City of Kelowna
Regular Council Meeting
AGENDA

Monday, May 26, 2014
8:30 am
Knox Mountain Meeting Room (#4A)
City Hall, 1435 Water Street

			Pages
1.	Call to Order		
2.	Confirmation of Minutes		2 - 4
	Regular AM Meeting - May 12, 2014		
3.	Resolution Closing the Meeting to the Public		
	THAT this meeting be closed to the public to Section 90(1)(d), (e), (j) and (k) of the Community Charter for Council to deal with matters relating to the following: • Security of the property of the municipality; • Acquisition, Disposition, or Expropriation, of Land or Improvements; • Third Party Information; and • Provision of a Municipal Service.		
4.	Adjourn to Closed Session		
5.	Reconvene to Open Session		
6.	Reports		
	6.1 Sewer Risk Assessment Failures	30 m	5 - 21
	To provide an update to Council.		
7.	Issues Arising from Correspondence & Community Concerns		
	7.1 Mayor Gray, re: Issues Arising from Correspondence	30 m	
8.	Termination		

City of Kelowna
Regular Council Meeting
Minutes

Date:	Monday, May 12, 2014
Location:	Knox Mountain Meeting Room (#4A) City Hall, 1435 Water Street
Members Present:	Deputy Mayor Luke Stack and Councillors Colin Basran, Maxine DeHart, Gail Given, Robert Hobson, Mohini Singh, and Gerry Zimmermann*
Members Absent:	Mayor Walter Gray, Councillor Andre Blanleil
Staff Present:	Deputy City Manager, Paul Macklem; City Clerk, Stephen Fleming; Urban Planning Manager, Ryan Smith*; Active Living & Culture Divisional Director, Jim Gabriel*; Community & Neighbourhood Programs Manager, Louise Roberts*; Community Engagement Consultant, Kari O'Rourke*; Communications & Information Services Divisional Director, Carla Weaden*; Community Planning & Real Estate Divisional Director, Doug Gilchrist*

(* denotes partial attendance)

1. Call to Order

Deputy Mayor Stack called the meeting to order at 9:46 a.m.

2. Confirmation of Minutes

Moved By Councillor Hobson/**Seconded By** Councillor DeHart

R324/14/05/12 THAT the Minutes of the Regular AM Meeting of May 5, 2014 be confirmed as circulated.

Carried

3. Reports

3.1. Strong Neighbourhood Project Overview

Staff:
- Displayed a PowerPoint Presentation and responded to questions from Council.

Council:

- Commented that Edmonton provides an information brochure for each neighbourhood and perhaps something similar could be implemented in the city.
- Commented that current connections are activity based rather than physical place or geographic based, this needs to be considered.
- Raised a question regarding the role of Neighbourhood Associations.

Staff:
- City is not identifying specific neighbourhood boundaries as part of this initiative as "neighbourhood" is defined by citizens in many different ways.
- Confirmed a project is underway regarding identifying the City Neighbourhood Association relationship more formally and is separate from this initiative.

Moved By Councillor Hobson/**Seconded By** Councillor Singh

R325/14/05/12 THAT Council receives, for information, the report from the Community & Neighbourhood Services Manager dated May 7, 2014, with respect to the Strong Neighbourhood Project.

Carried

3.2. Provincial Dock Permitting and Process

Staff:
- Provided an overview of the dock/moorage permitting process and the specific series of events that led to the approvals of the Manteo Resort Marina.
- Responded to questions from Council.

Councillor Zimmermann left the meeting at 10:44 a.m.

Council:
- Raised the question of whether the City should pursue a head lease from the Province, similar to Peachland and Penticton.

Staff:
- Noted that other applications for docks or marinas are anticipated.
- Head lease options will be part of upcoming staff review over the next year.
- Will implement changes to create better communication and cooperation between City and Ministry at the staff level, as well as ensuring Council is made aware of such applications in a timely manner.

