TOWN OF FORT FRANCES

Operations and Facilities Executive Committee

AGENDA - October 18, 2017, 8:30 AM

MEETING - Civic Centre

Session #014

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1.	**Call to Order**		
2.	**Disclosure of pecuniary interest and the general nature thereof**		
3.	**Approval of Previous Committee Minutes**		
	3.1	Minutes from the previous meeting on October 4, 2017.	2 - 4
4.	**Non-agenda Items**		
5.	**Items Referred from Council**		
	5.1	Request dated September 8, 2017 from the Royal Canadian Legion - Maintenance Services for the Lane Along the Legion.	5 - 6
6.	**New Business**		
	6.1	Church Street Sanitary Sewer Study	7 - 29
	6.2	Asset Management Roadmap Project Update	30 - 35
	6.3	September 2017 Drinking Water Systems Monthly Summary Report	36 - 44
7.	**Information**		
	7.1	Fort Frances Wastewater Treatment Facility September 2017 Monthly Report	45 - 51
	7.2	Aircraft Statistics as of October 10, 2017	52 - 53
	7.3	2017 Tonnage at the Landfill Site - updated October 10, 2017	54
	7.4	Sewer & Water Data for 2017 - updated October 10, 2017	55
8.	**Adjourn / Next Meeting Date**		

TOWN OF FORT FRANCES

MINUTES SESSION NO. #013 October 4, 2017

The meeting of Operations & Facilities Executive Committee of the Town of Fort Frances was held in the Civic Centre on October 4, 2017 from 8:30 a.m. to 9:01 a.m.

PRESENT: Paul Ryan, Chairperson, Ken Perry, June Caul, Doug Brown, CAO and Travis Rob

ALSO PRESENT: Mayor Roy Avis

1. Call to Order

1.1 The meeting was called to order at 8:30 a.m.

2. Disclosure of pecuniary interest and the general nature thereof

2.1 None

3. Approval of Previous Committee Minutes

3.1 Minutes from the previous meeting on September 6, 2017 - the minutes from the previous meeting were approved as circulated.

4. Non-agenda Items

4.1 None

5. Items Referred from Council

5.1 Request from C. Gagne - re: Installation of Additional Stop Signs at Minnie Avenue and Fifth Street East - the administration report was approved as recommended.

5.2 Request Dated September 8, 2017 from the Royal Canadian Legion - Maintenance Services for the Lane along the Legion - the administration report was approved as recommended.

5.3 Letter Dated September 14, 2017 from Tom Veert Contracting re: Street Lighting - the administration report was approved to be sent to the 2018 Capital Budget Process.

5.4 Discussion of Budget Requests - verbal presentation on budget requests.

5.5 Verbal - Cross Walk between Municipal Parking Lot and the Fort Frances Legion -

6. New Business

6.1 Co-op Agreement for the Provision of Propane at the Fort Frances Airport - the administration report was approved as recommended.

6.2 Participant Agreement with Her Majesty the Queen in the Right of Ontario for the Supply of Orthophotography - the administration report was approved as recommended.

6.3 Airport Facility Lease Renewal - CBRE Maintenance Garage Bay - November 1, 2017 to March 31, 2018 - the administration report was approved as recommended.

6.4 Airport Property Land Lease Private Aircraft Hangers - the administration report was approved as recommended.

6.5 August 2017 Drinking Water Systems Monthly Summary Report - the Monthly Report for the Drinking Water Systems for August 2017 was approved as circulated.

7. Information

7.1 Fort Frances Wastewater Treatment Facility August 2017 Monthly Report - the administration report was reviewed and will be forwarded to Council as information only. No action required.

7.2 Operations and Facilities Division - Public Works Area - Operations Statistics July 2017 - the administration report was reviewed and will be forwarded to Council as information only. No action required.

7.3 Operations and Facilities Division - Public Works Area - Operations Statistics August 2017 - the Public Works Operations Statistics for August 2017 were reviewed and will be forwarded to Council as information only. No action required.

7.4 Operations and Facilities Division - Environmental Area - Operations Statistics July 2017 - the Environmental Statistics for July 2017 were reviewed and will be forwarded on to Council as information only. No action required.

7.5 Operations and Facilities Division - Environmental Area - Operations Statistics August 2017 - the Environmental Statistics for August 2017 were reviewed and will be forwarded to Council as information only. No action required.

7.6 2017 Tonnage at Landfill Site - updated September 28, 2017 - the Tonnage at the Landfill Site as of September 28, 2017 was reviewed and will be forwarded to Council

as information only. No action required.

7.7 Sewer & Water Data for 2017 - updated September 28, 2017 - the Sewer and Water Data as of September 28, 2017 was reviewed and will be forwarded to Council as information only. No action required.

8. Adjourn / Next Meeting Date

The meeting adjourned at 9:01 a.m.

_____
Executive Committee Chair

_____
T. Rob, Manager of Operations & Facilities

October 4, 2017

Report To: Mayor and Council

From: Travis Rob, Manager of Operations and Facilities

RE: Request Dated September 8, 2017 from the Royal Canadian Legion – Maintenance Services for the lane along the Legion

On September 8, 2017 Council received a letter from the Royal Canadian Legion requesting for the Town to maintain the lane beside their building. This lane is on Legion property and forms part of their access for deliveries as well as access to their parking at the rear of their building and a fire lane for the Fire Department use. According to the Legion, in the Past the Town has graded, added gravel and even completed snow removal of this area, however there was never a formal agreement to complete this work.

In the letter, the Legion states that this lane is marked as a pedestrian walkway to access the Downtown businesses from those parked in the Municipal Lot on the south side of Church Street. This is not a true statement, this lane is used by those parking in the municipal lot because of convenience, it is not the route that the Town has established. Further the lane is totally on private Legion property and there a need to ensure that any liabilities for damages would be taken care of on the case of either party.

Currently the Town does not plow the snow or maintain any private lanes, parking lots or routes of access. Given that the alley is on private property, it is the recommendation of Administration, that the Town does not take over the maintenance of this alley.

Respectfully Submitted

Travis Rob, EIT

Council approval of this report will ensure that the recommendation by the Fort Frances Legion, to take over the maintenance of lane on private property to the east of their building on Church Street be denied.

Manager of Operations and Facilities

2017OctLegionRequestLaneMaintenance

FORT FRANCES BRANCH 29, MANITOBA AND NORTHWESTERN
ONTARIO COMMAND
The Royal Canadian Legion
Box 819, 250 Church Street
Fort Frances, ON
P9A 3N1
Office Phone 807-274-0129 Lounge Phone 807-274-5462
Kitchen Phone 807-274-3772 Fax # 807-274-6740
e-mail: rcl29@bellnet.ca

RECEIVED
SEP 8 2017
TOWN OF FORT FRANCES

Comrade Ray Watson
PRESIDENT

Veronica Davis
OFFICE MANAGER

September 8, 2017

Dear Mayor Avis and Council,

Due to the increased traffic volume in the alley running alongside of our building (due to closure of back alley running from Portage Ave to Church St.), we would like you to take over care and maintenance of the alley.

It is deteriorating at a rapid pace due to the volume of traffic and is becoming unsafe. We have limited funds available for that kind of maintenance.

As well this alley was marked and used as a fire lane. The alley was also marked as a walk way to provided access from the municipal parking lot on Church Street to the downtown business area.

Thank you for your consideration on this matter and hope it can be resolved to the satisfaction of both parties

Sincerely,

Ray Watson

Ray Watson
President, Royal Canadian Legion Branch 29

October 18, 2017

Report To: Mayor and Council

From: Travis Rob, Manager of Operations and Facilities

RE: Church Street Sanitary Sewer Study

At the June 12, 2017 meeting of Council, direction was given to study the sanitary sewer catchment feeding into the Church Street Lift station as well as the discharge and main system to the White Pine Lift Station. Quotations were solicited from engineering firms to carry out this work. Hatch Corporation of Thunder Bay was retained to complete this study.

The scope of works was:

1. Review flow and pump records from the White Pine and Church Street Lift Stations as well as the lift station report.
2. Complete flow calculations on the existing system as well as the proposed development worst case to determine loading.
3. Review I&I study and CCTV data to evaluate the cause of the high wet weather flows
4. Conduct a survey of the neighboring property owners to determine sump pump connections and evestrough connection.
5. Review data obtained during the 2014 flood event.
6. Complete any flow monitoring or other investigations that may be required to develop a full understanding of this area.

Through July and August, Hatch completed these works to understand the system in this area and how it behaves during high rainfall events.

Attached to this report you will find the final report submitted by Hatch Corporation on October 2, 2017 outlining the findings through the study being:

1. There is no evidence of a major source of surface inflow into the sanitary sewer system in the Church Street Pumping Station.

2. A back-up or surcharge in the Minnie Avenue sewer could result in back flow into the Church Street Pumping Station through the overflow pipe of MH S03011 (Church Street and Minnie Avenue) as there is no isolation valve or check valve on this pipe.

3. The size and configuration of the manhole at Scott Street and Minnie Avenue (MH S03006) can cause back-up in the sewer on Minnie Avenue south of Scott Street during moderate and heavy flows.

4. The configuration of the manhole at the intersection of Minnie Avenue and Nelson Street could result in backflow into the Church Street Pumping Station drainage shed in the event of a back-up or surcharge in the Minnie Avenue sewer.

5. Calculations indicate that the Church Street Pumping Station should have adequate capacity for the flow from this area even with a generous infiltration allowance.

6. The sewer on Scott Street from Minnie Avenue to Butler Avenue does not appear to have adequate capacity to accommodate the flow that was experienced during the 2014 event when one considers that 350 US gpm of flow was taken out of the system through by-pass pumping.

7. The White Pine Pumping Station does not appear to have adequate capacity to accommodate the flow that was experienced during the 2014 event when one considers that 350 US gpm of flow was taken out of the system by by-pass pumping.

Further it was determined early that the direct connection of weeping tile to the sanitary sewer service laterals is likely a contributing factor to the wet weather flows, however mitigation of this situation is extremely difficult and costly to the homeowner, further this situation is not secluded to these houses and is a main cause of infiltration and inflow to the entire sanitary sewer system. The overall conclusion that was drawn from this investigation was that the bypass pumping activities that were carried out by the Town crews during the 2014 flood event, if not conducted at the locations they were, would have been required further downstream through the system.

From the conclusions drawn through the study, several recommendations with cost estimates were provided for consideration by the Town to help alleviate the flood risk in this area, which are summarized below:

1. Install an isolation valve or check valve on the overflow pipe from the Church Street Pumping Station to prevent backflow during high flow periods in the Minnie Avenue sewer. Estimated cost $10,000.

2. Install an additional manhole at the intersection of Minnie Avenue and Nelson Street to separate the Church Street Pumping Station drainage shed from the Minnie Avenue sewer. Estimated cost $10,000.

The above two items would allow development of the vacant lands at Minnie Avenue and Nelson Street and Nelson Street and Williams Avenue to proceed with minimal impact from high rainfall events and high flows in the sewer system. However, development on those properties should be slab-on-grade construction (i.e. no basements).

3. Reconfigure the manhole at Scott Street and Minnie Avenue to provide better hydraulics and reduce the potential for back-up in the Minnie Avenue sewer south of Scott Street. Estimated cost $50,000.

4. Carry out a review of the White Pine Pumping Station drainage shed to look for controllable sources of surface inflow into the sanitary sewer system. Estimated cost $50,000.

5. Investigate increasing the capacity of the sewer on Scott Street the White Pine between Minnie Avenue and Butler Avenue to accommodate the additional flow during high flow events (nominal increase in capacity of 350 US gpm (22 l/s). Estimated cost $5,000.

6. Investigate increasing the capacity of the White Pine Pumping Station (larger pumps) or permanent emergency pump. This exercise will also need to consider the impact on the sewer downstream of the discharge point and review of the capacity of the Scott Street sewer. Estimate cost $25,000.

7. Review the White Pine SPS drainage shed for possible downspout connections.

8. Maintain the by-pass pumping procedure for implementation as warranted during heavy rainfall events until such time as sewer and pumping station capacity is increased.

From these 8 recommendations the first two are suggested to be completed prior to the further development of this area and should be considered in the 2018 Capital budget. The sanitary manhole at Scott Street and Minnie avenue is a major contributor to the backflow up Minnie Avenue under dry flow conditions and more severely under wet weather flows. Further with the revitalization of Scott Street from Colonization Road East to Butler Avenue on the horizon in the coming years, the investigation in the Scott Street sewer capacity and impacts to the White Pine Lift Station should also be considered.

Out of these recommendations Administration recommends the following:

1. That Council accept the report dated October 2, 2017 by Hatch Corporation Thunder Bay on the East End Sanitary Sewer Study, and
2. That Recommendations 1, 2, 3, 5 and 6 be brought forward through the 2018 Capital Budget for consideration.

Respectfully Submitted

Travis Rob, EIT

Council approval of this report will ensure the following:

1. **That Council accept the report dated October 2, 2017 by Hatch Corporation Thunder Bay on the East End Sanitary Sewer Study, and**
2. **That Recommendations 1, 2, 3, 5 and 6 be brought forward through the 2018 Capital Budget for consideration.**

Manager of Operations and Facilities

2017OctSanitarySewerStudyChurchStreet

TOWN OF FORT FRANCES

East End Sanitary Sewer Study

Final Report

HATCH CORPORATION
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October 2, 2017 H-354684

HATCH

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October 2, 2017 H-354684

Town of Fort Frances
320 Portage Ave
Fort Frances ON P9A 3P9

Attention: Travis Rob

Subject: East End Sanitary Sewer Study

The following is our report on the review of the sanitary sewer system in the south easterly portion of the Town (Church Street, Nelson Street, Minnie Avenue, Williams Avenue area) with respect to flooding which occurred during the major rainstorm event in June of 2014.

