Application for Water Licence Amendment

Document Date: April 2013

Application Submission Date: **02/ 18 / 2022**

Month/Day/Year

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DOCUMENT MANAGEMENT

Original Document Date: April 2010

DOCUMENT AMENDMENTS

	Description	Date
(1)	Updated for public distribution as separate document from NWB Guide 7	June 2010
(2)	Updated NWB logos and reformatted table to allow rows to break across page	May 2011
(3)	New NWB logo; request for background information; and change to Block 24	April 2013
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		

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APPLICATION FOR WATER LICENCE AMENDMENT

The applicant is referred to the NWB's Guide 7: *Licensee Requirements Following the Issuance of a Water Licence* for more information about this application form.

Where possible, provide background information regarding the original licence application or attach previously submitted information.

EXISTING LICENCE NO: 8BC-EUR2131

1. LICENSEE CONTACT INFORMATION

Is the licensee the same as that referred to on the existing licence?

[x] Yes [ ] No

If No, a licence assignment must be completed and approved by the NWB. **An amendment will only be issued in the name of the current licensee in the absence of assignment of the licence.**

If the licensee is the same, but the name of the licensee has changed, attach a certificate of name change.

Name: Jean-Philippe Cloutier-Dussault, Property Manager, Assets Real Property and Security Directorate, Environment and Climate Change Canada

Address: 160 Chemin Tour-de-l'Isle
Montreal, Quebec, Canada. H3C 4G8

Phone: 514-641-8753
Fax: _____
e-mail: jean-philippe.cloutier-dussault@ec.gc.ca

2. LICENSEE REPRESENTATIVE CONTACT INFORMATION – If different from Block 1.

Name:

Address:

Phone: _____
Fax: _____
e-mail: _____

(Attach authorization letter.)

3. NAME OF PROJECT

Has the name of the project changed?

[x] Yes [ ] No

If Yes, indicate the name of the project including the name of the location: Environment and Climate Change Canada Eureka High Arctic Weather Station, Eureka Nunavut

4. LOCATION OF UNDERTAKING

Does the proposed amendment change the location of the amended undertaking?

Yes [X] No

Provide the project extents and camp locations. Identify proposed changes.

Project Extents

NE	80° 0' 10.665" N	85° 54' 57.015" W
NW	79° 59' 21.095" N	85° 57' 5.209" W
SE	79° 57' 18.804" N	85° 18' 51.225" W
SW	79° 56' 29.467" N	85° 21' 1.742" W

Camp Location(s)

Camp 1 - 79° 59' 29.268" N	85° 52' 17.112" W
Camp 2 - 79° 59' 21.851" N	85° 53' 59.853" W

5. MAP

Does the proposed amendment change the locations of any of the main components of the undertaking?

[ ] Yes [X] No

Attach a topographical map, indicating the main components of the undertaking. Identify proposed changes.

NTS Map Sheet No.: 049G15 Map Name: Eureka High Arctic Weather Station Site Overview Map Scale: 1:50,000

Please see Attachment D

6. NATURE OF INTEREST IN THE LAND

Does the proposed amendment change the nature of the interest in the land?

☐ Yes ☒ No

If Yes, indicate changes. _____

Check any of the following that are applicable to the proposed undertaking (at least one box under the 'Surface' header must be checked).

Sub-surface

☐ Mineral Lease from Nunavut Tunngavik Incorporated (NTI)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Mineral Lease from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: _____ Date of expiry: _____

Surface

☒ Crown Land Use Authorization from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: July 4, 2017 Amended Jun 18, 2018 Date of expiry: July 3, 2022. ECCC is in the process of renewing the Land Use Authorization

☐ Inuit Owned Land (IOL) Authorization from Kitikmeot Inuit Association (KIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Kivalliq Inuit Association (KivIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Qikiqtani Inuit Association (QIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Commissioner's Land Use Authorization
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Other _____

Date (expected date) of issuance: _____ Date of expiry: _____

Is the name of the entity(s) holding authorizations the same as that considered in the existing water licence?

☒ Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB.

Name of entity(s) holding authorizations:
_____

7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION

Indicate the land use planning area in which the existing project is located.

- [x] North Baffin
- [ ] South Baffin
- [ ] Akunniq
- [ ] Keewatin
- [ ] Sanikiluaq
- [ ] West Kitikmeot

Does the proposed amendment change the land use planning area?

- [ ] Yes
- [x] No

If yes, indicate the land use planning area in which the amended undertaking is located.

- [ ] North Baffin
- [ ] South Baffin
- [ ] Akunniq
- [ ] Keewatin
- [ ] Sanikiluaq
- [ ] West Kitikmeot

Was a land use plan conformity determination required from NPC prior to the issuance of the existing water licence?

- [x] Yes
- [ ] No

If Yes, indicate date issued and attach copy. ___ Feb 9, 2021 **See Attachment G**

Does the proposed amendment change the original NPC conformity determination or the need to obtain one?

- [x] Yes
- [ ] No

If Yes, indicate date issued (or expected) and attach a copy. ___ Feb 22, 2021 amended Nov 2, 2021 **See Attachment G**
If No, provide written confirmation from NPC confirming that a land use plan conformity review is not required.

8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

Was a screening determination required from NIRB prior to the issuance of the existing water licence?

- [x] Yes
- [ ] No

If Yes, indicate date issued and attach copy. Apr 21, 2021 **See Attachment G**

Does the proposed amendment change the original NIRB screening determination or the need to obtain one?

- [x] Yes
- [ ] No

If Yes, indicate date issued (or expected) and attach a copy. May 13, 2021 **See Attachment G**
If No, provide written confirmation from NIRB confirming that a screening determination is not required.

9. DESCRIPTION OF UNDERTAKING

Does the proposed amendment change the description of the undertaking?

☐ Yes ☒ No

The Primary undertaking remains the same (federal weather and scientific station). This amendment is to account for upgrades to the Water and Sewage Treatment Facility and development of an Exfiltration Trench. Project Descriptions and drawings for each undertaking are included in **Attachments E and F** respectively.

List and attach plans and drawings or project proposal. Identify proposed changes.

10. OPTIONS

Does the proposed amendment change any of the alternative methods and locations that were considered to carry out the project?

☒ Yes ☐ No

Provide a brief explanation of the alternative methods or locations that were considered to carry out the project. Identify proposed changes. There are no alternative methods or locations available

11. CLASSIFICATION OF PRIMARY UNDERTAKING

Indicate the primary classification of undertaking for the existing licence by checking one of the following boxes:

☐ Industrial
☐ Agricultural
☐ Mining and Milling (includes exploration/drilling/exploration camps)
☐ Conservation
☐ Municipal (includes camps/lodges)
☐ Recreational
☐ Power
☒ Miscellaneous (describe below): Federal Weather and Scientific Station

Does the proposed amendment change the classification of primary undertaking?

☐ Yes ☒ No

If Yes, indicate the primary undertaking of the amendment:_____

Information in accordance with applicable Supplemental Information Guidelines (SIG) must be updated and submitted with an Application for Amendment. Indicate which SIG(s) are applicable to your application.

☐ Hydrostatic Testing
☐ Tannery
☐ Tourist / Remote Camp
☐ Landfarm & On-Site Storage of Hydrocarbon Contaminated Soil
☐ Onshore Oil and Gas Exploration Drilling
☐ Mineral Exploration / Remote Camp
☐ Advanced Exploration
☐ Mine Development
☐ Municipal
☐ General Water Works
☐ Power

12. WATER USE

Indicate, using the boxes below, the types of water use(s) approved in the existing licence.

- [x] To obtain water for camp/ municipal purposes
- [x] To obtain water for industrial purposes
- [ ] To cross a watercourse
- [x] To alter the flow of, or store water
- [ ] Other: _____
- [ ] To divert a watercourse
- [ ] To modify the bed or bank of a watercourse
- [ ] Flood control

Does the proposed amendment change the type(s) of water use(s)?

[ ] Yes [x] No

If Yes, indicate using the boxes below, the proposed change(s) to the type(s) of water use(s) noting any water use(s) that are to be added, continued, or removed.

- [ ] To obtain water for camp/ municipal purposes
- [ ] To obtain water for industrial purposes
- [ ] To cross a watercourse
- [ ] To alter the flow of, or store water
- [ ] Other: _____
- [ ] To divert a watercourse
- [ ] To modify the bed or bank of a watercourse
- [ ] Flood control

13. QUANTITY OF WATER INVOLVED

Does the proposed amendment change the source of water? [ ] Yes [x] No

Indicate the water source(s). Identify proposed changes.:

Station Creek, West Remus Creek, and Black Top Creek. See **Attachment D** for map location.

(show location(s) on map)

Does the proposed amendment change the quality of the water source and/or its available capacity?

[ ] Yes [x] No

Describe the quality of the water source(s) and the available capacity(s). Identify any changes.:

The quality of the water source is good and meets and/or exceeds the Canadian Drinking Water Quality Guidelines. Water sources have historically been able to provide adequate supply up to the maximum yearly requirement of 10,000 m3.

Does the proposed amendment change the overall quantity of water to be used?

[ ] Yes [x] No

Provide the overall estimated quantity to be used. Identify proposed changes. : 299 m^3/day

Does the proposed amendment change the quantity of water to be used from each source?

[ ] Yes [x] No

Provide the estimated quantity(s) of water to be used from each source. Identify proposed changes. :

- Station Creek – Between approximately 5,850 to 8,775 m3 of water per year.
- West Remus Creek – Between approximately 600 to 800 m3 of water per year.
- Blacktop Creek – Between approximately 300 to 425 m3 of water per year.

Does the proposed amendment change the quantity of water to be used for each purpose?

☐ Yes ☒ No

Provide the estimated quantities to be used for each purpose (camp, drilling, etc.). Identify proposed changes.:
All water from Station Creek is to be used for domestic purposes at the Eureka High Arctic Weather Station, including the temporary construction camp(s). All water from West Remus Creek and Blacktop Creek is to be used for dust suppression purposes only.

Does the proposed amendment change the method(s) of extraction? ☐ Yes ☒ No

Describe the method(s) of extraction. Identify proposed changes. : Pumping water from Station Creek into the reservoir. Pumping water From West Remus Creek and Blacktop Creek in small quantities into vehicle for dust suppression purposes during construction activities.

Does the proposed amendment change the quantity(s) of water returned to source(s)?

☐ Yes ☒ No

Estimated quantity(s) of water returned to source(s). Identify proposed changes. : N/A. Water is not returned to source m^3/day

Does the proposed amendment change the quality(s) of water returned to source(s)?

☐ Yes ☒ No

Describe the quality(s) of water(s) returned to source(s). Identify any changes. : N/A. Water is not returned to source

14. WASTE

Check the appropriate box(s) to indicate the types of waste(s) approved in the existing licence.

- ☒ Sewage
- ☒ Solid Waste
- ☒ Hazardous
- ☐ Bulky Items/Scrap Metal
- ☐ Animal Waste
- ☐ Other (describe):
- ☒ Waste oil
- ☒ Greywater
- ☐ Sludges
- ☐ Contaminated soil and/or water

Does the proposed amendment change the type(s) of waste(s) to be generated or deposited?

☐ Yes ☒ No

If Yes, indicate using the boxes below, the proposed change(s) to the type(s) of waste(s) to be generated and/or deposited noting the addition, removal or continued generation and/or disposal of waste(s).

- ☐ Sewage
- ☐ Solid Waste
- ☐ Hazardous
- ☐ Bulky Items/Scrap Metal
- ☐ Animal Waste
- ☐ Other (describe):
- ☐ Waste oil
- ☐ Greywater
- ☐ Sludges
- ☐ Contaminated soil and/or water

15. QUANTITY AND QUALITY OF WASTE INVOLVED

Does the proposed amendment change the quantity(s) of the types of wastes involved?

☐ Yes ☒ No

Does the proposed amendment change the composition(s) of the types of wastes involved?

☐ Yes ☒ No

Does the proposed amendment change the method(s) of treatment for the types of waste involved?

☒ Yes ☐ No

Does the proposed amendment change the method(s) of disposal for the types of waste involved?

☒ Yes ☐ No

If Yes to any of the above, describe the proposed changes: Grey water will be treated and disposed of in an exfiltration trench

For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

-Greywater and blackwater 28m3/day, treated in Sewage Treatment Facility. Treated effluent decanted into Slidre Fjord. Details provided in **Attachment E**

-Greywater, 5m3/day, treated and disposed of in exfiltration trench. Temporary during summer until completion of water and sewage treatment facility upgrades complete. Details provided in **Attachment F*****

-Greywater and sewage, Approx 35m3/day, sewage lagoon sedimentation. Decanted into Slidre Fjord. *This is the current and approved method. Once the water and sewage treatment upgrades are complete this will be replaced by the abo*ve.

-Solid Waste (Sewage), 4500lbs per year, Pacto toilets and burned in incinerator. Residual ash is 400 lbs. Ash disposed of in landfill and capped.

-Solid waste (household food/organic matter), 3 bags per day for incineration totaling approx 24, 205L Barrels/year of ash. Incineration. Ash disposed of in landfill and capped.

-Solid Waste (Scrap metal barrels) , various per year depending on operations, crushed, buried, and capped at landfill

-Solid Waste (uncontaminated wood), various per year depending on operation, Burned on-site, ash disposed of in landfill

-Solid Waste (Mixed metals and Spray applied Insulation), various per year depending on operations, disposed of in landfill. Should hazardous waste be attached, it will be removed and disposed of off-site.

-Hazardous waste (Lead/Zinc batteries, solvents, glycol, asbestos, lead (paint and lead-containing materials, PCB items), various per year depending on operations. Shipped off site for disposal

-Hazardous Waste (creosote treated timber), 12 tonnes total, characterization to be completed, shipped off-site if hazardous and on site if not hazardous.

-Waste Oil (used Motor Oil) Varies Per year depending on operations, Filtered for particulates, shipped off site for disposal

***Daily quantities are estimated based on 90 days per year**

16. OTHER AUTHORIZATIONS

Does the proposed amendment change the need for other authorizations in addition to the sub-surface and surface land use authorizations provided in Block 6?

☐ Yes ☒ No

If Yes, indicate any additional authorizations required, which authorizations are no longer required, and which authorizations continue to be required.

For each provide the following:

Authorization: _____

Administering Agency: _____

Project Activity: _____

Date (expected date) of issuance: _____ Date of expiry: _____

17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES

Does the proposed amendment change the predicted environmental impacts of the undertaking or the mitigation measures?

☐ Yes ☒ No

Describe direct, indirect, and cumulative impacts related to water and waste. Identify any changes.

There are no anticipated impacts of the undertaking as indicated in the previously approved licence application.

18. WATER RIGHTS OF EXISTING AND OTHER WATER USERS

Was compensation paid and/or an agreement(s) for compensation been entered into with any existing or other users of water during consideration of the existing licence?

☐ Yes ☒ No

If Yes, provide the names, addresses and the nature of water use by those persons or properties.

Does the proposed amendment adversely affect any known persons or property including those that hold licences for water use in precedence to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature?

☐ Yes ☒ No

If Yes, provide the names, addresses and the nature of water use of those persons or properties.

Advise the Board if compensation has been paid and/or an agreement(s) for compensation has been reached with any existing or other water users with respect to the proposed amendment.

19. INUIT WATER RIGHTS

Was compensation paid/ or an agreement(s) for compensation been entered into with any Designated Inuit Organization (DIO) during consideration of the existing licence?

☐ Yes ☒ No

If Yes, which DIO(s) _____

Does the proposed amendment substantially affect the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL)?

☐ Yes ☒ No

If Yes, advise the Board if negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more DIO(s) with respect to the proposed amendment.

20. CONSULTATION - Provide a summary of any consultation meetings including when the meetings were held, where and with whom. Include a list of concerns expressed and measures to address concerns.

N/A

21. SECURITY INFORMATION

Does the proposed amendment change the financial security assessment? N/A

☐ Yes ☐ No N/A

Does the proposed amendment change the estimate of the total financial security for final reclamation?

☐ Yes ☐ No N/A

Provide an estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking. Estimates of reclamation costs must be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimate must also include contingency factors appropriate to the particular work to be undertaken. Identify any changes in the financial security assessment resulting from the proposed amendment.

Where applicable, the financial security assessment should be prepared in a manner consistent with the principals respecting mine site reclamation and implementation found in the *Mine Site Reclamation Policy for Nunavut,* Indian and Northern Affairs Canada, 2002.

22. FINANCIAL INFORMATION

Is the statement of financial security the same as that considered in the existing water licence? N/A

☐ Yes ☐ No N/A

Provide an updated statement of financial security. N/A

If the applicant is a business entity please answer the questions below:

Is the list of the officers of the company the same as those considered in the existing water licence? N/A

☐ Yes ☐ No N/A

Provide a list of the officers of the company. N/A

Is the Certificate of Incorporation or evidence of registration of the company name the same? N/A

☐ Yes ☐ No N/A

Attach a copy of the Certificate of Incorporation or evidence of registration of the company name.

23. STUDIES UNDERTAKEN TO DATE

List and attach updated studies, reports, research etc.

The Environmental Impact Assessment was completed in 2016 and an Addendum was conducted in 2018. These documents were previously submitted to the Nunavut Water Board (NWB) as part of the 2016 Application.

Provide a compliance assessment and status report including a response to any inspector's reports. The licensee must contact the NWB for licence specific direction in completing the assessment and report.

Annual reporting for the Eureka High Arctic Weather Station was completed for 2020 and was submitted to the NWB on March 22, 2021. Annual reporting for 2021 will be completed by the March 31, 2022 deadline.

If in non-compliance, a licence may not be issued until compliance is achieved. If in non-compliance, attach plans/reports for consideration. Application will not be processed if significant issues of non-compliance exist.

24. PROPOSED TIME SCHEDULE

When are proposed amendments scheduled to be undertaken: See Attachment E and F

Does the proposed amendment change the time schedule considered in the existing licence for any phase of development?

☐ Yes ☒ No

Indicate the start and completion dates for each applicable phase of development (construction, operation, closure, and post closure). Identify proposed changes.

Construction
Proposed Start Date: Construction ongoing as required (month/year) Proposed Completion Date: Construction ongoing as required (month/year)

Operation
Proposed Start Date: In operation since 1947 (month/year) Proposed Completion Date: None - ongoing operation (month/year)

Closure
Proposed Start Date: Unknown (month/year) Proposed Completion Date: Unknown (month/year)

Post - Closure
Proposed Start Date: Unknown (month/year) Proposed Completion Date: Unknown (month/year)

For each applicable phase of development indicate which season(s) activities occur.

Construction
☐ Winter ☐ Spring ☒ Summer ☐ Fall ☐ All season

Operation
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☒ All season

Closure
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season Unknown

Post - Closure
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season Unknown

25. PROPOSED TERM OF LICENCE

On what date does the existing licence expire? July 31, 2031

Is the Licensee applying for a combined renewal and amendment of the existing licence?

☐ Yes ☒ No

If Yes, indicate the proposed term of the renewal (maximum of 25 years): _____

Requested date of renewal issuance: _____ (month/year) Requested Expiry Date: _____ (month/year)

(The requested date of renewal issuance must be at least three (3) months from the date of application for a type B water licence and at least one (1) year from the date of application for a type A water licence, to allow for processing of the water licence application. These timeframes are approximate and do not account for the time to complete any pre-licensing land use planning or development impact requirements, time for the applicant to prepare and submit a water licence application in accordance with any project specific guidelines issued by the NWB, or the time for the applicant to respond to requests for additional information. See the NWB's *Guide 5: Processing Water Licence Applications* for more information)

26. ANNUAL REPORTING

Will the proposed amendment change the content of annual reports or the annual report template?

☐ Yes ☒ No

If Yes, provide details regarding the content of annual reports and a proposed outline or template of the annual report.

27. CHECKLIST

The following must be included with the application for Amendment for the water licensing process to begin.

Completed Application for Water Licence Amendment form.

[x] Yes [ ] No If no, date expected _____

Information addressing Supplement Information Guideline (SIG), where applicable (see Block 11)

[ ] Yes [x] No N/A If no, date expected _____

Compliance Assessment / Status Report (see Block 23).

[ ] Yes [x] No N/A If no, date expected _____

Indication of Renewal Requirement (see Block 26)

[x] Yes [ ] No If no, date expected _____

English Summary of Amendment Application.

[x] Yes [ ] No If no, date expected _____

Inuktitut and/or Inuinnaqtun Summary of Amendment Application.

[x] Yes [ ] No If no, date expected _____

Application fee of $30.00 CDN (Payee Receiver General for Canada).

[ ] Yes [x] No N/A for ECCC If no, date expected _____

Water Use Fee Deposit of $30.00 CDN (Payee Receiver General for Canada). The actual water use fee will be calculated by the NWB based upon the amount of water authorized for use in accordance with the Regulations at the time of issuance of the licence.

[ ] Yes [x] No N/A for ECCC If no, date expected _____

28. SIGNATURE

Name (Print)	Title (Print)	Signature	Date

Attachment A

Executive Summary - English

8BC-EUR2131
Summary of Amendment Application
Water Licence
High Arctic Weather Station
Eureka, Nunavut
February 2022

Background

The Eureka High Arctic Weather Station (HAWS; the site) is located on the north side of Slidre Fiord, at the north-western tip of Fosheim Peninsula, Ellesmere Island. Eureka station coordinates are 79.59.41N and 85.48.48W.

The Eureka HAWS occupies a federal land reserve No. 1021 and encompasses an area of approximately 1125 hectares. The site has been operated by Environment and Climate Change Canada (ECCC) since April 7, 1947.

The primary purpose of the Eureka HAWS is to collect weather information in order to produce public weather forecasts. In addition, the Eureka HAWS provides support to the Arctic aviation community. The Eureka HAWS also serves as a staging location for other science-based activities in the High Arctic, various exploration projects, and some tourism.

ECCC provides the necessary infrastructure to support activities at the site. This includes accommodations, fuel supplies, electrical power, transportation, aircraft landing strip, cooking operations, and water and sewage services.

Water Licence Amendment

This application is being submitted by ECCC to amend the current licence to include proposed changes to the water and sewage treatment facilities and activities at the site.

Requested Changes

1. Upgrade of existing water storage and treatment systems including development of raw water storage reservoir and installation of new packaged wastewater treatment plant with peak flow capacity of 28m^3/day
2. Development of grey water exfiltration trench to treat approximately 5 m^3 /day of grey water

Summary of Attachments

Document	Attachment
Executive Summary - English	A
Executive Summary - French	B
Executive Summary - Inuktitut	C
Topographical map, indicating components of the undertaking	D
For-Construction Drawings and Description of the Water and Sewage Treatment Infrastructure Upgrades	E

Description of the Exfiltration Trench	F
Applicable NPC and NIRB determinations	G

Attachment B

Executive Summary - French

8BC-EUR2131
Résumé de la demande de modification
Permis d'utilisation des eaux
Station météorologique de l'Extrême-Arctique
Eureka (Nunavut)
Février 2022

Contexte

La station météorologique de l'Extrême-Arctique (SMEA; le site) Eureka est située du côté nord du fjord Slidre, à l'extrémité nord-ouest de la péninsule Fosheim sur l'île d'Ellesmere. Les coordonnées géographiques de la station Eureka sont les suivantes : 79.59.41N et 85.48.48O.

La SMEA Eureka se trouve sur la réserve terrestre nº 1021 du gouvernement fédéral et couvre une superficie d'environ 1 125 hectares. Le site est exploité par Environnement et Changement climatique Canada (ECCC) depuis le 7 avril 1947.

L'objectif principal de la station Eureka est de recueillir des renseignements météorologiques en vue de produire des prévisions météorologiques à l'intention du public. La station Eureka soutient également la collectivité de l'aviation dans l'Arctique, en plus de servir à titre de lieu de rassemblement pour d'autres activités scientifiques dans l'Extrême-Arctique, pour divers projets d'exploration et pour des activités de tourisme.

ECCC fournit l'ensemble de l'infrastructure nécessaire afin d'appuyer les activités sur le site, notamment l'hébergement, le ravitaillement en carburant, l'électricité, le transport, la piste d'atterrissage pour aéronefs, la préparation des repas ainsi que les services d'eau et d'égouts.

Modification du permis d'utilisation des eaux

ECCC soumet la présente demande de modification du permis actuel en vue d'inclure des changements proposés dans les installations de traitement de l'eau potable et des eaux usées et dans les activités sur le site.

Changements demandés

1. Mise à niveau des systèmes de stockage et de traitement de l'eau existants, y compris la construction d'un réservoir de stockage d'eau brute et l'installation d'une nouvelle station compacte de traitement des eaux usées ayant une capacité de débit de pointe de 28 m^3/jour
2. Construction d'une tranchée d'exfiltration des eaux grises pour traiter environ 5m^3 d'eaux grises par jour

Résumé des pièces jointes

Document	Pièce jointe
Résumé - Anglais	A
Résumé - Français	B

Résumé - Inuktitut	C
Carte topographique, indiquant les composants du projet	D
Dessins de construction et description des mises à niveau de l’infrastructure de traitement de l’eau potable et des eaux usées	E
Description de la tranchée d’exfiltration	F
Déterminations de la CAN et de la CNER qui s’appliquent	G

Attachment C

Executive Summary - Inuktitut

8BC-EUR2131
ᓇᐃᓭᖅᓯᒪᔪᖅ ᐊᖏᑭᐅᐊᖅᓯᒪᔨᓗᓂ ᓪᐃᓴᓯᑦᕋᓱᑎ
ᐃᒪᖏᒍᑦ ᓪᐃᓴᓯ
ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ
ᐅᓪᒃ, ᓄᓇᕗᑦ
ᕿᕕᖅᑕ 2022

ᖃᓄᐃᓕᓂᓱᓪᓚᕆᖏᒃ

ᐅᓇ ᐅᓪᒃ ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ ᑕᐅᕙᓵᓪᑐᖅ ᐅᐊᖅᓇᖅᓴᓂ ᑲᖅᑭᓱᓕ, ᑕᐃᑲᓂ ᐅᐊᖅᓇᖅᓴᓂᓪᓕ-ᐱᓇᖅᓇᖅᓴᓂᓪ ᖃᒃᖅᓴᓂ ᓄᕗᐊᓂ, ᐊᐅᓕᐱᐃᓪᑐᐸᑦ ᐅᐊᖅᓇᖅᓴᒃ ᖁᑭᖅᑕᓪᓚᑦ. ᐅᓪᒃ ᓕᓪᓂᓂᐊᓂᖅᓱᑦ ᑕᒪᓐᓇᑦᑐᖅ 79.59.41ᐅᐊᖅᓇᖅᓴᒃ ᐊᓪᒪᓗ 85.48.48ᐱᓇᖅᓇᖅᓴᒃ.

