



City of Hamilton
HAMILTON WATER SUB-COMMITTEE
AGENDA

Meeting #: 21-001
Date: May 3, 2021
Time: 10:00 a.m.
Location: Due to the COVID-19 and the Closure of City Hall
All electronic meetings can be viewed at:
City's YouTube Channel:
<https://www.youtube.com/user/InsideCityofHamilton>

Laura Keddie, Assistant to the Director of Hamilton Water
(905) 546-2424 ext. 5594

| | Pages |
|--|--------------|
| 1. APPOINTMENT OF CHAIR AND VICE-CHAIR | |
| 2. APPROVAL OF AGENDA (Added Items, if applicable, will be noted with *) | |
| 3. DECLARATIONS OF INTEREST | |
| 4. APPROVAL OF MINUTES OF PREVIOUS MEETING | |
| 4.1. April 23, 2019 | 3 |
| 5. COMMUNICATIONS | |
| 6. DELEGATION REQUESTS | |
| 7. CONSENT ITEMS | |
| 8. STAFF PRESENTATIONS | |
| 8.1. Woodward Upgrades Construction Update (PW20043(a)) (City Wide) | 4 |

9. PUBLIC HEARINGS / DELEGATIONS
10. DISCUSSION ITEMS
11. MOTIONS
12. NOTICES OF MOTION
13. GENERAL INFORMATION / OTHER BUSINESS
14. PRIVATE AND CONFIDENTIAL
15. ADJOURNMENT



MINUTES

Hamilton Water Sub-committee
Tuesday, April 23, 2019
2:30 pm
Hamilton City Hall, Room 816
71 Main Street East
Hamilton, ON

Present:

Chair: Andrew Grice

Vice-Chair:

Members: Councillor Danko
Councillor Wilson
Councillor Nann
Councillor Ferguson (PW Chair)
John Helka
Dan McKinnon

Minutes:

1. WELCOME AND INTRODUCTIONS

Andrew Grice welcomed everyone to the meeting.

2. DISCUSSION ITEMS

City staff presented the need to expand the City's purchase order with CH2M Hill Canada in the amount of \$4.5M which is required for engineering services during construction for the Woodward Upgrades Program. This request will formally be provided in a Recommendation Report for Public Works Committee targeting June 3, 2019.

An overall update on the Woodward Upgrades Program was also provided.


3. GENERAL INFORMATION / OTHER BUSINESS

None

Next Meeting: TBD



INFORMATION REPORT

| | |
|---------------------------|---|
| TO: | Chair and Members Hamilton Water Sub-Committee |
| COMMITTEE DATE: | May 3, 2021 |
| SUBJECT/REPORT NO: | Woodward Upgrades Construction Update (PW20043(a)) (City Wide) |
| WARD(S) AFFECTED: | City Wide |
| PREPARED BY: | John Helka (905) 546 2424 Ext. 2826 |
| SUBMITTED BY: | John Helka Director, Woodward Upgrades Public Works |
| SIGNATURE: |  |

COUNCIL DIRECTION

Not Applicable

INFORMATION

The purpose of this report is to provide committee members an update on the Woodward Upgrade Project (WUP) which is an integral part of the Clean Harbour Program. Additional details are provided in the presentation attached to Report PW200043(a) as Appendix "A".

The program is being delivered through three construction projects:

- Contract 1 – Main Pumping Station Project (MPS);
- Contract 2 – Electrical and Chlorination Project (ELU); and,
- Contract 3 – Tertiary Treatment Upgrade Project (TTU).

Contract 1 – Main Pumping Station Project:

A new main wastewater pumping station is being constructed to replace the existing pumping station. The MPS project is a \$88M contract that is being constructed by Maple Ball Joint Venture and includes the installation of 12 - 700 Hp pumps for a total firm capacity of 1700 million litres per day.

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

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Construction started in May 2017 and has well surpassed its halfway point with \$77M of work performed to date, with substantial completion estimated to be February 2022.

Contract 2 – Electrical and Chlorination Project:

The Electrical and Chlorination upgrades project is a \$61M contract being undertaken by Alberici Constructors that will replace the two (2) existing electrical substations and existing standby power building with a new Electrical Power Centre. Dual 13.8 kilo-volt underground distribution loop duct banks around the Wastewater and Water treatment plants and four (4) - three (3) Mega Watt diesel generators providing a total of 12 Mega Watts of emergency standby power are included in the project. The chlorination system is being upgraded to increase chlorination capacity during wet weather flows to provide full disinfection.

