

WELCOME

Town of Erin – Urban Centre

Wastewater Servicing Class EA



Class Environmental Assessment Phases 3 & 4

Presentation Agenda

1. Welcome and Introductions
2. Meeting Courtesies
3. Purpose of PIC & Project Background
4. Refresher on the Servicing and Settlement Master Plan (SSMP)
5. Update on Assimilative Capacity Study (ACS) and confirmed effluent objectives for the discharge to the West Credit River at 10th Line;
6. Overview of the existing Septic System Review and identified areas that should be connected to the Municipal Wastewater system;
7. Overview of the Potential Populations and Wastewater Flows for each Community, based on updated ACS and new effluent criteria;
8. Overview of the Assessment for Two Wastewater Treatment Plant discharge locations;
9. Overview of the Assessment for Large Subsurface Disposal Systems.
10. Next Steps & Schedule

Project Team



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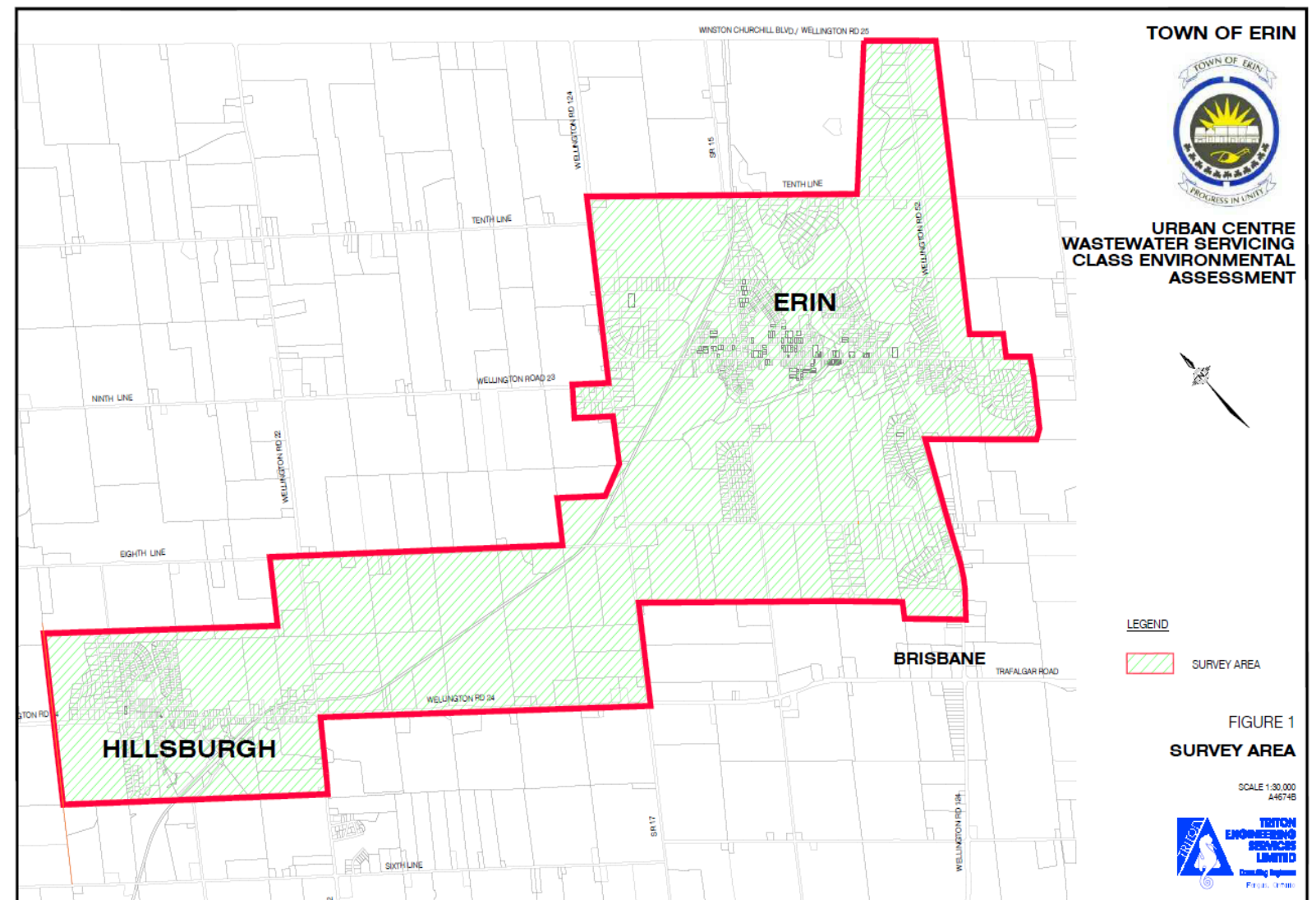
Senior Aquatic Scientist

Meeting Courtesies

- Speaking
- Listening
- Jargon
- Note taking
- All views welcome
- Polite language
- Sharing time
- Speak into the microphone
- Safety