ᐅᓇ ᐅᓪᒃ ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ ᐃᓄᖃᖅᑐᖅ ᓴᕿᒪᑐᖃᖅᑲᓂᑦ ᓄᓇᖅᓴᓂ ᓇᓴᐅᑦ 1021 ᐊᓪᒪᓗ ᐊᕿᓗᐊ ᖃᓄᑦᑎᓂᓴᓂ 1125 ᐄᐃᑦᑎᐅᐸᓪ. ᐅᓇ ᐃᓂᖅᓴ ᐊᐅᓪᓕᑕᐅᔪᖅ ᐊᕿᑎᓕᓚᕕᓴᐅᓂᑦ ᑕᐃᒪᖅᓴᓂᑦ ᐊᐃᓚᓕ 7. 1947.

ᐅᓇ ᐱᑎᐊᖅᓂᖅᓴᓂᑦ ᐱᔪᓪᑕᑦ ᑕᐅᕙᓵᓪᑐᓗᑎᒃ ᐅᓪᒃ ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ ᓄᐊᑦᑎᓕᓗᑎᒃ ᓂᓪ ᖃᓄᐃᔨᕐᓕᐊᓂᖅᓴᓂ ᑕᐃᒪᓗ ᐃᓄᐃᑦ ᖃᓄᐃᔨᕐᓕᐊᓂᖅᓴᓂ. ᐊᓪᒪᓗ ᐅᓇ ᐅᓪᒃ ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ ᐃᑲᔪᖅᑐᖅ ᐅᑭᐅᖅᑕᖅᑐᑐᒥ ᖃᖅᖁᑕᓂᓵᖅ. ᐅᓇ ᐅᓪᒃ ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ ᐱᑲᑦᑎᕋᖅᑐᖅ ᐊᓂᑕᐅᕋᖅᑕᖅᑐᑦ ᐊᓂᔪᓂᓵᖅᐅᖃᖅᑕᖅᑐᑦ. ᐅᓇ ᐅᓪᒃ ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ ᐱᔪᓪᑕᑦ ᐃᓂᓪᑐᐸᓪ, ᐊᓂᔪᓂᓵᖅᐅᖃᖅᑕᖅᑐᑦ ᐊᓂᔪᓂᓵᖅᐅᖃᖅᑕᖅᑐᑦ-ᐃᓂᓪᑐᓗᑐ ᖃᓄᐃᓕᓪᐅᑭᓪᓂᓵᓂᖅᑐᑦ ᖃᓄᐅᑐᖏᑦᑕᐅᓪᓚᐃᖅᓱᒃ, ᐊᓂᔨᑦᓂᓵᖅᑐᑦ ᖁᓂᖅᑕᐅᓂᓕ, ᐊᓪᒪᓗ ᐊᓂᔪᓂᑦ ᐳᓪᓕᑦᑐᓪᓕᖅᑎᓪᓗ.

ᐊᕿᑎᓂᓕᓪᓚᕆᔪᑦ ᑲᓇᑕ ᑐᓂᓂᔨᓕᕆᑦ ᓇᐸᓪᓚᕆᔨᑦᑐᑦ ᐃᑲᔫᑎᓂᑲ ᖃᓄᐃᓪᓕᐅᑕᐅᔨᓄᑦ ᑕᐃᑲᓂ ᐃᓂᖅᓴᓂ. ᐅᓇ ᐃᓪᓕᖅᑐᖅ ᐃᓂᖅᖃᑎᒌᓪᓚᑐᑦ, ᐅᖅᓂᑦᑕᖅᑕᐅᓂᑦ ᐃᓕᖅᑎᐃᐅᓪᓚᑐᑦ, ᐅᐊᓴᖅᑎᐅᖅᑕᐅᓪᓚᑐᑦ, ᐃᖅᑲᓇᐱᖅᑎᓂᓪᓚᑐᑦ, ᓂᕿᓕᐅᖅᑕᐅᓪᓚᑐᑦ, ᐊᓪᒪᓗ ᐃᒥᖅ ᐊᓪᒪᓗ ᐊᓇᖅᑲᖅᑕᐅᓪᓚᑐᑦ.

ᐃᒥᖏᒍᑦ ᓪᐃᓴᓯ ᐊᖏᑭᐅᐊᖅᑐᖅ

ᐅᓇ ᓪᐃᓴᓯᑦᕋᓱᑎ ᑐᓂᔫᐅᔨᖅ ᑦᑎᔪᓇᖅᓵᑦ ᐊᕿᑎᓕᓚᕕᓴᐅᓂᑦ ᑲᓇᑕ ᐊᖏᑭᐅᐊᖏᓗᒍ ᐃᓐᓇᐅᔨᖅ ᓪᐃᓴᓯᖅᓴ ᐃᓕᖅᑎᐃᐅᓪᓚᑐᑦ ᐊᓪᒪᓗ ᐊᓇᖅᑐᐅᑎᖅᑕᖅᑐᑦ ᐃᒪᖅᓴᓂᑦ ᐊᓪᒪᓗ ᐊᓇᖅᑐᐅᑎᖅᑕᖅᑐᑦ ᐃᓕᖅᑎᐃᐅᓪᓚᑐᑦ ᐃᓂᖅᓴᓂ.

ᑐᐅᔪᖅᑕᐅᔨᑦ ᐊᓪᔨᖅᑎᑕᐅᓪᓚᐃᓂᐅ

1. ᓄᑦᖁᔭᖅᑎᓪᓗᒍ ᐃᓐᓇᐅᔨᖅ ᐃᒥᖅᐅᑎᖅᑲᖅᓴᓂ ᐊᓪᒪᓗ ᓴᓗᓪᒪᖅᓴᐅᓪᓚᕆᑦ ᑦᑎᔪᓇᖅᓵᑦ ᐊᖏᑭᐅᐊᓪᓚᐃᓂᐅ ᐃᒥᖅᐅᑎᖅᑲᖅᓴᓂ ᑕᓪᔪᑦᑕ ᐊᓪᒪᓗ ᐃᓕᓴᐅᓪᓚᐃᓂᐅ ᓄᑦᖁᑦ ᐳᖅᖃᓪᓚᔨᑦ ᐊᓇᖅᑕᐅᑎᖅᑲᖅᓵᒪᑦ ᑕᐃᒪᖅᓴᓂ ᐅᓪᓚᐃᓂᐅ 28ᒥᑕ^3/ᐊᑕᐅᓪᔪᖅ ᐅᓪᓗᖅ
2. ᐊᖏᑭᔪᓗᑎᒃ ᐃᒥᖅ ᐊᑐᖅᑕᐅᔪᕕᓂᖅ ᓴᖏᑭᖅᑐᖅ ᓴᓗᓪᒪᖅᑕᓪᓗᓂ ᖃᓄᐅᑭᖅ 5 ᒥᑕ^3 /ᐅᓪᓗᖅ ᐊᑐᖅᑕᐅᓂᔨ ᐃᒥᖅ

ᓇᐃᓭᖅᓯᒪᔪᖅ ᑕᓪᓵᓂ ᐊᑕᔨᑦ

ᑎᑎᖅᖅ	ᐊᑕᐃᖏᑦ
ᓄᐃᓴᖅᓯᒪᔪᑦ ᑐᑭᓯᐊᕿᑎᑦ- ᖃᓪᓗᓴᒪᑐᑦ	A
ᓄᐃᓴᖅᓯᒪᔪᑦ ᑐᑭᓯᐊᕿᑎᑦ- ᐅᐃᕕᖅᑎᑐᑦ	B
ᓄᐃᓴᖅᓯᒪᔪᑦ ᑐᑭᓯᐊᕿᑎᑦ- ᐃᓄᒃᑎᑐᑦ	C
ᓄᓇᖓᓂ ᓄᓇᖅᐊᖅ, ᓇᓗᓇᐃᖅᓯᔪᑦ ᑕᒃᓄᓂᖓ ᐱᓕᕆᐊᖅᓯᔪᑦ	D
ᑕᐅᓯᒪᖓ - ᐱᓇᒃᐅᓂᐊᖅᑐᑦ ᑎᑎᕋᐅᒃᖅᓯᒪᔪᑦ ᐃᒪᖓᓂ ᐊᒻᒪᓗ ᐊᓇᖅᑕᐅᑎᖓᑕ ᐱᓗᒪᓕᖅᐱᑎᖓᓂ ᓇᐸᔪᑦ ᓄᑕᖅᐳᓕᐊᖅᑎᑕᐅᓗᑎᒃ	E
ᑭᓯᖏᓪᓕᓐᓂ ᐃᓗᖅᑐᖅᓯᒪᔪᖅ ᓄᓇ ᓯᓪᓗᓕᖅᓯᒪᓪᓗᓂ	F
ᐊᑐᑎᖃᖅᑐᑦ ᓄᓇᕆᒪ ᕿᖏᓇᐃᓕᑦ ᐊᒻᒪᓗ ᓄᓇᕆᒪ ᐊᕿᑎᓕᓵᕆᔨᖅᑐᑦ ᑲᑎᒪᔨᖏᑦᑕ ᐃᓱᒪᓕᐊᓕᕆᔨᖏᑦ	G

Attachment D

Topographical map, indicating components of the undertaking

Legend

- Watercourse

N
W E
S

500 250 0 500 1,000 1,500 m

1:50,000

NAD 1983 UTM Zone 16N

Sources: NRCan
Imagery: Esri World Imagery

AECOM

Figure: 1

EUREKA HIGH ARCTIC WEATHER STATION
STATION SITE OVERVIEW

EUREKA HIGH ARCTIC WEATHER STATION
WATER LICENSE 8BC-EUR1621 2020 ANNUAL REPORT
PUBLIC SERVICES AND PROCUREMENT CANADA, EUREKA HAWS
Project No.: 60638794 Date: January 2022

Last saved by: STEPHANIE.CLARK (2022-01-18) Last Plotted: Tue Jan 18, 2022
Filename: \\na.aecomnet.com\LFS\AMER\Calgary-CACGY3\Legacy\CACGY5FS002\Library\Environment\GIS\Stephanie Clarke\Permitting & IAP\60638794_Eureka\02_MXDs\2020 Annual Report\Water License\H001_60638794_HAWS_Water_SiteOverview_20220118.mxd
Project Management Initials: Designer: Checked: Approved: ANSI B 279.4mm x 431.8mm

Legend

Watercourse

N
W E
S

50 25 0 50 100 150 m

1:5,000

NAD 1983 UTM Zone 16N

Sources: NRCan
Imagery: Esri World Imagery

AECOM

Figure: 2

EUREKA HIGH ARCTIC WEATHER STATION MAIN COMPLEX

EUREKA HIGH ARCTIC WEATHER STATION
WATER LICENSE 8BC-EUR1621 2020 ANNUAL REPORT
PUBLIC SERVICES AND PROCUREMENT CANADA, EUREKA HAWS
Project No.: 60638794 Date: February 2022

Last saved by: PAIGE.CROSSMAN (2022-02-01) Last Plotted: Mon Mar 08, 2022
Filename: \\na.aecomnet.com\LFS\AMER\Calgary-CACGY3\Legacy\CACGY5F5002\Library\Environment\GIS\Stephanie Clarke\Permitting & IAP\60638794_Eureka\02_MXDs\2020 Annual Report\Water License\H002_60638794_HAWS_Water_MainComplex_20220118.mxd

Legend

- Watercourse
- Temporary Access Road
- Existing Access Road

NOTE:
The New Drum Crushing Site and Contaminated Soil Storage Cell are approximate locations

N
W E
S

75 37.5 0 75 150 225 m

1:7,500

NAD 1983 UTM Zone 16N

Sources: NRCan
Imagery: Esri World Imagery

AECOM

Figure: 3

EUREKA HIGH ARCTIC WEATHER STATION

WATER LICENSE 8BC-EUR1621 2020 ANNUAL REPORT

PUBLIC SERVICES AND PROCUREMENT CANADA, EUREKA HAWS

Project No.: 60638794 Date: January 2022

Last saved by: STEPHANIE.CLARK (2022-01-26) Last Plotted: Wed Jan 26, 2022
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Attachment E

For-Construction Drawings and Description of the Water and Sewage Treatment Infrastructure Upgrades

Water and Sewage Treatment Infrastructure Upgrades

Purpose

The purpose of the proposed Water and Sewage Treatment Infrastructure Upgrades is to replace or upgrade the existing water (raw and sewage) storage and treatment systems at the Eureka HAWS and to treat up to 28m^3/day of wastewater. Stamped and certified for-construction drawings of the Water and Sewage Treatment Infrastructure Upgrades are attached below.

Description

Development of a new raw water storage reservoir and associated infrastructure as well as incorporation of the existing raw water storage reservoir. A new packaged wastewater treatment plant will also be installed, as well as upgrades and conversion of the existing wastewater lagoon to a retention pond. Wastewater discharge piping and overflow will also be upgraded.

The work is expected to commence in June 2022 and be completed by 2025. The new wastewater treatment plant will be sealifted to site and consists of four (4), 6m long high-cube shipping containers with peak hour flow capacity of 28m^3/day. In 2022, site preparation will commence which will include levelling and preparing pads. Other earthworks will include excavation, placement of granular, compaction, and grading including construction of berms. Drains and thermistors will then be installed within the underlying soil for the reservoir.

Once the packaged wastewater treatment is installed, the existing sewage lagoon will be converted to a retention pond. Treated effluent that meets the parameters identified in Part D, Item 10 of the Licence will be discharged into the ocean.

In 2023, the construction of the new raw water storage area will continue and include installation of sand, drainage piping, a dual liner, and geotextiles. As well, pump stations will be positioned, and a raw water storage basin will be filled with water. In 2024, the pump stations will be connected so water from the existing reservoir can be transferred to the new reservoir. In 2025, inspections will be undertaken.

Plans for Operation

The Summary of Operation and Maintenance Procedures for Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities (June 2021 Amendment Renewal Application, Attachment E) previously provided will be revised to include details specific to the new facilities. This will be shared with the NWB within 90-days after completion of construction in 2023.

Plans for Decommissioning

Plans for decommissioning of the water and sewage treatment facilities is consistent with the Interim Abandonment & Restoration Plan previously provided (June 2021 Amendment Renewal Application, Attachment F). The Abandonment and Restoration Objectives, and actions to be taken to achieve objectives for the “pumphouse, water reservoir, water diversion area, and sewage lagoon,” all apply to this amendment and remain unchanged.

Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

DRAWING LIST

G-0001	COVER SHEET
C-0001	CIVIL - OVERALL EXISTING SITE PLAN
C-0002	CIVIL - OVERALL PROPOSED SITE PLAN
C-0003	CIVIL - NEW RAW WATER RESERVOIR PROPOSED SITE PLAN
C-0004	CIVIL - RETENTION BASIN UPGRADE & WASTEWATER PROPOSED SITE PLAN
C-0005	CIVIL - CREEK PUMP STATION CROSS SECTIONS
C-0006	CIVIL - RESERVOIR PUMP STATION PLAN AND SECTION VIEWS
C-0007	CIVIL - UPGRADED RETENTION BASIN PLAN, CROSS SECTIONS AND DETAILS
C-0008	CIVIL - OVERALL PROPOSED MATERIAL HAUL ROUTE
C-0009	CIVIL - CONTAMINATED SOIL STORAGE CELL PLAN, CROSS SECTION AND LOCATION PLAN
C-3001	CIVIL - NEW RAW WATER STORAGE RESERVOIR PROFILES AND SECTIONS
C-3002	CIVIL - UPGRADED RETENTION BASIN PROFILES AND SECTIONS
C-5001	CIVIL - GENERAL CIVIL DETAILS SHEET 1 OF 2
C-5002	CIVIL - GENERAL CIVIL DETAILS SHEET 2 OF 2
S-0001	STRUCTURAL - PACKAGED WASTEWATER TREATMENT PLANT AND PUMP STATIONS LOCATION PLAN
S-0002	STRUCTURAL - PACKAGED WASTEWATER TREATMENT PLANT PLAN
S-0003	STRUCTURAL - CREEK, RAW WATER AND RETENTION BASIN PUMP STATIONS PLANS
S-0004	STRUCTURAL - PACKAGED WASTEWATER TREATMENT PLANT AND PUMP STATION CRIBBING PLANS
S-3001	STRUCTURAL - PACKAGED WASTEWATER TREATMENT PLANT AND TYPICAL PUMP STATION PLANS AND SECTIONS
S-4001	STRUCTURAL - PACKAGED WASTEWATER TREATMENT PLANT ELEVATIONS
S-4002	STRUCTURAL - RESERVOIR AND RETENTION BASIN PUMP STATION ELEVATIONS
S-5001	STRUCUTRAL - PACKAGED WASTEWATER TREATMENT PLANT AND PUMP STATIONS CRIBBING DETAILS
N-0001	PROCESS & INSTRUMENTATION - OVERALL DIAGRAM & SCHEMATICS LEGEND, ABBREVIATIONS AND INSTRUMENTATION
N-0002	PROCESS & INSTRUMENTATION - PACKAGED WASTEWATER TREATMENT PLANT & LIFT STATION PRETREATMENT DIAGRAM
N-0003	PROCESS & INSTRUMENTATION - PACKAGED WASTEWATER TREATMENT PLANT AERATION, SEDIMENTATION & BLOWER DIAGRAM
N-0004	PROCESS & INSTRUMENTATION - PACKAGED WASTEWATER TREATMENT PLANT FINAL DISINFECTION DIAGRAM
N-0005	PROCESS & INSTRUMENTATION - PACKAGED WASTEWATER TREATMENT PLANT BLOWERS AND SOLIDS DIAGRAM
N-0006	PROCESS & INSTRUMENTATION - RAW WATER RECIRCULATION SYSTEM AND BACKUP INTAKE
N-0007	PROCESS & INSTRUMENTATION - RAW WATER RECIRCULATION SYSTEM DIAGRAM
D-0001	PROCESS MECHANICAL - EXISTING LIFT STATION UPGRADE PLAN, SECTION AND DETAIL
D-0002	PROCESS MECHANICAL - RAW WATER RESERVOIR PUMP STATION PLAN
D-3001	PROCESS MECHANICAL - RAW WATER RESERVOIR RAW WATER SUPPLY AND CHLORINATION CROSS SECTION AND DETAILS
D-5001	PROCESS MECHANICAL - GENERAL PIPING DETAILS SHEET 1 OF 2
D-5002	PROCESS MECHANICAL - GENERAL PIPING DETAILS SHEET 2 OF 2
H-0001	MECHANICAL - EUREKA STATION PARTIAL MAIN FLOOR PLAN
E-0000	ELECTRICAL - LEGEND
E-0001	ELECTRICAL - SITE PLAN
E-0002	ELECTRICAL - CATEGORY & HAZARDOUS AREA CLASSIFICATION
E-0003	ELECTRICAL - PUMP HOUSES & UPGRADED EXISTING LIFT STATION PLANS
E-0004	ELECTRICAL - EXISTING LIFT STATION PLAN
E-0005	ELECTRICAL - GENERATOR BUILDING PLAN
E-0006	ELECTRICAL - SCHEDULES
E-0007	ELECTRICAL - SINGLE LINE DIAGRAM
E-0008	ELECTRICAL - DETAILS

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

310-269 Main Street, R3C 1B3
WINNIPEG, MANITOBA

EUREKA, NUNAVUT

EUREKA WATER AND SEWAGE SYSTEM

ISSUED FOR TENDER
JUNE 19, 2020

AECOM

COVER SHEET

0 10 20 30 40 50 60 70 80 90 100mm

CADNM

RWL	RAW WATER	RWL		HYDRO POLE w/ ANCHOR	
U	UTILITY WATER	U	FOS	OIL PIPELINE	FOS
	HYDRANT		E	HYDRO	E
	VALVE			FENCE	
SAN	SANITARY SEWER	SAN		DITCH	
B	BRINE	B		GRAVEL	
FE	FINAL EFFLUENT	FE		ASPHALT	
	DEGASS/DEWATER SUBDRAIN			CONCRETE	
	DEGASS/DEWATER VENT			RIP RAP	
	DRAINAGE COLLECT. TANK		*247.33	ELEVATION	245.85
	CULVERT			BOLLARD	
MW	MONITORING WELL				
TH	TEST HOLE / TEST PIT				
EXISTING	LEGEND - PLAN	NEW	EXISTING	LEGEND - PLAN	NEW

N

TH -a15-03
TH -a1503pit
TH -a15-02
TH -a1513pit
TH -a15-04
TH -a1504
TH -a1514pit
TH -old
TH -old
TH -a1515pit
EXISTING DITCH
TH -a1512pit
TH -a1501
TH -a1506pit
TH -a1507
TH -a1508
STATION CREEK
CONTAMINATED SOIL UNDER LINER
ABOVE GROUND FUEL OIL LINE
TH -a1516pit
APPROXIMATE LOCATION OF POWER AND FIBRE OPTIC LINE
TH-a15-05
EXISTING RAW WATER RESERVOIR
EXISTING RAW WATER SUPPLY PIPING
EXISTING PUMP HOUSE
OPERATIONS BUILDING
EXISTING RAW WASTEWATER LIFT STATION
EXISTING CLOUD CEILING MEASUREMENT DEVICE
GARAGE
GENERATOR
150Ø SEWAGE PIPE
HYDRO POLE
APPROXIMATE LOCATION OF 600V POWER LINE ON GROUND
EXISTING ACCESS ROAD
EXISTING STEEL TANK RAW WATER STORAGE
ABANDONED BUILDING
EXISTING WASTEWATER PIPE
SEVERED PIPE
PUMP HOUSE
EXISTING RETENTION BASIN
EXISTING ABOVE GROUND FUEL OIL LINE
SLIDRE FJORD

OVERALL EXISTING SITE PLAN

Scale 1:1000

BENCH MARK:
749167A
LOCATED ON THE FOSHEIM PEN OF ELLESMERE ISLAND AT THE AIRSTRIP OF THE EUREKA WEATHER STATION, ON BRADLEY AIR SERVICE PROPERTY, 16.04m FROM MAIN STATION "749167", MARKED BY A BRASS TABLET SET ON A COPPER ROD.
ELEV. 77.851m (Geoid. HT2_0)

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
P.R. BARSALOU
LICENSEE
June 23/2020
NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
5		
4		
3		
2		
1		
0	ISSUED FOR TENDER	2020/06/19

Client / client
Public Works and Government Services Canada
310-269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet
NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
A. FARROKHI

Drawn by / Dessiné par
G. LACOSTE

Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin
CIVIL
OVERALL
EXISTING SITE PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	**C-0001** OF	**0**

	RAW WATER			HYDRO POLE w/ ANCHOR	
	UTILITY WATER			OIL PIPELINE	
	HYDRANT			HYDRO	
	VALVE			FENCE	
	SANITARY SEWER			DITCH	
	BRINE			GRAVEL	
	FINAL EFFLUENT			ASPHALT	
	DEGASS/DEWATER SUBDRAIN			CONCRETE	
	DEGASS/DEWATER VENT			RIP RAP	
	DRAINAGE COLLECT. TANK		+247.33	ELEVATION	245.85
	CULVERT			BOLLARD	
MW	MONITORING WELL				
TH	TEST HOLE / TEST PIT				
EXISTING	LEGEND - PLAN	NEW	EXISTING	LEGEND - PLAN	NEW

N

STATION CREEK

SAND BORROW PIT APPROX. 2.4 km BY ROAD (RESERVOIR TO PIT)

TH -a15-03
TH -a1503pit

NEW 1.9m HIGH PAGE WIRE FENCING ALONG TOE OF RESERVOIR

TH -a15-02

PROPOSED MATERIAL INTERIM STOCKPILE AREA

INSTALL 3.0m WIDE, 0.3m THICK LAYER OF RIP RAP ON THE SLOPE

TH -a1513pit

TH -a15-04
TH -a1504

NEW RAW WATER STORAGE RESERVOIR SEE SHEET C-0003

NEW RESERVOIR PUMP STATION 2.4m x 3.0 m PREFABRICATED BUILDING SEE SHEET C-0006

TH -a1512pit

TH -a1514pit

TH -old

TH -old

TH -a1515pit

NEW ACCESS ROAD

TH -a1501

TH -a1506pit

TH -a1507

DECOMMISSION EXISTING STORAGE DITCH

SEASONAL 50mm RAW WATER FILL HOSE

NEW RAW WATER TRANSFER STATION

INSTALL 3.0m WIDE, 0.3m THICK LAYER OF RIP RAP ON THE SLOPE

EXISTING ABOVE GROUND FUEL OIL LINE

153m BERM (0.4m HIGH, 0.5m WIDE WITH 4:1 SIDE SLOPES) TO PREVENT SURFACE WATER DRAINING TOWARDS CONTAMINATED SOIL

TH -a1516pit

PROTECT AND MOVE POWER AND FIBRE OPTIC LINES TO AVOID CONSTRUCTION

CREEK PUMP STATION 2.4m x 3.0m PREFABRICATED BUILDING

EXISTING RAW WATER RESERVOIR

DECOMMISSION EXISTING RAW WATER SUPPLY PIPING

DECOMMISSION EXISTING PUMP HOUSE

TH-a15-01

116m RAW WATER SUPPLY AND RETURN LINES ON PIPE SUPPORTS

BRINE TRANSFER STATION UPGRADE

BRINE AND UTILITY WATER PIPING

HAULED WASTEWATER DISCHARGE LOCATION

UPGRADE EXISTING RAW WASTEWATER LIFT STATION

EXISTING CLOUD CEILING MEASUREMENT DEVICE (REMOVE)

PACKAGED WASTEWATER TREATMENT PLANT 4 - 2.4m x 6.1m PREFABRICATED BUILDINGS

PLUG AND ABANDON

OPERATIONS BUILDING

GARAGE

GENERATOR

SEASONAL INTAKE HOSE

TRUCKS NOT ALLOWED ON BRIDGE. CROSS CREEK BED ONCE FROZEN TO OBTAIN SAND FROM PIT

CHLORINATION SYSTEM UPGRADE

RAW WATER STORAGE TANKS

EXISTING 150Ø SEWAGE PIPE

100Ø HDPE FORCEMAIN BURIED 0.6m, SEE SHEET C-0004 & C-3002

CLEANOUTS (TYP.)

