



Appendix 2.7
Correspondence with Township



Talbotville Wastewater Treatment Plan

Schedule C Class EA

Presentation to Council

December 14, 2015



TOWNSHIP OF
Southwold



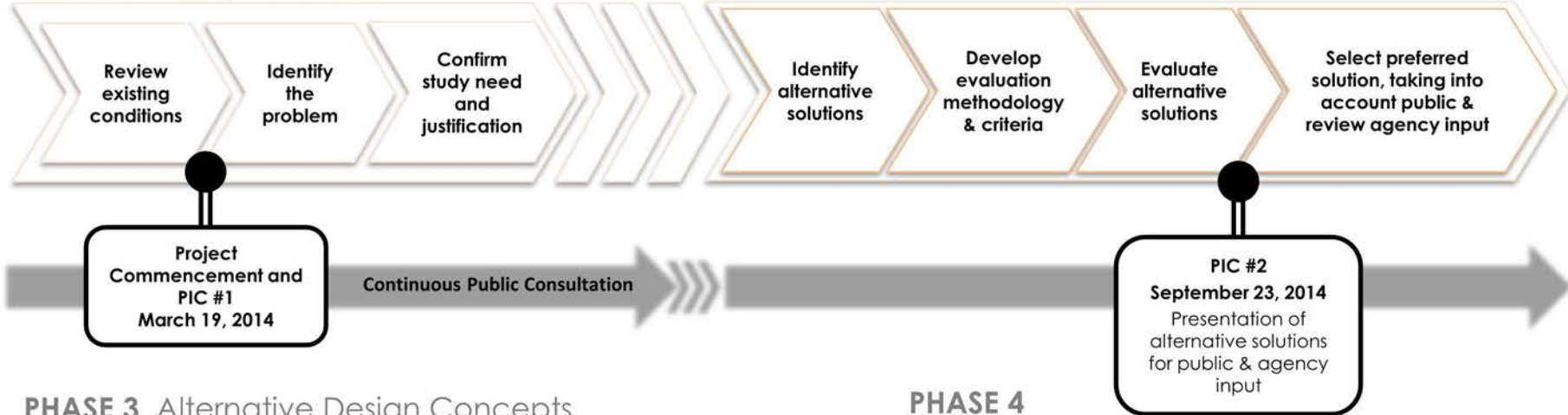
Introduction

- The Township of Southwold (Township) is a small, rural municipality immediately west of the City of St. Thomas.
- The Township recently completed a Master Servicing Plan for Talbotville and Ferndale to improve development opportunities within its settlement areas. This study was conducted as a Master Plan (Phases 1 and 2) under the Municipal Class Environmental Assessment process.
- Currently no municipal wastewater collection or treatment infrastructure exists within Talbotville. Existing development within the settlement area is serviced by private on-site septic systems.
- A number of wastewater collection and treatment alternatives for Talbotville were developed as part of the Master Servicing Plan. Through completion of the Master Servicing Plan, the construction of a new municipally owned and operated wastewater treatment plant in Talbotville to service both existing and future development was selected as the preferred alternative.
- A new wastewater treatment plant prompted the completion of a Schedule C Class EA. The Schedule C Class EA builds upon the findings of the Master Servicing Plan and completes Phase 3 (Alternative Design Concepts) and Phase 4 (Environmental Study Report) of the Municipal Class EA process.
- The Talbotville WWTP Schedule C Class EA will provide the basis for the selection of the preferred treatment technologies and will undertake further determination of the preferred plant location.

Schedule 'C' Municipal Class Environmental Assessment Process

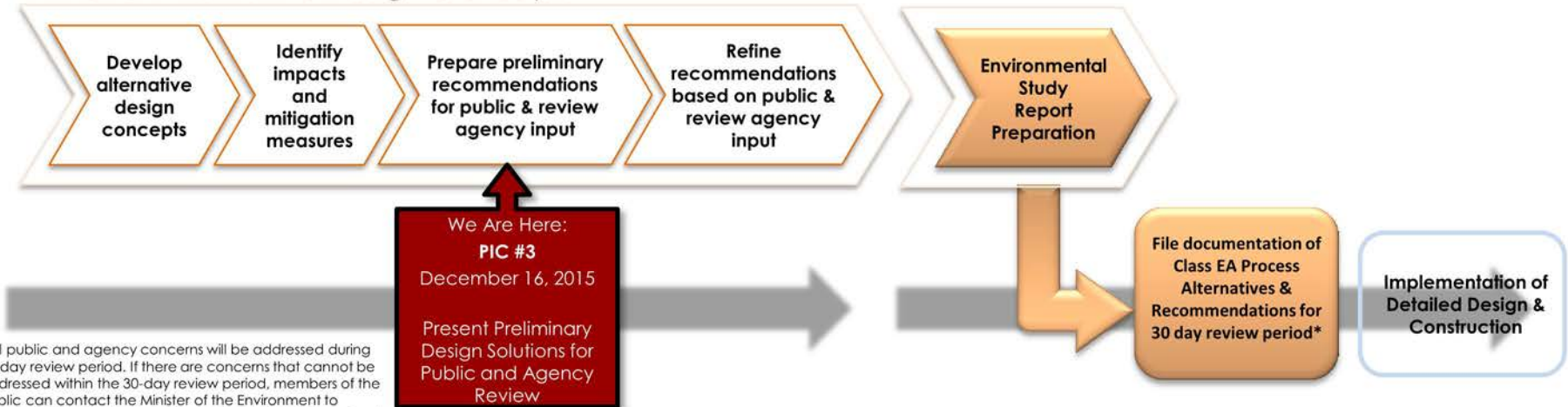
PHASE 1 Project Initiation

PHASE 2 Alternative Solutions



PHASE 3 Alternative Design Concepts

PHASE 4



*All public and agency concerns will be addressed during 30-day review period. If there are concerns that cannot be addressed within the 30-day review period, members of the public can contact the Minister of the Environment to request a Part II Order, bumping up the status of the project.

Consultation

- Consultation is an integral part of the Municipal Class EA process.
- Stakeholders, agencies and Aboriginal Communities which were contacted as part of the Master Servicing Plan were included within the Talbotville WWTP Class EA.
- Schedule C projects have the potential for significant environmental impacts and must follow the full planning and documentation procedures specified in the Class EA document. An Environmental Study Report (ESR) must be prepared and filed for review by the public, review agencies and First Nation communities. If concerns are raised that cannot be resolved, then the Part II Order procedure may be invoked. Projects generally include the construction of new facilities and major expansions to existing facilities.