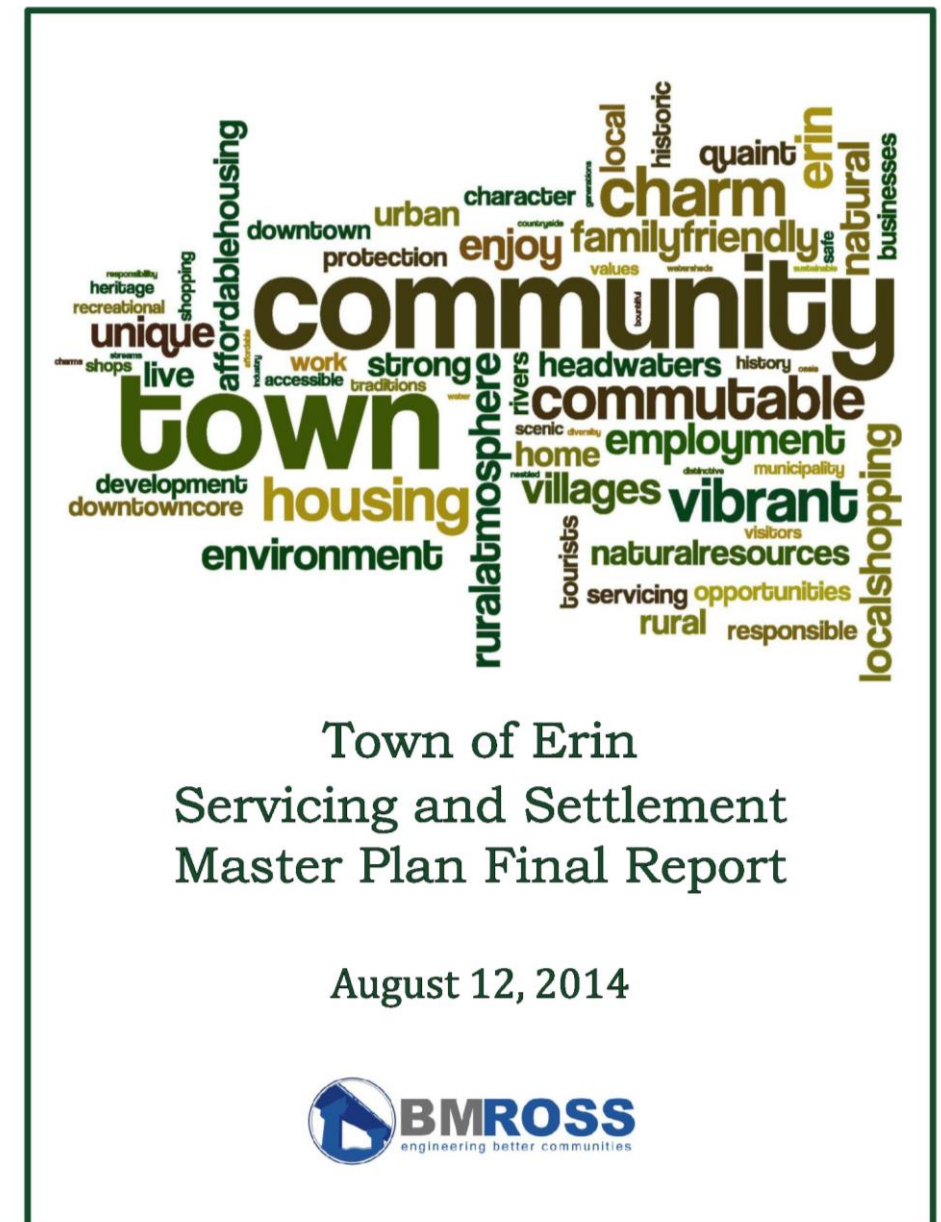
Purpose of today's Public Information Centre (PIC)

- To provide an overview of the Urban Centre Wastewater Servicing EA
- To outline changes since the SSMP was completed in 2014
- To present project findings and receive comments on the various Technical Reports, completed to date
- To highlight next steps and the proposed schedule



Servicing and Settlement Master Plan (SSMP)

- In 2014 B.M. Ross completed the Servicing and Settlement Master Plan (SSMP). The SSMP completed Phase 1 and part of Phase 2 of the Class Environmental Assessment process.
- SSMP concluded that the Town should proceed with planning for a municipal wastewater system for both communities.
- SSMP identified a Preferred alternative as a single Wastewater Treatment Plant with effluent discharge to the West Credit River, between 10th Line and Winston Churchill Boulevard.
- SSMP identified a potential buildout population of 6,000



Assimilative Capacity Study (ACS) Update

- The Assimilative Capacity Study (ACS) identifies how much treated wastewater can be safely discharged to the West Credit River at 10th Line.
- An ACS was completed by CVC, as part of the SSMP in 2014.
- A key component of the ACS is the determination of the 7Q20 flow rate. The 7Q20 flow rate is the lowest 7-day average flow in a 20 year period.
- The 7Q20 is used to assess the effect of effluent discharge to the river under low flow conditions.
- In 2016, CVC updated the 7Q20 value for the West Credit River at the 10th Line and identified a value of 225 Litres/second. The SSMP identified a 7Q20 of 202 Litres/second
- Water quality and potential effects on species in the river are core concerns and the ACS helps to ensure that appropriate treatment limits are set.

