		**4**	
								240	DAE				25	J	11	4		**4**	
								247.9	IWJ					J	3	4		2	
								278.5	ISJ					J	3	4		1	
								284.6	IDJ					J	12			3	Joint also has a weeper at 3 to 5 o'clock
								284.6	DAE				20	J	8	10		3	
								323.6	IWJ					J	12	2		2	also at 8 o'clock
								338	IDJ					J	10	12		3	
								386	MWM				45						
								398.4	DAE				15	J	3	5		3	
								451	MGO	S02									Video missing from approx. 451' to 198'
								498		F02									
								498	SRI	S03					8	4	1		
								515.23		F03									
								515.23	AMH										
IC-316	IC-315	RCP	Circular	42	2/14/2017	IC-316 - IC-315_0000.mp4	0:10:43	0	AMH										
								0	MWL				30						
								0	MWM				55						
								0	SRI	S01					8	4	1		
								58.67		F01									
								15.2	IDJ					J	10	12		3	
								15.2	DAE				60	J	8	4		**5**	
								32	IRJ					J	10	3		**4**	
								32	DAE				60	J	8	4		**5**	
								45.8	IDJ					J	10	12		3	
								45.8	DAE				60	J	8	4		**5**	
								52.8	IDJ					J	12	1		3	
								52.8	DAE				60	J	8	4		**5**	
								58.67	MSA										
								58.67	OBZ				10		6			2	camera stuck on submerged obstacle
IC-316	IC-315	RCP	Circular	42	2/15/2017	IC-315 - IC-316 (2)_0000.mp4	0:00:49	0	AMH										
								0	MWL				45						
								0	OBZ				10		6			2	
								0	MSA										camera stuck on submerged obstacle
IC-315	IC-314	RCP	Circular	42	2/15/2017	IC-314 - IC-315_0001.mp4	0:03:35	0	AMH										
								0	MWL				40						
								2.5	MCU									**4**	
								2.17	OBZ				10		6			2	camera stuck on submerged debris

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shrewsberry

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								2.17	MSA										
IC-314	IC-313	RCP	Circular	42	2/15/2017	IC-314 - IC-313.mp4	0:02:37	0	AMH										
								0	MWL				40						
								0	MWM				60						
								1.07	MCU									**4**	
								1.07	OBZ				10		6			2	
								1.07	MSA										camera stuck on submerged obstacle
IC-313	IC-312	RCP	Circular	42	2/8/2017	IC-312 - IC-313_0000.mp4	0:55:32	0	AMH										
								0	MWL				30						
								0	SAV	S01					8	4	2		
								361.17		F01									
								0	JSM		3"				2	4	3		
								15.5	JSM		3"				9	3	3		
								45.7	JSM		2"				9	4	3		
								73.8	CC					J	10	8	1		
								82.5	JSM		2"				9	4	3		
								128.5	JSM		2"				10	2	3		
								135.6	JSM		2"				10	2	3		
								142.4	JSM		2"				10	3	3		
								158.3	JSM		2"				9	3	3		
								164.7	JSM		2"				11	3	3		
								172.6	JSM		3"				9	4	3		
								188	DAR				15		12			3	
								202.6	JSM		2"				10	2	3		
								218.6	JSM		2"				10	2	3		
								233.2	JSM		2"				8	4	3		
								240.2	JSM		2"				8	4	3		
								249.74	MGO	S02									Video jumps from 249.73 to 253.14
								253.14		F02									
								254.6	JSM		3"				8	4	3		
								262	ISB					J	9			1	
								262.4	JSM		2"				8	4	3		
								270.9	JSM		2"				8	4	3		
								277.8	JSM		2"				8	4	3		
								286	MWM				70						
								292.8	DAE				20		8	10		3	
								307.5	JSM		3"				8	4	3		
								323.5	JSM		2"				8	4	3		
								359.1	JSM		2"				8	4	3		
								361.17	OBZ				10		6			2	
								361.17	MSA										camera stuck on submerged obstacle
IC-312	IC-311	RCP	Circular	48	12/12/2017	IC-312 to IC-311.mp4	0:01:05	0	AMH										
								0	MWL				10						
								5.82	AMH										unexpected manhole, line turns 90 degrees to the right
IC-311	IC-310	RCP	Circular	48	12/12/2017	IC-312 to IC-311.mp4	0:01:21	0	AMH										
								0	MWL				15						
								0.86	MSA										unable to conitnue due to suspected fine sediment
IC-310	IC-309	RCP	Circular	42	2/7/2017	IC-310 - IC-309 (2)_0000.mp4	0:29:21	0	AMH										
								0	MWL				40						
								0	SAV	S01					8	4	2		
								394.44		F01									
								10.3	ISJ					J	11	12		1	
								26.5	DAE				15	J	3	4		3	
								32.4	IDJ					J	11	12		3	
								32.4	DAR				10	J	10	11		2	
								47.6	DAR				10	J	11	12		2	
								50.9	IWJ					J	8	9		2	
								68.3	DAZ				10	J	11			2	
								68.3	IDJ					J	10			3	
								78	DAE				10		1	2		2	
								83	DAE				10		1	2		2	

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								92.3	IDJ					J	10	2		3	
								92.3	DAE				20		8	4		3	
								94	DAE				10		9	10		2	
								129.8	DAE				10		3	4		2	
								160.3	DAE				10		12	2		2	
								203.9	IDJ					J	10	1		3	
								203.9	DAE				15		9	3		3	
								235.3	ISJ					J	12			1	
								265	ISJ					J	10	12		1	
								310.2	IWJ					J	8	9		2	rust colored encrustation
								325.9	IWJ					J	3	4		2	rust colored encrustation
								394.44	AMH										
IC-310	IC-309	RCP	Circular	42	2/7/2017	IC-309 - IC-310_0000.mp4	0:17:00												This video duplicates section covered in file IC-310 - IC-309 (2)_0000.mp4
IC-309	IC-308	RCP	Circular	42	2/7/2017	IC-308 - IC-309_0000	0:33:50	0	AMH										
								0	MWL				25						
								0	SAV	S01					7	5	2		
								396.85		F01									
								20	MWM				45						
								50.2	ISJ					J	10	2		1	
								64.3	IDJ					J	8	11		3	rust colored encrustation
								139.2	DAE				10		11	2		2	
								147.5	DAE				10		1	4		2	
								162.8	IRJ					J	10	11		**4**	rust colored encrustation
								170.2	DAE				10		3	4		2	rust colored encrustation
								178.3	DAE				10		3	4		2	rust colored encrustation
								186.6	DAE				10		3	4		2	rust colored encrustation
								199.7	DAE				10		12	2		2	
								238.2	CS					J	3	4	2		
								320.3	DAE				15	J	7	5		3	
								328.1	DAE				10		9	11		2	
								344.1	ISJ					J	11	1		1	
								344.1	DAR				10	J	12			2	
								350.8	ISJ					J	7	12		1	
								373.8	ISJ					J	7	5		1	
								396.85	OBZ				10		6			2	camera stuck on submerged debris within sight of upstream manhole
								396.85	MSA										
IC-308	IC-307	RCP	Circular	42	2/7/2017	IC-308 - IC-307_0000.mp4	0:11:20	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								163.75		F01									
								0.8	ISJ					J	7	5		1	
								7	ISJ					J	7	5		1	
								9	MWM				30						
								22.7	ISJ					J	7	12		1	
								52.5	DAE				5	J	3	5		2	
								52.5	ISJ					J	7	5		1	
								57	ISB						1	2		1	
								60	IWJ					J	3	5		2	
								60	DAE				5	J	7	12		2	
								67.5	ISJ					J	7	5		1	
								75	DAR				10	J	11	12		2	
								75	IRJ					J	12			**4**	
								97.5	DAR				15	J	10	12		3	
								97.5	IDJ					J	12			3	
								104.9	DAE				15	J	11	5		3	
								119.7	ISJ					J	7	11		1	

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								127.3	DAR				15	J	10	7		3	
								134.5	IWJ					J	7	9		2	
								148.8	IDJ					J	11	2		3	
								148.8	DAE				25	J	9	4		**4**	also some rags attached
								163.75	AMH										constant flow of water coming down from manhole above interceptor pipe
IC-307	IC-306	RCP	Circular	42	2/7/2017	IC-307 - IC-306_0000.mp4	0:09:24	0	AMH										
								0	MWL				30						
								0	SAV	S01					8	4	2		
								163.89		F01									
								7	IWJ					J	8	9		2	
								14.3	DAE				20	J	8	4		3	also some rags attached
								14.3	IDJ					J	9	10		3	
								20.8	DAE				30	J	8	4		**4**	also some rags attached
								20.8	IRJ					J	11	1		**4**	
								43.9	DAE				15	J	9	3		3	
								59.3	DAE				10	J	2	4		2	
								87.7	IRJ					J	12	1		**4**	
								87.7	DAE				25	J	8	4		**4**	also some rags attached
								119.2	DAE				10	J	8	4		2	
								119.2	IWJ					J	3	4		2	
								157.5	ISJ					J	8	12		1	
								163.89	AMH										
IC-306	IC-305	RCP	Circular	48	11/22/2017	IC 306 to IC 305.mp4	0:12:33	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								455.22		F01									
								8.67	IDJ					J	11	12		3	
								8.67	DAE				30	J	10	5		**4**	
								24.51	DAE				5	J	9	11		2	
								69.89	DAE				5	J	2	4		2	
								79.86	IDB						12			3	
								79.86	DAE				5		12			2	
								88.45	DAE				5		8	9		2	
								99.34	IRJ					J	11	12		4	
								99.34	DAE				10	J				2	
								118.09	DAE				5		2	3		2	
								121.49	DAE				5	J	2	5		2	
								129.59	DAE				5	J	2	5		2	
								136.90	DAE				10	J	8	4		2	
								136.90	IWJ					J	11			2	
								158.41	DAE				5	J	2	4		2	
								182.80	DAE				10	J	7	5		2	
								182.80	IWJ					J	4	5		2	
								182.80	JSM					J	7	5	3		
								238.40	DAE				5		8	11		2	
								261.55	DAE				5		9	11		2	
								268.78	DAE				5		12	2		2	
								268.78	IWB						1			2	
								299.11	ISB						12			1	
								299.11	DAE				5		11	1		2	
								320.82	DAE				5		10	12		2	
								335.30	DAE				5		10	12		2	
								344.31	DAE				5		10	12		2	
								378.10	DAE				10	J	7	5		2	
								378.10	IDJ					J	10	11		3	
								425.38	ISB						11	4		1	
								425.38	DAE				5		12	1		2	
								445.87	DAE				10	J	9	1		2	
								445.87	IDJ					J	10			3	
								455.22	AMH										
IC-304	IC-303	RCP	Circular	42	2/6/2017	IC-303 - IC-304_0000.mp4	0:17:22	0	AMH										

Sewer Televising Review

shrewsberry

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								0	MWL				20						
								0	SAV	S01					7	5	2		
								234		F01									
								2	MWM				40						
								221	RFB						1	3		2	
								234	TFA		8"				12				
								233.76	OBZ				10		6			2	
								233.76	MSA										
IC-304	IC-303	RCP	Circular	42	2/6/2017	IC-303 - IC-304 (2)_0000.mp4	0:17:44												Video is duplicate of video evaluated above
IC-303	IC-301	RCP	Circular	42	2/15/2017	IC-303 - IC-301_0000.mp4	0:39:53	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								444.04		F01									
								6.5	DAGS	S02			5		7				also at 5 o'clock
								20.5		F02									
								39	MWM				40						
								57	CC						2	5		1	
								181	DAE				5		2	4		2	
								186	DAE				15	J	7	2		3	
								216.3	DAE				15	J	9	3		3	
								241	RFB				10		11	12		2	
								247	RFB				10		11	12		2	
								257	RFB				10		11	12		2	
								257	IDB						11	12		3	
								271	DAE				5		10	11		2	
								298.9	DAE				10	J	12	5		2	
								322.1	DAE				10	J	12	3		2	
								415	DAE				10		7	9		2	
								423	DAE				15		7	12		3	also some rags attached
								423	IDB						10	12		3	
								444.04	AMH										IC-301, there was no manhole IC-302
IC-301	IC-216	RCP	Circular	42	2/15/2017	IC-301 - IC-216_0000.mp4	0:20:42	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		inside surface of pipe appears to have bubbles?
								254.2		F01									
								6.4	DAE				10	J	7	11		2	
								33.7	DAE				15	J	10	12		3	some ragging attached also
								117	DAR				5		9	10		2	
								146.6	DAE				20	J	7	5		3	some ragging attached also
								146.6	IWJ					J	1			2	
								154.7	DAE				15	J	3	5		3	
								154.7	IWJ					J	4			2	
								177.8	DAR				10	J	1	2		2	
								180.5	IRB						12			**4**	
								185.3	DAE				5	J	7	9		2	
								212	IDB						12			3	
								223	DAE				10	J	7	9		2	
								229.9	DAE				15	J	7	5		3	
								229.9	IRJ					J	11			**4**	
								254.2	AMH										
IC-216	IC-215	RCP	Circular	42	2/16/2017	IC-215 - IC-216_0000.mp4	0:25:46	0	AMH										
								0	MWL				35						
								0	SAV	S01					8	4	2		
								321.26		F01									
								3	JSM		2"			J	1	4	3		
								11.4	JSM		2"			J	7	4	3		
								18.9	JSM		2"			J	7	11	3		
								33.6	JSM		2"			J	7	4	3		
								34	DAGS	S02			5		8				also at 4 o'clock
								321.26		F02									
								41	JSM		2"			J	7	12	3		

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								48.5	DAE				20	J	1	4		3	
								48.5	IDJ					J	3	4		3	
								63.1	JSM		3"			J	7	4	3		
								86.6	JSM		2"			J	7	4	3		
								94.1	JSM		2"			J	7	4	3		
								101.8	JSM		2"			J	12	4	3		
								109.8	JSM		2"			J	12	4	3		
								124.6	DAE				30	J	1	4		**4**	some ragging attached also
								124.6	IDJ					J	2			3	
								139.6	JSM		4"			J	7	4	3		
								147.8	JSM		2"			J	7	4	3		
								154.9	JSM		2"			J	7	4	3		
								177.7	JSM		2"			J	7	4	3		
								185.5	JSM		2"			J	11	4	3		
								192.5	JSM		2"			J	11	4	3		
								199.8	JSM		2"			J	11	4	3		
								239.1	JSM		2"			J	11	4	3		
								284.7	DAR				15	J	12			3	
								284.7	JSM		3"			J	7	4	3		
								315.6	JSM		2"			J	11	4	3		
								321.26	OBZ				10		6			2	
								321.26	MSA										camera stuck on submerged obstacle
IC-215	IC-214	RCP	Circular	42	2/16/2017	IC-214 - IC-215_0002.mp4	0:25:50	0	AMH										
								0	MWL				30						
								0	SAV	S01					8	4	2		
								300.97		F01									
								0	JSM		5"			J	8	4	3		this is the first pipe joint in this section, viveo was not started at pipe end
								0	IDJ					J	9	10		3	
								0	DAE				20	J	8	10		3	
								6.9	IGJ					J	10	11		**5**	
								6.9	DAE				15	J	1	4		3	
								23.4	JSM		5"			J	8	4	3		
								31.4	JSM		3"			J	8	4	3		
								45.2	JSM		2"			J	8	9	3		Also from 3 to 4 o'clock
								53.4	DAE				15	J	8	11		3	
								53.4	IDJ					J	10	11		3	
								53.4	JSM		4"			J	8	4	3		
								68.7	JSM		2"			J	8	4	3		
								77.1	JSM		4"			J	8	4	3		
								84.2	JSM		3"			J	8	4	3		
								92	JSM		2"			J	8	4	3		
								99.6	JSM		2"			J	8	4	3		
								107	JSM		2"			J	8	4	3		
								114	IRJ					J	12				
								114	DAE				15	J	8	4		3	
								122	JSM		2"			J	8	4	3		
								137	JSM		4"			J	8	4	3		
								137	IWJ					J	8	10		2	
								137	IDJ					J	11	1		3	
								137	DAE				10		8	10		2	
								145.2	JSM		3"			J	8	4	3		
								153.1	JSM		2"			J	8	4	3		
								168.1	JSM		2"			J	8	12	3		
								190.6	JSM		2"			J	12	4	3		
								205.8	JSM		4"			J	1	4	3		
								212.8	IWJ					J	8	10		2	
								212.8	DAE					J	8	11		3	
								220.5	JSM		2"			J	8	11	3		
								244.8	JSM		3"			J	8	4	3		
								251.7	JSM		3"			J	8	4	3		
								274.3	JSM		2"			J	8	11	3		

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								289.6	JSM		2"			J	8	4	3		
								300.97	AMH										
IC-214	IC-213	RCP	Circular	42	2/16/2017	IC-214 - IC-213_0000.mp4	0:37:51	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								430.02		F01									
								5.3	ISJ					J	7	12		1	
								37.6	JSM		2"			J	7	1	3		
								60	JSM		4"			J	11	5	3		
								67.7	JSM		2"			J	3	5	3		
								75.8	JSM		2"			J	7	1	3		
								82.7	JSM		2"			J	11	5	3		
								90.3	JSM		2"			J	7	5	3		
								97.5	JSM		2"			J	3	5	3		
								105.5	JSM		2"			J	7	1	3		
								112.6	JSM		2"			J	1	5	3		
								121.5	JSM		3"			J	7	5	3		
								128.7	JSM		3"			J	9	3	3		
								135.4	DAE				10	J	1	5		2	
								135.4	IWJ					J	1	5		2	
								189.1	JSM		2"			J	7	1	3		
								196	JSM		2"			J	7	5	3		
								200	MWM				40						
								203.7	JSM		2"			J	7	5	3		
								211.6	DAE				10	J	9	12		2	
								211.6	IDJ					J	10	11		3	
								211.6	JSM		3"			J	7	5	3		
								218.6	JSM		3"			J	7	5	3		
								218.6	ISJ					J	7	11		1	
								227.1	JSM		3"			J	7	5	3		separation is larger on the left side
								234.5	JSM		2"			J	7	5	3		
								249.5	JSM		2"			J	12	5	3		
								257.4	JSM		3"			J	7	1	3		
								264.9	JSM		2"			J	7	5	3		
								288.7	JSL		5"			J	7	5	**4**		
								317.8	JSM		2"			J	7	5	3		
								325.1	JSM		2"			J	7	5	3		
								332.7	JSM		2"			J	12	5	3		
								341.2	DAE				10	J	7	5		2	
								341.2	IWJ					J	2	5		2	
								341.2	JSM		3"			J	7	5	3		
								348.7	JSM		2"			J	7	1	3		
								355.5	JSM		2"			J	7	5	3		
								370.4	IRJ					J	11	12		3	
								370.4	JSM		4"			J	7	5	3		
								378.4	JSM		2"			J	10	2	3		
								386.1	JSM		2"			J	11	5	3		
								409	JSM		3"			J	12	5	3		
								417.1	IWJ					J	7	11		2	
								417.1	DAE				10	J	7	11		2	
								430.02	AMH										
IC-213	IC-212	RCP	Circular	42	2/16/2017	IC-213 - IC-212_0001.mp4	0:28:32	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								505.07		F01									
								5.2	JSM		1"			J	7	5	3		
								12.4	JSM		2"			J	7	5	3		
								12.4	ISJ					J	11	1		1	
								18	MWM				40						
								20.7	JSM		2"			J	7	5	3		
								28.2	JSM		1"			J	7	5	3		

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								35.4	JSM		2"			J	7	5	3		
								43.2	JSM		1"			J	7	5	3		
								50.8	JSM		3"			J	7	5	3		
								57.9	JSM		2"			J	7	5	3		
								65.5	JSM		1"			J	7	5	3		
								73.9	JSM		1"			J	7	5	3		
								80.7	JSM		2"			J	7	5	3		
								88.6	JSM		2"			J	7	5	3		
								96.2	JSM		2"			J	7	5	3		
								103.8	JSM		3"			J	7	5	3		
								111.5	JSM		1"			J	7	5	3		
								126.6	JSM		1"			J	7	5	3		
								134.8	JSM		2"			J	7	5	3		
								149.2	JSM		2"			J	7	5	3		
								157.4	JSM		1"			J	7	5	3		
								164.9	JSM		1"			J	7	12	3		
								172.3	JSM		2"			J	7	5	3		
								179.2	JSM		1"			J	7	5	3		
								187.7	JSM		1"			J	7	5	3		
								194.8	JSM		1"			J	7	5	3		
								201.9	JSM		2"			J	11	5	3		
								217.7	JSM		1"			J	7	5	3		
								224.7	JSM		1"			J	7	5	3		
								232.8	JSM		1"			J	7	5	3		
								246.7	JSM		2"			J	7	5	3		
								255.2	JSM		1"			J	7	5	3		
								263.3	JSM		1"			J	7	5	3		
								270.5	JSM		1"			J	7	5	3		
								285.6	JSM		1"			J	8	1	3		
								293	JSM		1"			J	7	5	3		
								300.5	JSM		2"			J	7	5	3		
								308.1	JSM		1"			J	7	1	3		
								315.5	JSM		2"			J	11	5	3		
								322.9	JSM		3"			J	7	5	3		
								330.6	JSM		1"			J	11	5	3		
								338.1	JSM		1"			J	7	5	3		
								345.4	JSM		1"			J	7	5	3		
								353.2	JSM		1"			J	7	5	3		
								360.6	IDJ					J	11			3	
								360.6	JSM		2"			J	7	5	3		
								368.9	JSM		2"			J	12	5	3		
								384	IDJ					J	10	11		3	
								384	DAE				10	J	7	5		2	
								391.6	JSM		1"			J	7	5	3		
								398.5	JSM		1"			J	7	5	3		
								406.3	JSM		2"			J	7	5	3		
								421.2	JSM		2"			J	12	5	3		
								428.9	JSM		2"			J	7	5	3		
								437.1	JSM		1"			J	12	5	3		
								443.8	JSM		2"			J	11	5	3		
								452.3	JSM		2"			J	7	2	3		
								458.7	JSM		2"			J	11	5	3		
								467.1	JSM		2"			J	7	12	3		
								474.9	DAE				15	J	7	5		3	
								482.5	JSM		2"			J	7	5	3		
								489.9	DAE				15	J	7	5		3	
								489.9	IWJ					J	3	5		2	
								496.6	IDJ					J	9	3		3	
								496.6	DAE				15	J	7	5		3	
								505.07	AMH										IC-212
IC-212	IC-211	RCP	Circular	42	2/16/2017	IC-212 - IC-211_0000.mp4	0:16:54	0	AMH										

Sewer Televising Review

shrewsberry

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								0	MWL				20						
								0	SAV	S01					7	5	2		first 25 feet of video is totally out of focus
								209.24		F01									
								31.3	JSM		5"			J	7	5	3		
								76.2	JSM		2"			J	7	9	3		
								88	MWM				40						
								91.9	JSM		2"			J	3	5	3		
								129.5	JSM		2"			J	3	5	3		
								137.1	JSM		1"			J	3	5	3		
								190.3	JSM		2"			J	3	5	3		
								197.8	DAE				20	J	7	5		3	water level getting higher
								197.8	IDJ					J	3			3	
								198	MWL				40						
								204.7	DAE				20	J	8	4		3	water level getting higher
								204.7	IDJ					J	2			3	
								208					55						
								209.24	OBZ				20		6			3	sediment?
								209.24	MSA										Unable to get camera the last 20 feet to manhole
IC-211	IC-210	RCP	Circular	48	5/16/2017	IC-210 - IC-211_0000.mp4	0:19:55	0	AMH										
								0	MWL				45						water level is affecting visibility
								0	SAV	S01					9	3	2		
								283.56		F01									
								7.2	IGJ					J	9			**5**	
								7.2	DAE				15	J	9	3		3	
								21	MWL				15						significant drop in water level
								29.3	ISJ					J	7	5		1	
								36.5	IWJ					J	7	11		2	
								50	MWL				25						
								52.3	ISJ					J	12	4		1	
								75.6	JSM		2"			J	8	4	3		
								97.2	DAE				20	J	8	4		3	
								97.2	IWJ					J	3	4		2	
								123	MWM				80						
								203.9	ISJ					J	10	2		1	
								234.2	DAE				5	J	12	4		2	
								241.5	DAE				10	J	12	4		2	
								241.5	ISJ					J	12	4		1	
								271.5	IDJ					J	2			3	
								271.5	DAE				25		8	4		**4**	
								278.1	MWL				40						
								278.1	DAE				25		8	4		**4**	
								278.1	IDJ					J	8	4		3	
								282	MWL				60						
								282.76	JOM		5"						3		can be seen from this location but cannot be reached with the camera
								283.56	MCU									**4**	
								283.56	MSA										
IC-210	IC-209	RCP	Circular	48	5/16/2017	IC-210 - IC-209_0000.mp4	0:21:41	0	AMH										
								0	MWL				15						
								0	SAV	S01					7	5	2		
								331.53		F01									
								11.9	JSM		2"			J	7	5	3		
								28.4	JSM		2"			J	7	5	3		
								36.7	JSM		2"			J	7	5	3		
								51.7	IWJ					J	3	5		2	
								51.7	JSM		2"			J	7	5	3		
								73.2	ISJ					J	12	5		1	
								87.2	ISJ					J	7	5		1	
								96.1	JSM		2"			J	7	5	3		
								102.7	JSM		2"			J	7	5	3		
								102.7	IWJ					J	7	9		2	
								110.9	JSM		2"			J	7	5	3		

Sewer Televising Review

shrewsberry

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								118.8	JSM		4"			J	7	5	3		
								124.9	IRJ					J	10	2		**4**	
								124.9	DAE				15	J	7	5	3	3	
								147.9	IWJ					J	8	9		2	
								164.1	JSM		1"			J	7	5	3		
								193.4	JSM		2"			J	7	5	3		
								201.3	JSM		1"			J	7	5	3		
								208.6	MGO	S02									Joints appear to have been grouted
								261.7		F02									
								253.7	ISJ					J	8	10		1	
								292.6	JSM		1"			J	7	5	3		
								292.6	ISJ					J	12	2		1	
								298.8	JSM		1"			J	7	5	3		
								306.6	IDJ					J	12			3	
								315.4	IWJ					J	3	5		2	
								321.9	ISJ					J	3	5		1	
								321.9	JSM		1"			J	7	5	3		
								331.53	AMH										
IC-209	IC-208	RCP	Circular	48	5/16/2017	IC-209 - IC-208 (2)_0000.mp4	0:05:28	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								76.5		F01									
								15.6	IDJ					J	10	11		3	
								15.6	DAR				10	J	10	11		3	
								22.9	JSM		3"			J	3	5	3		
								31.3	ISJ					J	7	5		1	
								31.3	DAE				10	J	7	5		2	
								46.6	JSM		1"			J	3	5	3		
								74.7	MWL				35						
								76.5	DAE				10	J	8	4		2	
								76.5	OBZ				20		6			3	
								76.5	MSA										camera stuck on submerged obstacle
IC-209	IC-208	RCP	Circular	48	5/16/2017	IC-208 - IC-209_0000.mp4	0:07:08	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								70.57		F01									
								7.2	DAR				10	J	10	11		2	
								37.8	IDJ					J	10	11		3	
								37.8	DAR				10	J	9	11		2	
								45	DAR				25	J	8	12		**4**	
								54.5	DAR				20	J	9	3		3	
								54.5	IWJ					J	9	3		2	
								60.2	ISJ					J	12	2		1	
								68.9	IWJ					J	9	3		2	
								70.57	OBZ				20		6			3	
								70.57	MSA										camera stuck on submerged obstacle
IC-208	IC-207	RCP	Circular	48	2/27/2017	IC-207 - IC-208_0000.mp4	0:13:28	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								176.58		F01									
								49.9	ISJ					J	7	9		1	
								57.4	JSM		3"			J	7	5	3		
								96	MWM				40						
								110.5	IWJ					J	8	11		2	
								110.5	DAE				10	J	8	11		2	
								118	ISJ					J	8	11		1	
								133.6	JSM		3"			J	7	5	3		
								163.6	IWJ					J	8	11		2	
								171.7	IWJ					J	3	5		2	
								171.7	DAE				10	J	3	5		2	
								176.58	OBZ				20		6			3	