Moved By Councillor Hobson/**Seconded By** Councillor Basran

R326/14/05/12 THAT Council receive for information the report from the Urban Planning Manager dated May 7, 2014 describing the process of dock and shared moorage permitting in BC and the specific chain of events that led to the approval of the Manteo Resort Marina;

AND THAT Council direct staff to implement appropriate bylaw and policy amendments as identified in the report of the Urban Planning Manager, date May 7, 2014.

Carried

4. Resolution Closing the Meeting to the Public

Moved By Councillor Hobson/**Seconded By** Councillor Singh

R327/14/05/12 THAT this meeting be closed to the public pursuant to Section 90(1) (a) and 90(2) (b) of the Community Charter for Council to deal with matters relating to the following:

- Position Appointment; and
- Negotiations with another level of government.

Carried

5. Adjourn to Closed Session

The meeting adjourned to a closed session at 11:02 a.m.

8. Termination

The meeting was declared terminated at 11:48 a.m.

Deputy Mayor Stack

City Clerk

/tt

Report to Council

Date: 5/26/2014

File: 1880-90

To: City Manager

From: Manager, Utilities Planning

Subject: Risk of Septic System Failures.

Recommendation:

THAT Council receives for information, the Report from the Manager of Utilities Planning, dated May 26, 2014 with respect to Risk of Septic System Failures;

AND THAT staff be directed to report back to Council on options for the provision of community sewer for the connection areas within Sewer Connection Charge Bylaw, 8469.

Purpose:

To provide an update to Council.

Background:

In 1990 the City of Kelowna adopted the, "Wastewater Management Plan", written by Associated Engineering and was later approved, by the Province in 1991. The City's Wastewater Management Plan was a three-stage plan. Stage I reviewed possible "on-site" disposal methods "*that, although in many areas, on-site disposal operates satisfactorily, hydraulic problems or high phosphorus transmission to Okanagan Lake have been identified in some locations.*" The report went on to evaluate various on-site alternatives for dealing with problem area, including servicing by the City sewerage system, enhanced on-site disposal, or land use control measures. Stage II presented a strategy for expansion of the sewerage area boundaries over 40 years and options for treatment and effluent disposal. Stage III summarized the conclusions of the plan. The "Wastewater Management Plan" recommended planned expansion of the City's community sewerage system and improvements to the City's wastewater treatment facility.

The City has since acted on these recommendations and has converted our wastewater treatment plant into Biological Nutrient Removal (BNR) plant to further reduce the introduction of phosphorous and nitrogen into Okanagan Lake.

The City has reviewed the service areas that can be feasibly serviced with sewer and determined the infrastructure costs of servicing these areas. In December, 2006 the City adopted the S*ewer Connection Charge Bylaw*, Bylaw #8469, in order to indentify costs for the service areas identified within the bylaw. The purpose of this bylaw was to equally distribute costs of obtaining sewer in area should a resident wish to develop his or her property in advance of a service area being created. Residents who are closer to an existing sewer main will have a cost advantage to those residents that are further away.

As part of the 2014 budget, Council has approved $75,000 for the design, and cost review of the Sewer Connection areas within the Sewer Connection Charge Bylaw. The Bylaw was last revised in 2006. The intent of this project is to gather the information required to update this bylaw.

Priorities for these connection areas were created by reviewing the potential sewer areas with the Ministry of Environment and the Health Authority to determine the areas of risk perceived by these two groups. Feedback from the Province and the Health Authority was factored into priorities adopted as part of the *Kelowna 2030 Official Community Plan*.

The provincial policy is to not fund City sewer projects unless there is a minimum 1 hectare lot size for future development without community sewer. The City has adopted this policy and has included this within the *Kelowna 2030 Official Community Plan.*

On-site systems have two primary modes of failure 1) mechanical failure 2) field failure. Septic systems or type 1 systems are often gravity systems and do not have any pumps or mechanical systems. Occasionally type 1 systems are required to be built with pumps in order to transfer effluent to a disposal field. In these cases, pump failure is possible.