Assimilative Capacity Study (ACS) Update

- The baseline water quality in the West Credit River was measured through sampling at 10th Line
- At this location, the water quality in the river is very good
- One of the key water quality parameters for treatment is the level of Total Phosphorus (TP) in the river and in the effluent.
- The level of TP in the river is 0.016 mg/L, well below the Provincial Water Quality Objective (PWQO) of 0.03 mg/L.
- This study is recommending a downstream Site Specific Water Quality Objective (SSWQO) of 0.024 mg/L TP (well below 0.03 mg/L):
- Based on the above, we can increase the TP in the river from 0.016 mg/L to 0.024 mg/L

Recommended Effluent Limits for WWTP to meet Provincial Water Quality Guidelines in West Credit River

- The recommended effluent limits will reduce nutrient levels to minimise the impact on the river.
- The proposed Total Phosphorus (TP) limit of 0.045 mg/L will ensure the TP in the river will be below the objective of 0.024 mg/L, even at full buildout.
- The recommended effluent limits have been reviewed by MOECC and CVC and their comments have been addressed.

Parameter	Full Build Out Effluent Limit
pH	Within range of 7 – 8.6
Total Suspended Solids	5 mg/L
Total Phosphorus	0.045 mg/L
Total Ammonia Nitrogen	0.6 mg/L summer; 2 mg/L winter
Nitrate Nitrogen	5 mg/L
E.coli	100 cfu/100 mL
Dissolved Oxygen	4 mg/L
5-day Carbonaceous Biochemical Oxygen Demand (CBOD5)	5 mg/L

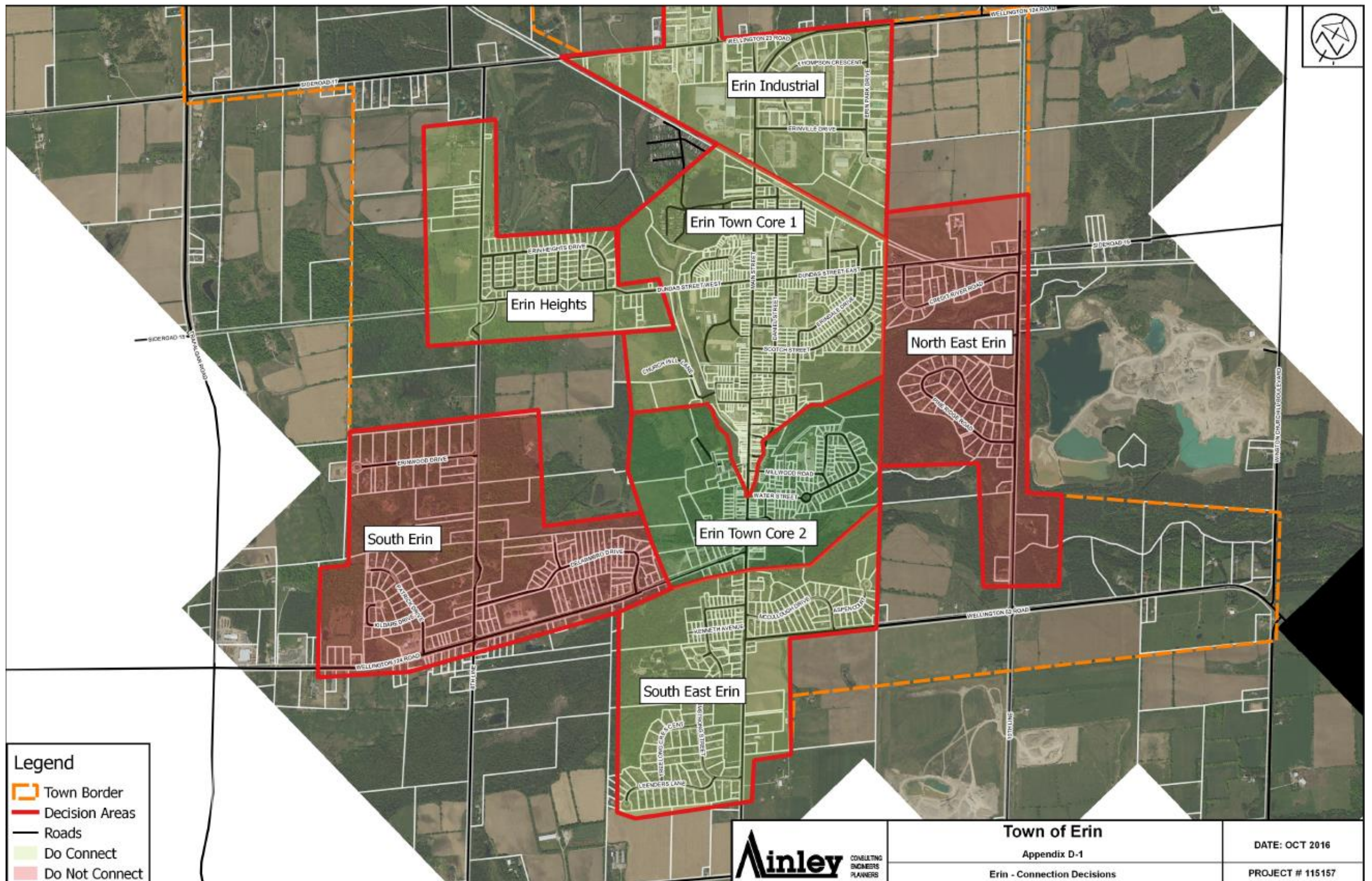
Septic System Review and Determination of Service Areas

