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Agenda Item 7
REPORT #SPWWC 2014 - 01

REPORT TO THE SAANICH PENINSULA WASTEWATER TREATMENT COMMISSION
MEETING OF THURSDAY, FEBRUARY 20, 2014

SUBJECT **SAANICH PENINSULA WASTEWATER TREATMENT PLANT CAPACITY UPDATE**

ISSUE

This report provides an update on remaining sewer capacity available in the Saanich Peninsula Wastewater Treatment Plant (SPWWTP).

BACKGROUND

The Saanich Peninsula Unified Treatment Plant Study (CRD, Kerr Wood Leidel Gore and Storrie Inc., 1996) provided design flows and per capita loadings that were used to develop the SPWWTP capacity in two phases: forecast 2012 population and ultimate catchment area build-out.

The ultimate design for the SPWWTP is based on an equivalent population of 100,000 and construction of a mirror image of the existing plant. The existing plant was designed to accommodate an anticipated 2012 population of 48,600, which corresponds to a total capacity of 18,596 m^3/day, Annual Average Daily Flow (AADF). The actual measured 2012 total flow into the treatment plant was 3,405,249 m^3 or 9,323 m^3/day, which is approximately one half of the existing plant capacity.

CRD Bylaw No. 2388 (April 1996) - Original Purchased Capacity Allocations

The participants in the SPWWTP are:

- North Saanich
- Sidney
- Central Saanich
- Victoria Airport Authority (VAA)
- Institute of Ocean Sciences (IOS)
- Pauqauchin First Nation
- Tseycum First Nation

Funding for the treatment plant and ancillary infrastructure was apportioned based on a combination of Maximum Allocated Capacity and measured sewage flows from each participant. Schedule B of CRD Bylaw No. 2388 (reprinted as Table 1 below) lists the Maximum Allocated Capacity for each participant.

Table 1: Maximum Allocated Capacity under Bylaw No. 2388 (April 1996)

Participant	Annual Average Daily Flow
Central Saanich	7,710 m^3/day
Sidney	7,160 m^3/day
North Saanich	647 m^3/day
Federal Facilities (Airport and IOS)	761 m^3/day
Union Bay Reserve (now Tseycum First Nation)	88 m^3/day
Cole Bay Reserve (now Pauqauchin First Nation)	219 m^3/day
Total AADF Purchased Capacity Allocation	16,585 m^3/day

CRD Bylaw No. 2439 (October 1996) - Amended Capacity Allocations

In October 1996, Bylaw No. 2388 was amended by CRD Bylaw No. 2439. The amended Schedule B (Attachment 3) does not include capacity allocations for VAA, IOS, or the two First Nations, although they are included in a staff report dated February 19, 2009 (Attachment 2).

The current purchased capacity allocations are shown in Table 2, along with actual flows measured in 2012. As 2013 flow volumes have not yet been tabulated, 2012 measured flows were used to calculate the remaining available capacity for each participant.

Table 2: Capacity Allocation vs. 2012 Actual Measured Flows

Participant	Capacity Allocation (AADF) (m^3/day)	2012 Measured Flow (AADF) (m^3/day)	Remaining Capacity (AADF) (m^3/day)	Percentage of Capacity Used (%)
Central Saanich	7,710	4,060	3,650	52.7
Sidney	7,160	3,764	3,396	52.6
North Saanich	2,650	1,226	1,424	46.3
Institute of Ocean Sciences	79	25	54	31.6
Airport Authority	682	107	575	15.7
Pauqauchin FN	219	90	129	41.1
Tseycum FN	96	51	45	53.1
TOTAL	18,596	9,323	9,273	50.1

Flow trends over the period 2008-2013 for the three municipalities of North Saanich, Central Saanich and Sidney are provided in tabular form as Attachment 4.

SUMMARY

CRD Bylaw No. 2439 (1996) establishes the Maximum Allocated Capacity for each of the SPWWTP participants. The existing SPWWTP was designed with a capacity of 18,596 m^3/day based on a projected 2012 population of 48,600. In 2012, the actual measured total flow into the plant was 3,405,249 m^3 or 9,323 m^3/day, which is approximately half of the current plant's capacity.