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								176.58	MSA										camera stuck on submerged obstacle
IC-207	IC-206	RCP	Circular	48	2/27/2017	IC-207 - IC-206_0000.mp4	0:27:18	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								417.6		F01									
								16	JSM		3"			J	7	5	3		
								32	JSM		2"			J	7	5	3		
								32	ISJ					J	7	9		1	
								39.5	JSM		3"			J	7	5	3		
								54.7	JSM		2"			J	7	5	3		
								62	DAE				10	J	7	5		2	
								62	ISJ					J	7	9		1	
								69.6	IWJ					J	3	5		2	
								76.8	DAE				10	J	7	5		2	
								76.8	IWJ					J	3	5		2	
								100.2	JSM		2"			J	7	5	3		
								107.1	JSM		2"			J	7	5	3		
								107.1	IWJ					J	7	9		2	
								115.3	JSM		2"			J	7	5	3		
								122.5	JSM		2"			J	7	5	3		
								130.6	JSM		2"			J	7	5	3		
								152.2	ISJ					J	7	5		1	
								160	DAE				10	J	3	5		2	
								160	ISJ					J	3	5		1	
								173	DAR				10	J	1	3		2	
								183.2	DAR				25	J	1	4		**4**	
								198.2	JSM		2"			J	7	5	3		
								213.9	DAR				10	J	12	1		2	
								213.9	IWJ					J	3	5		2	
								219.8	DAR				15	J	7	5		3	
								242.2	DAR				15	J	7	5		3	
								251	IWJ					J	7	9		2	
								273.7	IDJ					J	12	1		3	
								310.5	ISJ					J	3	5		1	
								326.8	DAR				15	J	7	5		3	
								326.8	IWJ					J	3	5		2	
								362.6	ISJ					J	7	2		1	
								370.5	IDJ					J	11			3	
								377.4	DAR				15	J	7	5		3	
								377.4	IDJ					J	12	2		3	
								393.1	ISJ					J	7	12		1	
								400.5	IWJ					J	4	5		2	
								408.6	ISJ					J	3	5		1	
								417.6	AMH										
IC-206	IC-205	RCP	Circular	48	2/27/2017	IC-206 - IC-205_0000.mp4	0:10:36	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								169.77		F01									
								56.4	MGO					J					approaching this joint there appears to be a change in flow regime.
								169.77	AMH										
IC-205	IC-204	RCP	Circular	48	2/27/2017	IC-205 - IC-204_0000.mp4	0:15:05	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								235.88		F01									
								235.88	AMH										
IC-204	IC-203	RCP	Circular	48	2/28/2017	IC-204 - IC-203_0000.mp4	0:30:30	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								464.87		F01									
								4.9	JSM		2"			J	7	5	3		
								6	OBZ	S02					6				Camera appears to have to crawl over some type of obstacle

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								8		F02									
								12.4	ISJ					J	7	9		1	
								18.7	JSM		2"			J	7	5	3		
								18.7	ISJ					J	7	9		1	
								25.6	JSM		2"			J	7	5	3		
								34.4	JSM		2"			J	7	5	3		
								42.5	DAR				10	J	7	5		2	
								42.5	JSM		2"			J	7	5	3		
								42.5	ISJ					J	7	9		1	
								49.4	DAR				10	J	7	5		2	
								49.4	JSM		2"			J	7	5	3		
								49.4	IWJ					J	7	11		2	
								64.3	JSM		3"			J	7	5	3		
								72.7	JSM		1"			J	7	5	3		
								80.7	JSM		1"			J	7	5	3		
								86.9	DAR				10	J	7	5		2	
								86.9	JSM		2"			J	7	5	3		
								86.9	IDJ					J	10	2		3	
								93	MWL				30						
								101.8	DAR				10	J	7	5		2	
								101.8	IDJ					J	10	11		3	
								110.2	IWJ					J	2	4		2	
								110.2	JSM		2"			J	7	5	3		
								117.8	DAR				10	J	7	11		2	
								117.8	ISJ					J	7	11		1	
								117.8	JSM		2"			J	7	5	3		
								125.4	JSM		4"			J	7	9	3		
								130.9	DAR				20	J	7	5		3	
								130.9	IDJ					J	9	3		3	
								140.5	JSM		2"			J	7	5	3		
								148.7	JSM		1"			J	7	5	3		
								155.5	JSM		1"			J	7	5	3		
								162.4	JSM		3"			J	7	5	3		
								168.9	IDJ					J	12			3	
								177.6	DAR				10	J	7	5		2	
								185.9	DAR				10	J	3	4		2	
								185.9	IWJ					J	3	5		2	
								193.5	JSM		1"			J	7	5	3		
								200.1	ISJ					J	12	5		1	
								222.2	ISJ					J	12	5		1	
								230.9	JSM		1"			J	7	5	3		
								230.9	ISJ					J	7	5		1	
								238.5	IWJ					J	7	8		2	
								245.6	IWJ					J	4	5		2	
								253.5	IWJ					J	3	5		2	
								253.5	DAE				10	J	7	10		2	
								267.8	IRJ					J	7	9		4	
								276.1	DAE				5	J	2	3		2	
								283.4	IWJ					J	7	9		2	
								305.9	JSM		4"			J	4	5	3		
								320.5	DAR				5	J	1	5		2	
								320.5	IWJ					J	7	8		2	
								327.1	ISJ					J	7	5		1	
								334.3	DAR				15	J	10	5		3	plastic bags
								350.6	DAR				15	J	7	5		3	plastic bags
								350.6	IDJ					J	10	2		3	
								365.7	DAE				5	J	2	3		2	
								380.8	DAR				15	J	7	5		3	plastic bags
								388.9	JSM		2"			J	7	5	3		
								418.7	DAR				15	J	12	5		3	
								418.7	IWJ					J	7	8		2	

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								464.87	AMH										IC-203
IC-203	IC-202	RCP	Circular	48	2/28/2017	IC-203 - IC-202_0000.mp4	0:27:45	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								455.1		F01									
								9.0	JSM		1"			J	7	5	3		
								15.5	JSM		1"			J	7	5	3		
								15.5	IWJ					J	12	3		2	
								23.4	JSM		1"			J	7	5	3		
								75.8	JSM		2"			J	7	5	3		
								166.2	IWJ					J	7	8		2	
								181.6	JSM		2"			J	7	5	3		
								301.8	DAR				10	J	7	5		2	
								301.8	IDJ					J	11	12		3	
								324.4	DAE				10	J	7	5		2	
								324.4	IDJ					J	11	12		3	
								354.4	IWJ					J	4	5		2	
								377.8	ISJ					J	12	5		1	
								399.5	ISJ					J	7	3		1	
								438.1	ISJ					J	7	5		1	
								455.1	AMH										IC-202
IC-122.5	IC-122	RCP	Circular	48	5/15/2017	IC-122 - IC-201_0000.mp4	0:13:20	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								61.6		F01									
								5.3	JSM		2"			J	10	2	3		
								12.9	JSM		2"			J	11	4	3		
								16.6	JSM		1"			J	10	2	3		
								20.8	JSM		1"			J	10	2	3		
								25.2	JSM		2"			J	10	2	3		
								25.2	CC					J	4	5	1		
								28.8	JSM		1"			J	11	3	3		
								33.5	JSM		1"			J	11	3	3		
								37.3	JSM		1"			J	11	3	3		
								41.3	JSM		1"			J	11	3	3		
								45.4	JSM		1"			J	11	3	3		
								49.3	JSM		1"			J	11	3	3		
								53.4	JSM		1"			J	11	3	3		
								57.8	JSM		1"			J	11	3	3		
								61.6	JSM		1"			J	11	3	3		
								65.4	JSM		1"			J	11	3	3		
								69.9	JSM		1"			J	11	3	3		
								73.9	JSM		1"			J	11	3	3		
								77.5	JSM		1"			J	11	3	3		
								82	H		4"			J	4	5	**4**		
								82	JSM		1"			J	11	3	3		
								86.3	JSM		2"			J	11	3	3		
								90.5	JSM		1"			J	11	3	3		
								94.7	JSM		1"			J	11	3	3		
								99.1	JSM		1"			J	11	3	3		
								61.6	SAM	S02					7	5	**4**		
								148.19		F02									
								101.6	JSM		1"			J	11	3	3		
								111	JSM		1"			J	11	3	3		
								114.9	JSM		2"			J	11	3	3		
								118.8	JSM		2"			J	11	3	3		
								122.9	JSM		1"			J	11	3	3		
								127.5	JSM		2"			J	11	3	3		
								131.5	JSM		2"			J	11	3	3		
								135.7	JSM		2"			J	11	3	3		
								139.4	JSM		2"			J	11	3	3		

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								143.5	JSM		1"			J	11	3	3		
								148.19	AMH										IC-201
IC-122	IC-121.5	RCP	Circular	48	5/15/2017	IC-122 - IC-121_0002.mp4	0:03:13	0	AMH										
								0	MWL				20						
								0	SAV	S01					7	5	2		
								29.46		F01									
								4.5	JSM		4"			J	11	3	3		red brick visible?
								7.6	JSM		1"			J	11	3	3		
								12.1	JSM		1"			J	11	3	3		
								16.4	JSM		2"			J	11	3	3		
								19.5	JSM		1"			J	11	3	3		
								24.7	JSM		2"			J	11	3	3		
								29.46	AMH										
IC-121.5	IC-121	RCP	Circular	48	5/15/2017	IC-121 - IC-122_0000.mp4	0:02:09	0	AMH										
								0	MWL				30						
								0	SAV	S01					7	5	2		
								13.5		F01									
								11.0	MCU									**4**	
								12.7	ISJ					J	8	11		1	
								13.4	MCU									**4**	
								13.5	MSA										
IC-121	IC-120.5	RCP	Circular	48	5/15/2017	IC-121 - IC-120_0000.mp4	0:13:35	0	AMH										
								0	MWL				10						
								0	SAV	S01					7	5	2		
								54.17		F01									
								8.1	JSM		2"			J	7	5	3		
								8.1	ISJ					J	12	5		1	
								15.7	JSM		2"			J	7	5	3		
								23.9	JSM		2"			J	7	5	3		
								31.2	JSL		5"			J	7	5	4		
								39.2	JSM		4"			J	7	5	3		
								46.0	JSM		3"			J	7	5	3		
								54.17	AMH										
IC-109	IC-108	RCP	Circular	48	12/11/2017	IC-108 to IC-109.mp4	0:10:45	0	AMH										
								0	MWL				25						
								0	SAV	S01					8	4	2		
								34.80		F01									
								34.80	MSA										camera stuck on submerged obstacle
IC-108	IC-107	RCP	Circular	48	12/8/2017	IC-107 to IC-108.mp4	0:06:01	0	AMH										
								0	MWL				15						
								0	IRJ						12	2		**4**	This can be seen from the IC-106 to IC-107 video and is the joint into manhole IC-107
								0	SAV	S01					7	5	2		
								133.61		F01									
								45.00	DAE				5		11	1		2	
								95.00	MWL				30						
								110.00	MWL				50						
								133.61	MSA										camera stuck on submerged obstacle, can see manhole IC-108 from this position
IC-107	IC-106	RCP	Circular	48	12/6/2017	IC-106 to IC-107.mp4	0:25:49	0	AMH										
								0	MWL				15						
								0	SAV	S01					7	5	2		
								426.30		F01									
								23.43	SSS					J	11	1	2		
								48.43	SSS						10	11	2		
								53.01	IRJ					J	7	8		**4**	
								53.01	DAE				5	J	7	8		2	
								54.00	SSS						9	11	2		
								75.31	SSS					J	10	12	2		
								91.32	SSS						11	1	2		
								108.00	SSS						10	2	2		
								130.00	SSS	S02					10	2	2		
								260.00		F02									

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
Video Reviewed By: R. Toole **PACP Certification:** U-0118-070300183

Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								201.86	DAG				5		12	1		2	
								266.86	IWJ					J	12	5		2	
								266.86	DAE				10	J	12	5		2	
								267.00	SSS	S03					11	1	2		
								308.00		F03									
								308.00	SSS						9	3	2		
								309.00	SSS	S04					11	1	2		
								340.00		F04									
								340.00	IDJ					J	10	12		3	
								342.00	SSS						9	3	2		
								378.00	SSS	S05					10	2	2		
								398.00		F05									
								394.00	IDJ					J	12	1		3	
								426.30	MSA										camera stuck on submerged obstacle, can see manhole IC-107 from this position
IC-106	IC-105	RCP	Circular	48	12/6/2017	IC-105 to IC-106.mp4	0:18:01	0	AMH										
								0	MWL				15						
								0	SAV	S01					7	5	2		
								413.29		F01									
								5.00	SSS	S02					10	4	2		
								15.24		F02									
								15.24	IRJ					J	7	9		**4**	
								15.24	DAE				10	J	7	9			
								43.00	SSS	S03					9	3	2		
								49.00		F03									
								66.00	SSS	S04					9	3	2		
								75.00		F04									
								88.00	SSS						9	3	2		
								130.00	SSS						11	1	2		
								135.00	MWL				30						
								142.00	SSS	S05					11	1	2		
								232.00		F05									
								366.00	SSS						10	2	2		
								413.29	AMH										
IC-105	IC-104	RCP	Circular	48	11/29/2017	IC-104 to IC-105.mp4	0:16:44	0	AMH										
								0	MWL				20						
								0	IDB						12			3	This can be seen from the IC-103 to IC-104 video and is the first joint
								0	SAV	S01					7	5	2		
								421.79		F01									
								25.00	IDB						2	3		3	
								40.00	DAE				5	J	2	3		2	
								44.00	IDB						1	2		3	
								44.00	DAE				5		1	2		2	
								200.00	SSS						11	1	2		
								397.00	DAE				10	J	8	3		2	
								421.79	MSA										camera stuck on submerged obstacle, can see manhole IC-105 from this position
IC-104	IC-103	RCP	Circular	48	11/29/2017	IC-103 to IC-104.mp4	0:13:46	0	AMH										
								0	MWL				25						
								0	IDJ					J	12	1		3	can see drips at start of video, assumed to be coming from the joint
								0	SAV	S01					7	5	2		
								402.68		F01									
								42.38	IDB						10	11		3	
								42.38	DAE				5		10	11		2	
								158.51	IDJ					J	12			3	
								158.51	DAE				5	J	11	1		2	
								186.14	IDB						2			3	
								186.14	DAE				5		2			2	
								238.94	RFB						2			2	
								352.46	IWB						9	10		2	
								352.46	DAE				5		9	10		2	
								375.06	IDJ					J	2	5		3	
								375.06	DAE				10	J	2	5		2	

Sewer Televising Review

Project Name: City of Lowell Interceptor Televising
Project Number: 16-0094

Camera Operated By: B. Mason **PACP Certification:** U-314-06020311
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Upstream Manhole	Downstream Manhole	Pipe Material	Pipe Shape	Pipe Diameter (Inches)	Inspection Date	File Name	Total Video Time	Distance (ft)	Code Group/ Descriptor /Modifier	Continuous Defect	Value Dimension 1st	Value Dimension 2nd	Value %	Joint	Circumferential Location At/From	Circumferential Location To	Structural Grade	O&M Grade	Remarks
								385.50	DAR				5	J	4	5		2	
								394.09	IGJ					J	3	5		**5**	
								394.09	DAE				10	J	3	5		2	
								394.09	JSM					J	7	5	3		
								402.68	AMH										
IC-103	IC-102	RCP	Circular	48	11/29/2017	IC-102 to IC-103.mp4	0:12:26	0	AMH										
								0	MWL				30						
								0	SAV	S01					8	4	2		
								380.07		F01									
								1.50	IRJ					J	10	11		**4**	
								1.50	DAE				10	J	8	11		2	
								15.37	IRJ					J	10	12		**4**	
								15.37	DAE				10	J	8	4		2	
								53.01	IRJ					J	12	1		**4**	
								100.07	IRJ					J	10			**4**	
								380.07	AMH										

Summary of Defect Codes

Code	Structural	O & M
5	0	7
4	13	49
3	357	133
2	70	188
1	6	73

ATTACHMENT C - WESSLER INTERCEPTOR CCTV REVIEW
Town of Lowell, Indiana

Downstream MH	Upstream MH	Pipe Material	Pipe Diameter (in)	Inspection Date	Estimated Segment Length (from Shrewsberry based on CAD Drawing)	Segment Televised	Length Televised	Notes
WWTP	IC-101				27.71	No		
IC-101	IC-102				78.86	No		
IC-102	IC-103	RCP	48	11/29/2017	390.19	Yes - Complete	380.07	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Infiltration is moderate with 4 joints showing active infiltration (minimal steady flow).
IC-103	IC-104	RCP	48	11/29/2017	412.10	Yes - Complete	402.70	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Infiltration is moderate with 6 joints showing minimal active infiltration (drips/weeps) and 1 joint with a steady flow (moderate).
IC-104	IC-105	RCP	48	11/29/2017	434.85	Yes - Complete	421.79	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Minimal Infiltration with 3 joints showing an active drip.
IC-105	IC-106	RCP	48	12/6/2017	419.91	Yes - Complete	413.27	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Minimal Infiltration with 1 joint showing an active steady flow.
IC-106	IC-107	RCP	48	12/6/2017	446.20	Yes - Complete	426.60	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Minimal Infiltration with 1 joint showing an active steady minimal flow and 3 joints showing drips/weeps.
IC-107	IC-108	RCP	48	12/8/2017	150.04	Yes - Complete	133.61	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; No active infiltration seen with the exception of the joint between the sewer and IC-107 (can't be seen in this video, but shows up in the IC-106 to IC-107 video).
IC-108	IC-109	RCP	48	12/11/2017	500.11	Yes - Partial	42.37	Concur with Shrewsberry PACP Assessment; Only 35' of the sewer was televised due to debris under the water. The pipe that could be seen appears to be in good structural condition; No Active Infiltration was seen.
IC-109	IC-110				500.08	No		
IC-110	IC-111				499.88	No		
IC-111	IC-112				500.28	No		
IC-112	IC-113				276.46	No		
IC-113	IC-114				332.08	No		
IC-114	IC-115				367.43	No		
IC-115	IC-116				504.00	No		
IC-116	IC-117				509.76	No		
IC-117	IC-118				322.92	No		
IC-118	IC-119				446.15	No		
IC-119	IC-120				344.57	No		
IC-120	IC-121	RCP	48	5/15/2017	701.24	Yes - Complete	54.18	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition with moderately separated joints throughout; No Active Infiltration observed.
IC-121	IC-122	RCP	48	5/15/2017	362.52	Yes - Complete	29.46	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition with moderately separated joints throughout; No Active Infiltration observed.

ATTACHMENT C - WESSLER INTERCEPTOR CCTV REVIEW
Town of Lowell, Indiana

Downstream MH	Upstream MH	Pipe Material	Pipe Diameter (in)	Inspection Date	Estimated Segment Length (from Shrewsberry based on CAD Drawing)	Segment Televised	Length Televised	Notes
IC-122	IC-201	RCP	48	5/15/2017	212.53	Yes - Complete	148.19	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition with moderately separated joints throughout; No Active Infiltration observed.
IC-201	IC-202				133.51	No		
IC-202	IC-203	RCP	48	2/28/2017	462.30	Yes - Complete	455.09	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition with minimal Infiltration.
IC-203	IC-204	RCP	48	2/28/2017	481.00	Yes - Complete	465.86	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Moderate to Minimal Infiltration w/ 1 joint that has a steady (minimal) flow and several joints with active dripping/weeping.
IC-204	IC-205	RCP	48	2/27/2017	235.14	Yes - Complete	235.88	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition with no active Infiltration observed.
IC-205	IC-206	RCP	48	2/27/2017	179.59	Yes - Complete	169.77	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition with minimal Infiltration.
IC-206	IC-207	RCP	48	2/27/2017	423.96	Yes - Complete	417.06	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition with modrately seprated joints througout; Infiltration is minimal with 10 joints showing active dripping/weeping.
IC-207	IC-208	RCP	48	2/27/2017	291.19	Yes - Partial	176.58	Inspection stopped at 176' from downstream MH IC-207 due to debris. Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Infiltration is minimal.
IC-208	IC-209	RCP	48	5/16/2017	242.34	Yes - Partial	147.07	Inspection stopped at 70.57' from downstream MH IC-208 due to debris on first try; On 2nd try from upstream manhole, inspection stopped at 76.5' from upstream MH IC-209. Pipe that was inspected appears to be in good structural condition. Infiltration is minimal, with 4 joints showing active dripping/weeping.
IC-209	IC-210	RCP	48	5/16/2017	346.44	Yes - Complete	331.53	Concur with Shrewsberry PACP Assessment; Pipe is in good structural condition; Infiltration is minimal with 1 joint that has steady, minimal flow, and 5 joints showing active dripping/weeping.
IC-210	IC-211	RCP	48	5/16/2017	289.30	Yes - Partial	283.56	Concur with Shrewsberry PACP Assessment; Pipe is in fair to good structural condition with some joint separations; Infiltration is moderate with 1 joint that has excessive flow 7' from IC-210, and 4 joints showing active dripping/weeping. Inspection stopped at 283.56' from downstream MH IC-210 (camera went under water)
IC-211	IC-212	RCP	42	2/17/2017	267.40	Yes - Partial	209.24	Concur with Shrewsberry PACP Assessment; Pipe is in fair to good structural condition with some joint separations; Infiltration is minimal with 2 joints showing active infiltration (drip). Inspection was abandoned approx. 20' from IC-211 due to debris in the line.
IC-212	IC-213	RCP	42	2/16/2017	519.96	Yes - Complete	505.07	Concur with Shrewsberry PACP Assessment; Pipe is in good structural condition with some joint separations; Infiltration is minimal with 4 joints showing active minor infiltration (weep/drip).

ATTACHMENT C - WESSLER INTERCEPTOR CCTV REVIEW
Town of Lowell, Indiana

Downstream MH	Upstream MH	Pipe Material	Pipe Diameter (in)	Inspection Date	Estimated Segment Length (from Shrewsberry based on CAD Drawing)	Segment Televised	Length Televised	Notes
IC-213	IC-214	RCP	42	2/16/2017	442.50	Yes - Complete	430.02	Concur with Shrewsberry PACP Assessment; Pipe is in fair to good structural condition with some joint separations; Infiltration is minimal to moderate with 4 joints showing active minor infiltration (weep/drip) and one with more steady flow.
IC-214	IC-215	RCP	42	2/16/2017	309.23	Yes - Complete	300.97	Concur with Shrewsberry PACP Assessment; Pipe is in good structural condition with some joint separations; Infiltration is minimal with active flow (drips) observed at 2 joints.
IC-215	IC-216	RCP	42	2/16/2017	497.64	Yes - Partial	321.29	Concur with Shrewsberry PACP Assessment; Pipe is in good structural condition with some joint separations; Infiltration is excessive at one joint 7 feet from IC-214, in the rest of the segment infiltration is moderate with active flow observed at 6 joints (all drips except for 1 moderate flow). It might be work looking into fixing two of the joints.
IC-216	IC-301	RCP	42	2/15/2017	254.51	Yes - Complete	254.21	Concur with Shrewsberry PACP Assessment; Pipe is in fair structural condition with possible concrete deterioration; Infiltration is moderate at 2 joints with steady small flows. It is difficult to determine, but IC-301 had a steady flow coming from the upper portion of the manhole. It could be another pipe connection, or possibly infiltration (worth looking into). It is also noted that on the video, the sewer is listed as 30", but it should be a 42" sewer.
IC-301	IC-302	RCP	42	2/15/2017	400.15	Yes - Complete	444.04	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Minimal Infiltration (drips at 2 locations, minor encrustation and fine roots at a few locations); Video indicated there was no MH IC-302
IC-302	IC-303				60.81			
IC-303	IC-304	RCP	42	2/16/2017	389.14	Yes - Partial	235.14	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; No Active Infiltration was observed; Survey abandoned 235' from MH IC-303 due to debris.
IC-304	IC-305				548.86	No		
IC-305	IC-306	RCP	42	11/22/2017	384.94	Yes - Complete	455.22	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Minimal Infiltration was observed (7 joints w/ drips/weeps and 1 joint with steadier minimal flow).
IC-306	IC-307	RCP	42	2/7/2017	124.63	Yes - Complete	165.47	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Moderate Infiltration (2 joints w/ steady minimal flow and 2 joints w/ drips/weeps).
IC-307	IC-308	RCP	42	2/7/2017	229.99	Yes - Complete	165.32	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Minimal to Moderate Infiltration (1 joint w/ steady minimal flow and 3 joints w/ drips/weeps). There appears to be a steady heavy flow coming in at IC-307 - It might be a sewer connection or infiltration, but is worth looking into.

ATTACHMENT C - WESSLER INTERCEPTOR CCTV REVIEW
Town of Lowell, Indiana

Downstream MH	Upstream MH	Pipe Material	Pipe Diameter (in)	Inspection Date	Estimated Segment Length (from Shrewsberry based on CAD Drawing)	Segment Televised	Length Televised	Notes
IC-308	IC-309	RCP	42	2/7/2017	413.14	Yes - Complete	396.85	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Minimal Infiltration (active runner at one joint, dripping at one joint, minor encrustation and staining at several joints); Video stopped just short of upstream MH IC-309 (caught on debris beneath water)
IC-309	IC-310	RCP	42	2/7/2017	423.92	Yes - Complete	394.44	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Infiltration is minimal to moderate (1 joint with light, steady flow; 3 joints with active dripping; and several with evidence of infiltration); Video File IC-310 - IC-309_0000.mp4 is a duplicate of a portion of this sewer segment.
IC-310	IC-311	RCP	42	12/12/2017	416.91	No - Attempted	0.86	Unable to televise due to debris outside of downstream MH IC-310
IC-311	IC-312	RCP	42	12/12/2017	499.37	No - Attempted	5.82	Encountered MH 5.82' downstream of MH IC-311. It is not shown on the Interceptor Drawings - should attempt to find this and determine what it is.
IC-312	IC-313	RCP	42	2/8/2017	494.59	Yes - Partial	361.17	Concur with Shrewsberry PACP Assessment; Portions of video were "foggy", but pipe appears to be in good structural condition; No active infiltration was observed; Slight separation of some joints (but minimal). Survey was abandoned at 361.17' due to debris beneath water surface.
IC-313	IC-314	RCP	42	2/15/2017	494.88	No - Attempted	1.07	Survey was abandoned due to debris beneath water surface.
IC-314	IC-315	RCP	42	2/15/2017	398.69	No - Attempted	2.17	Survey was abandoned due to debris beneath water surface. Video says this segment is IC-313 to IC-314, but it appears to be incorrect.
IC-315	IC-316	RCP	42	2/14/2017	539.66	Yes - Partial	58.66	Concur with Shrewsberry PACP Assessment; Portion of pipe that was inspected appears to be in good structural condition; Moderate infiltration (2 joints with active dripping and 1 with active moderate runner). Survey abandoned due to debris beneath water surface.
IC-316	IC-317	RCP	42	2/14/2017	522.46	Yes - Complete	515.23	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good structural condition; Moderate infiltration (3 joints with active moderate runner and 6 joints with active dripping/weeping).
IC-317	IC-318	RCP	42	2/14/2017	566.96	Yes - Complete?	559.18	Concur with Shrewsberry PACP Assessment; Pipe appears to be in good to fair structural condition with a few minor cracks; Infiltration is moderate with several joints having active drips and one with a mild runner). Inspection is included in two video files, due to debris that stopped the camera.
IC-318	IC-319	RCP	42	2/15/2017	508.01	No - Attempted	0.00	Survey abandoned at MH IC-319 due to debris.
IC-319	IC-320				559.81	No		
IC-320	IC-401				1,125.73	No		
IC-401	IC-402				599.94	No		
IC-402	IC-403				454.43	No		
IC-403	IC-404				450.83	No		

ATTACHMENT C - WESSLER INTERCEPTOR CCTV REVIEW
Town of Lowell, Indiana

Downstream MH	Upstream MH	Pipe Material	Pipe Diameter (in)	Inspection Date	Estimated Segment Length (from Shrewsberry based on CAD Drawing)	Segment Televised	Length Televised	Notes
IC-404	IC-405	Concrete	30	2/6/2017	439.12	Yes - Partial	420.28	Concur with Shrewsberry PACP Assessment; Pipe is in fair structural condition with several joints that are separated ranging from small to large as well as minor cracks throughout; Infiltration is moderate with several joints having evidence and a couple where active infiltration was observed (1 with a moderate steady flow); At 400' from IC-405, there appears to be a sag in the line or a blockage causing the water level to increase to 90% of the pipe. Survey abandoned 420' from MH IC-405.
IC-405	IC-406	Concrete	30	1/11/2017	134.41	Yes - Complete	428.29	Concur with Shrewsberry PACP Assessment; Pipe is in fair to good structural condition with some joint separations and minor cracks; Infiltration is minimal to moderate with one joint showing active infiltration (steady minor flow).
IC-406	IC-407	Concrete	30	1/11/2017	153.18	Yes - Partial	324.19	Concur with Shrewsberry PACP Assessment; Pipe appears to be in fair structural condition - the interior of the pipe is difficult to see due to what appears to be a layer of grease or some other deposit (pipe possibly surcharges); No active infiltration was observed. Survey abandoned 324' from MH IC-406 due to debris.
IC-407	IC-408	Concrete	30	1/10/2017	174.60	Yes - Partial	114.40	Concur with Shrewsberry PACP Assessment; Pipe appears to be in fair structural condition (concrete might be showing signs of deterioration); No active infiltration was observed; Survey abandoned 115' from MH IC-408 due to debris.
IC-408	IC-409	Concrete	30	1/10/2017	151.36	Yes - Complete	142.75	Concur with Shrewsberry PAPC Assessment. Pipe appears to be in fair structural condition (might be showing some signs of concrete deterioration); No Active Infiltration was observed.
IC-409	IC-410	Concrete	30	1/10/2017	96.69	Yes - Complete	366.94	Concur with Shrewsberry PAPC Assessment; Pipe appears to be in fair structural condition (might be showing some signs of concrete deterioration); No Active Infiltration was observed. It appears that Manhole IC-410 does not exist.
IC-410	IC-411				92.20			
IC-411	IC-412				81.44	No		
IC-412	Flume				40.93	No		
Flume	Ex. Str.				67.47	No		
Interceptor Sewer Total Estimated and Total Televised Lengths:					**26,155.13**		**12,712.93**	

ATTACHMENT D
ADS 2018 FLOW METER LOCATIONS

INTRODUCTION

Project Background

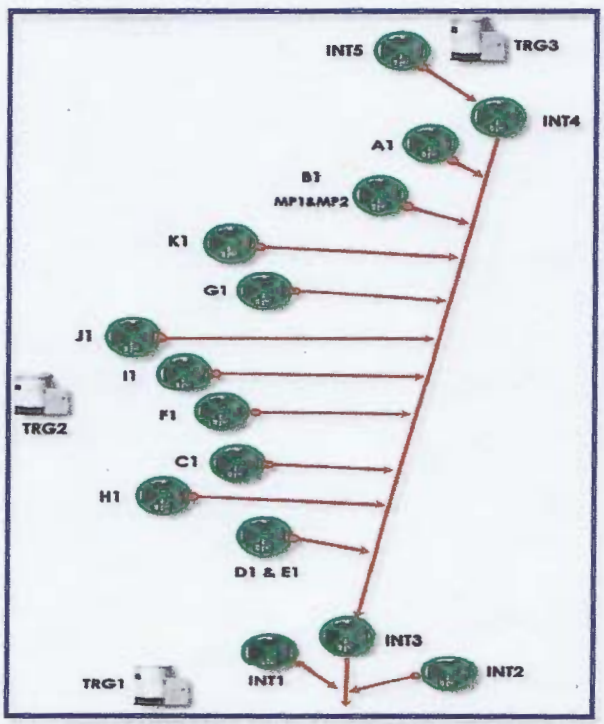
In conjunction with The City of Lowell, ADS Environmental Services conducted a flow metering project at 17 selected locations in an attempt to gain a better understanding of the capacity and performance of the metered portion of Lowell, IN sanitary sewer system.