REPLACE AND BURY POWER SUPPLY FROM HYDROGEN BUILDING

APPROXIMATE LOCATION OF EXISTING 600V POWER AND COMMUNICATION LINE ON GROUND, MOVE TO PROTECT

RETENTION BASIN UPGRADE SEE SHEET C-3002

BRINE AND SANITARY FORCEMAIN.
100Ømm OVERFLOW PIPE TO EFFLUENT COLLECTION TANK.
250mm UTILITY WATER SERVICE LINE COMPLETE WITH BACK FLOW PREVENTION

EXTENT OF DECOMMISSION

HYDRO POLE

DECOMMISSION AND REMOVE EXISTING WASTEWATER PIPE

DECOMMISSION EXISTING PUMP HOUSE

RETENTION BASIN PUMP STATION 2.4m x 3m PREFABRICATED BUILDING

RETENTION BASIN INLET PAD SEE SHEET C-0007

RETENTION BASIN DISCHARGE CHANNEL SEE SHEET C-0007

SEASONAL DISCHARGE

SEASONAL INTAKE

PROPOSED TEMPORARY ROAD FOR BLACK TOP CREEK BORROW PIT-STOCKPILE HAUL ROUTE TO SITE STOCKPILE AREA

SLIDRE FJORD

CONSTRUCTION NOTES:

1. PRIOR TO CONSTRUCTION, DELETERIOUS SOILS COMPRISING VEGETATION, TOPSOIL, POND SEDIMENT, AND THE SOFT/VERY SOFT, LOOSE, WET, DISTURBED, PORTION OF NATIVE SOILS, IF ANY, SHOULD BE REMOVED FROM THE FOOTPRINT AREAS FOR STRUCTURES AND OTHER SETTLEMENT SENSITIVE FACILITIES.
2. FOLLOWING INITIAL SITE STRIPPING OF DELETERIOUS SOILS, AND PRIOR TO GRADING, AREAS IDENTIFIED FOR FILL PLACEMENT SHOULD BE COMPACTED. ANY SOFT AREAS SHOULD BE OVER-EXCAVATED AND BACKFILLED TO A MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD) USING SPECIFIED FILL.
3. THE FINISHED SUBGRADE MUST BE FREE OF DEPRESSIONS AND SHOULD BE SLOPED TOWARD THE EMBANKMENT'S SIDE SLOPES, OR TOWARD THE SIDE DITCHES, IN ORDER TO PROVIDE EFFICIENT SURFACE WATER CONTROL (DRAINAGE).
4. CONTAMINATED SOIL WITHIN THE LIMITS OF THE NEW RAW WATER STORAGE RESERVOIR CONSTRUCTION SITE TO BE REMOVED AND DISPOSED OF AT THE CONTAMINATED SOIL STORAGE CELL AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE AND IN ACCORDANCE WITH SECTIONS 02 55 13 - CONTAMINATED SOIL AND 01 35 15 - SPECIAL PROCEDURES FOR CONTAMINATED SITES. SEE CONTAMINATED SOIL STORAGE CELL DETAILS ON C009.
5. THE CONTRACTOR SHALL ENSURE THAT LOCAL DRAINAGE PATTERNS ARE NOT ALTERED BY THE CONSTRUCTION.
6. TEMPORARILY RE-ROUTE OR / PROTECT CABLES ON BRIDGE NEAR FRESHWATER RESERVOIR.
7. PROHIBIT HEAVY EQUIPMENT ON BRIDGE OVER CREEK. LIMIT TO LIGHT TRUCKS ¾ TON ONLY.

OVERALL PROPOSED SITE PLAN

Scale 1:1000

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
P.R. BARSALOU
LICENSEE
NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
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Public Works and Government Services Canada

310-269 Main Street, R3C 1B3 Winnipeg, MB

Project title / Projet

NUNAVUT EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
OVERALL
PROPOSED SITE PLAN

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R.037261.001	C-0002 OF	0

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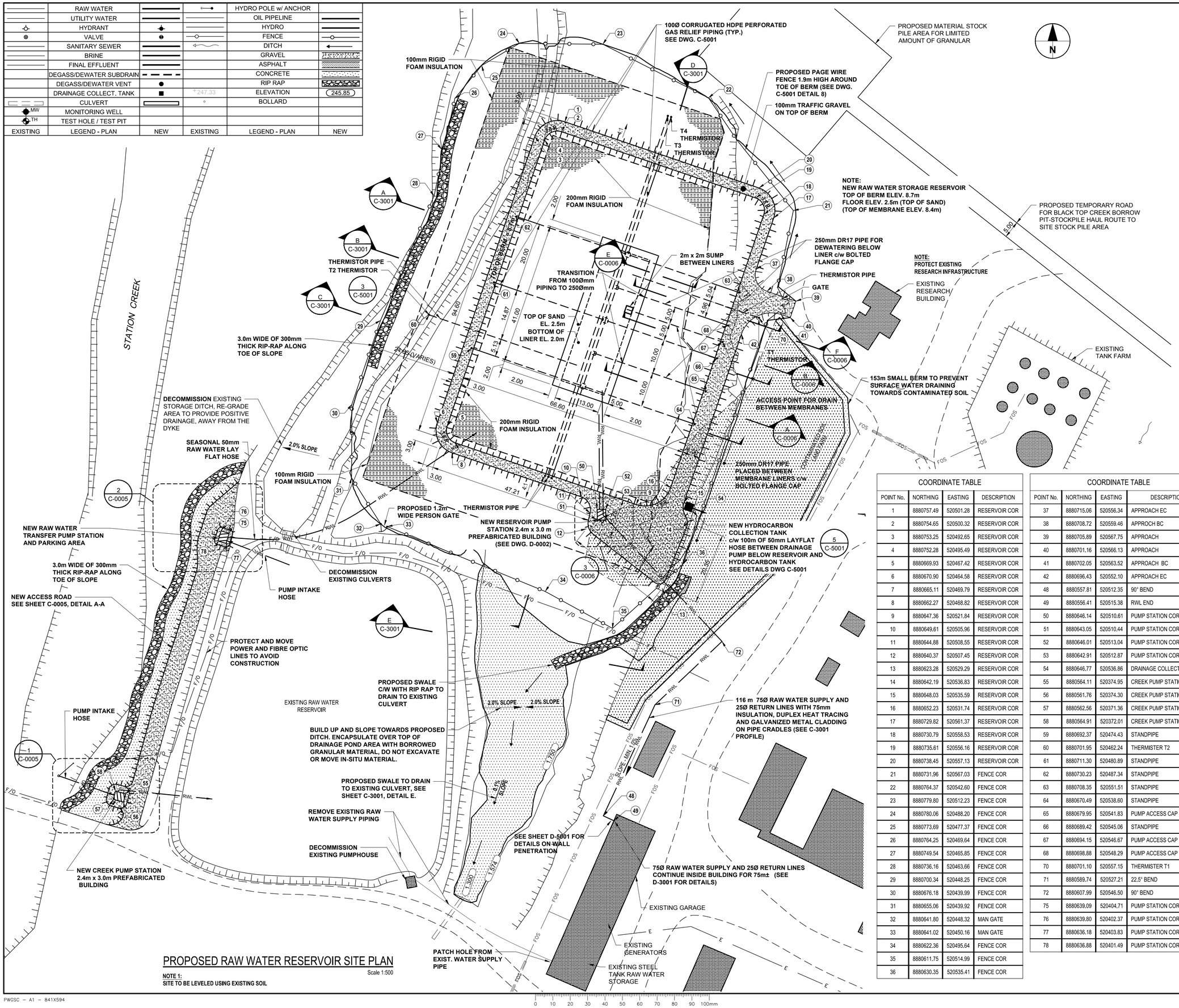
	UTILITY WATER			OIL PIPELINE	
	HYDRANT			HYDRO	
	VALVE			FENCE	
	SANITARY SEWER			DITCH	
	BRINE			GRAVEL	
	FINAL EFFLUENT			ASPHALT	
	DEGASS/DEWATER SUBDRAIN			CONCRETE	
	DEGASS/DEWATER VENT			RIP RAP	
	DRAINAGE COLLECT. TANK		+247.33	ELEVATION	245.85
	CULVERT			BOLLARD	
MW	MONITORING WELL				
TH	TEST HOLE / TEST PIT				



PROPOSED RAW WATER RESERVOIR SITE PLAN

Scale 1:500

NOTE 1:
SITE TO BE LEVELED USING EXISTING SOIL

COORDINATE TABLE			
POINT No.	NORTHING	EASTING	DESCRIPTION
1	8880757.49	520501.28	RESERVOIR COR
2	8880754.65	520500.32	RESERVOIR COR
3	8880753.25	520492.65	RESERVOIR COR
4	8880752.28	520495.49	RESERVOIR COR
5	8880669.93	520467.42	RESERVOIR COR
6	8880670.90	520464.58	RESERVOIR COR
7	8880665.11	520469.79	RESERVOIR COR
8	8880662.27	520468.82	RESERVOIR COR
9	8880647.36	520521.84	RESERVOIR COR
10	8880649.61	520505.96	RESERVOIR COR
11	8880644.88	520508.55	RESERVOIR COR
12	8880640.37	520507.45	RESERVOIR COR
13	8880623.28	520529.29	RESERVOIR COR
14	8880642.19	520536.83	RESERVOIR COR
15	8880648.03	520535.59	RESERVOIR COR
16	8880652.23	520531.74	RESERVOIR COR
17	8880729.82	520561.37	RESERVOIR COR
18	8880730.79	520558.53	RESERVOIR COR
19	8880735.61	520556.16	RESERVOIR COR
20	8880738.45	520557.13	RESERVOIR COR
21	8880731.96	520567.03	FENCE COR
22	8880764.37	520542.60	FENCE COR
23	8880779.80	520512.23	FENCE COR
24	8880780.06	520488.20	FENCE COR
25	8880773.69	520477.37	FENCE COR
26	8880764.25	520469.64	FENCE COR
27	8880749.54	520465.85	FENCE COR
28	8880736.16	520463.66	FENCE COR
29	8880700.34	520448.25	FENCE COR
30	8880676.18	520439.99	FENCE COR
31	8880655.06	520439.92	FENCE COR
32	8880641.80	520448.32	MAN GATE
33	8880641.02	520450.16	MAN GATE
34	8880622.36	520495.64	FENCE COR
35	8880611.75	520514.99	FENCE COR
36	8880630.35	520535.41	FENCE COR

COORDINATE TABLE			
POINT No.	NORTHING	EASTING	DESCRIPTION
37	8880715.06	520556.34	APPROACH EC
38	8880708.72	520559.46	APPROCH BC
39	8880705.89	520567.75	APPROACH
40	8880701.16	520566.13	APPROACH
41	8880702.05	520563.52	APPROACH BC
42	8880696.43	520552.10	APPROACH EC
48	8880557.81	520512.35	90° BEND
49	8880556.41	520515.38	RWL END
50	8880646.14	520510.61	PUMP STATION COR
51	8880643.05	520510,44	PUMP STATION COR
52	8880646.01	520513.04	PUMP STATION COR
53	8880642.91	520512.87	PUMP STATION COR
54	8880646,77	520536.86	DRAINAGE COLLECTION TANK
55	8880564.11	520374.95	CREEK PUMP STATION COR
56	8880561.76	520374.30	CREEK PUMP STATION COR
57	8880562.56	520371.36	CREEK PUMP STATION COR
58	8880564.91	520372.01	CREEK PUMP STATION COR
59	8880692.37	520474.43	STANDPIPE
60	8880701.95	520462.24	THERMISTER T2
61	8880711.30	520480.89	STANDPIPE
62	8880730.23	520487.34	STANDPIPE
63	8880708.35	520551.51	STANDPIPE
64	8880670.49	520538.60	STANDPIPE
65	8880679.95	520541.83	PUMP ACCESS CAP
66	8880689.42	520545.06	STANDPIPE
67	8880694.15	520546.67	PUMP ACCESS CAP
68	8880698.88	520548.29	PUMP ACCESS CAP
70	8880701.10	520557.15	THERMISTER T1
71	8880589.74	520527.21	22.5° BEND
72	8880607.99	520546.50	90° BEND
75	8880639.09	520404.71	PUMP STATION COR
76	8880639.80	520402.37	PUMP STATION COR
77	8880636.18	520403.83	PUMP STATION COR
78	8880636.88	520401.49	PUMP STATION COR

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Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
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Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER P.R. BARSALOU LICENSEE Jun 23/2020 NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
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NUNAVUT
EUREKA

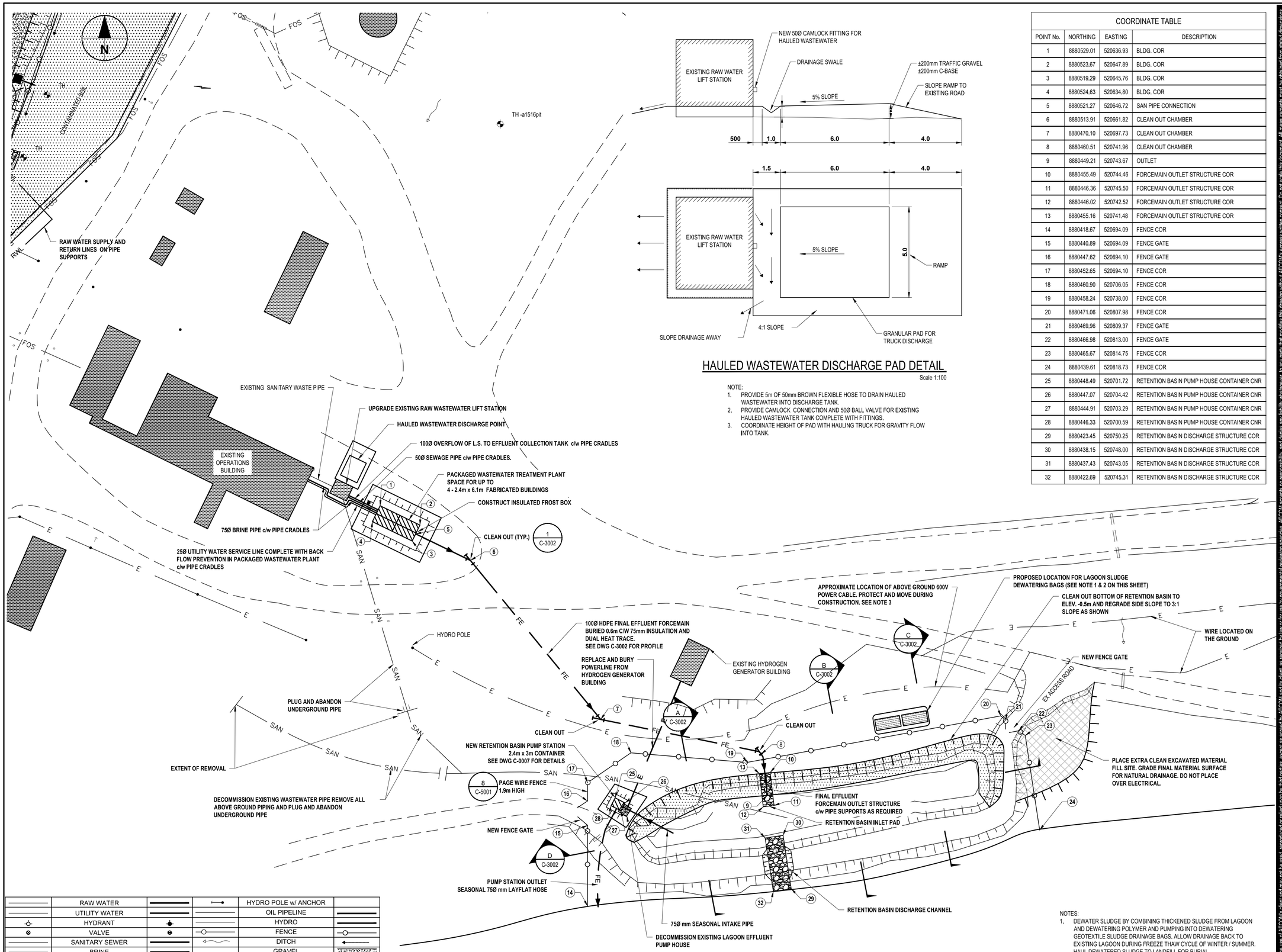
EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
NEW RAW WATER RESERVOIR
PROPOSED SITE PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-0003 OF	0



PROPOSED RETENTION BASIN SITE PLAN

Scale 1:500

NOTES:
1. DEWATER SLUDGE BY COMBINING THICKENED SLUDGE FROM LAGOON AND DEWATERING POLYMER AND PUMPING INTO DEWATERING GEOTEXTILE SLUDGE DRAINAGE BAGS. ALLOW DRAINAGE BACK TO EXISTING LAGOON DURING FREEZE THAW CYCLE OF WINTER / SUMMER. HAUL DEWATERED SLUDGE TO LANDFILL FOR BURIAL.
2. INSTALL GEOMEMBRANE UNDER THE GEOBAGS AND ON THE SLOPE TO PREVENT EROSION.
3. MOVE 4 EXISTING ELECTRICAL LINES ON THE GROUND FURTHER FROM THE SLUDGE DEWATERING AREA. PROVIDE PROTECTIVE PLYWOOD COVERS ON THE 4 EXISTING ELECTRICAL LINES.

HAULED WASTEWATER DISCHARGE PAD DETAIL

Scale 1:100

NOTE:
1. PROVIDE 5m OF 50mm BROWN FLEXIBLE HOSE TO DRAIN HAULED WASTEWATER INTO DISCHARGE TANK.
2. PROVIDE CAMLOCK CONNECTION AND 50Ø BALL VALVE FOR EXISTING HAULED WASTEWATER TANK COMPLETE WITH FITTINGS.
3. COORDINATE HEIGHT OF PAD WITH HAULING TRUCK FOR GRAVITY FLOW INTO TANK.

COORDINATE TABLE			
POINT No.	NORTHING	EASTING	DESCRIPTION
1	8880529.01	520636.93	BLDG. COR
2	8880523.67	520647.89	BLDG. COR
3	8880519.29	520645.76	BLDG. COR
4	8880524.63	520634.80	BLDG. COR
5	8880521.27	520646.72	SAN PIPE CONNECTION
6	8880513.91	520661.82	CLEAN OUT CHAMBER
7	8880470.10	520697.73	CLEAN OUT CHAMBER
8	8880460.51	520741.96	CLEAN OUT CHAMBER
9	8880449.21	520743.67	OUTLET
10	8880455.49	520744.46	FORCEMAIN OUTLET STRUCTURE COR
11	8880446.36	520745.50	FORCEMAIN OUTLET STRUCTURE COR
12	8880446.02	520742.52	FORCEMAIN OUTLET STRUCTURE COR
13	8880455.16	520741.48	FORCEMAIN OUTLET STRUCTURE COR
14	8880418.67	520694.09	FENCE COR
15	8880440.89	520694.09	FENCE GATE
16	8880447.62	520694.10	FENCE GATE
17	8880452.65	520694.10	FENCE COR
18	8880460.90	520706.05	FENCE COR
19	8880458.24	520738.00	FENCE COR
20	8880471.06	520807.98	FENCE COR
21	8880469.96	520809.37	FENCE GATE
22	8880466.98	520813.00	FENCE GATE
23	8880465.67	520814.75	FENCE COR
24	8880439.61	520818.73	FENCE COR
25	8880448.49	520701.72	RETENTION BASIN PUMP HOUSE CONTAINER CNR
26	8880447.07	520704.42	RETENTION BASIN PUMP HOUSE CONTAINER CNR
27	8880444.91	520703.29	RETENTION BASIN PUMP HOUSE CONTAINER CNR
28	8880446.33	520700.59	RETENTION BASIN PUMP HOUSE CONTAINER CNR
29	8880423.45	520750.25	RETENTION BASIN DISCHARGE STRUCTURE COR
30	8880438.15	520748.00	RETENTION BASIN DISCHARGE STRUCTURE COR
31	8880437.43	520743.05	RETENTION BASIN DISCHARGE STRUCTURE COR
32	8880422.69	520745.31	RETENTION BASIN DISCHARGE STRUCTURE COR

EXISTING	LEGEND - PLAN	NEW	EXISTING	LEGEND - PLAN	NEW
	RAW WATER			HYDRO POLE w/ ANCHOR	
	UTILITY WATER			OIL PIPELINE	
	HYDRANT			HYDRO	
	VALVE			FENCE	
	SANITARY SEWER			DITCH	
	BRINE			GRAVEL	
	FINAL EFFLUENT			ASPHALT	
	DEGASS/DEWATER SUBDRAIN			CONCRETE	
	DEGASS/DEWATER VENT			RIP RAP	
	DRAINAGE COLLECT. TANK		+247.33	ELEVATION	245.85
	CULVERT			BOLLARD	
MW	MONITORING WELL				
TH	TEST HOLE / TEST PIT				

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
Western Region
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Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER P.R. BARSALOU LICENSEE Jun 23/2020 NWT/NU

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NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
RETENTION BASIN UPGRADE & WASTEWATER
PROPOSED SITE PLAN

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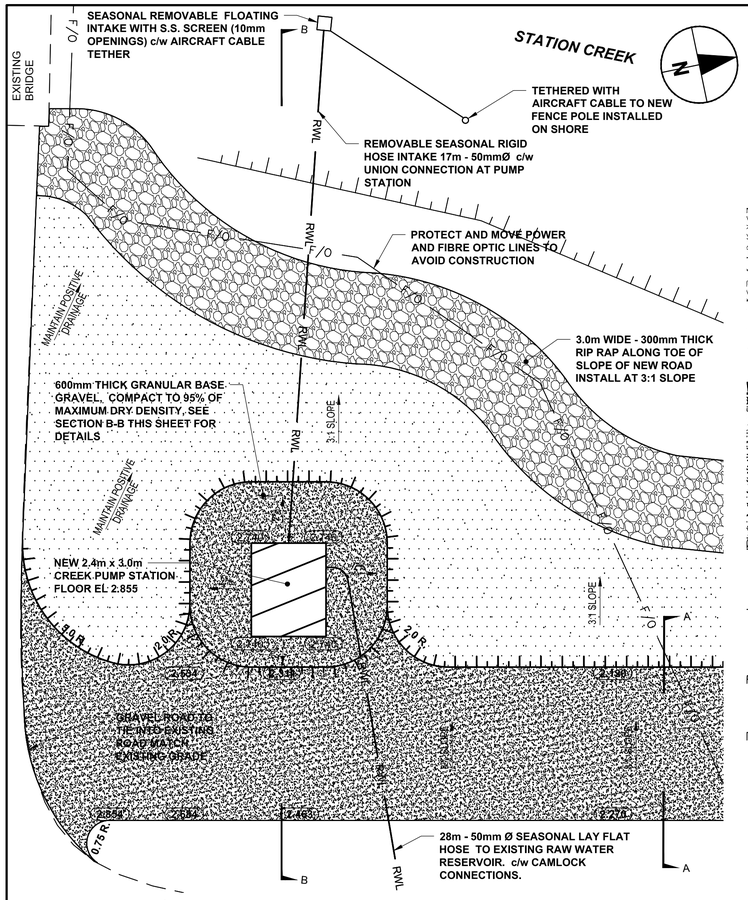
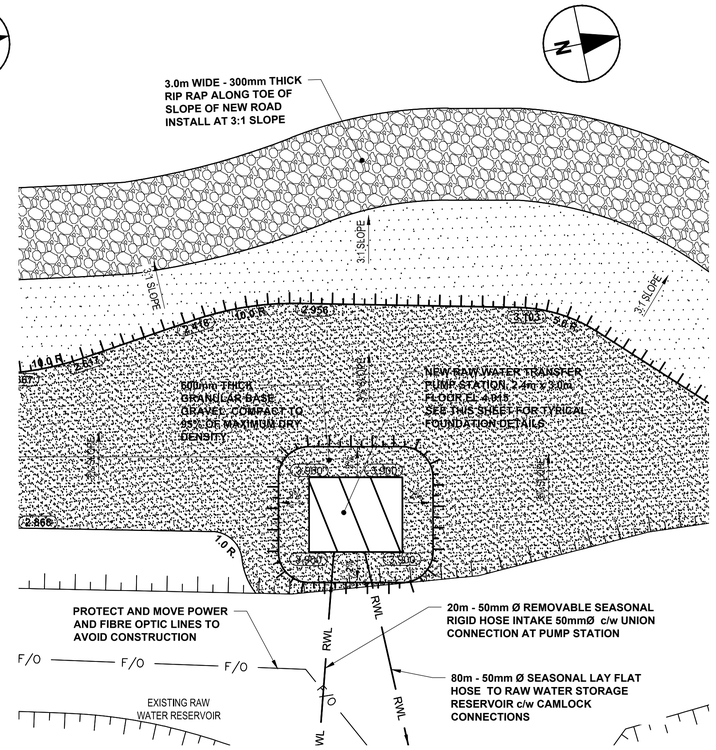
R.037261.001	C-0004 OF	0



