Appendix B

Meaford WWTP Condition Assessment

Meaford Wastewater Treatment Plant Class Environmental Assessment

Technical Memorandum
WWTP Condition Assessment

Prepared For:

The Municipality of Meaford

January 2022

CREATING QUALITY SOLUTIONS TOGETHER

Ainley GROUP

MEAFORD WASTEWATER TREATMENT PLANT CLASS EA

TECHNICAL MEMORANDUM
WWTP CONDITION ASSESSMENT

PROJECT NO. 121027

Prepared For:
THE MUNICIPALITY OF MEAFORD

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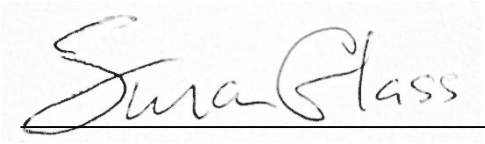

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1 Introduction

The Municipality of Meaford (Municipality) retained the Ainley Group to provide engineering services for the Municipality of Meaford Wastewater Treatment Plant (WWTP) Class Environmental Assessment (Municipal Engineers Association, June 2000, as amended in 2015) for the expansion of the Meaford WWTP and collection system to meet future growth of the service area. As part of this project, it was necessary to establish a baseline condition of existing assets. For this purpose, a site investigation was conducted by Ainley.

On July 16, 2021, Ainley staff completed a site investigation for the Meaford WWTP. The purpose of this investigation was to determine the condition of the plant and pumping station buildings, process equipment, and electrical and instrumentation works to document the current conditions. In conducting this site investigation, no entry was made into confined spaces.

The objective of this Technical Memorandum (TM) is to identify the condition of existing WWTP assets and to identify what upgrades may be required for continued effective operation of the facilities over the next 30 years. This TM will assist with the development of alternative solutions to meet long-term capacity and treatment requirements in accordance with the Municipality's growth strategy.

This TM documents the findings of the site investigation and outlines the scope of upgrades required to maintain the plant in full compliance with its current Environmental Compliance Approval.

2 Condition Assessment Methodology

The condition assessment is based on non-invasive observation of assets at the WWTP and a review of historical reporting. Where no apparent degradation of equipment is visible or where assets cannot be observed the assessment relies on a comparison of asset age to assumed values for useful life for different asset categories.

2.1 Asset Useful Life

The useful life assumed for each asset will have a significant impact on the capital planning developed at the conclusion of the project. While each asset needs to be assessed individually, a baseline assumption of useful life for each type of asset is useful to guide the overall assessment.

Table 1 provides a non-exhaustive listing of major assets types that are within the WWTP. The assumed useful lives in the table will be used in the assessment of failure potential and for capital planning.

Table 1 – Asset Useful Life Assumptions

Asset Type	Useful Life (years)
Concrete Structures	100
Large Pumps	50
Small Pumps	30
Chemical Pumps	20

Asset Type	Useful Life (years)
Pipes	90
Motors	50
Electrical Actuators	40
Blowers	50
Valves	50
MCC	40
PLC	20
Instruments	15

3 Condition Assessment Findings and Recommended Upgrades

3.1 Description

The Meaford WWTP is located at 35 Grant Avenue. The WWTP was originally constructed in 1969 and has undergone a variety of modifications and upgrades. The plant receives raw wastewater from the onsite raw sewage pumping station and through a forcemain from the Big Head River Pump Station. The WWTP has a rated capacity of 3,910 m^3/d, with a secondary treatment peak capacity of 489 m^3/hr. The Meaford WWTP is comprised of the following:

- Raw sewage pumping station (SPS#2);
- Septage receiving facility;
- Inlet equipped a fine screen and coarse bar screen, a transport screw conveyor, and bagging system with a disposal bin;
- Two (2) aeration tanks;
- Two (2) secondary clarifiers;
- Two (2) ultraviolet (UV) disinfection channels;
- A sodium hypochlorite disinfection system (back-up system to the UV);
- One (1) two-stage aerobic digester; and
- One (1) two-celled aerated biosolids tank.

A process schematic drawing with the processes described above can be found in **Figure 1**.