Aboriginal Consultation

- As part of the EA process, a list of relevant Aboriginal communities were developed. The following communities were provided with letters notifying them of the project commencement and invitation to attend the PIC:
 - Chippewas of the Thames First Nation
 - Caldwell First Nation
 - Moravian of the Thames First Nation
 - Bkejwanong Territory (Walpole Island)
 - Munsee-Delaware Nation
 - Oneida of the Thames First Nation
 - Aamjiwnaang First Nation
- As part of the Master Servicing Plan, Stantec met with Caldwell First Nation on December 14, 2015, and will carry over these recommendations into the Talbotville WWTP Schedule 'C' project.
- PIC display boards will be provided to each community following the PIC and will include a follow up discussion with interested communities.

Master Servicing Plan Guiding Principles

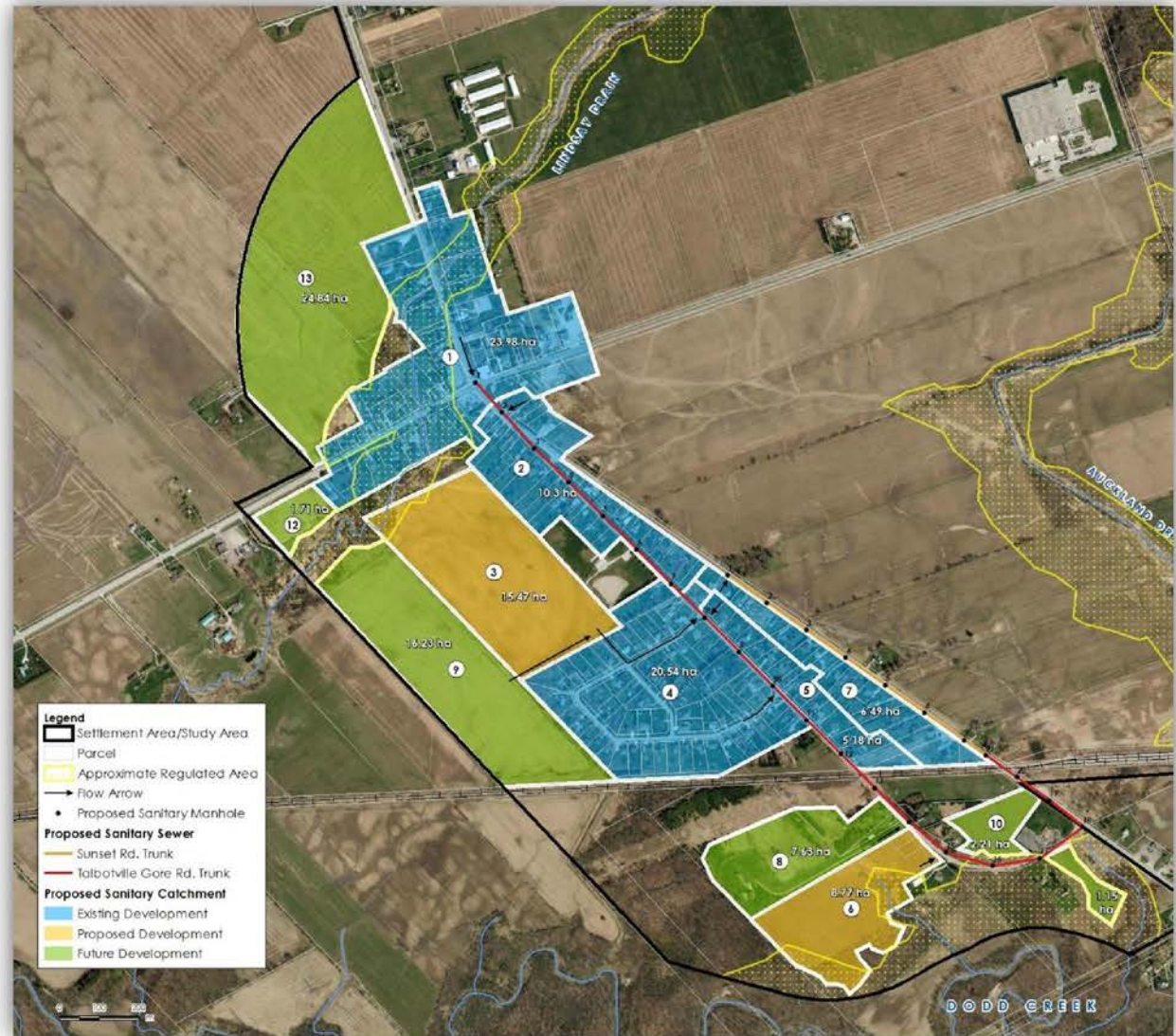
- A set of guiding principles or priorities were developed with consideration for the following:
 - Preference for long-term servicing solutions over interim solutions
 - All services to be fully funded through adequate planning, budgeting and identified revenue streams, development charges, etc.
 - Servicing solutions should be developed which minimize risk to the Township, users and others

Wastewater Servicing Alternatives

- Do Nothing
 - This option would result in no wastewater treatment capacity in Talbotville and would significantly limit community growth
- Utilize St. Thomas WWTP
 - Continue to send existing sanitary flows to St. Thomas WWTP from Ferndale
 - If development is unable to send additional flows to St. Thomas, construct pumping station and forcemain to Talbotville
- Utilize Existing WWTP at Former Ford Motor Company Property
 - Existing plant is oversized for projected sanitary flows, future intentions for site unknown
 - Majority of flows would need to be pumped, based on topography
- **New Municipal WWTP (preferred alternative)**
 - Construct a new municipal wastewater treatment plant within Talbotville to service existing and future development within Talbotville
 - Conveyance of sanitary flows achieved by gravity sewers rather than through pump stations and forcemains
 - Determine location for WWTP which would allow for future conveyance of flows from Ferndale to Talbotville WWTP