RECOMMENDATION

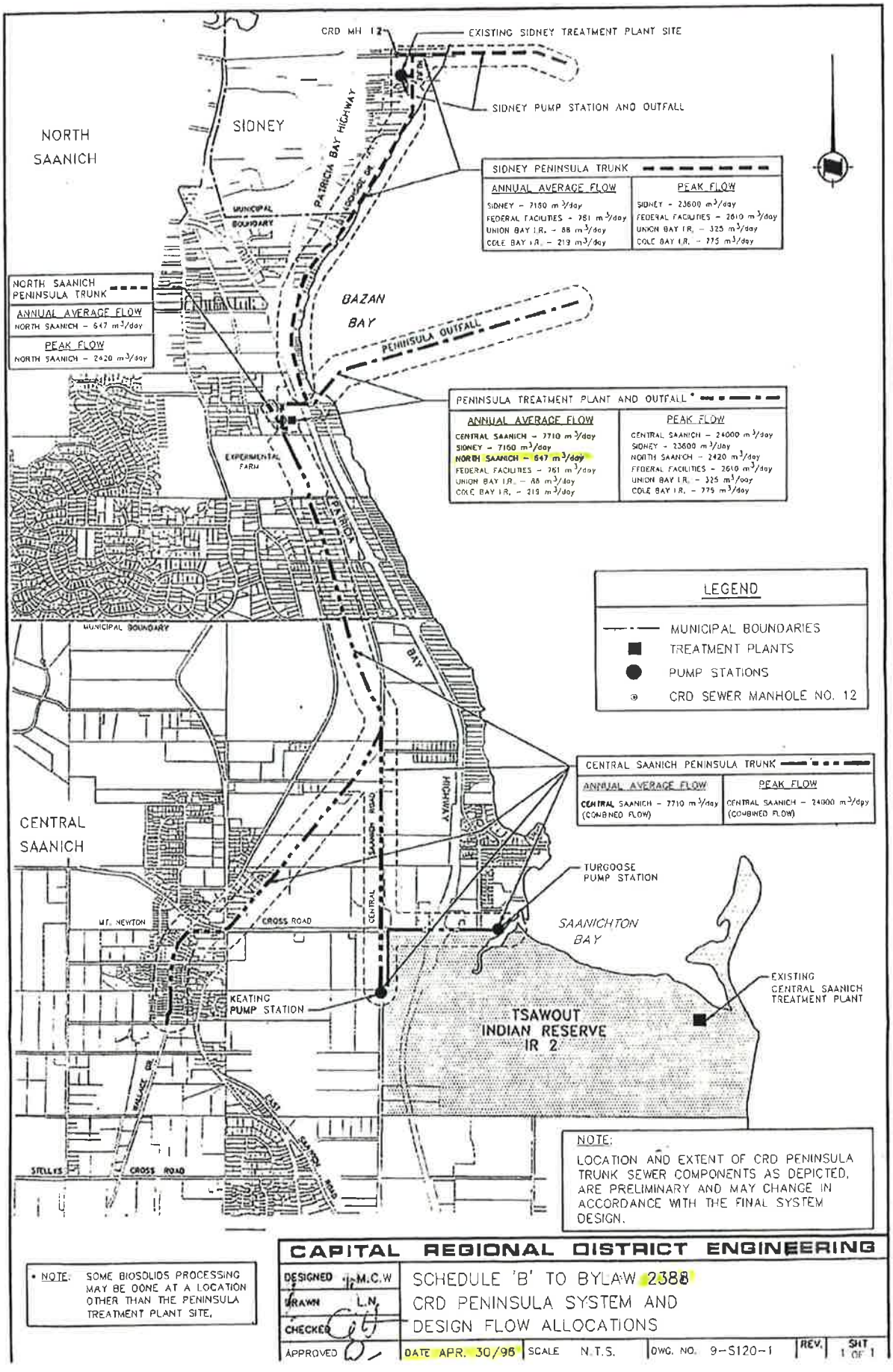
That the Saanich Peninsula Wastewater Commission receive the staff report for information.

Tim Tanton, MPA, PEng
Senior Manager, Infrastructure Engineering

Ted Robbins, BSc, CTech
General Manager, Integrated Water Services
Concurrence

CG:mm
Attachments: 4

Attachment 1



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Attachment 2

REPORT TO SAANICH PENINSULA WASTEWATER COMMISSION
MEETING OF THURSDAY, FEBRUARY 19, 2009

SUBJECT **SAANICH PENINSULA WASTEWATER TREATMENT PLANT CAPACITY UPDATE**

PURPOSE

The purpose of this staff report is to present an update of the current capacity for each participant contributing to the Saanich Peninsula wastewater treatment plant (SPWWTP).

BACKGROUND

In November 2006, a capacity review study was presented to the Saanich Peninsula Wastewater Commission (SPWWC). At the November 2008 SPWWC meeting, the SPWWC requested an update of the capacity review.