Project Scope

Sixteen (16) flow meters were installed at locations selected by Shrewsberry & Associates on June 6, 2018 with the official start date of June 7, 2018. One flow meter was used to monitor two separate locations in the same manhole. ADS collected data for 60 days and the study ended on August 6, 2018. Site reports included in this report present the monitoring locations, pipe diameter, location photos and other information collected during the installation phase.

Three (3) temporary rain gauges were also deployed and spread out across the entire sewershed. *Figure 1* exhibits the flow schematic of the sewershed. *Table 1* is an overview of the locations and exhibits a brief summary of the study details.

Figure 1

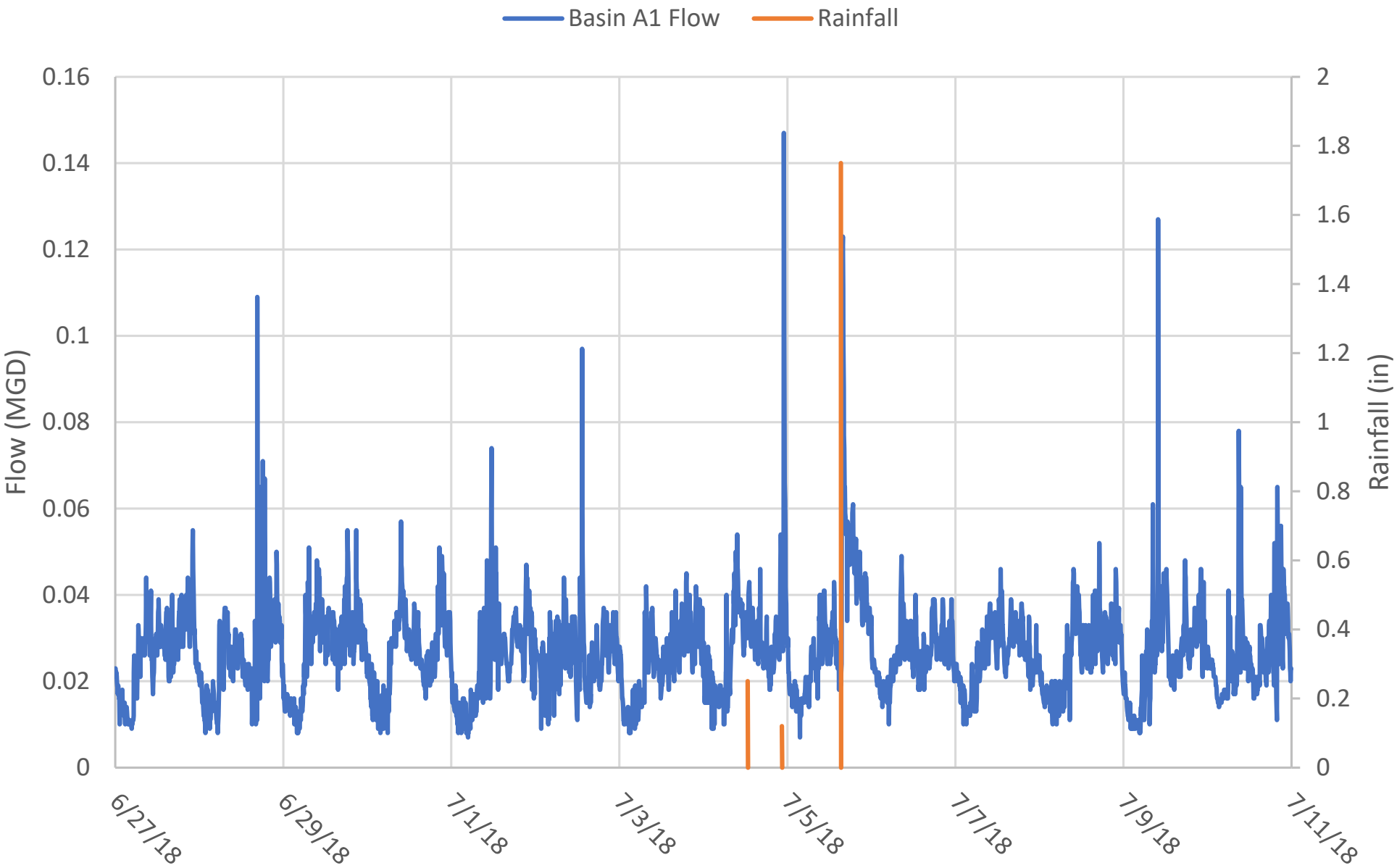


ATTACHMENT D
ADS 2018 FLOW METER LOCATIONS

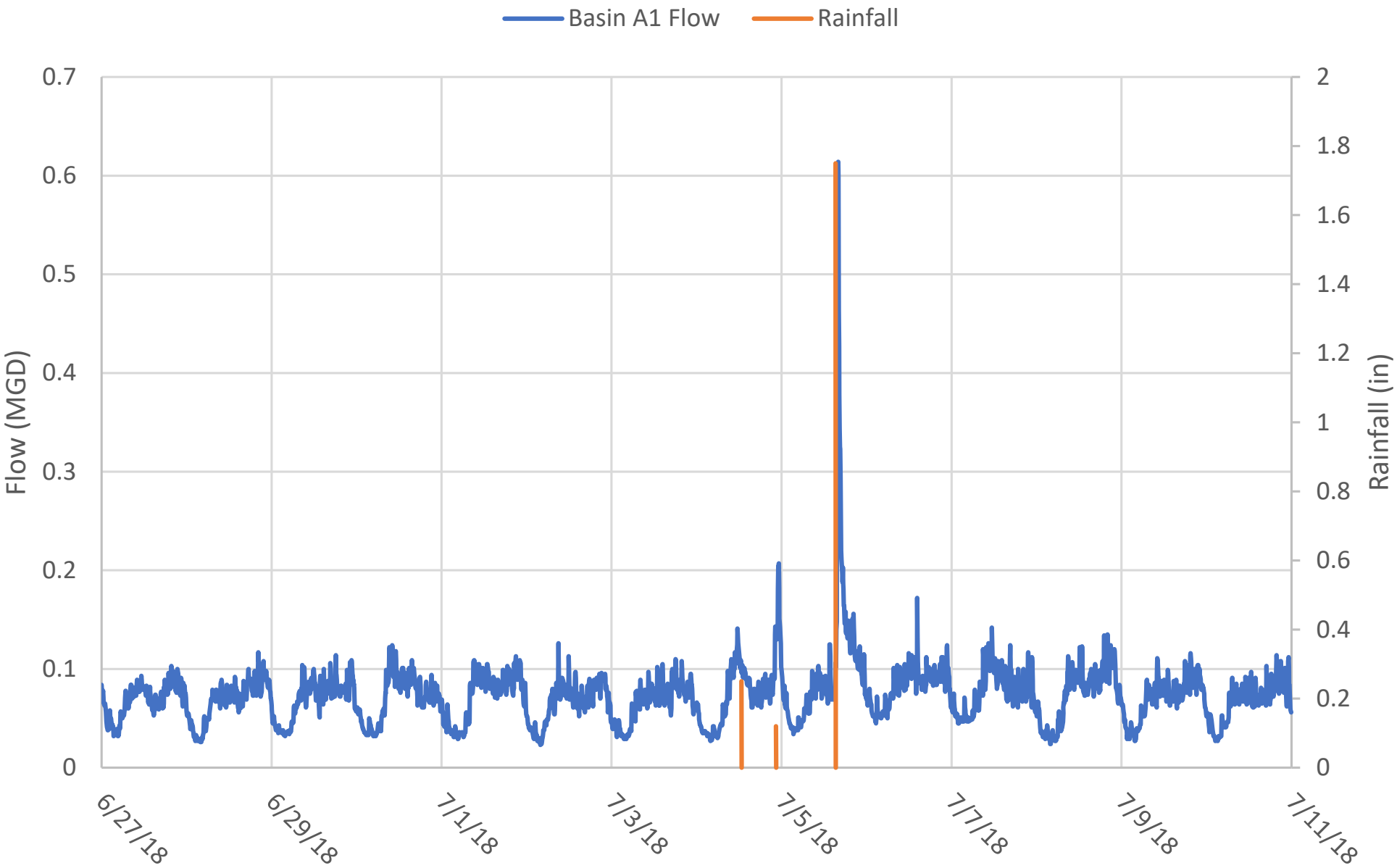
Table 1

Location	Pipe Diam. (in)	Address	Sample Rate	Install Date	Removal Date
A1	12 x 12	W. 171st & Red Oak Dr.	5 min.	Jun 6, 2018	Aug 7, 2018
B1 (mp1)	12 x 12	Wooded area end of Brookwood Dr.	5 min.	Jun 6, 2018	Aug 7, 2018
B1 (mp2)	8 x 8	Wooded area end of Brookwood Dr.	5 min.	Jun 6, 2018	Aug 7, 2018
C1	24 x 24	426 E. Oakley Ave.	5 min.	Jun 6, 2018	Aug 7, 2018
D1	15 x 15	598 S. Union St.	5 min.	Jun 6, 2018	Aug 7, 2018
E1	12 x 12	598 S. Union St.	5 min.	Jun 6, 2018	Aug 7, 2018
F1	23 x 23	114 Halstead St.	5 min.	Jun 6, 2018	Aug 7, 2018
G1	12 x 12	7011 W. 176th Ave.	5 min.	Jun 6, 2018	Aug 7, 2018
H1	30 x 30	402 E. Oakley Ave.	5 min.	Jun 6, 2018	Aug 7, 2018
I1	15 x 15	North of parking lot at Liberty Park	5 min.	Jun 6, 2018	Aug 7, 2018
INT1	18 x 18	6408 Belshaw Rd.	5 min.	Jun 6, 2018	Aug 7, 2018
INT2	15 x 15	East of Lowell Filtration Plant Rd. on Belshaw Rd.	5 min.	Jun 6, 2018	Aug 7, 2018
INT3	47 x 47	East of Lowell Filtration Plant Rd. on Belshaw Rd.	5 min.	Jun 6, 2018	Aug 7, 2018
INT4	42 x 42	East of Golden Oak Rd. 300 ft. behind homes at tree line	5 min.	Jun 6, 2018	Aug 7, 2018
INT5	30 x 30	16313 Morse St.	5 min.	Jun 6, 2018	Aug 7, 2018
J1	18 x 18	166 W. Main St.	5 min.	Jun 6, 2018	Aug 7, 2018
K1	12 x 12	Morris St. & S. Willowbrook Dr.	5 min.	Jun 6, 2018	Aug 7, 2018
TRG1	8 in. funnel	7505 Belshaw Rd.	5 min.	Jun 6, 2018	Aug 7, 2018
TRG2	8 in. funnel	248 N. Liberty St.	5 min.	Jun 6, 2018	Aug 7, 2018
TRG3	8 in. funnel	16313 Morse St.	5 min.	Jun 6, 2018	Aug 7, 2018

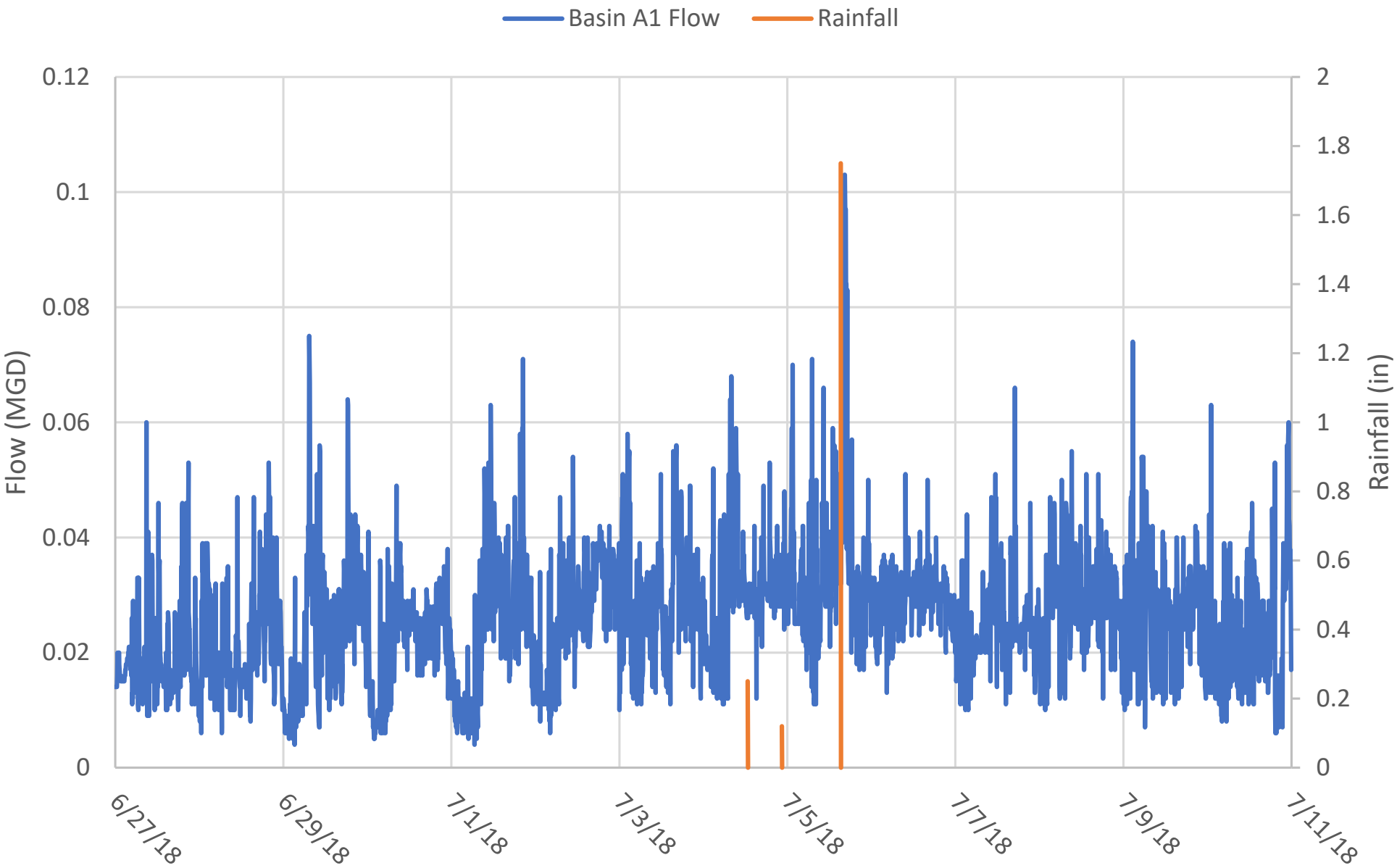
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin A1 (Correlates to Sub-System 10 in 2015 Study)



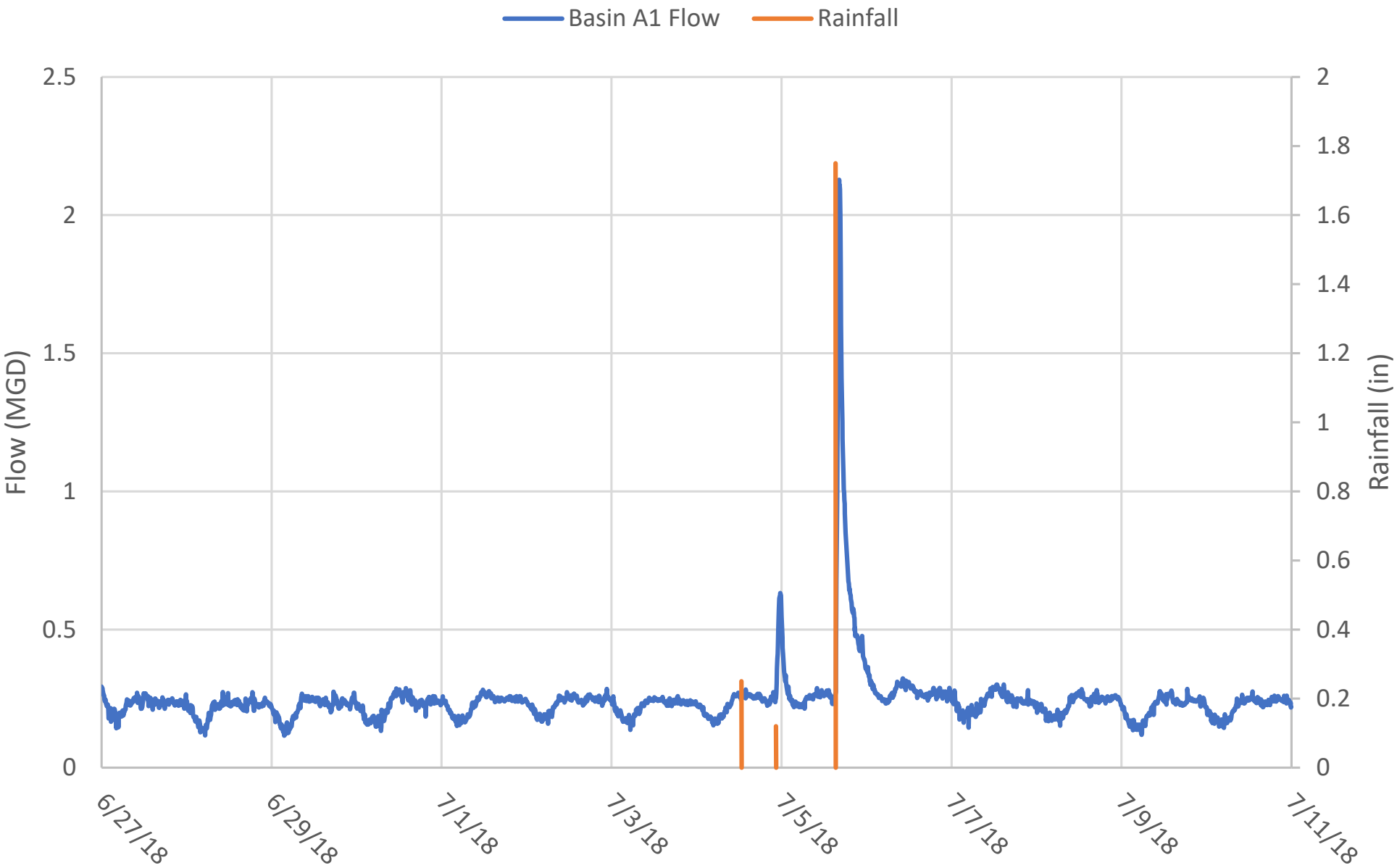
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin B1-1 (Correlates to Sub-System 9 in 2015 Study)



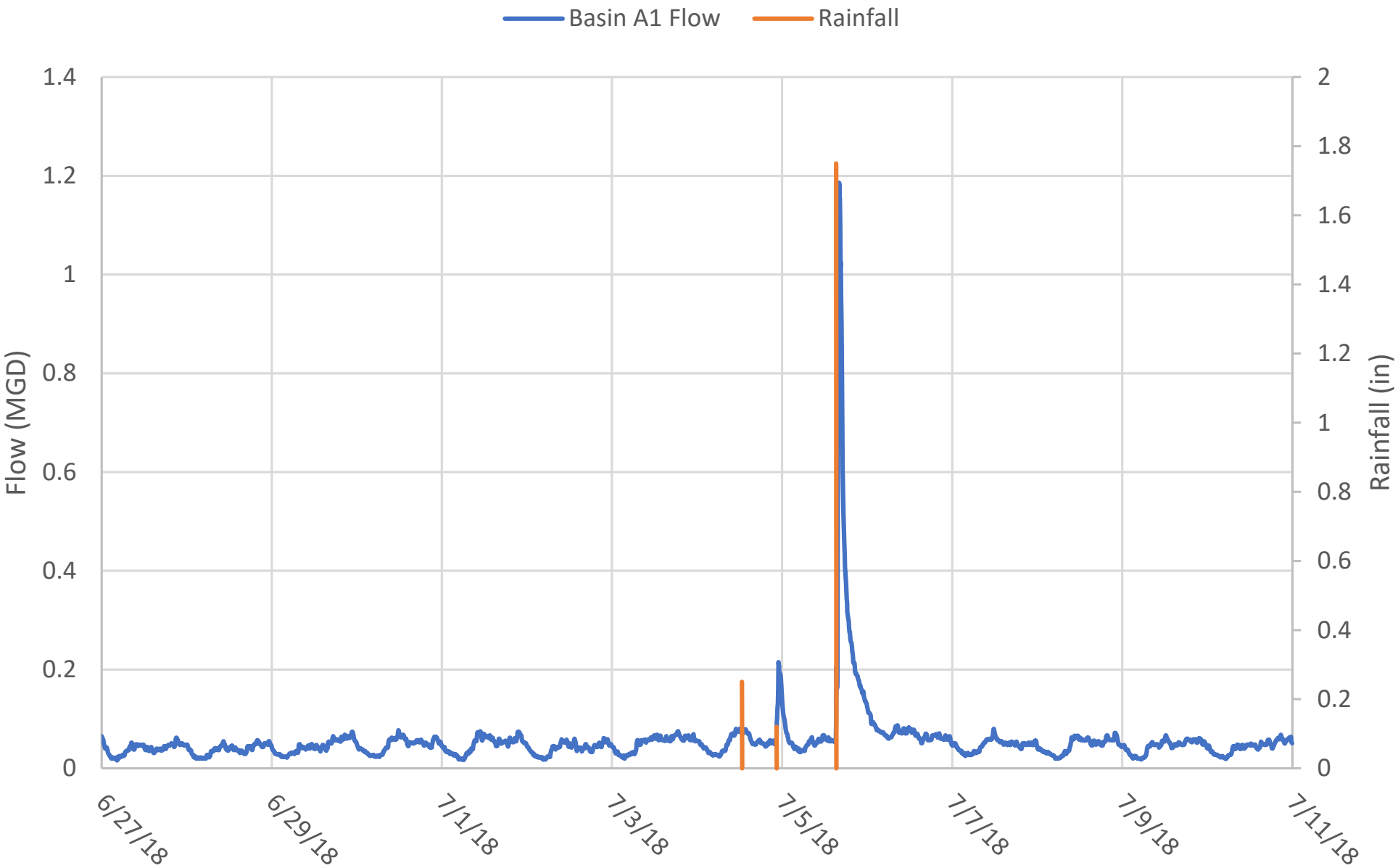
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin B1-2 (Correlates to Sub-System 9 in 2015 Study)



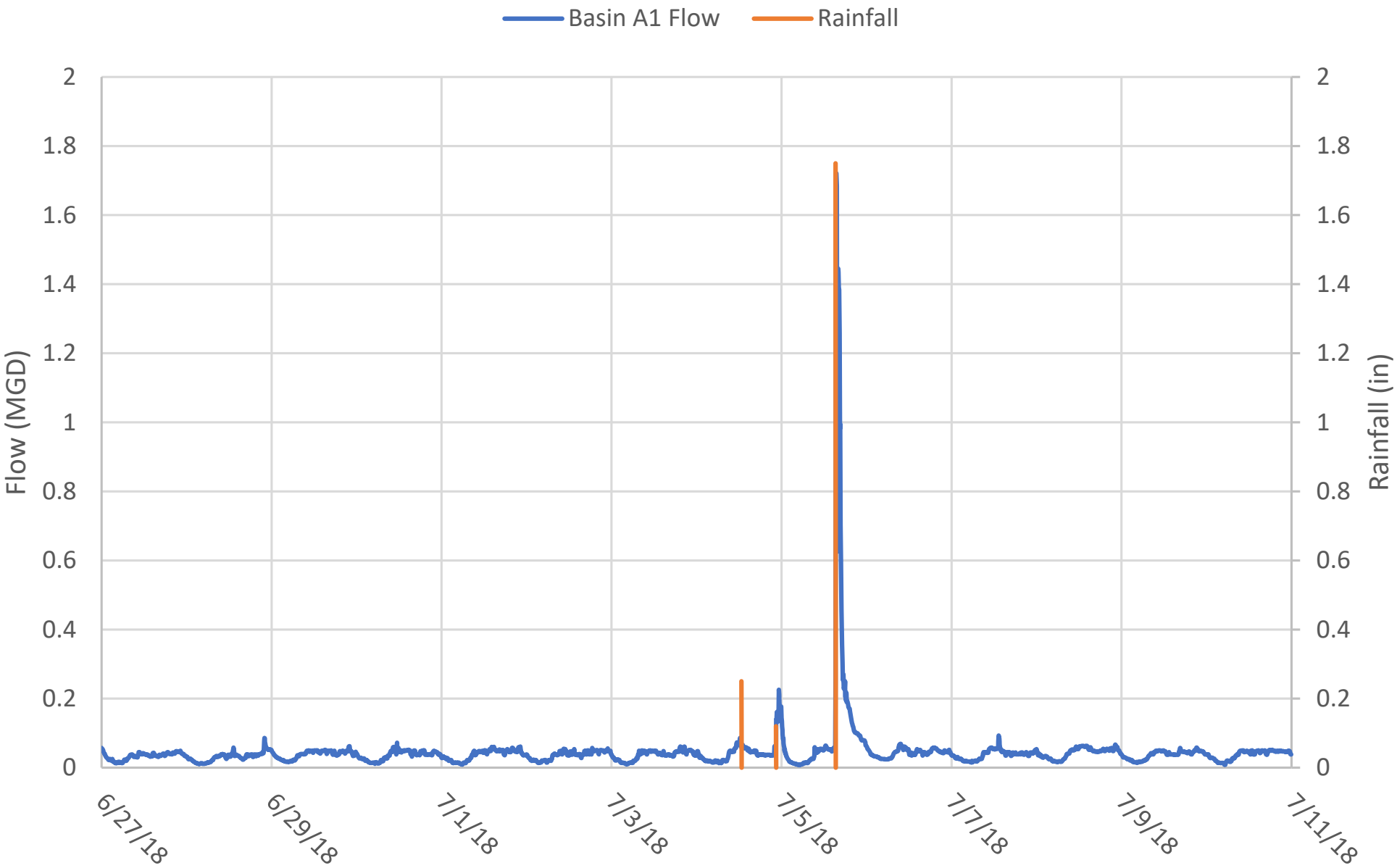
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin C1 (Correlates to Sub-System 3 in 2015 Study)



