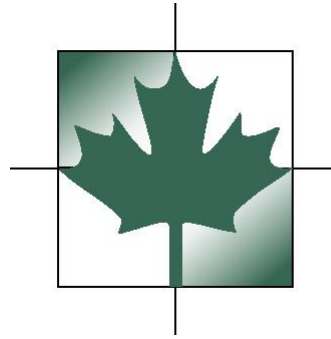


Long Term Water & Wastewater Servicing Study *Water & Wastewater Needs Assessment Results*

Presented by:

Kelly Galloway, P.Eng.,

President

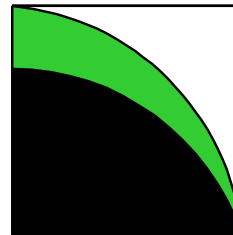


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Stratford, PE

Geoff Dickinson, P.Eng.

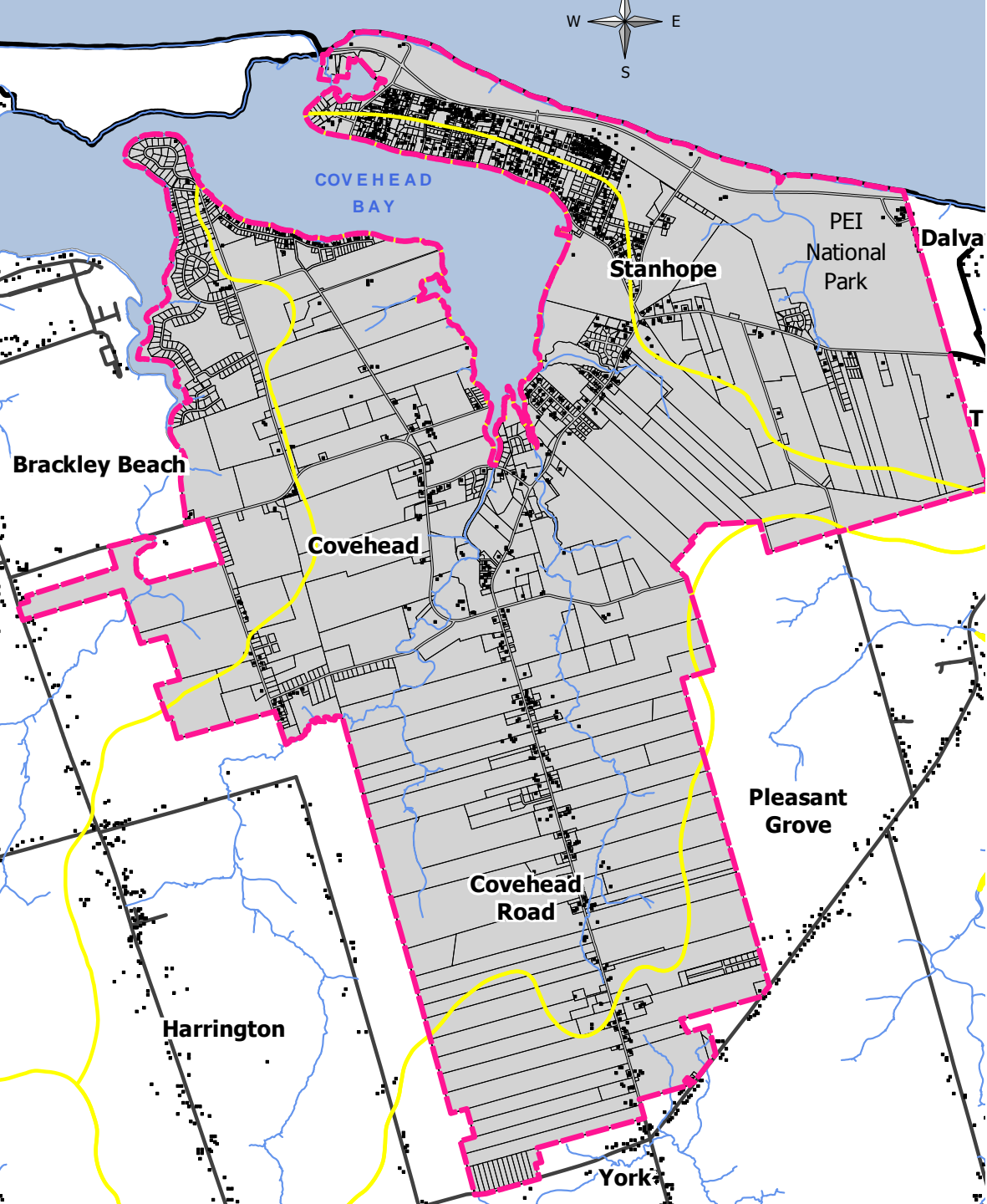
Marc Hodder, P.Geo.



TerrAtlantic
Engineering Limited

Fredericton, NB

***Presentation to
North Shore Municipality
July 15, 2009***



North Shore Municipality

Wastewater Needs Assessment Findings



Wastewater Needs Assessment

Objectives

- Using a *lot-by-lot analysis*, determine which residential properties currently have or are expected to have future “wastewater needs”.
- If a property has a “wastewater need” this means that a conventional septic system (either the existing one or a future one) is not expected to provide a long term, sustainable, wastewater management solution.

Wastewater Needs Assessment

Objectives

- To determine which areas of the Community (“subareas”) are expected to be sustainable for long term, on-site servicing using existing or future on-site sewage (septic) systems.
- To determine which residential properties are expected to require an eventual, off-site sewer servicing solution.

Wastewater Needs Assessment

Implications for Long Term Planning

- The results of the lot-by-lot needs assessment provide an indication of the type of wastewater solution that may eventually be needed for long term sustainability.
- Although some lots will accommodate on-site solutions, it may be more cost effective, overall, to service the entire subarea with a *cluster* or *central sewage system*.