Advanced treatment (type 2,3) systems have aeration chambers and often pumps as part of the treatment train. The treatment train and pumps can fail. Field failures for on-site systems occur when solid particles build up in the receiving soil. These materials interfere with the percolation of effluent into the soil. Fields that fail cause effluent to flow to surface. Effluents that reach the surface can pose numerous health risks. Failure to properly maintain or operate on-site systems (type 1,2 and 3) will reduce the life expectancy of a field. Improper maintenance and operations of advance treatment systems can cause a more pronounced effect on disposal field life as these treatment plants typically have smaller fields than type 1 systems.

Environmental Risks:

The primary environmental risk of on-site systems is the phosphorous and nitrogen loading into Okanagan Lake. Phosphorous can cause the proliferation of algae and cause detrimental effects to our drinking water, recreation, and aquatic life. Nitrogen can form Nitrates, a compound that at concentration can cause illness to infants and animals.

Septic, type 1, systems do not remove phosphorous or nitrogen from the effluent entering the groundwater. Raw waste water contains between 40 to 60 mg/L of total nitrogen in various organic and inorganic forms. Further, most advanced treatment (type 2, and 3) on-site systems or package plants do not remove phosphorous or nitorgen from effluent entering the ground. This groundwater has the potential to make its way to a local water course and then to Okanagan lake. Nitrogen can potentially be converted to Nitrate as it passes thru the environment and may not be absorbed by plants in groundwater traveling at depth.

Based on data from the Stage I Wastewater Management Plan extrapolated for current population and the performance of the BNR Waste Water Treatment Plant, Staff estimate that the amount of phosphorous entering Okanagan Lake is 4,945kg per year. Using 2011 census information, staff estimate that we currently have 28,875 residents within Kelowna who have an on-site sewer system. Our BNR Waste Water Treatment plant currently introduces 2,500 kg/year of phosphorous into Okanagan Lake while servicing a population of 90,354. The use of community sewer will reduce residential phosphorous loading entering Okanagan Lake by approximately 83%.

While we cannot quantify how much Nitrogen is being converted to Nitrates from on-site sewer systems and then making its way to our streams and into Okanagan lake, we do know that our BNR plant reduces effluent concentrations of Nitrogen entering the plant by 90%.

Health/ Financial Risks:

All on-site disposal systems will eventually fail and will eventually need to be partially or completely replaced. When these on-site systems fail, effluent that would normally be absorbed into the ground moves to the surface of the disposal field. This effluent carries pathogens that are potentially dangerous to the residents where the break out has occurred and to the neighbourhood. The costs to replace an on-site system can be substantial, especially if a type 2 or 3 system is required or if a backup septic field is not available. Staff have interviewed the Onsite Wastewater Management Association of BC in order to understand typical costs to replace the various systems. Further, we reviewed the life expectancy of the on-site systems with the Interior Health Authority and WCOWMA-BC to determine life expectancy of these on-site systems. The following on-site system costs are reflective of a single family system.

Type of On-Site Replacement	**Cost Range**		**Life Expectancy**	
	Low	**High**	**Low (yr)****	**High (yr)**
Septic,(Type 1) - Complete system replacement	$15K	$25K	15	30
Septic (Type 1) - New drain tile in back up field	$4K	$7K	15	30
Septic (Type 1) – New soil and drain tile. No back up field available	$12K	$30K	15	30
Advanced Onsite (Type 2) – Complete Replacement	$25K	$30K	5	25
Advanced Onsite (Type 3) – Complete Replacement	$35K	$70K	5	25

*** Low life expectancy numbers shown for advanced onsite systems are cases where very little maintenance has taken place by the owner of the advance onsite system and is a worst case scenario.*

The community sewer costs within S*ewer Connection Charge Bylaw*, Bylaw #8469 range from $2,600 to $27,100 per a typical single family home, use as a onetime only cost. Comparably, annual sewer costs are $226.36 per annum and include the costs to operate and maintain the sewer collection system and the waste water treatment plant and fund the eventual replacement of all related infrastructure.