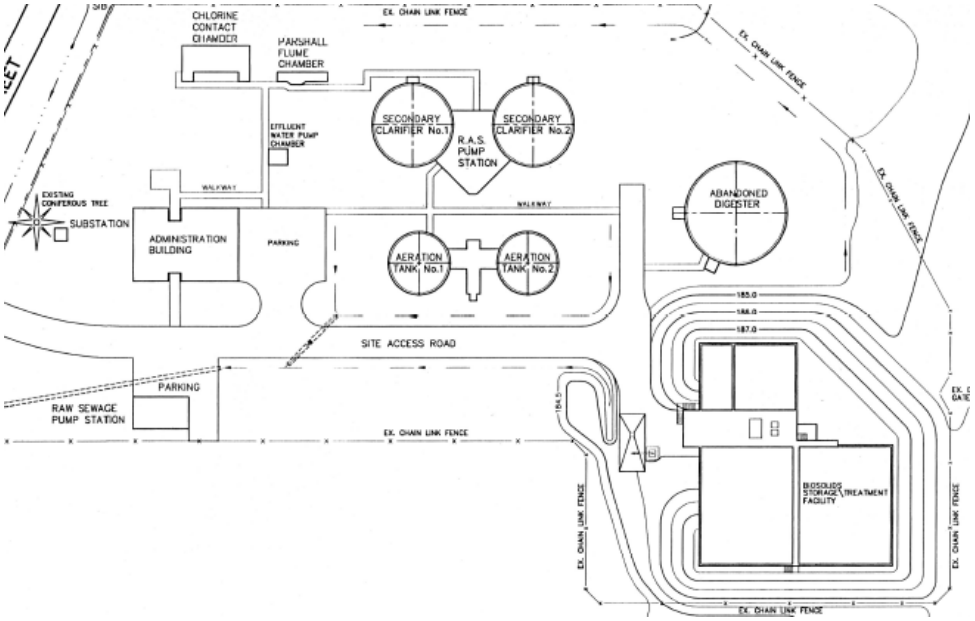

Figure 1 – Meaford Wastewater Treatment Plant Site Layout

3.2 Site Investigation Findings

The following is the findings of the condition assessment:

3.2.1 Administration Building and Plant Site Works

Figure 2 – WWTP Administration Building

- Site Works
  - The property line fencing appears to be in good condition.
  - The asphalt driveway is in good condition.
- Structural

- Administration Building roof membrane is in poor condition, based on discussion with Operations staff. It is recommended that the roof membrane be refurbished within the next five (5) years. The cost to refurbish a roof membrane is estimated to be $25,000.
- The exterior and interior walls, windows, doors and interior tile flooring appear to be in moderate condition. The Administration Building is dated with limited working space. Operations noted that due to the lack of space in the building, the existing workshop has been repurposed as a meeting room. It is recommended that the Administration Building undergo some renovations and build a new office area in a new building proposed for the upgrades. The estimated cost for the building's refurbishment is $300,000.

- Process Mechanical
  - Buried piping was not evaluated as part of this site investigation. However, buried piping was assessed through a desktop review and the findings are provided throughout the TM.
- Building Mechanical
  - The Administration Building is not equipped with air conditioning. It is recommended to upgrade the building with a new heating and cooling system. The cost to outfit the Administration Building is estimated to be $432,000.

3.2.2 Raw Sewage Pumping Station

Figure 3 – Raw Sewage Pumping Station

- Structural
  - The SPS#2 structure appears to be in good condition. There are no upgrades recommended for the station at the time of inspection.
  - The SPS#2 has a 3.66m x 4.2m x 15m (approximate) concrete wet well. A visual inspection of the wet well was not completed at the time of inspection. However, operations staff confirmed that the concrete in the station appears to be in good condition.
- Process Mechanical