Wastewater Needs Assessment

Need for Wastewater Solution by Subarea

Wastewater Servicing Subarea	Total # Residential Homes	Year Round Residential Dwellings (%)	Total Points	Anticipated Eventual Level of Need
Stanhope Peninsula	381	28%	5,843	Very High
Golf Course	58	88%	1,418	High
Eagle's Path	65	38%	1,100	High
Covehead Road	50	92%	935	Moderate to High
Eastern Road	36	97%	550	Moderate

Wastewater Needs Assessment

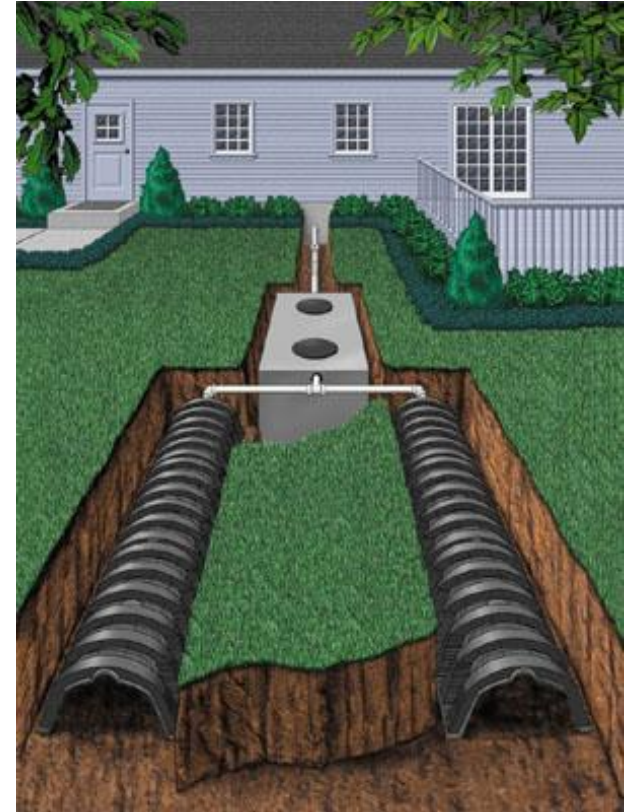
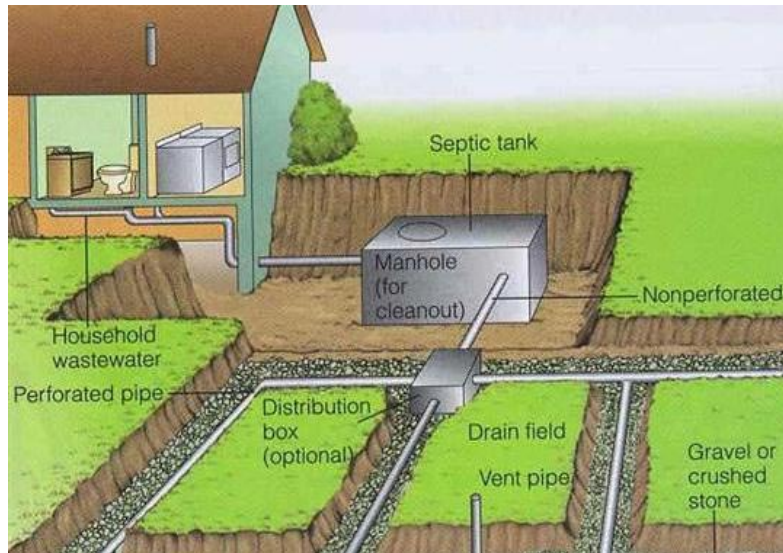
Need for Wastewater Solution by Subarea

Wastewater Servicing Subarea	Total # Residential Homes	Year Round Residential Dwellings (%)	Total Points	Anticipated Eventual Level of Need
Union Road	23	100%	485	Moderate
Community Centre	20	91%	335	Low
Bell's Creek	19	94%	235	Low
Auld's Creek	9	88%	168	Very Low
Settler's Road	9	25%	83	Very Low

Wastewater Needs Assessment

Possible Findings

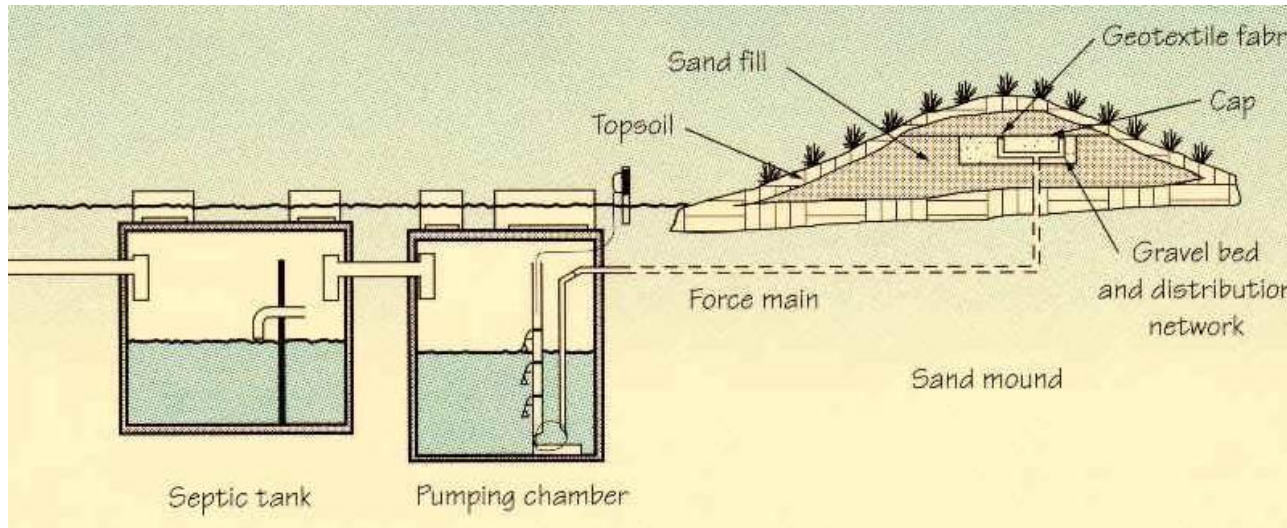
- No solution required (ie. property is viable with conventional, in-ground septic system).



Wastewater Needs Assessment

Possible Findings

- Property will accommodate an on-site solution but will require either an:
- Above-ground septic dispersal field (ie. built up with fill); or.....