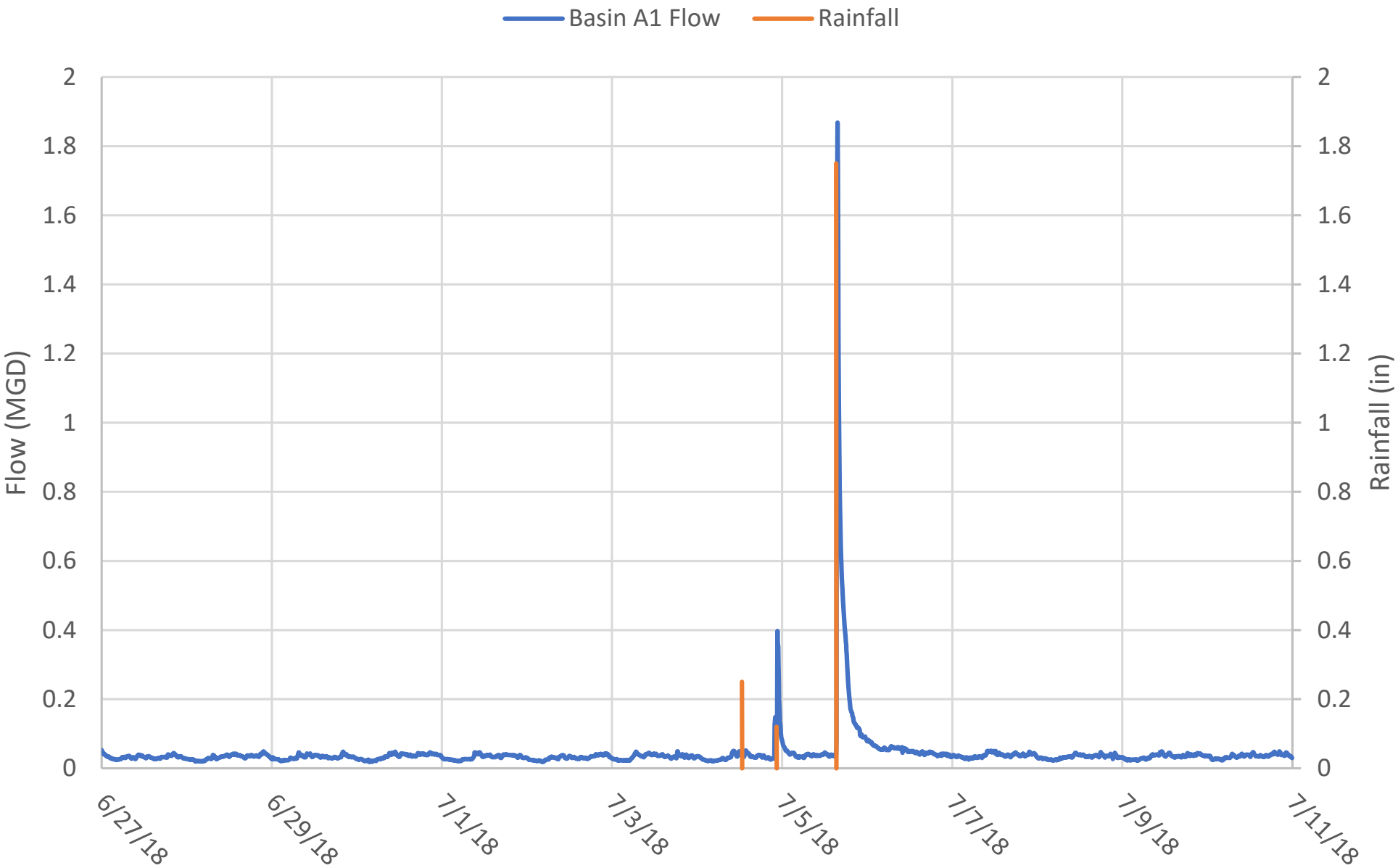
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin D1 (Correlates to Sub-System 2 in 2015 Study)



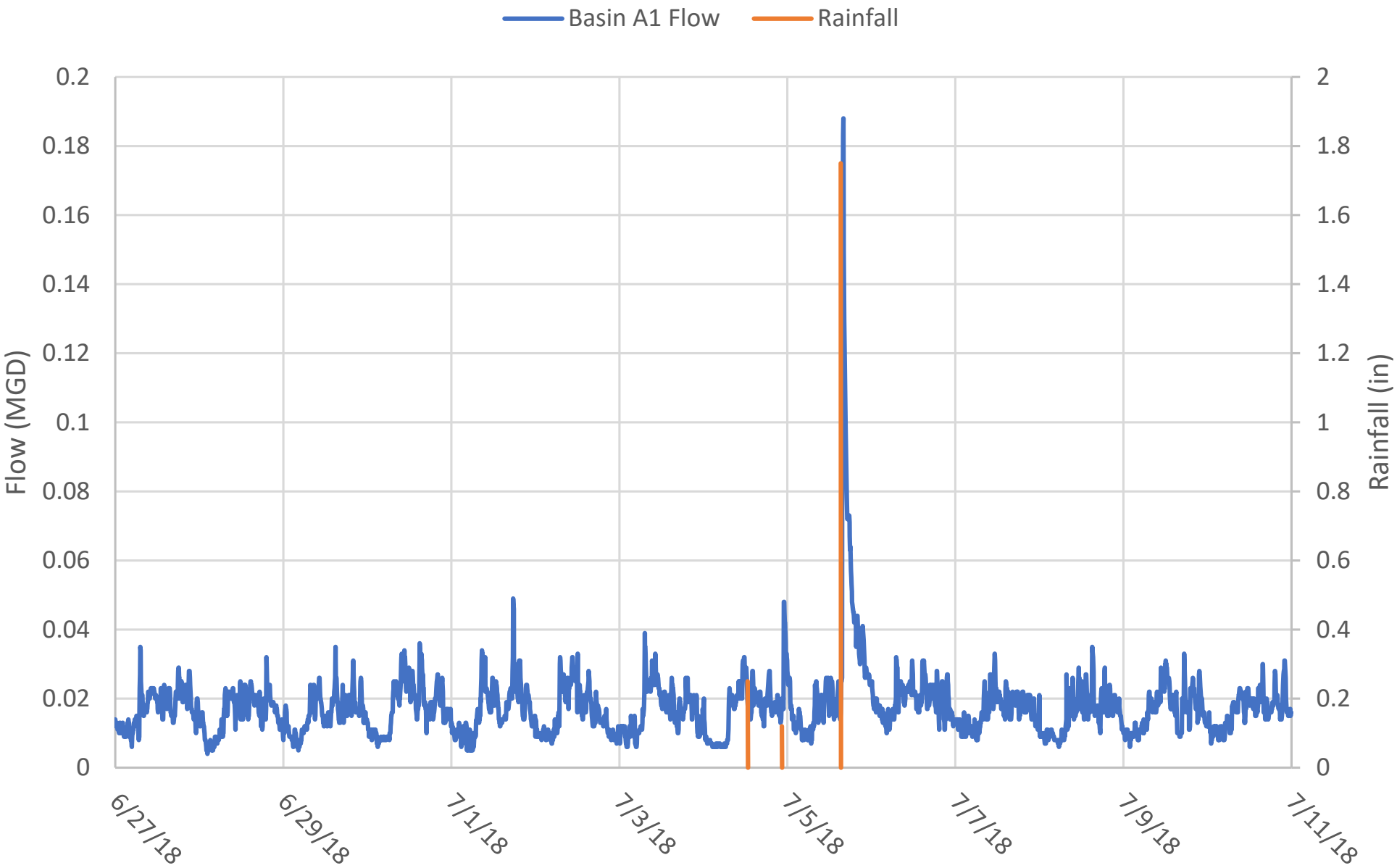
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin E1 (Correlates to Sub-System 1 in 2015 Study)



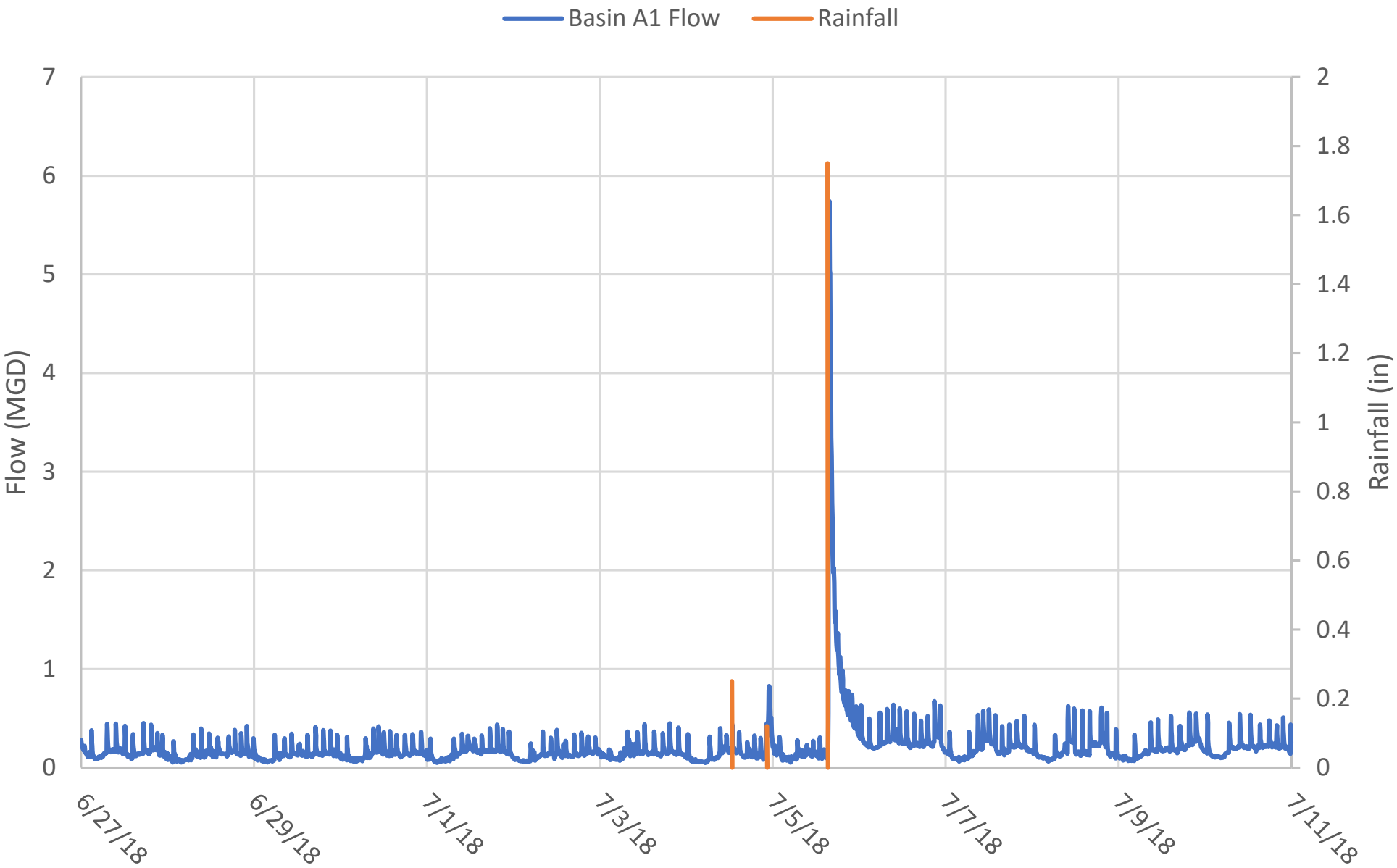
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin F1 (Does not correlate to 2015 Study)



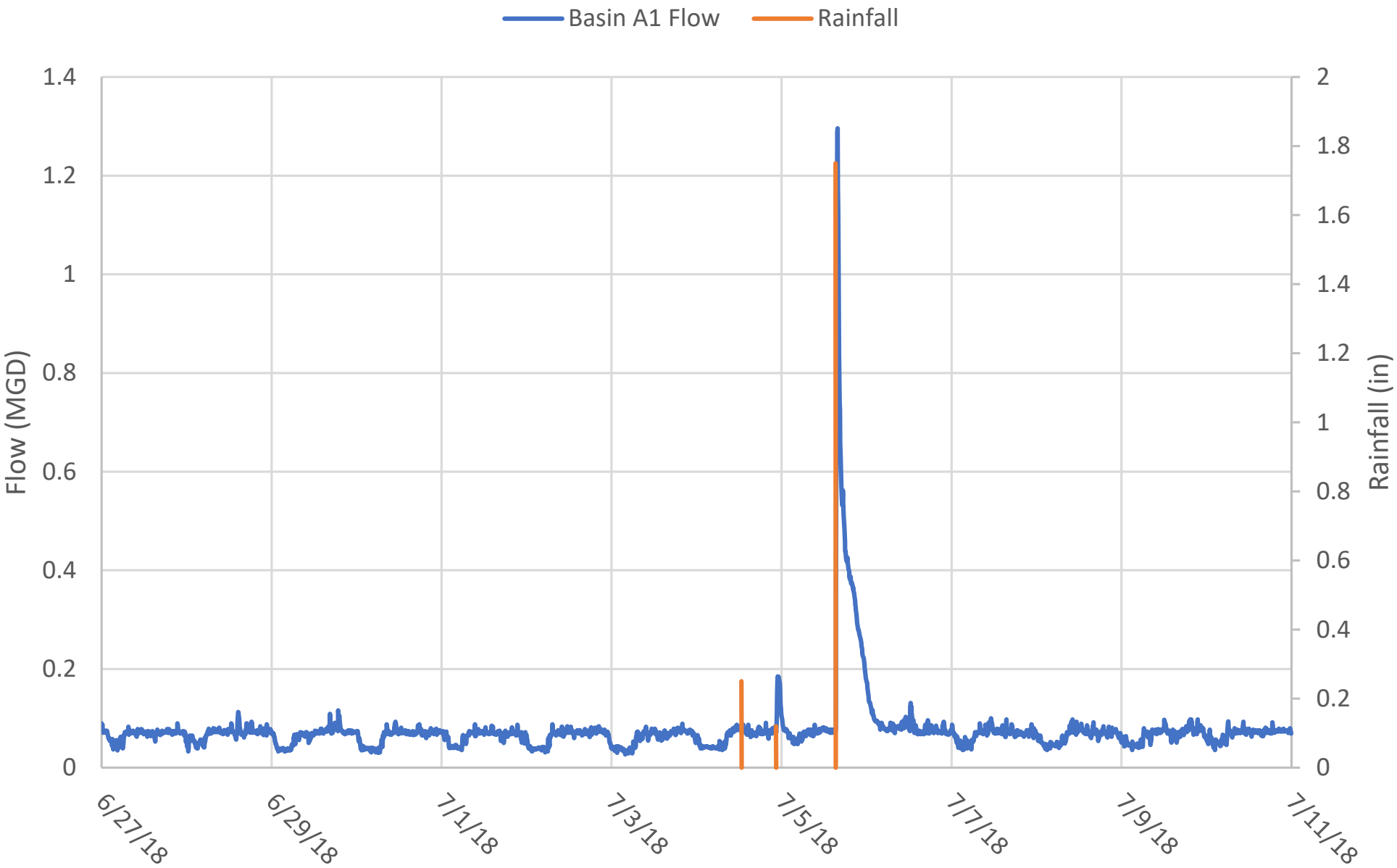
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin G1 (Correlates to Sub-System 7 in 2015 Study)



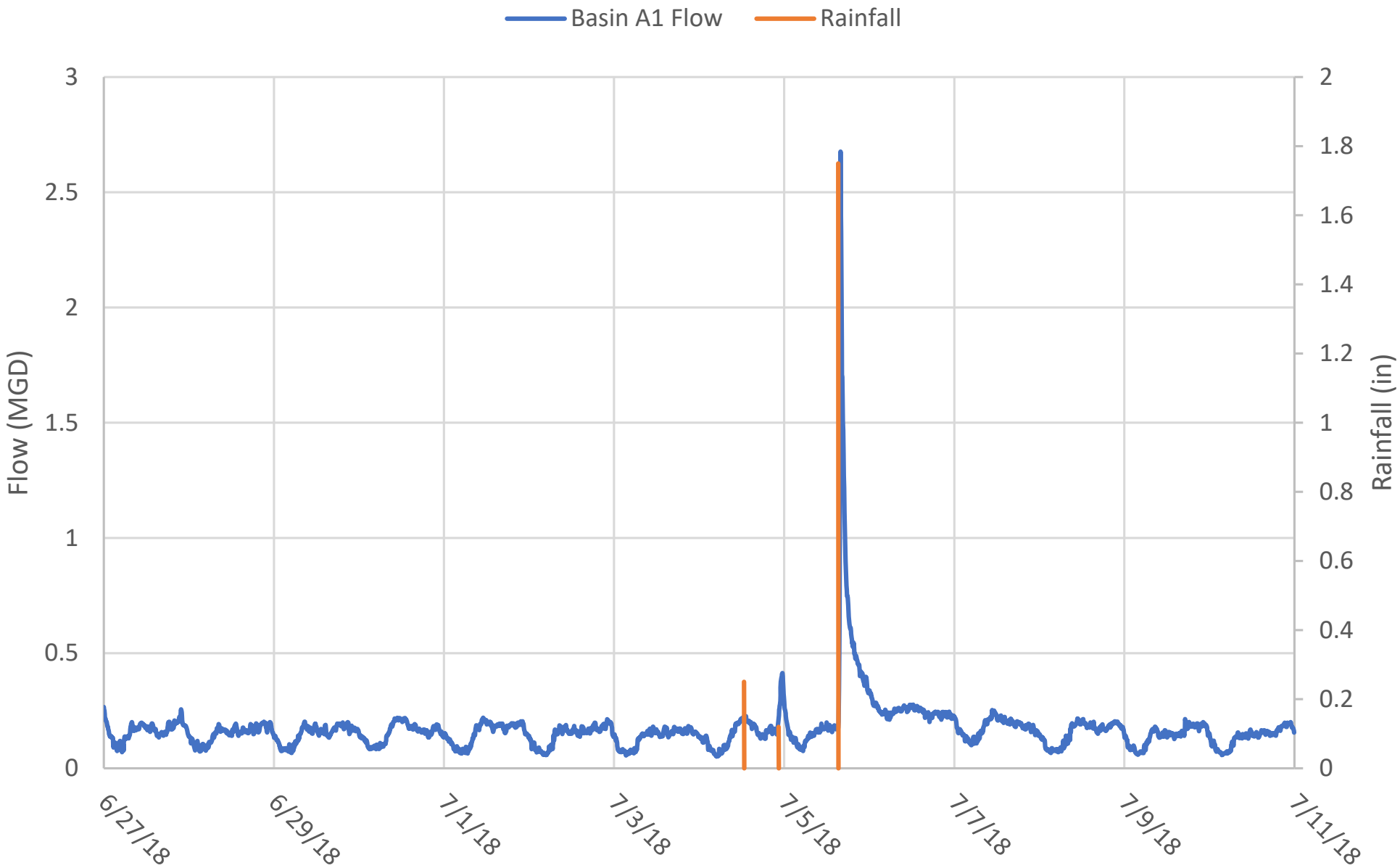
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin H1 (Correlates to Sub-System 5 in 2015 Study)



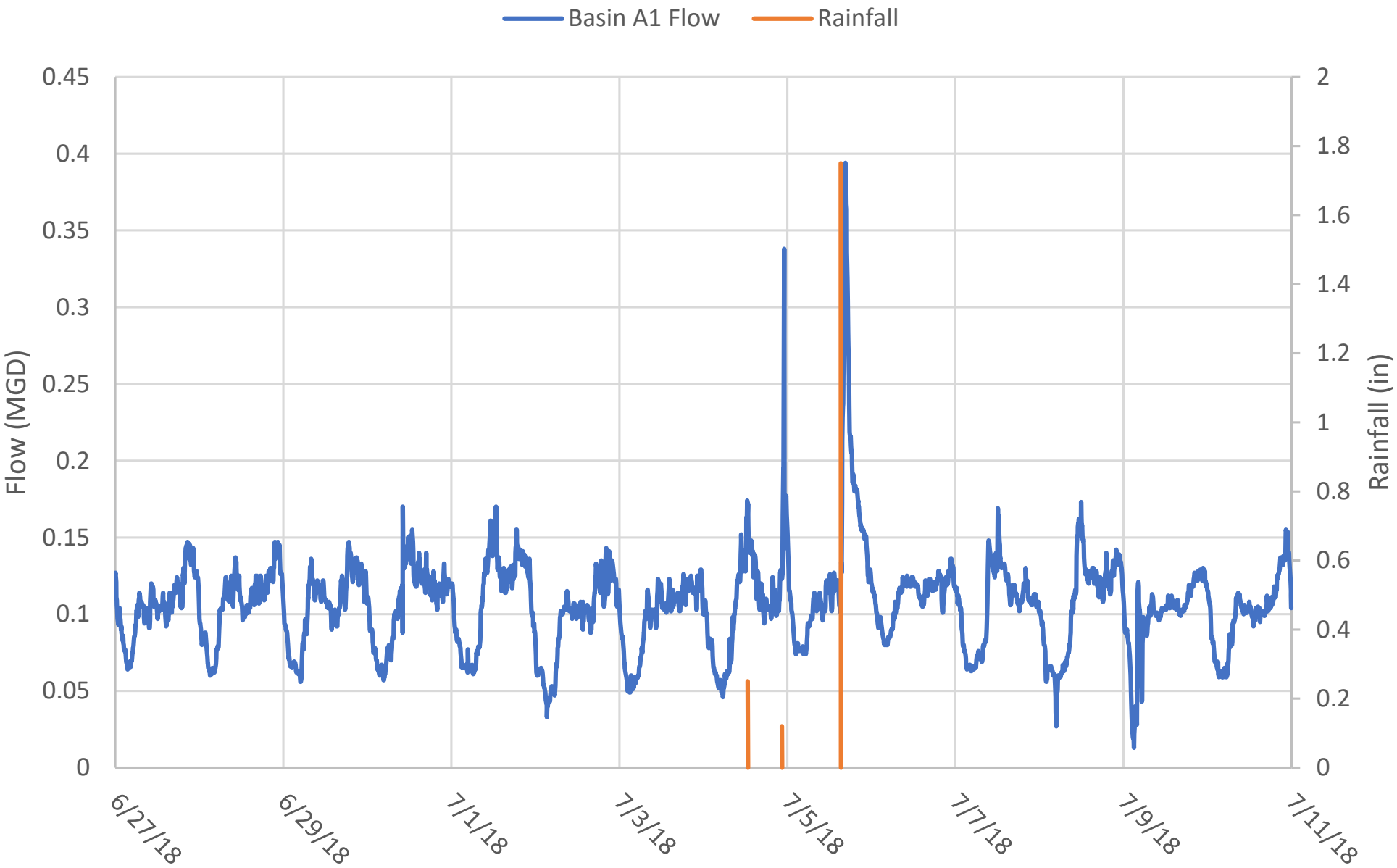
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin I1 (Correlates to Sub-System 4 in 2015 Study)



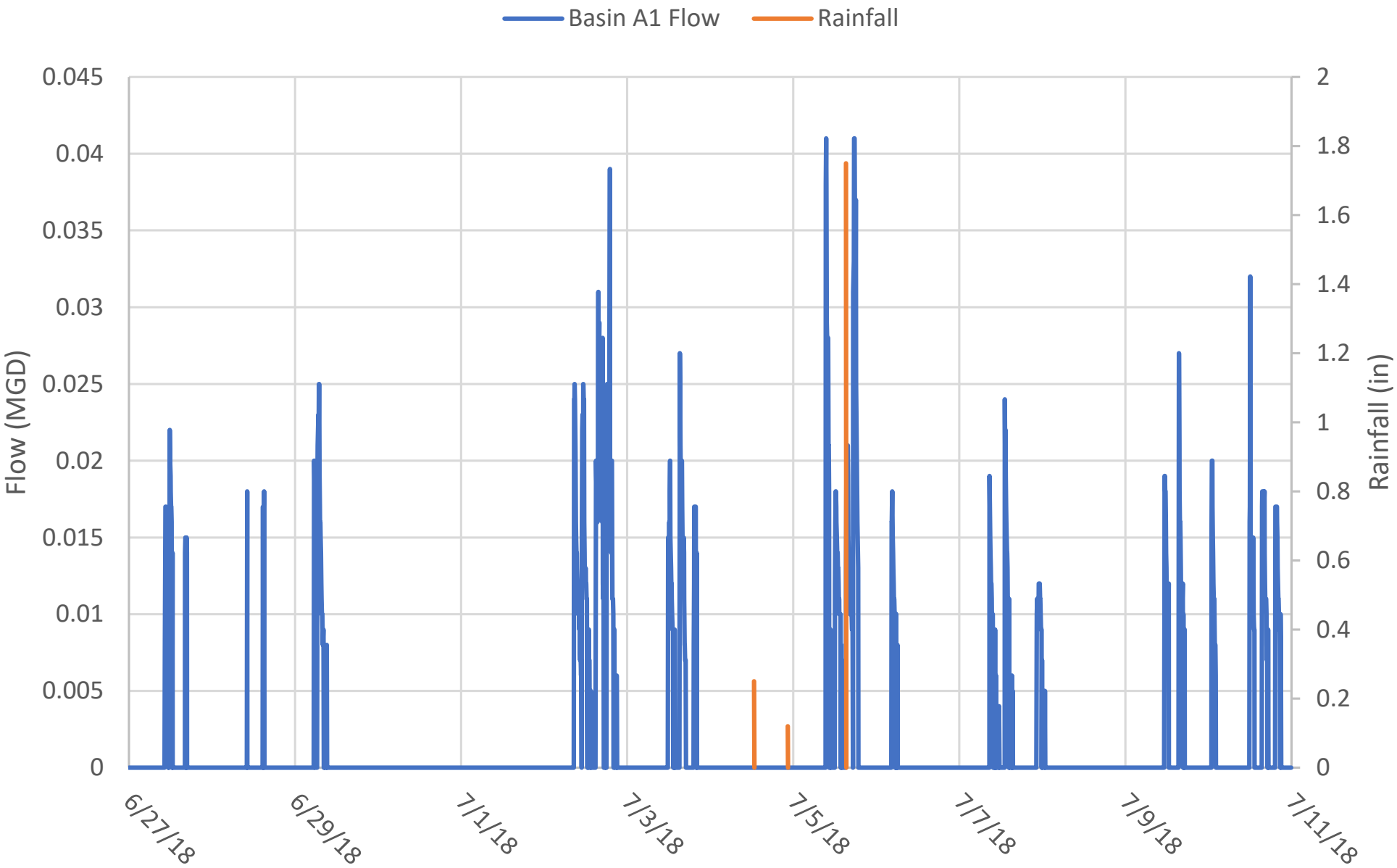
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin J1 (Correlates to Sub-System 6 in 2015 Study)



