



Making a difference...together

**GANGES SEWER LOCAL SERVICE COMMITTEE
2009 ANNUAL GENERAL MEETING OPERATIONS REPORT
09 NOVEMBER 2009**

The following is provided for information to residents and users of the Ganges sewer local service.

GENERAL

The Ganges sewer area continues to see development of vacant properties and redevelopment of existing properties, adding to the loading of the wastewater plant. 2009 saw the creation of a sanitary sewer model to aid staff and the Ganges Sewer Local Service Committee (GSLSC) to define capacity problems in the pipe system when considering further inclusions of properties into the service area. Planned works to the plant included upgrades to the electrical switchgear and controls, replacement of line valves, air diffusers and ultraviolet (UV) lamps.

GANGES MEMBRANE WASTEWATER TREATMENT PLANT OPERATIONS

The high quality of effluent from the Ganges plant is due to the use of membrane technology. The method of treatment essentially includes drawing the water from the effluent tank while leaving the solids behind. This is accomplished through a membrane filter (plastic spaghetti-like tube with microscopic holes). When subjected to a vacuum, liquid is separated from the solids component and drawn through these very tiny holes in the tube. The tubes are assembled in bundles, which are hung in racks in the sewage tank. A separate sludge thickening system, also based on membrane technology, continues to provide a much thicker waste product which reduces the cost of disposal through reduced hauling costs and tipping fees at the regional dewatering facility at Burgoyne Bay.

To minimize the potential for physical damage to the membranes by coarse material in the sewage stream, a new solids removal screen was added to the head end of the plant in 2008. Solid material from the screen is washed and compacted to reduce the cost of disposal. There has been considerable effort made to strike a balance between screen throughput and volume of solids removed with staff fitting a variety of screen grid sizes to the screen and regulating flows through the screen by timing the influent pumps in an effort to obtain the optimum combination. See Attachment 1 - Wastewater Treatment Plant Flow Diagram.

The regional dewatering facility at Burgoyne receives pump outs from restaurant grease traps. Grease traps must be installed in each restaurant's internal sewer plumbing specifically to avoid private side plugging, operational problems with the Ganges sewer system and the membrane treatment plant. The Capital Regional District (CRD) source control program performs periodic inspections of the traps to ensure they are being maintained. What is good for Ganges sewer has turned out to be an issue for the Burgoyne dewatering facility which receives the material. The material has resulted in a number of operational issues at the dewatering facility and while the facility is the appropriate location to deliver the product to, it has been determined that an additional process will need to be constructed at the facility to handle the material effectively. This may have some long-term cost implications for Ganges and other island sewer systems as there may be capital costs associated with the installation of the side stream process and additional capital costs for its operation. The decision on how best to handle the material will be made as part of the design for the liquid waste facility upgrade project which was approved by taxpayers on Salt Spring Island.

The Ganges plant is still in need of upgrades which will be planned over the next five years to include components such as enhancement of the Supervisory Control and Data Acquisition (SCADA) system, upgrades to the existing UV system's electronic control panel, Zenon membrane cartridge, replacement/reinforcement of the Roto-Screen head works and replacement of the leaking underground pipes taking air to the plant's diffusers.

Recent 2009 effluent sampling has revealed increasing amounts of nitrogen and ammonia in the discharge waste stream, which needs to be resolved to meet the regulatory discharge allowable levels. The cause of the increasing ammonia is inadequate aeration due to the aging diffusers.

Replacement of the 16 UV lamps, the air diffusers in the Zenon Membrane Reactor and 12 associated butterfly control valves will be done before the end of 2009 at an anticipated cost of approximately \$22,000, as approved by the committee.

CONTROL BUILDING UPGRADE

The control and maintenance building was extended last year with a small addition for an operator office. The previous office was located inside the electrical and control room, and to comply with WorkSafe BC and the BC Electrical Code requirements, the office extension was relocated outside of the active area where the electrical switchgear and electrical controls are housed.

With several upgrades of the facility completed since first built, some changes made did not meet today's current codes, posing potential safety risks to service personnel which constituted the need for the upgraded electrical works. The original project budget authorized by the GSLSC was \$125,000. At its 02 September 2008 meeting, the GSLSC approved additional funding to augment the capital budget a further \$62,500 to compensate for higher than expected tendered bids from electrical contractors. The additional funds created a budget of \$187,500 to complete the works to the Ganges wastewater treatment plant. The contracted electrical upgrade works were completed 28 April 2009 and all holdbacks have since been released to the contractor. The approved budget is fully spent.