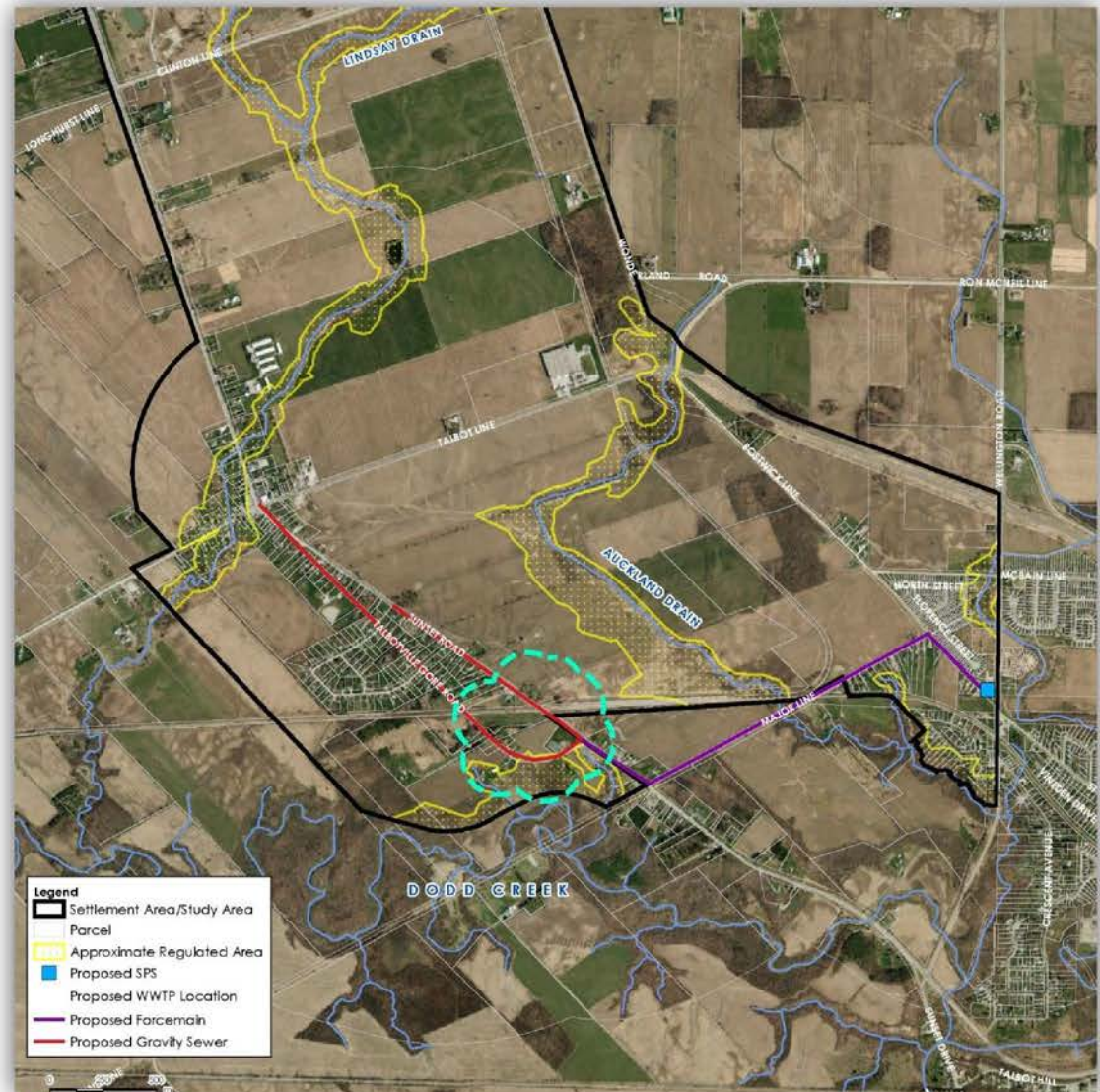
Talbotville Sewershed

- Topography tends to fall towards Dodd's Creek to the south, however, Lindsay Drain creates fall to the northwest as well
- High point near the Talbotville Meadows subdivision
- Preference for gravity sewers versus pumping station and forcemain where possible
- Sewershed has been divided into 13 segments based upon existing and future development parcels



Potential WWTP Locations

- Regulated limits and floodplain restrict potential WWTP locations
- The MOE recommends minimum separation distances between new residential developments and other sensitive land uses and existing sewage treatment facilities (Guideline D-2 Compatibility between Sewage Treatment & Sensitive Land Use)
 - Capacity greater than 500 m³/day but less than 25,000 m³/day → 100 m (minimum) / 150 m (recommended)
 - Minimum separation distance may be difficult if WWTP is located within the developed area of Talbotville



Collection System Construction Phasing

- Phase 1
 - Construction of sanitary sewers in the vicinity of the southern extent of Talbotville-Gore Road and Sunset Road (south of CN tracks)
- Phase 2
 - Construction of sanitary sewers along Talbotville-Gore Road to northern extent of Talbotville-Gore Road and Shady Lane Crescent (north of CN tracks)
- Phase 3
 - Construction of sanitary sewers along Talbotville-Gore Road north of Phase 2
- Approximate flows associated with each phase are presented below:

	Population	Flow (m ³ /day)	Total Flow (m ³ /day)
Phase 1A	200	75	75
Phase 1B	375	140	215
Phase 2	900	330	545
Phase 3A (all Talbotville)	1,925	700	1,245
Phase 3B (including all Ferndale)	1,400	510	1,755

Flows from Ferndale, although depicted in Phase 3B may be sent to the WWTP prior based on development needs

Industrial Contributions

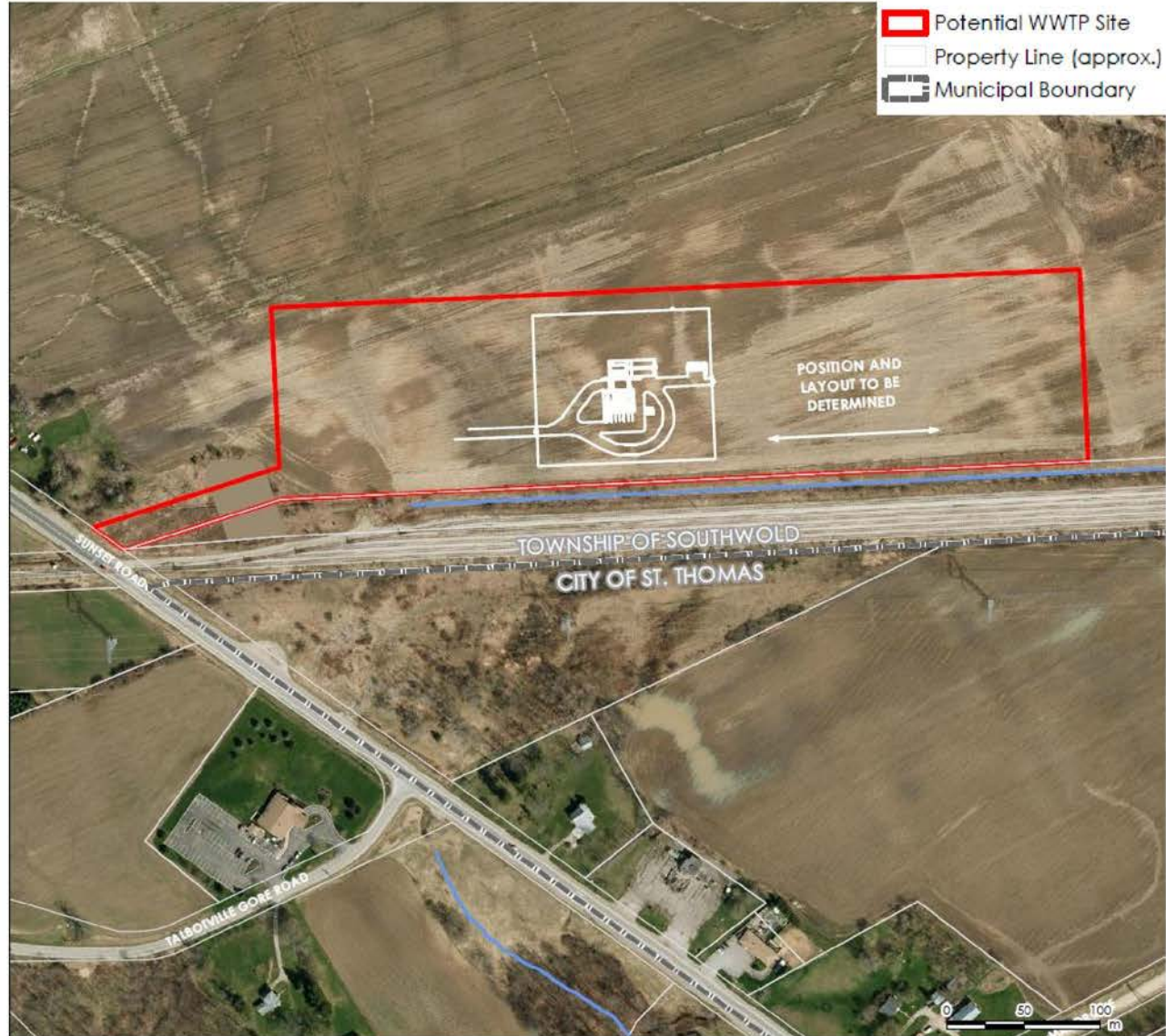
- In accordance with the Adopted Official Plan, there is approximately 412 ha of land designated industrial within the Talbotville Settlement Area
- The former Ford Motor Company property houses its own WWTP sized for 3,200 m³/day
- Development of industrial lands to the south of the former Ford property could result in a wide range of sanitary flows dependent on both type and size of industry
- In order to size a new plant efficiently for current and projected residential flows, it is assumed that the municipal plant will undergo a separate expansion or industrial lands may be serviced through on-site treatment plants (similar to Ford) to accommodate much larger industrial flows and variable effluent quality
- Future industrial lands could generate wastewater flows upwards of 9,000 m³/day upon full build-out based upon Township design standards