- The SPS is equipped with two (2) Flygt 65hp chopper raw sewage pumps that are equipped with electrically driven motors and VFDs. Each pump and motor set were replaced in 2019 and is rated at 145L/s with a TDH of 19m. The raw sewage pumps are located within a confined space and could not be visually inspected. However, due to the age of the equipment, there are no recommended upgrades for the raw sewage pumps.
- The four (4) wet well sluice gates have seized in the open position. The Municipality has planned for the replacement of the sluice gates prior to this inspection.
- The onsite SPS has a 450mm diameter emergency overflow pipe that runs from the station to maintenance hole #20041 and discharges into the Nottawasaga Bay. The approximate length of the overflow pipe is 200m. Buried piping was not visually inspected during this site inspection; however, a desk top review of the piping was conducted. Operations staff confirmed that the original yard piping has not been replaced since its installation in 1978. Buried piping has an estimated useful life of 80 years. The estimated remaining useful life of the buried piping is 30 years. The cost of replacement is around $340,000.
- The raw SPS has a discharge forcemain with a diameter of 350mm and is equipped with a bypass connection. The forcemain length from the station to the Meaford WWTP Influent Works is approximately 75m. The desk top review of the buried piping indicate that the original yard piping has not been replaced since its installation in 1978. Buried piping has an estimated useful life of 80 years. The estimated remaining useful life of the buried piping is 30 years. The estimated replacement cost is about $100,000.

- Building Mechanical
  - The hoist for the pumps is in poor condition. The Municipality has arranged for the hoist's replacement for this year prior to this inspection.
  - The HVAC system for the raw sewage pumping appeared to be in good condition. No upgrades were recommended upon inspection.
- Power, Instrumentation & Controls
  - Each pump and motor set are equipped with a Benshaw VFD. The VFDs were installed with the 2019 station upgrades. The VFDs appear to be in good condition with no recommended upgrades at the time of inspection.
  - A strap on Endress+Hauser 91W Transit-Time flow meter was also installed in 2008. The flow meter appears to be in good condition.
  - The MCC for the sewage pumping station was originally installed in 1978 and upgraded in 2008 with VFDs. The MCC appears to be in good condition.

3.2.3 Septage Receiving Facility

- Structural
  - The Receiving Station was constructed in 2004. The station structure appears to be in good condition.
  - The Receiving Station is equipped with a below-grade concrete storage tank with a volume of 80m^3. With benching, the volume is 55 m^3. The operations staff indicated that the concrete walls and floor of the tank are in good condition.
- Process Mechanical
  - The Receiving Station has one (1) Vaughan submersible raw sewage pump. The pump is rated at 10.1L/s with a TDH of 9m and discharges the imported sewage to the Influent

Works. A visual inspection of the station was not completed; however, the pump was replaced in 2019 with operations staff identifying the pump as being in good condition. Small pumps have a useful life of approximately 30 years; however, operations staff indicated the pump was replaced after 17 years. It is recommended that the pump be replaced in 15 years. The estimated cost to replace the pump is $30,000.

- The septage receiving station is also equipped with a coarse bubble diffused air system and an air recovery duct. Operations indicated that the course bubble diffused air system is in good condition, however it is not used.
- There is one (1) basket screen for removing debris from the incoming septage. Operations noted that the basket screen is in good condition.
- The Imported Sewage Receiving Facility has a discharge forcemain that discharges from the station to the Meaford WWTP Influent Works. Operations staff confirmed that the yard piping has not been replaced since its installation in 2005; however, it was tied into original piping from 1969. Buried piping has an estimated useful life of 80 years. The estimated remaining useful life of the buried piping is 65 years.

3.2.4 Influent Works

Figure 4 – Influent Works

- Structural
  - The structural concrete of the two (2) influent screen channels appears to be in fair condition.
- Process Mechanical
  - The first screen channel is equipped with an automatic fine screen that has 3mm openings. The automatic screen has a rated peak instantaneous flow rate of 100L/s. The automatic screen was installed in 2005 and appears to be in fair working condition. Operations noted that there have been minor issues with the automatic bar screen due to excessive rags. There are no recommended upgrades at the time of inspection.

- The second screen channel is equipped with a manual coarse bar screen with 25mm bar spacing. The bar screen has a rated peak instantaneous flow capacity of 328L/s. This screen was installed in 2005 and appears to be in fair condition. Maintenance of manual bar screens can be labour -intensive and it is recommended to update the manual bar screen to an automatic screen within the next five (5) years. The cost to upgrade the manual bar screen to an automatic screen is $150,000, assuming major structural changes are not required.
- The Influent Works is also equipped with one (1) transport screw conveyor, complete with a bagging system and a disposal bin. The screw conveyor and grit disposal system were installed in 2005 and appears to be in moderate condition. It is recommended that the screw conveyor be replaced within the next 20 years. The estimated cost to replace the screw conveyor is $80,000.