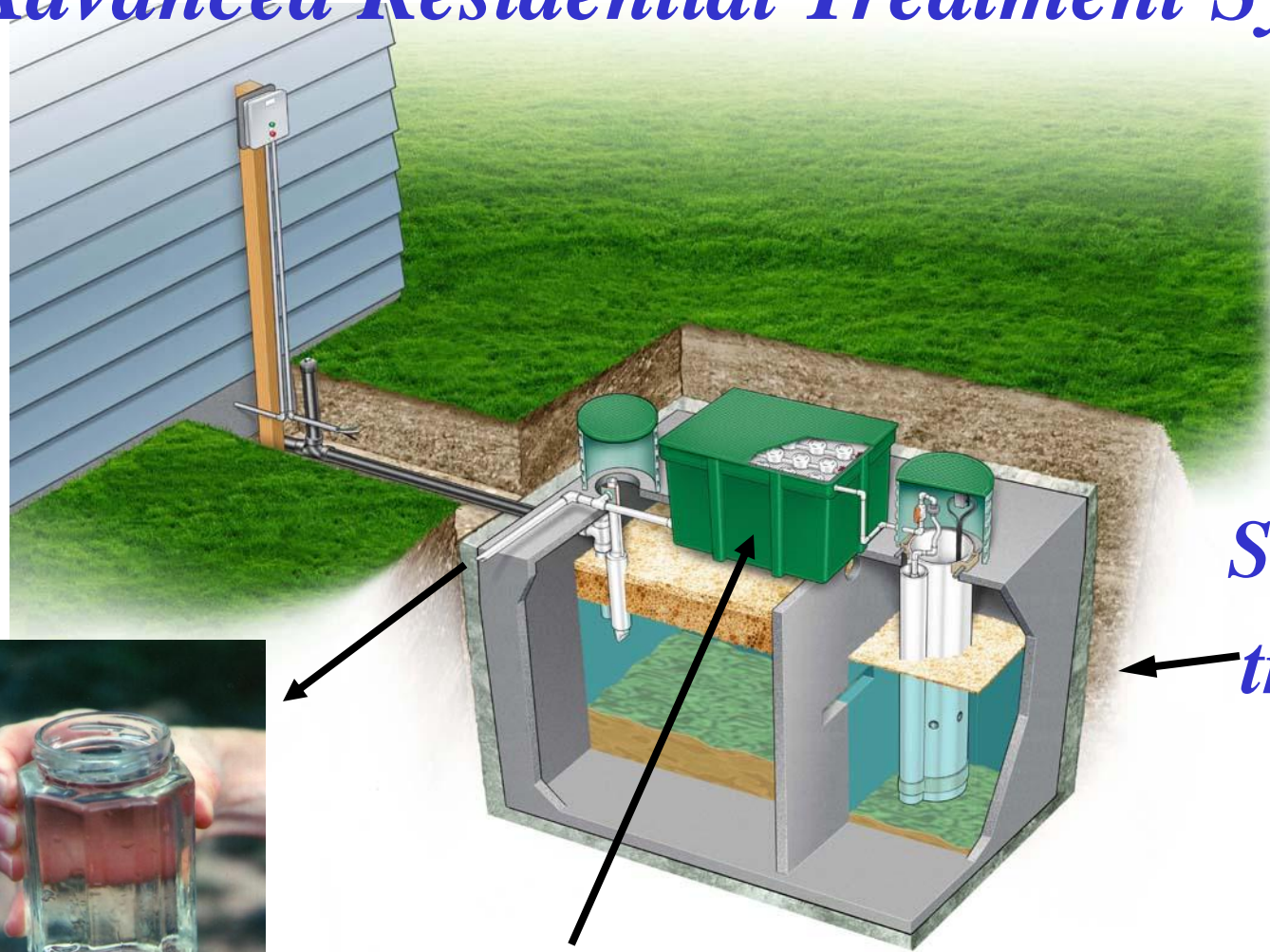


Wastewater Needs Assessment

Possible Findings

- Property will accommodate an on-site solution but will require an:
- Advanced or “innovative/alternative” treatment and dispersal system due to small lot size and/or poor soil or high groundwater conditions.

Advanced Residential Treatment Systems



*Septic and
treatment
tank*

*Treatment
Module*

Wastewater Needs Assessment

Possible Findings

A property will likely require an *eventual off-site sewer servicing solution* due to:

- Inadequate lot size and/or soil constraints
- Inadequate separation to groundwater
- Proximity to wetlands or watercourses

Community of North Shore

Resident Survey Results

Wastewater Servicing Subarea	Total # Parcels	Total # Devel. Parcels	Year-Round SFDs (%)	Seasonal SFDs (%)	% Property Owners Responding
Stanhope Peninsula	552	390	28%	67%	36%
Eagle's Path	107	58	38%	62%	24%
Golf Course	101	64	88%	3%	31%
Covehead Road	70	53	92%	2%	27%
Eastern Road	46	37	97%	0%	11%
Union Road	31	23	100%	0%	19%
Community Center	25	22	91%	0%	16%
Bell's Creek	26	18	94%	6%	35%
Auld's Creek	12	8	88%	13%	17%
Settler's Road	10	4	25%	75%	40%

Community of North Shore

Resident Survey Results

Type of Property:	Number	%
Year-round home	128	52.7%
Seasonal Cottage	106	43.6%
Commercial	9	3.7%
Total:	243	100%

Community of North Shore

Resident Survey Results

Type of septic tank :	Number	%
Pre-cast Concrete or Plastic	156	66.4%
Concrete Block or Steel Drum	40	17.0%
Don't know	39	16.6%
Total:	235	100%

**Tanks installed before 1996
(12 yrs. ago) may be
Concrete Block.*

Community of North Shore

Resident Survey Results

Type of septic dispersal field:	Number	%
In-ground (ie. no fill used)	192	82.4%
Above ground (ie. fill used)	6	2.6%
Don't know	35	15%
Total:	233	100%

Community of North Shore

Resident Survey Results

Age of septic tank:	Number	%
< 5 years old	64	27.1%
5 -10 years old	51	21.6%
*10 – 20 years old	51	21.6%
*> 20 years old	54	22.9%
Don't know	16	6.8%
Total:	236	100%

**Tanks which are more than 12 years old, may be Concrete Block.*

Community of North Shore

Resident Survey Results

Last time septic tank pumped:	Number	%
1 year ago	78	34.4%
2 – 3 years ago	59	26%
3 – 6 years ago	28	12.3%
> 6 years ago	14	6.2%
Never or don't know	48	21.1%
Total:	227	100%