Site Selection

Two potential sites were identified for the Talbotville WWTP.



North Site



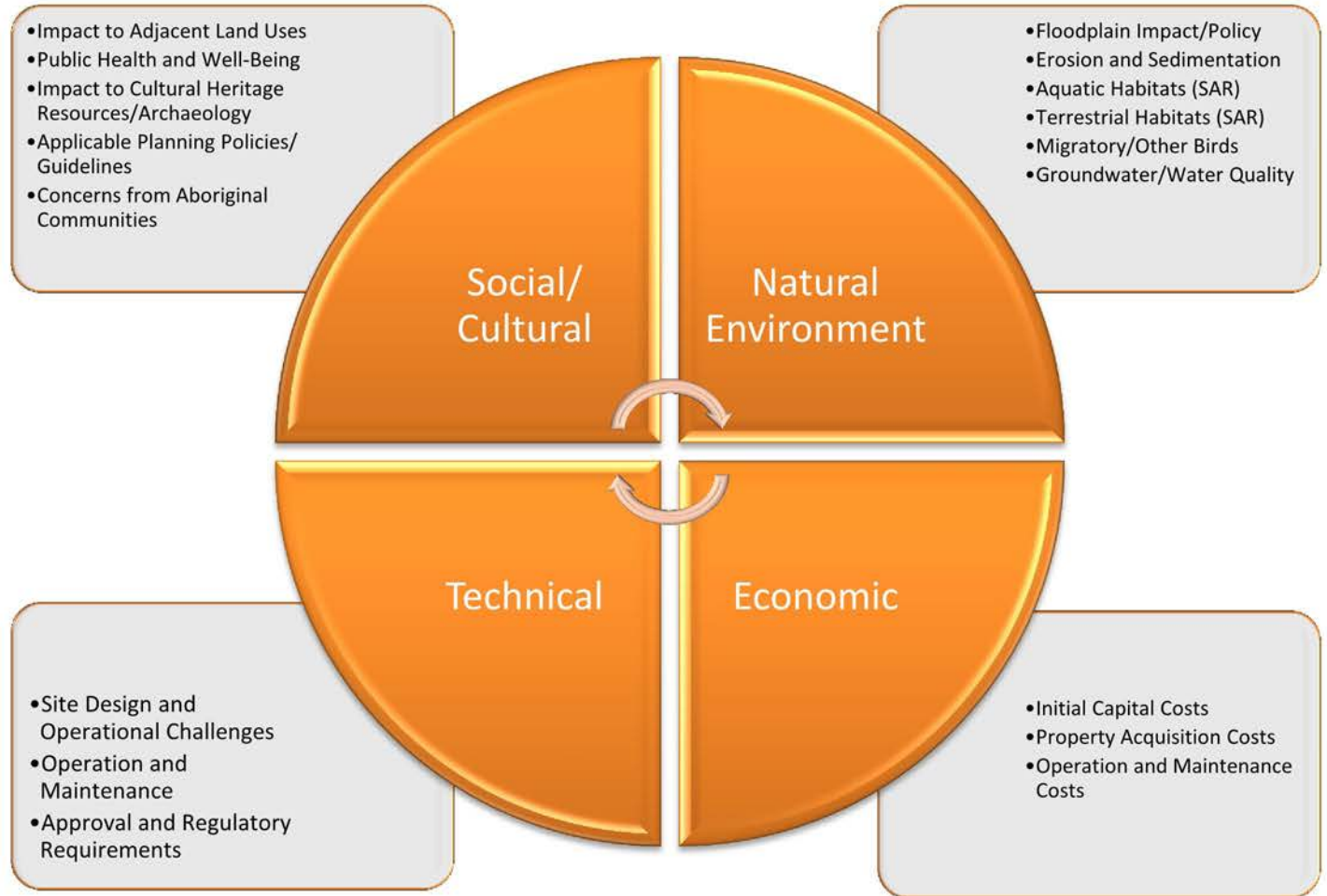
- NOTE: The configuration and siting of the plant TBD, and site footprint was estimated to allow flexibility for future expansion

South Site



Site Evaluation

- A qualitative evaluation process has been used to identify significant advantages and disadvantages with respect to the set of evaluation criteria identified for each environmental component



Extended Aeration

- Extended aeration treatment would require the construction of headworks, aeration tanks, clarifiers, filters and UV. The headworks would consist of screening and grit removal. Primary clarifiers would then remove contaminants through sedimentation as well as collect floatables on the surface. Aeration tanks would be fitted with fine bubble aerators to provide air needed by the biomass to perform treatment reactions. The function of the secondary clarifiers is to separate the biomass from the treated effluent and recycle the biomass to the aeration tanks for re-use. Filters and the UV system would provide disinfection and polishing of the final effluent.