During the field review we did not identify any significant sources of direct inflow into the sanitary sewer system but did note some field conditions that contributed to a back-up in the Church Street Pumping Station drainage shed. The flow data and flooding that occurred suggests that the White Pine and Church Street Pumping Stations were simply overwhelmed by the flow and the most probable source was through the weeping tile in the residences and businesses.

Minor remedial work in manholes on Minnie Avenue will isolate the Church Street Pumping Station drainage shed from the rest of the system to help protect the area. However issues still exist with the Scott Street sewer and White Pine Pumping Station that require further review. Until these are resolved it will still be necessary to implement by-pass pumping during heavy rainfall events.

We thank you for the opportunity to be involved in this Study and will be pleased to discuss the report further with you at your convenience.

Yours truly,

Rob Marasco
Principal Project Manager

Gerald Buckrell, P. Eng.
Senior Project Engineer

GB:ks

Cc

Encl.

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1. Introduction

Between June 12 and June 15, 2014, the Fort Frances area experienced a significant rainfall event which resulted in flooding in the sanitary sewer system and some basements in the Church Street, William Avenue, Nelson Street and Minnie Avenue area as well as other areas of Town. To alleviate the flooding in the Church Street area the town staff setup temporary pumps at Church Street and Minnie Avenue and First Street East and Minnie Avenue to pump from the sanitary sewer into the adjacent storm sewers. This temporary pumping was effective in lowering the water level in the sanitary sewer to eliminate the flooding. By-pass pumping was also done adjacent to the overpass on Colonization Road East.

The homes that experienced flooding were predominantly in the area served by the Church Street pumping station. Additional development is being contemplated in this area and the Town initiated this Study to look at the area, try to determine the causes of the flooding and suggest remedial work to eliminate the causes or deal with the additional flow.

Drawing A1-354684-D1 illustrates the locations of the Church Street and White Pine Pumping Stations and their respective drainage areas.

2. Scope of Work

The scope of work proposed for the study was to:

- Review recent CCTV reports for the sewers in the area.
- Review pumping station and rainfall records.
- Conduct a visual survey of the Church Street area including sewer manholes to look for obvious signs of inflow (i.e. manholes in drainage paths, possible downspout connections, sinkholes).
- Carry out home inspections and discuss flood related issues with the homeowners (sump pump discharges, check valves, flood experience).
- Analyse flow data from the pumping stations to try to characterize the excess flow as inflow or infiltration.
- Identify deficiencies and problem areas.
- Make recommendations on remedial work to help alleviate sanitary sewer flooding in the study area.

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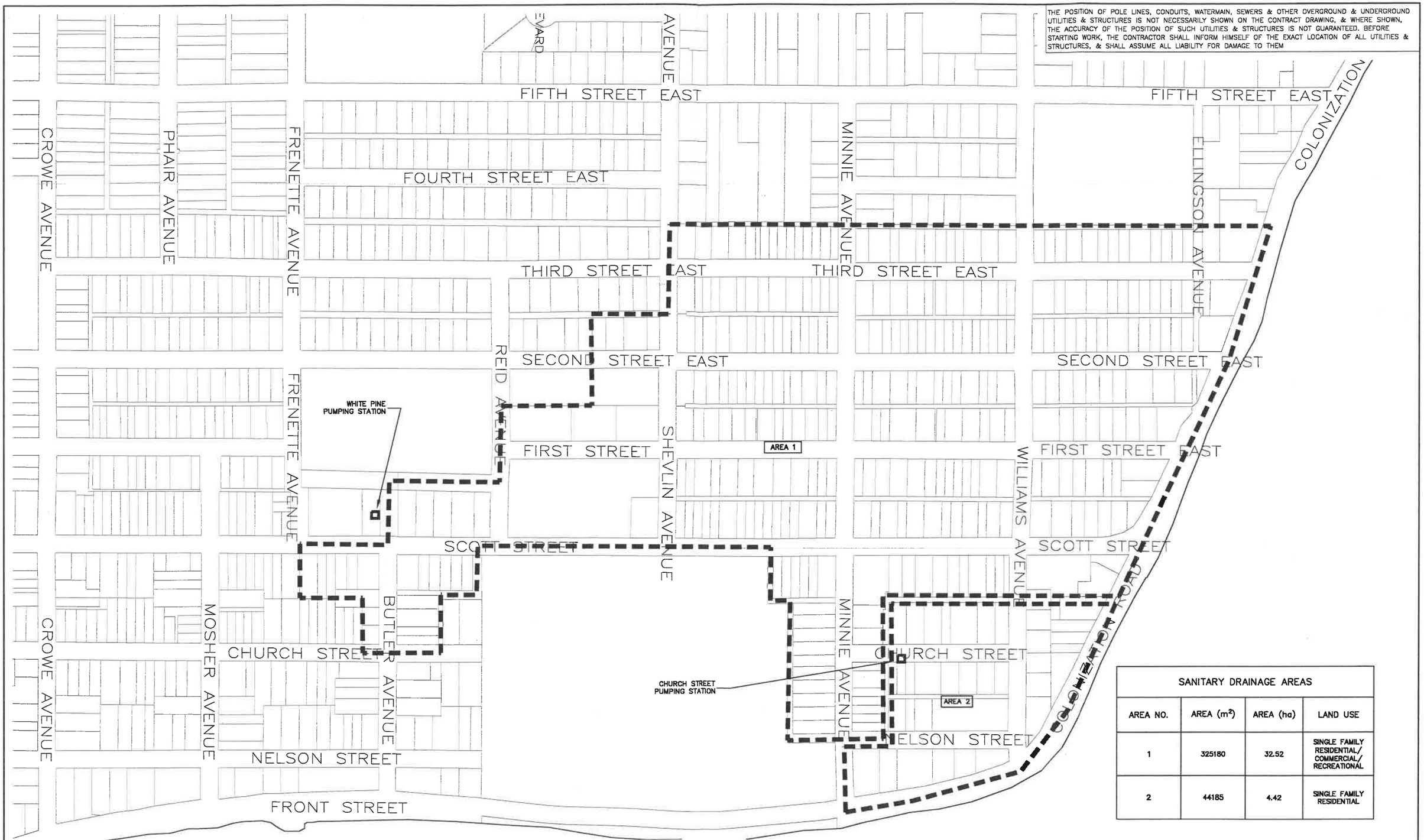
THE POSITION OF POLE LINES, CONDUITS, WATERMAIN, SEWERS & OTHER OVERGROUND & UNDERGROUND UTILITIES & STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, & WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES & STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL UTILITIES & STRUCTURES, & SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM



SANITARY DRAINAGE AREAS			
AREA NO.	AREA (m^2)	AREA (ha)	LAND USE
1	325180	32.52	SINGLE FAMILY RESIDENTIAL/ COMMERCIAL/ RECREATIONAL
2	44185	4.42	SINGLE FAMILY RESIDENTIAL

—PROPOSED STORM SEWER
—PROPOSED STORM MANHOLE
—PROPOSED STORM CB
—DRAINAGE AREAS
—EXISTING STORM SEWER
—EXISTING STORM MANHOLE
—EXISTING STORM CB

No.	Revision	Date	Initial
B	ISSUED FOR FINAL REPORT	09/29/17	CM/GB
A	ISSUED FOR 1ST CLIENT REVIEW	.	.

Approved

DRAINAGE PLAN

WHITE PINE LIFT STATION AND CHURCH STREET LIFT STATION

TOWN OF FORT FRANCES

EAST END SANITARY SEWER STUDY

HATCH

Scale NTS

Drawn By CM
Ckd. By GB

Date SEPTEMBER 2017

Dwg. No. A1-354684-D1

Rev. B

Created: Mar 07' 2017 - 5:22pm
Last Saved: Sep 29' 2017 - 10:53am
Plotted: Sep 29' 2017 - 11:13am
Drawing file: C:\pwworking\hi\mcca861915\d0209534\A1-354684-D1.dwg

3. Analysis

3.1 Chronology

The first storm event started around 8:30 pm on June 11, 2014 and continued intermittently until 1:00 pm on June 12, 2014. A total of 5.6" (142 mm) of rain fell during this period.

Reports of basement flooding in the Church Street, Minnie Avenue, Nelson Street area began to come in and the Public Works Department setup one pump at the intersection of Minnie Avenue and Nelson Street to pump from the sanitary sewer into the storm sewer. This was not having much effect so a second pump was setup at 2:36 pm. This was still not having a significant effect so a third pump was setup at First Street East and Minnie Avenue at 5:58 pm. This was having a very positive effect so one pump at Minnie Avenue and Nelson Street was shut down at 6:30 pm and the second pump at 10:00 pm. The pump at Minnie Avenue and First Street East operated over night and was shut down at 8:40 am on the morning of June 13, 2014. An estimated volume of 2276 cubic metres was pumped from the sanitary sewer into the storm sewer during this period. **Figure 1** shows the by-pass pumping locations.

Rain started again around midnight on June 13, 2014 and continued until 4:00 pm on June 15, 2014. A total of 4.7 inches (119 mm) of rain fell during this period. Temporary by-pass pumps were again setup at Church Street and Minnie Avenue at 1:47 pm and First Street East and Minnie Avenue at 2:17 pm on June 15, 2014. The Church Street pump was shut down at 5:53 pm on June 15, 2014 and the pump at First Street East and Minnie Avenue continued to operate until 4:05 pm on June 16, 2014. The volume of sewage pumped during the period was estimated to be 2051 m^3.

The chronology on the following page provides a more detailed breakdown of the rainfall and the pumping installations and a bar chart illustrates the rainfall pattern for the 5-day period. There were essentially two rainfall events separated by 35 hours with no rainfall. At the time, it was not clear why the pumping was so much more effective at the Minnie Avenue and First Street East location and a review of this is part of this Study. By-pass pumping was also implemented near the Mill Road overpass on the sewer from Couchiching First Nation during this period to relieve flooding in other parts of the sanitary sewer system.

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Storm Chronology

Date	Time	Detail
June 11, 2014	2038-2055 2243-2355	0.76” rain 1.1” rain
June 12, 2014	0155-0555 0613-0755 0955-1255 1255-2400 1255 1436 1758 1830 2200	2.01” rain 1.07” rain 0.62” rain No rain One bypass pump in service at Minnie & Nelson Second pump in service at Minnie & Nelson One pump in service at Minnie & First Shut off one pump at Minnie & Nelson Shut off second pump at Minnie & Nelson
June 13, 2014	0000-2400 0840	No rain Shut off pump at Minnie & First (volume pumped 2226 m^3)
June 14, 2014	0000-1916 1916-1955 2000-2100 2100-2400	0.65” rain 0.49” rain 0.29” rain 0.48” rain
June 15, 2014	0000-0900 0900-1055 1055-1200 1200-1255 1255-1355 1347 1417 1355-1731 1733 1731-2400	0.11” rain 0.82” rain 1.32” rain 0.28” rain 0.07” rain Set up one pump at Church & Minnie Set up one pump at First & Minnie 0.22” rain Shut down pump at Church & Minnie 0.02” rain
June 16, 2014	000-1555 1605 1555-2400	No rain Shut down pump at First & Minnie (volume pumped 2015 m^3) No rain

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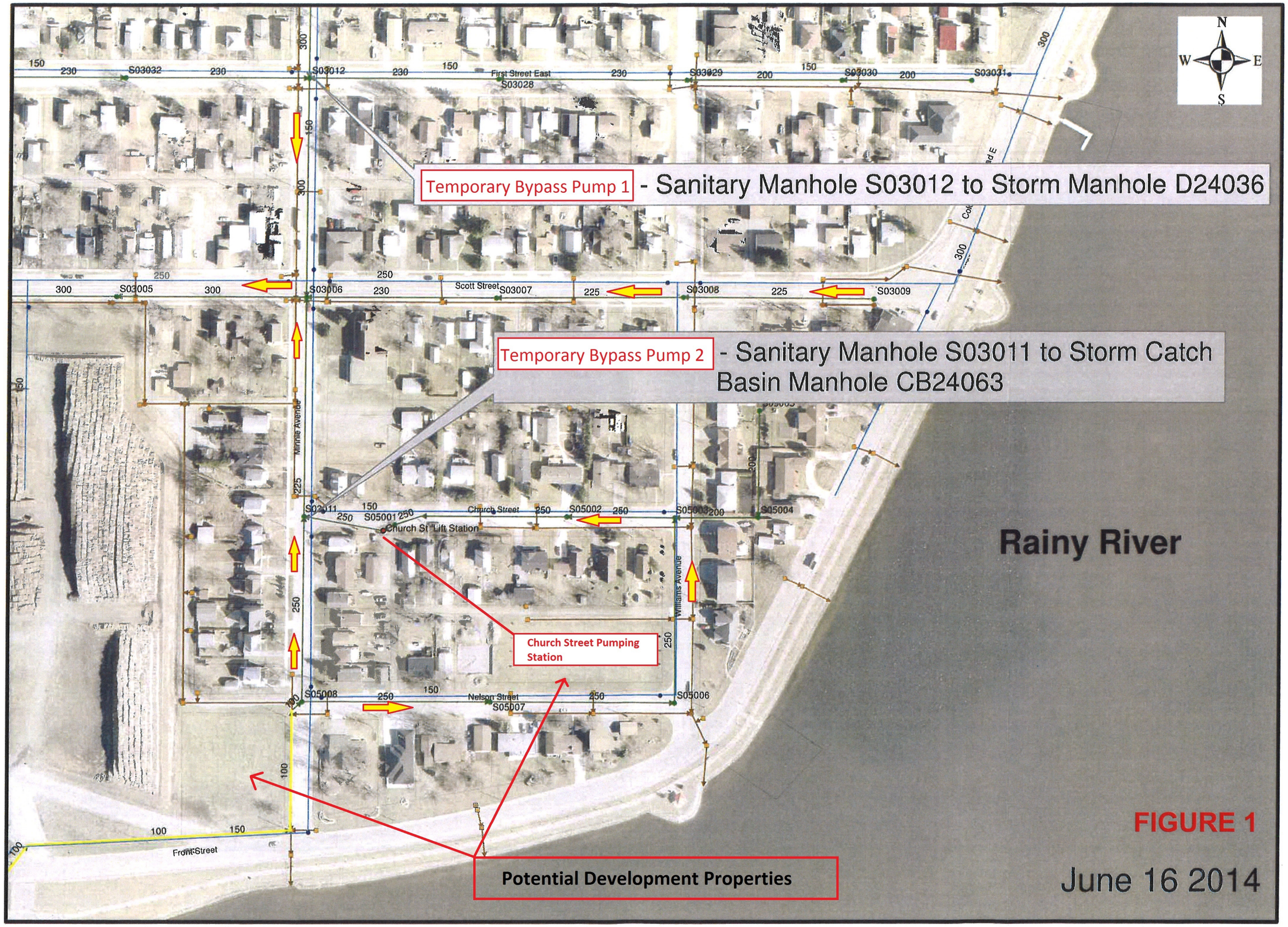

FIGURE 1

June 16 2014

3.2 *Review of CCTV Inspection Video*

The Town of Fort Frances had completed CCTV inspections of some of the sanitary sewers in the area and these were reviewed to determine whether there are any conditions that might contribute to high flows.