3.2.5 Aeration Tanks

Figure 5 – Aeration Tank

- Structural
  - There are two (2) concrete aeration tanks with an internal diameter of 10.9m and a side water depth (SWD) of 5.9m. The concrete tanks were originally constructed in 1969. There has been concrete rehabilitation over the years. Upon visual inspection, the tanks appear to be in moderate condition. The tanks' exterior has been parged in the past with no rehabilitation work to the interior walls. The concrete tanks are 53 years old and typically have an expected useful life of 100 years. It is recommended that the Municipality continue their maintenance efforts over the remaining useful life of the tanks.
  - Air piping for the aeration tanks is routed over the cat-walk creating a tripping hazard. It is recommended that a small set of steps be provided over top of the piping to reduce the potential for tripping. The cost to install stairs over the piping is estimated to be $5,000.
  - Each aeration tank is fitted with aluminum stairs and guard rails. Upon inspection, it was observed that the guard rails do not meet the height requirements outlined in the Ontario Building Code (OBC). It is recommended that the guard rails—complete with kick-plates—

be replaced within the next five (5) years. The estimated cost to install OBC compliant guard rails with kick-plates is $10,000.

- Process Mechanical
  - The aeration tanks are each equipped with a fine bubble aeration system. The aeration system was originally constructed in 1969 with upgrades to a fine air bubble diffuser system in 2005. There are 220 evenly distributed 225mm diameter fine pore membrane diffuser discs at the bottom of each tank. Operations Staff indicated that the diffusers are replaced every two (2) years on an as -needed basis when the aeration tanks receive their routine maintenance. It is recommended that the Municipality continue their existing maintenance regime.
  - Due to the absence of a grit removal system, approximately 1m of grit accumulates between tank clean-outs, which are completed every two (2) years. The removal of grit is a labour-intensive and time-consuming process. It is recommended that a grit removal system be added upstream of the aeration tanks as a component of expansion efforts to alleviate maintenance costs. The estimated cost is $300,000 based on using Vortex Grit Removal System, an additional $300,000 is assumed for an enclosure.

3.2.6 Blower Building

- Structural
  - Upon inspection, the Blower Building structure appeared to be in good condition. There are no recommended upgrades for the Blower Building at this time.
- Process Mechanical
  - The aeration system is fed by three (3) positive displacement air blowers (2 on duty and 1 standby) and motors that are equipped with VFDs, and are rated at 482.4m^3/hr at 65.5kPa. The blowers were installed in 2005, with motors being replaced in 2006. The blower and motor sets appear to be in good condition. There are no recommended upgrades for the blower and motor sets at this time.
- Building Mechanical
  - The 2015 Master Plan identified the HVAC system for this building as being under sized.
  - Ventilation was identified as a primary issue. This was resolved in 2017 by the addition of an exhaust fan on the North wall in 2017.

3.2.7 Secondary Clarification

Figure 6 – Secondary Clarifier

- Structural
  - There are two concrete up-flow secondary clarifiers that have an internal diameter of 12.2m and 2.9m SWD. Each clarifier has a volume of 339m^3. The two clarifiers were constructed in 1969 and appear to be in moderate condition. The two clarifier tanks recently had resurfacing work completed on the interior and continuing work on the exterior, including grout injection and parging. Despite rehabilitation efforts, cracking is still visible in the exterior concrete. It is recommended that the Municipality maintain their rehabilitation efforts.
  - Each clarifier is fitted with aluminum stairs, guard rails and walkway. The aluminum stairs, guard rails and walkway appear to be in good condition.
- Process Mechanical
  - Two (2) motors, each equipped with a VFD, are used to control the sludge and scum removal drive mechanisms, one motor for each clarifier tank. The motors were replaced in 2018 and appear to be in good condition. There are no recommended upgrades for the sludge and scum removal mechanism motors at this time.
  - Each clarifier is equipped with a sludge removal mechanism at the base of the tank, and a scum removal mechanism which removes scum from the water surface. The sludge and scum removal mechanisms were replaced in 2018. What could be seen of the drive units and removal mechanisms were observed to be in good condition. There are no recommended upgrades for the sludge and scum removal mechanisms.
- Power, Instrumentation & Controls
  - The clarifier controls were moved to outdoor panels in 2019. The exterior panel enclosure is stainless steel, which gets hot during the hours it is in direct sunlight. The Municipality has since installed a cooling unit to the side of the cabinet to keep it cool. Operations staff indicated that over the summer months, the cooling system was adequate in keeping the