Advantages	Disadvantages
Proven technology	Larger footprint for treatment (when compared to MBR)
Common technology used by neighbouring authorities	Requires tertiary filtration equipment to achieve high quality effluent
Lower life-cycle cost	

Sequencing Batch Reactor

- The Sequencing Batch Reactor treatment concept is similar to extended aeration except that treatment is achieved in one vessel (i.e., batch tank) rather than two vessels (i.e., aeration tank and clarifier). Treatment is achieved in one vessel by varying the operating conditions over time to provide the necessary treatment and solids/liquid separation. Typical sequenced operation includes a period of ON/OFF aeration similar to a conventional aeration tank, followed by periods of settling where the air is turned OFF and decanting when a mechanism is lowered to remove the supernatant. The cycles are repeated and alternated between vessels through the use of proprietary PLC control systems. Because the system relies on robust PLC control, SBR systems are usually purchased as a package from vendors such as ABJ-Sanitaire, Seimens, Fluidyne, etc. Because SBR and EA systems are usually similar in capital costs, the eventual selection is usually based on site-specific factors such as owner preference, effluent limits and space constraints.

Advantages	Disadvantages
Proven technology	Larger footprint for treatment (when compared to MBR)
Common technology used by neighbouring authorities	Requires tertiary filtration equipment to achieve high quality effluent
Lower life-cycle cost	

Membrane Bioreactor

- Membrane bioreactor technology is similar to the EA process except that solids/liquid separation is achieved through the use of immersed ultra-filtration membranes that operate under vacuum pressure. MBR represents the current state of the art for wastewater treatment and is finding niche applications where space is limited, where stringent effluent limits must be met, and/or where retrofits of existing facilities is proving cost competitive with more traditional expansions.
- As MBRs can operate at much higher mixed liquor concentrations compared to extended aeration, this leads to better degradation in a given time span or to smaller required reactor volumes. The MBR process combines the unit operations of aeration, secondary clarification and tertiary filtration into a single process.

Advantages	Disadvantages
Achieves very high quality effluent, low in particulate	Higher life-cycle cost due to power costs and costs associated with the replacement of membrane modules
Smaller footprint (when compared to extended aeration)	

Kettle Creek Conservation Authority Policies

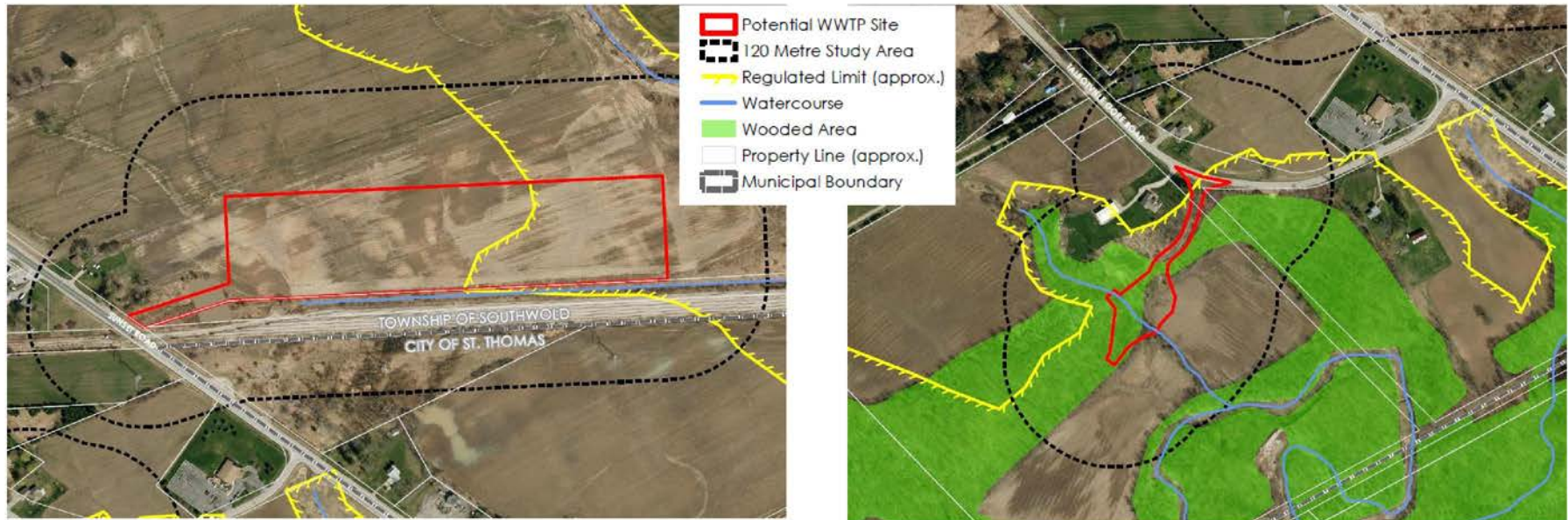
- In accordance with KCCA policies, the construction of a wastewater plant shall not be located within the regulatory flood hazard limit.
- Construction could occur subject to prior permission within the regulation limit. In order to obtain a permit from KCCA, demonstration must be provided, by qualified professionals, confirming that the control of flooding, erosion, dynamic beach, pollution, or the conservation of land will not be affected by the proposed development (O. Reg. 181/06). The entire facility (treatment plant, tankage, access roads, buildings, etc.) must be situated outside of any regulatory flooding hazard.
- It is understood that through correspondence between RICOR and the KCCA that minor alterations to the regulatory flood hazard limit may be possible.

MOECC Policies

- In accordance with MOECC policies (Southwestern Region), a wastewater treatment plant must be municipally owned. There cannot be a period where there is private ownership, administration or operation of a facility servicing separately-titled properties. The municipality's position on its ownership and control of the facility should be unequivocal. In essence, it would be a municipal project; the municipality would have the facility designed/built to the standards set by its engineering standards, consultants, etc.
- Multiple plants and outfalls in close proximity to one another are strongly discouraged

Natural Environment Review (NER)

- As part of the Class EA process, an inventory of the natural environment was undertaken to characterize the significance and sensitivity of the natural features in the study area from a policy and mapping perspective and to identify potential environmental effects and recommend appropriate measures in order to avoid or minimize potential negative impacts on the surrounding environment.
- The NER was completed as a desktop review based on available planning and policy documents, and supplemented by site investigation on November 26, 2015 in order to:
 - Confirm the presence and location of Natural Heritage Features
 - Identify potential Species-at-Risk (SAR) habitat not included in existing records review
 - Identify additional constraints that may be associated with the two potential sites