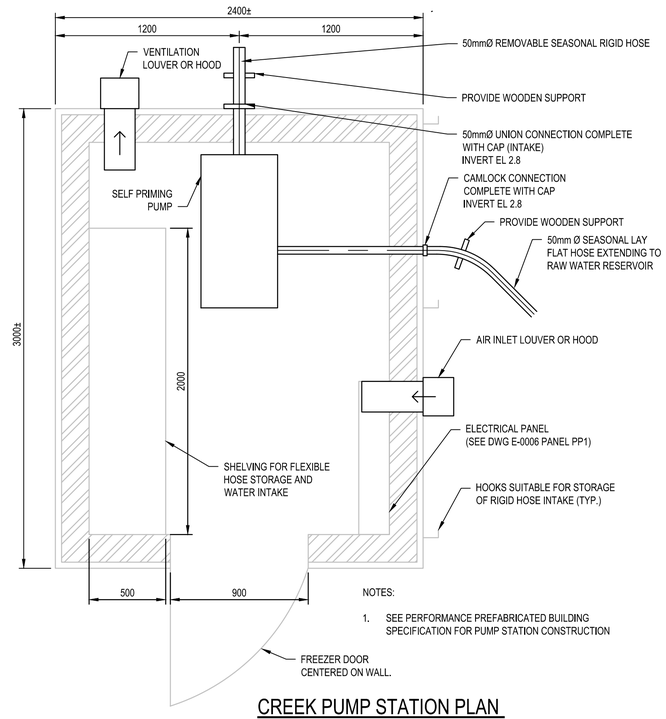
1 | CREEK PUMP STATION PLAN

C-0003 — Scale 1:100



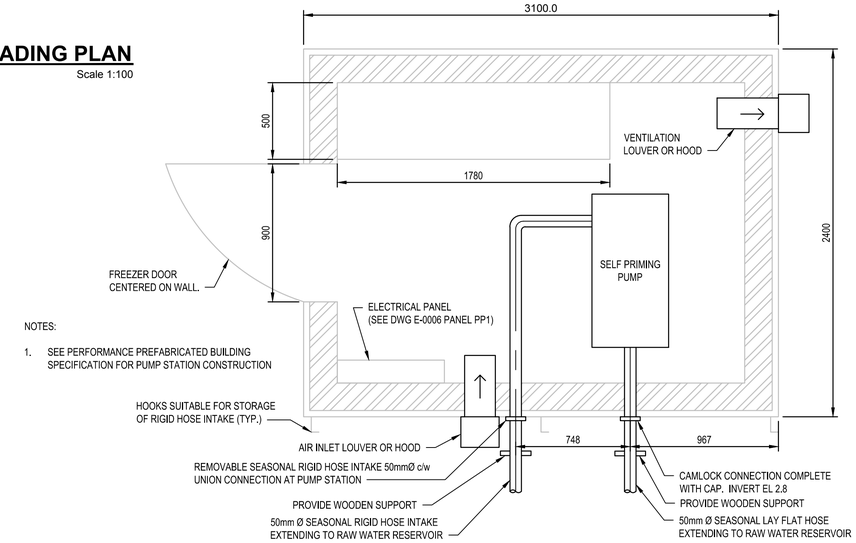
2 | RAW WATER TRANSFER STATION GRADING PLAN

C-0003 — Scale 1:100



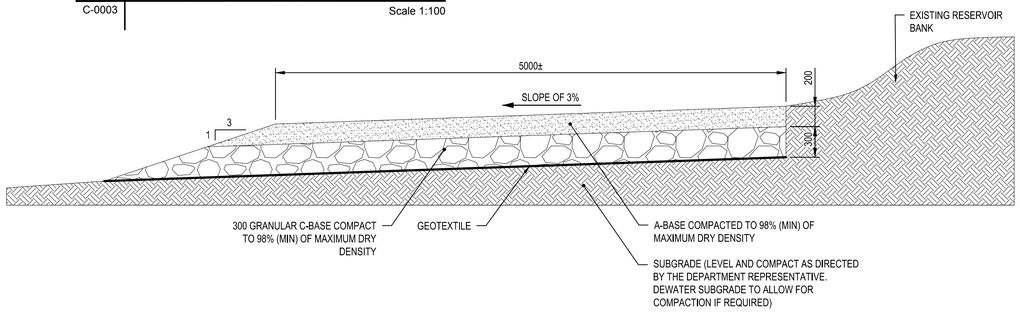
CREEK PUMP STATION PLAN

Scale 1:20



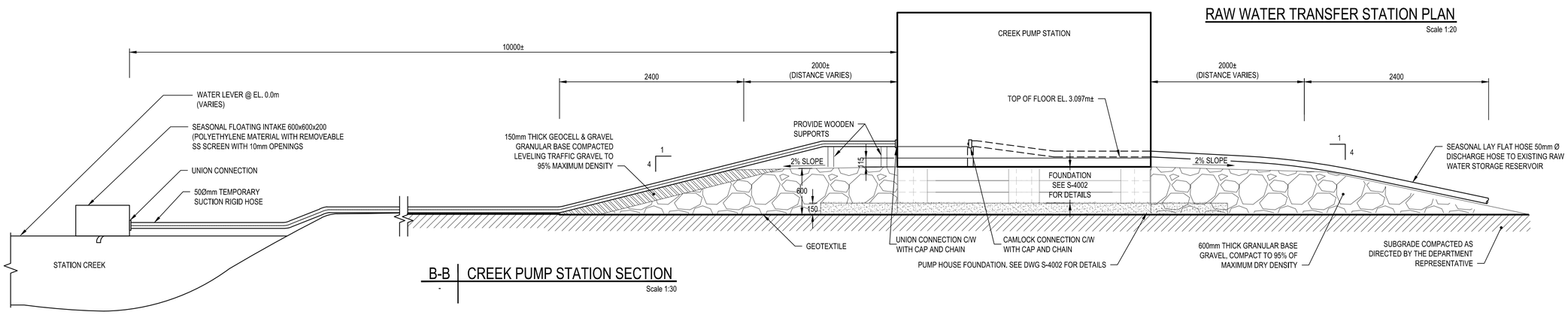
RAW WATER TRANSFER STATION PLAN

Scale 1:20



A-A | RAW WATER TRANSFER PUMP STATION ACCESS ROAD AND PARKING AREA SECTION

\- — Scale 1:30



B-B | CREEK PUMP STATION SECTION

\- — Scale 1:30

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

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Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

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CIVIL
CREEK PUMP STATION
CROSS SECTIONS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
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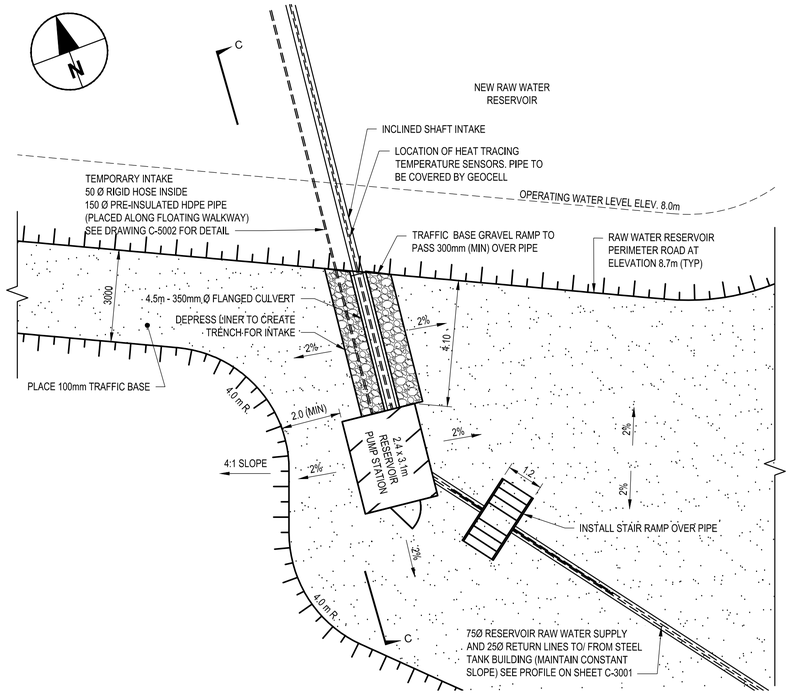
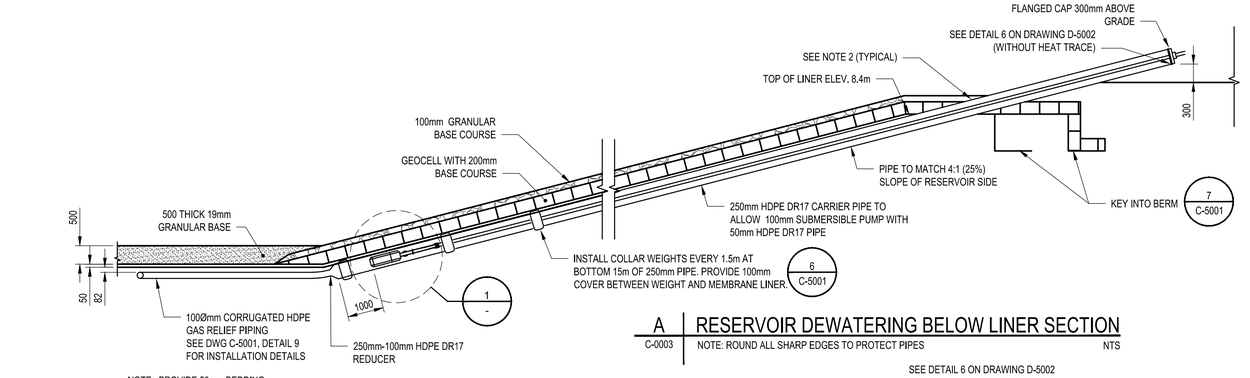
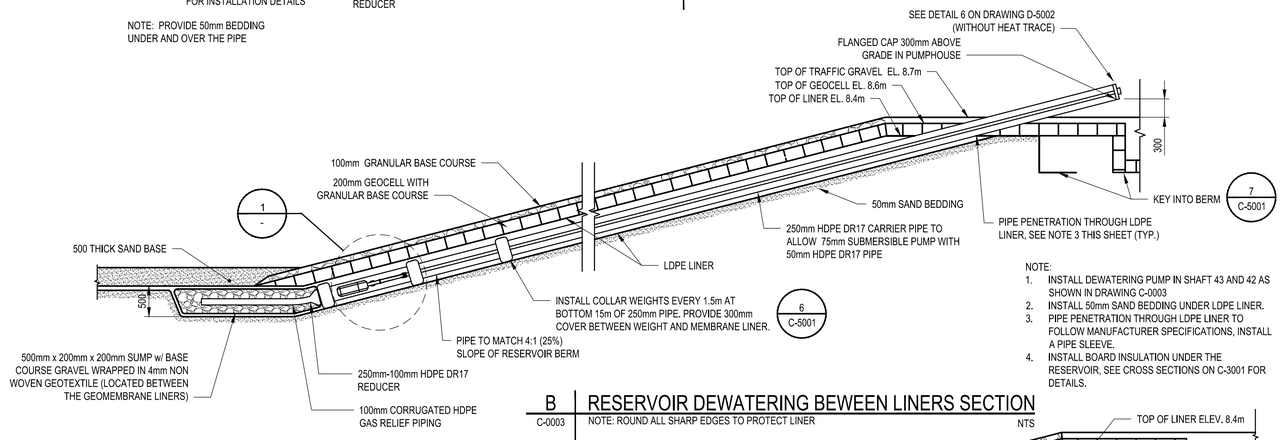


3 | RESERVOIR PUMP HOUSE PLAN
C-0003 — Scale 1:100

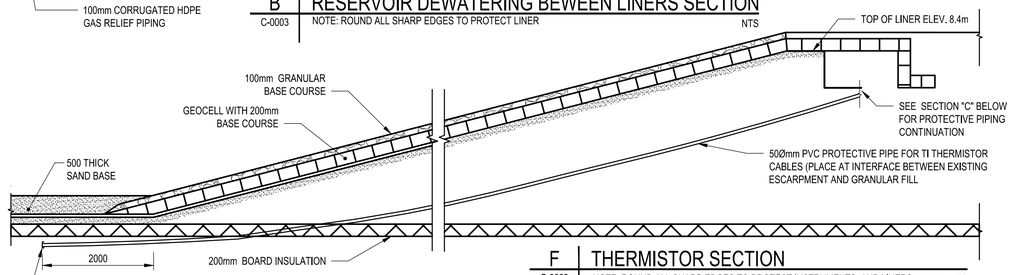


A | RESERVOIR DEWATERING BELOW LINER SECTION
C-0003 — NOTE: ROUND ALL SHARP EDGES TO PROTECT PIPES — NTS



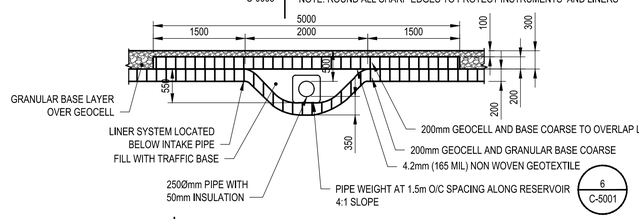
NOTE:
1. INSTALL DEWATERING PUMP IN SHAFT 43 AND 42 AS SHOWN IN DRAWING C-0003
2. INSTALL 50mm SAND BEDDING UNDER LDPE LINER.
3. PIPE PENETRATION THROUGH LDPE LINER TO FOLLOW MANUFACTURER SPECIFICATIONS, INSTALL A PIPE SLEEVE.
4. INSTALL BOARD INSULATION UNDER THE RESERVOIR, SEE CROSS SECTIONS ON C-3001 FOR DETAILS.

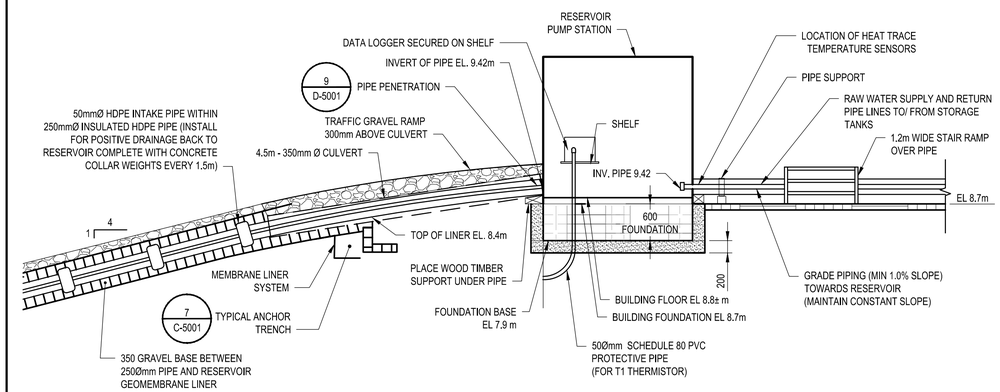
B | RESERVOIR DEWATERING BEWEEN LINERS SECTION
C-0003 — NOTE: ROUND ALL SHARP EDGES TO PROTECT LINER — NTS



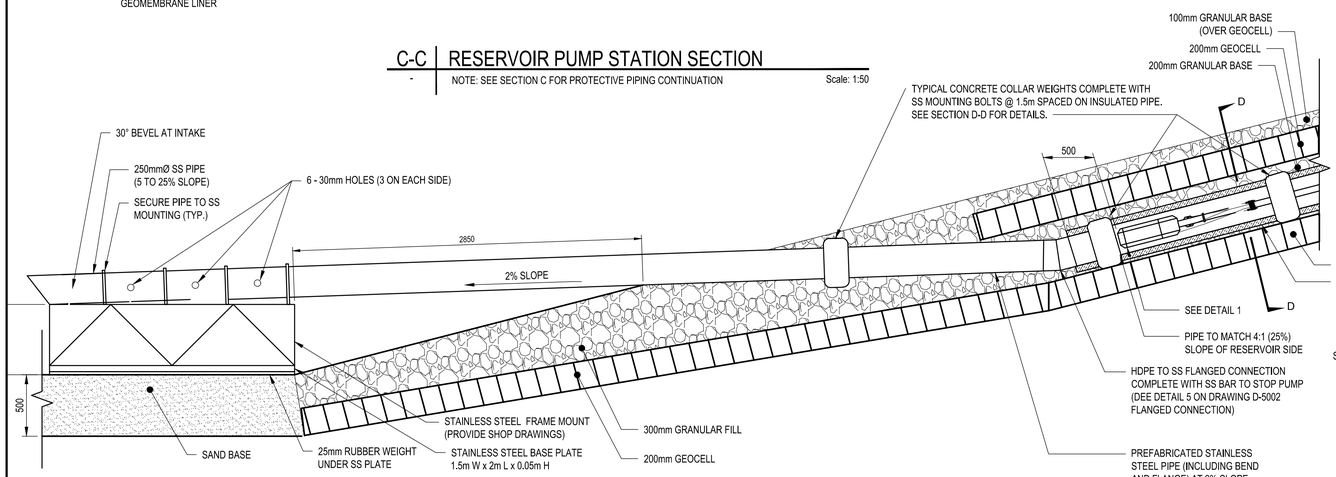
NOTES:
1. POSITION PUMP 0.5m AWAY FROM BEND IN INCLINED SHAFT AND DRAINAGE SUCTION PIPE.
2. INSTALLATION, SEALING, JOINING & ANCHORING OF PIPE PENETRATIONS SHALL CONFORM TO MEMBRANE MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW.

F | THERMISTOR SECTION
C-0003 — NOTE: ROUND ALL SHARP EDGES TO PROTECT INSTRUMENTS AND LINERS — NTS



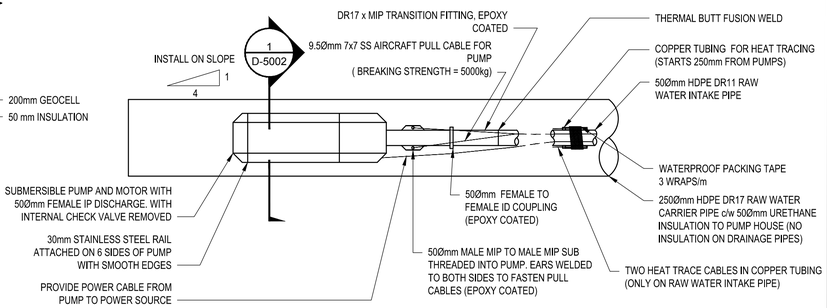


C-C | RESERVOIR PUMP STATION SECTION
- — NOTE: SEE SECTION C FOR PROTECTIVE PIPING CONTINUATION — Scale: 1:50



E | COVERED INTAKE CROSS SECTION
C-0003 — NOTE: ROUND ALL SHARP EDGES TO PROTECT LINERS — Scale 1:20

D | COVERED INTAKE CROSS SECTION
- — Scale 1:50



1 | SUBMERSIBLE PUMP DETAIL (RAW WATER AND DRAINAGE PUMPS)
- — NOTE: PROVIDE PIPE WEIGHTS AS NOTED — Scale 1:10

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER — P.R. BARSALOU — LICENSEE — NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
5		
4		
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1		
0	ISSUED FOR TENDER	2020/06/19

Client: client

Public Works and Government Services Canada

310-269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
RESERVOIR PUMP STATION
PLAN AND SECTION VIEWS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-0006 OF	0

PWGSC – A1 – 841X594

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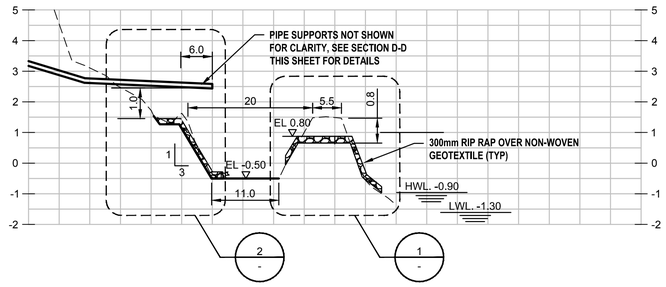
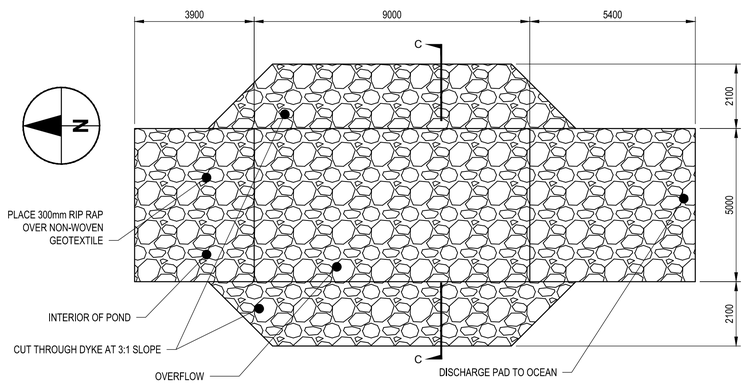


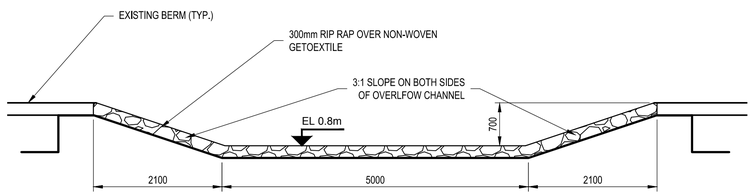
PROFILE OF RETENTION BASIN UPGRADE & FORCEMAIN OUTLET STRUCTURE

Scale N.T.S.



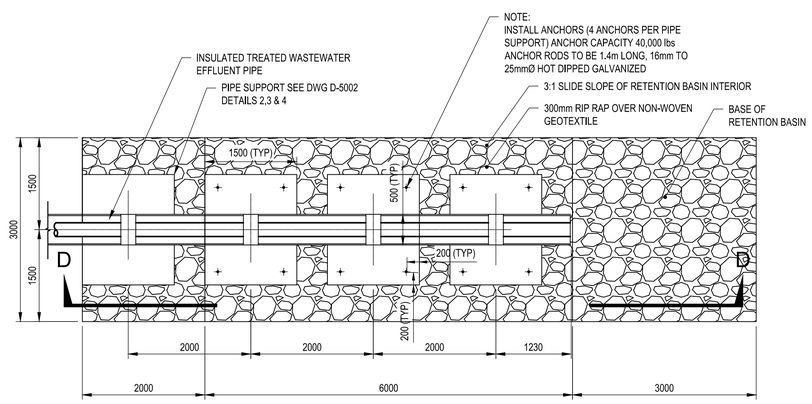
1 - RETENTION BASIN DICHARGE CHANNEL PLAN

Scale 1:100



C-C - RETENTION BASIN DISCHARGE CHANNEL SECTION

Scale 1:50

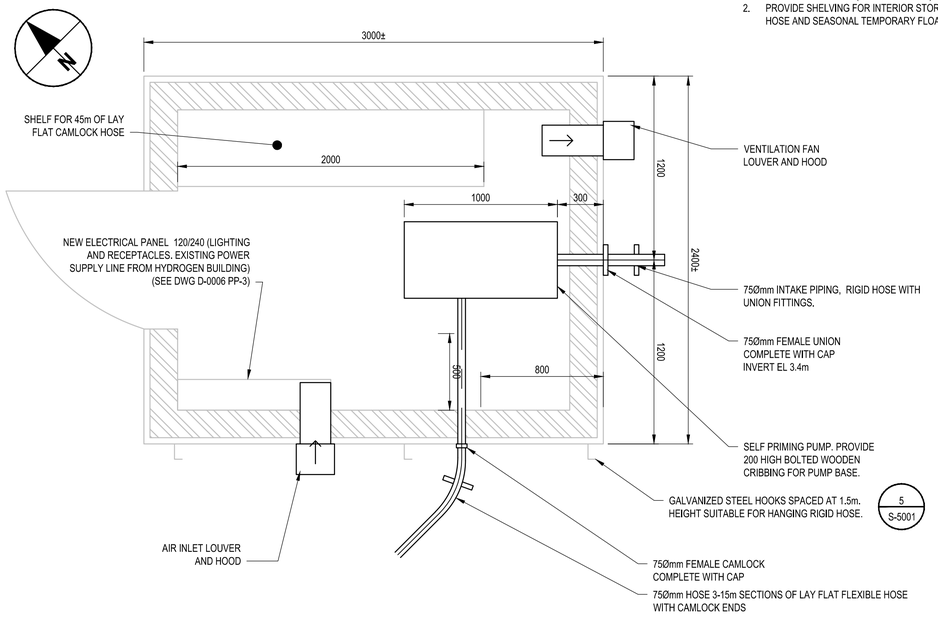


2 - RETENTION BASIN INLET PAD c/w FORCEMAIN OUTLET STRUCTURE

Scale 1:50

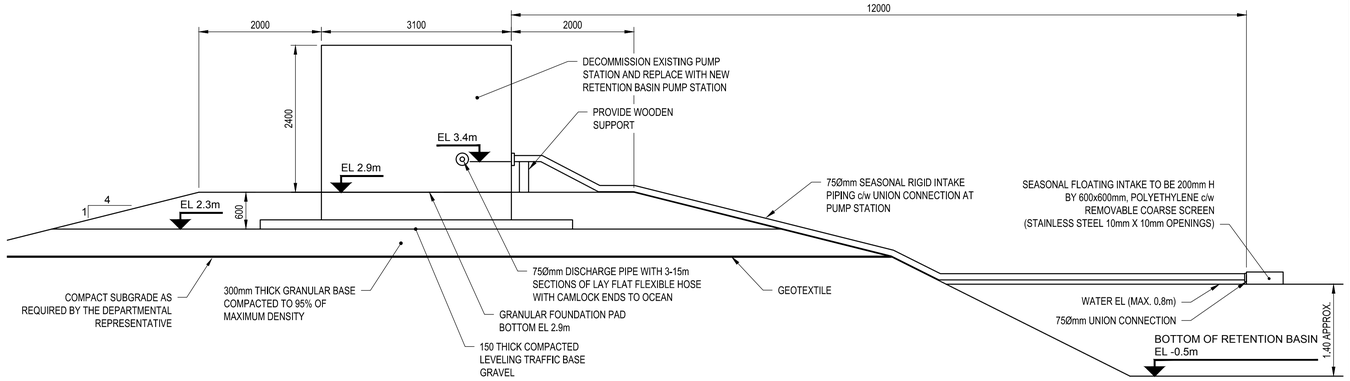
NOTES:

1. PROVIDE STURDY GALVANIZED BRACKETS TO SUPPORT RIGID HOSE ON EXTERIOR. (SEE DWG S-5001)
2. PROVIDE SHELVING FOR INTERIOR STORAGE OF LAY FLAT HOSE AND SEASONAL TEMPORARY FLOATING INTAKE.