DISCUSSION

The SPWWTP was commissioned in 2000. The plant has a capacity to serve about 48,600 population equivalent. The treatment plant currently operates at about 53.4% capacity and runs on one of the two process trains. The total annual average flow (AAF) from October 1, 2007 to September 30, 2008 was 9,362 m^3/d, out of a design capacity of 18,596 m^3/d.

Based on flow monitoring from October 1, 2007 to October 1, 2008, the following table presents the purchased capacity and current average annual flow for each participant.

Participant	Purchased Capacity (m^3/day)	Current AAF (m^3/day)	Percentage of Purchased Capacity	Percentage of Total Measured Flow
North Saanich	2,650	1,068	40.3	11.4
Central Saanich	7,710	4,168	54	44.5
Sidney	7,160	3,822	53.4	40.8
IOS	79	25	31.7	0.3
Airport	682	146	21.4	1.6
Pauquachin FN	219	96	43.8	1.0
Tseycum FN	96	38	39.6	0.4

The average daily flow from each municipality in the last three years is as follows:

	North Saanich	Central Saanich	Sidney
2006	827 m^3/d	4,325 m^3/d	3,873 m^3/d
2007	1,020 m^3/d	4,501 m^3/d	4,129 m^3/d
2008	1,068 m^3/d	4,168 m^3/d	3,822 m^3/d

FINANCIAL IMPLICATIONS

Not applicable.

SUMMARY

This report presents the updated flows for each participant contributing to the Saanich Peninsula wastewater treatment plant, and the summary of flow from each municipality in the last three years.

RECOMMENDATION

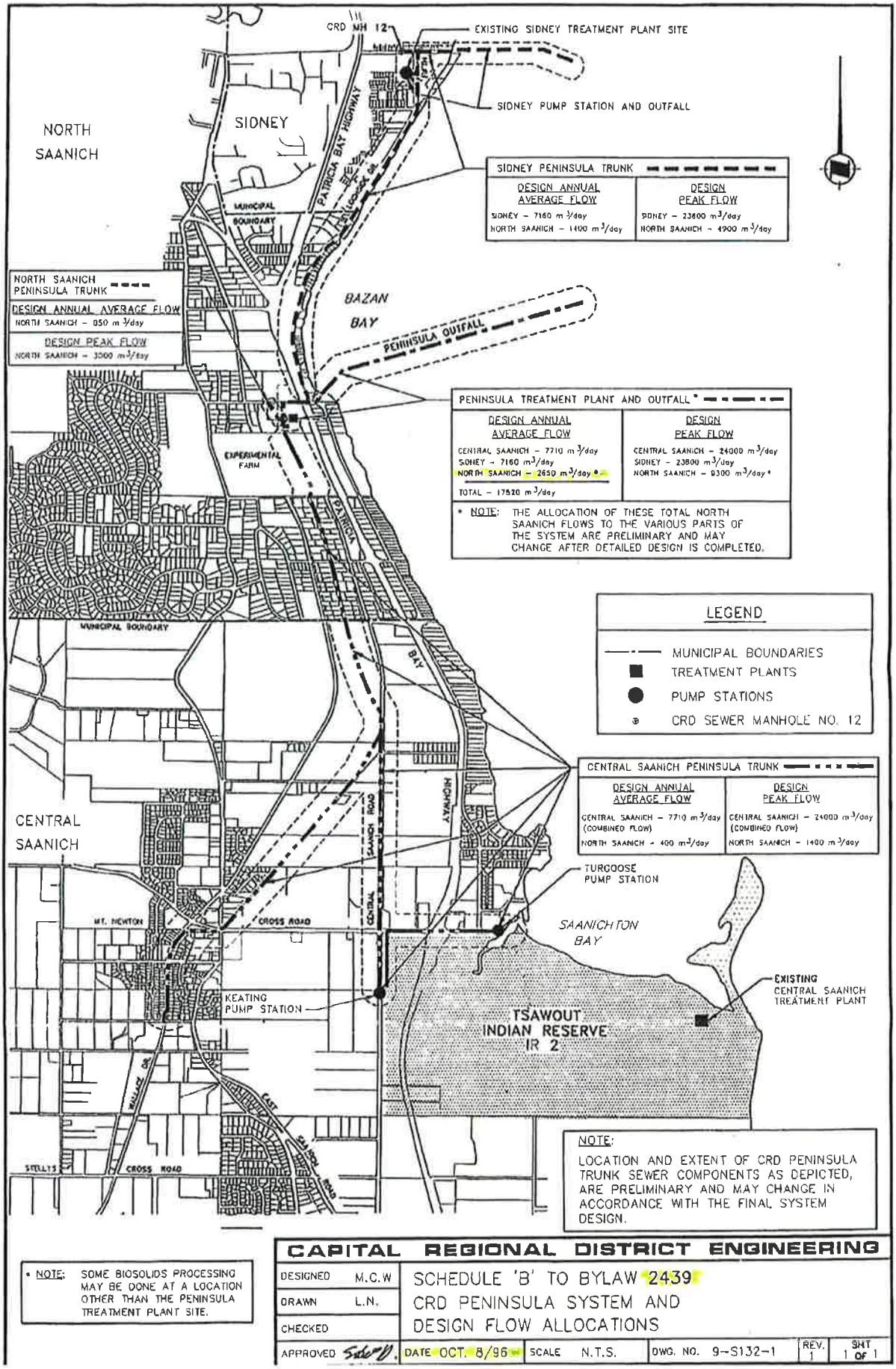
That the Saanich Peninsula Wastewater Commission receive this report for information and forward it to the councils of North Saanich, Central Saanich and Sidney for information.