- Scott Street from Minnie Avenue to Butler Avenue June 2015
- Nelson Street from Minnie Avenue to Williams Avenue June 2013
- Church Street from Minnie Avenue to Williams Avenue June 2013
- Minnie Avenue from Scott Street to Nelson Street June 2013
- Williams Avenue from Church Street to Nelson Street June 2013
- Easement east of Williams Avenue at Church Street June 2013

There were no conditions in these videos that indicated a significant potential for infiltration. There were several locations with calcified joints and minor drips and trickles but overall the system appeared quite tight.

3.3 *Visual Survey*

A visual survey of the area was done to look for possible sources of inflow into the sewer system. These would include manhole covers sitting in areas that might flood during a storm, potential downspout connections and sink holes. This survey also included a check of the manholes to look for leaks or other deficiencies.

Most manholes are located in the roadway where potential for inflow is minimal. The following issues were noted.

MH S05001 (adjacent to the Church Street to Pumping Station) is located in the gutter line and water was observed flowing into the lift holes during the inspection. The inflow is not significant in volume but consideration should be given to changing the cover to a waterproof style.

MH S05004 (east of Williams Avenue along the extension of Church Street) appears to be under a garden shed so could not be evaluated.

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MH S05003 (Church Street and Williams Avenue) a significant flow was observed in this manhole coming from the east (from direction of MH S05004). There was a no video of this run of sewer. The video that was identified for this in the information package was for another unknown location. The proper video should be located and reviewed or re-televised to try to determine the source of the flow.

MH S03011 (Church Street and Minnie Avenue) is the discharge point for the overflow pipe and forcemain from the Church Street pumping station. The slope of the sewer on Minnie Avenue is quite flat here and, during the inspection, we noted that the discharge from the pump was flowing south as well as north. The overflow pipe is located very close to the bottom of the manhole.

Under normal conditions these conditions are not an issue. However, during high flows if there is any backup or surcharge in the pipe on Minnie Avenue between Church Street and Scott Street, there could be back flow into the Church Street pumping station. This would result in pumped flow from the station essentially going around in a circle and potentially cause flooding in the Church Street Pumping Station drainage shed. Consideration should be given to installing a check valve or manual gate valve on the overflow pipe.

MH S03006 (Scott Street and Minnie Avenue). This manhole has pipes coming into it from the north, south and east and one pipe flowing west along Scott Street. It is a small manhole (1200 mm diameter) for this many pipes and it is not benched very well so there is a lot of turbulence.

During our inspection, there was a substantial flow from the north and it was obvious that this flow was overwhelming the flow from the south and causing a backup in the sewer along Minnie Avenue toward Church Street. To help alleviate this condition the manhole should be replaced with a much larger one (2100 mm diameter) or three smaller ones so that the hydraulics can be improved to facilitate better flow from the south.

MH S05008 (Minnie Avenue and Nelson Street). This manhole is the high point on both the Minnie Avenue and Nelson Street sewers. The pipe running east along Nelson Street flows to the Church Street Pumping Station while the pipe running north along Minnie Avenue flows to Scott Street and the White Pine Pumping Station.

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At one time, there was a plug in the pipe running east along Nelson Street but this has been removed to facilitate maintenance. In the event of a significant back-up or surcharge in the Minnie Avenue sewer it is therefore possible that the sewage could flow into the Nelson Street sewer and into the Church Street Pumping Station. This could result in back-up in the Church Street drainage shed as the discharge flow is essentially going around in a circle. The plug should be reinstated or a new manhole installed on Nelson Street east of Minnie Avenue to separate the two drainage sheds.

4. Household Visits

Introductory letters were hand-delivered to 52 homes in the study area. Of these we were able to connect with 21 homeowners to ask questions about their experience during the event and obtain information on how the sump pump and eave trough flow is dealt with on the property. A summary of the observations and comments is presented in the following table

Of the 21 homes visited, 18 had sump pumps with 2 discharging to the sanitary sewer and 16 discharging to the yard. For the two that discharged to the sewer there was a valve on the discharge pipe so the flow could be directed to the yard in the summer and the sewer in the winter. A visual review noted only one house (406 Williams Avenue) where the eave trough downspouts connect to the weeping tile.

Twelve homes have check valves on the sewer connections. At one location (1113 Church Street) the check valve failed during the 2014 event.

5. Rainfall and Pumping Station Flow Analysis

Rainfall data from the International Falls Meteorological Station was reviewed to compare the rainfall pattern to the flow at the pumping stations. The following graphs represent the hourly rainfall from 8 pm on June 11 to noon on June 15 and daily rainfall superimposed on the daily pumped flow from the Church Street and White Pine Pumping Stations. Unfortunately, the SCADA system was not operating properly during this period so more detailed flow data (i.e. hourly) is not available to make a more refined analysis.

From the two pumping stations graphs it is apparent that the increase in the flow at the stations occurs fairly quickly (within 24 hours) after the rain events and decreases quickly as well.

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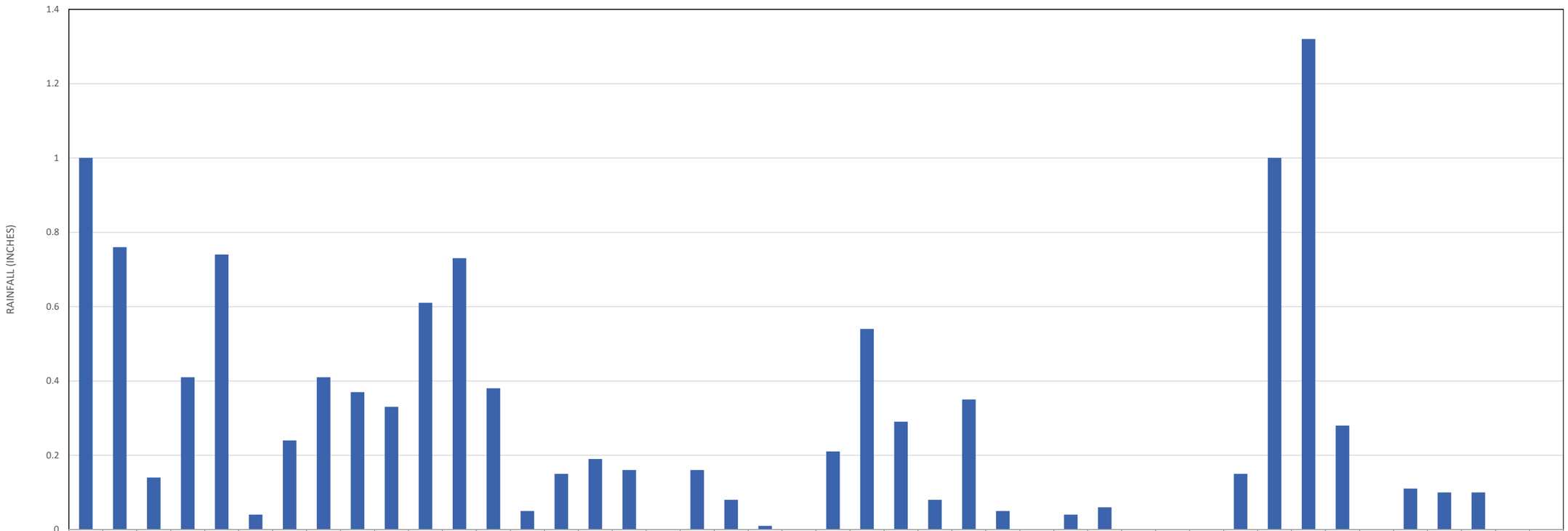
Town of Fort Frances
East End Sanitary Sewer Studay
House Questionaire Summary

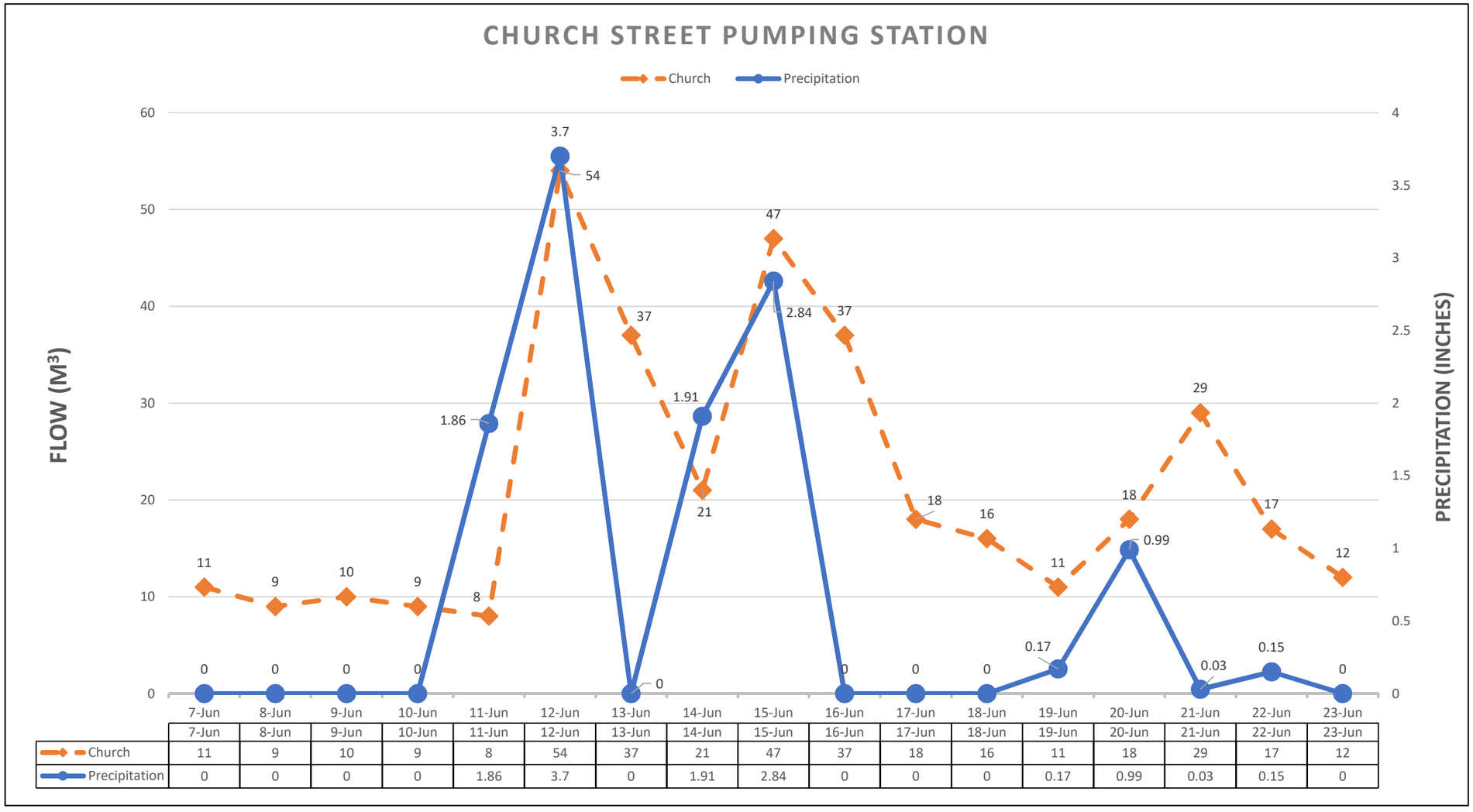
Street	Number	Surveyed	Sump Pit	Discharge Location	Eavestrough discharge	Flooding History	Sewer Check Valve	Weeping Tile Connection	Discharge Location	Notes
		(Y/N)	(Y/N)				(Y/N)	(Y/N)		
Front Street	401	Y	Y	Yard	Yard	None	N	N		
	403	N								Not Home
	405	N								Not Home
	409	Y	Y	Yard	Yard	Twice - 2014 3 Basement Floods	Y	Y	Sump Pit	
Williams Avenue	302	N								Not Home
	306	Y	N	No Basement	Yard	None	N	Unsure		
	308	N								Not Home
	402	Y	Y	Possibly SAN	Yard	Unknown	Unknown	No		Note - Owner didn't allow us into the house, they were unsure where the Sump Pit discharged to
	406	Y	Y	Possibly SAN	Weeping Tile	Minor flooding due to sewage backup, no flooding during major floods	Y	Y		Note - Four rain leaders go into the ground - into weeping tile system
	408	Y	Y	Yard/SAN Sewer	Yard	No Issues, only been there a couple years	Y	Y	Sump Pit	Note - Owner has a two way switch for sump pit, summer goes to the yard, winter to the SAN Sewer
Church Street	1104	Y	Y - Not Used	Yard	Yard					Note - Sump pump not currently hooked up
	1109	Y	Unsure		No eavestrough	None - no Basement	unknown	N		Note - Dugout basement
	1111	N								Not Home
	1113	Y	Y	Yard	Yard	Yes - 2001,2014	Y	N		Note - Owner says he has the deepest basement in the neighbourhood - Blew through his check valve
	1116	Y	Y	Yard	Ground - Street through a weeper	Yes - Lots	unknown	Y		
	1117	N								Not Home
	1118	N								Not Home
	1120	N								Not Home
	1121	Y	Y	Yard/SAN Sewer	Yard	Yes - 2014	Y	Y	Sump Pit	Note - Owner has a two way switch for sump pit, summer goes to the yard, winter to the SAN Sewer
	1126	N								Not Home
	1127	N								Not Home
	1129	N								Not Home
	1130	Y	Y	Yard	Yard	No Issues	Y	Y	Sump Pit	
	1131	N								Not Home
	1132	N								Not Home
Nelson Street	1105	N								Not Home
	1109	N								Not Home
	1110	Y	Y	Yard	Yard	2014	Y	Unknown		Note - Gurgling toilet last summer
	1112	N								Not Home
	1114	Y	Y	Yard	Yard	No Issues	Y	Y	Sump Pit	
	1115	Y	Y	Yard	Yard	Once - 2014	Y	Y	Sump Pit	
	1121	N								Not Home
	1125	N								Not Home
	1129	Y	Y - Two	Yard	Yard	2014	Yes - Didn't work	Y	Sump Pit	
Minne Avenue	302	N								Not Home
	307	N								Not Home
	310	N								Not Home
	311	Y	Y	Yard	Yard	Yes - 2014, others	Y	Y	Sump Pit	
	312	N								Not Home
	305	N								Not Home
	316	N								Not Home
	319	Y	Y	Yard	Yard	Yes - 2014	N	Y	Likely inoperable	
	320	Y	Y	Yard	Yard	2001 - Sewer Backup	Y	Y	Sump Pit	
	323	N								Not Home
	324	Y	Y	Yard	Yard	2014 - Sewage	Y	Unknown		
	327	N								Not Home
	331	N								Not Home
	400	N								Not Home
	404	N								Not Home
	405	Y	Y	Yard	None	None - Half Basement	N	Yes	unknown	
	409	N								Not Home
	411	Y	N		Yard	None	unsure	Yes	Unknown - possibly SAN	