Construction started in October 2017 and is nearing completion with \$57M of work performed to date and is estimated to reach substantial completion in October 2021.

Contract 3 – Tertiary Treatment Project:

The Tertiary Treatment Project upgrades (TTU) will have the biggest impact on water quality in Hamilton Harbour. The project adds a higher level of treatment (tertiary) to the wastewater treatment process using Disc Filtration technology. In addition, the project includes an increase in the capacity of the south plant secondary treatment system by doubling the size of the aeration tanks and constructing two (2) new clarifiers, new chlorine contact tank and outfall, along with Redhill Creek modifications. This project will allow us to meet the Hamilton Harbour Remediation Action Plan targets, including the provision of full nitrification for more complete ammonia removal, advanced levels of phosphorus removal, and will require the plant to operate under new environmental effluent compliance limits.

The TTU project is a \$165M construction contract that was awarded to North American Construction. Construction started in April 2019 and has reached its two (2) year anniversary, with \$97M of work performed to date.

Soil Management

The program continues to experience challenges in construction resulting from the discovery of Polychlorinated biphenyl (PCB) hazardous soil in the vicinity of the new chlorine contact tank and the south secondary treatment clarifier area that was not identified in the geotechnical investigation and subsequently not included within the construction Contract. The City's project team continues to follow the approved soils segregation and sampling program to help mitigate overall costs to the City, however, the costs to date have had an impact on the project budget. The project budget contains

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available funds to support these additional costs, however, City staff are forecasting that there may be a requirement to add additional funds to the project at a future date. The project team will continue to monitor the program budget and retire project risks when appropriate. Should additional funds be required to supplement the project they will be requested through the 2022 Water, Wastewater and Stormwater Rate Budget process.

The management of the significant amount PCB soils has impacted the construction schedule which is now estimated to reach substantial completion in November 2022, from the original December 30, 2021 date. This delay has also impacted the Green Infrastructure Fund completion timeline of January 31, 2021, based on our communication with Infrastructure Canada they are receptive of an extension in which City staff will be submitting a formal request in June 2021.

Next Steps:

There is a tremendous amount of effort required over the next one (1) to two (2) years as we commission new equipment, finalize construction and transition the project into operation. Staff are very proud of the collaboration and professionalism amongst all the contractors on site amounting to over one (1) million man-hours worked to date and want to recognize that there have been no recorded lost time injuries.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report PW20043(a) - Woodward Upgrades Construction Update Presentation



Public Works
Hamilton Water Sub-Committee
Woodward Upgrades Construction Update
May 3, 2021

Presentation Overview

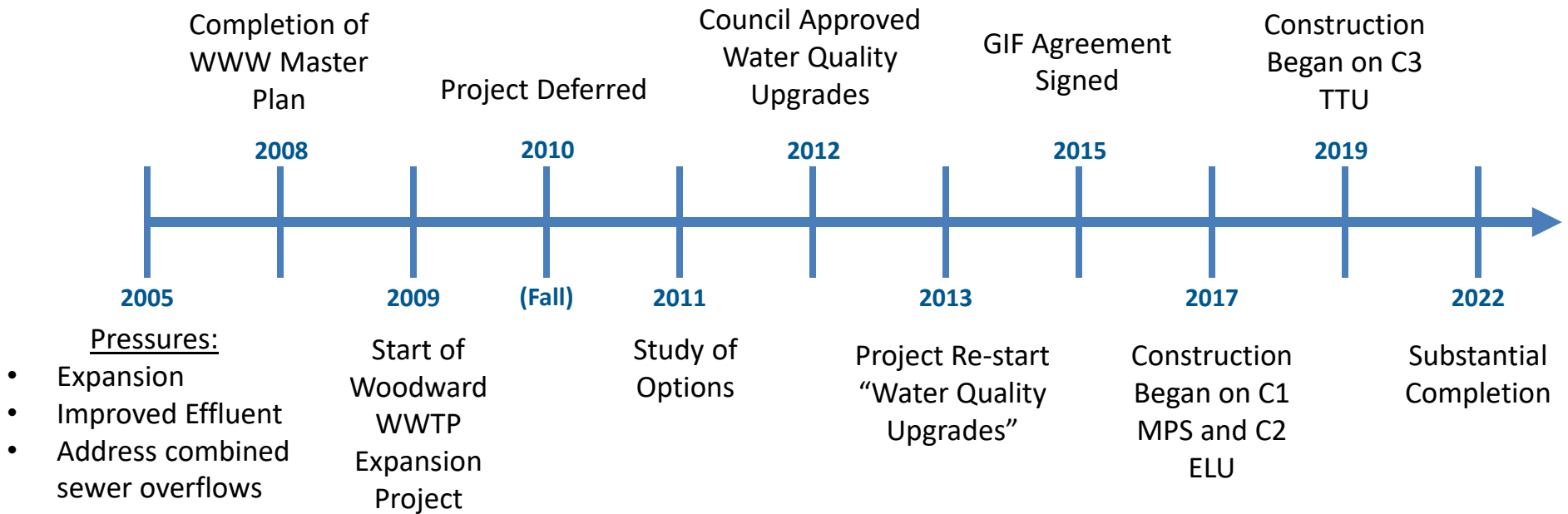
- Background
- Construction Update
- Soil Management
- Budget
- Questions