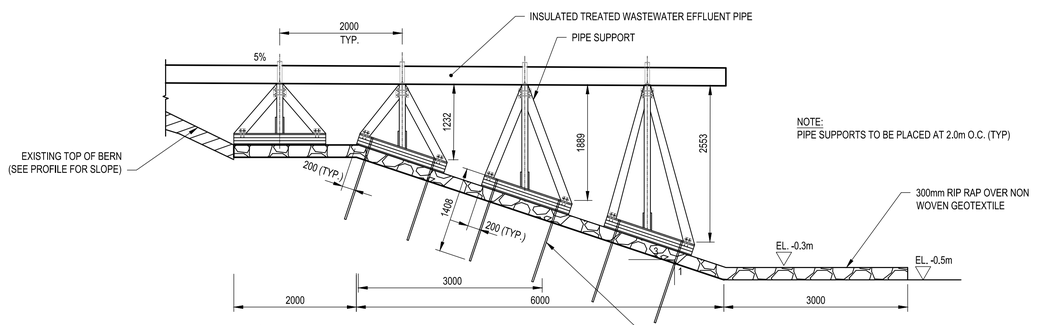
RETENTION BASIN PUMP STATION PLAN

Scale 1:20



RETENTION BASIN PUMP STATION SECTION

Scale 1:50



D-D - INTAKE PIPE CHANNEL SECTION

Scale 1:50

NOTE:
PIPE SUPPORTS TO BE PLACED AT 2.0m O.C. (TYP)

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
P.R. BARSALOU
LICENSEE
NWT/NU

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AECOM Canada Ltd.
Signature
Date June 23, 2020
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Public Works and Government Services Canada

310-269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
UPGRADED RETENTION BASIN
PLAN, CROSS SECTIONS AND DETAILS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-0007 OF	0

PWGSC – A1 – 841X594

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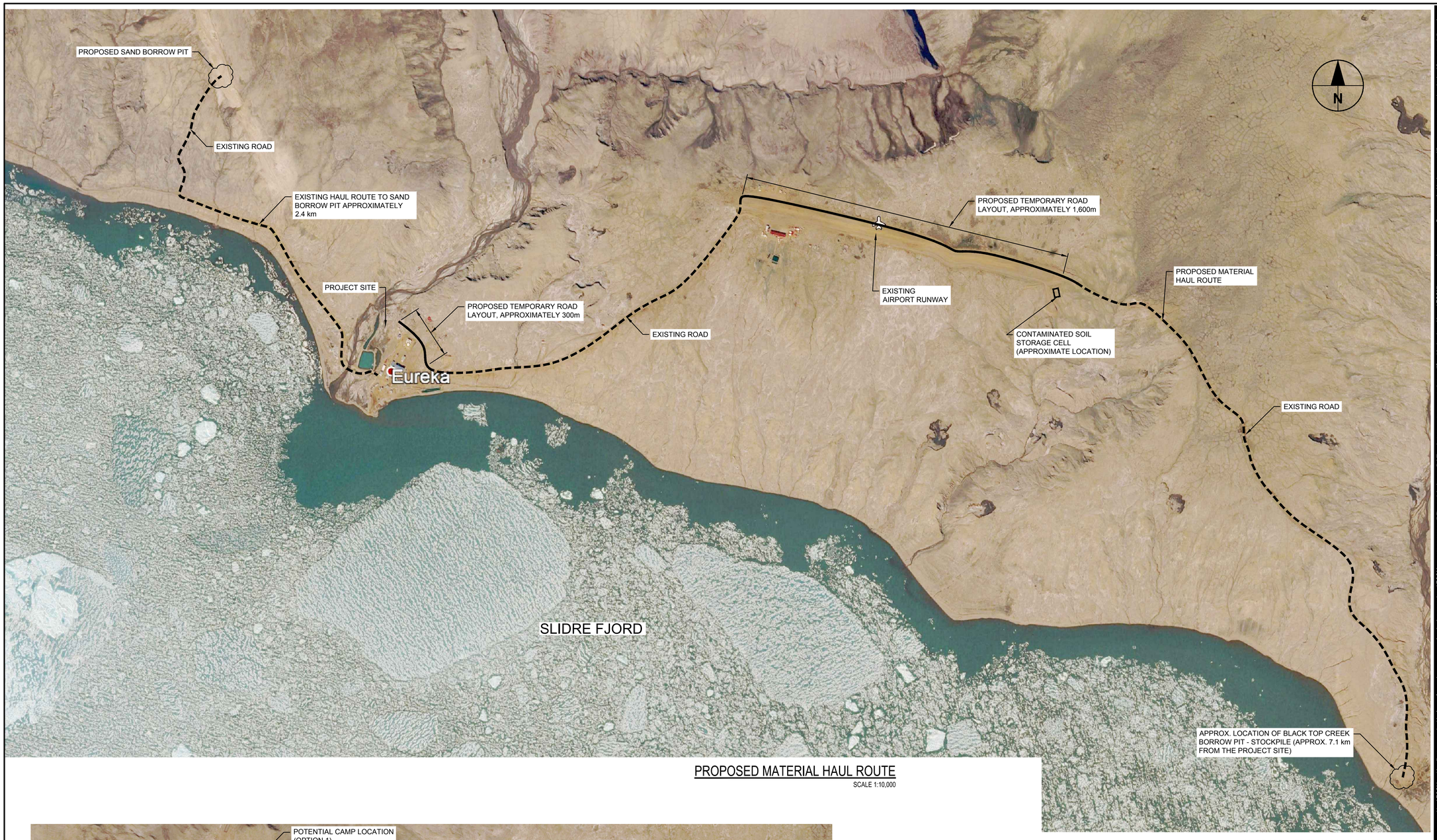
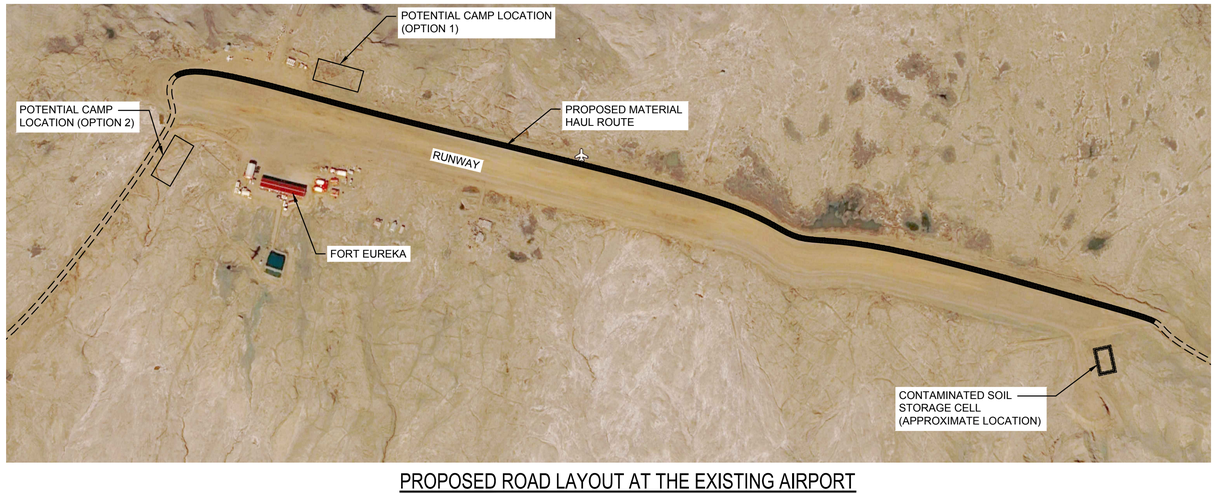


PROPOSED MATERIAL HAUL ROUTE

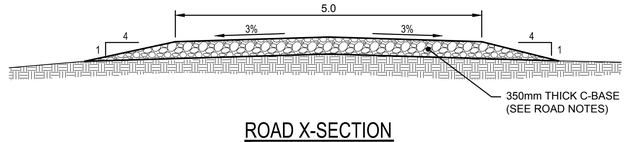
SCALE 1:10,000

IMAGE OBTAINED FROM GOOGLE EARTH (2016)



PROPOSED ROAD LAYOUT AT THE EXISTING AIRPORT

NTS



ROAD X-SECTION

Scale NTS

BENCH MARK:
749167A
LOCATED ON THE FOSHEIM PEN OF ELLESMERE ISLAND AT THE AIRSTRIP OF THE EUREKA WEATHER STATION, ON BRADLEY AIR SERVICE PROPERTY, 16.04m FROM MAIN STATION "749167", MARKED BY A BRASS TABLET SET ON A COPPER ROD.
ELEV. 77,851m (Geoid, HT2_0)

ROAD NOTES:
1. CONSTRUCT TEMPORARY ROADS TO HAUL GRANULAR MATERIAL FROM BLACK TOP CREEK STOCKPILE AS SHOWN.
2. PROOF-ROLL AND COMPACT EXISTING SUBGRADE. REMOVE SOFT / WET MATERIAL IF REQUIRED.
3. INSTALL 0.35m THICK C-BASE AS PER SECTION 32 11 23 AGGREGATE BASE COURSES.
4. COORDINATE TRAFFIC ON EXISTING ROAD AND AT AIRPORT WITH OTHER CONTRACTORS AND THE STATION.
5. PROTECT AND AVOID ALL EXISTING INFRASTRUCTURE AND RESEARCH EQUIPMENT.
6. CAMP SET-UP INCLUDES SITE LEVELING AND USE OF UP TO 100m3 OF STOCKPILED GRANULAR.
7. TEMPORARILY RE-ROUTE OR / PROTECT CABLES ON BRIDGE NEAR FRESHWATER RESERVOIR.
8. PROHIBIT HEAVY EQUIPMENT ON BRIDGE OVER CREEK. LIMIT TO LIGHT TRUCKS ¾ TON ONLY.

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

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Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
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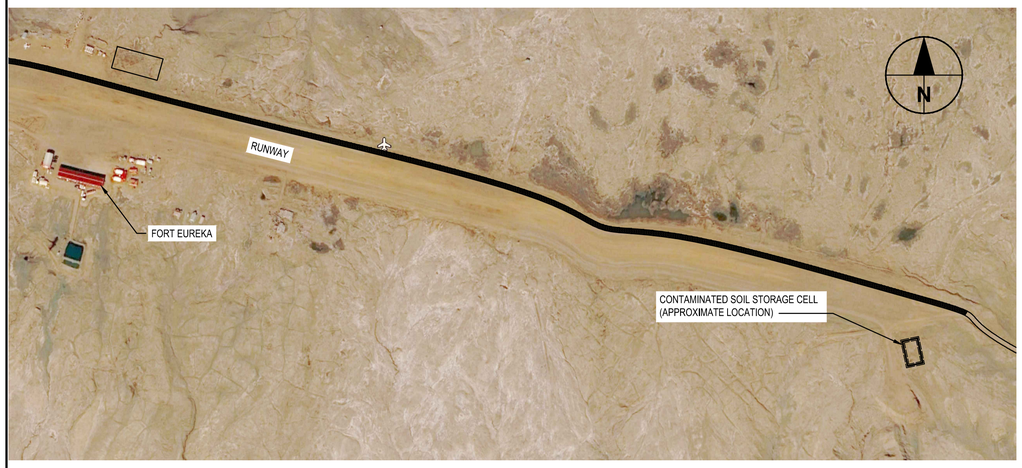
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
OVERALL
PROPOSED MATERIAL HAUL ROUTE

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-0008 OF	0

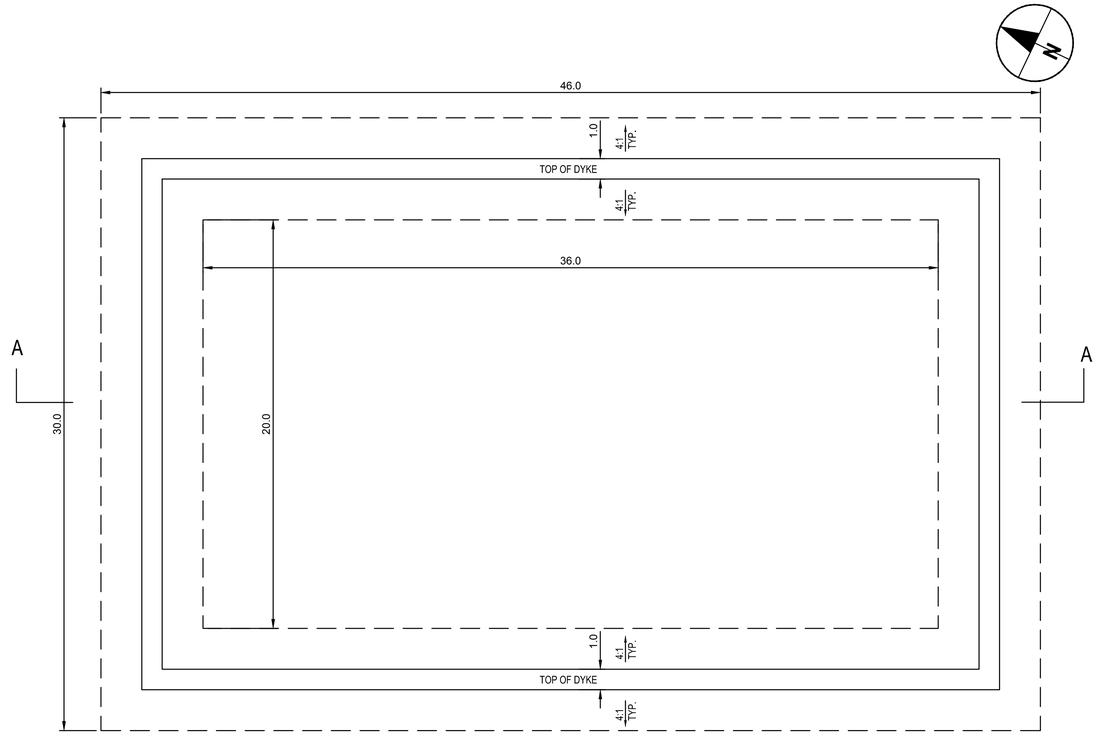


CONTAMINATED SOIL STORAGE CELL POTENTIAL LOCATION

Scale NTS

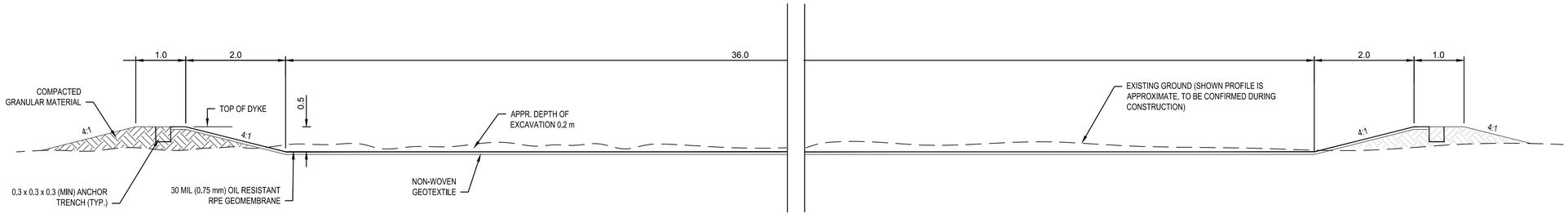
CONSTRUCTION NOTES:

1. PRIOR TO CONSTRUCTION, DELETERIOUS SOILS COMPRISING VEGETATION, TOPSOIL, AND THE SOFT/VERY SOFT, LOOSE, WET, DISTURBED, PORTION OF NATIVE SOILS, IF ANY, SHOULD BE REMOVED FROM THE STORAGE CELL FOOTPRINT.
2. FOLLOWING INITIAL SITE STRIPPING OF DELETERIOUS SOILS, AND PRIOR TO GRADING, AREAS IDENTIFIED FOR FILL PLACEMENT SHOULD BE COMPACTED. ANY SOFT AREAS SHOULD BE OVER-EXCAVATED AND BACKFILLED TO A MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD) USING GRANULAR BASE MATERIAL.
3. ALL FILL REQUIRED TO RAISE THE SUBGRADE ELEVATION SHOULD MEET THE REQUIREMENTS AS DEFINED IN SECTION 32 11 23 - AGGREGATE BASE COURSES.
4. FILL MATERIAL SHOULD BE PLACED IN LIFTS NOT EXCEEDING 150MM IN COMPACTED THICKNESS AND A MINIMUM DENSITY OF 98% SPMDD.
5. THE FINISHED SUBGRADE MUST BE FREE OF DEPRESSIONS.
6. THE CONTRACTOR SHALL ENSURE THAT LOCAL DRAINAGE PATTERNS ARE NOT ALTERED BY THE CONSTRUCTION.
7. CELL DYKES TO BE CONSTRUCTED USING GRANULAR BASE COURSE AS DEFINED IN SECTION 32 11 23, WITH 4:1 INTERIOR AND EXTERIOR SLOPES.



1 - PROPOSED CONTAMINATED SOIL STORAGE CELL PLAN

Scale 1:100



A - PROPOSED CROSS SECTION, LINER AND GEOTEXTILE DETAILS

Scale 1:50

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

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EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
A. FARROKHI

Drawn by / Dessiné par
G. LACOSTE

Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

CIVIL
CONTAMINATED SOIL STORAGE CELL PLAN, CROSS SECTION AND LOCATION PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-0009 OF	0

PWGSC – A1 – 841X594

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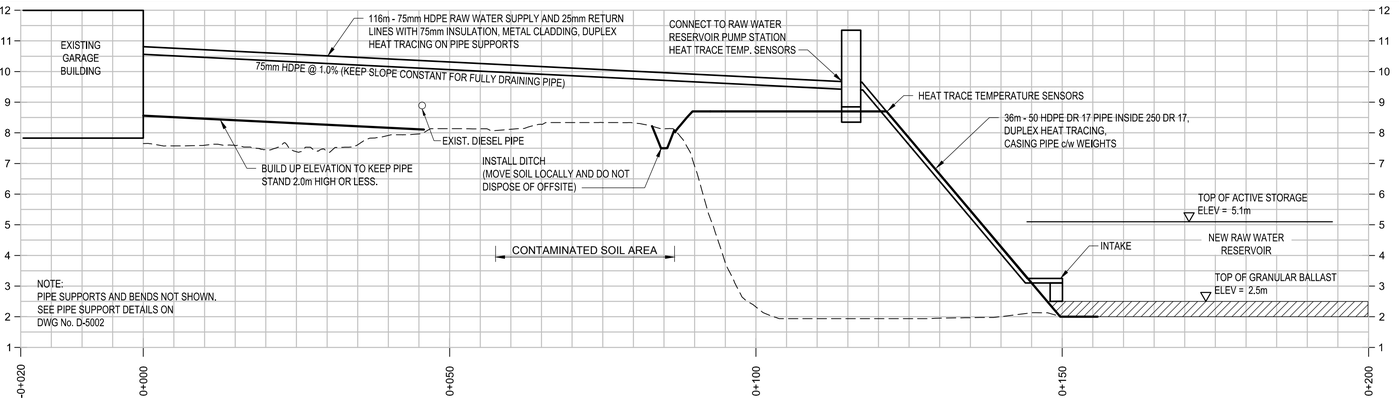
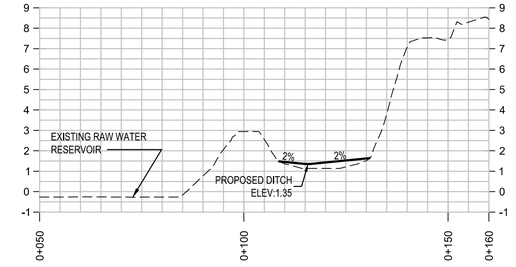
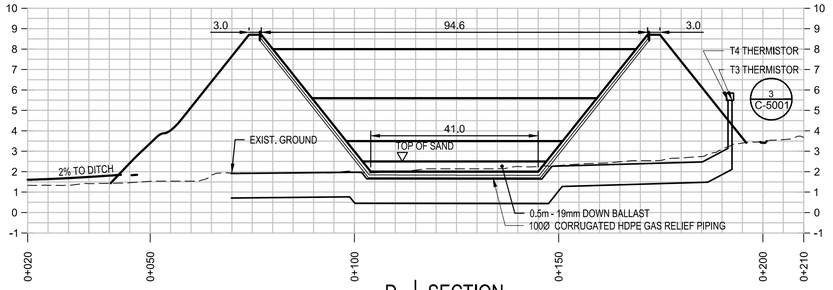


RAW WATER SUPPLY AND RETURN PIPE LINES PROFILE

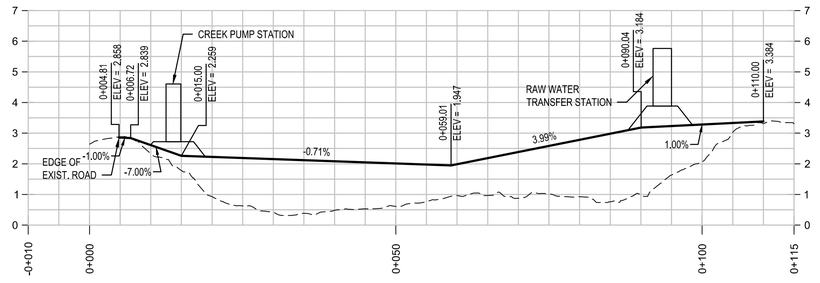
Scale Horz. 1:500
Vert. 1:100



E | SECTION
C-0003 | Scale Horz. 1:750 Vert. 1:150

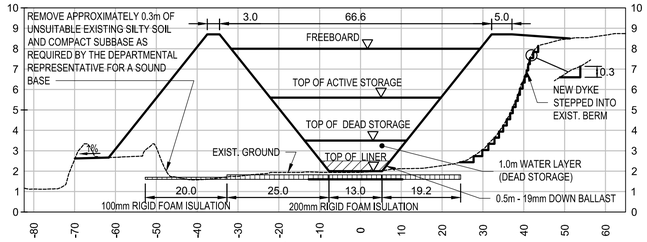


D | SECTION
C-0003 | Scale Horz. 1:750 Vert. 1:150

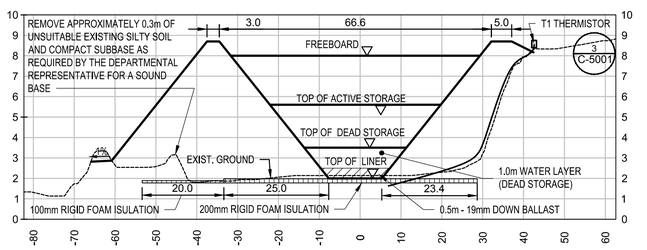


RAW WATER TRANSFER PUMP STATION ACCESS ROAD PROFILE

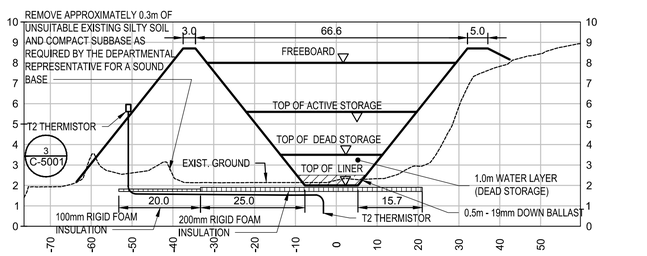
Scale Horz. 1:500
Vert. 1:100



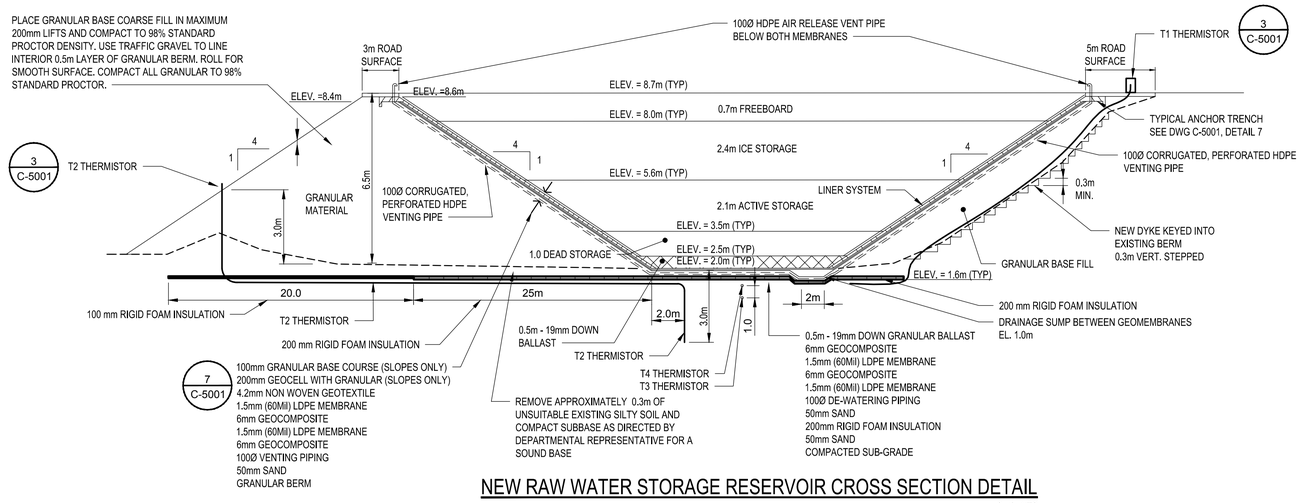
A | SECTION
C-0003 | Scale Horz. 1:750 Vert. 1:150