354684

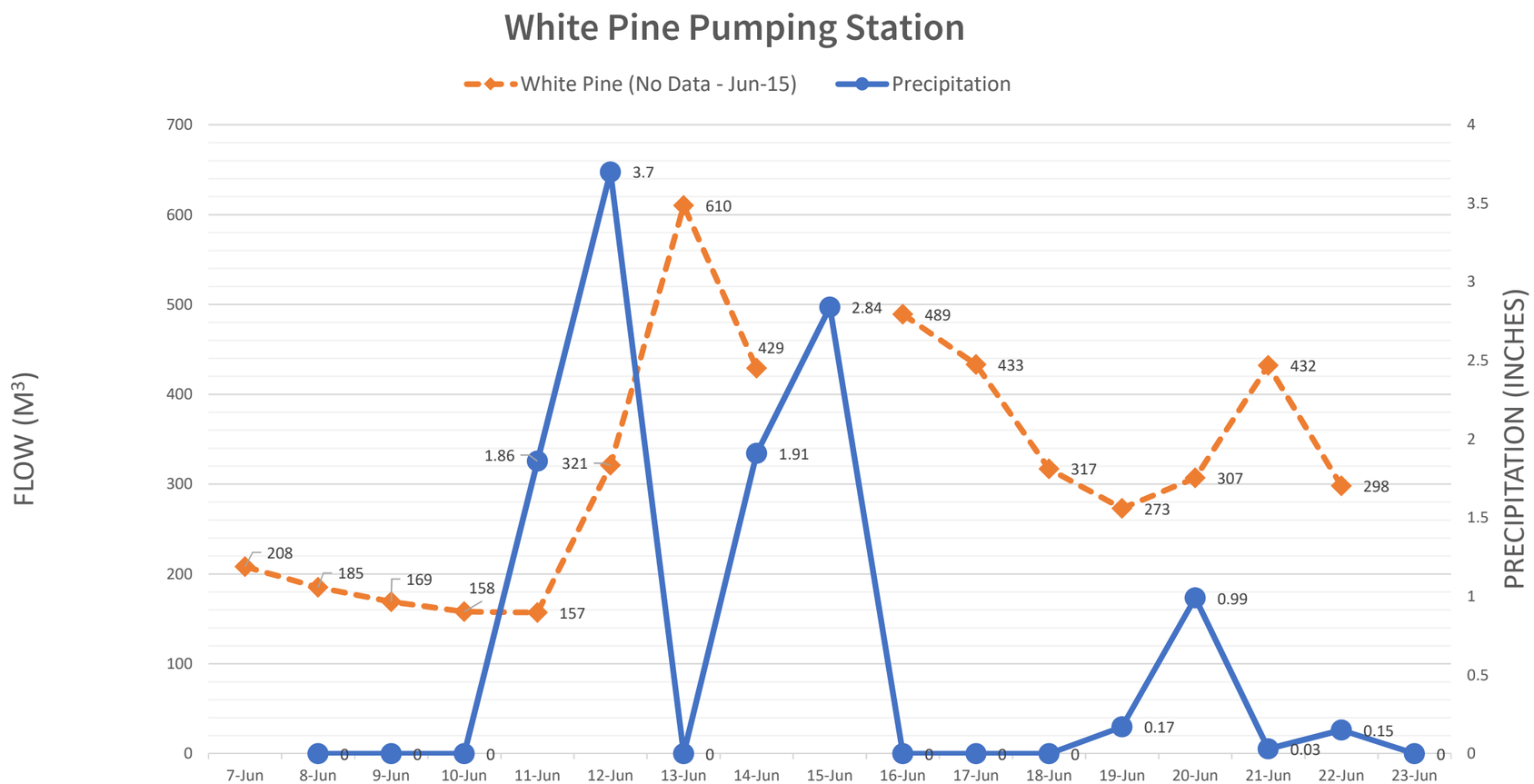
Town of Fort Frances
East End Sanitary Sewer Study
Rainfall Record
(from International Falls Met Station)
No Rainfall from 1:00pm June 12 to 12:00am June 13



	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 PM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM 12-Jun to 12:00 AM 13-Jun NO RAIN	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
	11-Jun					12-Jun													14-Jun											15-Jun									16-Jun					
Rainfall	1	0.76	0.14	0.41	0.74	0.04	0.24	0.41	0.37	0.33	0.61	0.73	0.38	0.05	0.15	0.19	0.16	0	0.16	0.08	0.01	0	0.21	0.54	0.29	0.08	0.35	0.05	0	0.04	0.06	0	0	0	0.15	1	1.32	0.28	0	0.11	0.1	0.1	0	0



	7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun
Church	11	9	10	9	8	54	37	21	47	37	18	16	11	18	29	17	12
Precipitation	0	0	0	0	1.86	3.7	0	1.91	2.84	0	0	0	0.17	0.99	0.03	0.15	0



	7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun
White Pine (No Data - Jun-15)	208	185	169	158	157	321	610	429		489	433	317	273	307	432	298	
Precipitation		0	0	0	1.86	3.7	0	1.91	2.84	0	0	0	0.17	0.99	0.03	0.15	0

A reaction of this nature is normally considered to be the result of inflow from direct connections to the sewer (though manholes, sump pumps and downspouts) and through weeping tile systems that have a good connection to the surface. The pump flow data is also affected by the by-pass pumping and probable short-circuiting in the Church Street pumping station.

However, when one compares the pump station flows for the period before the storm (June 7-11) with the flow after the storm there is a noticeable and sustained increase in flow which is considered to be due to ongoing infiltration. Both stations also show a flow spike following a rainfall event on June 20 which indicates a fairly direct connection between the ground surface and the sewer system.

Direct connections (downspouts) do not appear to be significant in number in the Church Street SPS drainage shed and, we understand that the general opinion is that there are not many in the White Pine SPS drainage shed either as the Town has aggressively pursued a disconnect policy in the recent past. However, it would be worthwhile to consider another review of this area.

From the somewhat qualitative analysis it appears that the majority of the flow increase is due to the weeping tile connections. Achieving a significant reduction in this flow will be very difficult because of what it will entail. However, an inspection of the homes may identify some opportunities for sump pump installations which could be beneficial.

6. Pumping Station Review

6.1 Church Street

This station was re-built in 1992 and contains 2 Flygt 3085 MT submersible pumps with Model 438 impellers rated for 12 l/s. The 2005 report by Wardrop noted the flow rate to be in the order of 7 l/s. The impellers were subsequently replaced with a 463 'N' style which according the operating staff are presently performing at 9 l/s.

Theoretical calculations in the Wardrop report estimate the peak dry weather flow be in the order of 2.4 l/s and the peak wet weather flow to be in the order of 9 l/s.

Recent records (August 20-25, 2017) indicate a daily flow volume of approximately 25 cu.m. which represents a daily average flow rate of 0.3 l/s which is approximately half the rate estimated by Wardrop. The station

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therefore has ample capacity for the dry weather flow. Past records and comments from the operator indicate that this station has performed well under wet weather conditions with the exception of the June 11, 2014 event.

As discussed earlier the observations during the June 11, 2014 event present a strong indication that the entire system was flooded and the pump station performance was not a factor.

As noted earlier, isolating this station from the rest of the system will be the best way to minimize the impact of wet weather conditions. This will involve the following:

- Plugging or putting a control valve on the overflow pipe
- Installing an additional manhole at Nelson Street and Minnie Avenue to separate the Church Street drainage shed from Minnie Avenue System.

However, this will not help the situation on Minnie Avenue which appears to be affected by the hydraulic conditions at the manhole at Scott Street and Minnie Avenue.

6.2 White Pine

Reports from the 2014 event indicated this station did not appear to be overwhelmed by the high flows that occurred and the trunk sewer on Scott Street was flowing at about 90% full. However, during the peak of the storm, the flow in the sanitary sewer was being relieved by the by-pass pumping at Minnie Avenue and First Street.

The White Pine pumping station, located on Butler Avenue has two 7.5 hp pumps in a dry well/wet well configuration with a published capacity of 47 l/s. The station discharges to the 300-mm diameter gravity sewer at the intersection of Butler Avenue and Gillon Street, approximately 35 m from the station.

The 2005 report by Wardrop estimated the flows to the station to be as follows:

Average dry weather flow	5.36 l/s
Peak dry weather flow	17.11 l/s
Peak wet weather flow	64.69 l/s

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The pump capacity based on pump records at the time were estimated to be in the order of 35 l/s. Recent data (August 2017) indicates that the pumps are producing approximately 33 l/s.

During the 2014 event the maximum flow through the station was 610 cu.m. per day (June 13) which represents an average flow rate of approximately 70 l/s. From this it is presumed that both pumps were operating continuously and probably at or near their maximum capability. During this time, the Town was also taking flow out of the sanitary sewer system at a rate of approximately 22 l/s (350 US g.p.m.).

Detailed records on flow rates and water levels in the wet well during the June 2014 events were not available for a better analysis of the performance of the station but the information above suggests that the station would not have been able to keep up with the flow without the by-pass pumping.

The sanitary sewer on Scott Street is clay pipe installed in 1924. The CCTV video inspection done in 2015 indicates that it is in reasonably good condition. The construction drawings of the day show that it is laid at a slope of 0.26% which would give it a theoretical capacity of approximately 50 l/s under non-surcharge conditions.

The conclusion of this basic analysis is that the Scott Street sewer and White Pine Pumping Station did not have the capacity to deal with the June 2014 storm event. This of course is borne out by the fact that by-pass pumping was needed to prevent more intense flooding than did occur.

7. Conclusions

Based upon the available records and observations available from the 2014 flood event, observations from earlier reports, CCTV reports and videos and observations from inspections in August 2017 we offer the following conclusions:

- There is no evidence of a major source of surface inflow into the sanitary sewer system in the Church Street Pumping Station are.
- A back-up or surcharge in the Minnie Avenue sewer could result in back flow into the Church Street Pumping Station through the overflow pipe of MH S03011 (Church Street and Minnie Avenue) as there is no isolation valve or check valve on this pipe.

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- The size and configuration of the manhole at Scott Street and Minnie Avenue (MH S03006) can cause back-up in the sewer on Minnie Avenue south of Scott Street during moderate and heavy flows.

- The configuration of the manhole at the intersection of Minnie Avenue and Nelson Street could result in backflow into the Church Street Pumping Station drainage shed in the event of a back-up or surcharge in the Minnie Avenue sewer.

- Calculations indicate that the Church Street Pumping Station should have adequate capacity for the flow from this area even with a generous infiltration allowance.

- The sewer on Scott Street from Minnie Avenue to Butler Avenue does not appear to have adequate capacity to accommodate the flow that was experienced during the 2014 event when one considers that 350 US gpm of flow was taken out of the system through by-pass pumping.

- The White Pine Pumping Station does not appear to have adequate capacity to accommodate the flow that was experienced during the 2014 event when one considers that 350 US gpm of flow was taken out of the system by by-pass pumping.

8. Recommendations

- Install an isolation valve or check valve on the overflow pipe from the Church Street Pumping Station to prevent backflow during high flow periods in the Minnie Avenue sewer. Estimated cost $10,000.

- Install an additional manhole at the intersection of Minnie Avenue and Nelson Street to separate the Church Street Pumping Station drainage shed from the Minnie Avenue sewer. Estimated cost $10,000.