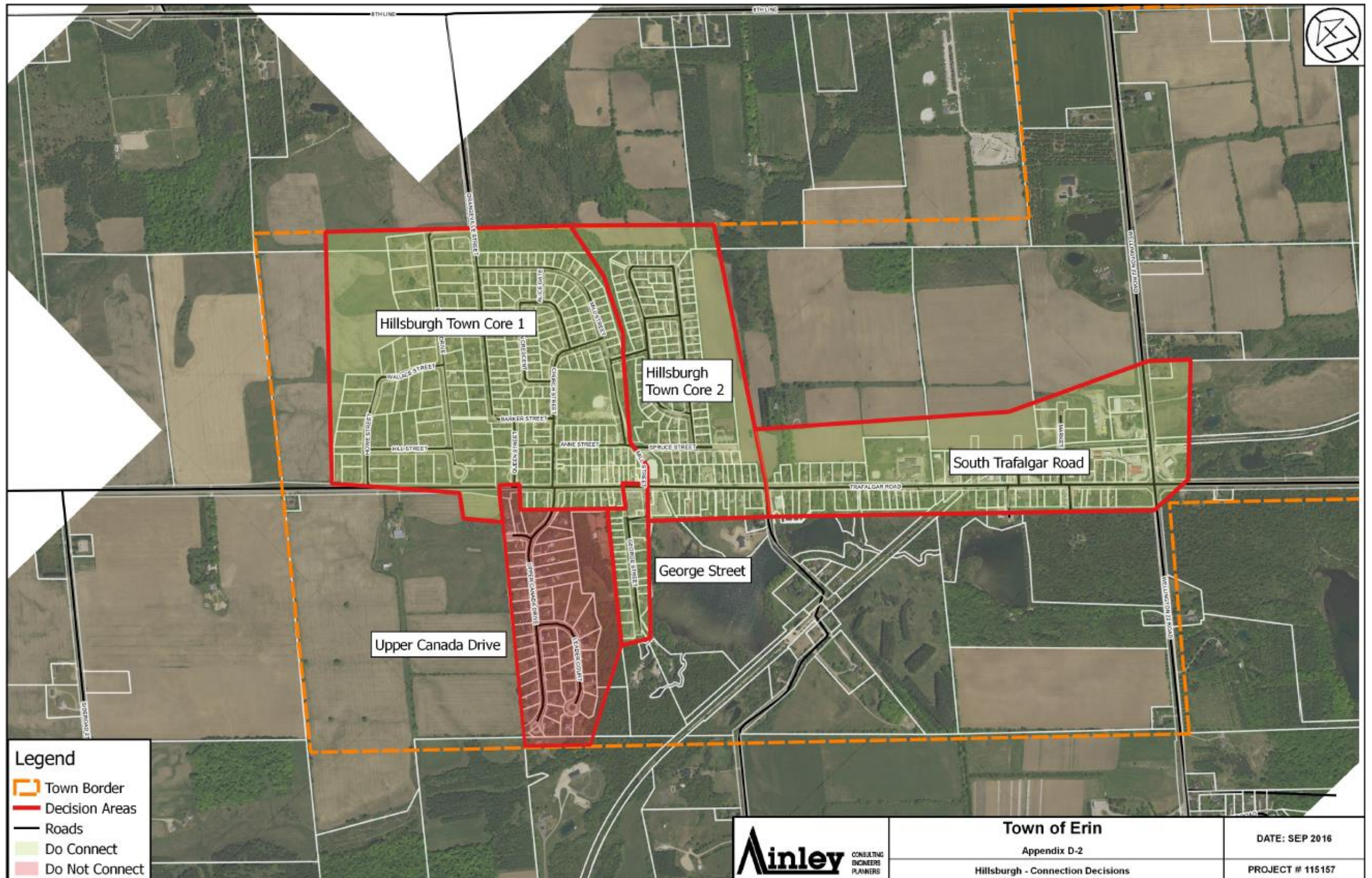
- There is a long history of concern over the number and concentration of septic systems in Erin Village and Hillsburgh.
- In 1995, a study by the Health Unit identified that properties in some areas of Erin Village close to the river were increasing the potential for contamination and that many were too small to comply with standards
- A 2005 MOECC septic investigation for Erin Village determined that septic systems in the community were a contributor to nutrients in the West Credit River
- The 2014 SSMP recommended that most of the core areas of Erin Village and Hillsburgh be serviced by a communal sewage system.

Septic System Review and Determination of Service Areas

A comprehensive review of existing septic systems was completed and it was determined that:

- Based on the current Building Code, the lot size must be approximately 1,400 m² (15,000 ft² or 0.35 acre) for a traditional septic system, to meet compliance requirements.
- Approximately 51% of the lots in the study area are less than 1,400 m² and in some areas, over 80% of the lots are less than 1,400 m².
- Many of the existing septic tanks are undersized based on the current Building Code requirements
- Depending on the area, average septic tank age ranges from 11-40 years
- Following slides shown the areas being recommended for inclusion or exclusion from a Municipal Wastewater system, based on the existing septic system review.