B | SECTION
C-0003 | Scale Horz. 1:750 Vert. 1:150



C | SECTION
C-0003 | Scale Horz. 1:750 Vert. 1:150



NEW RAW WATER STORAGE RESERVOIR CROSS SECTION DETAIL

Scale NTS

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
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EUREKA WATER AND SEWAGE SYSTEM

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Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
NEW RAW WATER STORAGE RESERVOIR PROFILES AND SECTIONS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-3001 OF	0

PWGSC – A1 – 841X594

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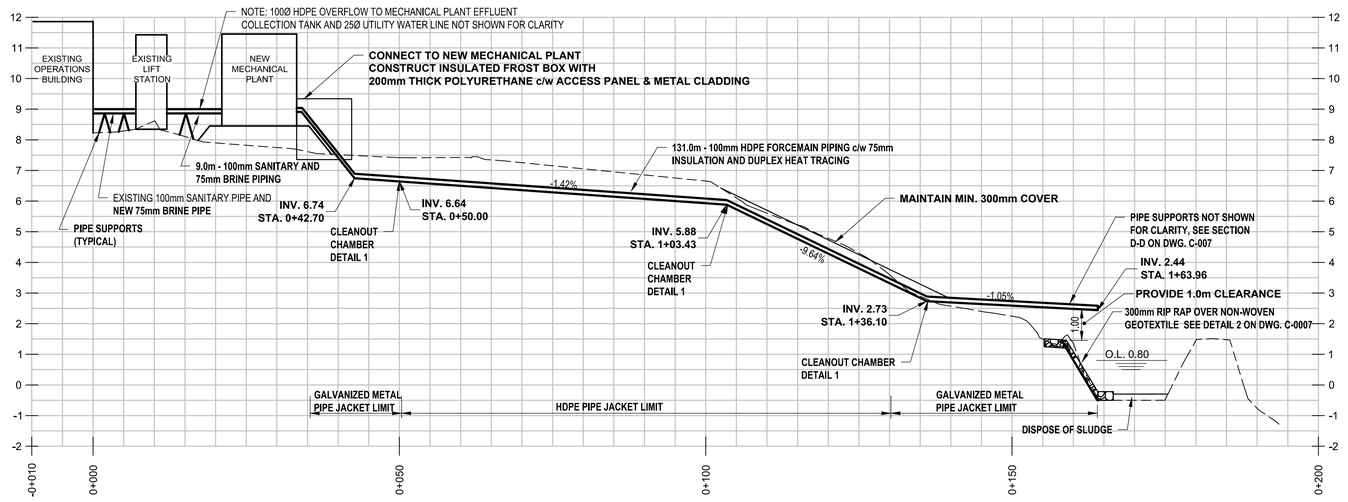
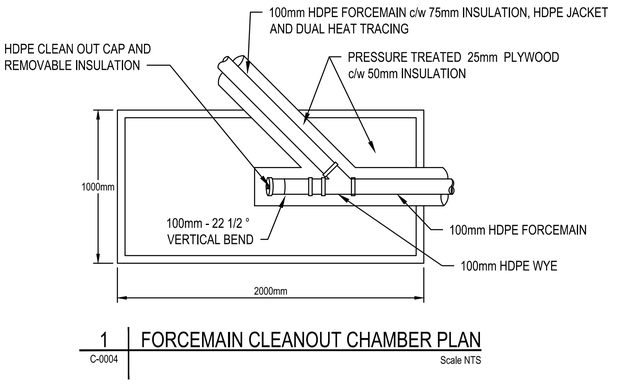
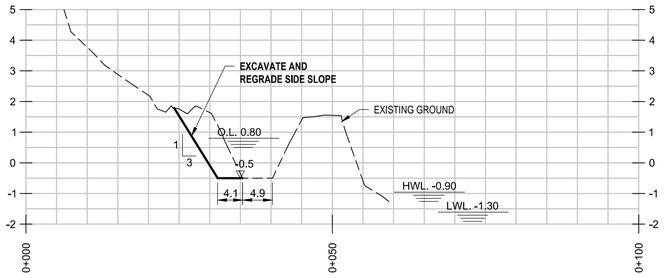


FINAL EFFLUENT FORCEMAIN PROFILE

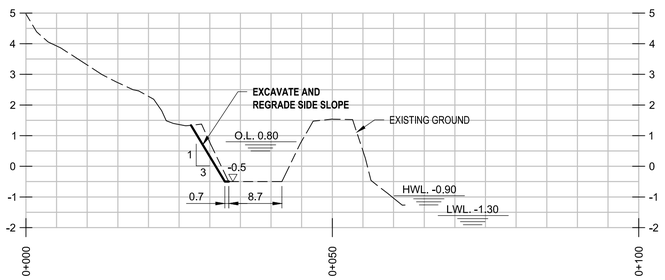
Scale 1:500
Vert. 1:100



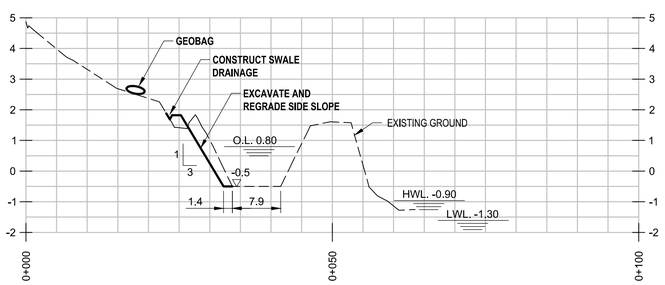
1 | C-0004 | FORCEMAIN CLEANOUT CHAMBER PLAN
Scale NTS



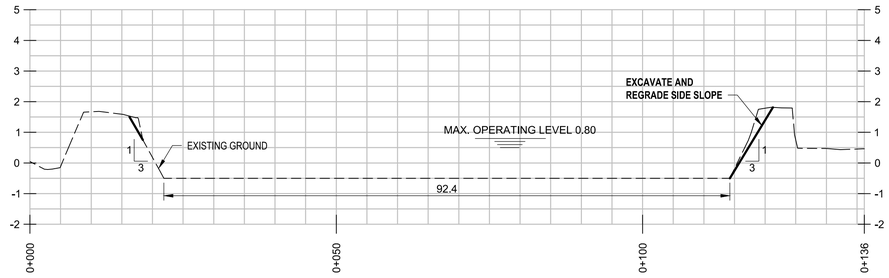
A | C-0004 | RETENTION BASIN SECTION
Scale Horz. 1:500
Vert. 1:100



B | C-0004 | RETENTION BASIN SECTION
Scale Horz. 1:500
Vert. 1:100



C | C-0004 | RETENTION BASIN SECTION
Scale Horz. 1:500
Vert. 1:100



D | C-0004 | RETENTION BASIN SECTION
Scale Horz. 1:500
Vert. 1:100

NOTES:
1. DISPOSE OF SLUDGE PRIOR TO REGRADING AND EXCAVATING RETENTION POND. SLUDGE TO BE DRAINED, DRIED AND INCINERATED AT LANDFILL.

2. DISPOSE OF EXTRA SOIL IN AREA AS SHOWN ON C-0004, EAST OF RETENTION BASIN.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER P.R. BARSALOU LICENSEE NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
5		
4		
3		
2		
1		
0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310-269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
UPGRADED RETENTION BASIN
PROFILES AND SECTIONS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-3002 OF	0

PWGSC – A1 – 841X594

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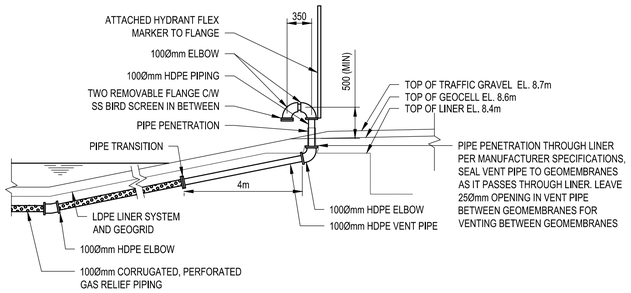
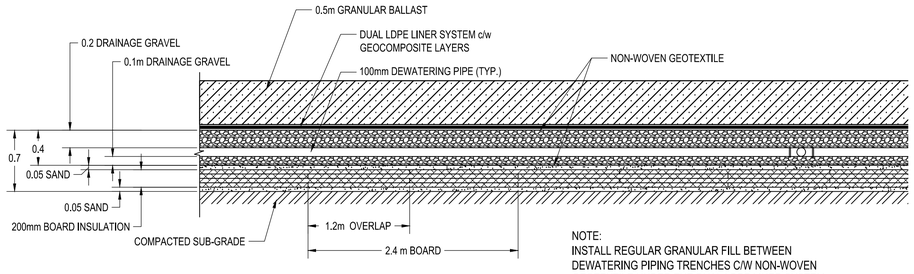
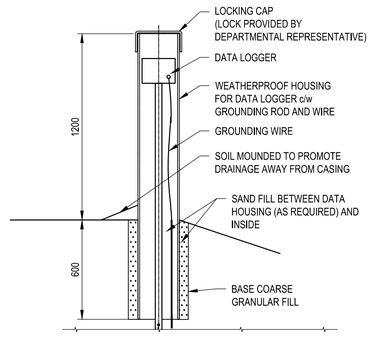


1 | GAS RELIEF SYSTEM DETAIL
C-0003 | Scale NTS

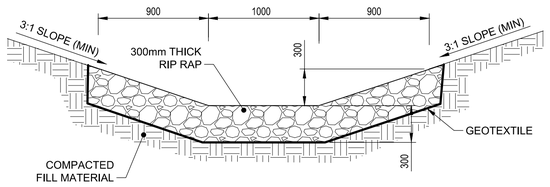


NOTE:
INSTALL REGULAR GRANULAR FILL BETWEEN DEWATERING PIPING TRENCHES C/W NON-WOVEN GEOTEXTILE UNDER THE DUAL LDPE LINER SYSTEM.

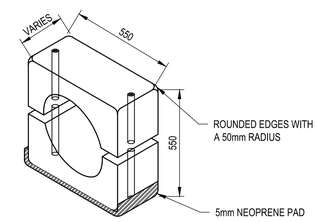
2 | BOARD INSULATION INSTALLATION DETAIL
C-3001 | Scale NTS



3 | DATA LOGGER DETAIL
N.T.S

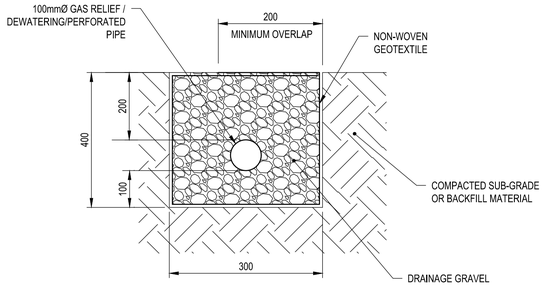


DITCH RIP-RAP DETAIL
Scale NTS

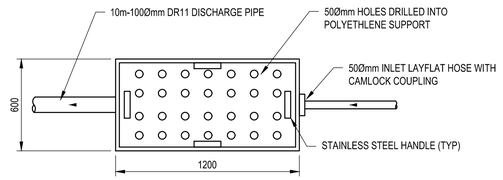


NOMINAL PIPE SIZE	APPROX. WEIGHT IN AIR	APPROX. WEIGHT IN WATER	SPACING	LOCATION
250 PIPE AND 50mm INSULATION (NOMINAL SIZE 350mm)	135 kg	80 kg	1.5m	INTAKE PIPE
250 PIPE WITHOUT INSULATION	100 kg	60 kg	1.5m	INTAKE PIPE

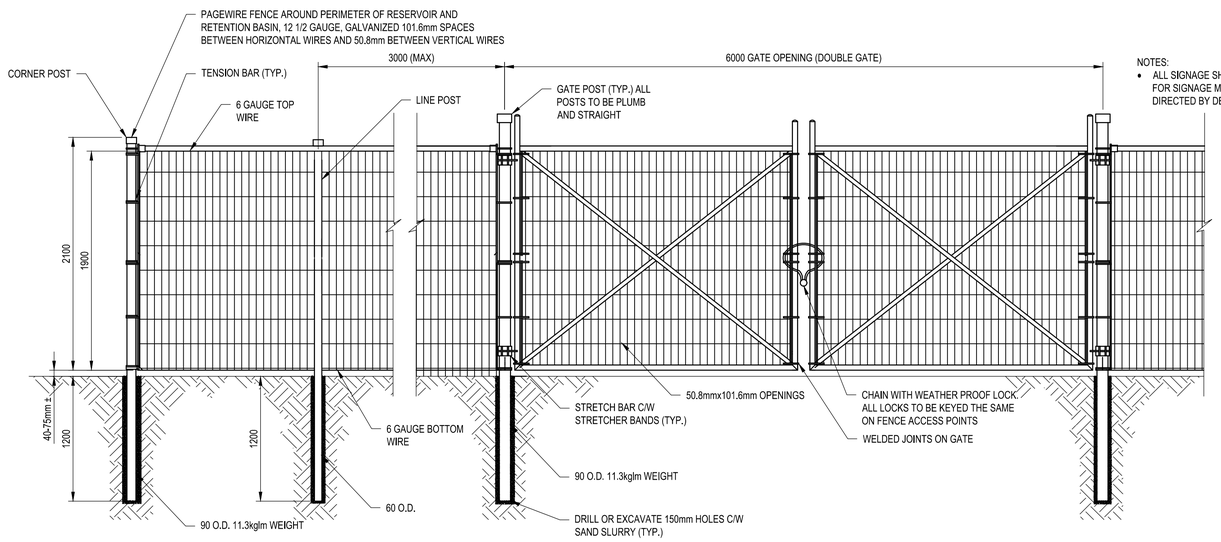
6 | PRECAST CONCRETE COLLAR WEIGHT DETAIL
C-0006 | Scale NTS



GAS RELIEF/DEWATERING PIPING
4 | TRENCH INSTALLATION DETAIL
C-0003 | Scale NTS



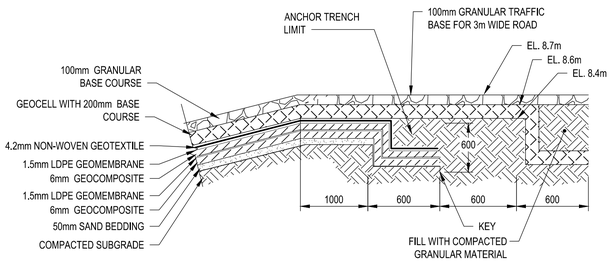
5 | HYDROCARBON COLLECTION DETAIL
C-0003 | Scale 1:20



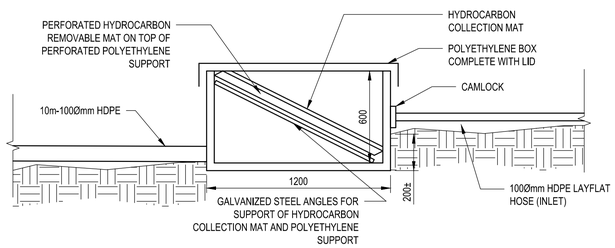
NOTES:
- ALL SIGNAGE SHALL BE IN ACCORDANCE WITH SECTION 10 14 53 FOR SIGNAGE MATERIAL AND INSTALLATION DETAILS AND AS DIRECTED BY DEPARTMENT REPRESENTATIVE

8 | TYPICAL FENCE DETAIL
C-0003 | Scale NTS

NOTE: PERSON GATES TO BE 1200mm WIDE GATE POSTS, WITH CHAIN LOCK , HINGES, GATE BRACING AND DROP LATCH



7 | TYPICAL ANCHOR TRENCH
Scale NTS



A-A | HYDROCARBON COLLECTION SECTION
C-0003 | Scale 1:20

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
P.R. BARSALOU
LICENSEE
NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

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Client / client

Public Works and Government Services Canada

310-269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **L. CHUNDEROVA**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
GENERAL
CIVIL DETAILS
SHEET 1 OF 2

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-5001 OF	0

PWGSC – A1 – 841X594

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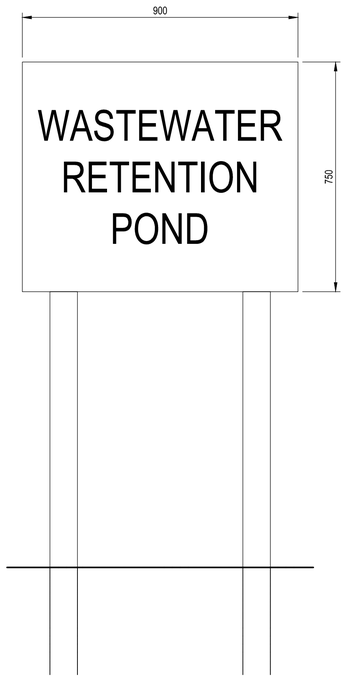
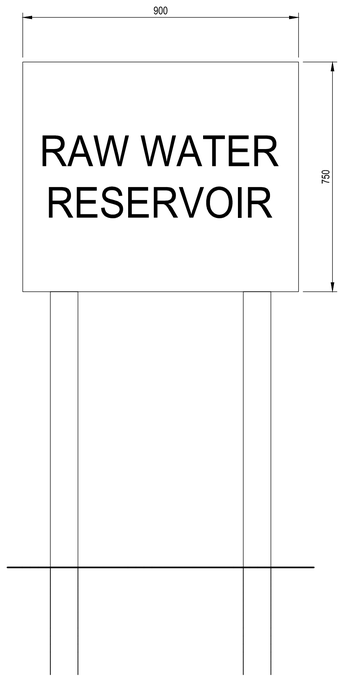
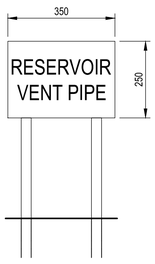
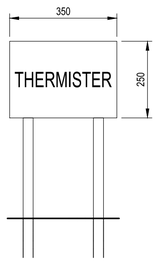


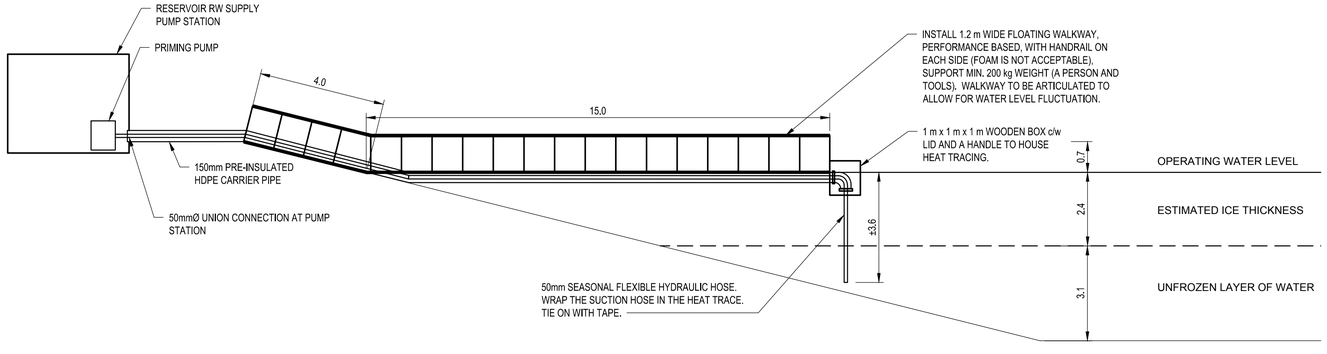




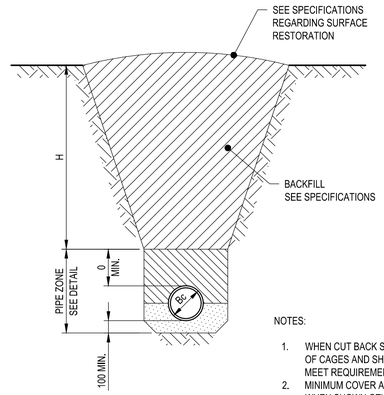


NOTE:
- ALL SIGNAGE SHALL BE IN ACCORDANCE WITH SECTION 10 14 53 FOR SIGNAGE MATERIAL AND INSTALLATION DETAILS AND AS DIRECTED BY DEPARTMENT REPRESENTATIVE

SIGNAGE
Scale N.T.S.

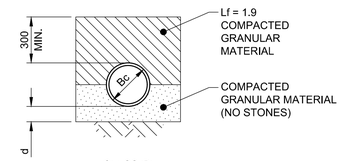


TEMPORARY INTAKE DETAIL
Scale 1:100



NOTES:
1. WHEN CUT BACK SLOPES ARE TO BE USED IN LIEU OF CAGES AND SHORING, THESE SLOPES ARE TO MEET REQUIREMENTS OF LOCAL CODES.
2. MINIMUM COVER ABOVE PIPE IS 3.5m EXCEPT WHEN SHOWN OTHERWISE
3. Bc = OUTSIDE PIPE DIAMETER

9 | TRENCH
\- | Scale N.T.S.



CLASS 'B'

LEGEND:
H = TRENCH DEPTH ABOVE BEDDING ZONE
Bc = OUTSIDE PIPE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE (100mm MIN., 150mm IN ROCK)
As = AREA OF TRANSVERSE STEEL IN THE CRADLE OR ARCH EXPRESSED AS A PERCENTAGE OF AREA OF CONCRETE AT INVERT OR CROWN
Lf = LOAD FACTOR

10 | PIPE ZONE
\- | Scale N.T.S.

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
P.R. BARSALOU
LICENSEE
NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
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Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

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Client / client

Public Works and Government Services Canada

310-269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **L. CHUNDEROVA**
Drawn by / Dessiné par: **G. LACOSTE**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

CIVIL
GENERAL
CIVIL DETAILS
SHEET 2 OF 2

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	C-5002 OF	0

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

WASTEWATER TREATMENT PLANT AND PUMP HOUSES LOCATION PLAN

Scale 1:1000

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
J.K. CARTMELL
LICENSEE
NTI/NU
2020.6.19

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

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Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **G.G. PROFETA**
Drawn by / Dessiné par: **D. LANDERS**
Approved by / Approuvé par: **R. MERKOSKY**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

STRUCTURAL
PACKAGED WASTEWATER TREATMENT PLANT
AND PUMP STATIONS
LOCATION PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-0001 OF	0

PWGSC – A1 – 841X594

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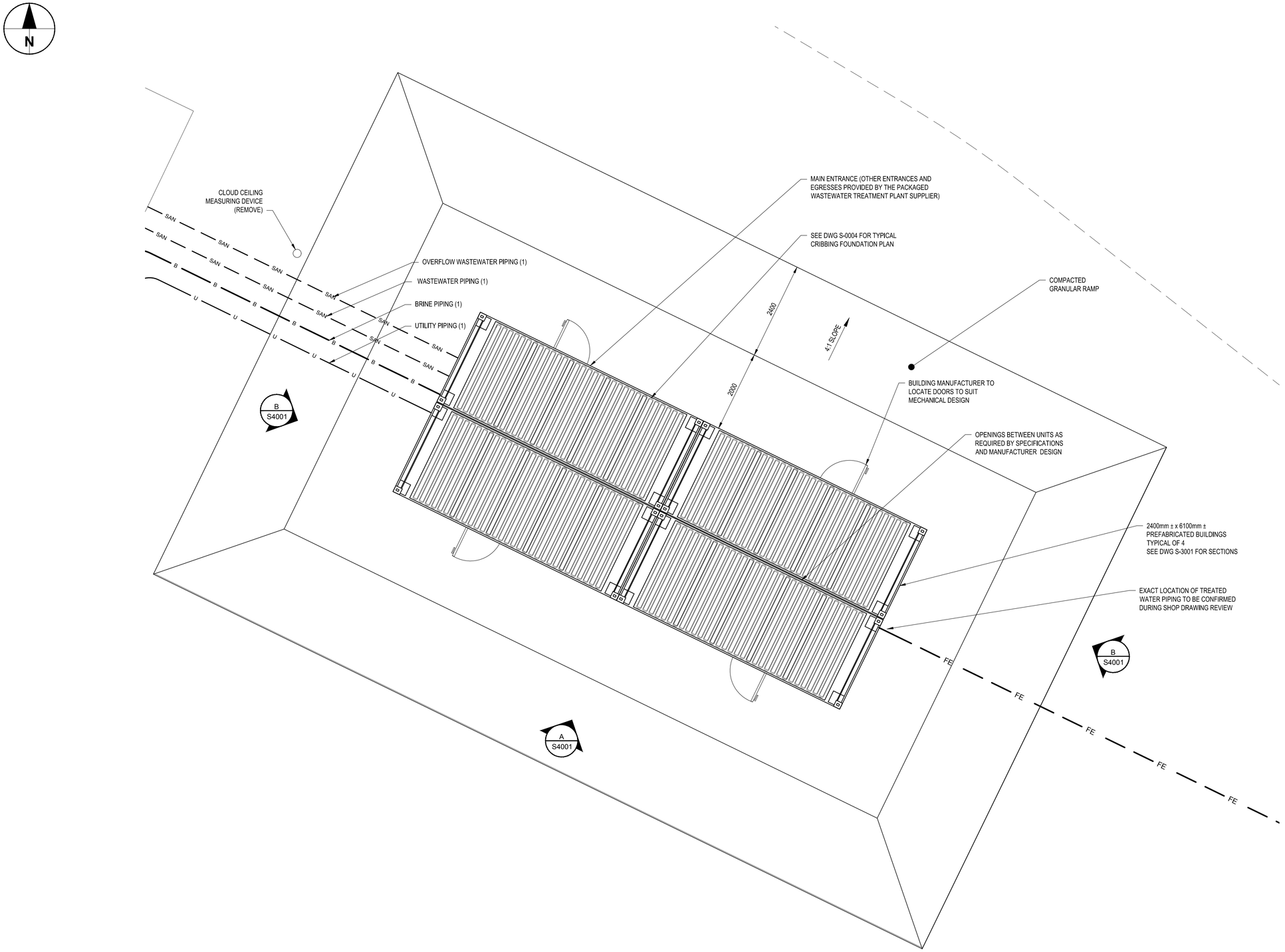

