



Environment and Climate Change  
Environmental Stewardship Division  
Environmental Approvals Branch  
Box 36 14 Fultz Blvd  
Winnipeg, MB R3Y 0L6

July 02, 2024  
Client File No.: 1071.10  
Our File No.: S-972, S-1146, EMS  
020-17-08-11-00  
020-17-08-11-0N

Attention: Agnes Wittmann, Director

**RE: QUARTERLY PROGRESS REPORT FOR NEWPCC UPGRADES  
APRIL 1 – JUNE 30, 2024**

---

This report summarizes progress on the North End Sewage Treatment Plant (NEWPCC) upgrades, operating under Environmental Act Licence No. 2684 RRR, from April 1 to June 30, 2024.

## **1. INTERIM CHEMICAL PHOSPHOROUS REMOVAL FACILITIES**

Update on items from last report:

- The chemical distribution and remote dosing systems are complete and testing and commissioning are complete

Next steps:

- Dosing will progressively increase and impacts on the NEWPCC facility will be monitored over the next year

Schedule update:

- The current project schedule is provided in Table 1 in the Appendix
- The substantial performance inspection occurred on June 28, 2024; substantial performance certificate will be dated July 2, 2024. No issues were identified
- Total performance for the interim phosphorus scope of work will be August 28, 2024

Phosphorous optimization and plant wide dosing:

- The NEWPCC Operators have maximized ferric dosing to the sequencing batch reactors (SBRs) and digesters based on the existing ferric chloride pumping capacity
  - The average SBR effluent phosphorous load for Q2 2024 is 31.5kg/day, which corresponds to an average SBR effluent concentration of 16.6 mg/L
- The SBRs are performing better than anticipated in the original design and are producing effluent below the licence limit of 119 kg/day of phosphorous specified in Clause 27 of the NEWPCC Licence No. 2684 RRR
- Dosing into the secondary clarifiers at the NEWPCC started at a low rate on June 24, 2024. The performance of the plant is being monitored and dosing may be increased after a 45-day period
- Estimated phosphorous concentrations through various stages of the NEWPCC upgrades are provided in Table 2 in the Appendix

## 2. HEADWORKS FACILITIES

An overall site plan for the headworks project is provided in Figure 1 in the Appendix.

### Update on items from last report:

- Submission of various 90% and Issued for Construction (IFC) Design Submission packages continues; 60% is complete and 90% is nearing completion
  - Tunnels and Chambers: Raw Sewage Pump Station Chamber: Concrete liner wall pours are complete. Concrete curing is ongoing. Pours for interior structures are ongoing
- Grit Building: installation of grit trays, flushing water lines, and slide gates is ongoing
- Fine Screening Area: various formwork, rebar, and concrete work is ongoing. Pre-assembly of screens is complete. Channel gate installation is ongoing
- Solids Handling and Mechanical Rooms: erection of structural steel is ongoing; concrete for second level slab is curing
- Y4 Gallery Connection: installation of miscellaneous electrical is ongoing
- Existing UV Effluent Conduit: preparatory work to support the conduit in advance of tunnelling is ongoing
- Main Control Building: installation of exterior walls is complete; waterproofing of exterior walls and installation of roof drains is ongoing
- Standby Generator Building: generator assembly, mechanical piping, and installation of miscellaneous electrical is ongoing

### Other works progressed:

- The archaeology team continues to assess the objects recovered from the east yard offsite and will continue to monitor intermittent soil sampling work as required

### Next steps:

- Main Control Building: installation of roofing
- Grit Building: installation of miscellaneous piping
- Solids Handling and Mechanical Rooms: installation of major process equipment
- H1 Junction Chamber: installation of slab, liner wall, and bypass piping

### Schedule update:

- The contractor is re-baselining their project schedule to the new substantial performance date. The project schedule provided in Table 3 in the Appendix will be updated once this is complete
  - The Earned Value Analysis (EVA) comparing the baseline schedule to actual schedule will be provided in future reports once the schedule re-baselining is complete

### 3. BIOSOLIDS FACILITIES

#### Update on items from last report:

- Request for Proposal (RFP) Step 2 Procurement is nearing completion. RFP Step 2 closed May 30, 2024. Evaluations are complete. Approval of award to enter into the Development Phase Agreement with the Preferred Proponent was laid over at the June 28, 2024 Standing Policy Committee meeting.
- The Province's Environment and Climate Change Department approved the proposed Remedial Action Plan for Parcel B. Removal of the contaminated soils will be undertaken in the early works construction tender to be issued this summer

#### Next steps:

- Award the Development Phase Agreement at a Special Meeting of the Standing Policy Committee on Water, Waste and Environment in July
- Continue archeological investigations on the Chief Peguis Trail right of way
- Continue detailed design of early works packages and issue tenders for work such as: water main extensions, contaminated soils removal, construction trailer complex, and utilidor construction
- Enter into the Development Phase Agreement with the Preferred Proponent and begin work on the Development Phase

#### Schedule Update:

- The current project schedule is provided in Table 4 in the Appendix

### 4. NUTRIENT REMOVAL FACILITIES

#### Update on items from last report:

- Work on the enhanced preliminary design (EPD) continues
- A draft report has been received and is being reviewed

#### Next steps:

- A revised class 3 estimate is being developed concurrent with the EPD work and will be finalized after the EPD is accepted
- A third-party cost consultant will review the EPD and develop a class 3 estimate

#### Schedule Update:

- The current project schedule is provided in Table 5 in the Appendix

Should you have any questions, please contact me at 204-986-5210 or by email at [cwiebe@winnipeg.ca](mailto:cwiebe@winnipeg.ca).