  The above two items would allow development of the vacant lands at Minnie Avenue and Nelson Street and Nelson Street and Williams Avenue to proceed with minimal impact from high rainfall events and high flows in the sewer system. However, development on those properties should be slab-on-grade construction (i.e. no basements).

- Reconfigure the manhole at Scott Street and Minnie Avenue to provide better hydraulics and reduce the potential for back-up in the Minnie Avenue sewer south of Scott Street. Estimated cost $50,000.

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- Carry out a review of the White Pine Pumping Station drainage shed to look for controllable sources of surface inflow into the sanitary sewer system. Estimated cost $50,000.

- Investigate increasing the capacity of the sewer on Scott Street the White Pine between Minnie Avenue and Butler Avenue to accommodate the additional flow during high flow events (nominal increase in capacity of 350 US gpm (22 l/s). Estimated cost $5,000.

- Investigate increasing the capacity of the White Pine Pumping Station (larger pumps) or permanent emergency pump. This exercise will also need to consider the impact on the sewer downstream of the discharge point and review of the capacity of the Scott Street sewer. Estimate cost $25,000.

- Review the White Pine SPS drainage shed for possible downspout connections.

- Maintain the by-pass pumping procedure for implementation as warranted during heavy rainfall events until such time as sewer and pumping station capacity is increased.

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October 18, 2017

Report To: Mayor and Council

From: Travis Rob, Manager of Operations and Facilities

RE: Asset Management Roadmap Project Update

In February of 2017 the Town engaged Public Sector Digest to complete a holistic review and update of the Town's Asset Management Plan and expand the plan to encompass all assets as well as strengthen our asset management practices. Back in May of 2017 Council was presented with a State of Maturity Report and new Asset Management Policy as some of the first steps in strengthening our Asset Management program. Since that time a tremendous amount of work has been completed reviewing, developing and updating our asset databases for inclusion in the overall Asset Management Plan that we will have at the end of this exercise.

In July of 2017 Crystal Tan, a Civil Engineering graduate joined us as for a one-year interim as our Asset Management Coordinator. Attached to this report you will find a project update outlining the works completed so far.

All of this work is being completed to ensure that the Town is compliant with a new Asset Management Regulation that is anticipated to be in place by January 1, 2018 requiring public sector organizations to undertake specific actions relating to Asset Management on an ongoing basis to be eligible for a multitude of funding avenues including the Federal Gas Tax Fund.

As we continue to work through this project and the Asset Management plan continues to take shape other policies and project updates will continue to be brought forward for Council's Consideration.

Respectfully Submitted

Travis Rob, EIT

Council approval of this report is not required as this is provided for information only.

Manager of Operations and Facilities

2017OctAMPUpdate

October 12, 2017

Report To: Travis Rob, Manager of Operations and Facilities

From: Crystal Tan, Asset Management Plan Coordinator

Re: Project Progress Report for the Town of Fort Frances Asset Management Plan

Background

Council will recall that the Town of Fort Frances engaged Public Sector Digest to update their Asset Management Plan. The Plan provides a life cycle activity analysis for public assets consisting of asset performance, risk and cost. The Asset Management is integrated with Asset Financial Management, which allocates available resource and provide sustainable infrastructure to the community. This report is to present an update on the Town of Fort Frances Asset Management Plan.

As of October 2017, the core infrastructures in the Town of Fort Frances are defined and the asset registry schedule is settled by the Public Works department. The following infrastructure categories will be monitored by the asset management system:

- Road Network
- Facilities
- Water Network
- Storm Network
- Sanitary Sewer Network
- Bridges
- Social Housing
-

The asset registry for the road surface of the road network was completed and uploaded to the asset management system. The facilities data capture is in progress and site visits will be scheduled in the next few months. Parts of the assets information for water and storm network are available in the asset management database.

Methodology

<u>Road Network</u>

The road network inventory data capture tool was provided by the consultant, the road inventory consisted segment location, material, length, road classification, acquisition data and condition data. The segment location, material, length, road classification, acquisition is obtained from existing GIS database and road patrol records. The condition data is obtained from site evaluation.

A subjective test was performed on the Town of Fort Frances road network. Rater evaluates road condition based on the following parameters:

- The riding quality of the pavement surface; and
- The extent and severity of pavement surface distress manifestations.

The riding quality of the pavement is relied on driver's physiological responses and vehicle type. The visual inspection of pavement surface is used to define surface distress manifestations. There are three types of distress manifestations considered in the evaluation, such as surface defects, distortion or permanent deformation and cracking. Combined the above two parameters, the pavement condition will be generated.

There are several steps to evaluate pavement condition:

1. Drive the selected segment at the posted speed limit, assess the pavement functional condition by obtaining the Ride Condition Rating(RCR).
2. After determining the RCR, assess the pavement structural condition by driving over the pavement slowly to obtain distress manifestations. Several stops should be made to examine distress type and severity, photos should be taken for the representative distress type.
3. After capturing the road surface distress, drive the entire segment in two directions slowly, evaluate the pavement shoulder condition based on the shoulder evaluation guide. Take photos for the specific section to represent the shoulder condition.
4. Complete the data capture sheet by recording the Ride Condition Rating(RCR), all observed distress manifestations and shoulder distress manifestation in their appropriate places.

Facilities

There are thirty facilities in the Town of Fort Frances that require someone to obtain their asset information. In this stage, the primary asset registry for the Civic Center and Memorial Sport Centre have almost completed. Data will be sent to the consultant and uploaded to the Asset Management system. Meetings will be scheduled between consultant, project coordinator and facility staff, the purpose of these meetings is to discuss types of expected work activities and the operation of the asset management system.

In this phase of data capture, only asset name, location, description and manufacture information will be required.

There are several steps to evaluate facility condition:

1. Walk around the entire facility, split the facility into different sections depend on functional difference.
2. Start from one section, obtain the asset name, location, description, and the manufacturer information. Photo of the asset will be required for further usage and keep as a record of manufacture information.
3. Complete the data capture sheet by recording the asset profile and manufacturer information. Confirm the exiting asset record is matching the actual site inspection.

Water Network

The hydrants data are uploaded to the Asset Management System by the consultant, therefore, all hydrants within the town will be monitored by the system.

Storm Network

The catchbasin and manhole data is upload to the Asset Management System with asset profile and condition by the consultant.

Interpretation

<u>Road Network</u>

Consequence \ Probability	1	2	3	4	5
5	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00
4	5 Assets 649.14 m $649.14	22 Assets 7,282.69 m $7,282.69	16 Assets 4,747.06 m $4,747.06	6 Assets 1,249.64 m $1,249.64	2 Assets 214.83 m $214.83
3	2 Assets 325.56 m $325.56	56 Assets 8,402.99 m $8,402.99	52 Assets 12,574.03 m $12,574.03	35 Assets 6,009.67 m $6,009.67	8 Assets 1,273.42 m $1,273.42
2	7 Assets 883.91 m $883.91	37 Assets 5,418.28 m $5,418.28	89 Assets 12,758.01 m $12,758.01	29 Assets 4,176.29 m $4,176.29	9 Assets 1,448.46 m $1,448.46
1	0 Assets - $0.00	0 Assets - $0.00	2 Assets 176.39 m $176.39	0 Assets - $0.00	0 Assets - $0.00

Figure 1-Risk Report for Paved Road

The system generates a risk report based on asset age, condition, MTO class and cost of maintenance. Figure 1 shows the risk distribution of the Paved Roads in the town. Most of the Paved Roads fall in the range of medium risk of failure, none of the Paved Roads in town are in extreme condition. The asset with higher road class has higher potential to failure, which is the major road segment in the road network.

Consequence	Probability 1	2	3	4	5
5	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00
4	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00
3	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00
2	0 Assets - $0.00	5 Assets 1,393.26 m $1,393.26	8 Assets 3,167.70 m $3,167.70	6 Assets 2,382.16 m $2,382.16	12 Assets 2,412.18 m $2,412.18
1	0 Assets - $0.00	1 Assets 582.23 m $582.23	2 Assets 1,761.08 m $1,761.08	2 Assets 568.95 m $568.95	0 Assets - $0.00

Figure 2-Risk Report for Surface Treatment Road

Figure 2 shows the risk distribution of the Surface Treatment Roads in the town. Most of the Surface Treatment Roads in medium to low risk of failure, the assets fall in the range of higher risk of failure may require road upgrading works to provide a better road service to road users.

Consequence	Probability 1	2	3	4	5
5	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00
4	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00
3	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00	0 Assets - $0.00
2	0 Assets - $0.00	1 Assets 198.51 m $198.51	6 Assets 1,579.52 m $1,579.52	2 Assets 1,832.74 m $1,832.74	3 Assets 416.78 m $416.78
1	0 Assets - $0.00	2 Assets 154.38 m $154.38	3 Assets 1,401.47 m $1,401.47	7 Assets 1,922.30 m $1,922.30	0 Assets - $0.00

Figure 3-Risk Report for Unpaved Road

Figure 3 shows the risk distribution of Unpaved Roads in the town. All Unpaved Roads fall in the range of medium to low risk of failure. 13% of the assets are likely to failure, further maintenance works are required in these assets to improve their service.

The risk report gives a visual representation of assets risk distribution. It helps the Town of Fort Frances to prioritize and optimize asset maintenance program and the capital budget program delivery. To ensure the Town of Fort Frances invest available money and resource on the right asset at the right time.

Conclusion

This report is an update on asset data capture status in the Town of Fort Frances. In this stage, the town finish pavement condition evaluation and data capture, all available data are uploaded to the asset management system. The user can review the risk reports for operation and maintenance needed. The facilities data capture is in processing, the primary asset registry is completed in Civic Centre and Memorial Sport Centre. Staff will review and confirm the asset information before delivery, a discussion for work activity types of the asset will be conducted. Other Assets in the Town of Fort Frances will be captured and uploaded in the asset management system in the future. The Town can use the Asset Management Plan to make the best possible decisions regarding the construction, operation, maintenance, renewal, replacement and disposal of all infrastructure assets. The Plan will help Town of Fort Frances to provide sustainable infrastructure services to the community and the future generation.

Respectfully Submitted

Original Signed By

Crystal Tan

Asset Management Plan Coordinator

October 11, 2017

Report To: Mayor & Council

From: Travis Rob, Manager of Operations & Facilities

SUBJECT: September 2017 Drinking Water Systems Monthly Summary Report

Please find attached the September 2017 Summary Report on the drinking water systems, prepared by Randy White, Senior WTP Operator.

Your Administration recommends that Operations & Facilities Executive Committee accept the September report as presented.

Respectfully submitted,
Operations & Facilities Division

Travis Rob, E.I.T.
Manager of Operations & Facilities

Council approval of this report will accept the September 2017 report prior to it being made available to the general public.

c.c. – Doug Herr, Environmental & Facilities Supt.
Randy White, Senior WTP Operator

03CouncilwaterreportMarch 2015

September, 2017

Monthly Summary Report
Water Systems

Prepared by: Randy White, ORO
Senior Water Treatment Plant Operator

Dated: October 11, 2017

1) **Introduction:**

This report contains the major maintenance activities and operational events that occurred during the month of September 2017 at the Water Treatment Plant - Water Works # 220000978 and the Airport Groundwater Well Water Works No. 849N7DGE0 (Precedes Airport Groundwater Well Water Works No. 26002736). This information report has been prepared for Council to better understand how the water systems they own and operate are maintained on a monthly basis. Also, this report will assist Council as Directors of the Corporation in exercising its obligation to meet a reasonable Standard of Care as outlined in Section 19 of the Safe Drinking Water Act.

A NEW drinking water system at the Airport was put into service August 01, 2017. The system is classified as a Small Drinking Water System, System No. 849N7DGE0 which falls under the requirements of Ontario Regulation 319/08 – Small Drinking Water Systems. The old drinking water system, Airport Groundwater Well Water Works # 26002736 has been decommissioned.

2) **Flow Data:**

Water Treatment Plant: See attached spreadsheet. No flow data for Airport groundwater well.

3) **Microbiological (Health Related) Water Analysis - Main Water System No. 220000978:**

Water Treatment Plant (treated): 4 samples taken no adverse results
Water Treatment Plant (raw): 4 samples taken no adverse results
Water Distribution System: 16 samples taken where 25% of samples were tested for heterotrophic plate count (HPC) - no adverse results.

We take microbiological samples on a weekly basis, which includes 1 raw sample, 1 treated sample and 4 distribution samples. The 4 distribution samples are taken at different locations throughout the distribution system.

Water distribution samples taken at the following locations:

1. 1104 Church St.	2. 1111 First St. E.	3. 525 First St. E.	4. W. Tower
5. 740 Scott St.	6. 1036 Victoria Ave.	7. 901 Wright Ave.	8. W. Tower
9. 1216 Third St. E.	10. 425 Nelson St.	11. 1103 Victoria Ave.	12. W. Tower
13. 1111 First St. E.	14. 851 Fifth St. E.	15. 1324 King's Hwy.	16. W. Tower

4) **Microbiological (Health Related) Water Analysis - Airport Groundwater Well No. 849N7DGE0:**

New drinking water system put on line August 01, 2017. No treatment required as the Airport groundwater tested negative for bacteria.

The Airport drinking water system is to be sampled and tested for bacteria once every three (3) months in accordance with Section 25 – Microbiological Sampling and Testing of the Small Drinking Water Systems Regulation, O. Reg. 319/08.

5) **Free Available Chlorine Residual (FAC) - Main Water System No. 220000978:**

FAC residuals are taken at a minimum daily at both the Water Treatment Plant and within the Water Distribution System.

6) **Free Available Chlorine Residual (FAC) - Airport Groundwater Well System No. 849N7DGE0:**

New drinking water system put on line August 01, 2017. No treatment required as the Airport groundwater well tested negative for bacteria.