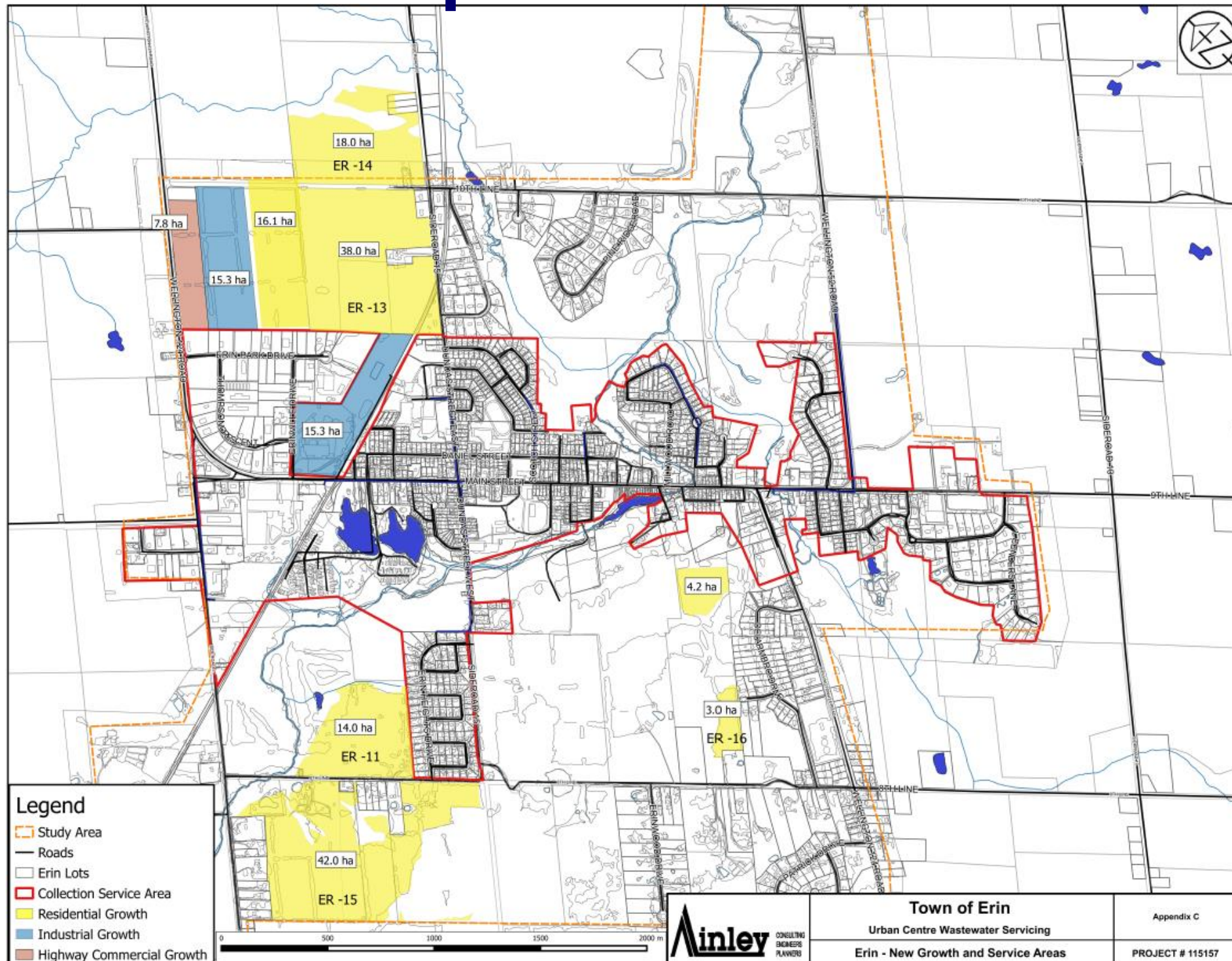




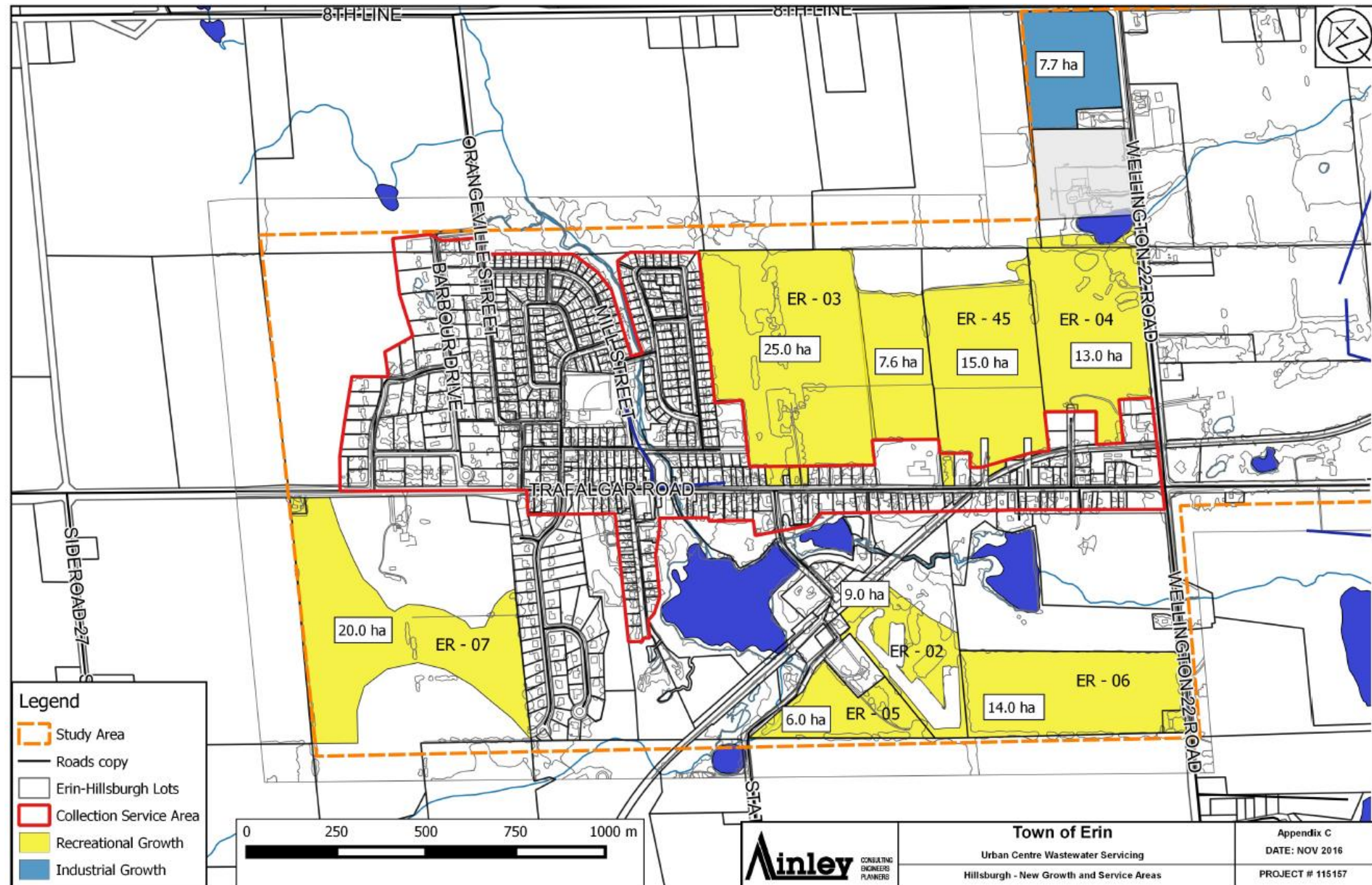
Population and Flow Projections

- The SSMP established a servicing limit of 6,000 persons
- Based on the use “Best Available Technology” at the Wastewater Treatment Plant, the updated ACS and the new effluent criteria, we have the potential to service a higher population
- The Town of Erin Official Plan (OP) has identified 267.3 Ha (660 acres) of land available for residential, commercial and industrial growth in the Town.
- We have determined that full buildout of these growth areas, would add an additional 9,943 residents to the existing population of 4,616 residents, giving a total full build out potential population of 14,559.
- However; the future population of the Town will be determined through an Official Plan review process and not through this Class EA.

Potential Development areas in Erin Village



Potential Development areas in Hillsburgh



Population and Flow Projections

Potential Full Buildout Residential Population

	Erin	Hillsburgh	Total
Existing Community	3,225	1,391	4,616
Growth Areas	5,340	4,603	9,943
Total	8,565	5,994	14,559

Potential Full Buildout Flow Projection (m³/d)

	Erin	Hillsburgh	Total
Existing Community	2,244.1	599.4	2,843.5
Growth Areas	2,523.0	1,805.7	4,328.7
Total	4,767.1	2,405.1	7,172.2

Note: Actual Populations for Erin & Hillsburgh will be determined through Town's Official Plan update

Why has “Potential” Serviced Population increased from 6,000 in SSMP to 14,559 in current Class EA

There are a number of key difference between the assumptions made in the SSMP and in this Class EA as noted below:

Design Assumptions	Servicing and Settlement Master Plan (SSMP)	Urban Centre Wastewater Servicing EA
Total Phosphorus level in the treated sewage	0.15 mg/L	0.045 mg/L
Total Phosphorus in the river after mixing with the treated effluent	0.03 mg/L	0.024 mg/L
7Q20 Flow within the West Credit River as identified in Assimilative Capacity Study	202 Litres per second	225 Litres per second