Sincerely,



Cynthia Wiebe, P. Eng., CAMP  
Manager of Engineering Services

**ATTACHMENTS: Figures and Tables**

CW/dr

- c:
- Y. Hawryliuk, Environment and Climate (email)
  - S. Burland-Ross, Environment and Climate (email)
  - N. Suresh, Environment and Climate (email)
  - S. Adams, Consumer Protection and Government Services (email)
  - T. Parsons, Consumer Protection and Government Services (email)
  - T. W. Shanks, Water and Waste Department (email)
  - C. Carroll, Water and Waste Department (email)
  - L. McCusker, Water and Waste Department (email)
  - J. Goodbrandson, Water and Waste Department (email)
  - A. Weiss, Water and Waste Department (email)
  - L. Obach, Water and Waste Department (email)
  - M. Paetkau, Water and Waste Department (email)

**Table 1:** Interim Chemical Phosphorous Removal Facilities - Project Milestones

Task Description	% Complete			Original Targeted Completion Date	Revised Targeted Completion Date	Actual Completion Dates
	Apr	May	Jun			
Consultant RFP Award	100%			Sep 30, 2021		Sep 28, 2021
Preliminary Design	100%			Feb 3, 2022	Mar 31, 2022	Feb 2, 2022
Detailed Design	100%			May 18, 2022	Jun 30, 2022	May 18, 2022
Construction Tender Award	100%			Jul 15, 2022		Sep 22, 2022
Substantial Completion*	97%	97.5%	100%	Jun 30, 2023	<del>Jun 21, 2024</del> July 2, 2024	Jul 2, 2024
Total Completion*				Sep 30, 2023	<del>Jul 15, 2024</del> Aug 28, 2024	
Full-Scale Testing and Implementation				Dec 31, 2024	<del>Jul 15, 2025</del> Aug 28, 2025	

**Table 2:** Estimated Phosphorous Concentrations through NEWPCC Upgrade Stages

Stage	Period	Estimated Total Phosphorous Concentration in NEWPCC Final Effluent <sup>1</sup>	Monitoring Data: Total Phosphorous (NEWPCC Final Effluent)
<b>Stage 1:</b> Phosphorous reduction with existing infrastructure	Until Aug 2021	Approximately 4.0 to 4.5 mg/L on average	3.6 mg/L (Average from 2017 – 2021)
<b>Stage 2:</b> Maximized phosphorous reduction through optimization with existing infrastructure	Aug 2021 to June 28, 2024	Approximately 3.5 mg/L on average	2.5 mg/L (Average from 2022 onward)
<b>Stage 3:</b> Phosphorous reduction with Interim Chemical Phosphorous Facilities	June 28, 2024 to Dec 2030	Approximately 2.5 to 3.0 mg/L on average <sup>2</sup>	
<b>Stage 4:</b> Phosphorous reduction with commissioned Biosolids Facilities	Jan 2031 to Jan 2032	1 mg/L to Jan 2032 <sup>3</sup>	
<b>Stage 5:</b> Ongoing phosphorous reduction with commissioned Nutrient Removal Facilities	TBD	1 mg/L	

<sup>1</sup> Based on the 'NEWPCC Interim Phosphorous Removal and Detail Review and Bench Scale Testing Report, December 2020

<sup>2</sup> Phosphorous levels may increase as City growth consumes sludge processing capacity

<sup>3</sup> Phosphorous levels may increase after January 2032 dependant on sludge loading levels (assuming maximum sludge generating scenario)

Monitored average total phosphorous concentrations at NEWPCC indicate the plant has been outperforming anticipated modelled data. The Stage 2 average returned to 2.5 mg/L (from 2.6 mg/L) since the last reporting period. Total phosphorous concentrations have decreased noticeably during Stage 2. The City is working on decreasing sludge loading to the existing digesters by removing grease, scum, and grit through various projects.

The modelled data is a conservative estimate of total phosphorous concentrations. The model was developed based on historical wastewater loadings and factored in the projected impacts of upgrades at SEWPCC. Actual results are dependent on many variables, such as:

- the overall health and performance of the treatment bacteria
- the performance of various processes
- wet weather flow
- changes in development

- industrial activity (especially high strength industry)
- ongoing capital improvements

With the commissioning of the Interim Phosphorous facility in Q2 2024, it is anticipated that total phosphorous will further decrease. Based on the better than expected results over the past several years, it is expected that the plant could be at or near licence limits for phosphorous for portions of the year through the use of chemical removal.