7) **Maintenance Activities at the WTP:**

Sept. 08th - cleaned top and bottom tanks on the poly unit.
- cleaned all four (4) check valves on the poly unit.
- calibrated chlorine distribution analyzer.

Sept. 19th - calibrated chlorine distribution analyzer.

Sept. 20th - ran the emergency generator for an hour.
- changed the soda ash pump.
- rebuilt two (2) soda ash pumps.

Sept. 28th - cleaned top and bottom tanks on the poly unit.
- cleaned all four (4) check valves on the poly unit.
- cleaned the roto meters on the poly unit.

8) **Water Complaints:**

- Poor Pressure – 0 complaints:
- Water quality – 0 complaints:

9) **Other Miscellaneous Information:**

Sept. 05th - took weekly routine micro samples.

Sept. 08th - took grab samples off the filters.

Sept. 11th - took weekly routine micro samples.

Sept. 12th - completed quarterly samples and T.S.S. samples.

Sept. 13th - took micro samples at Sunny Cove Camp.
- water main repair - Nelson St. (400 blk.) - micro samples - 1st set.

Sept. 14th - water main repair - Nelson St. (400 blk.) - micro samples - 2nd set.
- water main (new) - Second St. E. (200 blk.) – not tied into system - micro samples.

Sept. 18th - took weekly routine micro samples.
- took grab samples off the filters.

Sept. 20th - water main (new) - Second St. E. (200 blk.) - micro samples - 1st set.

Sept. 21st - water main (new) - Second St. E. (200 blk.) - micro samples - 2nd set

Sept. 25th - took weekly routine micro samples.

Sept. 27th - received a shipment of Chlorine Tonners.

Sept. 28th - received a load of Liquid Alum.

10) In order to acknowledge that all levels of responsibility within the Corporation of the Town of Fort Frances have received and reviewed this monthly report, it is necessary to sign-off in the appropriate location below:

- Randy White, ORO, Senior WTP Operator: _____
- Doug Herr, Environmental & Facilities Supt.: _____
- Travis Rob, Manager of Operations & Facilities: _____
- Doug Brown, CAO: _____
- Paul Ryan, Chair O& F Exec Committee: _____
- Roy Avis, Mayor: _____
- June Caul, Councillor: _____
- John Albanese, Councillor: _____
- Wendy Brunetta, Councillor: _____
- Doug Kitowski, Councillor: _____
- Ken Perry, Councillor: _____

Note: Once all signatures have been obtained, the report will be distributed and made available to the public. If you have any questions, please feel free to contact myself or Randy White, Senior WTP Operator at 274-2325.

Monthly Report September 2017

Town of Fort Frances - Water treatment Plant - Water Works # 220000978
Monitoring Record
September 2017

Operating Data	Units	*MAC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
		or Range																															
Flow rates																																	
Raw Water	10^3 M^3	17	6.55	6.84	6.59	6.49	6.50	6.45	6.63	6.61	6.47	6.62	6.57	6.55	6.39	6.71	6.42	6.35	6.74	6.69	6.42	6.54	6.65	5.54	5.84	5.80	5.43	5.62	5.65	5.64	5.64	5.56	188.50
Peak Instantaneous - Raw Water	L/s	n/a	77.25	77.17	77.19	77.12	77.07	**77.67**	76.84	76.74	76.72	76.59	76.56	76.55	76.44	76.41	76.53	76.99	76.77	76.46	76.36	76.36	77.19	76.86	66.12	66.10	66.01	65.88	65.92	65.75	65.77	65.76	2217.15
Treated Water	10^3 M^3	17	3.67	4.17	3.31	3.10	3.58	3.22	3.59	3.52	3.84	3.51	3.57	**4.43**	4.09	4.06	3.51	3.18	3.48	3.60	3.28	3.37	3.68	3.42	4.01	3.33	3.66	3.20	3.49	3.48	3.55	3.72	107.62
Peak Instantaneous - Treated Water	L/s	n/a	82.10	82.38	81.02	79.83	80.04	81.97	81.51	80.60	81.12	101.81	81.41	81.41	91.54	89.45	85.40	87.18	80.19	81.18	81.40	86.68		81.13	**102.09**	90.20	79.94	79.44	89.04	82.21	80.93	82.70	2445.90
BackWash Water	10^3 M^3	n/a	0.249	0.213	0.249	0.250	0.268	0.249	0.244	0.267	0.247			0.249	0.249	0.267	0.238	0.269	0.250	0.226	0.270	0.199	0.246	0.269	0.256	0.250	0.271	0.241	0.241	0.272	0.251	0.242	6.992
Fluoride Information																																	
Fluoride Residual - Treated Water	mg/l	0.5 to 0.8	0.55	0.54	0.53	0.53	0.64	0.59	0.61	0.63	0.60	0.67	0.62	0.57	0.56	0.56	0.56	0.57	0.57	0.58	0.55	0.53	0.54	0.51	0.54	0.53	0.54	0.55	0.57	0.55	0.57	0.62	17.08
Turbidity Information																																	
Raw Water	NTU	n/a	1.41	1.33	1.51	1.55	1.63	1.74	1.56	1.60	1.71	1.68	1.59	1.48	1.52	1.44	1.52	1.64	1.66	1.58	1.55	1.57	1.51	1.55	1.47	1.49	1.44	1.68	1.73	1.69	1.76	1.61	47.20
Settled Water	NTU	n/a	0.12	0.12	0.10	0.14	0.15	0.14	0.14	0.16	0.17	0.17	0.16	0.17	0.16	0.14	0.12	0.12	0.14	0.12	0.14	0.12	0.10	0.12	0.12	0.11	0.12	0.15	0.15	0.17	0.16	0.17	4.17
Treated Water	NTU	1	.09.08	0.08	0.10	0.10	0.08	0.08	0.09	0.09	0.10	0.09	0.08	0.08	0.08	0.06	0.06	0.06	0.07	0.07	0.09	0.08	0.07	0.09	0.09	0.07	0.09	0.06	0.05	0.06	0.06	0.07	2.25
Other Operating Parameters																																	
pH - Treated Water	no units	6.5 to 8.5	7.31	7.35	7.27	7.31	7.30	7.34	7.28	7.34	7.34	7.37	7.22	7.18	7.24	7.22	7.27	7.28	7.32	7.26	7.21	7.30	7.31	7.30	7.05	7.01	7.00	7.01	7.38	7.38	7.36	7.36	217.87
pH - Settled water	no units	n/a	6.74	6.77	6.52	6.66	6.45	6.38	6.39	6.44	6.42	6.39	6.52	6.34	6.38	6.39	6.34	6.36	6.42	6.44	6.53	6.55	6.50	6.45	6.44	6.49	6.35	6.35	6.38	6.46	6.38	6.53	193.76
pH - Raw Water	no units	n/a	7.11	7.21	7.19	7.25	7.09	7.17	7.20	7.16	7.17	7.17	7.07	7.02	7.11	7.14	7.16	7.18	7.16	7.19	7.11	7.19	7.17	7.07	7.00	7.10	7.11	6.88	6.85	6.76	6.91	6.77	212.67
FAC - Treated Water	mg/l	0.2 to 4	2.21	1.98	2.15	2.17	2.24	2.27	2.32	2.6	2.40	2.32	2.30	2.46	2.31	2.33	2.30	2.22	2.26	2.34	2.39	2.31	2.35	2.19	1.94	2.28	2.32	2.10	2.00	2.06	2.01	2.10	67.19
Total Chlorine Residual Treated	mg/l	0.3 to 7	2.44	2.20	2.26	2.32	2.40	2.46	2.54	2.70	2.66	2.52	2.54	2.66	2.58	2.62	2.56	2.48	2.44	2.56	2.62	2.54	2.56	2.40	2.20	2.36	2.54	2.42	2.28	2.22	2.28	2.28	73.64
Temperature	C	15	20.0	20.0	20.0	20.0	20.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	19.0	18.0	17.0	17.0	16.0	17.0	17.0	18.0	17.0	17.0	17.0	17.0	17.0	16.0	15.0	16.0	15.0	530.0
Fluoride used (Total Daily Consumption)	kg	n/a	19.0	22.0	21.0	22.0	21.0	21.0	21.0	22.0	21.0	21.0	22.0	20.0	20.0	20.0	21.0	21.0	23.0	22.0	21.0	22.0	22.0	18.0	18.0	18.0	17.0	17.0	17.0	16.0	16.0	20.0	602.0
Chlorine used (Total Daily Consumption)	kg	n/a	34.0	35.0	33.0	33.0	33.0	33.0	33.0	34.0	33.0	34.0	33.0	33.0	32.0	34.0	33.0	32.0	35.0	34.0	32.0	31.0	32.0	28.0	23.0	29.0	27.0	27.0	26.0	25.0	26.0	27.0	934.0
Soda ash (Total Daily Consumption)	kg	n/a	229.3	239.4	230.7	227.2	227.5	225.8	232.1	231.4	226.5	231.7	230.0	229.3	223.7	234.9	224.7	222.3	235.9	234.2	224.7	228.9	232.8	193.9	204.4	203.0	190.1	196.7	197.8	197.4	197.4	194.6	6597.5
Soda Ash - Dosage	mg/l	n/a	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	1050.0
Alum residual - (Total Daily Consumption)	kg	n/a	229.3	239.4	230.7	227.2	227.5	225.8	232.1	231.4	226.5	231.7	230.0	229.3	223.7	234.9	224.7	222.3	235.9	234.2	224.7	228.9	232.8	193.9	204.4	203.0	190.1	196.7	197.8	197.4	197.4	194.6	6597.5
Alum residual - Dosage	mg/l	n/a	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	1050.0
Alum residual - Treated Water	mg/l	0.1	0.09	0.03	0.03	0.03	0.02	0.03	0.01	0.02	0.01	0.01	0.02	0.02	0.04	0.01	0.01	0.04	0.06	0.04	0.03	0.03	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.02	0.79
Poly bags added (25 kg bags)	kg		0.5				0.5							0.5			0.5					0.5						0.5					75.0

Average
6.28
73.90
3.59
84.34
0.250
0.57
1.57
0.14
0.08
7.26
6.46
7.09
2.24
2.45
17.7
20.1
31.1
219.9
35.0
219.9
35.0
0.03

Town of Fort Frances - WTP - 220000978
September 2015/2016vs September 2017
Flow and Operating Data

Flow Data SEPTEMBER	Units	2015		2016		2017	
		Day of the Month		Day of the Month		Day of the Month	
Total Raw Water	m^3		166270		169150		188500
Raw Maximum Day	m^3	Monday 14th	5810	Saturday 03rd	5890	Saturday 02nd	6840
Raw Minimum Day	m^3	Sunday 20th	5150	Tuesday 06th	5450	Monday 25th	5430
Raw Avgerage Daily Consumption	m^3		5450		5640		6280
Total Treated Water	m^3		121920		104260		107620
Treated Water Maximim Day Consumption	m^3	Tuesday 29th	4590	Friday 02nd	4560	Tuesday 12th	4430
Treated Water Minimim Day Consumption	m^3	Monday 21st	3450	Friday 30th	3060	Friday 04th	3100
Treated Water Average Day Consumption	m^3		4060		3480		3590
Daily Average Per Household Consumption Rate	m^3		1.07		0.92		0.95
* Daily Average Per Person Consumption Rate	m^3		0.51		0.44		0.45
Monthly Averages - Operating Parameters WTP:							
FAC Residual - Treated Water	mg/L		2.18		2.27		2.24
Total Chlorine Residual - Treated Water	mg/L		2.5		2.48		2.45
Aluminum Sulphate - Raw Water	mg/L		35.0		35.0		35.0
Aluminum Sulphate - Treated Water Residual	mg/L		0.02		0.02		0.03
Fluoride - Treated Water	mg/L		0.55		0.64		0.57
Soda Ash - Raw Water	mg/L		35.0		35.0		35.0
PH - Adjusted	mg/L		7.25		7.15		7.26
Temperature	C		18.8		18.9		17.7
Quantity of Chemical Used:	kg						
Aluminum Sulphate	kg		5819.5		5920.3		6597.5
Polyelectrolyte	kg		50		75		75
Chlorine Gas	kg		796		845		934
Soda Ash - Used for PH Adjustment	kg		5819.5		5920.3		6597.5
Fluoride	kg		510		524		602

* The Canadian Average is 450 Litres (0.45 m^3) per day.
* Population is 7986
* Number of Households is 3783

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Fort Frances WPCP
200 McIrvine Rd
Fort Frances, Ontario
P9A 3S3
Tel: 807-274-3121
Fax: 807-274-8381

October 10, 2017

Town of Fort Frances
320 Portage Avenue
Fort Frances Ontario
P9A 3M5

Attention: Mr. Doug Herr
Environmental and Facilities Superintendent

Dear Doug:

Re: Fort Frances Wastewater Treatment Facility
September 2017 Monthly Report

As per the operating agreement, the attached document is the September 2017 monthly report for the Fort Frances Wastewater Treatment Facility.

The report highlights the influent and effluent quality and the process parameters. Additionally, the routine operation and maintenance activities conducted by the operators are summarized.

If you have any questions regarding this report do not hesitate to contact Mr. Larry Wachter – Operations Manager.

Yours truly,

Kelly Cunningham
Team Lead

For Larry Wachter
Operations Manager

The Corporation of the Town of Fort Frances
Wastewater Treatment Plant
(Sewage Plant)
September 2017 Monthly Operations Report

INTRODUCTION

In accordance with the Agreement between the Ontario Clean Water Agency (Operating Authority) and the Town of Fort Frances, the Fort Frances Sewage Treatment Plant is required to prepare a monthly report. This document covers the reporting month of September 2017; the facility performance report summarizes important information regarding the quality of the effluent, wastewater, analytical test results, maintenance operations, and relevant activities of the WWTP.