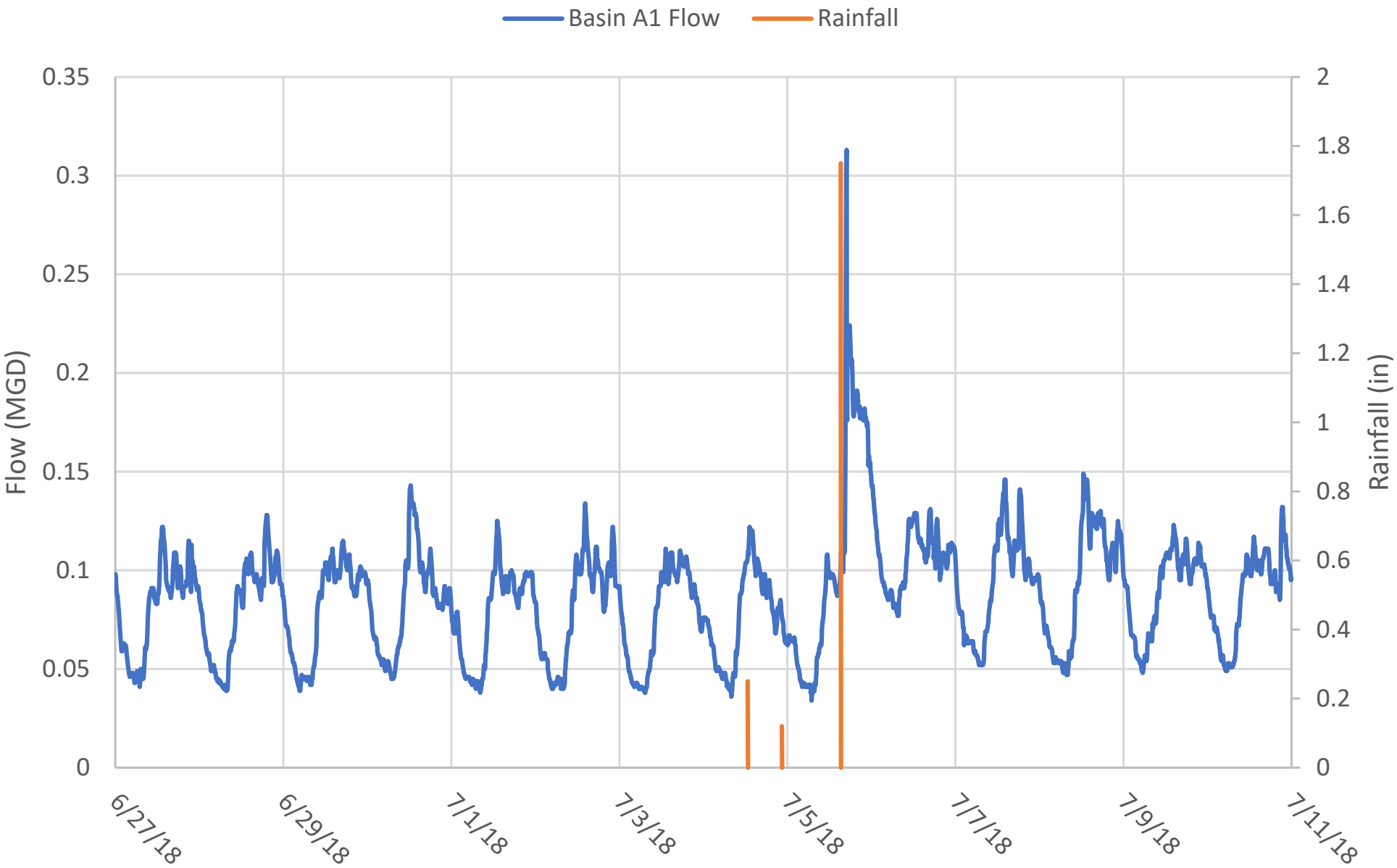
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin K1 (Correlates to Sub-System 8 in 2015 Study)



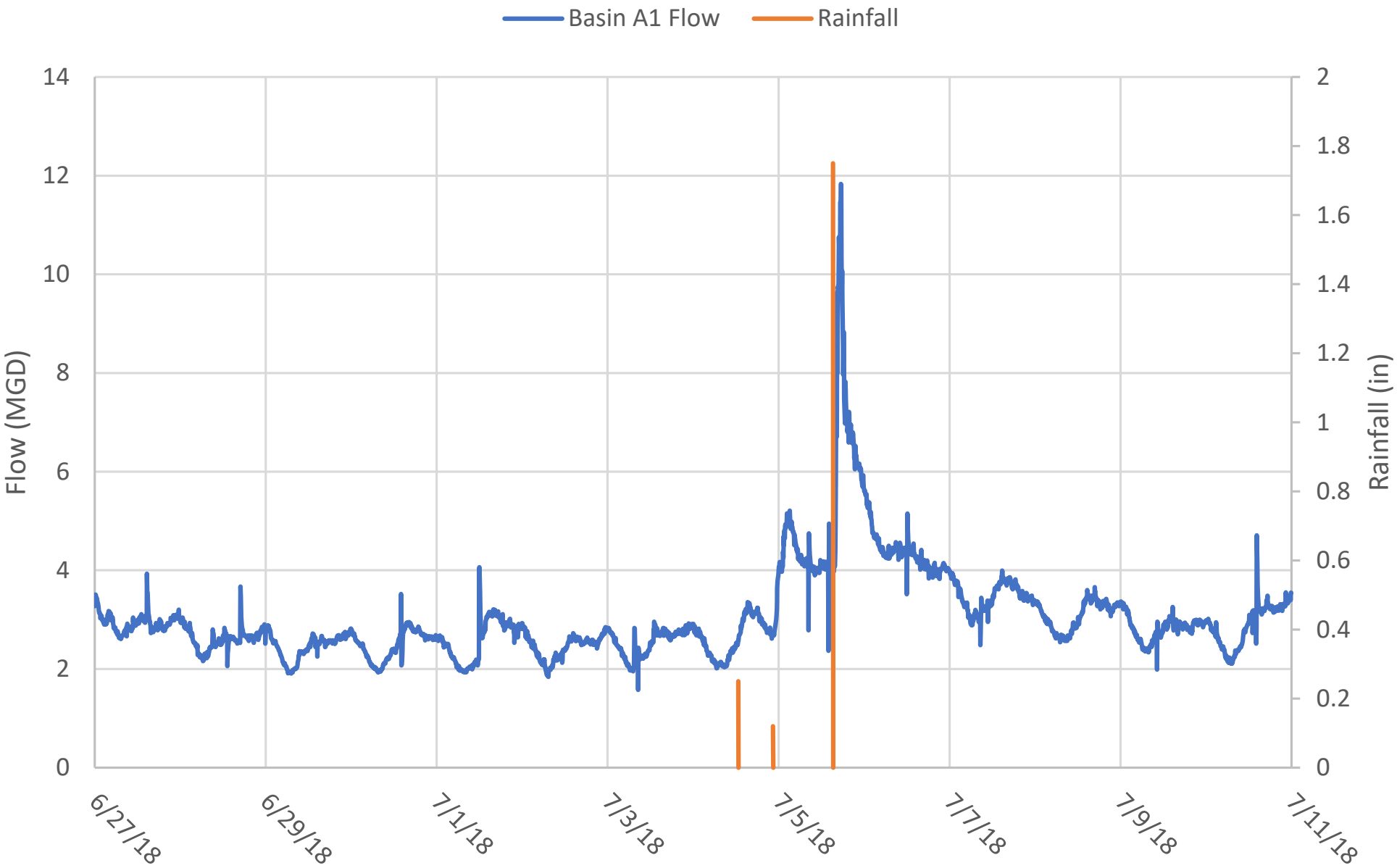
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin INT1 (Does not Correlate to 2015 Study)



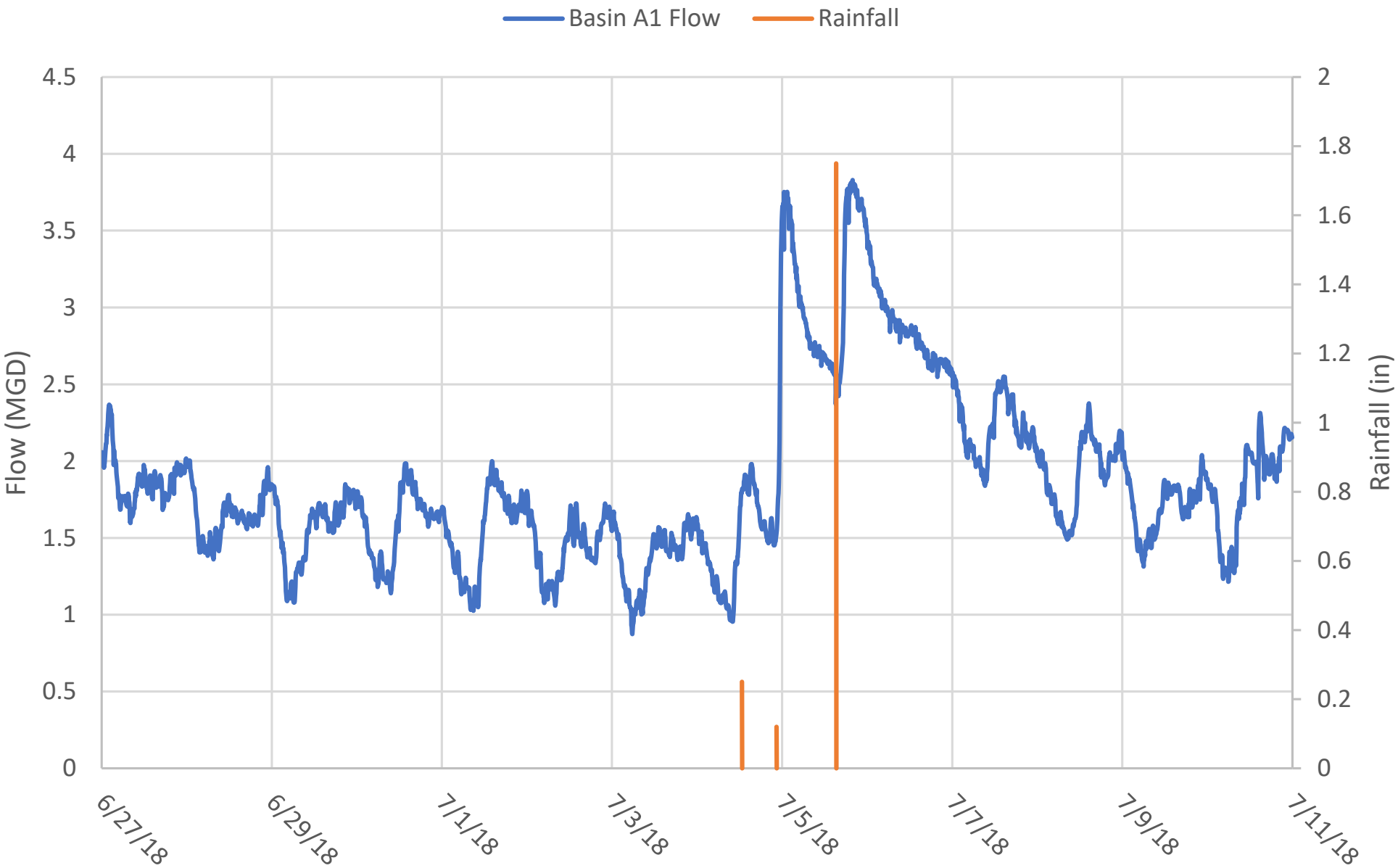
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin INT2 (Does not Correlate to 2015 Study)



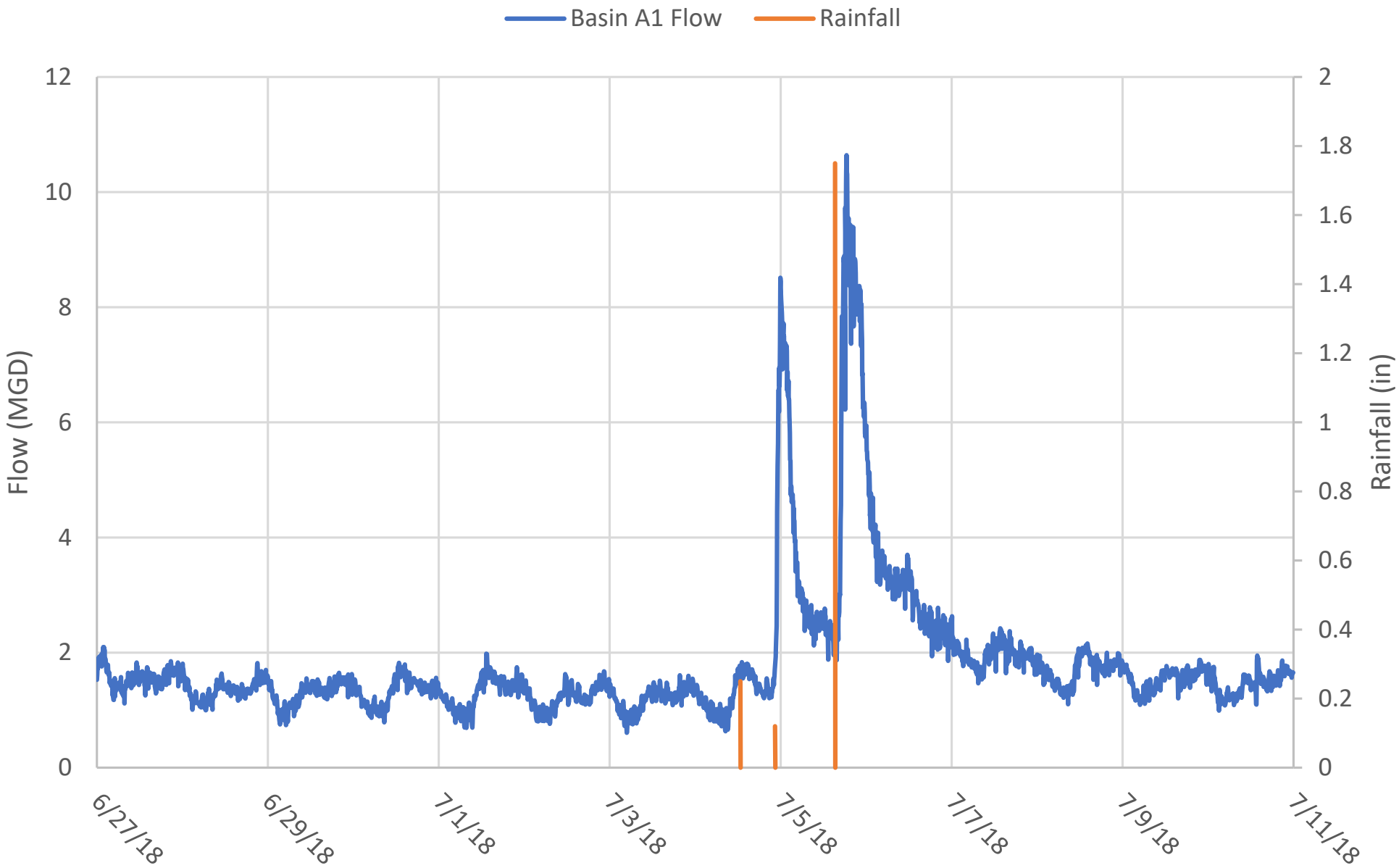
ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin INT3 (Total Flow into WWTP)



ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin INT4 (Does not Correlate to 2015 Study)



ATTACHMENT E - Lowell 2018 Flow Metering Hydrographs
Basin INT5 (Does not Correlate to 2015 Study)



ATTACHMENT F
Flow Monitoring Data from 6/27/18 through 7/10/18

Flow Meter Identification	June 27, 2018 - July 3, 2018 (Dry Weather - 0.11" of Rain on 6/26/2018)							July 4, 2018 - July 10, 2018 (Wet Weather - 0.37" on 7/4 and 1.75" on 7/5/18)						
	Flow				Rainfall (in)			Flow				Rainfall (in)		
	Total (MG)	Average Daily Flow (MGD)	MAX (MGD)	MIN (MGD)	TRG-1	TRG-2	TRG-3	Total (MG)	Average Daily Flow (MGD)	MAX (MGD)	MIN (MGD)	TRG-1	TRG-2	TRG-3
INT5	8.340	1.191	1.886	0.548				14.412	2.059	9.573	0.220			
INT4	11.637	1.662	2.472	0.943				15.732	2.247	3.947	1.025			
A1	0.157	0.022	0.109	0.000				0.178	0.025	0.147	0.000			
B1MP1	0.479	0.068	0.126	0.023				0.549	0.078	0.614	0.024			
B1MP2	0.091	0.013	0.119	0.000				0.028	0.004	0.150	0.000			
K1	0.656	0.094	0.153	0.030				0.688	0.098	0.355	0.011			
G1	0.194	0.028	0.281	0.000				0.241	0.034	0.256	0.000			
J1	1.015	0.145	0.266	0.000				1.370	0.196	2.676	0.051			
I1	0.579	0.083	0.134	0.016	0	0	0	0.716	0.102	1.288	0.016	2.12	1.97	1.9
F1	0.249	0.036	0.850	0.190				0.386	0.055	1.868	0.000			
C1	2.467	0.352	0.434	0.178				2.808	0.401	2.432	0.202			
H1	1.001	0.143	0.506	0.000				1.926	0.275	5.924	0.000			
D1	0.308	0.044	0.077	0.000				0.468	0.067	1.022	0.000			
E1	0.226	0.032	0.077	0.000				0.371	0.053	1.549	0.000			
INT3	18.921	2.703	21.346	1.352				25.665	3.666	12.034	0.453			
INT1	0.012	0.002	0.039	0.000				0.013	0.002	0.041	0.000			
INT2	0.558	0.080	0.143	0.038				0.651	0.093	0.313	0.034			
Sum of INT4 through E1	**19.059 MG**							**25.461 MG**						
Difference Between INT3 and Above	**-0.138 MG**							**0.204 MG**						

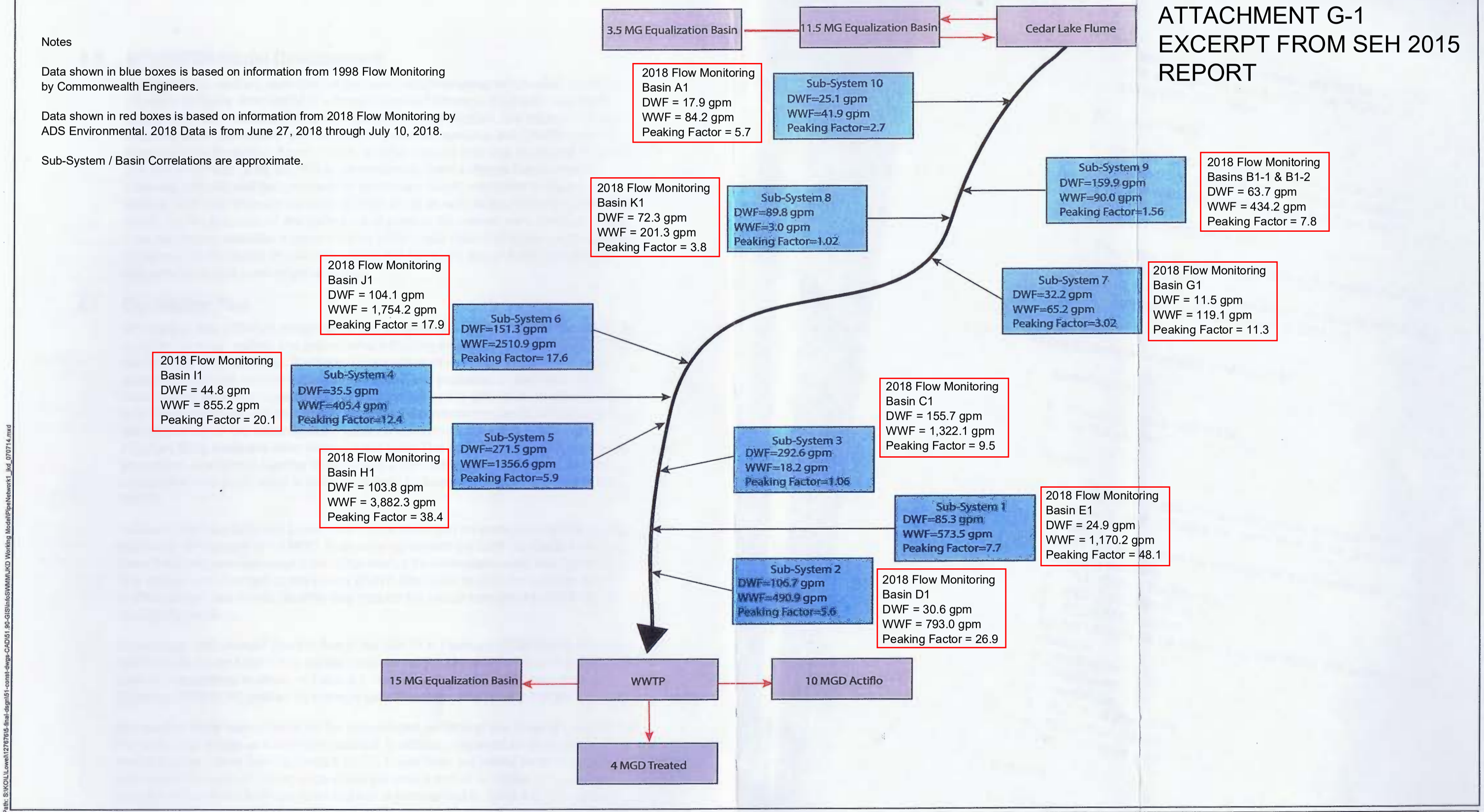
ATTACHMENT G-1
EXCERPT FROM SEH 2015 REPORT

Notes

Data shown in blue boxes is based on information from 1998 Flow Monitoring by Commonwealth Engineers.

Data shown in red boxes is based on information from 2018 Flow Monitoring by ADS Environmental. 2018 Data is from June 27, 2018 through July 10, 2018.

Sub-System / Basin Correlations are approximate.



Path: S:\KOIL\Lowell\127676\6-final-dsgn\51-const-dwgs-CAD\51.90-GIS\InfoSWMM\JKD Working Model\PipeNetwork1_jkd_070714.mxd

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www.sehinc.com

Project: Lowel 127676
Print Date: 12/10/2014

Map by: JKD
Projection: Transverse_Mercator

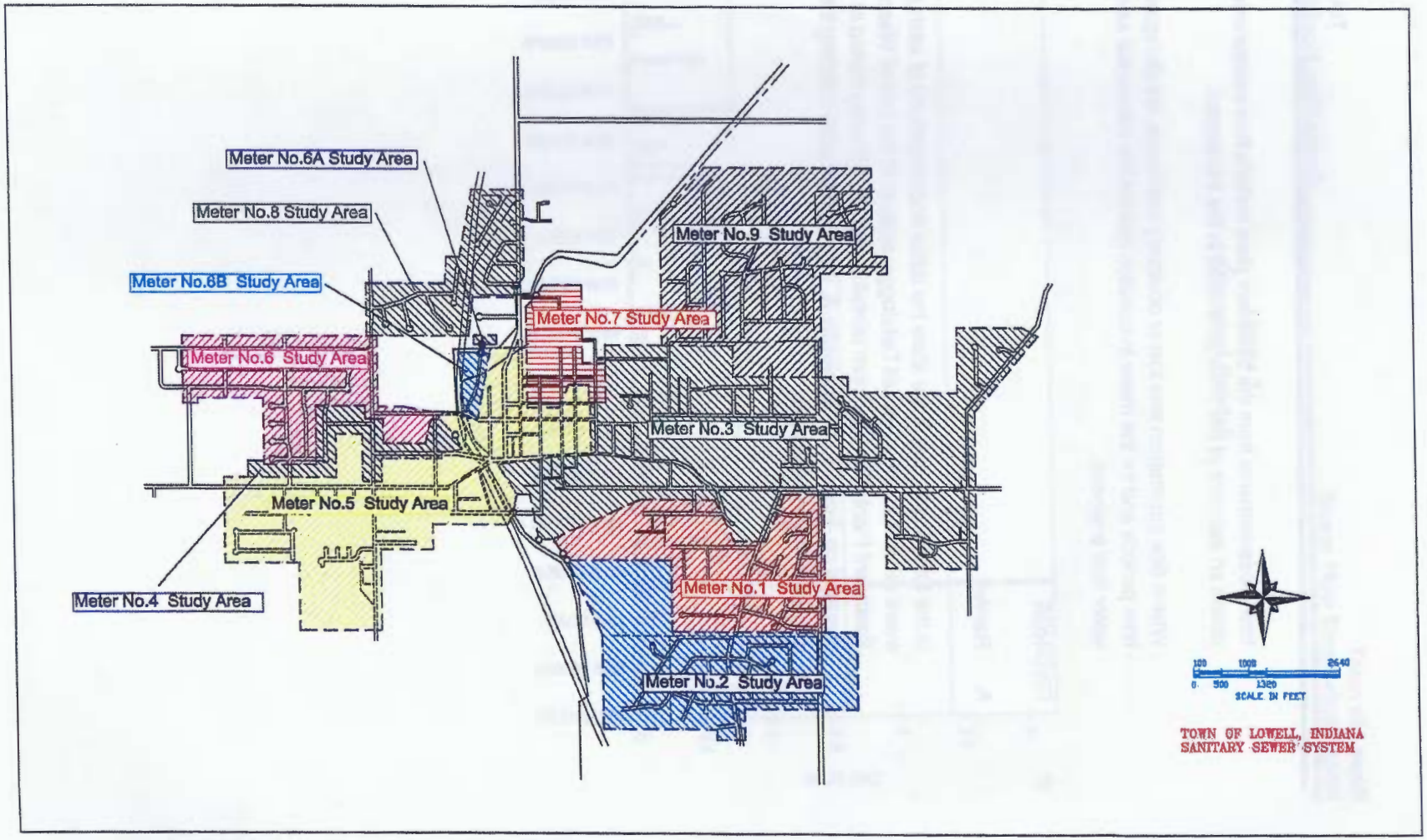
Inflow and Infiltration Schematic for Existing Subsewersheds

Town of Lowell Sanitary
Lowell, IN

Figure
3-1

ATTACHMENT G-1
EXCERPT FROM SEH 2015
REPORT / COMMONWEALTH
1998 FLOW MONITORING

Figure 2
Flow Meter Study Areas



APPENDIX H

TOTAL NITROGEN TEST RESULTS (LOWELL WWTP EFFLUENT – AUGUST 2020)

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0716

Project Description

DW-H2S

For:

Don Woodard

Town of Lowell

501 East Main Street, P.O. Box 157

Lowell, IN 46356

Bonnie Feil

Project Manager Assistant

Thursday, August 20, 2020

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Chicagoland. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0716

Town of Lowell

Don Woodard
501 East Main Street, P.O. Box 157
Lowell, IN 46356

Project Name: DW-H2S

Project / PO Number: 1768
Received: 08/11/2020
Reported: 08/20/2020

Project Special Information

5245029

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Final Eff. #1	20H0716-01	Aqueous			08/05/20 07:00	08/11/20 14:15
Final Eff. #2	20H0716-02	Aqueous			08/06/20 08:10	08/11/20 14:15
Final Eff. #3	20H0716-03	Aqueous			08/07/20 07:05	08/11/20 14:15
Final Eff. #4	20H0716-04	Aqueous			08/10/20 08:15	08/11/20 14:15
Final Eff. #5	20H0716-05	Aqueous			08/11/20 07:45	08/11/20 14:15

CERTIFICATE OF ANALYSIS
20H0716

Analytical Testing Parameters

Client Sample ID: Final Eff. #1
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-01
Collected By: Don Woodard
Collection Date: 08/05/2020 7:00

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**20**	5.5	mg/L	50		08/18/20 1134	08/19/20 1212	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	**1.3**	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1212	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**18**	5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1235	ABG

Client Sample ID: Final Eff. #2
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-02
Collected By: Don Woodard
Collection Date: 08/06/2020 8:10

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**21**	5.5	mg/L	50		08/18/20 1134	08/19/20 1214	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	**0.51**	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1214	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**20**	5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1242	ABG

Client Sample ID: Final Eff. #3
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-03
Collected By: Don Woodard
Collection Date: 08/07/2020 7:05

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**21**	5.5	mg/L	50		08/18/20 1134	08/19/20 1216	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	<0.50	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1216	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**21**	5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1215	ABG

CERTIFICATE OF ANALYSIS

20H0716

Client Sample ID: Final Eff. #4
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-04
Collected By: Don Woodard
Collection Date: 08/10/2020 8:15

Inorganics Total		Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]									
Total Nitrogen (NO2+NO3+TKN)	**20**		5.5	mg/L	50		08/18/20 1134	08/19/20 1217	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)									
Nitrogen, Kjeldahl, Total		<0.50	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1217	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)									
Nitrogen, Nitrate-Nitrite (as N)	**20**		5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1218	ABG