Although the prices were in excess of the budget struck in 2007, the additional costs were drawn from reserve funds avoiding the need for a tax increase. The works are now substantially complete with any minor modifications outstanding being supported through annual operations funds.

INFLOW AND INFILTRATION

Sewage flows to the plant continues to increase during rainfall events however the peak inflows seen to date this year were not as evident as experienced with the 2007-2008 early winter snow melt. It was generally agreed that Ganges Village needs a more comprehensive storm water management plan to address the inflow of superfluous storm water into the sewer system. Other rainfall events resulted in some inflow due to uncompleted systems on construction sites, where staff have been working with the building inspector to ensure that construction sites do not make improper or interim connections to the sewer for removal of surface water.

LOCAL SERVICE AREA GROWTH

The GSLSC reviewed a number of applications to extend the service area boundary this past year. The committee continues to review options to better coordinate sewer servicing and land development both inside and outside of the sewer area boundary. In 2007, the committee agreed that significant upzoning had occurred over the past years within the sewer area that might result in components of the existing sewer system being near to or at capacity. Consequently, in the 2008 budget the committee provided \$30,000 to initiate a sewer model. The sewer model was completed within budget in July 2009 by Stantec Engineering and provides an evaluation of available sewer capacity within the system, in each pipe section and pump

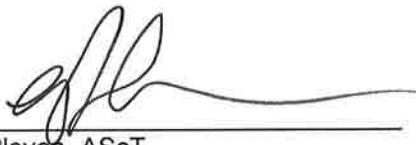
station and highlights the need for upsizing works. The study indicates the need for upgrade works in the future. The sewer model can be used as a valuable tool to determine whether additional lands taken into the area need to fund downstream upsizing works.

Applications for inclusion were considered for two properties, one on Rainbow Road and the other on Fulford-Ganges Road. The committee tabled all applications in early 2009 until completion of the sewer model study. Results from the study have provided staff and the committee a comfortable level of confidence in approving the two inclusion requests into the system.

OPERATING BUDGET

At year-end 2008, the expenditures for the utility operations amounted to \$470,159. Total revenues were \$500,938 resulting in a surplus carry forward of \$30,779 which was transferred to the sewer capital fund. The Ganges sewer capital reserve fund, at year-end 2008 stood at \$57,527.

A copy of the Statement of Financial Activities to 31 December 2008, as prepared by the CRD Finance and Corporate Services Department is attached for information.



Gary Plevin, ASCT
Engineering Technician 5

GP:ls
Attachments: 2

GENERAL INFORMATION

Sewer

Total Annual Treated Waste Water 2008	176,233 m3
Total 2008 Operating Costs (\$)	400,038.14
Unit Cost to Treat Waste Water (\$)	2.27/m3
Single Family Equivalents (Residential)	528
Taxable Parcels in Service Area	365
Average Annual Residential User Fee (includes a fixed residential fee of \$150)	\$407
Annual Parcel Tax	\$118

Notes:

The average annual residential user fee is an estimated value.

Residential properties are assessed a variable user fee based on water use for eight months.

Institutional properties are assessed a variable user fee based on water use.

Commercial properties are assessed a variable user fee based on water use and a variable fee based on building square footage.