Staff have reviewed the following risks with interior health regarding how on-site systems are selected, constructed, maintained, financed and inspected for compliance with health regulations and have asked them to comment. These risks to residents can be summarized as follows:

1. For type 1 and 2 systems the waste water practitioner, the septic system installer, is the person making the prescription, designing the system, inspecting, and constructing the systems. There is an inherit conflict of interest and no oversight with this approach.

2. There is no independent party checking for quality control and assurance in the design and construction of a type 1, 2 or 3 system. Often issues of construction quality do not show up immediately. Should the practitioner's company could go out of business, there may be no recourse for the home owner.

3. There are no checks to ensure that type 2, and 3 on-site systems are being maintained and operated properly. The owner is expected to maintain these systems. Failure to maintain these systems properly can dramatically reduce the life expectancy of these systems. On-site systems that have failed but have not been fixed are a substantial health risk.

4. Costs to replace soil and drain tile in septic systems and to replace advanced on-site system are substantial. Residents are not required to invest into a reserve fund to replace these systems. New home owners may inherit older on-site systems that can be unaffordable to replace.

External Agency/Public Comments:

The Interior Health Authority has commented:
I agree with your observations on the viability of on-site wastewater systems and concerns with their use in higher density, urban-boundary areas. Interior Health has opposed using advanced on-site treatment systems as a means to accommodate higher density development given the increased maintenance and likelihood of failure over the long-term compared to conventional septic and trench disposal designs. Mitigations can be put in place to ensure sustainability (e.g. local service bylaws for maintenance and nutrient removal). However, in general we've considered "big-pipe" solutions a better option. Centralized flow to community disposal systems not only maximizes economies of scale, it provides the best opportunity to manage contaminants of concern going forward (e.g. through community source control initiatives; focused monitoring programs; specialized treatment equipment).

Infrastructure Grants:

In 2012, the City applied for an infrastructure grant in order to construct a sewer collection system within the Hall/Parsons connection area. This connection area is the highest priority connection area within our OCP for health and environmental reasons. We were unsuccessful with our application.

It is unclear as to whether or not the Province and Federal governments will continue to support the expansion of sewer collection systems as a high priority in their grant programs.

Options:

1. Create a local service area for those connection areas within Sewer Connection Charge Bylaw, 8469 wishing community sewer service and that are economically affordable. Obtain a commitment from OBWB to fund those homes built prior to 1978 within this local service area, (OBWB will not fund community sewer in areas where homes are built after 1978).

2. Update Sewer Connection Charge Bylaw, Bylaw #8469 in 2014/2015. Adjust the current designs used to set the service areas, and the service areas to reflect those who are receiving benefit. Update the costs prescribed within the bylaw.

3. Abandon the S*ewer Connection Charge Bylaw*, Bylaw #8469 and amend the OCP such that we do not pursue community sewer in the areas shown.

4. A variation of the above options.

Analysis:
Septic systems on lots that can support a back up field and are a reasonable distance from a water body are a reasonable alternative to community sewer.

Community sewer should be pursued in areas where there are smaller lots, higher densities and where there is a health, environmental and economic business case to pursue the same.

Staff do not recommend Option 3 as there are clear financial, environmental, health and benefits to providing community sewer to various areas of the City.

Staff agree with Interior Health that we should not support the use of advanced on-site treatment systems as a means to accommodate higher density development. Further, this policy would contradict our OCP, current provincial policy and threaten our ability to obtain future sewer grants.