Client Sample ID: Final Eff. #5
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-05
Collected By: Don Woodard
Collection Date: 08/11/2020 7:45

Inorganics Total		Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]									
Total Nitrogen (NO2+NO3+TKN)	**16**		5.5	mg/L	50		08/18/20 1134	08/19/20 1223	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)									
Nitrogen, Kjeldahl, Total		<0.50	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1223	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)									
Nitrogen, Nitrate-Nitrite (as N)	**16**		5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1220	ABG

Definitions

mg/L: Milligrams per Liter
RL: Reporting Limit
Y: This analyte is not on the laboratory's current scope of accreditation.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.0°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0716

Project Requested Certification(s)

Microbac Laboratories, Inc. - Chicagoland

C-45-03	Indiana SDH chemical analysis of drinking water (g)
M-45-08	Indiana SDH Micro analysis of drinking water (f)

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

Bonnie Feil

Bonnie Feil

Project Manager Assistant

bonnie.feil@microbac.com

08/20/2020 11:34

20H0710
Bonnie Feil
Town of Lowell - Lowell, IN
DW-H2S
08/11/2020

CROBAC

CHAIN OF CUSTODY RECORD
Number 158396
Instructions on back

t Address	Invoice Address	Turnaround Time	TO BE COMPLETED BY MICROBAC
ne: Town of Lowell - WWTP	Client Name: SAME	☒ Routine (5 to 7 business days)	Temperature Upon Receipt (°C) 4.2 / 4.0
501 E. Main St.	Address:	☐ RUSH* (notify lab)	Therm ID
e, Zip: Lowell, IN. 46356	City, State, Zip:	(needed by)	Holding Time
Don Woodard	Contact:	Report Type	Samples Received on Ice? ☒ Yes ☐ No ☐ N/A
e No.: 219-696-0343	Telephone No.:	☐ Results Only ☐ Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4 ☐ EDD	Custody Seals Intact? ☐ Yes ☐ No ☒ N/A

ort via: ☐ Mail ☐ Fax ☒ e-mail (address) wwtp@Lowell.NET Send Invoice via: ☐ Mail ☐ Fax ☒ e-mail (address) wwtp@Lowell.NET

DW-H2S Location: Lowell WWTP PO No.: 1768 Compliance Monitoring? ☒ Yes ☐ No ☐ Agency/Program

by (PRINT): Don Woodard Sampler Signature: [signature] Sampler Phone No.: 219-696-0343

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	N: Total - CAL										20H0710 Additional Notes
1	Final Eff	8/5/20	7AM	1	Aq	G	H2SO4	X										-01
2	" "	8/6/20	8:10AM	1	Aq	G	"	X										-02
3	" "	8/7/20	7:05AM	1	Aq	G	"	X										-03
4	" "	8/10/20	8:15AM	1	Aq	G	"	X										-04
5	" "	8/11/20	7:45AM	1	Aq	G	"	X										-05

Possible Hazard Identification ☐ Hazardous ☐ Non-Hazardous ☐ Radioactive Sample Disposition ☐ Dispose as appropriate ☐ Return ☐ Archive

Comments

	Date/Time		Date/Time
Relinquished By (signature) [signature]	8/11/2020 1335	Received By (signature) [signature]	8/11/2020 1335
Relinquished By (signature) [signature]	8/11/2020 1415	Received By (signature)	Date/Time
Relinquished By (signature)	Date/Time	Received By (signature) [signature]	8/11/20 1415

rev.12/26/2017

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0184

Project Description

DW-H2S

For:

Don Woodard

Town of Lowell

501 East Main Street, P.O. Box 157

Lowell, IN 46356

Bonnie Feil

Project Manager Assistant

Thursday, August 13, 2020

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Chicagoland. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0184

Town of Lowell

Don Woodard
501 East Main Street, P.O. Box 157
Lowell, IN 46356

Project Name: DW-H2S

Project / PO Number: 1768
Received: 08/04/2020
Reported: 08/13/2020

Project Special Information

5245029

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Final Eff. #1	20H0184-01	Aqueous			07/29/20 07:15	08/04/20 12:25
Final Eff. #2	20H0184-02	Aqueous			07/30/20 07:15	08/04/20 12:25
Final Eff. #3	20H0184-03	Aqueous			07/31/20 09:00	08/04/20 12:25
Final Eff. #4	20H0184-04	Aqueous			08/03/20 09:05	08/04/20 12:25
Final Eff. #5	20H0184-05	Aqueous			08/04/20 07:05	08/04/20 12:25

CERTIFICATE OF ANALYSIS
20H0184

Analytical Testing Parameters

Client Sample ID: Final Eff. #1
Sample Matrix: Aqueous
Lab Sample ID: 20H0184-01 **Collection Date:** 07/29/2020 7:15

Inorganics Total		Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]									
Total Nitrogen (NO2+NO3+TKN)	**19**		2.5	mg/L	20		08/11/20 1201	08/12/20 1300	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)									
Nitrogen, Kjeldahl, Total		<0.50	0.50	mg/L	1	**Y**	08/07/20 0805	08/11/20 1326	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)									
Nitrogen, Nitrate-Nitrite (as N)	**19**		2.0	mg/L	20	**Y**	08/11/20 1201	08/12/20 1300	ABG

Client Sample ID: Final Eff. #2
Sample Matrix: Aqueous
Lab Sample ID: 20H0184-02 **Collection Date:** 07/30/2020 7:15

Inorganics Total		Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]									
Total Nitrogen (NO2+NO3+TKN)	**19**		2.5	mg/L	20		08/11/20 1201	08/12/20 1303	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)									
Nitrogen, Kjeldahl, Total		<0.50	0.50	mg/L	1	**Y**	08/07/20 0805	08/11/20 1328	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)									
Nitrogen, Nitrate-Nitrite (as N)	**19**		2.0	mg/L	20	**Y**	08/11/20 1201	08/12/20 1303	ABG

Client Sample ID: Final Eff. #3
Sample Matrix: Aqueous
Lab Sample ID: 20H0184-03 **Collection Date:** 07/31/2020 9:00

Inorganics Total		Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]									
Total Nitrogen (NO2+NO3+TKN)	**19**		2.5	mg/L	20		08/11/20 1201	08/12/20 1305	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)									
Nitrogen, Kjeldahl, Total		<0.50	0.50	mg/L	1	**Y**	08/07/20 0805	08/11/20 1329	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)									
Nitrogen, Nitrate-Nitrite (as N)	**19**		2.0	mg/L	20	**Y**	08/11/20 1201	08/12/20 1305	ABG

CERTIFICATE OF ANALYSIS

20H0184

Client Sample ID: Final Eff. #4
Sample Matrix: Aqueous
Lab Sample ID: 20H0184-04 **Collection Date:** 08/03/2020 9:05

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**12**	2.5	mg/L	20		08/11/20 1201	08/12/20 1307	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	**0.86**	0.50	mg/L	1	**Y**	08/07/20 0805	08/11/20 1331	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**11**	2.0	mg/L	20	**Y**	08/11/20 1201	08/12/20 1307	ABG

Client Sample ID: Final Eff. #5
Sample Matrix: Aqueous
Lab Sample ID: 20H0184-05 **Collection Date:** 08/04/2020 7:05

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**15**	2.5	mg/L	20		08/11/20 1201	08/12/20 1315	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	**1.1**	0.50	mg/L	1	**Y**	08/07/20 0805	08/11/20 1333	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**14**	2.0	mg/L	20	**Y**	08/11/20 1201	08/12/20 1315	ABG

Definitions

mg/L: Milligrams per Liter
RL: Reporting Limit
Y: This analyte is not on the laboratory's current scope of accreditation.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 2.3°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0184

Project Requested Certification(s)

Microbac Laboratories, Inc. - Chicagoland

C-45-03	Indiana SDH chemical analysis of drinking water (g)
M-45-08	Indiana SDH Micro analysis of drinking water (f)

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

Bonnie Feil

Project Manager Assistant

bonnie.feil@microbac.com

08/13/2020 08:09

MICROBAC

CHAIN OF CUSTODY RECORD

Number 158395

Instructions on back

20H0184
Town of Lowell - Lowell, IN
DW-H2S
8/04/2020

Bonnie Fell

Lab Report Address

Client Name: Town of Lowell - NWTP
501 E. Main St.
, Zip: Lowell, IN. 46356
Don Woodard
No.: 219-696-0343

Invoice Address

Client Name: SAME
Address:
City, State, Zip:
Contact:
Telephone No.:

Turnaround Time

☒ Routine (5 to 7 business days)
☐ RUSH* (notify lab)
(needed by)

Report Type

☐ Results Only ☐ Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4 ☐ EDD

TO BE COMPLETED BY MICROBAC

Temperature Upon Receipt (°C) 2-5-0.2223
Therm ID IR#1
Holding Time
Samples Received on Ice? ☒ Yes ☐ No ☐ N/A
Custody Seals Intact? ☐ Yes ☐ No ☒ N/A

ort via: ☐ Mail ☐ Fax ☒ e-mail (address) wwtp@lowell-net Send Invoice via: ☐ Mail ☐ Fax ☒ e-mail (address) SAME

DW-H2S Location: Lowell WWTP PO No.: 1768 Compliance Monitoring? ☒ Yes ☐ No ☐ Agency/Program

by (PRINT): Don Woodard Sampler Signature: Don Woodard Sampler Phone No.: 219-696-0343

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	N_ETOTAL_CAL	Additional Notes
1	FINAL EFF. #1	7/29/20	7:15A	1	Aq	G	H2SO4		01
2	" " #2	7/30/20	7:15A	1	Aq	G	"		02
3	" " #3	7/31/20	9:00AM	1	Aq	G	"		03
4	" " #4	8/3/20	9:05AM	1	Aq	G	"		04
5	" " #5	8/4/20	7:05AM	1	Aq	G	"		05

Possible Hazard Identification ☐ Hazardous ☐ Non-Hazardous ☐ Radioactive

Sample Disposition ☐ Dispose as appropriate ☐ Return ☐ Archive

Comments

Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Don Woodard	8-4-20 1125	Dawn Fenn	8/4/2020 1125
Dawn Fenn	8/4/2020 1225		
		Nicole Reno	8-4-20/1225

rev.12/26/2017

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0716

Project Description

DW-H2S

For:

Don Woodard

Town of Lowell

501 East Main Street, P.O. Box 157

Lowell, IN 46356

Bonnie Feil

Project Manager Assistant

Thursday, August 20, 2020

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Chicagoland. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

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20H0716

Town of Lowell

Don Woodard
501 East Main Street, P.O. Box 157
Lowell, IN 46356

Project Name: DW-H2S

Project / PO Number: 1768
Received: 08/11/2020
Reported: 08/20/2020

Project Special Information

5245029

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
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Final Eff. #2	20H0716-02	Aqueous			08/06/20 08:10	08/11/20 14:15
Final Eff. #3	20H0716-03	Aqueous			08/07/20 07:05	08/11/20 14:15
Final Eff. #4	20H0716-04	Aqueous			08/10/20 08:15	08/11/20 14:15
Final Eff. #5	20H0716-05	Aqueous			08/11/20 07:45	08/11/20 14:15

CERTIFICATE OF ANALYSIS
20H0716

Analytical Testing Parameters

Client Sample ID: Final Eff. #1
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-01
Collected By: Don Woodard
Collection Date: 08/05/2020 7:00

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**20**	5.5	mg/L	50		08/18/20 1134	08/19/20 1212	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	**1.3**	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1212	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**18**	5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1235	ABG

Client Sample ID: Final Eff. #2
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-02
Collected By: Don Woodard
Collection Date: 08/06/2020 8:10

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**21**	5.5	mg/L	50		08/18/20 1134	08/19/20 1214	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	**0.51**	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1214	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**20**	5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1242	ABG

Client Sample ID: Final Eff. #3
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-03
Collected By: Don Woodard
Collection Date: 08/07/2020 7:05

Inorganics Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]								
Total Nitrogen (NO2+NO3+TKN)	**21**	5.5	mg/L	50		08/18/20 1134	08/19/20 1216	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)								
Nitrogen, Kjeldahl, Total	<0.50	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1216	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)								
Nitrogen, Nitrate-Nitrite (as N)	**21**	5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1215	ABG

CERTIFICATE OF ANALYSIS

20H0716

Client Sample ID: Final Eff. #4
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-04
Collected By: Don Woodard
Collection Date: 08/10/2020 8:15

Inorganics Total		Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]									
Total Nitrogen (NO2+NO3+TKN)	**20**		5.5	mg/L	50		08/18/20 1134	08/19/20 1217	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)									
Nitrogen, Kjeldahl, Total		<0.50	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1217	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)									
Nitrogen, Nitrate-Nitrite (as N)	**20**		5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1218	ABG

Client Sample ID: Final Eff. #5
Sample Matrix: Aqueous
Lab Sample ID: 20H0716-05
Collected By: Don Woodard
Collection Date: 08/11/2020 7:45

Inorganics Total		Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
[CALC]									
Total Nitrogen (NO2+NO3+TKN)	**16**		5.5	mg/L	50		08/18/20 1134	08/19/20 1223	ABG
EPA 351.2 Rev 2.0/EPA 351.2, Rv. 2 (1993)									
Nitrogen, Kjeldahl, Total		<0.50	0.50	mg/L	1	**Y**	08/18/20 1134	08/19/20 1223	ABG
EPA 353.2 Rev 2.0/EPA 353.2, Rv. 2 (1993)									
Nitrogen, Nitrate-Nitrite (as N)	**16**		5.0	mg/L	50	**Y**	08/18/20 0858	08/18/20 1220	ABG

Definitions

mg/L: Milligrams per Liter
RL: Reporting Limit
Y: This analyte is not on the laboratory's current scope of accreditation.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.0°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

MICROBAC®

Microbac Laboratories, Inc. - Chicagoland

CERTIFICATE OF ANALYSIS

20H0716

Project Requested Certification(s)

Microbac Laboratories, Inc. - Chicagoland

C-45-03	Indiana SDH chemical analysis of drinking water (g)
M-45-08	Indiana SDH Micro analysis of drinking water (f)

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:

Bonnie Feil

Bonnie Feil

Project Manager Assistant

bonnie.feil@microbac.com

08/20/2020 11:34

20H0710
Bonnie Feil
Town of Lowell - Lowell, IN
DW-H2S
08/11/2020

CROBAC

CHAIN OF CUSTODY RECORD
Number 158396
Instructions on back

t Address	Invoice Address	Turnaround Time	TO BE COMPLETED BY MICROBAC
ne: Town of Lowell - WWTP	Client Name: SAME	☒ Routine (5 to 7 business days)	Temperature Upon Receipt (°C) 4.2 / 4.0
501 E. Main St.	Address:	☐ RUSH* (notify lab)	Therm ID
e, Zip: Lowell, IN. 46356	City, State, Zip:	(needed by)	Holding Time
Don Woodard	Contact:	Report Type	Samples Received on Ice? ☒ Yes ☐ No ☐ N/A
e No.: 219-696-0343	Telephone No.:	☐ Results Only ☐ Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4 ☐ EDD	Custody Seals Intact? ☐ Yes ☐ No ☒ N/A

ort via: ☐ Mail ☐ Fax ☒ e-mail (address) wwtp@Lowell.NET Send Invoice via: ☐ Mail ☐ Fax ☒ e-mail (address) wwtp@Lowell.NET

DW-H2S Location: Lowell WWTP PO No.: 1768 Compliance Monitoring? ☒ Yes ☐ No ☐ Agency/Program

by (PRINT): Don Woodard Sampler Signature: [signature] Sampler Phone No.: 219-696-0343

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	N: Total - CAL										20H0710 Additional Notes
1	Final Eff	8/5/20	7AM	1	Aq	G	H2SO4	X										-01
2	" "	8/6/20	8:10AM	1	Aq	G	"	X										-02
3	" "	8/7/20	7:05AM	1	Aq	G	"	X										-03
4	" "	8/10/20	8:15AM	1	Aq	G	"	X										-04
5	" "	8/11/20	7:45AM	1	Aq	G	"	X										-05

Possible Hazard Identification ☐ Hazardous ☐ Non-Hazardous ☐ Radioactive Sample Disposition ☐ Dispose as appropriate ☐ Return ☐ Archive

Comments

	Date/Time		Date/Time
Relinquished By (signature) [signature]	8/11/2020 1335	Received By (signature) [signature]	8/11/2020 1335
Relinquished By (signature) [signature]	8/11/2020 1415	Received By (signature)	Date/Time
Relinquished By (signature)	Date/Time	Received By (signature) [signature]	8/11/20 1415

rev.12/26/2017

APPENDIX I

SANITAIRE® BIOLOOP® ADVANCED OXIDATION DITCH BROCHURE

Sanitaire® Bioloop® Advanced Oxidation Ditch

UP TO 50% ENERGY SAVINGS, PLUS FLEXIBILITY AND SIMPLICITY

SANITAIRE
a xylem brand

The push for efficiency

The Sanitaire® Bioloop® oxidation ditch can cut energy costs by over 50% compared to conventional technology.

Your reliable process solution

The Sanitaire Bioloop oxidation ditch process effectively removes total nitrogen and total phosphorus. Our experienced design team can put together an optimized, flexible solution suited to your current and future treatment needs—without the "black box" approach. Best of all, the process comes standard with all the long-term support you've come to expect from Sanitaire and can be provided with a process performance guarantee.

Reduced installation and operational costs

Bioloop was specifically designed to reduce installation costs. With its simple tank construction, it doesn't require extensive load-bearing platforms and walkways. Motors contained in the blower area reduce electrical installation costs and the tank depth is not limited by a mechanical aerator/mixing system. Using deeper tanks which provide for optimal diffused aeration transfer efficiency, system footprint is reduced.

Simplified, flexible process

Separating the anaerobic, anoxic and aerobic zones with variable recycle flows allows flexibility to accomplish reliable treatment including nitrogen and phosphorus removal.Gentle mixing without excessive velocities ensures optimal biological floc formation. Standby air is provided so that even with one blower out of service, full treatment capacity is maintained.

Applications and configurations

- New greenfield installations
- Upgrade of existing mechanically aerated oxidation ditches
- Retrofit applications – can install aeration systems in wet tanks
- Municipal or industrial applications
- Biological nutrient removal applications

Introducing the new standard: Sanitaire Bioloop

Backed by more than four decades of experience, Sanitaire's ultra-efficient Bioloop process is a huge leap forward in biological treatment systems. Combining SANITAIRE® diffused aeration, Flygt submersible mixing and overall process application, as well as instrumentation and process control from Sanitaire and YSI in both new and retrofit applications, this solution delivers up to 50% better energy efficiency while remaining adaptable to a wide range of flow and loading conditions.

There are thousands of traditional oxidation ditch-activated sludge treatment installations worldwide. These systems are usually complete mix systems with single or multiple process loops, and they typically utilize surface aeration for mixing and oxygen delivery. In the past, the traditional oxidation ditch offered sufficient treatment at the expense of energy efficiency and lack of independent aeration and mixing. Today, owners, consultants, and contractors are demanding energy efficient treatment, advanced control systems, and the flexibility to meet increasingly stringent effluent requirements.. These challenges are now met with the Bioloop.

Bioloop® oxidation ditch benefits

Independent mixing and aeration

Mechanically aerated ditches use surface mixing, requiring high horizontal velocity to maintain solids suspension. This consumes excessive power at low-flow conditions. Bioloop uses dedicated mixing and aeration devices to provide flexibility that mechanical aeration/ mixing systems can't match. Bioloop gently mixes from the bottom, utilizing full floor aeration coverage.

Mechanical aeration systems utilize intensive energy at the air/water interface to drive the air into the water. Bioloop's diffused aeration offers reduced aerosols, less icing and misting and it significantly reduces odors.

Automated operation

We started with an intelligent, optimized process design backed by over 40 years of deep understanding in process, aeration and mixing. Then, we match the precise amount of energy consumption to the dynamic treatment need. This ensures you use just the right amount of energy. In addition, automated sludge age control can be provided via the Sanitaire SIMS SRT control system, putting you in real-time operational control.

Energy efficiency

Bioloop delivers up to 50% energy savings compared to mechanical systems. Achieving 7-9 lb. O2/bHP-hr compared to 3.0-3.5 lb. O2/BHP-hr for mechanical aeration systems. Coupled with efficient Flygt submersible mixing efficiency, Bioloop addresses your energy efficiency concerns.

Simplified maintenance

Bioloop utilizes non-corrosive, rugged in-basin components; Sanitaire® diffused aeration systems and Flygt submersible mixers and pumps are installed and proven at thousands of treatment plants worldwide. Blower systems can be located inside a building, minimizing outside maintenance requirements. The aeration system is easy to install and maintain, eliminating the need for heavy-duty cranes for service.

Criteria to consider:	Bioloop	Other Ditch Systems
Energy Efficient: Up to 50% energy savings over mechanically aerated systems. A combination of diffused aeration and horizontal mixing efficiency advantage.	✔	✖
Independent Mixing and Aeration: Blowers can be contained in sound enclosures, mixers are submerged.	✔	✖
Flexible control systems.	✔	✖
Reduced, Consolidated Maintenance: centralized blowers offer single maintenance point, corrosion resistant in-basin components. No bearings couplings or on-basin drives to maintain.	✔	✖
Backup Aeration Capacity: 100% spare blower provided. Keeps you up and running during maintenance.	✔	✖
Reduced Cost: fewer electrical distribution costs, reduced concrete cost.	✔	✖
Market leader in Aeration and Mixing: proven, predictable design capability.	✔	✖

Xylem |'zīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're 12,000 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to **www.xyleminc.com**

SANITAIRE®

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Fax +1.414.365.2210
www.sanitaire.com/us

SB007 • Sanitaire® Bioloop® Brochure • 12/2012 • US

xylem
Let's Solve Water

Xylem, Inc.
14125 South Bridge Circle
Charlotte, NC 28273
Tel 704.409.9700
Fax 704.295.9080
www.xyleminc.com

APPENDIX J

USFWS IPAC VERIFICATION LETTER AND SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

In Reply Refer To: 03/29/2024 20:05:33 UTC
Project code: 2024-0070334
Project Name: Lowell Wastewater Treatment Plant Improvements

Federal Nexus: yes
Federal Action Agency (if applicable): Environmental Protection Agency

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Lowell Wastewater Treatment Plant Improvements'

Dear Natalie Nichols:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 29, 2024, for 'Lowell Wastewater Treatment Plant Improvements' (here forward, Project). This project has been assigned Project Code 2024-0070334 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the determination of "May Affect, Not Likely to Adversely Affect" the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your

IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Indiana Bat *Myotis sodalis* Endangered
- Mead's Milkweed *Asclepias meadii* Threatened
- Monarch Butterfly *Danaus plexippus* Candidate
- Salamander Mussel *Simpsonaias ambigua* Proposed Endangered
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Indiana Ecological Services Field Office and reference Project Code 2024-0070334 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Lowell Wastewater Treatment Plant Improvements

2. Description

The following description was provided for the project 'Lowell Wastewater Treatment Plant Improvements':

> Expansion and improvement to the Lowell WWTP facility to increase the Average Design and Peak Hourly Flow capacities of the facility to 8.0 and 13.3 MGD.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.26417055,-87.41720671245854,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. The action area does not overlap with an area for which U.S. Fish and Wildlife Service currently has data to support the presumption that the northern long-eared bat is present. Are you aware of other data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

   Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed NLEB acoustic detections. Data on captures, roost tree use, and acoustic detections should post-date the year when white-nose syndrome was detected in the relevant state. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

   No

3. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

6. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   No

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   Yes

8. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the effects of any activities that would not occur but for the proposed action.

   If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer “No” below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project’s action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a “no effect” determination for the northern long-eared bat.

   Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer “No” and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

   No

9. [Semantic] Is the action area located within 0.5 miles of a known northern long-eared bat hibernaculum?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

   Automatically answered
   No

10. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

    No

11. Does the action area contain or occur within 0.5 miles of (1) talus or (2) anthropogenic or naturally formed rock crevices in rocky outcrops, rock faces or cliffs?

    No

12. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    (If unsure, answer "Yes.")

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags ≥3 inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    Yes

13. Will the action cause effects to a bridge?

    No

14. Will the action result in effects to a culvert or tunnel?

    No

15. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

    No

16. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

17. Will the action directly or indirectly cause construction of one or more new roads that are open to the public?

    Note: The answer may be yes when a publicly accessible road either (1) is constructed as part of the proposed action or (2) would not occur but for the proposed action (i.e., the road construction is facilitated by the proposed action but is not an explicit component of the project).

    No

18. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

    Note: For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

20. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)?

    No

21. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

22. Will the action include drilling or blasting?

    No

23. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

24. Will the proposed action involve the use of herbicide or other pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

25. Will the action include or cause activities that are reasonably certain to cause chronic nighttime noise in suitable summer habitat for the northern long-eared bat? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

26. Does the action include, or is it reasonably certain to cause, the use of artificial lighting within 1000 feet of suitable northern long-eared bat roosting habitat?

    Note: Additional information defining suitable roosting habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

27. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

28. Will the action result in the use of prescribed fire?

    No

29. Will the action cause noises that are louder than ambient baseline noises within the action area?

    Yes

30. Will the action cause noises during the active season in suitable summer habitat that are louder than anthropogenic noises to which the affected habitat is currently exposed? Answer 'no' if the noises will occur only during the inactive period.

    Note: Inactive Season dates for areas within a spring staging/fall swarming area can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat can be found at: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    Yes

PROJECT QUESTIONNAIRE

Will all project activities by completed by April 1, 2024?

No

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Natalie Nichols
Address: 6606 Constitution Drive
City: Fort Wayne
State: IN
Zip: 46804
Email natalien@wesslerengineering.com
Phone: 3177884551

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Environmental Protection Agency

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

In Reply Refer To: 03/29/2024 19:57:39 UTC
Project Code: 2024-0070334
Project Name: Lowell Wastewater Treatment Plant Improvements

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Please use the species list provided and visit the U.S. Fish and Wildlife Service's Region 3 Section 7 Technical Assistance website at - http://www.fws.gov/midwest/endangered/section7/s7process/index.html. This website contains step-by-step instructions which will help you

determine if your project will have an adverse effect on listed species and will help lead you through the Section 7 process. For all **wind energy projects** and **projects that include installing towers that use guy wires or are over 200 feet in height**, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within your proposed project or may be affected by your proposed project.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of

Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
(812) 334-4261

PROJECT SUMMARY

Project Code: 2024-0070334
Project Name: Lowell Wastewater Treatment Plant Improvements
Project Type: Wastewater Facility - Maintenance / Modification
Project Description: Expansion and improvement to the Lowell WWTP facility to increase the Average Design and Peak Hourly Flow capacities of the facility to 8.0 and 13.3 MGD.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.26417055,-87.41720671245854,14z

Counties: Lake County, Indiana

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

CLAMS

NAME	STATUS
Salamander Mussel *Simpsonaias ambigua* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6208	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Mead's Milkweed *Asclepias meadii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8204	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

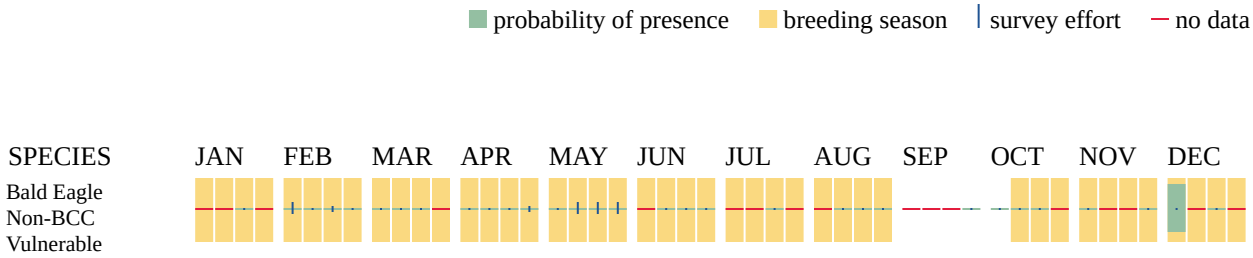
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.