Community of North Shore

Resident Survey Results

Would you participate in a Community inspection and pump-out program for septic systems?	Number	%
Yes	78	32.0%
Maybe, need more information	119	48.8%
No	47	19.2%
Total:	244	100%

Community of North Shore

Resident Survey Results

Would you be willing to pay a fee for the inspection and pump-out program for septic systems?	Number	%
Yes, willing to pay	75	32.8%
Maybe, need more information	105	45.9%
No	49	21.3%
Total:	229	100%

Community of North Shore

Resident Survey Results

In your opinion, what is the long-term sustainability of the septic system serving your property?	Number	%
Sustainable	208	97.7%
Not Sustainable	5	2.3%
Total:	213	100%

Community of North Shore Resident Survey Results

In your opinion, what is the general long-term sustainability of the septic systems in your area of the Community?	Number	%
Sustainable	136	75.6%
Not Sustainable	44	24.4%
Total:	180	100%

Wastewater Needs Assessment

Overall Findings

Wastewater Needs Assessment Designation	Number	Percentage
No Solution Required (can accommodate conventional septic)	159	19.8%
Property Can Accommodate an Above-ground Dispersal Field	89	11.1%
Property Can Accommodate an Advanced Treatment System	190	23.6%
Property Requires an Eventual Off-site Sewer Solution	365	45.4%
Total # Developed Parcels with Residential Dwellings:	804	100%

Only 8 homes indicated they had septic problems. All were located in the Stanhope Peninsula.

Wastewater Needs Assessment

Criteria for Predicting Need by Subarea

<u>Criteria for Predicting Need for a Wastewater Solution by Subarea</u>	<u>Weight (points)</u>
# homes which have unresolved on-site wastewater problems.	25
# homes which had/have bacterial contamination problems in their wells.	25
# developed lots which will need an <i>eventual, off-site servicing solution</i> .	20
# developed lots which will need an <i>advanced (I/A) treatment</i> system.	15
# developed lots which will need an <i>above ground</i> septic field	5
# homes with septic systems >20 yrs. old or age unknown.	<u>10</u>
	100

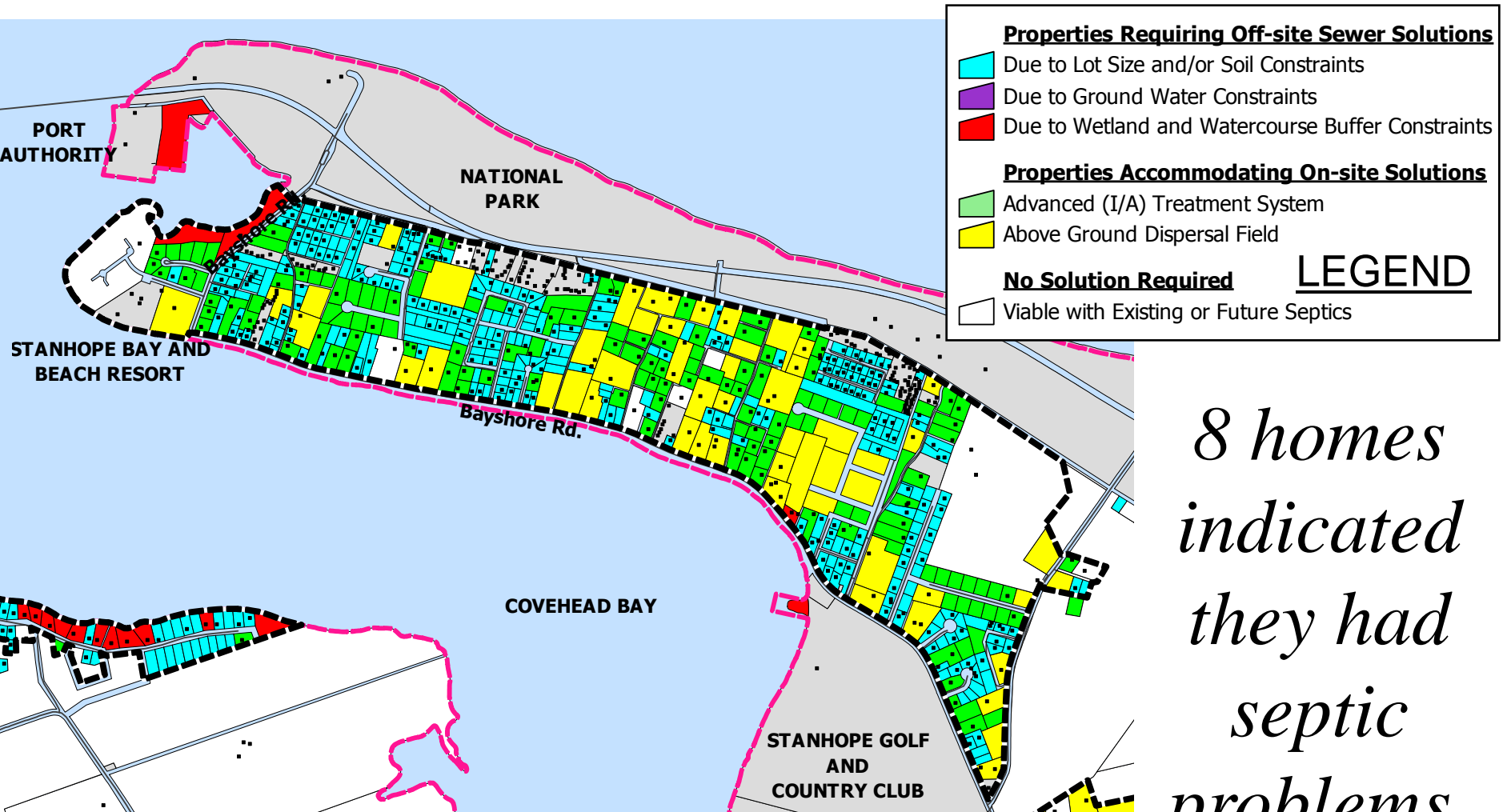
A sensitivity analysis was performed to allow for a lower weighting for seasonally used properties.