Background

Woodward WWTP



WUP Program Timeline

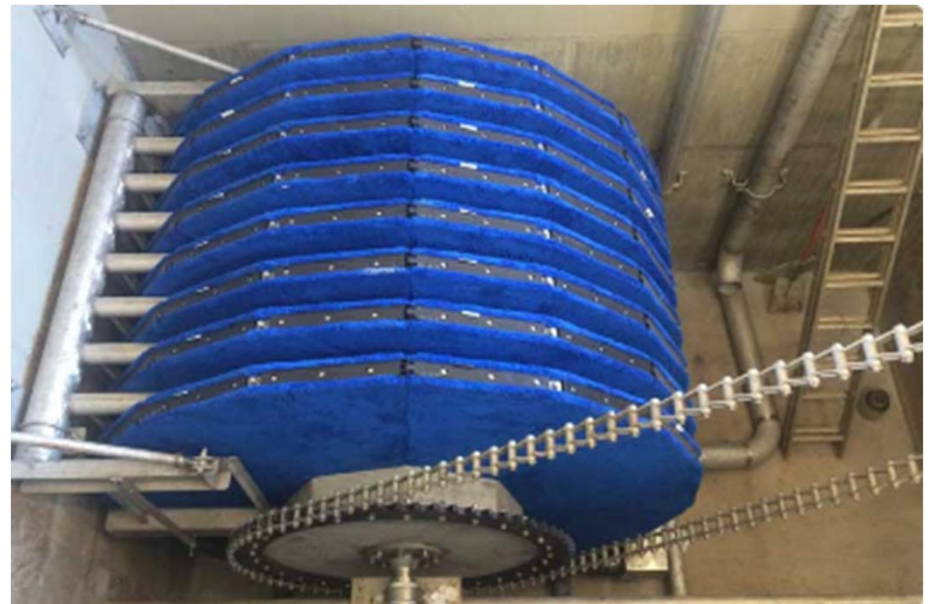


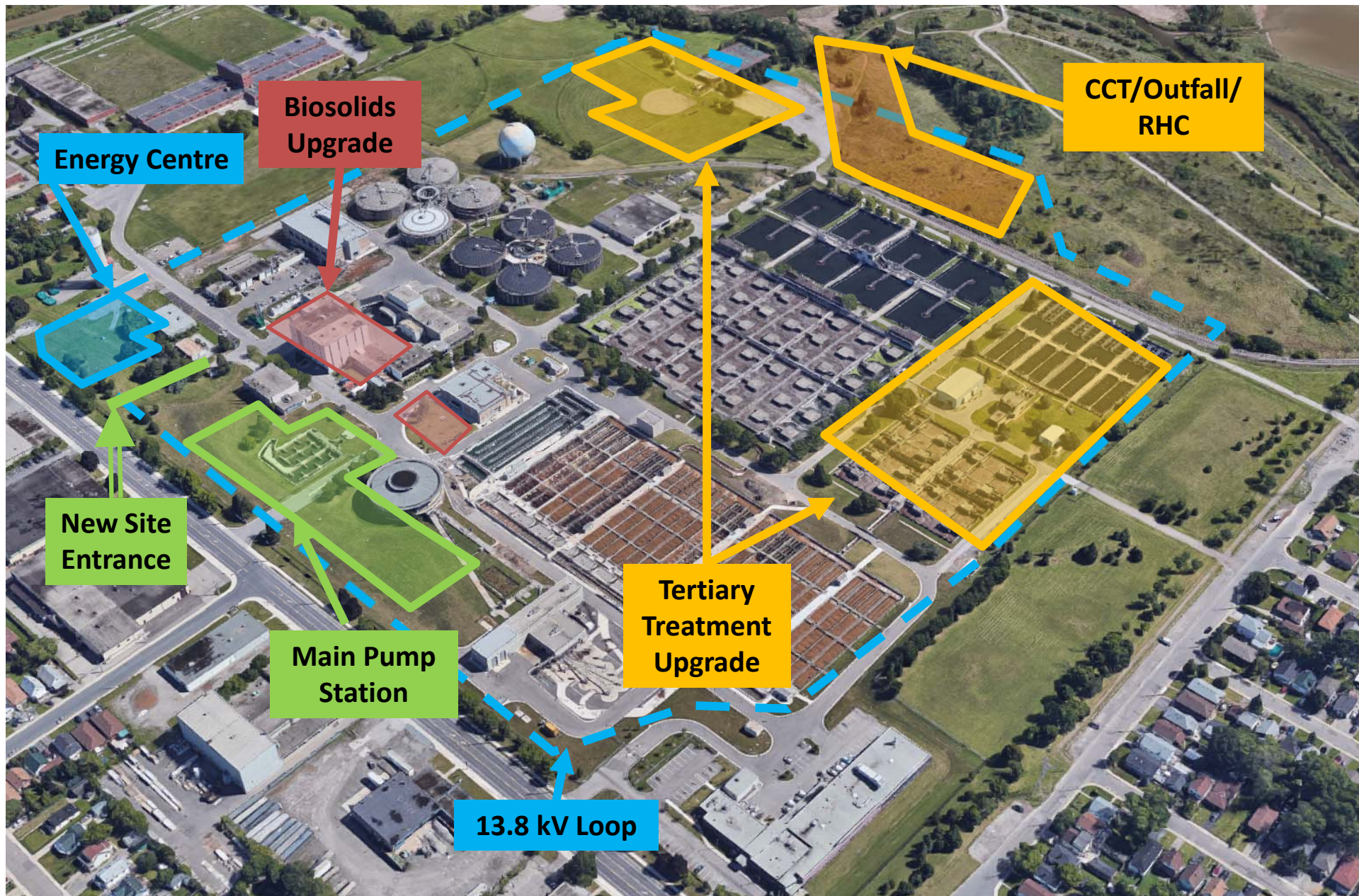
Tertiary Treatment Technology

Membrane



Disk Filtration





Construction Update

Construction Update

➤ Contract 1 – Main Pump Station (MPS)

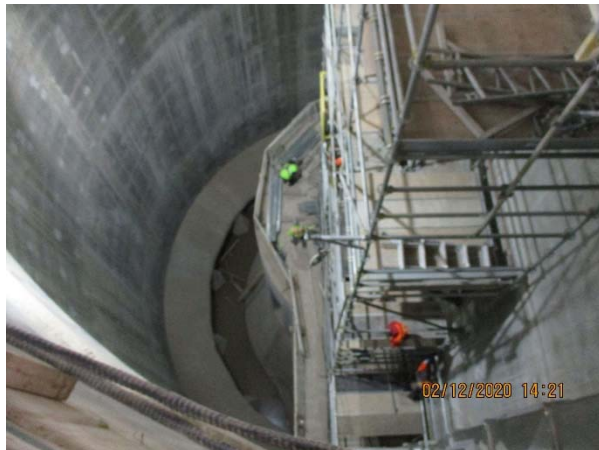
- Awarded to Maple/Ball Joint Venture, Contract Price \$87.5 M
- Start of Construction: May 2017
- Approved Substantial Performance: June 3, 2021 Current Forecast: February 2022
- Work Performed to Date: \$76 M