North Site

South Site

Species at Risk Potential

Common Name	Latin Name	ESA Status	Record Source	Comments
Acadian Flycatcher	<i>Empidonax vireescens</i>	Endangered	KCCA Watershed Report Card (2013)	No Maple and Beech in deciduous forest on South Site No Suitable habitat on North Site
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Stantec, 2015	Potentially suitable habitat in hay field on South Site No suitable habitat on North Site
Monarch	<i>Danaus plexippus</i>	Special Concern	Stantec, 2015	No significant populations of milkweed are likely on either site, i.e. no significant habitat
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Stantec, 2015	Potentially suitable habitat in hay field on South Site No suitable habitat on North Site
American Badger	<i>Taxidea taxus</i>	Endangered	Stantec, 2015	No confirmed sightings in Elgin County since 1979; unlikely to be present on either site (Ontario American Badger Recovery Team, 2010).
False rue-anemone	<i>Enemion biternatum</i>	Threatened	Stantec, 2015; A. Fleischhauer (District Planner, MNRF) pers. Comm. November 30, 2015	Potentially suitable habitat in woodland riparian area of Dodd's Creek adjacent to South Site No suitable habitat on North Site
Crooked-stem aster	<i>Symphotrichum prenanthoides</i>	Special Concern	Stantec, 2015	Potentially suitable habitat in woodland riparian area of Dodd's Creek adjacent to South Site No suitable habitat on North Site
Eastern Small-footed Bat	<i>Myotis leibii</i>	Endangered	None	No large snags or cavity trees (no suitable roost habitat) on South Site No suitable habitat on North Site
Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	None	No large snags or cavity trees (no suitable roost habitat) on South Site No suitable habitat on North Site
Spoon-leaved Moss	<i>Bryoandersonia illecebra</i>	Endangered	A. Fleischhauer (District Planner, MNRF) pers. Comm. November 30, 2015	Suitable habitat is present in riparian woodland at Dodd's Creek on South Site. No suitable habitat on North Site.
Barn Swallow	<i>Hirundo rustica</i>	Threatened	A. Fleischhauer (District Planner, MNRF) pers. Comm. November 30, 2015	Potential category 3 habitat on North and South sites

Natural Heritage Constraints

- Based on a review of the Natural Environment by means of a desktop review and site investigation by a certified terrestrial ecologist, the following constraints have been identified for the two potential WWTP locations.
- North Site:
 - Site is partially located within KCCA Regulation Limit (depending on WWTP size and siting)
 - It is not anticipated that the proposed facility will have any impacts to SAR or SAR habitat (potential barn swallow habitat *may* require additional field survey)
 - No significant natural features identified within the site boundary
- South Site:
 - Site is located entirely within KCCA Regulation Limit
 - Erosion concerns may arise due to steep slopes, and site is in close proximity to the regulated Floodplain
 - In accordance with the Township's Official Plan and Provincial Policy Statement, further evaluation may be needed to determine the significance of woodlots, and potential impacts (EIS)
 - Based on correspondence with the MNRF and field investigation, there are known occurrences of 3 SAR

Recommended Field Surveys

- Permitting requirements can be refined as Natural Heritage Features and vegetation and wildlife species present on site are confirmed. Recommended survey effort to be undertaken prior to implementation are presented below (survey requirements or recommendations may change at any time up to the issuance of permits, either as new features are identified, as new information becomes available, or as regulations are updated).

Survey	Recommended Effort	Timing	Purpose
Botanical Inventory	Two visits, site walks and quadrat assessments	Spring and Summer	Informs habitat descriptions, determines presence of rare/protected species
False Rue-anemone Targeted Survey	Transects in suitable habitat	Late April-May	Determines presence/absence and informs potential permitting requirements
Spoon-leaved moss Targeted Survey	Transects in suitable habitat	Spring/Summer	Determines presence/absence and informs potential permitting requirements
Breeding Birds	Three surveys, including transects and point counts across study area	June and July	Determines habitat usage by bird species, may have implications from the Migratory Birds Act and ESA
Bobolink and Eastern Meadowlark Targeted Survey	Three surveys, including transects and point counts across study area	June and July	Determines presence/absence and informs potential permitting requirements
ELC Confirmation	One site visit, site walks and quadrat assessments	Spring or Summer	Confirms ELC categorization from fall 2015, categorizes habitat polygons present
General Wildlife and Wildlife Habitat	Transects of the entire study area	During all other surveys	Identifies undocumented habitat features, rare species or vegetation communities, informs impact assessment
Aquatic habitat and fish	TBD*	TBD*	Identifies aquatic habitat and species that may be impacted by the proposal

*Survey parameters should be determined by expert(s) in aquatic ecology and permitting requirements

Assimilative Capacity Study (ACS)

- General objectives of the Assimilative Capacity Study are to:
 - Characterize the receiving water quantity and quality
 - Select and configure an appropriate water quality model
 - Apply the model to several scenarios which involve different rates of effluent discharge and background conditions
 - Assess the potential impact on Auckland Drain and Dodd Creek
 - Make recommendations on effluent limits
- Water quality sampling was undertaken to obtain receiving water quality data for the Auckland Drain and Dodd Creek
 - Fall Sample (November 25, 2014)
 - Spring Sample (April 15, 2015)
 - Summer Sample (July 14, 2015)
- Sample results demonstrate elevated TSS and TP concentrations in both receiving bodies

Benthic Invertebrate Survey

- Benthic macroinvertebrates are small-bodied organisms that live on the bottom substrates of aquatic environments, such as lakes and rivers. They are commonly used as biological indicators of water and habitat quality.
- Stantec conducted a baseline benthic macroinvertebrate survey in the Auckland Drain (November 25, 2014) and Dodd Creek (April 15, 2015) in the vicinity of the proposed WWTP locations.
- Benthic sampling suggests that water quality conditions are impaired in both receivers. The effluent quality criteria to be assigned to the proposed Talbotville WWTP should therefore not exacerbate this condition.

Recommended ECA Effluent Limits & Objectives

- Through consultation with the MOECC, the proposed effluent limits and objectives are presented below. These limits are valid for the initial build out or an effluent capacity of 550 m³/d. The effluent limits should be verified and revised upon introduction of additional plant capacity.

