

Discussion Paper No. 5



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Regional District of Kitimat-Stikine

Stage 3 LWMP Proposed LWMP Implementation Plan

October 2007



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Regional District of Kitimat-Stikine Stage 3 Liquid Waste Management Plan

Proposed LWMP Implementation Plan

Issued: October 29, 2007

Previous Issue: August 31, 2007

The Lakelse Lake-Jackpine Flats Liquid Waste Management Plan (LWMP) has resulted in the intent to implement programs that will help protect the water quality in Lakelse Lake. The two main components of the LWMP are a septic system management program and development of communal and cluster treatment systems to take the most vulnerable and potentially highest pollutant source septic systems off ground disposal. To get to those programs, a number of items need to be implemented. This list includes the following:

1. Changes to bylaws, i.e. lots sizes for septic systems and land use regarding animals.
2. Changes to the minimum design standards for Jackpine Flats septic systems.
3. Development of a specified service area bylaw.
4. Implementation of an educational program regarding well head protection and septic system operation.
5. Implementation of a water quality monitoring and data management system.
6. Septic system management plan including location mapping and a servicing and inspection program.
7. Implementation of the 1st Avenue sewer system.
8. Implementation of the cluster-type septic systems.

1. Changes to Lot Size and Land Use Bylaws

Changes to the bylaws, based on the information developed in Stage 2 of the LWMP, can be and should be done as soon as possible after the Stage 3 public information meeting. Since the changes to the minimum lot sizes and the ability to keep animals on the study area lots (particularly in the Jackpine Flats area) will potentially affect a number of property owners, the sooner this is done the better. If it is not done quickly, the RDKS might be inundated by applications for subdivision under the old rules, creating more of the smaller lots that the LWMP process has shown should be avoided. As a result, either the bylaw(s) should be changed immediately, independent of Stage 3 approval by the Minister of Environment or a moratorium on subdivision at the current lot sizes should be instituted, while allowing for “voluntary” subdivision at the new, larger, revised minimum lot sizes.

2. Changes to Minimum Design Standards for Jackpine Flats

The LWMP process has discovered that many of the lots in Jackpine Flats have septic systems that were installed with extremely fast percolation rates, e.g. under one minute per 25 mm (one inch). While a limited well water sampling program did not indicate any particular issues with these fast percolation rates, if those on-site wastewater treatment systems were to be installed now, under the new 2006 Sewage System Regulations, they could not be normal Type 1 septic systems; they could only be Type 2 Secondary Treatment or Type 3 Advanced Treatment systems. Since the RDKS does not want to cause undue financial burdens on the Jackpine Flats residents, it should implement a bylaw that clearly indicates minimum design standards that would allow Type 1 (septic) systems to be installed in the Jackpine Flats area. These new standards could include either installing slower percolating material in the bottom of new or renovated trenches and/or implementing a pumped effluent distribution system to ensure that the complete disposal field length is utilized. Such systems could be retrofitted into existing disposal fields at relatively low cost (compared to the cost associated with the installation of a Type 2 treatment system). These new standards would be developed with input and approval of the Ministry of Health.

These disposal field standards should be implemented via a bylaw.

3. Development of a Specified Service Area Bylaw

In order for the RDKS to move forward with the implementation of the LWMP, it needs to establish a specified service area for the Lakelse Lake and Jackpine Flats area. This requires a bylaw. This bylaw would specify the following:

- The area to be serviced (Lakelse Lake and Jackpine Flats)
- The services to be provided including:
 - a well head protection and septic system operation education program
 - a water quality monitoring and data management system
 - a septic system management system
 - a 1st Avenue sewer and wastewater treatment system
 - a series of cluster-type treatment systems primarily on the west side of the lake
- An estimate of the costs of these programs and/or a mechanism for funding these programs

While a completed and approved LWMP may not require that the RDKS have a referendum on the bylaw, the RDKS will very likely have one to ensure that the majority of the people are in favour of the programs and the specified services. However, if there is substantial support at the Stage 3 LWMP public information meetings, then the RDKS may proceed with the bylaw without the referendum. This may or may not result in a counter-petition situation.

4. Implementation of a Well Head Protection and Septic System Operation Education Program

To some degree, the RDKS has already started this process by mailing out educational brochures on well head protection and septic system operation to the property owners. This program should continue with regular, e.g. twice per year, e.g. March and October, information mail-outs to help ensure septic systems are operated and maintained properly and do not encroach on drinking water wells (or vice versa). This program could be implemented in advance of the LWMP approval but would need to be instituted as a part of the Specified Service Area bylaw discussed above.