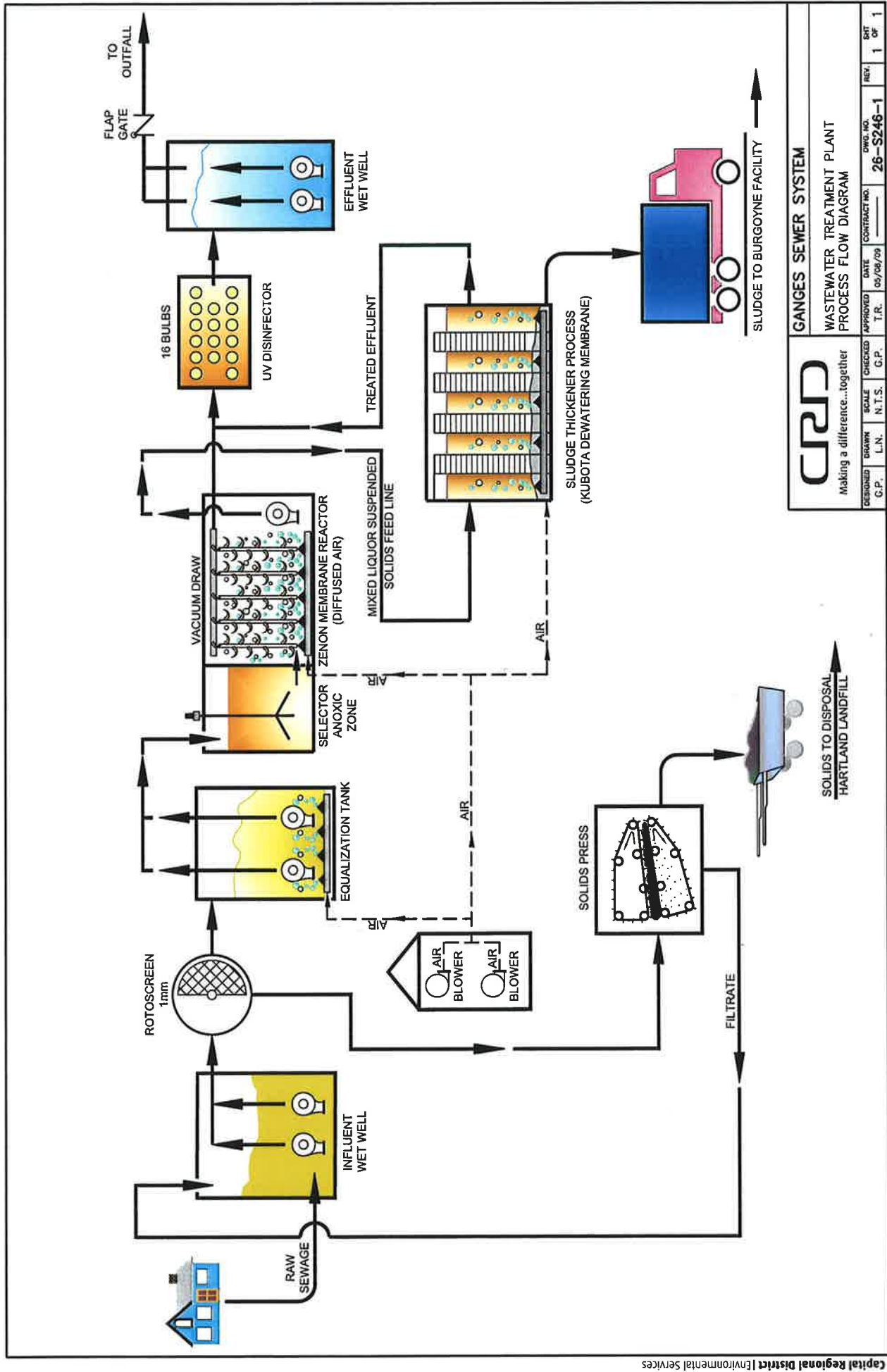
CAPITAL REGIONAL DISTRICT

SEWER REVENUE FUND

STATEMENT OF FINANCIAL ACTIVITIES (UNAUDITED)

For the year ended December 31, 2008

	Ganges Sewerage System
REVENUES	
Transfers from government	\$ 40,935
Sale of services	453,950
Other revenue from own sources:	
Building permits	-
Interest earnings	838
Other revenue	5,159
Grants in lieu of taxes	56
	<u>500,938</u>
EXPENDITURES	
General government services	21,720
Other	443,348
Other fiscal services	5,091
Recovery	-
	<u>470,159</u>
NET REVENUES	
(EXPENDITURES)	30,779
Transfers to own funds:	
Sewer Capital Fund	-
Reserve Funds	57,527
Equipment Replacement Fund	-
Transfers from own funds:	
Sewer Capital Fund	-
Reserve Funds	-
CHANGE IN FUND BALANCE	(26,748)
Opening balance	26,748
CLOSING BALANCE	<u>\$ -</u>



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GANGES SEWER SYSTEM

**WASTEWATER TREATMENT PLANT
PROCESS FLOW DIAGRAM**

DESIGNED	DRAWN	SCALE	CHECKED	APPROVED	DATE	DWG. NO.	REV.	SHT
G.P.	L.N.	N.T.S.	G.P.	T.R.	09/08/99	26-S246-1	1	1