Internal Circulation:
Divisional Director, Communications & Information Services
Director, Design and Construction Services Director

Director, Finacial Services
Manger, Utility Services

Considerations not applicable to this report:
Legal/Statutory Authority:
Legal/Statutory Procedural Requirements:
Existing Policy:
Personnel Implications:
Communications Comments:
Alternate Recommendation:

Submitted by:

A. Reeder, Manager of Utilities Services

Approved for inclusion: J. Vos, Infrastructure Divisional Director

Attachment 1: Presentation - On Site Sewer Risk Assessment

cc: Divisional Director, Communications & Information Services
Director, Design and Construction Services Director
Director, Finacial Services
Manger, Utility Services

RISK OF SEPTIC SYSTEM FAILURES

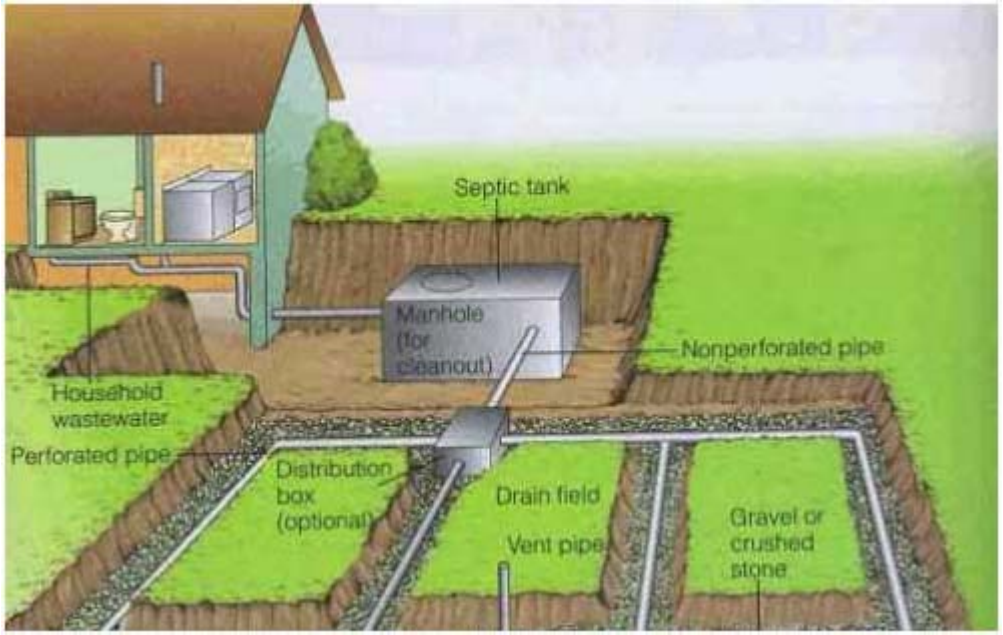
TOPICS

- Types of Septic Systems – How do they work, how do they fail
- Environmental Risks
- Health Risks
- Options and Strategies

SEPTIC 101

Type 1: Septic Tank Based Systems

A single septic tank based system consists of an underground container or tank for receiving, and settling wastewater. The solids settle to the bottom of the tank as sludge, while the oil fat and grease float to the surface forming a scum layer.



SEPTIC 101-

FEATURES: Type 1: Septic Tank Based Systems

•Usually needs a large lot to support.