Construction Update

Contract 1 - MPS

- Construction of the wet well and dry well walls was completed
- Exterior stone masonry completed
- Inlet tunnel completed
- All pumps & associated equipment installed



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Construction Update

➤ Contract 2 – Electrical & Chlorination Upgrades (ELU)

- Awarded to Alberici Constructors, Contract Price \$60.9 M
- Start of Construction: October 2017
- Approved Substantial Performance: June 17, 2021 Current Forecast: October 2021
- Work Performed to Date: \$57.0 M



Construction Update

Contract 2 - ELU

- Electrical Power Centre and installation of all equipment for distribution loop completed
- Commissioning and testing of major equipment is underway
- WTP transferred over to new power system



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Construction Update

➤ Contract 3 – Tertiary Treatment Upgrades (TTU)

- Awarded to North America Constructors, Contract Price \$165.3 M
- Start of Construction: May 2019
- Approved Substantial Performance: Dec. 30, 2021 Current Forecast: November 2022
- Work Performed to Date: \$101 M

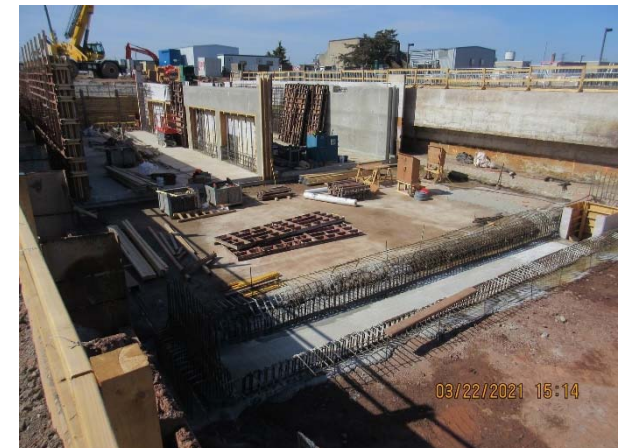


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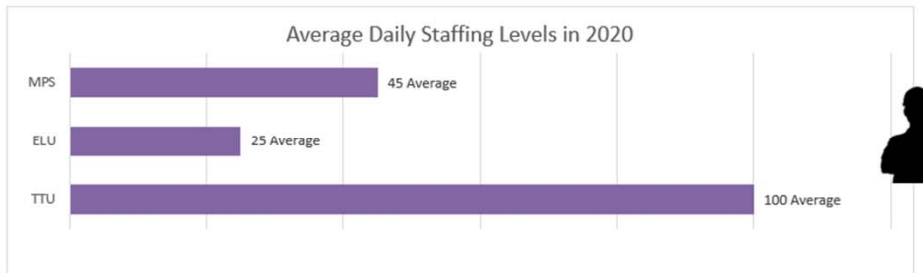
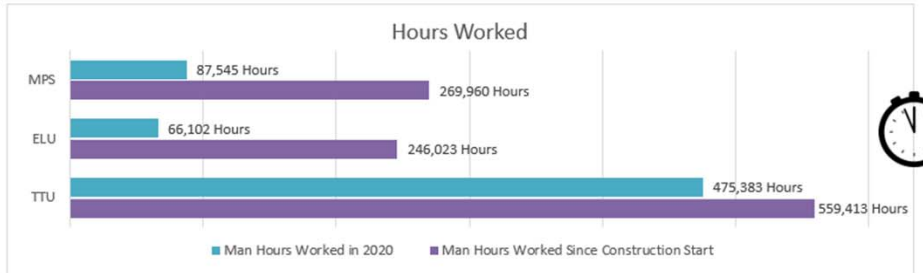
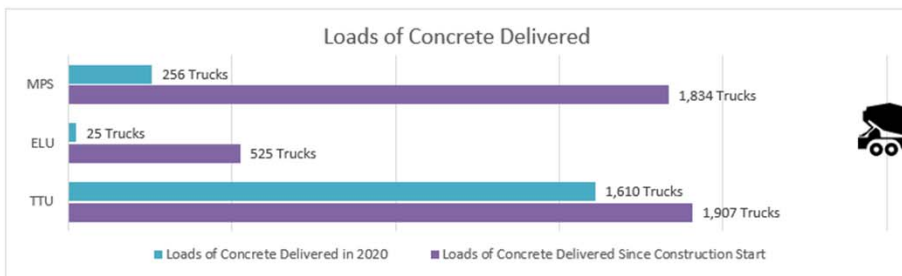
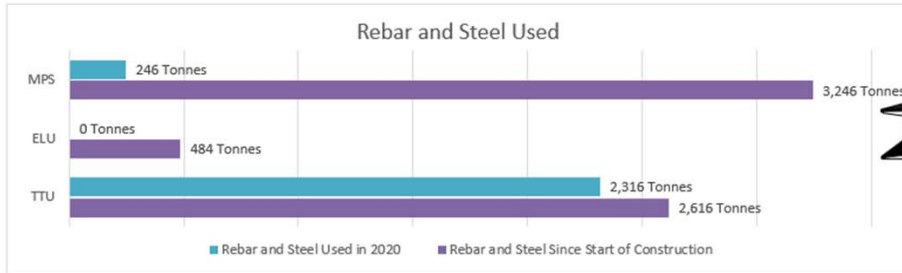
Construction Update