Per-capita contribution of sewage (Litres per-person per day)	435 L/p/d	380 L/p/d
Resulting Potential Sewage flow	2,610 m ³ /day	7,172 m ³ /day
Resulting Potential Population	6,000	14,559

Alternative with Two Treatment Plants & Two Surface Discharge Locations

- The SSMP looked at a range of Alternatives including a two Treatment Plant solution but with a single surface water discharge south of Erin Village.
- This alternative (two plants with a single surface water discharge) was eliminated during the SSMP based on cost.
- A two plant solution based on two separate discharges to surface water was not seriously considered in the SSMP and this has been questioned by members of the Public Liaison Committee.
- At the May 2, 2017 Council Meeting, Council passed a resolution requesting this Alternative be reviewed.

Potential River Discharge Through Hillsburgh

- There is currently insufficient water quality or flow data to complete an Assimilative Capacity Study (ACS) to define effluent limits for a surface discharge through Hillsburgh
- No additional water quality or flow data has been collected, for the river through Hillsburgh, since the completion of the SSMP in 2014
- Based on the limited data currently available, it cannot be determined if the river, through Hillsburgh, could support a Treatment Plant discharge
- To complete an Assimilative Capacity Study would require collection of flow & quality data for up to 10 years and could cost in excess of \$500,000, with no guarantee that a surface discharge would be approved near Hillsburgh

Two Treatment Plants Cost Comparison

The cost comparison between two Treatment Plants with two surface discharges versus a single Treatment Plant with one surface discharge are:

- A single Treatment Plant is 27% less expensive than a two Treatment Plants (with two discharges), for servicing the existing community
- A single Treatment Plant is 32% less expensive than a two Treatment Plants (with two discharges), for servicing full build-out of the OP