5. Implementation of a Water Quality Monitoring and Data Management System

During the course of the development of the LWMP, water samples have been taken from Lakelse Lake, several tributaries to Lakelse Lake, Sockeye Creek, William Creek and several drinking water wells in the Jackpine Flats area. These sampling locations can be used as “sentinels”, to show whether there are significant changes to the water quality in the lake, the creeks or the groundwater over time. To do so, the program needs to take, at a minimum, annual samples, log the results and compare the current results to historical results and appropriate BC or Federal water quality guidelines. It is anticipated that approximately eight sites at Lakelse Lake and eight sites at Jackpine Flats could be used as the sentinels. These samples would be taken in the summer possibly by an RDKS summer student who would also up-date the data base and write a report that identifies any trends in the data. Sample analysis would cost about \$300/sample or approximately \$4,800 per year. This program could be implemented in advance of the LWMP approval but would need to be instituted as a part of the Specified Service Area bylaw discussed above.

6. Septic System Management System

Regardless of the degree to which lots will be taken off septic systems and included in either the 1st Avenue sewer system or onto a cluster-type septic system, those septic systems that remain, at both Lakelse Lake and in Jackpine Flats, should be controlled by a septic system management program. This program would contract out the regular pump-out and inspection of both the septic tank and disposal fields and the individual septic tanks in the sewered and cluster systems. This will ensure that the septic systems and/or septic tanks are operating properly and not discharging solids to the disposal fields (or sewer system or cluster systems). At this point in time, it is anticipated that the frequency of inspection should be once every three years once the program is in place. In the first three years of the program, those that voluntarily have their inspections done will need to be put into the data base in the proper sequence so their subsequent inspections are done on a regular basis.

The well head protection and septic system operation education program and the water quality monitoring program would be an integral part of this septic system management system. As such, the cost of these programs has been included in the cost of the septic system program. These costs have been discussed in Discussion Paper 4 and will be in the \$125 per septic tank per year (in 2007 dollars).

This management system should be implemented via the Specified Service Area bylaw very soon after the approval of the LWMP.

7. Implementation of the 1st Avenue Sewer and Wastewater Treatment System

The 1st Avenue sewer system will take several years to fully implement. The following steps will be required:

1. Preliminary investigation of the sewer alignment.
2. Location of the existing septic tanks to determine whether they will need to be replaced and/or moved to be used in the STEP (Septic Tank Effluent Pumping) system.
3. Preliminary engineering study to determine a more accurate cost estimate for the grant submission.
4. Submission of a funding grant application to the Provincial and/or Federal governments along with the cluster systems.
5. Once the grant has been received (likely several months between submission and success), environmental impact studies for the creek crossings will be required.
6. This would be followed by detailed design of the sewer and treatment systems.
7. Phased tendering and construction, starting with the 1st Avenue south area and the new treatment plant.
8. Continued tendering and construction moving northward to encompass the entire 1st Avenue sewer catchment area.

8. Implementation of the Cluster Systems

The cluster systems will primarily be on the west side of Lakelse Lake. They will need to be implemented over several years as well. The following steps will be required:

1. Preliminary investigation of the sewer alignment(s) and communal septic system locations.
2. Location of the existing septic tanks to determine whether they will need to be replaced and/or moved to be used in the STEP (Septic Tank Effluent Pumping) system.
3. Preliminary engineering study to determine a more accurate cost estimate for the grant submission.
4. Submission of a funding grant application to the Provincial and/or Federal governments along with the 1st Avenue system.
5. Once the grant has been received (likely several months between submission and success), environmental impact studies for the creek crossings will be required.
6. This would be followed by detailed design of the sewer and the communal septic systems.
7. Phased tendering and construction, starting with Beam Station Road area.
8. Continued tendering and construction moving eastward and northward to encompass all of the identified cluster system areas.

Based on the above, one example overall implementation plan is shown in Figure 1.

Figure 1 starts with completion of the Stage 3 process at the end of 2007. There is still a significant amount of work to prepare enough detail for an infrastructure grant application in 2008. Once the grant is approved, allowance is required for environmental impact studies for all the creek crossings that will be involved in the sewerage component of implementation. This would be followed by detailed design, tendering and construction of the first Phases of the 1st Avenue system and the initial cluster/communal systems in 2010. The proposed implementation schedule ends with completion of Phase 2 of the 1st Avenue system and Phase 2 of the cluster/communal septic systems in late 2011.