DESCRIPTION OF WORKS

Capacity of Works	9000 m^3/day (average flow)
Service Area	Town of Fort Frances and Couchiching Reserve
Service Population	9000
Effluent Receiver	Rainy River
Major Process	Secondary treatment facility complete with a phosphorus removal system; ultra violet disinfection; aerobic sludge stabilization and dewatering

The Fort Frances Sewage Treatment Plant operates under *Environmental Compliance Approval Number 6786-A44PWG*. The ECA outlines the terms and conditions, and the report captures these terms and conditions in the following sections.

LABORATORY

ALS Laboratory Group – Thunder Bay is contracted to conduct the required analytical tests of the influent (raw) and effluent samples; weekly requirement.

SEPTEMBER 2017 EFFLUENT QUALITY

Parameters	***Monthly Actual Concentration* mg/L**	***Compliance Criteria Concentration* mg/L**	***Performance Objective Concentration* mg/L**	***Monthly Actual Loading, kg/d***	***Compliance Criteria Loading kg/d***	***Performance Objective Loading* kg/d**
$CBOD_5$	2.1 mg/L	25 mg/L	15 mg/L	12.0 kg/d	225 kg/d	135 kg/d
Total Suspended Solids	3.5 mg/L	25 mg/L	15 mg/L	20.6 kg/d	225 kg/d	135 kg/d
Total Phosphorus	0.15 mg/L	1.0 mg/L	0.9 mg/L	0.89 kg/d	9 kg/d	8.1 kg/d
Total Nitrogen Nitrate Nitrogen	7.59 mg/L 6.10 mg/L					
Total Cl_2 Residual		<0.01 mg/L (when in use)				
E-Coli	9.0 count/100 ml (geometric mean)		200 count/100ml (geometric mean)		E-coli not to exceed 150 organisms/100ml (monthly geometric mean density)	
pH			pH range 7.5 to 7.9; average pH was 7.7			
Temperature degrees C			Temperatures ranged from 17.0 to 18.5 C; average temperature of effluent was 18.0 C			

Compliance criteria are mandatory requirements of the ECA and performance objectives are a goal to be achieved using best reasonable efforts.

WASTEWATER LIQUID PROCESS

The average daily flow for September was 5826.5 m^3 /day. This represents 65% of the design average flow. Total treated flow for the month was 174796 m^3.
The Fort Frances WWTP met all effluent compliance criteria for the parameters listed above and additionally was well within the recommended more stringent monthly performance objective levels as outlined in the Environmental Compliance Approval.

INVENTORY

Chemical	End of Month Status	Units
Hypochlorite	1070 +/-@ 8.0% +3x205 L @ 12%	Litres
Alum	6.2 +/- @ 55 %	Cubic meters
Polymer	3 x 205 L drums	Liters

MAINTENANCE

The operators performed the routine operations and maintenance at the treatment plant and pumping stations. The activities are highlighted as follows:

Treatment Plant:

- Alternated lead/lag pumps
- Adjusted fluidizing water to head cell and grit snail as needed
- Greased all blowers and changed oil blowers 1, 2 and 3
- Regular cleaning of head works EW basket strainer
- Greased Grit Snail and lubricated drive chain
- Monthly inspection of spiral screen access hatch, removed wrapped debris
- Replaced belt John Deere mower drive
- Replaced shear pin clarifier cross collector drive #1
- Weekly manifold wash on the Fournier press
- Tensioned drive chain cross collector #2
- Replaced tubing and calibrated both automatic samplers
- Serviced air handler ASU 101 greased bearings and replaced belt
- Serviced air handler ASU 01, 02 greased bearings, replaced belt and filters
- Replaced belt head works exhaust fan
- Hosed and swept UV banks
- Greased clarifier drives
- Both clarifiers were drained for inspection, 2 links were removed longitudinal chains

Pump Stations:

- Ran gensets
- Changed seal water strainers
- Replaced UPS unit at Boundary Road lift station

PROCESS AND OPTIMIZATION ISSUES

The lack of a booster pump for the polymer system dilution water is preventing further optimization of the new sludge thickener.
Fournier suggested modifications to the wiring in the polymer system control box were completed with assistance from plant staff. Fournier then made programming changes to their PLC. No obvious benefit has been achieved.
The check valves on the polymer pumps have been problematic, gumming up unnecessarily and to such an extent that no polymer is delivered.
The sludge cake produced this month has not been able to meet design specifications for dryness.

SLUDGE SUMMARY

Asselin Storage and Transportation Limited hauled a calculated total of 116.5 m3 (13 bins) of thickened digested sludge to the Town of Fort Frances landfill site. The hauled sludge averaged 16.3 % TS for the month.
In order to more accurately reflect sludge haulage volumes, we have changed the formula that is used for this calculation. Use of the new formula will result in haulage volumes which are approximately 30% greater. The adjustment will be applied in this report as well as to all of the sludge haulage totals for the year.

COMPLAINTS

There were no complaints during the report period.

BYPASS/OVERFLOW REPORT(S)

There were no bypass or overflow events during the reporting period.

COMMENTS

Plant power consumption for the month was 646 (x 180 multiplier) kWh.
Screen and Dewatering Upgrades at the FFWWTP have been under way since May 30, 2016.
The secondary clarifiers were drained for inspection and 2 links were removed from the longitudinal collector chains in each tank.

REPORTS

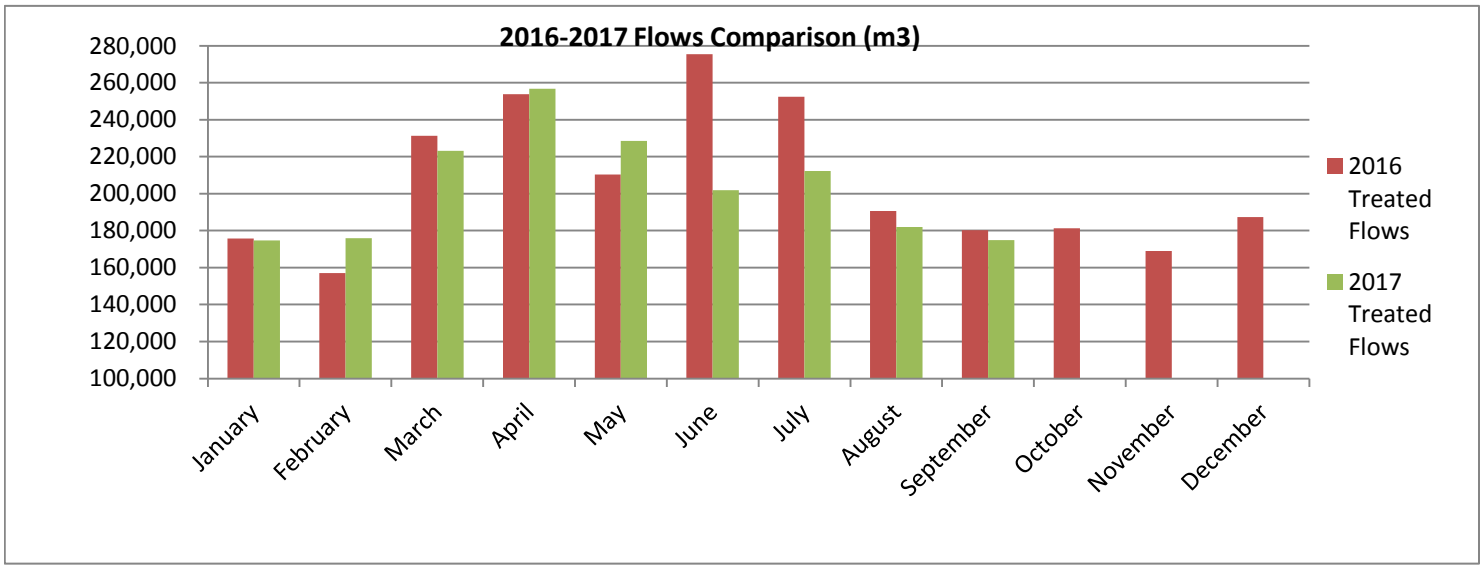
ALS – Environmental Analytical Reports (on-file at plant)
Fort Frances WPCP Equipment Run Time Report (on-file at plant)
Bypass Report (on-file at plant as per occurrence)
Incident Report (on-file at plant as per occurrence)

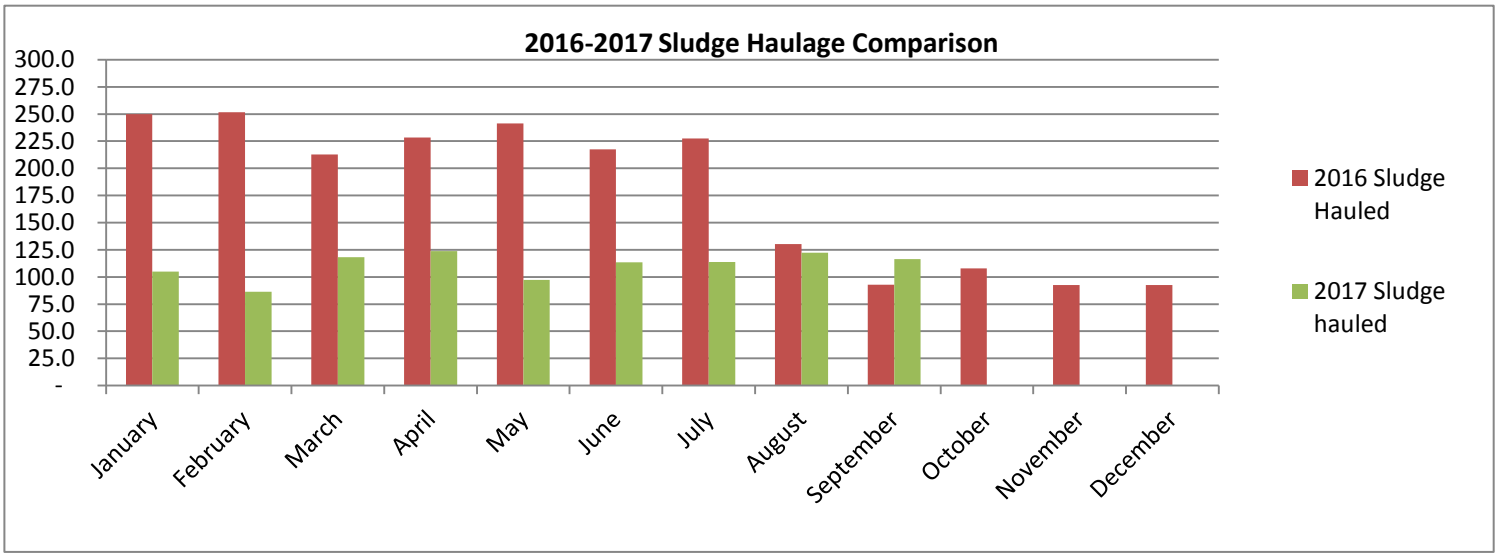
Month	Avg. Day Flow m3	Sewage Flows Year 2016 Max Day Flow m3	Total Treated Volume ML	Total ByPass Volume ML	Total Volume ML	Usage % Plant Capacity	Calculated Volume Hauled M3	Sludge Bins Hauled
January	5636.9	6162	174745		174745	63%	104.9	11
February	6284.1	9818	175956		175956	70%	86.5	8
March	7199.5	8844	223183		223183	80%	118.1	12
April	8558.6	10641	256759	350	256759	95%	123.7	11
May	7372.6	9480	228551		228551	82%	97.2	9
June	6730.5	10063	201914		201914	75%	113.5	9
July	6847.2	12238	212264		212264	76%	113.8	10
August	5869.6	8228	181956		181956	65%	122.2	13
September	5826.5	6755	174796		174796	65%	116.5	11
October						0%		
November						0%		
December						0%		
Sum				350	1830124		996.4	94
Average	6703		203347		203347	74%	110.7	10.4
Max		12238	256759		256759			13
C of A	9000	18000						

Removal Efficiency	
CBOD5	0.967865707
Suspended Solids	0.966327776
Total Phosphorus	0.921052632

	BOD5/CBOD5			Suspended Solids			Total Phosphorus			Nitrogen		E. Coli
	Avg. Raw	Avg. Eff.	Avg. Load	Avg. Raw	Avg. Eff.	Avg. Load	Avg. Raw	Avg. Eff.	Avg. Load	Avg. Raw	Avg. Eff.	Geo Mean
Month	BOD	CBOD	CBOD	S.S	S.S	S.S	T.P	T.P	T.P	TKN	Total N	Counts
	(mg/L)	(mg/L)	(kg/day)	(mg/L)	(mg/L)	(kg/day)	(mg/L)	(mg/L)	(kg/day)	(mg/L)	(mg/L)	/100ml
January	84.0	2.0	11.3	138.4	3.2	18.1	2.31	0.11	0.63	17.5	8.8	3.6
February	64.3	2.3	15.5	142.6	5.8	35.2	2.04	0.18	1.09	16.5	8.0	11.8
March	70.0	2.8	20.5	118.7	5.7	42.0	1.98	0.20	1.42	15.8	8.0	39.5
April	48.3	2.3	19.9	107.3	5.4	46.5	1.50	0.17	1.50	12.5	7.7	53.0
May	59.2	2.0	15.3	123.0	3.8	28.2	1.77	0.15	1.10	13.9	6.8	15.0
June	64.5	2.6	16.7	146.1	7.8	53.2	2.05	0.24	1.60	14.0	7.7	10.8
July	66.8	2.0	13.0	124.7	3.8	26.9	2.01	0.17	1.18	14.7	7.3	2.3
August	88.4	2.0	11.5	164.6	2.4	14.5	2.65	0.13	0.78	16.5	8.1	5.2
September	80.0	2.1	12.0	164.1	3.5	20.6	2.69	0.15	0.89	18.1	7.6	9.0
October												
November												
December												
Average	69.5	2.2	15.1	136.6	4.6	31.7	2.1	0.17	1.13	15.5	7.8	16.7
Max	88.4	2.8	20.5	164.6	7.8	53.2	2.7	0.24	1.60	18.1	8.8	53
C of A		25	225		25	225		1.0	9.0	200	6.0	200