Wastewater Needs Assessment

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Wastewater Needs Assessment



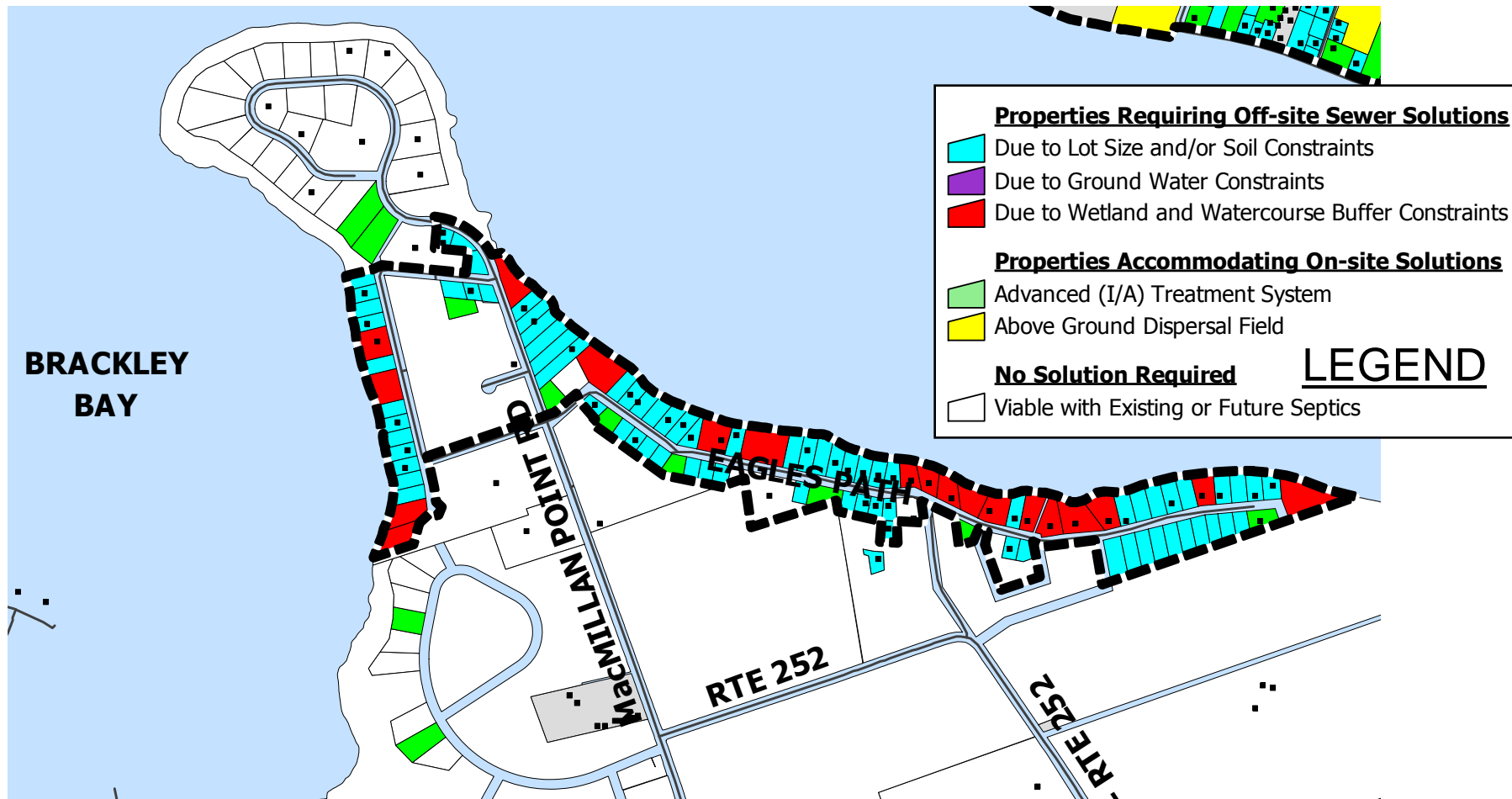
8 homes indicated they had septic problems.

**Stanhope Peninsula Subarea –
Very High Relative Level of Need**



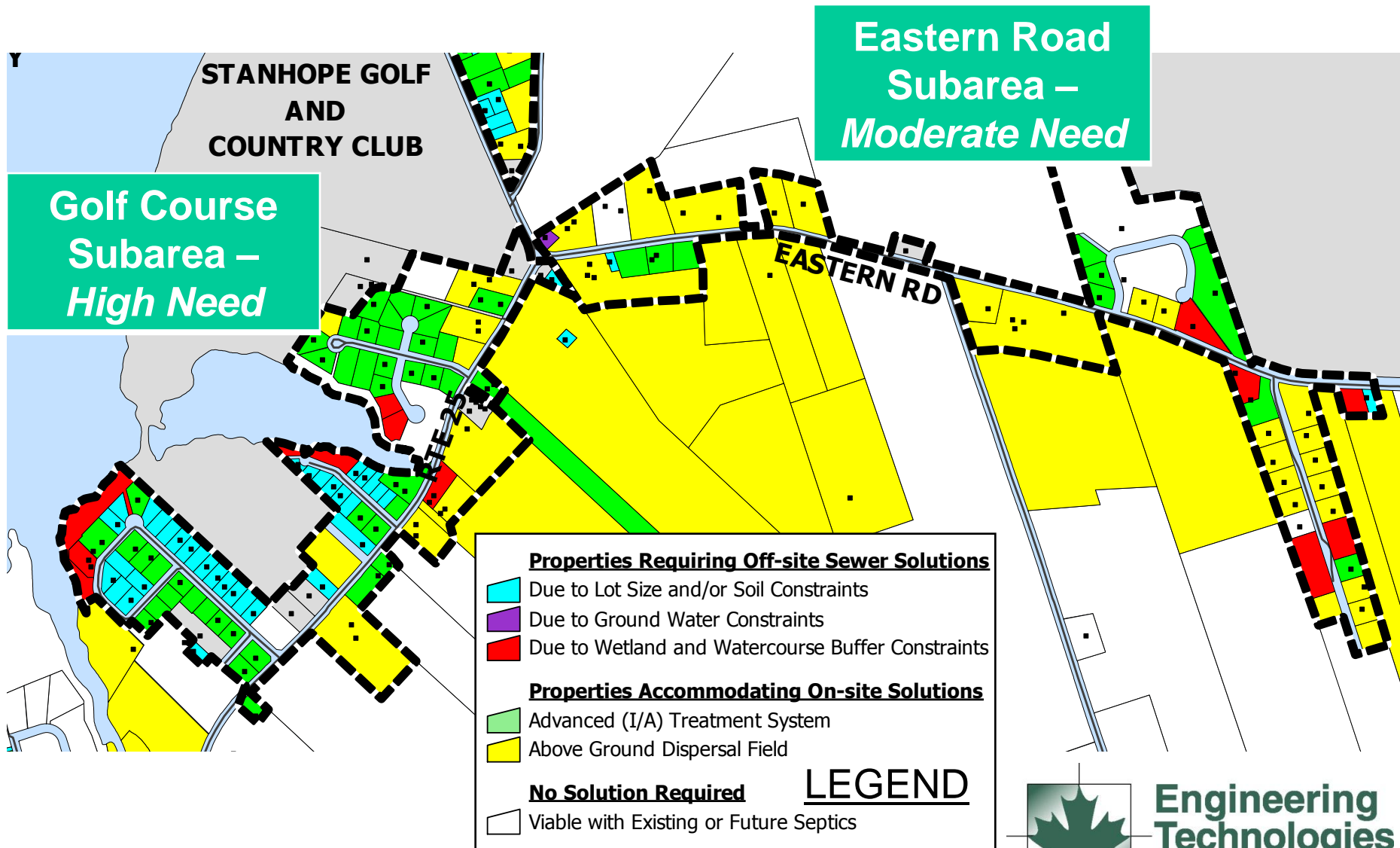
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Wastewater Needs Assessment