control panel from over -heating. The controls and exterior panel appear to be in good condition despite the temperature issues. It is recommended that the Municipality continue to review the operability of the controls during the summer months, if the cooling unit is unable to maintain a reasonable temperature the Municipality should consider a small structure to provide shade.

3.2.8 Sludge Pumping

Figure 7 – RAS and WAS Pumps

- Structural
  - Sludge control room is clean and in good condition; no upgrades are recommended at this time.
- Process Mechanical
  - The sludge pumping room is equipped with two (2) RAS pumps with flow capacities of 45L/s. Each pump is equipped with an electrically driven motor. The pump and motor sets were initially installed in 1969, with RAS pump #1 being replace in 2014 and pump #2 being replaced in 2009. RAS Pump #1 appears to be in moderate condition and was observed to be making noises during operation. RAS Pump #2 appeared to be in good condition. One spare is in stock due to the long lead time. It is recommended that both RAS pumps be replaced within the next five (5) years, and 18 years respectively with VFDs installed. The cost to replace both of the RAS pumps and motors is estimated to be $110,000.
  - There are two (2) WAS pumps and motor sets, each with a flow capacity of 23L/s, that were installed with the 1996 plant upgrades. The WAS pumps were observed to be in good condition, but have approached the end of their expected useful life. It is recommended that the WAS pumps and motors be replaced within the next five (5) years. The estimated cost to replace the two WAS pump and motor sets is $60,000.
  - The two (2) inlet sluice gates from the clarifiers to the WAS and RAS pumping system are in poor condition. Operations staff indicated that the gates are a logistical challenge to replace. It is recommended that the inlet sluice gates be replaced within the next five (5) years. The cost to replace the sluice gates is estimated to be $50,000. However, the complications caused by the lack of redundancy and need for temporary works to facilitate construction

could result in installation costs much in excess of the typical costs for replacement. Bypass pumping would likely be required for a one-month period at an estimated cost up to $200,000.

- Power, Instrumentation & Controls
  - Khrone RAS and WAS flow meters were initially installed in 1996. The flow meter is in good condition, however due to the age of the asset it is recommended that it be replaced within the next five (5) years. The cost to replace the RAS/WAS flow meter and digital readout is estimated to be $10,000
  - The MCC for the RAS/WAS facility was originally installed in 1969. This MCC is at the finished stage of being replaced in 2022.

3.2.9 Aerated Sludge Digestion and Storage

Figure 8 – Aerated Digester

- Structural
  - The WWTP has one (1) two-stage aerobic digester. The Stage 1 digester tank is approximately 9.5m x 10m x 4.35m deep, and the Stage 2 digester is approximately 4.9m x 10m x 4.35m deep. The combined capacity of the tanks is approximately 626m^3. What could be observed of the concrete tanks was in poor condition. Immediate refurbishment is required for the interior and exterior of the digester tanks. Injection grouting was installed in 2019 to rehabilitate the storage tanks. The cost of injection grouting and parging the tanks is estimated to be $57,000.
  - There is one (1) two-celled sludge storage tank that was constructed in 1995 as part of the digester upgrade. Each cell of the tank is approximately 18m x 14.75m x 4.35m deep, with a total storage volume of 2,300m^3. The sludge storage tanks have a treatment capacity of 3,910m^3/d, as outlined in the 2015 Master Plan. The concrete tanks have significant visible cracking throughout the concrete at 1–2-meter intervals. Immediate refurbishment is

required for the interior and exterior of the storage tanks. Injection grouting was installed in 2019 to rehabilitate the storage tanks. The cost of injection grouting and parging the tanks is included in the cost for parging and grouting the aerobic digester above.