2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

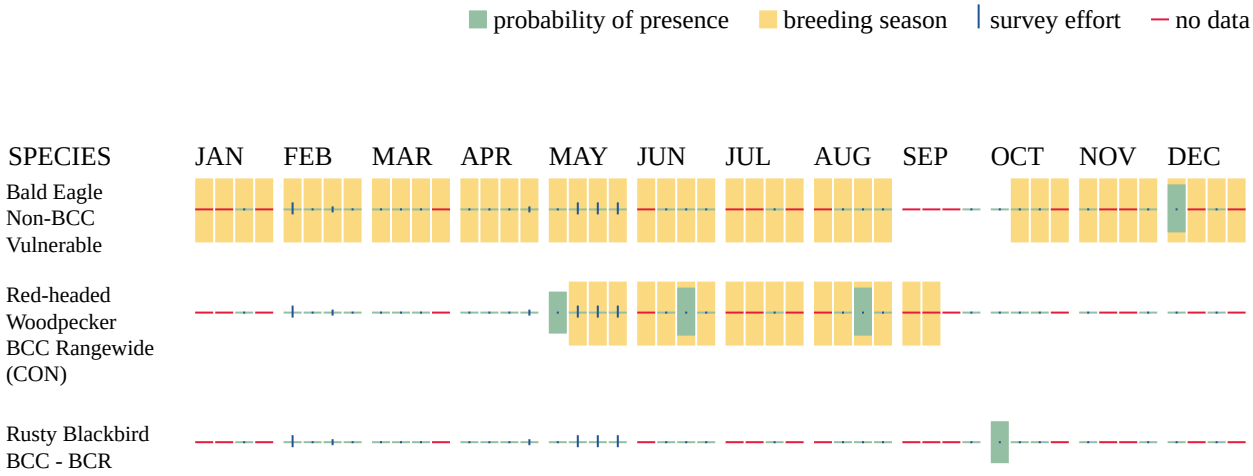
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1C
- PEM1A

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1/EM1C

RIVERINE

- R2UBFx

FRESHWATER POND

- PUBK
- PUBGx

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Natalie Nichols
Address: 6606 Constitution Drive
City: Fort Wayne
State: IN
Zip: 46804
Email natalien@wesslerengineering.com
Phone: 3177884551

APPENDIX K

PUBLIC PARTICIPATION DOCUMENTS (PENDING)

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APPENDIX L

LEGAL, MANAGERIAL, AND FINANCIAL FORMS

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TOWN OF LOWELL, LAKE COUNTY, INDIANA
TOWN COUNCIL
RESOLUTION NO. 2024-11

A RESOLUTION AUTHORIZING THE LOWELL TOWN MANAGER
TO ACT AS THE AUTHORIZED REPRESENTATIVE FOR
MAKING APPLICATION TO STATE REVOLVING FUND PROGRAM
ON BEHALF OF THE TOWN OF LOWELL

WHEREAS, the Town of Lowell, Lake County, Indiana, (the "Participant") owns and operates a wastewater treatment plant and has plans for a wastewater infrastructure improvement project to meet State and Federal regulations; and

WHEREAS, the Participant wishes to apply for and utilize a State Revolving Fund Loan ("SRF Loan") for the construction of such project.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL, THE GOVERNING BODY OF THE PARTICIPANT, THAT:

1. Craig Hendrix, the Town Manager/Engineer, be authorized to make application for an SRF Loan and provide the SRF Loan Program such information, data and documents pertaining to the loan process as may be required, and otherwise act as the authorized representative of the Participant; and

2. The Participant agrees to comply with State and Federal requirements as they pertain to the SRF Loan Program; and

3. Two certified copies of this Resolution be prepared and submitted as part of the Participant's Preliminary Engineering Report.

DULY PASSED, RESOLVED AND ADOPTED by the Town Council of Town of Lowell, Lake County, Indiana, this 8th day of April, of 2024.

TOWN OF LOWELL, LAKE COUNTY, INDIANA
BY ITS TOWN COUNCIL:

Todd Angerman, President

Michael Gruszka, Vice-President

John Yelkich, Member

Shane Tucker, Member

John Alessia, Member

ATTEST:

Jill Murr, Clerk-Treasurer

APPROVED BY THE EXECUTIVE this 8th day of April, 2024.

Todd Angerman, President

ATTEST:

Jill Murr, Clerk-Treasurer

CLEAN WATER SRF PROJECT FINANCING INFORMATION

Proposed Project Costs

a.	Collection System cost	$ --
b.	Treatment System cost	$ 39,400,000
c.	Non-Point Source (NPS) cost	$ --
d.	**Subtotal Construction Cost**	**$ 39,400,000**
e.	Contingencies (should not exceed 10% of construction cost)	$ 3,900,000
f.	Non-construction cost e.g., engineering, legal, and financial services related to the project, land costs, start-up costs, and construction inspection	$ 8,700,000
g.	**Total Project Cost (lines d+e+f)**	**$ 52,000,000**

Ineligible costs (see below) **$** --

Proposed Funding Information

a.	Requested SRF Financing	$ 52,000,000
b.	Co-Source: _____	$
c.	Co-Source: _____	$
d.	Co-Source: _____	$
e.	**Total Funding Sources**	**$ 52,000,000**

CALCULATIONS FOR INELIGBLE COSTS

The following are not eligible for Clean Water SRF reimbursements:

1.	Materials & work done on private property	$ --
2.	Grant applications and income surveys completed for other agencies	$ --
3.	Project components with the primary intent of promoting economic development and growth	$ --
4.	Land Cost (unless for sludge application), *note that professional fees associated with acquiring land are eligible*	$ --
5.	Expenses incurred as a part of forming RWDs, CDs, etc., or changing boundaries, or other non-SRF District activities	$ --
6.	Costs for preparing permits and other tasks unrelated to the SRF project	$ --
7.	Cleaning of equipment/tanks or other routine operation and maintenance activities, *note cleaning is eligible if required for proposed construction activities to occur*	$ --
8.	**Total Ineligible Costs**	**$** --

ORDINANCE NO. 10-1973

'73 CONTRACT w/ Addendum Attached

An ordinance authorizing the treatment of sewage of Cedar Lake by contract by the Town of Lowell

BE IT ORDAINED by the Board of Trustees of the Town of Lowell, Indiana, that:

1. The Town of Lowell shall enter into a contract with the Town of Cedar Lake for the purpose of treating the sewage of Cedar Lake.

2. The contract shall provide for and read as follows: (here insert)

3. An emergency exists for the immediate taking effect of this ordinance, and the same shall be in full force and effect from and after its passage.

PASSED AND ADOPTED by the Board of Trustees of the Town of Lowell, Indiana, this 10th day of July, 1973.

Nelson R. Clarke
President

George E Schutz
Member

Charles E. Miller
Member

Randall K. Luce
Member

Thomas J. Stuart
Member

BOARD OF TRUSTEES of the
TOWN OF LOWELL, INDIANA

ATTEST:

Marcia Carlson
Clerk-Treasurer

AGREEMENT BETWEEN THE TOWN OF
CEDAR LAKE AND THE TOWN OF LOWELL

THIS AGREEMENT, entered into this 11th day of July, 1973, by and between THE TOWN OF CEDAR LAKE, INDIANA, hereinafter called "Cedar Lake" and THE TOWN OF LOWELL, INDIANA, hereinafter called "Lowell",

W I T N E S S E T H:

THAT, WHEREAS, the parties have inadequate means of treating and disposing of their sanitary sewage,

WHEREAS, the Town of Lowell has received and accepted federal and state grant offers to aid in building a new sewage treatment plant and interceptor sewers in connection therewith, and,

WHEREAS, the parties find it to their mutual benefit for Lowell to treat the sanitary sewage of the Town of Cedar Lake, and

WHEREAS, it is the intention of the parties that the capital costs and operating costs of the interceptor sewers, sewage treatment plant and other reasonable and necessary costs be shared on a pro-rata basis,

NOW, THEREFORE, IT IS HEREBY AGREED between the parties hereto, that Lowell shall construct an interceptor sewer and sewage treatment plant for its use and will accept from Cedar Lake, the sewage of the Cedar Lake service area,

and treat and dispose of the same in its sewage treatment plant, subject to the following conditions:

1. Sanitary sewage of Cedar Lake will be delivered by a 30 inch line to be constructed by Cedar Lake to a 30 inch interceptor line to be constructed by Lowell.

2. Cedar Lake shall have the right to share Lowell's facilities in the following proportion:

(a) 100% of the capacity of the 30 inch line.

(b) 43% of the capacity of the 42 inch line.

(c) 31% of the capacity of the 48 inch line.

(d) 50% of the capacity of the sewage treatment plant.

These percentages are based on the volume of flow that can be received at Lowell's intake point.

Cedar Lake agrees to pay for the capital costs of this proportion of capacity even though they do not use that full capacity.

Lowell retains the right to the use of all the rest of the capacity of the trunk line and facilities of the sewage treatment plant.

3. (a) The parties agree that the means of reimbursement to Lowell will be to share on a pro-rata basis the capital costs and operating expenses of constructing, operating and maintaining the sewer interceptor lines and treatment plant. The controlling factor in determining the proportionate capital costs to each party will be the volume

of flow capable of being received at the intake point. The controlling factor in determining the proportionate annual operating costs to each party will be the annual volume of flow contributed by each party.

(b) Cedar Lake's share of the capital costs, based upon availability of capacity as shown in paragraph 2 (page 2) and after making a cash contribution of Two Hundred Thousand Dollars ($200,000.00) as shown in paragraph 4(a), shall be Eighteen Thousand Dollars ($18,000.00) per year. However, final determination of this annual figure shall be made after completion of construction by an audit made by a firm of certified Public Accountants suitable to both parties. Costs of the audit shall be borne by Cedar Lake. Such payments shall begin when Cedar Lake sewage is first delivered to Lowell and shall continue for a period of thirty (30) years.

(c) If a change of volume as to the trunk lines or treatment plant available to either party should become necessary, this agreement will be subject to renegotiation.

4. (a) Cedar Lake shall contribute Two Hundred Thousand Dollars ($200,000.00) to the capital costs of the project and such contribution shall be made at the approximate time that revenue bonds are delivered to complete the project financing.

(b) Cedar Lake shall annually pay to Lowell for the plant and interceptor sewer operating costs as follows:

The annual operation and maintenance expenses of the sewage treatment plant and interceptor sewer

shall be first reduced by billings for excess loadings such as B.O.D., C.O.D. and suspended solids to any of the customers of Lowell, including Cedar Lake. The remaining operating expenses shall be shared on the basis of the flow of Cedar Lake entering the system in relation to the total flow of the system as measured at the entrance to the sewage treatment plant.

Example:

1. Annual operation and maintenance expense of interceptor plant and interceptor _____
2. Less: Charges for excess loading _____
3. Net annual flow costs attributable to flow _____
4. Total flow _____
5. Cedar Lake flow _____
6. Percentage of flow received from Cedar Lake 5 ÷ 4. _____
7. Portion of annual operation and maintenance expenses chargable to Cedar Lake 6 x 3 _____

(c) Administrative expenses shall be annually charged to Cedar Lake in the relationship of revenue received from Cedar Lake to all Lowell revenue.

Example:

1. Total revenue of the calendar year received from Cedar Lake _____
2. Total revenue from all sources _____
3. Factor times administrative expenses of the year equals Cedar Lake's portion of administrative expenses (1 ÷ 2 x administrative expenses). _____

(d) Any prepayment by Cedar Lake of all or part of their capital costs shall be subject to negotiation with Lowell except as provided hereafter. After July 1, 1983,

Cedar Lake may prepay all or part of the remaining capital costs together with any redemption premiums properly attributable thereto.

5. This agreement shall continue in full force and effect from date hereof until thirty (30) years from the date Cedar Lake sewage is first received by Lowell, approximately January 1, 2005. After that date Cedar Lake shall have the right to continue to use the facilities so long as they are useful and used for sewage treatment purposes.

6. The parties shall participate in a pro rata basis in any funded capital requirement necessary for upgrading the treatment process due to requirements for improved water quality by either the federal or state government or local regional authorities, or necessary for any other reason.

7. The parties shall share in proportion to the annual usage of the facilities in the normal and usual replacement of worn out components of the treatment plant and interceptor sewer.

8. Lowell will furnish, install and maintain, approved recording type Venturi meters, located at the point of intake from Cedar Lake to Lowell to measure all of the flow of sewage delivered by Cedar Lake. Lowell will provide adequate sampling devices for providing composite samples of

sewage delivered to Lowell. Lowell will furnish, install and maintain in a manner satisfactory to Cedar Lake, approved recording type Venturi meters and sampling devices, located at the intake of the sewage treatment plant. Cedar Lake shall pay a proportionate share of the original cost of the meters and devices.

9. The duly authorized representatives of Lowell and Cedar Lake shall have access at all times to inspect and observe the operation of the recording Venturi meters and sampling devices referred to in Paragraph 8.

10. The expense of operation and maintenance of the meters installed at the intake point from Cedar Lake shall be borne by Cedar Lake and the expense of operation and maintenance of the meters located at the sewage treatment plant shall be considered a part of the treatment plant operating expense. The record charts from the meter or meters shall be kept in the records of Lowell, subject to examination by Cedar Lake.

11. Cedar Lake will use all necessary precaution and diligence to exclude from the sewage sand, grave, street waste, grits, leaves, rags, paper, garbage, pickling liquor, cyanides, coal tar, oil, grease, acids, dry cleaning fluids and any other foreign material and industrial wastes which are objectionable, dangerous and inhibitive to bacterial growth, or which for other reasons cannot be readily treated in the sewage treatment plant of Lowell or may be dangerous thereto.

12. If either Cedar Lake's or Lowell's sewage should contain substances that interfered with the operation of the plant and increase the costs of operation, the responsible town shall pay for the costs involved because of such accidents and improper loadings.

13. The sewage delivered by Cedar Lake shall meet the standards for B.O.D., C.O.D. suspended solids established by the consulting engineers at the following levels:

B.O.D.	250 PPM
C.O.D.	400 PPM
Suspended Solids	250 PPM

any loading in excess of those standards would be paid for by Cedar Lake on the basis as Lowell would charge any other customer for excess loadings.

14. Revenue received from charges for excess loadings of B.O.D., C.O.D. or suspended solids to Cedar Lake or to customers of Lowell will be used to reduce plant operating expenses before such remaining plant operating expenses are allocated based upon flow.

15. Lowell shall have the right to discontinue the treatment of sewage at anytime, when unable to properly handle said sewage due to failure or breakdown of plant or equipment, failure of power supply, lack of pumping, or for other good and justifiable reasons. Provided, however, every effort shall be made by Lowell to correct any cause for discontinuing to receive such sewage, so that receipt

of such sewage may be resumed by Lowell as soon as possible after any interruption shall have begun.

16. (a) Commercial costs of billing and collection will be borne solely by Lowell. The administrative costs of maintaining general records of the utility, State Board of Accounts audits and similar activities would be shared by Lowell and Cedar Lake on the same basis as operating expenses shared.

(b) Payment for services shall be on an estimated monthly basis with final billing and adjustment to be made within sixty (60) days after the close of the calendar year.

(c) Cedar Lake shall have the right to examine the records kept by Lowell by Cedar Lake representatives, such as accountants, consulting engineers and others, as would satisfy Cedar Lake that billings are being made in a proper manner consistent with this agreement.

17. If any dispute or disagreement shall arise in connection with either any interpretation of this agreement or its performance or non-performance, and if such dispute or disagreement shall not be settled in writing within ten (10) days after it shall arise, then, the matter in controversy shall be settled by arbitration in accordance with the laws of the State of Indiana, by three arbitrators, one of whom shall be selected by each of the parties, and the third by the two arbitrators so selected. If the selection of any arbitrator shall not be made within fifteen (15)

days of the time that either party shall notify the other of the name of the arbitrator selected by the notifying, then the arbitrator or arbitrators not selected shall be appointed in the manner provided by the laws of the State of Indiana.

18. The Town Boards of Cedar Lake and Lowell shall meet semi-annually or at the request of either party to discuss any matter which may arise from this agreement or is pertinent to it.

19. The parties agree that Lowell shall service the area South of a certain line and Cedar Lake shall service the area North of a certain line described as follows:

> Commencing at a point which is 1,320 feet South of the Northwest corner of and on the West line of Section 7, Township 33 North, Range 9 West of the second principal meridian; thence Easterly at 90 degrees to the last described line 23,760 feet more or less to a point at the center of the intersection of 159th Avenue and Morse Street; thence Southerly at 90 degrees to the last described line, a distance of 3,960 feet more or less down the center of Morse Street to a point; thence Easterly at 90 degrees to the last described line, a distance of 1,980 feet more or less, to a point; thence southerly at 90 degrees to the last described line a distance of 1,320 feet, more or less, to a point; thence easterly at 90 degrees to the last described line a distance of 660 feet more or less, to a point; thence northerly at 90 degrees to the last described line a distance of 1,320 feet more or less, to a point; thence easterly at 90 degrees to the last described line a distance of 10,560 feet more or less to a point on the Southeast corner of the Southeast one-fourth of Section 7, Township 33 North, Range 8 West of the second principal meridian.

If a change of the service area boundary line should be deemed necessary by either party, this paragraph will be subject to renegotiation.

This agreement shall be in full force and effect from and after its adoption and passage by the Board of Trustees of the Town of Lowell, Indiana and the Board of Trustees of the Town of Cedar Lake, Indiana.

Nelson R. Clark
Charles E. Miller
George E. Schutz
Randall K. Ruiz
Thomas J. Stuart

BOARD OF TRUSTEES of the
TOWN OF LOWELL, INDIANA

ATTEST:

Marcia Carlson
Clerk-Treasurer

George R. Adams
Donald E. Woodburn
Charles L. Kouder
Robert D. Ashwill
Walter P. Knapik
Barbara H. Fuchs
Donald E. Austgen

BOARD OF TRUSTEES of the
TOWN OF CEDAR LAKE, INDIANA

ATTEST:

Geraldine H. Kortokrax
Clerk-Treasurer

ADDENDUM
TO
AGREEMENT BETWEEN THE TOWN OF CEDAR LAKE AND THE TOWN OF LOWELL

ADDENDUM TO AGREEMENT BETWEEN THE TOWN OF CEDAR LAKE AND THE TOWN OF LOWELL, entered into by and between THE TOWN OF CEDAR LAKE, hereinafter called "Cedar Lake", and THE TOWN OF LOWELL, hereinafter called "Lowell".

RECITALS

1. Cedar Lake and Lowell entered into an Agreement on the 11th day of July, 1973, whereby Lowell constructed an interceptor sewer and sewage treatment plant for its use and for acceptance from Cedar Lake of the sewage of the Cedar Lake service area for treatment and disposal of the same in the sewage treatment plant, subject to the conditions of the Agreement; that a copy of said Agreement is attached hereto as Exhibit "A"; and

2. Cedar Lake has, since the time of the Agreement, transported the sewage collected in its service area to the sewage treatment plant operated by Lowell under the terms of the aforementioned Agreement; and

3. Cedar Lake and Lowell have each complied with the terms and provisions of the aforementioned Agreement entered into between them on July 11, 1973; and

4. Cedar Lake and Lowell have concurred on the term of Agreement between the Towns for the purposes stated herein, which is contained in rhetorical paragraph 5 of said Agreement, and states specifically:

> "5. This agreement shall continue in full force and effect from date hereof until thirty (30) years from the date Cedar Lake sewage is first received by Lowell, approximately January 1, 2005. After that date Cedar Lake shall have the right to continue to use the facilities so long as they are useful and used for sewage treatment purposes.";

and

5. Cedar Lake has been a Party to an enforcement proceeding commenced by the Indiana Department of Environmental Management, hereinafter "IDEM", and as a result, has investigated and examined its facilities and sewage collection system to identify remedies to eliminate infiltration/inflow into its sewage collection system as required by IDEM; and

6. Cedar Lake has identified funding for the capital improvements necessary to provide the remedies required to eliminate infiltration/inflow into its sewage collection system, as well as to reduce the volume transported to the Lowell sewage treatment plant, from the United States Department of Agriculture Farmers Home Administration/Rural Economic and Community Development, which Federal Agency has committed the necessary funds for the required sewage collection system capital improvements, subject to certain conditions; and

7. The United States Department of Agriculture Farmers Home Administration/Rural Economic and Community Development, hereinafter called FmHA, has committed loan funds and grant funds to Cedar Lake, subject to certain conditions, including repayment of the loan proceeds in a Forty (40) year term, as well as extension of the Agreement terms with Lowell for a period equal to the term of the FmHA loan to Cedar Lake; and

8. Cedar Lake seeks an extension of the Agreement between Cedar Lake and Lowell for a period of time equal to the term of the FmHA Forty (40) year loan in order to comply with the loan/grant conditions imposed by FmHA upon Cedar Lake for the funds necessary to undertake the capital improvements intended to eliminate infiltration/inflow from the sewage collection system and to reduce the volume transported from the Cedar Lake sewage collection system to the Lowell sewage treatment plant; and

9. Cedar Lake and Lowell seek to guard against any potential conflicts, problems or disagreements by setting forth hereafter the terms of their Addendum to the Agreement between the Town of Cedar Lake and the Town of Lowell dated the 11th of July, 1973.

COVENANTS

NOW, THEREFORE, for and in consideration of the mutual promises contained herein, the performance thereof, and other good and valuable consideration, the receipt of which is hereby acknowledged by Cedar Lake and Lowell, Cedar Lake and Lowell agree as follows:

1. That in the event Cedar Lake completes the necessary requirements imposed by FmHA for its loan/grant with FmHA for the funding necessary to construct the capital improvements to its sewage collection system deemed required to eliminate infiltration/inflow from the sewage collection system, as well as to reduce the volume transported to the Lowell sewage treatment plant for treatment and disposal of the same, the term of the Agreement between Cedar Lake and Lowell shall be extended for a period of time that equals the Forty (40) year FmHA loan to Cedar Lake, commencing from the date the loan proceeds are disbursed from FmHA to Cedar Lake. Cedar Lake shall provide notice of this date of disbursement to Lowell immediately upon receipt of the disbursed proceeds.

2. Entire Agreement; Amendments. This Addendum to the Agreement between Cedar Lake and Lowell dated the 11th day of July, 1973, represents the entire understanding of Cedar Lake and Lowell with respect to the subject matter hereof, and supersedes any prior understanding between Cedar Lake and Lowell, whether oral or written. Any amendments to this Addendum to Agreement between Cedar Lake and Lowell dated the 11th day of July, 1973, shall be in writing, and shall be signed by all Parties hereto.

3. Ratification. That all other terms and provisions of the Agreement between Cedar Lake and Lowell dated the 11th day of July, 1973, not amended, modified, or in any other way revoked, rescinded or affected, are hereby ratified, and shall remain in full force and effect.

4. Binding Effect. This Addendum to the Agreement between Cedar Lake and Lowell shall be binding upon Cedar Lake and Lowell, and any successors or assigns.

5. Public Action. It is expressly acknowledged and stated that this Addendum to Agreement between Cedar Lake and Lowell dated the 11th day of July, 1973, is entered into by Cedar Lake after action at a public meeting of the Town Council of the Town of Cedar Lake on

the 20th day of June, 1995, by a vote of 6 in favor and 0 against, and whereby the President of the Town Council and Town Clerk-Treasurer, respectively, were directed to execute and attest the same, and deliver the Addendum to Agreement herein.

6. Public Action. It is expressly acknowledged and stated that this Addendum to Agreement between Cedar Lake And Lowell dated the 11th day of July, 1973, is entered into by Lowell after action at a public meeting of the Town Council of the Town of Lowell on the 12th day of June, 1995, by a vote of 5 in favor and 0 against, and whereby the President of the Town Council and Town Clerk-Treasurer, respectively, were directed to execute and attest the same, and deliver the Addendum to Agreement herein.

IN WITNESS WHEREOF, the Town of Cedar Lake has duly executed this Addendum to Agreement between Cedar Lake and Lowell dated the 11th day of July, 1973, this 20th day of June, 1995.

TOWN OF CEDAR LAKE, LAKE COUNTY, INDIANA,
by and through its Town Council

By: _____
Shelly R. Faber
Its: President

Attest: _____
Geraldine H. Kortokrax, CMC
Its: Clerk-Treasurer

IN WITNESS WHEREOF, the Town of Lowell has duly executed this Addendum to Agreement between Cedar Lake and Lowell dated the 11th day of July, 1973, this 12th day of June, 1995.

TOWN OF LOWELL, LAKE COUNTY, INDIANA,
by and through its Town Council

By: _____
Robert D. Hatch
Its: President

Attest: _____
Marcia Carlson
Its: Clerk-Treasurer

AMENDMENT TO SEWAGE TREATMENT AGREEMENT BETWEEN THE TOWNS OF LOWELL AND CEDAR LAKE, INDIANA

THIS AMENDMENT TO SEWAGE TREATMENT AGREEMENT, (hereinafter "Amended Agreement") is made and entered into this 15th day of APRIL, 2014, by and between the Town of Lowell, Lake County, Indiana ("Lowell"), and Town of Cedar Lake, Lake County, Indiana ("Cedar Lake), (hereinafter collectively "the Parties").

2015 045150

STATE OF INDIANA
LAKE COUNTY
FILED FOR RECORD
2015 APR 10 PM 2:54
ROBERT BROWN
RECORDER

RECITALS

WHEREAS, on July 11, 1973 the Parties entered into a long-term sewage treatment agreement (the (1973 Agreement") providing for the transportation and treatment of Cedar Lake's wastewater at the Lowell Wastewater Treatment Plant ("WWTP") via construction of an interceptor sewer line and the allocation of capacity, capital expenditures, operational and maintenance costs for construction of said interceptor and a WWTP on a pro-rata basis; and

WHEREAS, the entire agreement between the Parties is memorialized in the "Contract Documents", consisting of the 1973 Agreement, Joint Resolution 1987-20 adopted October 26, 1987, the 1995 Addendum to the 1973 Agreement and Joint Resolution 2000-01 adopted by Lowell on May 30, 2000, and Cedar Lake on June 2, 2000, and the Sewage Treatment Agreement between Lowell and Cedar Lake with Joint Resolution of the Parties adopting same on December 9, 2003, by Lowell and Cedar Lake; and

WHEREAS, the Parties now agree to amend and revise the 1973 Agreement to clarify the rights and obligations of the Parties set forth in the Contract Documents, and specified by terms of the December 9, 2003, Sewage Treatment Agreement of the Parties entered into on said date pursuant to I.C. §36-1-7-1, et. seq., as amended.

COVENANTS

IT IS, THEREFORE, AGREED between the Parties, that this Joint Interlocal Cooperation Agreement ("Agreement") for Amendment to Sewage Treatment Agreement between the Parties pertaining to specific terms and provisions of the December 9, 2003, Sewage Treatment Agreement, approved and adopted by enabling Resolution, shall amend and replace the specific terms and conditions of the 1973 Agreement and the Contract Documents between the Parties as set forth hereinafter.

"**SECTION 1**:That Section or Paragraph 1 of the December 9, 2003, Sewage Treatment Agreement between the Parties is hereby amended to read and provide hereafter as follows, namely:

1. JOINT MANAGEMENT AND OVERSIGHT BOARD ("JMOB"): The JMOB is hereby created to supervise and oversee the operations and maintenance of the WWTP, the WWTP Equalization Basin ("WWTP EQ Basin"), the interceptor sewer, the Cedar Lake Equalization Basin ("Cedar Lake EQ Basin") constructed in 2002, the flow metering facilities provided by

this Agreement and any Combined Sewer Overflows at the WWTP, as provided herein:

a. Members: The JMOB shall consist of four (4) voting members, appointed for terms of two (2) calendar years, as follows:
   1) Two (2) members appointed by the Lowell Town Council; and
   2) Two (2) members appointed by the Cedar Lake Town Council.

b. Ex-Officio Members: The Lowell and Cedar Lake Town Council Presidents, or the respective Town Council Member designees of each of the Parties, shall be non-voting, ex-officio Members of the JMOB.

c. Quorum: Three (3) of the voting Members of the JMOB must be present to constitute a quorum. All official action of the JMOB shall be by motion duly seconded and approved by three (3) of the voting Members.

d. Meetings: The JMOB shall hold regular public meeting at least one (1) time every three (3) months. Special public meetings may be scheduled by public meeting action of the JMOB, when requested in writing by any two (2) voting Members, or both Town Council Presidents of Lowell and Cedar Lake.

e. Chairman: A voting Member from Lowell shall chair all public meetings held in Lowell and a voting Member from Cedar Lake shall chair all public meetings held in Cedar Lake, except as provided in paragraph (h)(3) hereinafter.

f. Minutes: The site of each public meeting of the JMOB shall alternate between Lowell and Cedar Lake, or as may be agreed upon by a majority of the voting Members. The Clerk-Treasurer of each Town, or their designee, shall serve as recording secretary for each public meeting held in their Town and shall prepare and distribute minutes of each public meeting for review and approval by the JMOB.

g. Powers: The JMOB shall oversee and supervise the operation and maintenance of the WWTP, WWTP and Cedar Lake EQ Basins, the Interceptor sewer and the metering facilities at the Cedar Lake EQ Basin-Parshall Flume and at the WWTP, and:

   1) The Lowell WWTP Superintendent shall report to the JMOB as required. The JMOB may terminate the WWTP Superintendent for just cause.