**Eagles Path Subarea –
High Need**

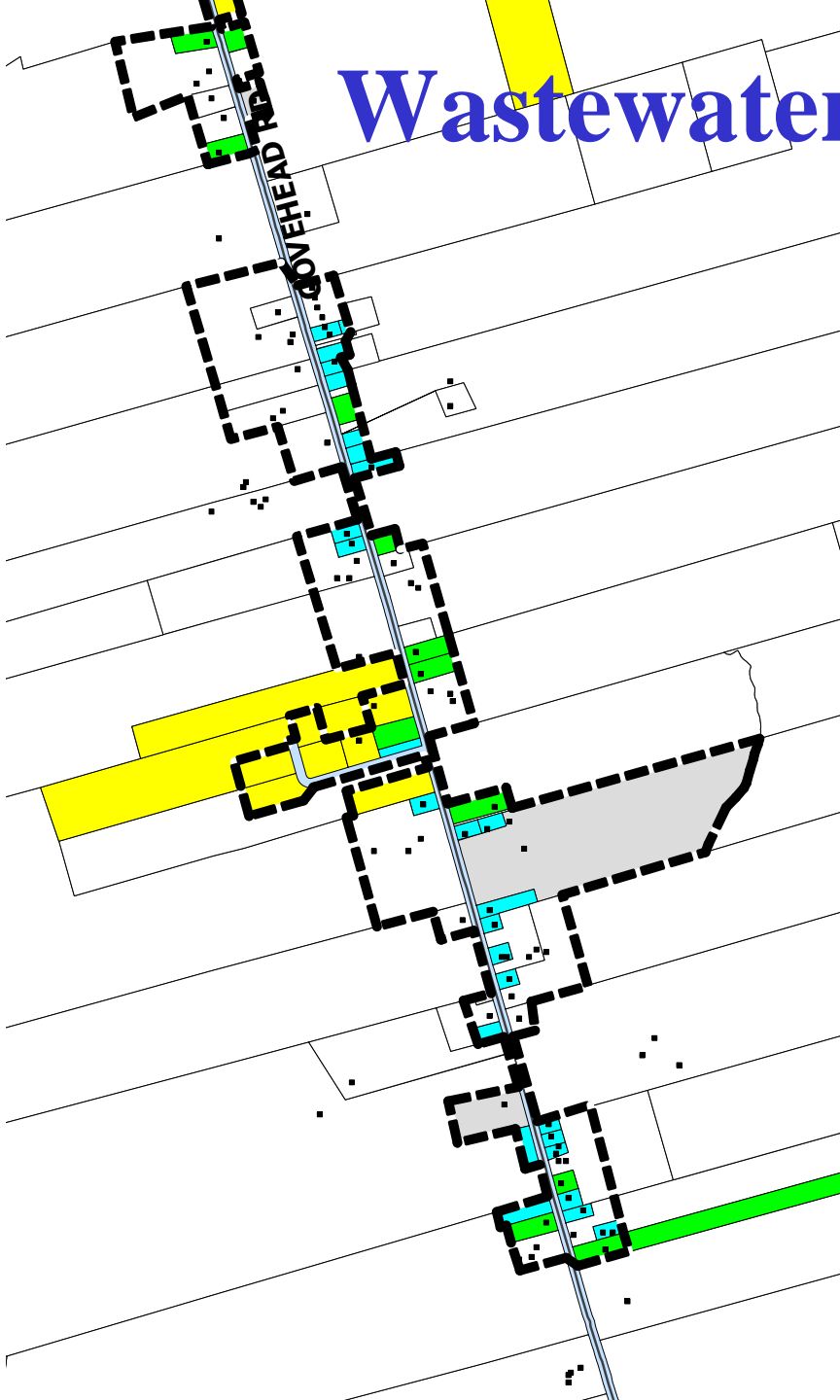
Wastewater Needs Assessment






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Wastewater Needs Assessment



Covehead Road Subarea – *Moderate to High Need*



Properties Requiring Off-site Sewer Solutions

-  Due to Lot Size and/or Soil Constraints
-  Due to Ground Water Constraints
-  Due to Wetland and Watercourse Buffer Constraints