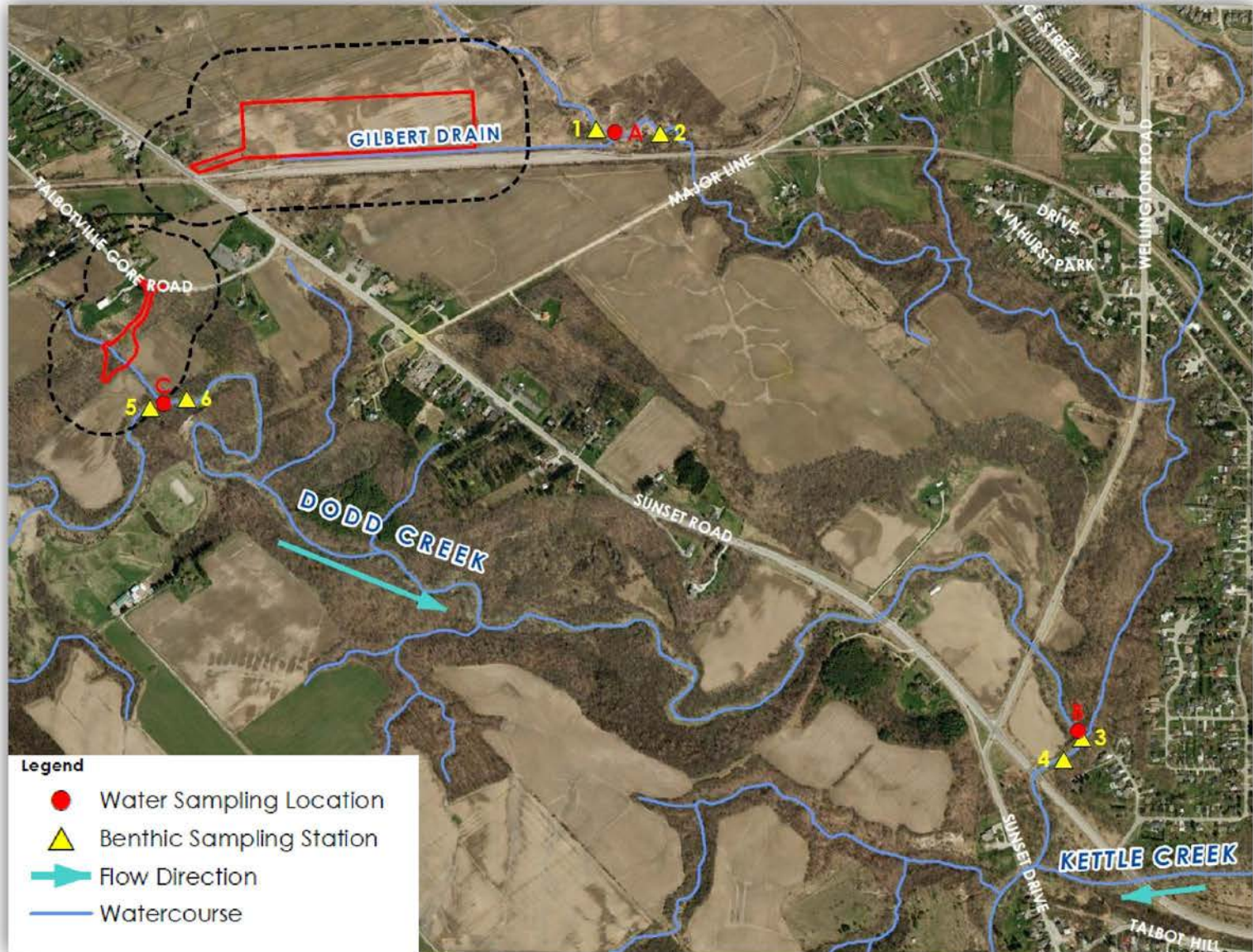
Parameter	Effluent Limit	Effluent Objective
CBOD5	10	5
TSS	10	5
Total Phosphorous	0.3	0.2
Total Ammonia-N (non-freezing period)	1.5	1
Total Ammonia-N (freezing period)	4	3
pH	6.0 to 8.5	6.0 to 8.5
E. Coli	150 organisms per 100 mL	150 organisms per 100 mL

Note:

(a) Non-freezing period represents the period from May 1 through November 30

(b) Freezing period represents the period from December 1 through April 30

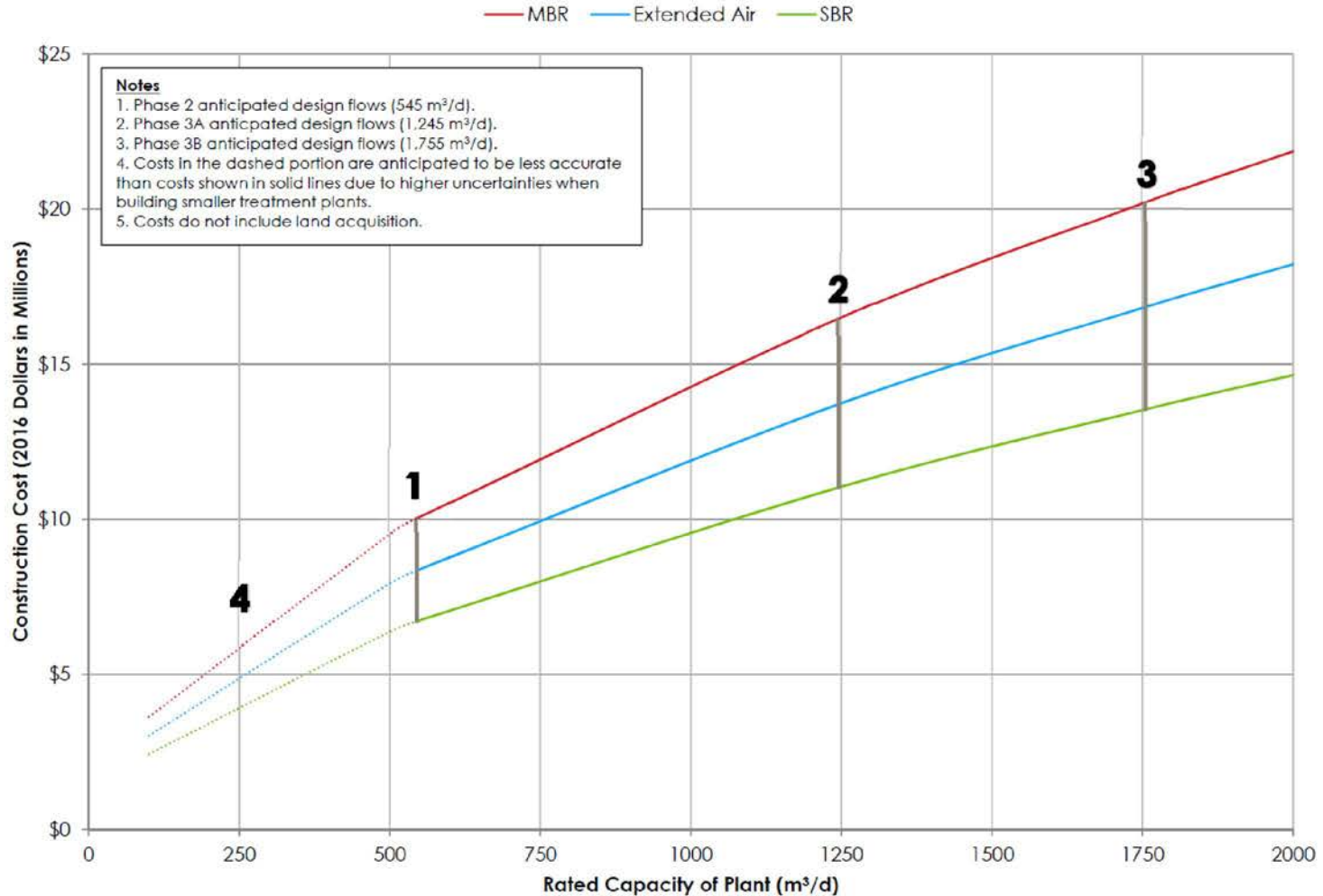
ACS Sample Locations



Opinion of Probable Costs

- Total estimated construction costs of a new treatment plant (wastewater)