1 WASTEWATER MECHANICAL PLANT PLAN

Scale 1:50

0 1250 2500 mm

NOTES;

1. EXACT LOCATIONS OF INCOMING PIPING TO BE DETERMINED DURING SHOP DRAWING REVIEW.
2. 4 PREFABRICATED BUILDINGS ARE SHOWN, HOWEVER THIS MAY BE REDUCED IF THE CONTRACTOR CAN PROVIDE FEWER LARGER CONTAINERS OR IF LESS SPACE IS REQUIRED.
3. BUILDINGS TO BE LEVELED AND FASTENED TOGETHER.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
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REGISTERED PROFESSIONAL ENGINEER J.K. CARTMELL LICENSEE NT/NU 2020.6.19

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Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **G.G. PROFETA**
Drawn by / Dessiné par: **D. LANDERS**
Approved by / Approuvé par: **R. MERKOSKY**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

STRUCTURAL
PACKAGED WASTEWATER TREATMENT PLANT
PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-0002 OF	0

PWGSC – A1 – 841X594

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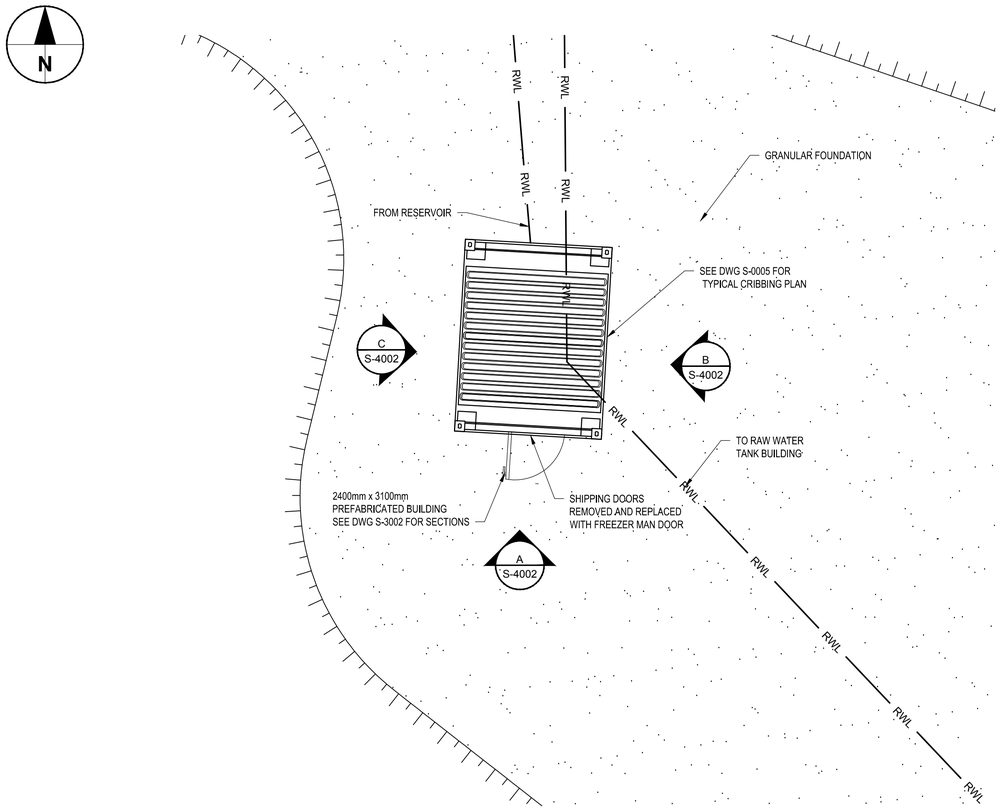
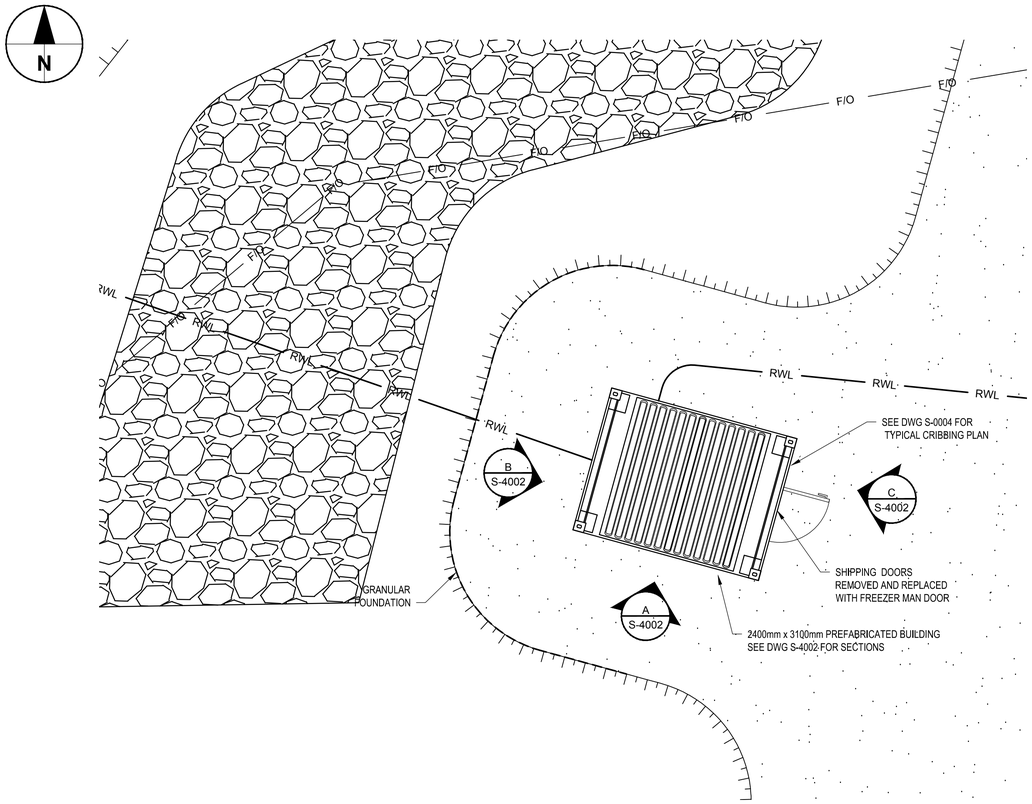


1 | RESERVOIR PUMP STATION PLAN

SCALE 1:50

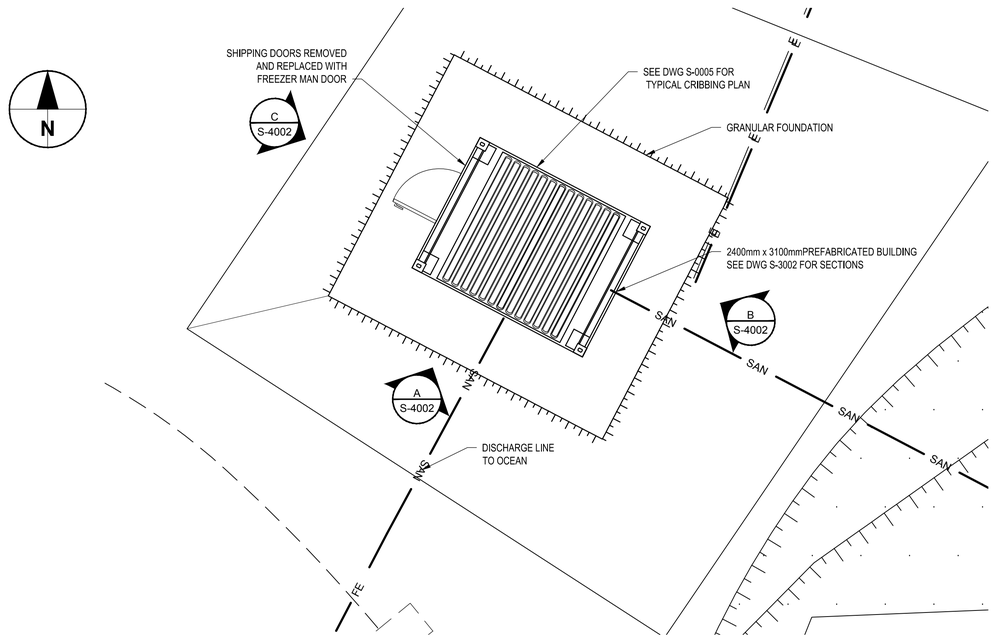
0 1250 2500 mm



2 | CREEK PUMP STATION PLAN

SCALE 1:50

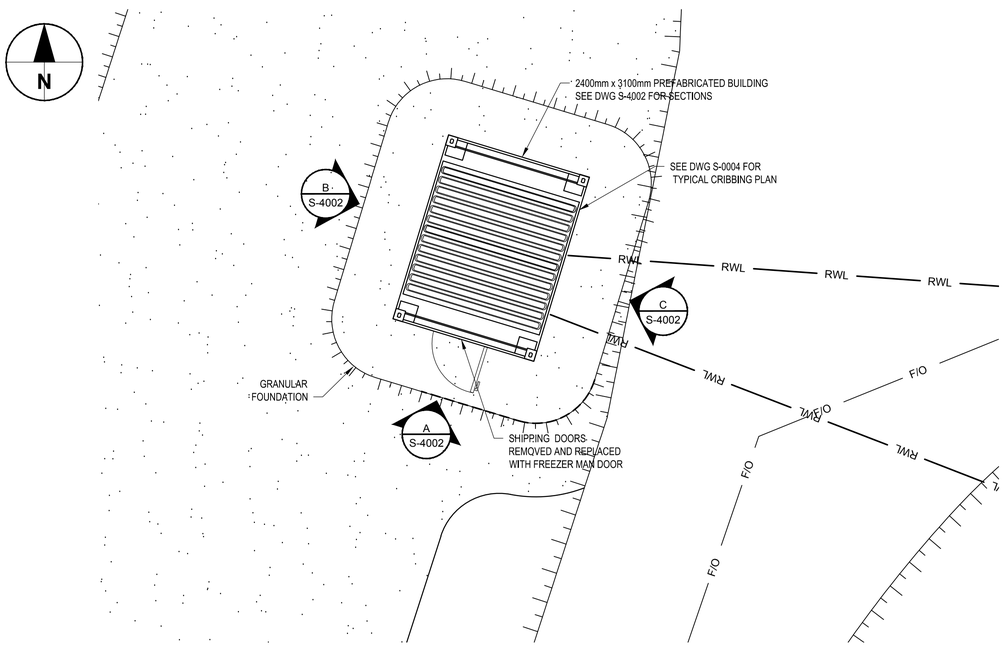
0 1250 2500 mm



3 | RETENTION BASIN PUMP STATION PLAN (WASTEWATER)

SCALE 1:50

0 1250 2500 mm



4 | RAW WATER TRANSFER STATION

SCALE 1:50

0 1250 2500 mm

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

PROFESSIONAL ENGINEER
J.K. CARTMELL
LICENSEE
NT/NU
2020.6.19

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Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **G.G. PROFETA**

Drawn by / Dessiné par: **D. LANDERS**

Approved by / Approuvé par: **R. MERKOSKY**

PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

STRUCTURAL
CREEK, RAW WATER AND RETENTION BASIN PUMP STATIONS PLANS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-0003 OF	0

PWGSC – A1 – 841X594

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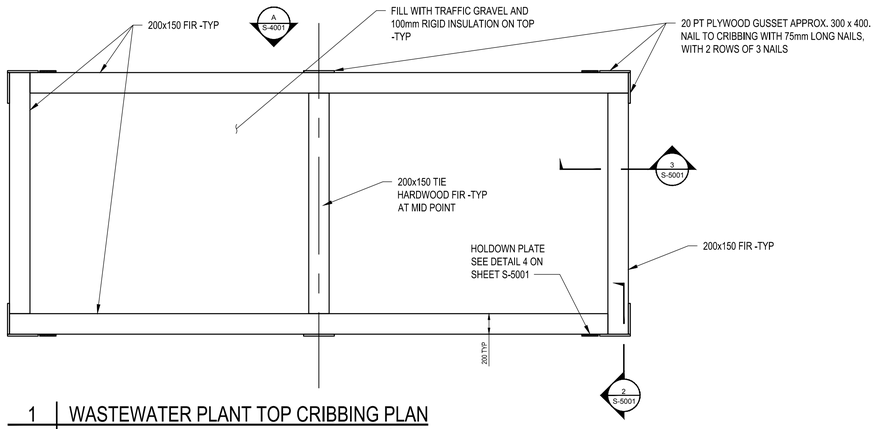
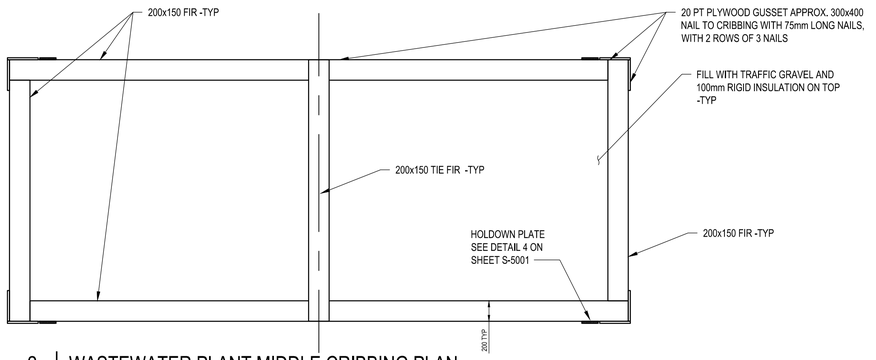


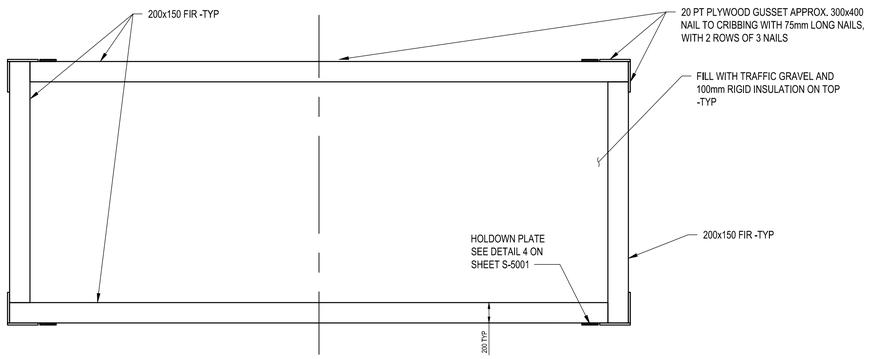
1 | WASTEWATER PLANT TOP CRIBBING PLAN

Scale 1:30



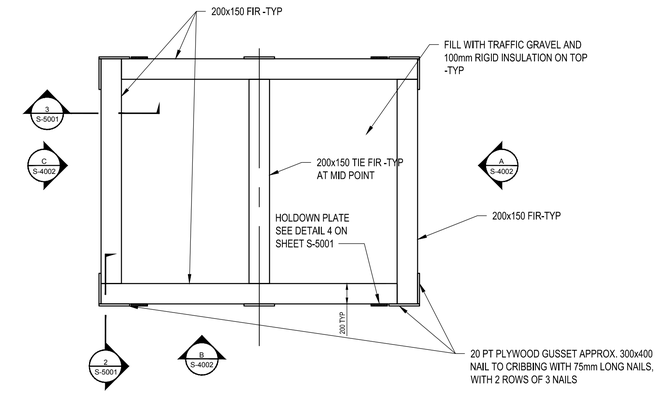
2 | WASTEWATER PLANT MIDDLE CRIBBING PLAN

Scale 1:30



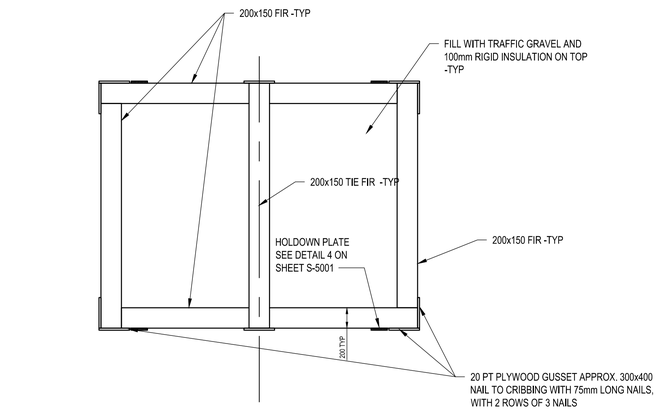
2 | WASTEWATER PLANT LOWER CRIBBING PLAN

Scale 1:30



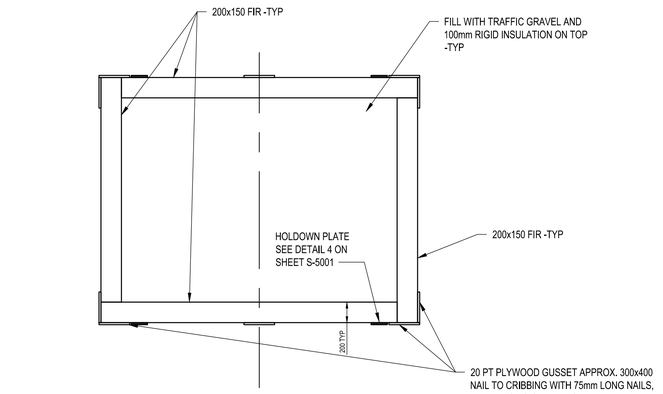
4 | PUMP STATION TOP CRIBBING PLAN

Scale 1:30



5 | PUMP STATION MIDDLE CRIBBING PLAN

Scale 1:30



6 | PUMP STATION LOWER CRIBBING PLAN

Scale 1:30

0 750 1500 mm

DRAWING NOTE:

1. CRIBBING TYPICAL FOR CREEK PUMP HOUSE, RAW WATER PUMP HOUSE AND RETENTION BASIN PUMP HOUSE
2. SIZES TO MATCH ACTUAL DIMENSIONS OF PREFABRICATED BUILDINGS
3. SEE DWG S-5001 FOR ANCHORING SYSTEM

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
2020.6.19
J.K. CARTMELL
LICENSEE
NT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
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0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **G.G. PROFETA**
Drawn by / Dessiné par: **D. LANDERS**
Approved by / Approuvé par: **R. MERKOSKY**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

STRUCTURAL
PACKAGED WASTEWATER TREATMENT PLANT AND PUMP STATION CRIBBING PLANS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-0004 OF	0

PWGSC – A1 – 841X594

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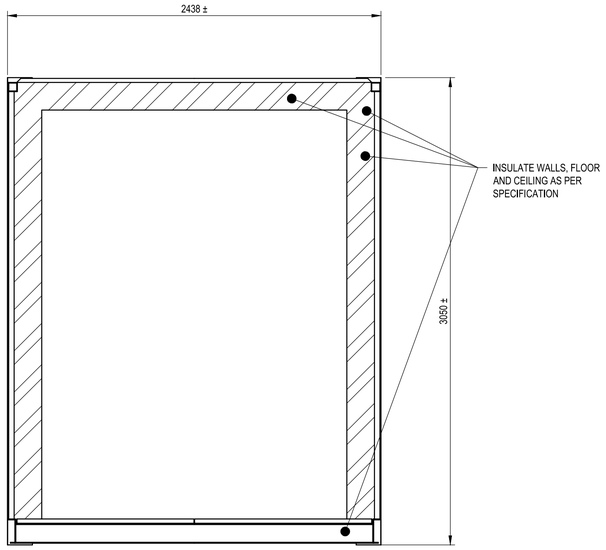
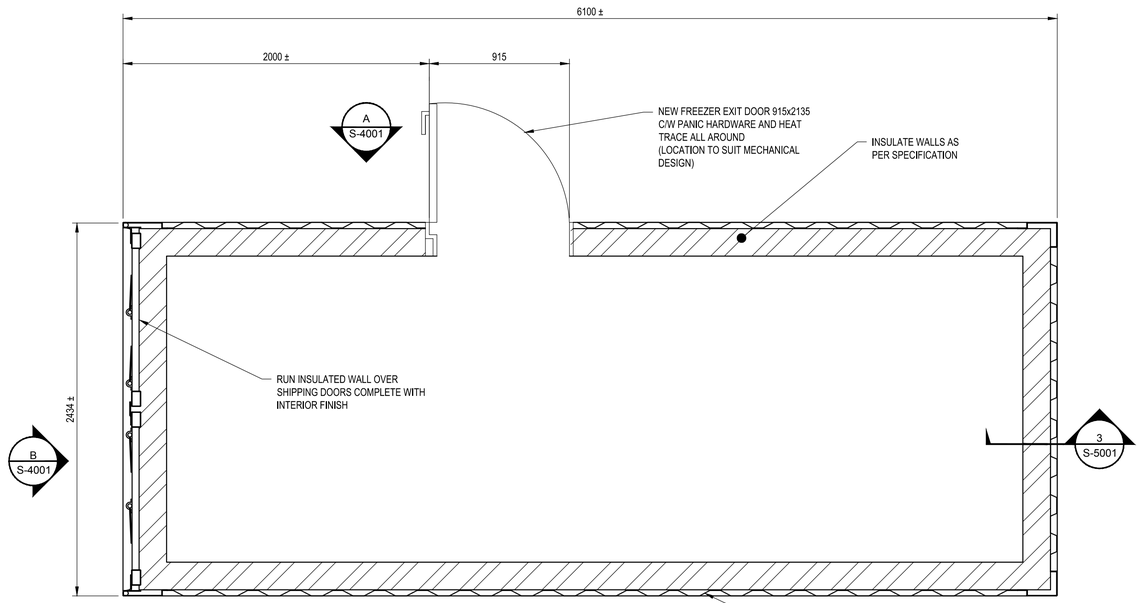


A-A | TYPICAL WASTEWATER MECHANICAL PLANT SECTION

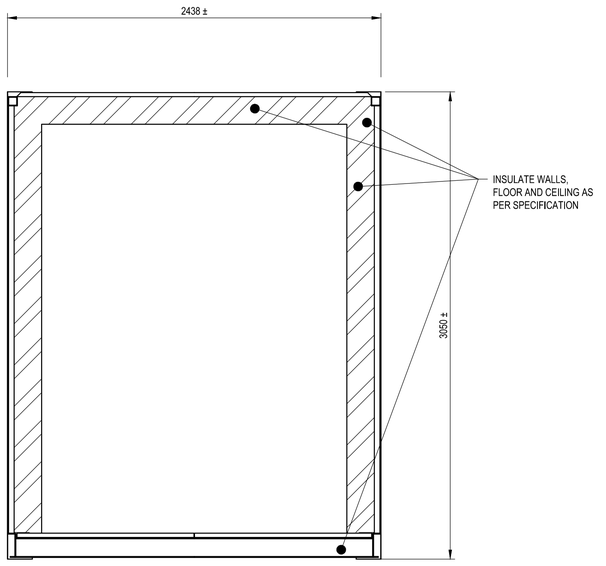
Scale 1:20



WASTEWATER MECHANICAL PLANT INTERIOR PLAN

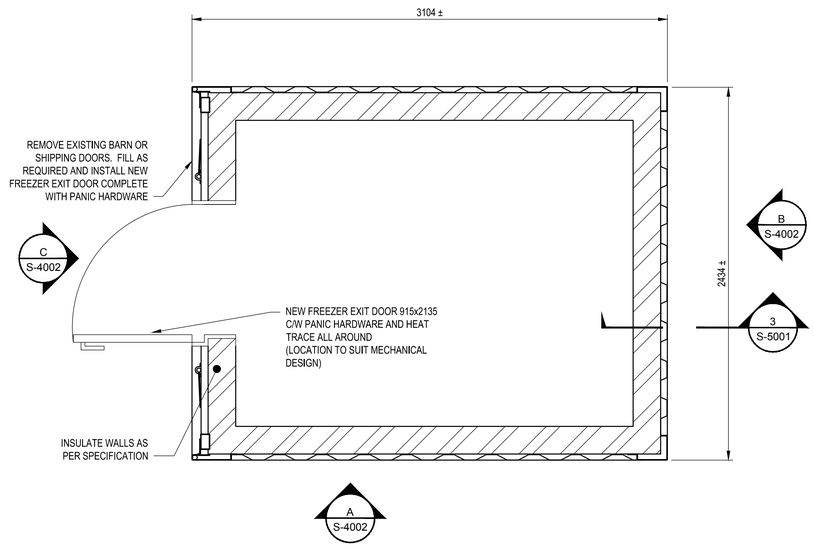
NOTE: MOVE LOCATION OF ENTRANCE AND EGRESS BASED ON DESIGN OF PACKAGED WASTEWATER TREATMENT PLANT.