Properties Accommodating On-site Solutions

-  Advanced (I/A) Treatment System
-  Above Ground Dispersal Field

No Solution Required

-  Viable with Existing or Future Septics

LEGEND

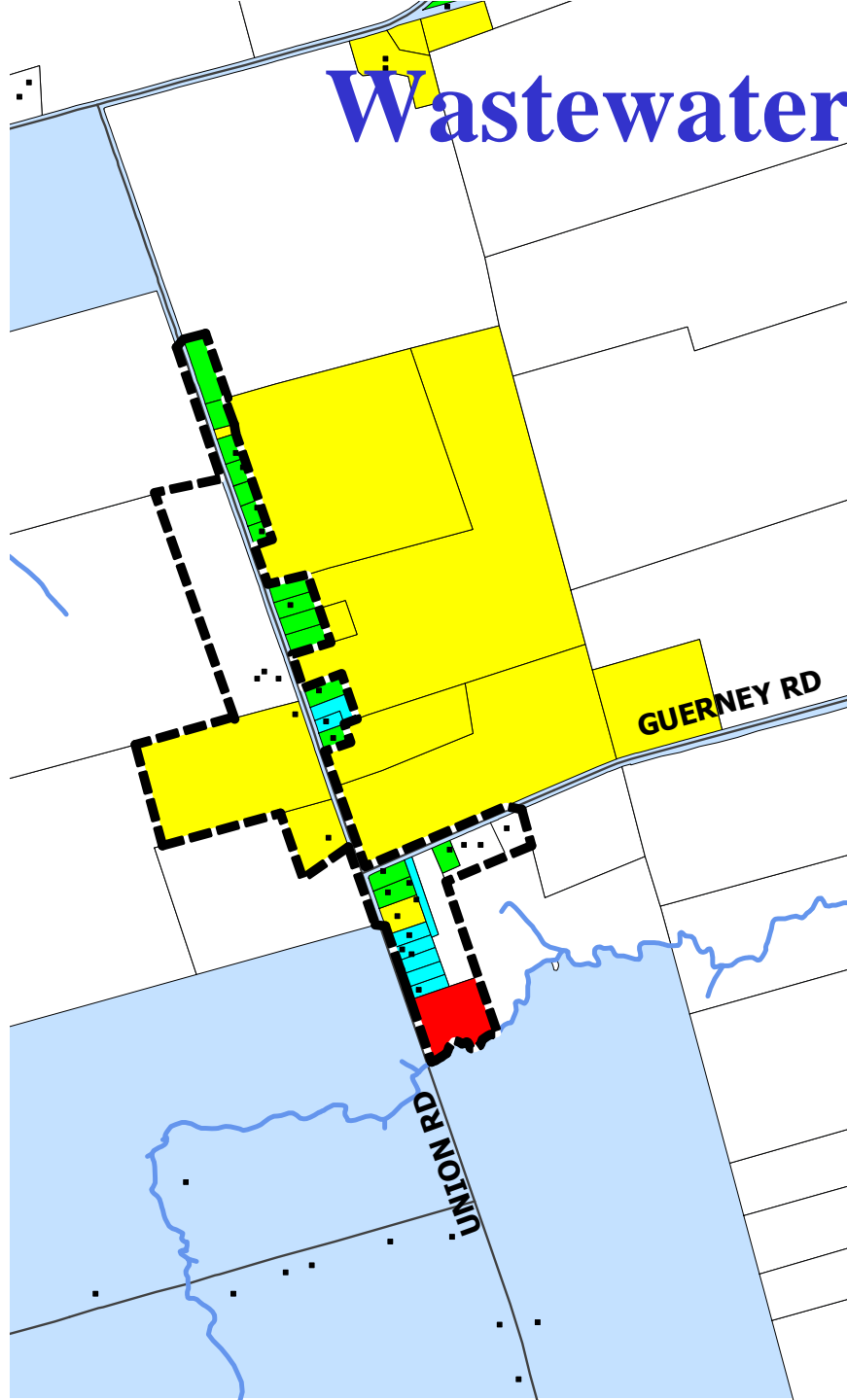
Wastewater Needs Assessment

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Wastewater Needs Assessment



Union Road Subarea - *Moderate Need*



Properties Requiring Off-site Sewer Solutions

-  Due to Lot Size and/or Soil Constraints
-  Due to Ground Water Constraints
-  Due to Wetland and Watercourse Buffer Constraints

Properties Accommodating On-site Solutions

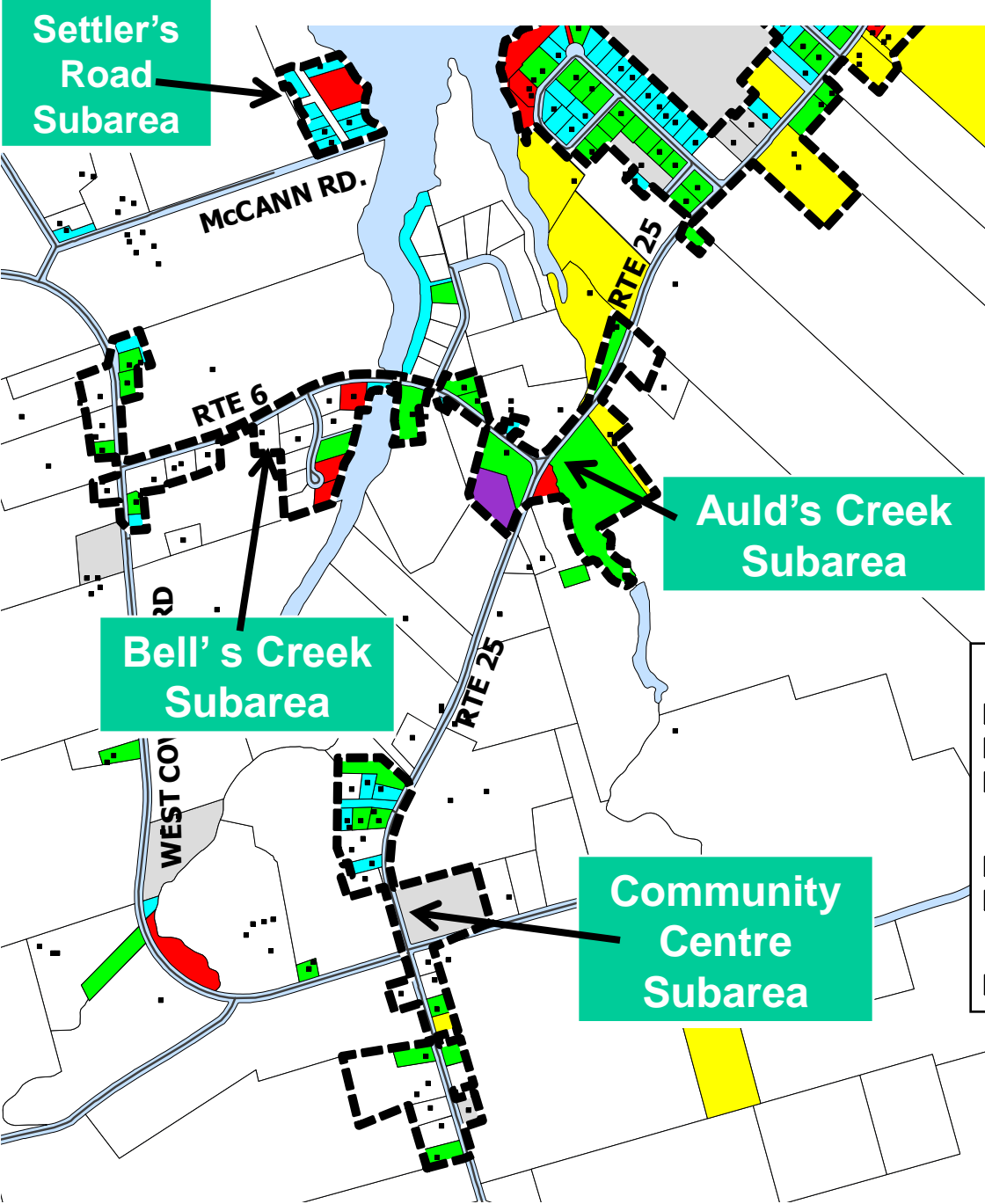
-  Advanced (I/A) Treatment System
-  Above Ground Dispersal Field