•Septic fields are relatively large and increase in size depending on use

•Requires a spare field

•Must be 30 meters from a water source

•Needs suitable soils

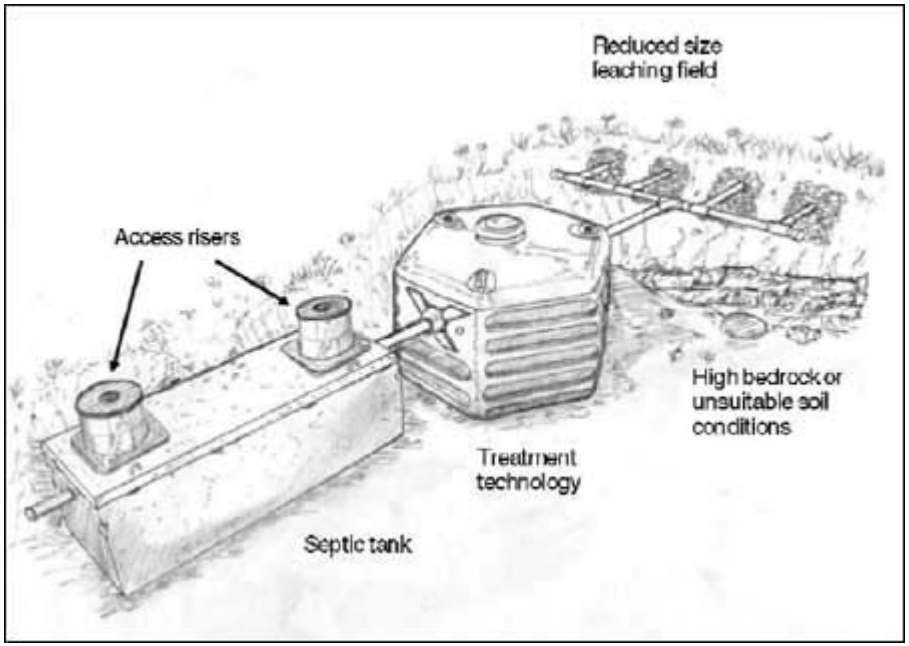
•Maintenance is simple and requires pumping every 3 years

•Life expectancy 15yrs to 30yrs if pumped regularly (depends on soils and use as well)

SEPTIC 101

Type 2: Secondary Treatment Systems

A typical secondary treatment system uses air (oxygen) to help break down and treat the wastewater. Introducing oxygen to the waste stream will encourage the growth of aerobic bacteria, which are extremely efficient at consuming the solids in waste water. There are many different types of secondary treatment systems available, of varying ability and complexity.

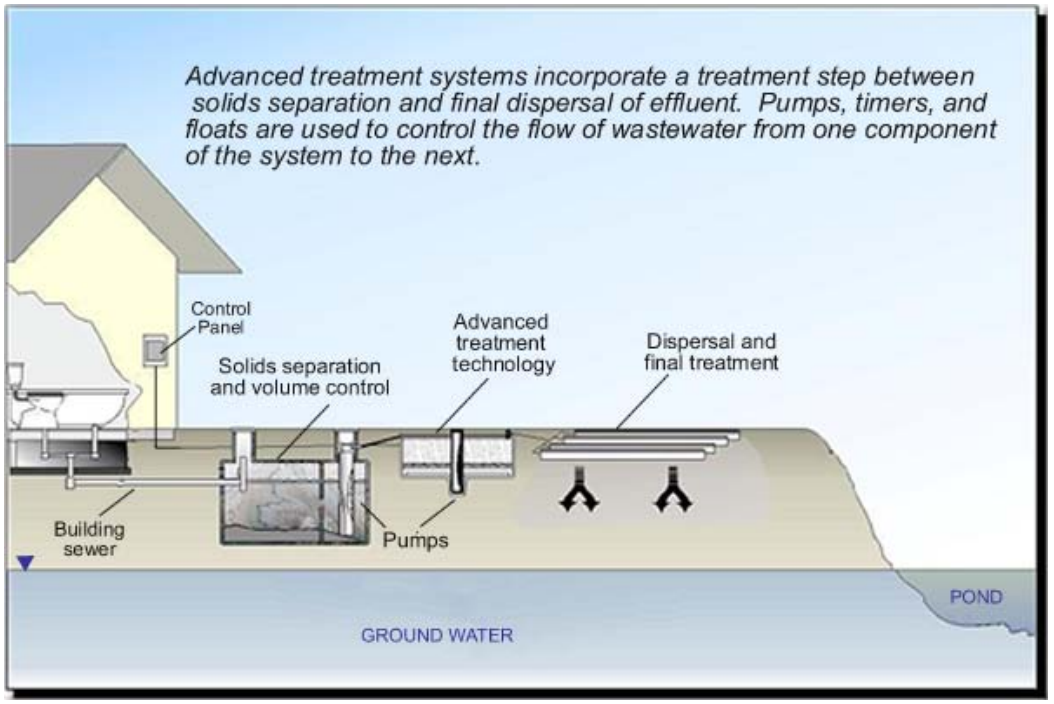


SEPTIC 101

Type 3: Secondary Treatment Systems (for very difficult sites)

Type 3 systems are defined as any septic system using a Type 3 treatment plant and a means of reducing eliminating pathogens.