Contract 3 - TTU

- Major structural works on the new tertiary facility nearing completion with process equipment being installed
- All works within Red Hill Creek have been completed including new dissipation zone
- Stage 1 of the South Secondary Treatment Plant Expansion completed with Stage 2 underway

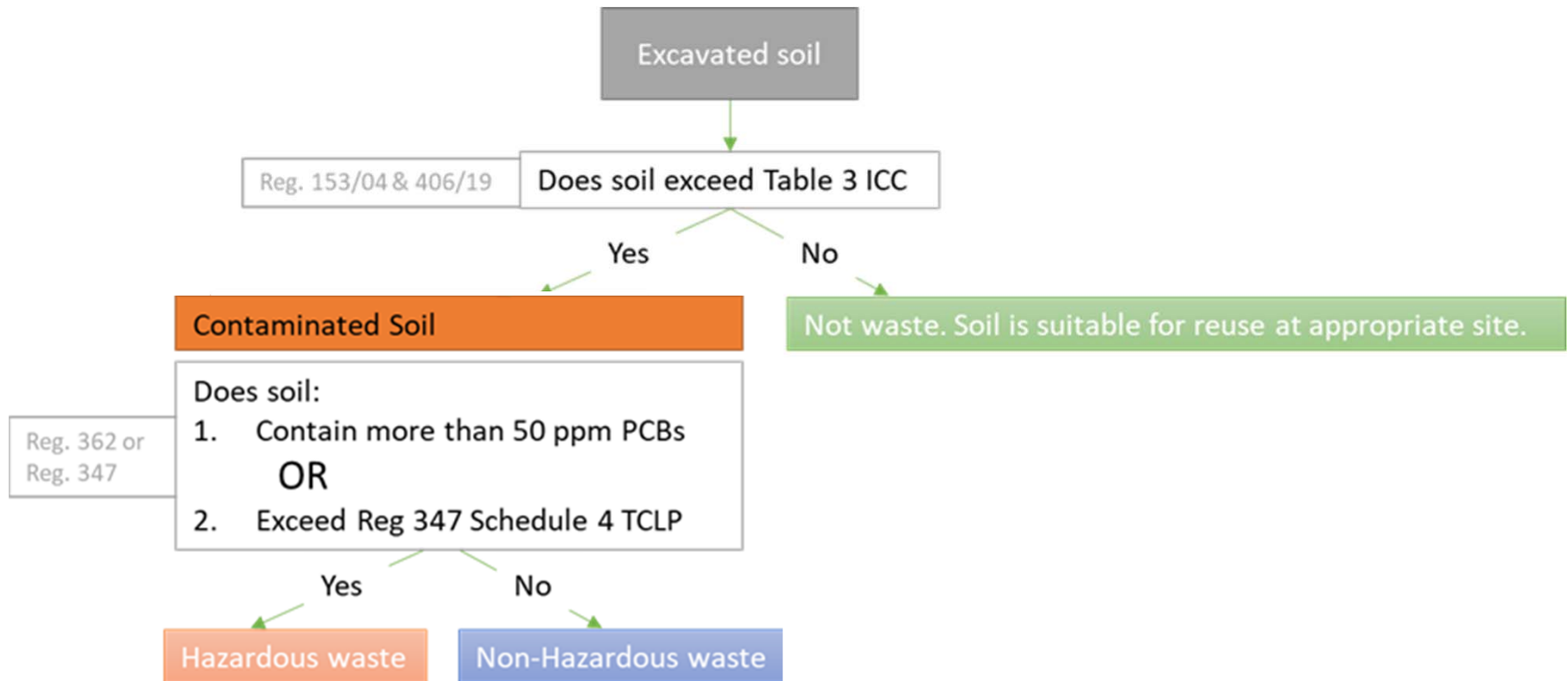


Construction Stats



Soil Management

Soil Management



Soil Management

Table #1
Woodward Upgrades Program
Excess Soil Management

| Project / Location | Estimated Quantity (tonnes) | Estimated # of Trucks |
|---|-----------------------------|-----------------------|
| [-] P3 Biosolids Management Project; Award Date: Mar 30, 2017 | 2550 | 130 |
| [+] Soil (Clean) - OPS 180 | 2550 | 130 |
| [-] MPS (C13-60-16); Award Date: Apr 26, 2017 | 132360 | 6618 |
| [+] Soil (Clean) - OPS 180 | 132360 | 6618 |
| [-] ELU (C13-36-17); Award Date: Sep 13, 2017 | 3240 | 162 |
| [+] Soil (Clean) - OPS 180 | 3220 | 161 |
| [+] Soil (Contaminated) | 20 | 1 |
| [-] TTU (C13-71-18); Award Date: Mar 26, 2019 | 180169 | 8805 |
| [+] Soil (Clean) - OPS 180 | 104720 | 5236 |
| [+] Soil (Contaminated) | 65950 | 3298 |
| [+] Soil (Hazardous) | 9499 | 271 |
| Grand Total | 318319 | 15715 |

Soil Management

- 2010 CH2M retained Peto McCallum to undertake geotechnical and environmental investigation program at various locations
- Scope of work included an environmental screening program to check the environmental quality of the soil and ground water
- Results of environmental program did not identify any PCB impacted soil