- The digester is fitted with aluminum stairs, guard rails and walkway. The metal walkway is used to provide support for the aeration piping and provide access to the tank from above. The aluminum stairs, guard rails and walkway appear to be in good condition. There are no recommended upgrades to the aluminum guard rails and walkways at this time.
- Significant cracks were observed in the biosolids blower building basement. Municipal staff has had the basement floor reinforced to prevent further degradation to the floor. No further action is required.
- The old digester tank has been decommissioned and is no longer in service. The Municipality should consider demolishing the tank. Demolishing the tank will provide more space for plant expansions in the future.
- There is also a Biosolids Truck Loading Facility which has one (1), 13m x 5m concrete loading pad. The pad appears to be in good condition; however, loading arm/pad is in a bad location. It is too tight for trucks to access as trucks have gotten significantly larger since loading arm was put in place. It is recommended that loading arm/pad should be relocated or the way trucks can access it off the road should be changed.

- Process Mechanical
  - The two-stage aerobic digester is equipped with a coarse bubble diffused aeration system. The aeration system was installed in 1996, with diffuser maintenance scheduled with digester tank cleaning every two years. Operations staff indicated that the aeration system is in good condition, however it does not have backflow prevention for when the aeration system is not on.
  - The digesters air diffusers are fed by two (2) blowers and motors. The blower and motor sets were installed in 1996 and appear to be in good condition. Blowers have a useful life of approximately 50 years, it is recommended that the blowers are replaced within 25 years. The estimated cost to replace the blowers is $220,000.
  - There are two (2) sludge transfer pumps that are used to transfer the sludge between the two-stage system and to move the sludge from the digesters to the biosolids storage tanks. The pumps and motors were installed in 1996 and are rated at 23L/s at a TDH of 7.5m. The transfer pumps and motors are in good condition. The useful life of small pumps is estimated to be 30 years. It is recommended that the pumps be replaced within the next five (5) to ten (10) years. The cost to replace the pumps and motors is estimated to be $60,000.
  - The digesters are also equipped with one (1) decanting pump and motor. The pump and motor are electrically driven and is rated at 23L/s at 7.5m TDH. Supernatant is removed from the aerobic digester and biosolids tanks and discharged to the aeration tank influent channel. The pump and motor were installed in 1996 and appear to be in good condition. The useful life of small pumps is estimated to be 30 years. It is recommended that the pumps be replaced within the next five (5) to ten (10) years. The cost to replace the pump and motor is estimated to be $30,000.

3.2.10 UV Treatment

- Structural

- There are two (2) concrete UV disinfection channels; each UV channel is 7.01m in length, 0.84m wide, and 0.229m SWD. The concrete channels were originally constructed with the 2005 upgrades and appear to be in good condition.

- Process Mechanical
  - Each UV channel is equipped with a Trojan UV 3000 PTP disinfection system that consists of four (4) lamps on each rack, with a total of ten (10) racks per channel. The unit is electrically powered and is rated to treat a peak flow of 238.3m^3/hr. The UV banks appear to be in good condition. It is recommended that lamps continue to be replaced as part of routine maintenance plan, with lamp refurbishing on an annual basis. The recommended replacement of both UV banks should take place within the next 10-15 years and the estimate cost is $170,000.

3.2.11 Outfall Works

- Process Mechanical
  - The outfall sewer pipe is 600mm in diameter and is 61m long from the UV channel outlet to maintenance hole 20041 at the shoreline. An effluent pipe that discharges to the Nottawasaga Bay from maintenance hole 20041 is approximately 450m long and has a capacity of approximately 50,000m^3/d. Operations staff indicated that the diffusers on the effluent pipe were replaced in 2020 and routinely inspected every 5 years. It is recommended that the Municipality continue their existing maintenance program on the outfall piping.

3.2.12 Chemical Dosing

Figure 9 – Sodium Hypochlorite Chemical Dosing Pump

- Structural
  - The chemical storage room appeared to be in good condition. No upgrades are recommended at this time.

- Process Mechanical
  - The plant is equipped with two (2) 400L sodium hypochlorite storage tanks that appear to be in good condition.
  - There are three (3) positive displacement chemical metering pumps (2 duty, 1 standby). The pumps are electrically driven and are rated for a flow of 9.1L/hr at a discharge pressure of 1,035kPa. The pumps appear to be in good condition. There are no upgrade recommendations at the time of inspection.
  - The chemical dosing system pipes and valves appear to be in good condition. No upgrades are recommended.
  - The sodium hypochlorite chemical dosing system is a back-up method if UV fails.