No Solution Required

-  Viable with Existing or Future Septics

LEGEND

Wastewater Needs Assessment - Low to Very Low Need



Properties Requiring Off-site Sewer Solutions

- Due to Lot Size and/or Soil Constraints
- Due to Ground Water Constraints
- Due to Wetland and Watercourse Buffer Constraints

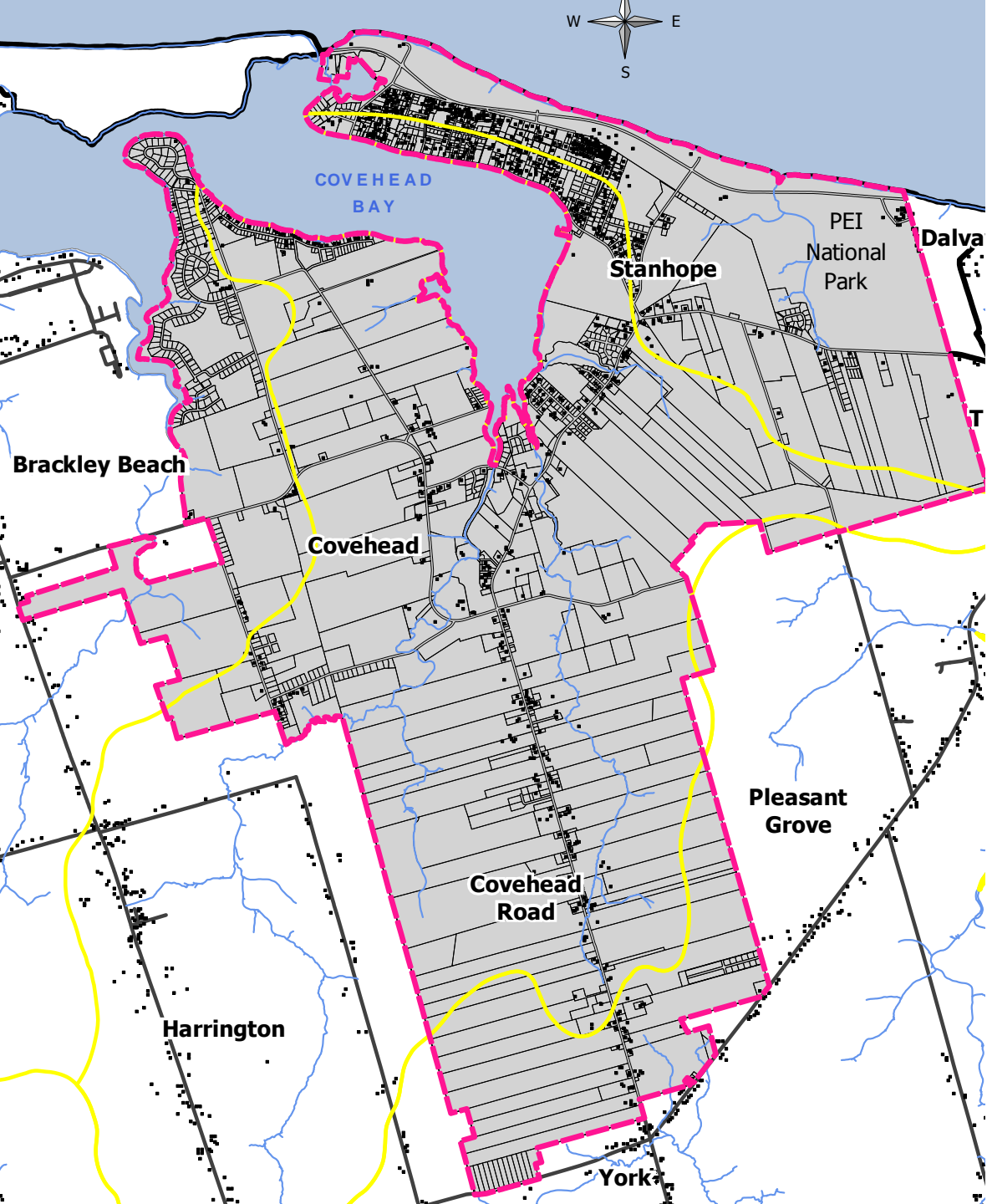
Properties Accommodating On-site Solutions

- Advanced (I/A) Treatment System
- Above Ground Dispersal Field

No Solution Required

- Viable with Existing or Future Septics

LEGEND



North Shore Municipality

*Please fill out
a form if you
disagree with
findings*