- Construction of C2 duct bank, Contractor took soil samples and found PCB impacted soil



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Soil Management

- C2 PCB Impacted Soils – originally estimated to cost upwards of \$9M, with the assumption that all soils were deemed PCB hazardous
- City, with our consultants, met with MECP – developed a detailed soil segregation and sampling program
- Transferred C2 soils to C3 to manage as not to delay the start of C3 Contract



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Soil Management

- PCB Impacted Soil Disposal Costs:
 - Hazardous - \$1176 per tonne
 - Non Hazardous / Contaminated - \$60 per tonne
- C2 Soils manage and disposal costs under C3 = \$1.44M, plus construction delay costs
- Original estimate was upwards of \$9M - Significant savings \$\$\$



Soil Management

Contract 3 Soils

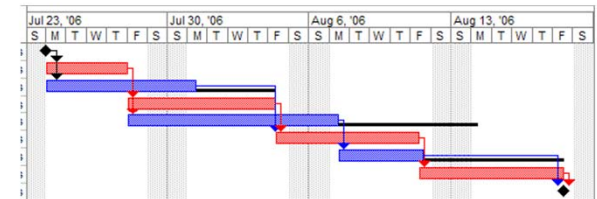
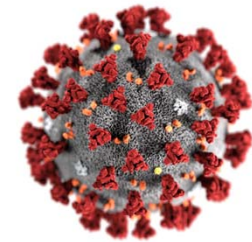


Budget

Budget

Project Issues / Challenges

- Soil Management / Disposal
- Covid-19
- Claims/Disputes
- Schedule Delay/Slippage



Budget

Overview

- Contract 1 – Main Pump Station
- Contract 2 – Electrical & Chlorination Upgrades
- Contract 3 – Tertiary Treatment Upgrades
- Consultant Engineering – Services During Construction
- Currently the project budget has sufficient funds to deliver the program but staff continue to monitor financials and any additional requests will be made through future Water, Wastewater, Stormwater Rate budget





Questions?