The effluent discharged is of a very high quality, and a properly functioning Type 3 treatment plant produces very clear, odorless effluent.



SEPTIC 101

FEATURES: Type 2,3: Secondary Treatment Systems

- Type 2 systems are usually built and designed by a qualified practitioner. Built when type 1 is not possible

- Type 3 systems are designed by a professional engineer. Usually for difficult sites (near water course, poor soils, steep banks)

- Small leaching fields

- High maintenance required. Low life expectancy if not maintained.

- No checks on design, maintenance or performance by an independent 3rd party

- Costs to replace the system is high. Life expectancy is 15yrs to 20yrs if maintained.

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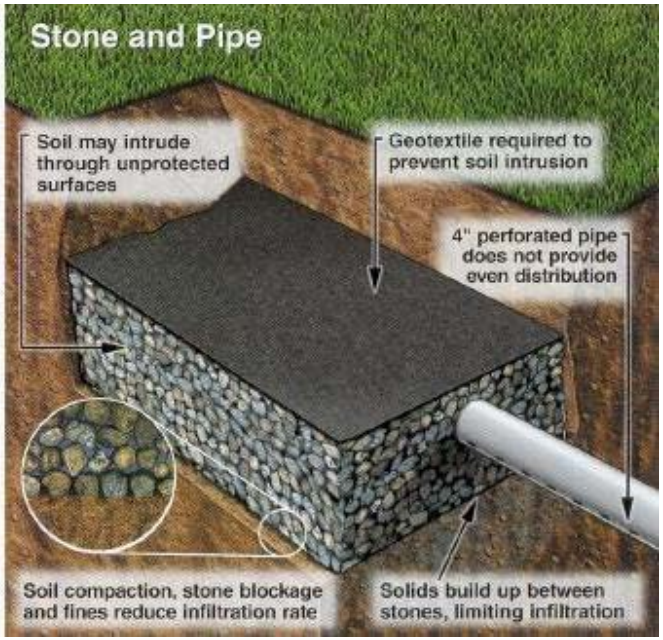
SEPTIC 101

FAILURE TYPES:

1. **Failure of the field**

1. **Mechanical Failure**



RISKS

1. **Environmental Risk – Phosphorous (P) and Nitrogen (N) will enter our ground water and eventually into our lakes. Type 1,2,3 on site treatment system generally do not remove P or N.**

2. **Health Risk – A failed leaching field will cause pathogens to travel to the surface. If not fixed this an immediate risk to the home owner, neighboring properties and nearby water courses.**

3. **Financial Risk – The costs to build type 1, 2, and 3 plants can be high and maybe unaffordable. Costs to build a spare field for a type 1 (septic system) are reasonable.**

SEWER CONNECTION CHARGE BYLAW# 8469

1. **The City has an existing sewer connection charge bylaw. Currently thirteen service areas exist**

2. **The intent of which is to equally distribute costs for the residents wishing to develop in advance of a local service area being created.**

3. **Previously residents have indicated that they would like a grant in order to reduce costs before proceeding. These grants have not been forth coming.**

4. **There seems to be some interest from the public in proceeding with out grants.**

5. **We will be updating the bylaw in 2015 as the design and costs are dated.**

OPTIONS

1. **Status Quo. Update existing bylaw**

2. **Abandon the Sewer Connection Bylaw #8469**

3. **Change the remaining connection areas into one LAS. Obtain OBWB commitment for grant funding. Determine public support for single LAS. Undertake a LAS process that is supported**

4. **Variation of the above**

TAKE AWAY

1. **Type 1 Septic Systems on lots that can support a back up field are a reasonable alternative to community sewer.**

2. **Community sewer should be pursued in areas where there are smaller lots and costs are affordable.**

3. **On-site sewer systems should not be used as a means to accommodate higher density development.**