L. Hutcheson, PEng
Senior Manager, Operations and Local Services

S.B. McDonnell, PEng
Senior Manager, Engineering Services

AL:jt

Attachment 3



* NOTE: SOME BIOSOLIDS PROCESSING MAY BE DONE AT A LOCATION OTHER THAN THE PENINSULA TREATMENT PLANT SITE.

CAPITAL REGIONAL DISTRICT ENGINEERING

DESIGNED	M.C.W	SCHEDULE 'B' TO BYLAW 2439				
DRAWN	L.N.	CRD PENINSULA SYSTEM AND				
CHECKED		DESIGN FLOW ALLOCATIONS				
APPROVED		DATE OCT. 8/96	SCALE N.T.S.	DWG. NO. 9-S132-1	REV. 1	SHT 1 OF 1

Attachment 4: Annual Flow Allocations and Measured Discharge Volumes

Derived from Saanich Peninsula Wastewater cost sharing analysis: October to October inclusive.

February 18, 2014

North Saanich Sanitary Flows: Allocated Capacity vs. Current Flows (Measured) – Percentage of Total Flow Received.

	2008	%*	2009	%*	2010	%*	2011	%*	2012	%*	2013	%*	6 year % change
Municipality of North Saanich Annual Flows (M^3)	389,898	11.4	397,959	12.0 +2.0	439,687	12.7 +9.4	447,648	13.1 +1.8	439,336	13.9 -1.8	454,197	13.7 +3.3	
Design Flow Annual Allocation (M^3)	967,913		967,913		967,913		967,913		967,913		967,913		+16.5
Remaining Annual Capacity (M^3)	570,015		569,954		528,226		520,265		528,577		513,716		

Central Saanich Sanitary Flows: Allocated Capacity vs. Current Flows (Measured) – Percentage of Total Flow Received.

	2008	%*	2009	%*	2010	%*	2011	%*	2012	%*	2013	%*	6 year % change
Municipality of Central Saanich Annual Flows (M^3)	1,521,123	44.5	1,642,668	44.1 +7.4	1,505,109	43.3 -9.1	1,483,063	43.5 -1.4	1,392,137	44.2 -6.1	1,425,138	43.0 +2.3	
Design Flow Annual Allocation (M^3)	2,816,078		2,816,078		2,816,078		2,816,078		2,816,078		2,816,078		-6.3
Remaining Annual Capacity (M^3)			1,173,410		1,310,969		1,333,015		1,423,941		1,390,940		

Township of Sidney Sanitary Flows: Allocated Capacity vs. Current Flows (Measured) – Percentage of Total Flow Received.

	2008	%*	2009	%*	2010	%*	2011	%*	2012	%*	2013	%*	6 year % change
Township of Sidney Annual Flows (M^3)	1,394,595	40.1	1,572,282	42.2 +12.7	1,422,109	40.9 -9.6	1,374,666	40.3 -3.3	1,239,002	39.9 -9.8	1,337,648	40.4 +8.0	
Design Flow Annual Allocation (M^3)	2,615,190		2,615,190		2,615,190		2,615,190		2,615,190		2,615,190		-4.0
Remaining Annual Capacity (M^3)	1,220,595		1,042,908		1,193,081		1,240,524		1,376,188		1,277,542		

*Upper number in "%" column equates to percentage of total annual flow to the Saanich Peninsula Wastewater Treatment Plant .
Lower number equates to percent (%) change (+/-) from previous year's measured volume.