Comparison of Construction Costs for Various Treatment Plant Types



Recommendations

- Alternative T5 “New Wastewater Treatment Plant in Talbotville” was selected as the preferred alternative as part of the Master Servicing Plan
- Plant must be municipally owned and operated
- Must be sized accordingly to accommodate existing and future development
- Property dimensions must allow for future plant expansions (1.5 ha)
- Minimum distance separation between residential development and wastewater treatment plants (minimum 100 m)
- Treatment technology must be able to meet effluent limits and objectives
- Based on a screening of the two potential sites, the north site has been selected as the preferred alternative (contingent on property acquisition).
 - There is the potential for disruption to SAR habitat in the South Site, which is protected under the ESA
 - The South Site is entirely within KCCA, and a portion of the site is located within the floodplain
- All treatment options would be technically feasible and provide reliable treatment and as such, the appropriateness of each is to be determined in the preliminary design phase

Gorrie, Cameron

From: Gorrie, Cameron
Sent: Wednesday, December 16, 2015 3:07 AM
To: 'Ken Loveland'
Cc: 'Mayor G Jones'; 'IAN CHARD'; 'Councillor Bogart'; 'Councillor Monteith'; 'Councillor North'
Subject: RE: Schedule "C" information.

Ken,

Thank you for providing your comments from your discussion with Mayor Jones and Council. We will incorporate these comments into the evaluation of the north and south site at the PIC. If there are any other comments that are raised prior to Wednesday afternoon, please let me know and we can make those changes before printing the display boards.

Regards,

Cameron Gorrie, P.Eng.

Project Manager, Water
Stantec
600-171 Queens Avenue London ON N6A 5J7
Phone: (519) 675-6650
Cell: (519) 933-5918
Fax: (519) 645-6675
cameron.gorrie@stantec.com



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From: Ken Loveland [mailto:cao@southwold.ca]
Sent: Tuesday, December 15, 2015 3:44 PM
To: Gorrie, Cameron
Cc: 'Mayor G Jones'; 'IAN CHARD'; 'Councillor Bogart'; 'Councillor Monteith'; 'Councillor North'
Subject: Schedule "C" information.

Cameron

I have had a discussion with Mayor Jones this afternoon after he had a chance to review your recommendation. It is our feeling that we do not want to have the report create any obstacles that would prevent Dave's site from being considered.

We understand that the North site may have some advantage do to the fact that it is larger and does not have the same slope problems and environmental concerns to deal with. We also feel that the type of system that is chosen has some impact on the size of the location required. We also are aware of other treatment facilities that are located within the development area and do not seem to be a problem.

We feel that the South side also has some advantages as well. The property is far easier to acquire and the elevation is better for the overall design of the service area. It would require less sewer line to get from the development to the plant.

I also have some preliminary design sheets for the Talbotville area that shows with the exception of a small area on County Rd. No 3 on the west side of the Hamlet all of the area can be serviced without a pumping station. This area may require that any future lots would need to be raised.

I hope that these comments can be included in you final recommendation for the meeting tomorrow night.

Ken

Ken Loveland

CAO/Clerk

Township of Southwold

35663 Fingal Line

Fingal, Ontario, N0L 1K0

519-769-2010



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Gorrie, Cameron

From: Ken Loveland <cao@southwold.ca>
Sent: Tuesday, December 15, 2015 9:02 AM
To: Gorrie, Cameron
Subject: RE: Monday meeting

Follow Up Flag: Follow up
Flag Status: Completed

Cameron

I did not have a copy on my laptop so could you send me one. Of course there was some discussion regarding the costs and how we proceed from here.

I am concerned that although you mentioned to me that you were going to support the North option you did not make that comment to Council. They are still expecting to go ahead with the South option since the property is easily available and because of the elevation. I am sure that Council will still want to go ahead on Dave's property and I would hope that your final report would not create any problems to continue on that path.

Of course they may want to discuss the costs and the cheaper alternatives may be considered.

Ken

-----Original Message-----

From: Gorrie, Cameron [mailto:Cameron.Gorrie@stantec.com]
Sent: Monday, December 14, 2015 10:05 PM
To: Ken Loveland
Subject: RE: Monday meeting

Ken,

Please let me know if you don't have a copy of the presentation on your desktop and if not I can send you a copy in the morning. As well, please let me know if there was any discussion or follow up from the presentation tonight that you would like addressed prior to the PIC on Wednesday evening.

Thanks,

Cam

Gorrie, Cameron

From: Gorrie, Cameron
Sent: Thursday, December 03, 2015 6:02 PM
To: 'Ken Loveland'
Subject: RE: Talbotville

Hi Ken,

Thanks for providing Bob's number. I was able to get a hold of him earlier and received permission to display his lands as a potential site along with Dave's on our evaluation figures.

Cam

From: Ken Loveland [mailto:cao@southwold.ca]
Sent: Thursday, December 03, 2015 4:32 PM
To: Gorrie, Cameron
Subject: RE: Talbotville

Cameron

Bob's phone number is 519 633 3535.

Ken

From: Gorrie, Cameron [mailto:Cameron.Gorrie@stantec.com]
Sent: Thursday, December 03, 2015 4:29 PM
To: Ken Loveland
Subject: RE: Talbotville

Hi Ken,

We are working on mapping for the PIC and ESR and need to confirm whether we can show Bob's lands as a potential site. If you're able to provide his contact info, I'd like to contact him to get his permission.

Thanks,

Cam

From: Ken Loveland [mailto:cao@southwold.ca]
Sent: Thursday, November 26, 2015 3:16 PM
To: Gorrie, Cameron
Subject: RE: Talbotville

Cameron

Bob has been away so I have not been able to contact him. I will send you a PDF on DHP.

Ken

From: Gorrie, Cameron [<mailto:Cameron.Gorrie@stantec.com>]

Sent: Thursday, November 26, 2015 1:43 PM

To: cao@southwold.ca

Subject: Talbotville

Ken,

Has there been any further discussion on the McCaig property? Also, would you be able to send me a pdf of the DHP draft plan?

Thanks,

Cameron Gorrie, P.Eng.

Project Manager, Water

Stantec

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Phone: (519) 675-6650

Cell: (519) 933-5918

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cameron.gorrie@stantec.com



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