   2) The WWTP Superintendent shall attend all public meetings of the JMOB, file a written status report monthly with the JMOB

and the respective Town Councils and discuss non-routine operation and maintenance concerns with the JMOB before implementation. Copies of all reports, records or other written materials provided by the WWTP Superintendent to any governmental entity or agency shall be timely provided to the JMOB by the WWTP Superintendent.

3) The JMOB shall make written findings and recommendations to both Town Councils regarding improvements or modifications to the facilities or operations under their supervision.

4) The WWTP superintendent shall seek and receive approval of the JMOB of all capital expenditures exceeding Twenty-Five Thousand Dollars ($25,000) except in cases of an emergency that requires immediate expenditure of funds to comply with applicable federal or state environmental laws, rules or regulations.

h. Impasse: The JMOB shall annually approve a list of "dispute professionals", consisting of: one (1) professional engineer, one (1) accountant and one (1) attorney familiar with sewer utility issues that agree to serve as a fifth voting Member of the JMOB to resolve any issue in dispute which cannot be resolved by the regular voting Members of the JMOB. In the event that the JMOB has impasse on any issue, the following procedure shall be followed:

1) Any two (2) voting Members of the JMOB shall deliver a written notice of impasse to both Town Council Presidents listing any issue in dispute;

2) Within five (5) business days of receiving written notice of impasse from two (2) voting Members, the Town Council Presidents shall:

a) Prepare a written list of the issues in impasse and deliver the list to the JMOB and both Town Councils; and

b) Select a temporary fifth voting member of the JMOB from the approved list of dispute professionals and notify the JMOB and Town Councils in writing of said selection;

3) The dispute professional selected shall, within thirty (30) days of appointment, schedule an impasse meeting of the JMOB, and thereafter serve as Chairman and 5th voting Member of the JMOB on the issues in dispute.

4) During an impasse meeting, Lowell and Cedar Lake will be allotted equal time by the Chairman to present any evidence, data or other information on the issues in dispute. The dispute professional sitting as Chairman shall resolve all procedural matters and each matter in dispute shall be decided by a majority vote of the five (5) voting Members consisting of the four (4) regular voting Members and the one (1) voting dispute professional/Chairman."

SECTION 2: **GOVERNING LAW**: This Amended Agreement shall be construed in accordance with the laws of the State of Indiana. Whenever possible, each provision of this Amended Agreement shall be interpreted in such manner as to be effective and valid under applicable applicable law or, if invalid under such law, said provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the reminder of such provision, or the remaining provisions of this Amended Agreement.

SECTION 3: **SEVERABILITY**: If any terms of this Amended Agreement are found to be void or invalid, such invalidity shall not affect the remaining terms of this Amended Agreement, which shall continue in full force and effect.

SECTION 4: **COUNTERPARTS**: This Amended Agreement may be executed in several counterparts, each of which when executed shall be deemed to be an original, and such counterparts, together, shall constitute but one (1) and the same instrument, which shall be sufficiently evidenced by any such original counterpart.

SECTION 5: **CONTRACT DOCUMENTS AND EFFECT**: That all remaining terms and provisions of the Contract Documents between the Parties referenced and specified hereinabove shall remain in full force and effect, except as amended hereby.

SECTION 6: **RECORDING**: Before this Amended Agreement takes effect, it must be recorded in the Office of the Lake County Recorder. No later than sixty (60) days after it takes effect and is recorded, this Amended Agreement must be filed with the Office of the Indiana State Board of Accounts for audit purposes, all pursuant to the provisions of I.C. §36-1-7-6, as amended.

SECTION 7: **NOTICES**: All Notices to be sent pursuant to this Amended Agreement shall be in writing and shall be delivered by certified mail, return receipt requested, by hand-delivery, or by any nationally recognized overnight courier service, addressed as follows:

Lowell: Town of Lowell
Attn: Clerk-Treasurer
501 East Main Street
P.O. Box 157
Lowell, Indiana 46356

Cedar Lake: Town of Cedar Lake
Attn: Clerk-Treasurer
7408 Constitution Avenue
PO Box 707
Cedar Lake, Indiana 46303

WHEREFORE, this Amended Agreement shall take effect, and be in full force and effect, from and after its passage and approval by each of the Town Council of the Town of Lowell, Lake County, Indiana, a Municipal Corporation, and the Town Council of the Town of Cedar Lake, Lake County, Indiana, a Municipal Corporation, each on the date and year set forth in the signature page counterparts for each of the Parties hereto.

TOWN OF CEDAR LAKE
APPROVAL

ALL OF WHICH IS APPROVED THIS 15TH DAY OF APRIL, 2014, BY THE TOWN COUNCIL OF THE TOWN OF CEDAR LAKE, LAKE COUNTY, INDIANA, A MUNICIPAL CORPORATION, BY A VOTE OF 6 IN FAVOR, AND 0 OPPOSED.

TOWN OF CEDAR LAKE,
LAKE COUNTY, INDIANA,
a MUNICIPAL CORPORATION

President

Vice-President

Member

Member

Member

Member

Member

ATTEST:

Amy J. Gross, IAMC, MMC,
Clerk-Treasurer

TOWN OF LOWELL
APPROVAL

ALL OF WHICH IS APPROVED THIS 9th **DAY OF** February, **2014,** 2015
BY THE TOWN COUNCIL OF THE TOWN OF LOWELL, LAKE COUNTY, INDIANA, A MUNICIPAL CORPORATION, BY A VOTE OF 4 **IN FAVOR, AND** 0 **OPPOSED.**

TOWN OF LOWELL,
LAKE COUNTY, INDIANA,
A MUNICIPAL CORPORATION

President

Vice-President

Member

Member

Member

ATTEST:

Judith A. Walters, Clerk-Treasurer

SEWAGE TREATMENT AGREEMENT BETWEEN THE TOWNS OF LOWELL AND CEDAR LAKE, INDIANA

THIS AGREEMENT, entered into this 9th day of December, 2003, between the Town of Lowell, Indiana ("Lowell") and Town of Cedar Lake, Indiana ("Cedar Lake");

WHEREAS, on July 11, 1973 the parties entered into a long-term sewage treatment agreement (the "1973 Agreement") providing for the transportation and treatment of Cedar Lake's wastewater at the Lowell Wastewater Treatment Plant ("WWTP") via construction of an interceptor sewer line and the allocation of capacity, capital expenditures, operational and maintenance costs for construction of said interceptor and a WWTP on a pro-rata basis; and

WHEREAS, the entire agreement between the parties is memorialized in the "Contract Documents" consisting of the 1973 Agreement, Joint Resolution 1987-20 adopted October 26, 1987, the 1995 Addendum to the 1973 Agreement and Joint Resolution 2000-01 that was adopted by Lowell on May 30, 2000 and by Cedar Lake on June 2, 2000; and

WHEREAS, the parties agree to amend and revise the 1973 Agreement to clarify the rights and obligations of the parties as found in the Contract Documents and as contemplated in Joint Resolution 2000-01 pursuant to this Joint Interlocal Cooperation Agreement entered into pursuant to Ind. Code §36-1-7-1, et seq., as amended.

IT IS THEREFORE AGREED between the parties that this Joint Interlocal Cooperation Agreement ("Agreement") shall supersede and replace the terms and conditions of the sewage treatment agreement between Lowell and Cedar Lake as found in the 1973 Agreement and the Contract Documents, as follows:

1. JOINT MANAGEMENT AND OVERSIGHT BOARD ("JMOB"): The JMOB is hereby created to supervise and oversee the operations and maintenance of the WWTP, the WWTP Equalization Basin ("WWTP EQ Basin"), the interceptor sewer, the Cedar Lake Equalization Basin ("Cedar Lake EQ Basin") constructed in 2002, the flow metering facilities provided by this Agreement and any Combined Sewer Overflows at the WWTP, as provided herein:

a) Members: The JMOB shall consist of four (4) voting members appointed for terms of two (2) calendar years, as follows:

1) One member appointed by the Lowell Town Council;

2) One member appointed by the Cedar Lake Town Council;

3) One professional engineer appointed by the Lowell Town Council;

4) One professional engineer appointed by Cedar Lake Town Council;

b) Ex-Officio Members: The Lowell and Cedar Lake town council presidents, or their respective town council member designees, shall be non-voting, ex-officio members of the JMOB.

c) Quorum: Three of the voting members of the JMOB must be present to constitute a quorum. All official action of the board shall be by motion duly seconded and approved by three of the voting members.

d) Meetings: The JMOB shall hold regular meetings at least once every three (3) months, special meetings may be scheduled by motion of the JMOB or when requested in writing by any two voting members or both town council presidents.

e) Chairman: A voting member from Lowell shall chair all meetings held in Lowell and a voting member from Cedar Lake shall chair all meetings held in Cedar Lake, except as provided in paragraph (h)(3) below.

f) Minutes: The site of each meeting shall alternate between Lowell and Cedar Lake or as may be agreed by a majority of the voting members. The clerk-treasurer of each town, or their designee, shall serve as recording secretary for each meeting held in their town and shall prepare and distribute minutes of each meeting for review and approval by the JMOB.

g) Powers: The JMOB shall oversee and supervise the operation and maintenance of the WWTP, WWTP and Cedar Lake EQ Basins, the interceptor sewer and the metering facilities at the Cedar Lake EQ Basin-Parshall Flume and at the WWTP, and:

1) The Lowell WWTP Superintendent shall report to the JMOB as required and the JMOB may terminate the Superintendent for just cause.

2) The WWTP Superintendent shall attend all meetings of the JMOB, file a written status report monthly with the JMOB and the respective town councils and discuss non-routine operation and maintenance concerns with the JMOB before implementation. Copies of all reports, records or other written materials provided by the Superintendent to any governmental entity or agency shall be timely provided to the JMOB by the Superintendent.

3) The JMOB shall make written findings and recommendations to both town councils regarding improvements or modifications to the facilities or operations under their supervision;

4) The WWTP superintendent shall seek and receive approval of the JMOB of all capital expenditures exceeding $25,000 except in cases of an

emergency that requires immediate expenditure of funds to comply with applicable federal or state environmental laws, rules or regulations.

h) Impasse: The JMOB shall annually approve a list of "dispute professionals", consisting of: one professional engineer, one accountant and one attorney familiar with sewer utility issues that agree to serve as a fifth voting member of the JMOB to resolve any issue in dispute which cannot be resolved by the regular voting members of the JMOB. Should the JMOB reach impasse on any issue, the following procedure shall be followed:

1) Any two (2) voting members of the JMOB shall deliver a written notice of impasse to both town council presidents listing any issue in dispute;

2) Within five (5) business days of receiving written notice of impasse from two voting members, the town council presidents shall:

a) Prepare a written list of the issues in impasse and deliver the list to the JMOB and both town councils; and

b) Select a temporary fifth voting member of the JMOB from the approved list of dispute professionals and notify the JMOB and town councils in writing of said selection;

3) The dispute professional selected shall, within thirty (30) days of their appointment, schedule an impasse meeting of the JMOB and shall serve as chairman and a 5th voting member of the JMOB on the issues in dispute.

4) During an impasse meeting, Lowell and Cedar Lake will be allotted equal time by the chairman to present any evidence, data or other information on the issues in dispute. The dispute professional sitting as chairman shall resolve all procedural matters and each matter in dispute

shall be decided by a majority vote of the five (5) voting members consisting of the (4) regular voting members and the one (1) voting dispute professional.

2. POINT OF CONNECTION: The point of connection for delivery of sanitary sewage flows from Cedar Lake shall be Cedar Lake's flow monitoring station located at the Cedar Lake EQ Basin - Parshall Flume metering station.

3. CAPACITY ALLOTMENT: Cedar Lake's maximum daily flow shall not exceed 5.0 MGD at its point of connection at the Cedar Lake EQ Basin-Parshall Flume. Cedar Lake shall have the right to the following maximum percentage shares of the capacity in the interceptor sewer line and the WWTP:

a) 100% of the capacity of the existing 30 inch interceptor line;

b) 43% of the capacity of the existing 42 inch interceptor line;

c) 31% of the capacity of the existing 48 inch interceptor line; and

d) 50% of MGD design average daily flow capacity of the WWTP.

e) These percentages shall be subject to the maximum volume of flow that can be received and treated at the WWTP pursuant to Lowell's NPDES Permit.

f) All capacity not allocated to Cedar Lake in the interceptor line and WWTP shall be capacity retained as Lowell's capacity in the interceptor line and WWTP.

4. CAPITAL IMPROVEMENTS: Cedar Lake and Lowell shall each pay, as its share of any costs or other expenses incurred for the capital improvements of the entire interceptor line, either EQ Basin or the WWTP, 50% of all such costs and expenses as they are incurred.

5. OPERATION and MAINTENANCE COSTS: Cedar Lake shall annually pay Lowell its share of the operating costs of the interceptor sewer and WWTP, as follows:

The annual operation and maintenance expenses of the WWTP and interceptor sewer shall be first reduced by: (1) Lowell's share of maintenance costs at the Cedar Lake EQ Basin and (2) revenues collected for excess loadings such as B.O.D., C.O.D. and suspended solids from any of Lowell's customers, including Cedar Lake. The remaining operating expenses shall be shared on the basis of the flow of Cedar Lake entering the system at its point of connection in relation to total system flows measured at the WWTP inlet meter. Example:

a. Annual operation and maintenance expense of interceptor and WWTP _____

b. Minus CL-EQ Basin & excess loading charges _____

c. Net annual operational costs: _____

d. Total flow measured at WWTP meter: _____

e. Cedar Lake flow measured at Flume meter: _____

f. Percentage of flow received from Cedar Lake (e) ÷ (d): _____

g. Portion of annual operation and maintenance expenses chargeable to Cedar Lake (c) x (f): _____

6. Administrative Expenses: Administrative expenses shall be annually charged to Cedar Lake in the relationship of revenue received from Cedar Lake to all Lowell revenue. Example:

a. Total revenue for the calendar year received from Cedar Lake _____

b. Total revenue from all sources _____

c. Factor times administrative expenses of the year equals Cedar Lakes portion of administrative expenses _____

However, the above billing formula shall be subject to modification or amendment by mutual agreement of both town councils to amend same by joint resolution.

7. PAYMENTS: Payments by Cedar Lake to Lowell for flows received and services rendered under this Agreement shall be on an estimated monthly basis based on the prior calendar year's flows and costs charged to Cedar Lake. A final billing, after any adjustments thereon, shall be determined by March 1st of each calendar year for the preceding calendar year and Cedar Lake shall make immediate payment thereon to Lowell. However, after making full and timely payment on any monthly or final billing or credit, either party may appeal a billing or credit dispute to the JMOB for final determination. Any payment or credit due from one town to the other, or outstanding balance thereon, shall bear interest at the rate of 8% per annum.

8. BONDS: Pursuant to Joint Resolution 1987-20, Cedar Lake shall pay 50% of all revenue bonds issued by Lowell for improvements at the WWTP, including any and all reserve requirements, costs of issuance and payments thereon as part of its capital contribution for the WWTP based upon Cedar Lake's right to share in 50% of the WWTP capacity. Should Cedar Lake or Lowell suspend or fail to timely pay any bond payment when due, then such unpaid sums shall bear interest due and payable in the amount of 8% per annum and each party shall have the right to recover all sums due and owing thereon including all costs of collection, and attorney or consultant fees from the non-paying party.

9. GRANTS or AID: Should either party to this Agreement receive or use funds from any federal, state or other grant, credit or aid for any capital or operational expense at the WWTP, the interceptor sewer, or either EQ Basin, then the total amount

so received or used by either party shall be deducted from the total cost of the capital improvement or expense before determining each parties percentage share of the costs for said improvement or expense.

10. CEDAR LAKE EQ BASIN - WWTP IMPROVEMENTS: The operation and maintenance of the Cedar Lake EQ Basin shall be supervised by the Lowell WWTP Superintendent under the direction of the JMOB and:

a) Lowell will financially participate in up to 50% of the cost of designing and constructing Cedar Lake's EQ Basin after its consulting engineers review and approve the engineering design, bid specifications and procedures for the future operation of the EQ Basin.

b) Cedar Lake shall financially participate in all capital improvements required at the WWTP pursuant to the terms and conditions this Agreement including, but not limited to, the Lowell Compliance Plan Phase I Project and the Lowell Compliance Plan Phase II Project currently pending before IDEM.

11. METERS: Cedar Lake and Lowell shall each pay 50% of all costs associated with the maintenance and improvement of the meters located at the Cedar Lake-Parshall Flume and the WWTP. Both parties may inspect and examine the meters of the other during regular business hours and each party shall maintain records of and provide the other party with any flow meter data or records requested. The JMOB shall monitor and review all meter flow data and maintenance records of all meters of either town to verify the accuracy of each meter.

12. PREPAYMENT: Any prepayment by either party of all or part of their share of any capital costs or improvements may be made subject to timely payment of

any balance or other remaining costs or expenses that may be due thereon together with any redemption premiums or other costs attributable thereto.

13. FUTURE EXPANSION: In the event Lowell elects to expand the current capacity of the WWTP facility or interceptor sewer, Lowell shall offer Cedar Lake the opportunity to participate in such additional expansion, provided however, that Cedar Lake shall bear its pro-rata costs for capital charges and administrative expenses of such expansion, if Cedar Lake elects to participate in such expansion. Cedar Lake shall make such election within ninety (90) days of receipt of written notice of the engineer's cost estimate based upon preliminary design. In the event that Cedar Lake elects to build additional capacity at the WWTP or interceptor sewer, Cedar Lake shall offer Lowell the opportunity to participate in such expansion, provided however, that Lowell shall bear its pro-rata costs for capital charges and administrative expenses of such expansion, if Lowell elects to participate in such expansion. Lowell shall make such election within ninety (90) days of receipt of written notice of the engineer's cost estimate based upon preliminary design.

Either party may elect to sell any portion of their allotted excess treatment capacity to the other under terms and conditions negotiated by the parties.

14. TERM: This Agreement shall continue in full force and effect from date hereof until forty (40) years from its approval by both town councils subject to modification or renewal by the parties.

15. TERMINATION-Cedar Lake WWTP: In the event Cedar Lake constructs its own sewage treatment plant, or wishes to connect to another system for treatment of all of its sewage treatment needs, Cedar Lake may, at its sole option, terminate this Agreement by giving Lowell at least 180 days advanced written notice of its intention to

physically terminate its connection to Lowell on a date specified in said notice. On or before the effective date of termination specified in said notice, Cedar Lake shall disconnect its sewer system from the interceptor line and the Lowell WWTP collection system and upon disconnection the total amount of any and all outstanding bond payments, capital charges, and any other fee or cost due under this Agreement, shall be due, owing and paid in full by Cedar Lake to Lowell.

16. EPA - IDEM IMPROVEMENTS: The parties shall participate in a pro-rata basis pursuant to this Agreement in any funded capital requirement necessary for upgrading the treatment process due to the then current requirements for improved water quality pursuant to federal, state or local laws, rules or regulations or as may be necessary for any other reason.

17. RECORDS: The members of the JMOB and any duly authorized representative of Lowell or Cedar Lake shall have access at all times to inspect and copy any records of the Lowell or Cedar Lake Sewer Utilities and to observe the operation of the WWTP, the EQ Basins and any meter or sampling devices.

18. LOADING: Cedar Lake and Lowell will use all necessary precaution and diligence to exclude from the sewage sand, grave, street waste, grits, leaves, rags, paper, garbage, pickling liquor, cyanides, coal tar, oil, grease, acids, dry cleaning fluids and any other foreign material, industrial waste or any other matter which may be objectionable, dangerous or inhibitive to bacterial growth or proper treatment by the WWTP or which for other reasons cannot he readily treated at the WWTP or may be dangerous thereto. Cedar Lake shall be subject to any and all sewer use or other similar ordinance enacted by Lowell necessary to protect the interceptor line and the WWTP and:

a) If Cedar Lake's or Lowell's sewage should contain any substance that interferes with the proper operation of the WWTP, or increases the costs of operations, the responsible party shall pay all costs associated with such an accident, improper loading or violation;

b) The sewage delivered by Cedar Lake shall at all times meet all E.P.A and IDEM standards for B.O.D., C.O.D., suspended solids and any other requirements or limitations contained in or limited by Lowell's sewer use ordinance and NPDES Permit and any and all loading in excess of said standards shall be paid by Cedar Lake on the same basis as Lowell would charge any other customer for such excess loading;

c) Any revenue received from charges for any such violation or excess loading of B.O.D., C.O.D., suspended solids or any other substance received by Cedar Lake or Lowell, from their respective customers, will be used to reduce the WWTP operating expenses before any remaining operating expenses are allocated between the parties based upon flow; and

d) Lowell shall have the right to discontinue the treatment of sewage at the WWTP at anytime when unable to properly handle said sewage due to failure or breakdown of any equipment, failure of power supply, lack of pumping, or for other good and justifiable reasons. Provided, however, every effort shall be made by Lowell to correct any cause for discontinuing to receive such sewage so that receipt of sewage may be resumed by Lowell as soon as possible after any interruption.

19. AUDITS: The administrative costs of maintaining general records of the WWTP, State Board of Accounts audits and similar activities shall be shared by Lowell

and Cedar Lake on the same basis as WWTP operating expenses are shared. The JMOB shall have the right to examine the records kept by Lowell or Cedar Lake representatives, such as accountants, consulting engineers and other consultants, to determine billings are being made in a proper manner consistent with this Agreement.

20. DISPUTES: If any dispute or disagreement shall arise in connection with either any interpretation of this Agreement or its performance or non-performance, and if such dispute or disagreement cannot be settled through the impasse procedures of the JMOB, then the matter in controversy, if agreed to by the parties, shall he settled by arbitration in accordance with the laws of the State of Indiana by three arbitrators with one arbitrator selected by each party and the third by the two arbitrators so selected.

21. COOPERATION: Lowell and Cedar Lake agree to assist and support the other when applying for or seeking any SRF Loan, financing or permit necessary for any sanitary sewer or WWTP project during the term of their contractual relationship. Cedar Lake shall continue to timely make all monthly bond or other payments that may be required by the 1973 Agreement and Joint Resolutions 1987-20 and 2000-01.

22. BOUNDARY: Lowell shall provide sanitary service to the area South of the boundary line and Cedar Lake shall provide sanitary service to the area North of the boundary line, which is described as follows:

> Commencing at a point which is 1,320 feet South of the Northwest corner of and on the West line of Section 7, Township 33 North, Range 9 West of the second principal meridian; thence Easterly at 90 degrees to the last described line 23,760 feet more or less to a point at the center of the intersection of 159th Avenue and Morse Street; thence Southerly at 90 degrees to the last described line, a distance of 3,960 feet more or less down the center of Morse Street to a point; thence Easterly at 90 degrees to the last described line, a distance of 1,980 feet more or less, to a point; thence southerly at 90 degrees to the last described line a distance of 1,320 feet, more or less, to a point; thence easterly at 90 degrees to the last described line a distance of 660 feet more or less, to a point; thence

northerly at 90 degrees to the last described line a distance of 1,320 feet more or less, to a point; thence easterly at 90 degrees to the last described line a distance of 10,560 feet more or less to a point on the Southeast corner of the Southeast one—fourth of Section 7, Township 33 North, Range 8 West of the second principal meridian.

If a change of the service area boundary line should be deemed necessary by either party, this paragraph will be subject to modification by agreement of the parties.

23. GOVERNING LAW: This Agreement shall be construed in accordance with the laws of the State of Indiana. Whenever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law or, if invalid under such law, said provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement.

24. SEVERABILITY: If any term of this Agreement is found to be void or invalid, such invalidity shall not affect the remaining terms of this Agreement, which shall continue in full force and effect.

25. COUNTERPARTS: This Agreement may be executed in several counterparts, each of which when executed shall be deemed to be an original, and such counterparts, together, shall constitute but one (1) and the same instrument, which shall be sufficiently evidenced by any such original counterpart.

26. RECORDING: Before this Agreement takes effect, it must be recorded in the Office of the Lake County Recorder. No later than sixty (60) days after it takes effect and is recorded, this Agreement must be filed with the Office of the State Board of Accounts for audit purposes, all pursuant to Ind. Code §36-1-7-6, as amended.

27. NOTICES: All notices to be sent pursuant to this Agreement shall be in writing and shall be delivered by certified mail, return receipt requested, or by any nationally recognized overnight courier service, addressed as follows:

Lowell: Town of Lowell Clerk-Treasurer
501 East Main Street
P.O. Box 157
Lowell, Indiana 46356

Cedar Lake: Town of Cedar Lake Clerk-Treasurer
7408 Constitution Avenue
P.O. Box 707
Cedar Lake, Indiana 46303

This Agreement shall be in full force and effect from and after its adoption and passage by the Board of Trustees of the Town of Lowell, Indiana and the Board of Trustees of the Town of Cedar Lake, Indiana.

APPROVED, this 9th **Day of** December, **2003 by a vote of** 5 **ayes and** 0 **nayes by the Lowell Town Council:**

David Gard, President

Vice President

Member

Member

Member

ATTEST: Judith Walters, Clerk-Treasurer

APPROVED, this 9th Day of December, 2003 by a vote of 5 ayes and 0 nayes by the Cedar Lake Town Council:

Robert Brannon, President

Vice-President

Member

Member

Member

Member

Member

ATTEST: Claudia Mentink Clerk-Treas
Claudia Mentink, Clerk-Treasurer

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State Revolving Fund Loan Program
Asset Management Program Certification Form
Inclusive of
Fiscal Sustainability Plan Certification

(To be submitted either at the time of loan closing or no later than the final disbursement of a Participant's loan proceeds)

Participant Name		
Town of Lowell, Indiana		
Street Address		P. O. Box Number
501 East Main Street		157
City	State	Zip Code
Lowell	Indiana	46356

Indiana Code 5-1.2-10-16 requires a Participant that receives a loan or other financial assistance from the State Revolving Fund Loan Program (SRF) to certify that the Participant has documentation demonstrating it has the financial, managerial, technical and legal capability to operate and maintain its water or wastewater collection and treatment system. A Participant must demonstrate that it has developed an asset management program as defined in the Indiana Finance Authority's (Authority) Asset Management Program Guidelines.

Section 603(d)(1)(E) of the Federal Water Pollution Control Act (FWPCA) requires a recipient of a loan for a project that involves the repair, replacement, or expansion of a publicly owned treatment works to develop and implement a Fiscal Sustainability Plan (FSP). The requirement pertains to those portions of the treatment works paid for with Clean Water SRF Loan Funds.

The Asset Management Program (AMP) shall be inclusive of the requirements of the FSP for Wastewater and Drinking Water projects and shall include at a minimum the following: (1) A system map (2) An inventory and assessment of system assets (3) development of an infrastructure inspection, repair, and maintenance plan, including a plan for funding such activities (4) an evaluation and implementation of water and energy conservation efforts (5) An analysis of the customer rates necessary to support the AMP (6) Audit performed at least every two years (7) Demonstration of the technical, managerial, legal and financial capability to operate and maintain the system, per the guidelines established by the Authority.

I hereby certify that I am an authorized representative for the above listed Participant and pursuant to IC 5-1.2-10-16 and Section 603(d)(1)(E), the Participant has developed and is implementing an AMP (inclusive of the requirements of an FSP) that meets the requirements established by the Authority. Upon the request of the Environmental Protection Agency (EPA) or the Indiana SRF, the Participant agrees to make the AMP (which includes the FSP requirements) available for inspection and/or review.

Participant's estimated capital asset needs in the next 5 years: $ 35,000,000

Craig Hendrix	3/29/24
Signature of Authorized Representative	Date
Craig Hendrix, P.E., Town Manager / Town Engineer	(219) 696-7794; CHendrix@Lowell.net
Printed Name	Phone Number/Email Address

6219 South East Street
Indianapolis, IN 46227

P (317) 788-4551
F (317) 788-4553

WesslerEngineering.com
Project #214419-03-016