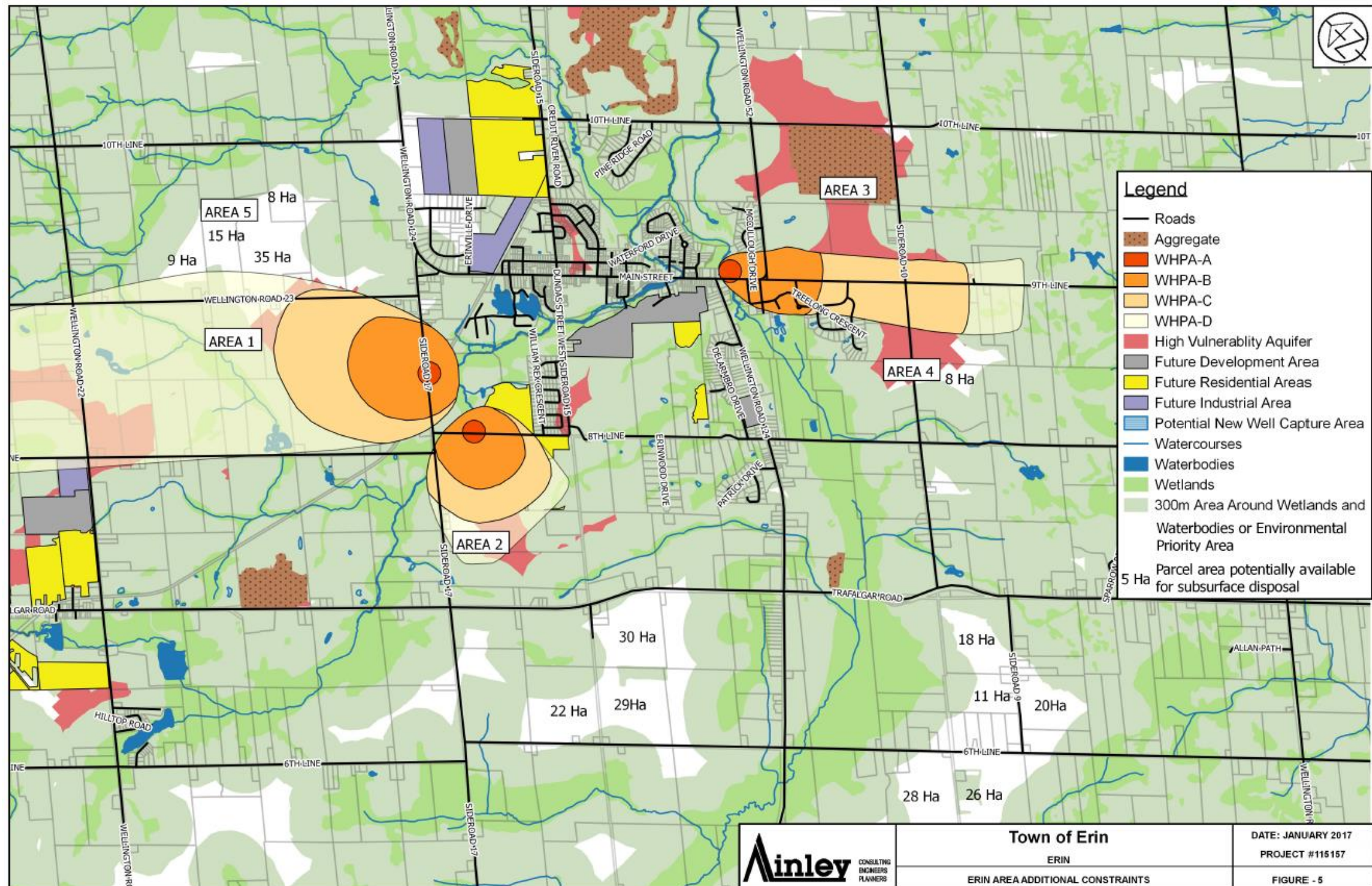
Through the work completed to date we have already demonstrated that a single Treatment Plant discharging to the West Credit River south of Erin Village, can support full build out of the Town Official Plan.

It is therefore recommended that the single Treatment Plant alternative be carried forward for more detailed evaluation in Phase 3 of the Class EA