3.2.13 Power, Instrumentation & Controls

- The WWTP's incoming power is managed by the power distribution system that is located within the Administration Building. The power distribution system was installed with the original plant in 1969 and has surpassed its useful life. It is recommended that the power distribution system be replaced within the next five (5) years. The estimated cost to replace the power distribution system is $126,500.
- The standby power for the plant is provided by a diesel generator. The generator was installed in 2014 and appears to be in good condition. There were no recommended upgrades for the standby power system at the time of inspection.
- The plant's SCADA system is used exclusively to provide monitoring services. There is no functionality for remote operation through the SCADA system at this time. To implement a plant-wide SCADA network with remote capabilities, a new SCADA server complete with work station and fibre-optic network will be required. The estimated cost to upgrade the SCADA system is $230,000.

4 Recommended Upgrades Summary

Table 2 below, summarizes the expected timeline and the estimated costs associated with replacing and refinishing major assets within the WWTP as recommended by the condition assessment findings.

- Assumptions:
  - A mark-up of fifteen percent (15%) for contractor's overhead, profit, mobilization, demobilization and bonding/insurance is included.
  - Normal construction working schedule (i.e., 5 days per week at 8 hours/day, 40-hour working week).
  - Estimated construction cost is in 2021 dollars.
  - Unit prices are based on quotations, cost books, and historical data.
  - Equipment estimates are based on vendor quotations or historical data from recently tendered projects with allowances for installation based on ratios of the equipment cost.
  - Contingency Allowance: 30%.
  - Process Mechanical Allowance to cover piping and ancillary systems including installation costs.
  - Pricing assumes competitive bidding for every portion of the General Contractor and sub-contractor work.Engineering cost and contract administration: 20%.

- Exclusions:
  - Municipality of Meaford costs
  - H.S.T.
  - Impacts due to inflation and escalation (it is understood that the Municipality will handle the inflationary impacts in their budgeting).

Table 2 – WWTP Upgrades Cost Estimate

Schedule of Upgrades	WPCP Unit Process	Capital Costs	WPCP Asset Refurbishments/ Capacity Increase
0 to 5 Years	Administration Building	$ 25,000	Structural Upgrades
	Influent Works	$65,000	Manual Screen Upgrade
	Aeration System	$15,000	Walkway Safety Upgrades
	Sludge Pumping	$292,600	RAS & WAS Pump Replacement, Instrument Upgrades
	Sludge Digestion and Storage	$57,000	Structural Repairs
	Power and I&C	$356,500	Main DP-AA Service Replacement and SCADA System Upgrades
	Upstream of Aeration Tanks	$600,000	Add a Grit Tank Removal System
	Subtotal	**$1,411,100**	
5 to 10 Years	Administration Building	$732,000	Structural and Building Mechanical Upgrades
	Sludge Digestion and Storage	$90,000	Sludge Transfer and Decanting Pump Replacement
	Subtotal	**$822,000**	

Schedule of Upgrades	WPCP Unit Process	Capital Costs	WPCP Asset Refurbishments/ Capacity Increase
10 to 15 Years	Imported Sewage Receiving Facility	$15,000	Process Mechanical Upgrades
	Subtotal	**$15,000**	
15 to 20 Years	Influent Works	$86,000	Screw Conveyor Replacement
	Sludge Pumping	$55,000	RAS Pump Replacement
	Subtotal	**$141,000**	
20 to 25 Years	Sludge Digestion and Storage	$224,000	Blower Replacement,
	Subtotal	**$224,000**	
25 to 30 Years	UV Treatment	$170,000	UV Bank Replacement
	Existing Raw Sewage Pump Station	$440,000	Emergency Overflow Pipe and Discharge Forcemain Replacement
	Subtotal	**$610,000**	
Total Capital Costs		**$3,223,100**	

In essence, it is projected that replacing/refinishing assets within the Meaford WWTP over the next 30 years would cost an estimated $3,223,100.