The City will continue to optimize phosphorous removal within existing digester capacity to the greatest extent possible with the various dosing points. Actual results will depend on full scale testing following commissioning of the Interim Phosphorous facility and the various factors described above.

Phosphorous concentrations in the final effluent are reported in the NEWPCC's monthly compliance reports and can be found online at [winnipeg.ca/wwcompliance](https://winnipeg.ca/wwcompliance).

[illegible]



**Table 3:** Headworks Facilities – Project Milestones

Task Description	% Complete**			Original Targeted Completion Date	Revised Targeted Completion Date	Actual Completion Dates
	Apr	May	Jun			
Procurement and Contract Award	100%			Jun 30, 2021		Jun 11, 2021
DB Mobilization Complete	100%			Dec 31, 2021		Dec 15, 2021
30% Design	100%			Dec 14, 2021		Dec 14, 2021
60% Design	99%	100%		Sep 30, 2022		May 22, 2024
90% Design	80%	85%	95%	Jan 23, 2023	Aug 30, 2024	
IFC Design	65%	70%	85%	Apr 17, 2023	Oct 30, 2024	
Driven Piles (All Areas)	100%			Aug 19, 2022		Mar 14, 2023
Secant Piles (H2, H1, Y5)	100%			Sep 29, 2022		Jan 13, 2023
Microtunneling (H1 to H2 and H1 to Y5)	65%	65%	65%	Dec 20, 2022	Aug 9, 2024	
Generator Building, Structural and External Finishes	88%	88%	88%	Mar 14, 2023	Aug 30, 2024	
Standby Generators, Install	100%			Aug 3, 2023		Oct 30, 2022
Raw Sewage Pumping Station (H2), Concrete	45%	57%	70%	Aug 7, 2023	<del>Jun 10, 2024</del> Nov 8, 2024	
H1 Chamber	18%	18%	18%	Sep 5, 2023	May 22, 2025	

**Table 3:** Headworks Facilities – Project Milestones continued...

Task Description	% Complete**			Original Targeted Completion Date	Revised Targeted Completion Date	Actual Completion Dates
	Apr	May	Jun			
Standby Generator Facility and Fuel Storage System	58%	60%	75%	Sep 15, 2023	Feb 3, 2025	
Grit Removal System, Install	35%	38%	55%	Sep 18, 2023	Jul 31, 2024	
Y5 Chamber	25%	25%	25%	Dec 7, 2023	Dec 5, 2024	
Raw Sewage Pumps, Install	0%	0%	0%	Jan 23, 2024	Nov 25, 2024	
Fine Screens, Install	0%	0%	0%	Mar 26, 2024	Dec 2, 2024	
Headworks Building, Structural and External Finishes	0%	0%	0%	Jun 7, 2024	Jan 22, 2025	
Odour Control System, Install	0%	0%	0%	Jul 8, 2024	Jan 6, 2025	
Civil Works and Landscaping	0%	0%	0%	Jul 26, 2024	Apr 11, 2025	
Headworks Building, Complete	0%	0%	0%	Nov 5, 2024	Feb 4, 2025	
Commissioning	0%	0%	0%	Mar 31, 2025	May 11, 2025	
Decommissioning – Original Equipment	0%	0%	0%	May 14, 2025	Jul 28, 2025	
Substantial Completion*	0%	0%	0%	Jun 30, 2025	Mar 31, 2026	

\*This is the only milestone that is contractual and cannot slide without penalty

\*\*Data source: Red River Solution's Monthly Report

Note: Once the Contractor re-baselines schedule, other interim milestone dates will be updated

**Table 4: Biosolids Facilities – Project Milestones**

Task Description	% Complete			Original Targeted Completion Date	Revised Targeted Completion Date	Actual Completion Dates
	Apr	May	Jun			
Updated Preliminary Design and Procurement Strategy	100%			Dec 31, 2021	Apr 1, 2022	Apr 14, 2022 Council Approved Jul 21, 2022
Post RFP Step 1 (Following Council Approval for a PDB procurement strategy)	100%			Jul 13, 2023		Jul 14, 2023
Shortlist Proponents	100%			Sep 30, 2023	Dec 4, 2023	Dec 1, 2023
Post RFP Step 2	100%			Oct 31, 2023	Dec 4, 2023	Dec 11, 2023
Contract Award of Development Phase Agreement	0%	0%	0%	Jun 30, 2024	Aug 30, 2024	
Contract Award of Design Build Agreement	0%	0%	0%	TBD		
Substantial Completion				TBD following DBA – by Dec 31, 2030		

**Table 5: Nutrient Removal Facilities – Project Milestones**

Task Description	% Complete			Original Targeted Completion Date	Revised Targeted Completion Date	Actual Completion Dates
	Apr	May	Jun			
Nutrient Removal Technology Selection	100%			Oct 19, 2023		Oct 12, 2023
Updated EPD	70%	80%	90%	Jun 30, 2024	Sept 18, 2024	
Revised Class 3 Cost Estimate	20%	30%	40%	Sept 30, 2024		
Procurement and Contract Award	0%	0%	0%	TBD		
Substantial Completion				TBD		