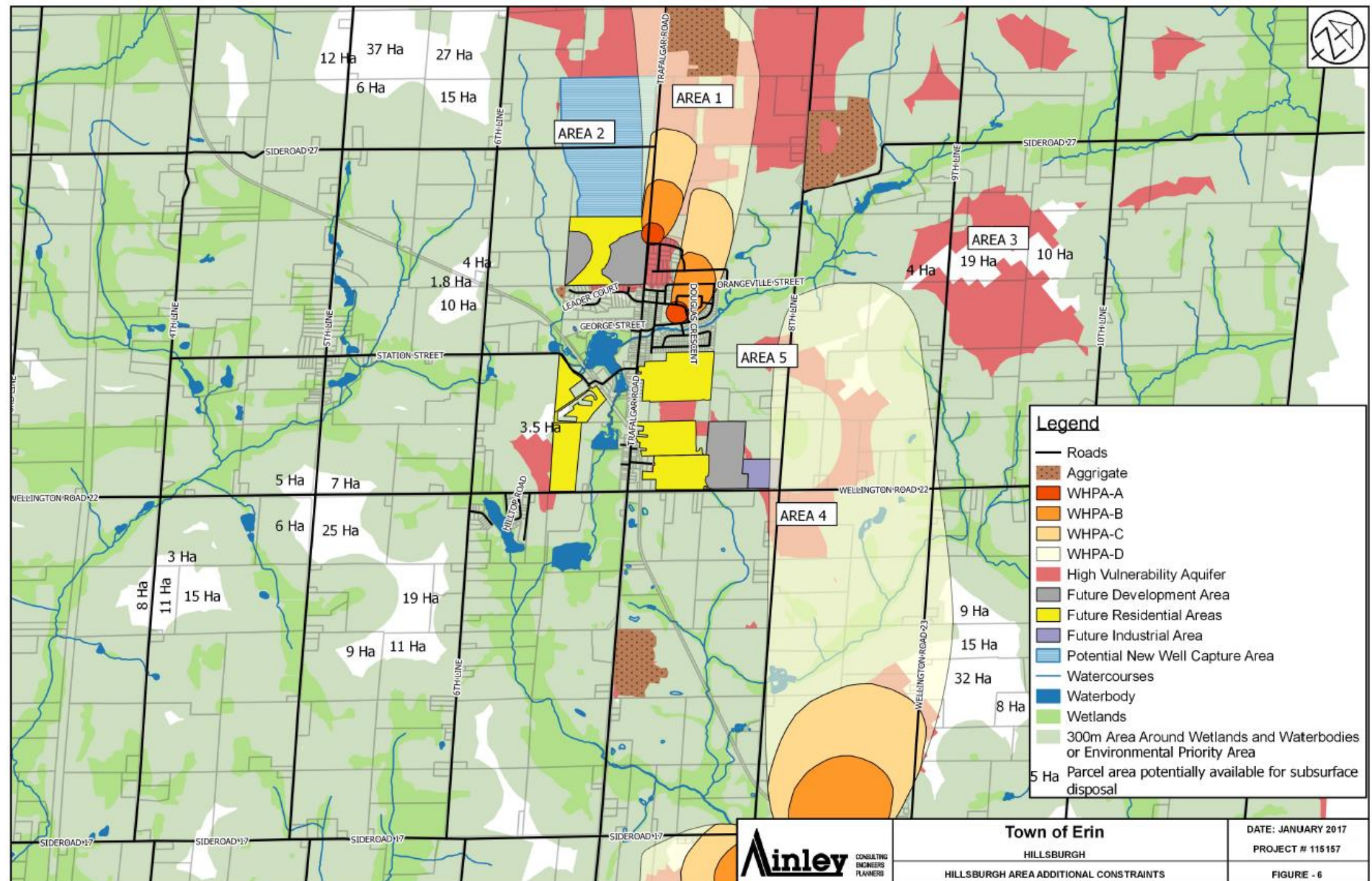
Discharge of Effluent to the Subsurface

- Upon review of the SSMP, it was determined that the issue of subsurface disposal need to be examined further
- Our evaluation of utilizing Subsurface Areas, included a review of legislative guidelines, geotechnical/ hydrogeological conditions, groundwater quality, land requirements and environmental constraints
- Conceptual level design requirements to support each community were determined as a basis for site selection and preliminary system costing
- Land requirements were established for the disposal fields to fully service Erin Village and Hillsburgh
- The potential for subsurface disposal in Erin and Hillsburgh was found to be highly constrained by surface water features, hydrogeological conditions, existing development, protection zones for existing drinking water wells, and woodland areas (see following slides)

Subsurface Disposal - Constrained Areas around Erin



Subsurface Disposal - Constrained Areas around Hillsburgh



Subsurface Disposal Challenges

- Subsurface disposal systems are highly sensitive to treatment upsets
- Short term treatment process failures will often result in plugging of the tile beds over time and contingency measures would be required
- Potential areas for subsurface disposal in Erin and Hillsburgh are limited due to environmental constraints
- The level of treatment required at a Treatment Plant is very similar to what is required for surface water disposal
- Extensive field investigations would be required to support the design and approval of subsurface disposal areas
- At this time the Town does not own lands suitable for subsurface disposal of effluent and limited lands are available making land purchase problematic

Subsurface Disposal Alternative Summary

- The opportunity for multiple or single disposal fields for each community is limited by topography, environmental constraints and available lands
- Capital cost estimates for a multiple Treatment Plants solution with subsurface discharges are 10-20% more expensive than a single Treatment Plant solution
- There would also be additional lifecycle costs for the operation & maintenance of the systems, due to the use of multiple facilities
- Extensive site-specific investigation is required to obtain approval for the use of subsurface disposal at significant cost to the Town
- It is concluded that the use of subsurface discharge for a multi-plant solution is **non-viable for Erin** due to existing constraints and **non-competitive for Hillsburgh** due to the higher capital and operating costs

Next Steps and Proposed Schedule

- Receive Public and Agency Comments until July 6, 2017.
- Provide an update to Council on Class EA progress in July, 2017.
- Proceed with Phase 3 activities looking at design alternatives.
- Host Public Information (PIC) Centre No. 2 in November 2017 to seek public input on the alternatives for the Collection System and Treatment System.
- Proceed to Phase 4 and prepare the Environmental Study Report (ESR) anticipated for February 2018.
- Initiate a 30 Day Public Review period in March 2018.

YOUR COMMENTS ARE IMPORTANT TO US

Please complete a Comment Sheet or take one home with you.

Comment Sheets may be placed in the comment box or returned to the study team by Email or regular Mail to:

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We would appreciate receiving your comments by July 6, 2017