2016-2017 Comparison Chart						
Month	2016 Treated Sewage	2017 Treated Sewage	% Variance 2016 to 2017	2016 Hauled Sludge	2017 Hauled Sludge	% Variance 2016 to 2017
	m3	m3	m3	m3 (9% solid)	m3 (18% solid)	m3
January	175,712	174,745	-1%	249.9	104.9	-58%
February	157,117	175,956	11%	251.7	86.5	-66%
March	231,365	223,183	-4%	212.7	118.1	-44%
April	253,871	256,759	1%	228.3	123.7	-46%
May	210,352	228,551	8%	241.2	97.2	-60%
June	275,522	201,914	-36%	217.4	113.5	-48%
July	252,416	212,264	-19%	227.5	113.8	-50%
August	190,658	181,956	-5%	130.3	122.2	-6%
September	180,285	174,796	-3%	92.8	116.5	26%
October	181,205			108.0		
November	169,075			92.6		
December	187,407			92.6		
Totals	2,464,985	1,830,124		2,145.0	996.4	





Aircraft Landings 2017

As of October 10, 2017 Statistics - Page 1/2

	Bearskin Flights			Bearskin- Passengers			Government			Private			Med-I-vacs			International			Commercial			Totals			Variance
Month	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**	**2017**	**2016**	**2015**	**2017-2016**
January	**76**	70	76	**308**	261	256	**0**	1	6	**2**	3	6	**42**	30	43	**4**	3	4	**48**	36	42	**172**	143	177	29
February	**80**	69	67	**334**	233	241	**1**	1	2	**1**	1	7	**32**	35	36	**0**	1	3	**39**	49	40	**153**	156	155	-3
March	**90**	69	78	**336**	199	341	**10**	0	5	**4**	17	30	**50**	34	36	**14**	3	5	**51**	55	38	**219**	178	192	41
1/4 Total	**246**	**208**	**221**	**978**	**693**	**838**	**11**	**2**	**13**	**7**	**21**	**43**	**124**	**99**	**115**	**18**	**7**	**12**	**138**	**140**	**120**	**544**	**477**	**524**	67
April	**67**	81	81	**289**	288	330	**0**	7	1	**18**	8	23	**40**	47	41	**3**	3	2	**41**	40	53	**169**	186	201	-17
May	**87**	88	82	**389**	309	365	**8**	4	1	**8**	9	28	**50**	37	37	**33**	32	34	**54**	59	77	**240**	229	259	11
June	**82**	76	80	**324**	273	322	**10**	0	11	**16**	30	36	**38**	38	31	**87**	77	74	**63**	52	96	**296**	273	328	23
1/2 Total	**482**	**453**	**464**	**1980**	**1563**	**1855**	**29**	**13**	**26**	**49**	**68**	**130**	**252**	**221**	**224**	**141**	**119**	**122**	**296**	**291**	**346**	**1249**	**1165**	**1312**	84
July	**70**	72	81	**224**	221	297	**3**	2	8	**26**	48	40	**52**	51	35	**76**	66	83	**54**	47	77	**281**	286	324	-5
August	**82**	84	79	**292**	256	297	**4**	6	4	**27**	42	39	**46**	66	31	**80**	71	73	**50**	53	87	**289**	322	313	-33
September	**79**	78	76	**267**	277	328	**7**	1	0	**14**	15	17	**40**	40	36	**42**	45	44	**39**	51	76	**221**	230	249	-9
3/4 Total	**713**	**687**	**700**	**2763**	**2317**	**2777**	**43**	**22**	**38**	**116**	**173**	**226**	**390**	**378**	**326**	**339**	**301**	**322**	**439**	**442**	**586**	**2040**	**2003**	**2198**	37
October		85	83		357	309		2	4		10	20		41	47		18	9		47	51	**0**	203	214	-203
November		72	68		328	260		3	0		20	9		28	30		7	1		38	38	**0**	168	146	-168
December		64	68		231	200		0	0		0	4		29	31		0	2		29	34	**0**	122	139	-122
Total	**713**	**908**	**919**	**2763**	**3233**	**3546**	**43**	**27**	**42**	**116**	**203**	**259**	**390**	**476**	**434**	**339**	**326**	**334**	**439**	**556**	**709**	**2040**	**2496**	**2697**	-456

Fort Frances Airport- Page 2/2 - Fuel Sales - As of October 10, 2017

Fuel Sales Recap - 2017									2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	9 year	Variance 2017-2016
	100LL		Jet Trk		Jet Cab		Month	Year	per	per	per	per	per	per	per	per	per	per	Average	per month
Month	Liters	Total	Liters	Total	Liters	Total	Total	Total	month	month	month	month	month	month	month	month	month	month	2015 to 2007	month
January	8,175	8,175	17,500	17,500	0	0	25,675	25,675	7,528	8,692	11,543	7,216	10,252	7,308	10,971	15,989	29,926	16,283	13,002	18,147
February	8,377	16,552	4,126	21,626	0	0	12,503	38,178	11,904	11,231	12,304	6,197	6,918	3,687	5,782	13,135	21,134	11,782	10,316	599
March	4,574	21,126	16,954	38,580	200	200	21,728	59,906	13,255	17,795	10,508	12,077	9,329	10,390	15,539	9,612	27,435	19,969	14,235	8,473
April	4,322	25,448	8,780	47,360	0	200	13,102	73,008	8,592	13,219	8,377	4,453	8,251	5,294	24,825	10,676	22,466	28,609	13,505	4,510
May	3,044	28,492	18,318	65,678	0	200	21,362	94,370	24,681	16,161	29,753	18,350	21,891	19,790	25,375	24,033	30,287	47,258	26,824	-3,319
June	6,882	35,374	20,498	86,176	0	200	27,380	121,750	26,015	45,698	30,789	22,786	23,537	25,723	27,768	22,395	35,995	40,736	28,416	1,365
July	4,236	39,610	20,406	106,582	0	200	24,642	146,392	29,002	28,150	14,441	19,232	32,650	19,124	30,455	24,925	33,390	44,875	27,566	-4,360
August	5,171	44,781	17,858	124,440	0	200	23,029	169,421	21,119	36,638	20,450	20,075	30,783	21,467	33,139	28,250	40,177	41,630	28,566	1,910
September	2,215	46,996	11,274	135,714	0	200	13,489	182,910	21,325	24,238	21,837	18,005	19,431	22,511	23,363	18,937	28,822	30,341	22,730	-7,836
October		46,996		135,714		200	0	182,910	30,655	8,216	15,472	13,109	11,325	13,677	15,033	21,304	16,631	28,020	18,358	-30,655
November		46,996		135,714		200	0	182,910	22,349	11,616	7,238	6,398	8,170	6,785	17,747	10,754	16,951	16,842	12,582	-22,349
December		46,996		135,714		200	0	182,910	13,797	7,592	6,849	2,028	8,179	2,446	7,641	7,596	13,083	14,733	8,484	-13,797
Total	46,996		135,714		200		182,910		230,222	229,246	189,561	149,926	190,716	158,202	237,638	207,606	316,297	341,078	224,583	-47,312
								Jan to Sept	163,421	201,822	160,002	128,391	163,042	135,294	197,217	167,952	269,632	281,483	185,159	27,325

Lowest month in last 9 years
Highest month in last 9 years
Highest month
lowest month

2017 - tonnage at Landfill Site - updated October 10, 2017

MONTH	Residential Waste tonnes	Res %	ICI Waste tonnes	ICI %	Non Community Waste tonnes	Non Com %	Covering Material tonnes	2016 Total Tonne	Average last 10 years Total Tonne	2017 Total Tonne	2016 Total Fees	Average last 10 years Fees 2007 to 2016	2017 Total Fees	2017-2016 Tonnes	2017-2016 Fees
JAN	137.74	30.55	304.18	67.47	8.93	1.98	0.00	369.18	360.75	450.85	$20,490.00	$17,849.10	$26,266.82	81.67	$5,776.82
FEB	111.80	31.97	230.26	65.85	7.60	2.17	0.00	314.92	306.73	349.66	$17,474.70	$15,355.62	$20,191.04	34.74	$2,716.34
MAR	149.38	32.06	309.46	66.41	7.17	1.54	0.00	395.39	411.69	466.01	$23,164.20	$21,321.44	$28,951.58	70.62	$5,787.38
APRIL	217.26	34.44	405.17	64.22	8.48	1.34	20.73	573.09	574.04	630.91	$34,152.50	$30,505.60	$40,385.84	57.82	$6,233.34
MAY	243.32	32.81	491.78	66.31	6.49	0.88	0.00	641.69	719.34	741.59	$34,655.80	$36,978.61	$43,112.32	99.90	$8,456.52
JUNE	314.60	47.45	341.84	51.56	6.58	0.99	159.94	1,246.89	846.85	663.02	$37,412.30	$38,270.35	$40,162.52	-583.87	$2,750.22
JULY	209.92	35.67	369.29	62.76	9.25	1.57	1099.92	618.23	673.76	588.46	$37,556.30	$37,267.74	$37,823.17	-29.77	$266.87
AUG	255.46	38.07	402.59	59.99	13.01	1.94	695.19	897.44	657.07	671.06	$43,194.40	$34,723.56	$39,355.84	-226.38	-$3,838.56
SEPT	220.15	34.55	406.93	63.87	10.04	1.58	1,001.76	695.10	651.51	637.12	$42,510.30	$34,879.94	$41,057.14	-57.98	-$1,453.16
OCT		#DIV/0!		#DIV/0!		#DIV/0!		686.35	803.03	0.00	$36,305.40	$40,187.03		-686.35	-$36,305.40
NOV		#DIV/0!		#DIV/0!		#DIV/0!		615.60	569.91	0.00	$37,603.60	$29,432.34		-615.60	-$37,603.60
DEC		#DIV/0!		#DIV/0!		#DIV/0!		587.46	416.38	0.00	$21,415.30	$21,716.47		-587.46	-$21,415.30
Average per monthly	206.63	32.25	362.39	65.99	8.62	1.76	330.84	636.78	582.59	433.22	$32,161.23	$29,873.98	$35,256.25	244.85	31,720.62
Total	1859.64		3261.49		77.55		2977.54	7641.34	6991.06	5198.68	$385,934.80	$358,487.81	$317,306.27	-2442.66	-$68,628.53

		$385,934.80 Actual	$317,306.27
Town of Fort Frances Tonnage	5121.13	$384,888.00 Budget	$391,084.00
	Includes 603.005t associated with the Fight the Blight Campaign		
Total Tonnage	5198.68	$385,934.80 Forecasted	$423,075.03
Residential Tonnage	1859.64	35.77%	
ICI Tonnage	3261.49	62.74%	
Coverage material	2977.54		

Sewer & Water Data for 2017

up-dated October 10, 2017

Month	Days per month	2017 Total Sewage STP cu. meters monthly	2017 daily Sewage STP cu. meters daily	2017 Couch. Sewage Meters cu. meters monthly	2017 Couch. Sewage Meters cu. meters daily	2017 Couch. Sewage %	2017 Total Treated WTP cu. meters monthly	2017 daily Treated WTP cu. meters daily	2017 Couch. 2 Water Meters cu. meters monthly	2017 Couch. 2 Water Meters cu. meters daily	2017 Couch. Water %	2017-2016 Diff Treated WTP	2017-2016 Diff Wastewater STP	2017 Difference STP-WTP	2017 Infiltration daily average
January	31	174745	5636.94	13111	422.94	7.50%	114550.0	3695.2	10605.0	342.1	9.26%	-3560.0	-1965.0	60195.0	1941.8
February	28	174956	6248.43	13811	493.25	7.89%	103680.0	3702.9	10605.0	378.8	10.23%	-6570.0	17839.0	71276.0	2545.6
March	31	223183	7199.45	15572	502.32	6.98%	113560.0	3663.2	10785.0	347.9	9.50%	-4500.0	-8182.0	109623.0	3536.2
April	30	256759	8558.63	15613	520.43	6.08%	108330.0	3611.0	10785.0	359.5	9.96%	1590.0	2888.0	148429.0	4947.6
May	31	228551	7372.61	14312	461.68	6.26%	116990.0	3773.9	9850.0	317.7	8.42%	-1590.0	18298.0	111561.0	3598.7
June	30	201914	6730.47	13005	433.50	6.44%	114210.0	3807.0	9850.0	328.3	8.62%	-5980.0	-72302.0	87704.0	2923.5
July	31	212264	6847.23	14818	478.00	6.98%	126300.0	4074.2	10355.0	334.0	8.20%	270.0	-40152.0	85964.0	2773.0
August	31	181956	5869.55	13149	424.16	7.23%	123420.0	3981.3	10355.0	334.0	8.39%	-14080.0	-8702.0	58536.0	1888.3
September	30	174796	5826.53	12631	421.03	7.23%	107620.0	3587.3		0.0	0.00%	3360.0	-5489.0	67176.0	2239.2
October	31		0.00		0.00	#DIV/0!		0.0		0.0	#DIV/0!	-103050.0	-181205.0	0.0	0.0
November	30		0.00		0.00	#DIV/0!		0.0		0.0	#DIV/0!	-96940.0	-169075.0	0.0	0.0
December	31		0.00		0.00	#DIV/0!		0.0		0.0	#DIV/0!	-108030.0	-187407.0	0.0	0.0
Total	365	1829124		126022			1028660.0		83190.0			-339080.0	-635454.0	800464.0	2193.1
Monthly Average												-28256.7	-52954.5	66705.3	2199.5