Scale 1:20



B-B | TYPICAL PUMP STATION SECTION

Scale 1:20



TYPICAL PUMP STATION INTERIOR PLAN

Scale 1:20

0 500 1000 mm

DRAWING NOTES:

1. SECTIONS TYPICAL FOR, PACKAGED WASTEWATER TREATMENT PLANT, CREEK PUMP HOUSE, RESERVOIR PUMP HOUSE AND RETENTION BASIN PUMP HOUSE
2. INTERMODAL UNITS ARE PURCHASED ITEMS AND ARE DESIGNED AND DETAILED BY VENDOR BASED ON PERFORMANCE SPECIFICATIONS TO CREATE A PREFABRICATED BUILDING.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
J.K. CARTMELL
LICENSED
NT/NU
2020.6.19

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
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Public Works and Government Services Canada

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NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
G.G. PROFETA

Drawn by / Dessiné par
D. LANDERS

Approved by / Approuvé par
R. MERKOSKY

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

STRUCTURAL
PACKAGED WASTEWATER TREATMENT PLANT AND TYPICAL PUMP STATION
PLANS AND SECTIONS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-3001 OF	0

PWGSC – A1 – 841X594

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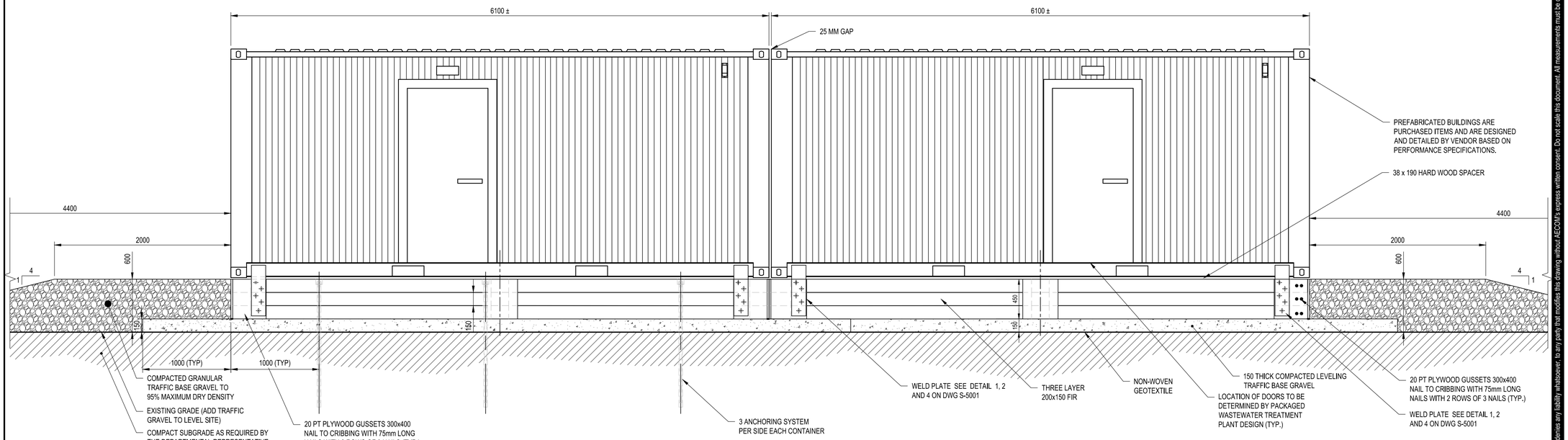
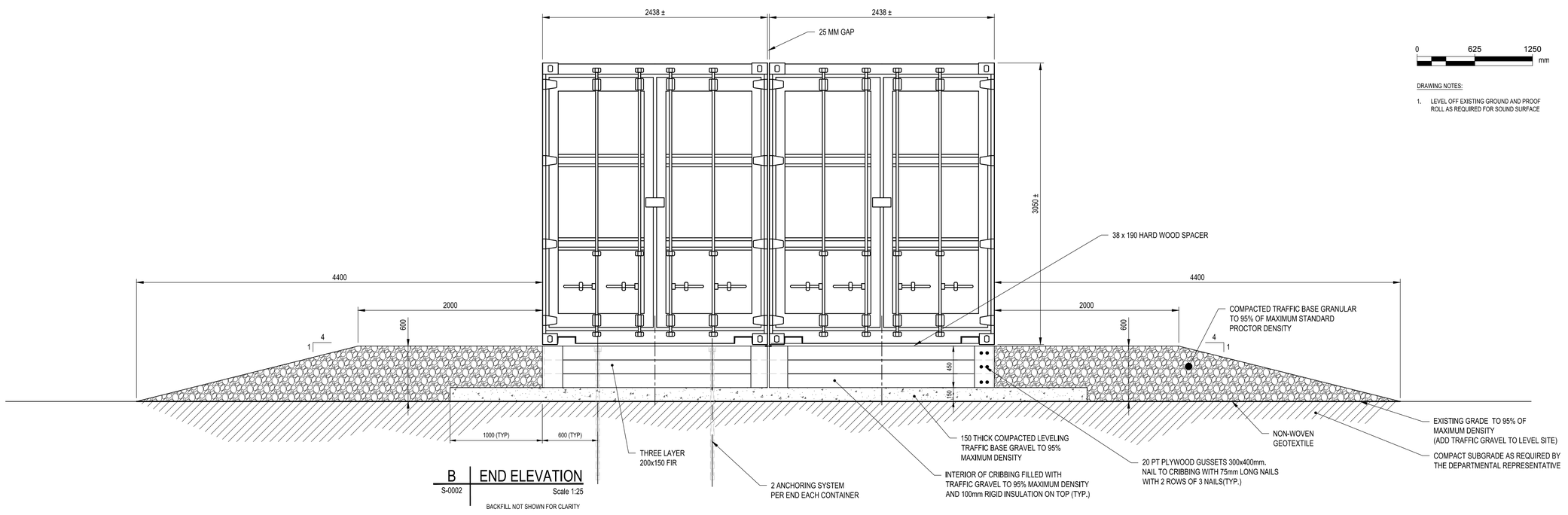


A | SIDE ELEVATION



B | END ELEVATION
S-0002
Scale 1:25

BACKFILL NOT SHOWN FOR CLARITY

0 625 1250 mm

DRAWING NOTES:

1. LEVEL OFF EXISTING GROUND AND PROOF ROLL AS REQUIRED FOR SOUND SURFACE

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
2020.6.19
J.K. CARTMELL
LICENSEE
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Public Works and Government Services Canada

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Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
G.G. PROFETA

Drawn by / Dessiné par
D. LANDERS

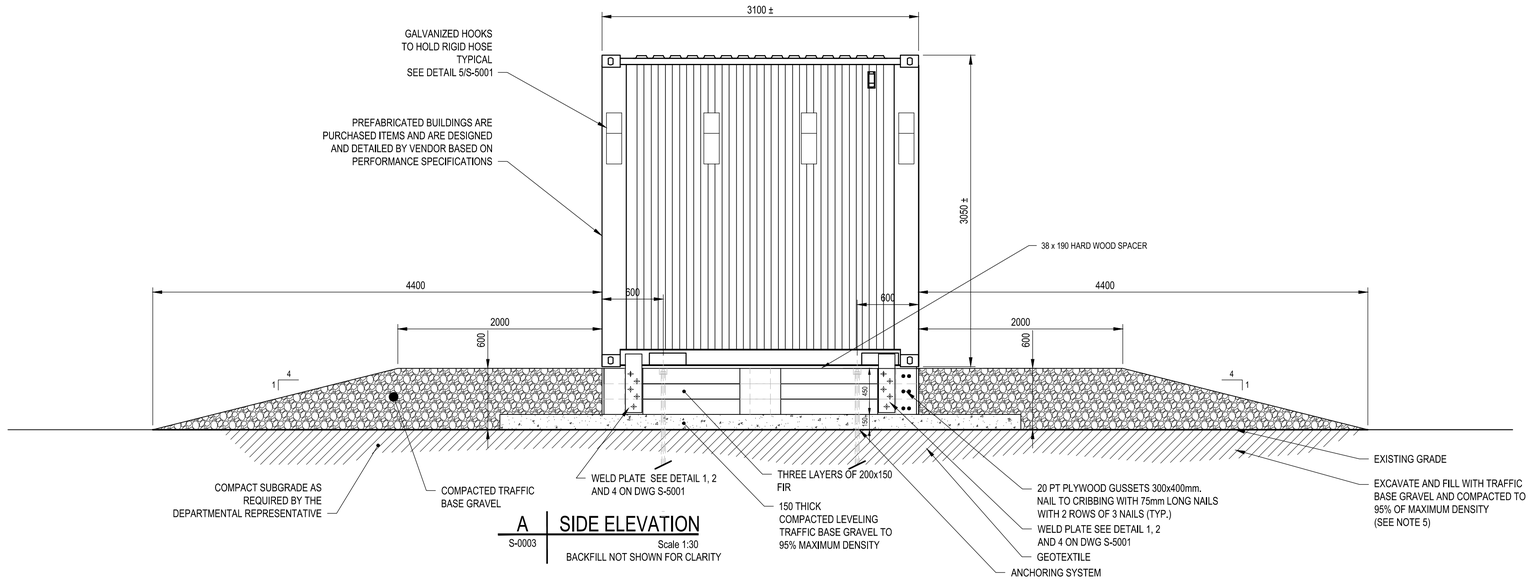
Approved by / Approuvé par
R. MERKOSKY

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

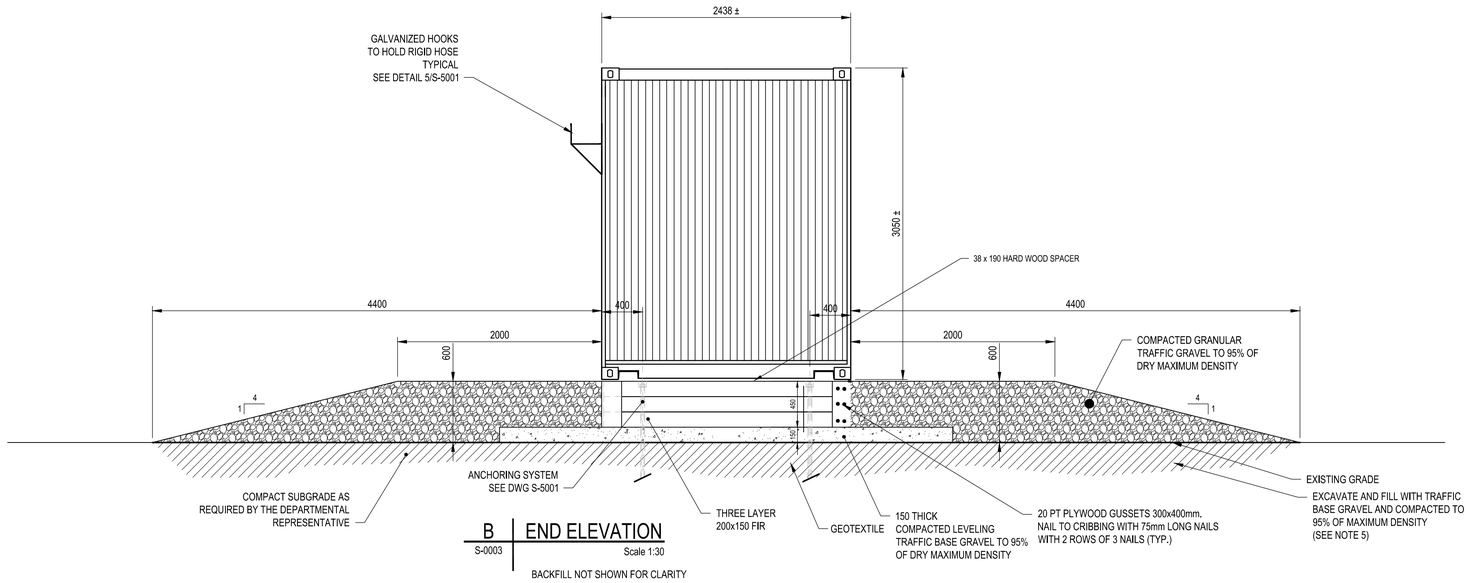
Drawing title / Titre du dessin

STRUCTURAL
PACKAGED WASTEWATER TREATMENT PLANT
ELEVATIONS

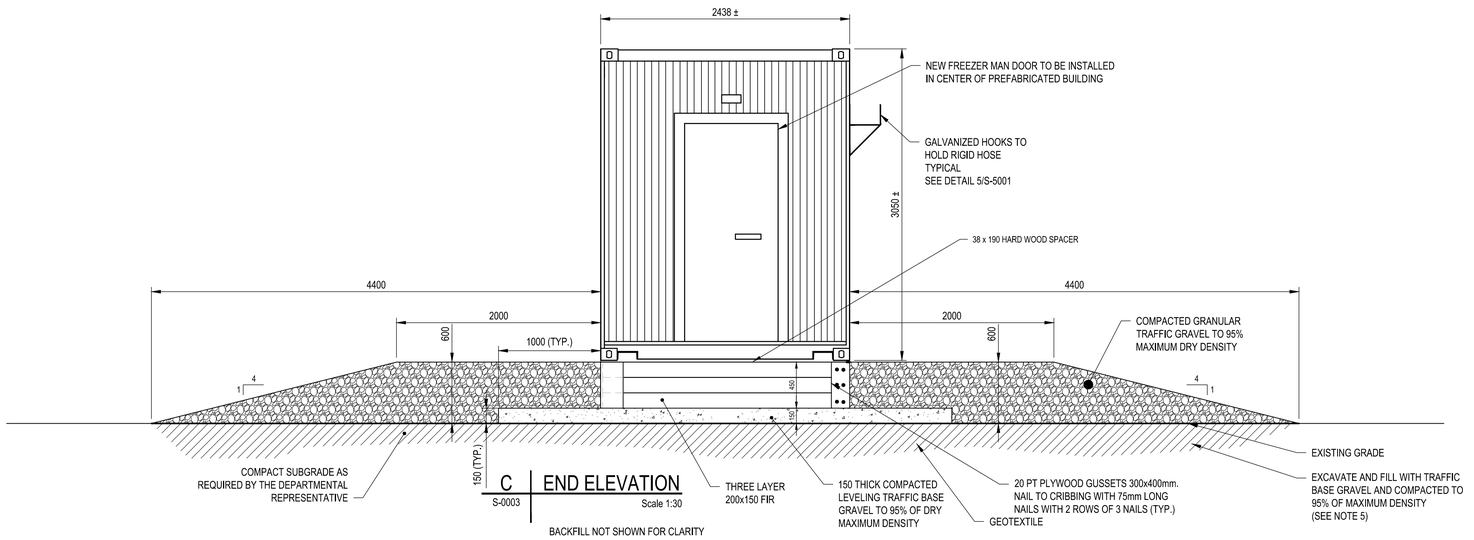
Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-4001 OF	0



A | SIDE ELEVATION
S-0003 — Scale 1:30
BACKFILL NOT SHOWN FOR CLARITY



B | END ELEVATION
S-0003 — Scale 1:30
BACKFILL NOT SHOWN FOR CLARITY



C | END ELEVATION
S-0003 — Scale 1:30
BACKFILL NOT SHOWN FOR CLARITY

0 10 20 30 40 50 60 70 80 90 100mm

0 750 1500 mm

DRAWING NOTES:

1. ELEVATIONS TYPICAL FOR RESERVOIR PUMP HOUSE AND DETENTION BASIN PUMP HOUSE.
2. INTERMODAL UNITS ARE PURCHASED ITEMS AND ARE DESIGNED AND DETAILED BY VENDOR BASED ON PERFORMANCE SPECIFICATIONS.
3. INTERIOR OF CRIBBING FILLED WITH TRAFFIC GRAVEL TO 90% MAXIMUM DENSITY AND 100mm RIGID INSULATION ON TOP (TYP.)
4. ELECTRICAL AND PIPING NOT SHOWN.
5. GRANULAR FOUNDATION PAD CONSTRUCTED FOR THE RESERVOIR PUMP HOUSE WILL BE INCORPORATED INTO THE BERM CROSS SECTION AND WILL NOT BE ELEVATED BY 600mm ABOVE GRADE. SEE DRAWING C-0006 FOR DETAILS.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER — J.K. CARTMELL — LICENSEE — NT/NU — 2020.6.19

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

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0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

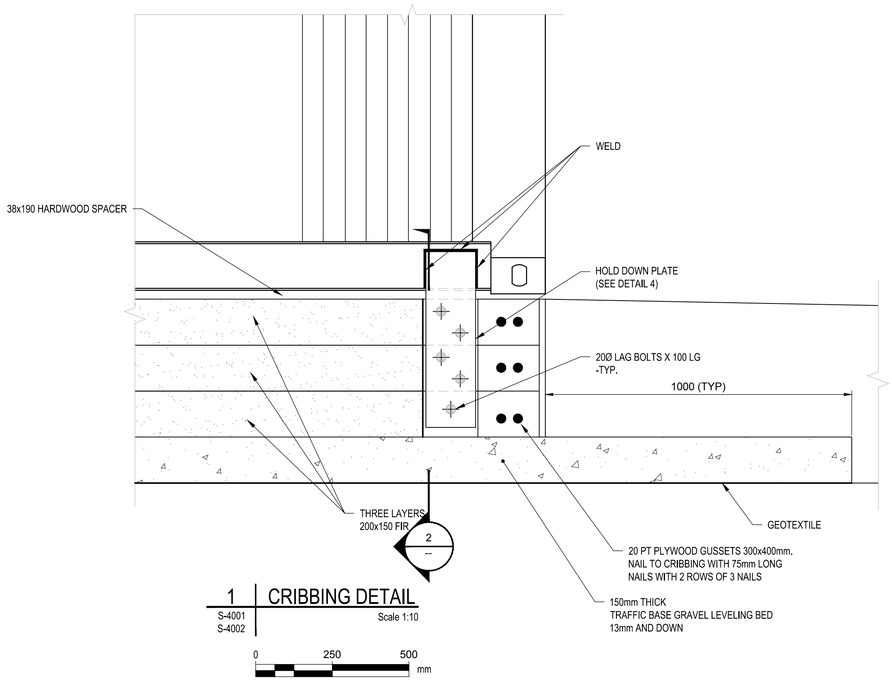
Designed by / Conçu par: **G.G. PROFETA**
Drawn by / Dessiné par: **D. LANDERS**
Approved by / Approuvé par: **R. MERKOSKY**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

STRUCTURAL
RESERVOIR AND RETENTION BASIN PUMP STATION ELEVATIONS

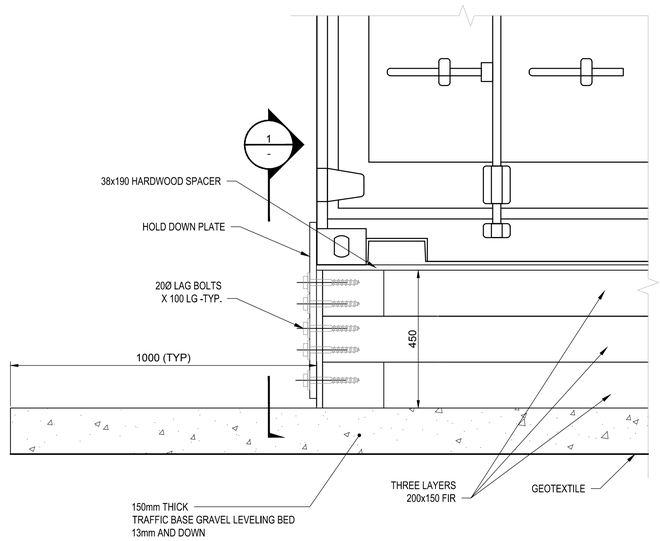
Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-4002 OF	0

PWGSC – A1 – 841X594

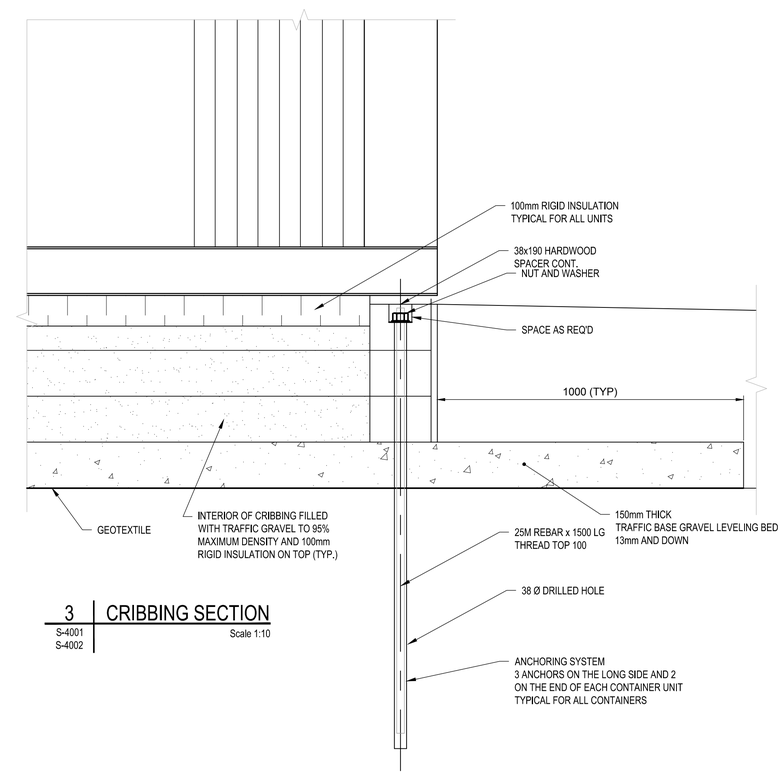


1 | CRIBBING DETAIL
S-4001, S-4002 — Scale 1:10

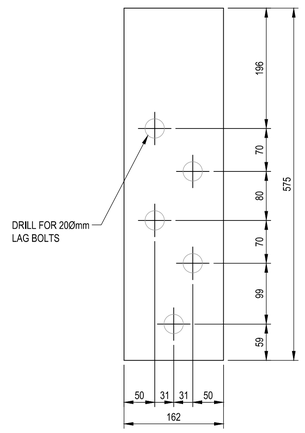
0 250 500 mm



2 | CRIBBING DETAILS
S-4001, S-4002 — Scale 1:10

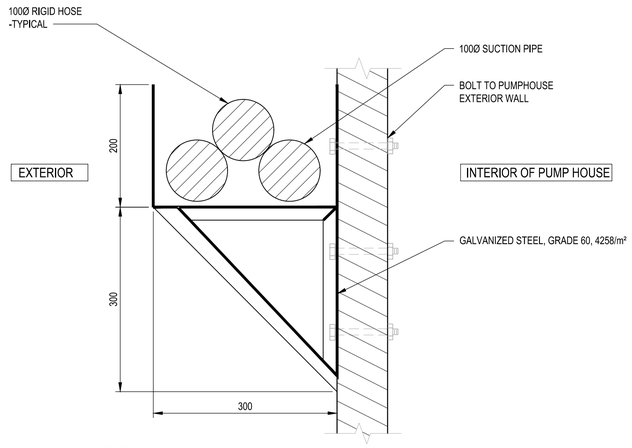


3 | CRIBBING SECTION
S-4001, S-4002 — Scale 1:10



4 | HOLD DOWN WELD PLATE DETAIL
S-4001, s-4002 — Scale 1:5

0 125 250 mm



NOTES:

1. ALL STEEL HOT DIPPED GALVANIZED AFTER FABRICATION.
2. SECURE WITH APPROVED ANCHORS TO MATCH WALL CONSTRUCTION.

5 | TYPICAL SUPPORT FOR RIGID HOSE STORAGE
C-0007 — Scale 1:5

DRAWING NOTES:

1. DETAILS TYPICAL FOR PACKAGED WASTEWATER TREATMENT PLANT, CREEK PUMP HOUSE, RESERVOIR PUMP HOUSE AND RETENTION BASIN PUMP HOUSE
2. GROUT FOR THE ANCHORS INTO THE GROUND SHOULD BE SIKAGROUT ARCTIC 100 OR EQUAL (CONFIRM GROUND TEMPERATURE TO MANUFACTURERS LIMITS).
3. ALL FASTENERS (NAILS AND LAG SCREWS) TO BE HOT DIPPED GALVANIZED.

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
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Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
J.K. CARTMELL
LICENSEE
NT/NU
2020.6.19

PERMIT TO PRACTICE
AECOM Canada Ltd.
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0	ISSUED FOR TENDER	2020/06/19

Client: Public Works and Government Services Canada
310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet: NUNAVUT EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: G.G. PROFETA
Drawn by / Dessiné par: D. LANDERS
Approved by / Approuvé par: R. MERKOSKY
PWGSC Project Manager / Administrateur de Projets TPSGC: M. MOGAN

Drawing title / Titre du dessin:

STRUCUTRAL PACKAGED WASTEWATER TREATMENT PLANT AND PUMP STATIONS CRIBBING DETAILS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	S-5001 OF	0

VALVE SYMBOLS

SYMBOL - TYPE - ABBREVIATION		
	BALL VALVE (N.O.)	BV
	BALL VALVE (N.C.)	BV
	CHECK VALVE	CV
	BUTTERFLY VALVE	BFV
	PLUG VALVE (N.O.)	PV
	PLUG VALVE (N.C.)	PV
	GATE VALVE (N.O.)	GV
	GATE VALVE (N.C.)	GV
	BALL CHECK VALVE	BCV
K	KNIFE GATE VALVE	KV
	NEEDLE VALVE	NV
	GLOBE VALVE	GLV
	BACKFLOW PREVENTER	BFP
	BALANCING DAMPER	BD
	DOUBLE LEAF CHECK VALVE	CV
	DUCKBILL CHECK VALVE	DCV
	PINCH VALVE	PNV
	TELESCOPIC VALVE	TSV
	DIAPHRAGM VALVE	DV
	MUD VALVE	MDV
	FLOAT VALVE	FV

SYMBOL - TYPE - ABBREVIATION		
	PRESSURE REGULATOR EXTERNAL PRESSURE TAP	PRV
	PRESSURE REGULATOR SELF CONTAINED	PRV
	BACK PRESSURE REGULATOR EXTERNAL PRESSURE TAP	BPV
	BACK PRESSURE REGULATOR SELF CONTAINED	BPV
T	THERMAL SHUT OFF VALVE	TOV
	PRESSURE RELIEF VALVE	PRV
	VACUUM RELIEF VALVE	PRV
	PRESSURE & VACUUM RELIEF VALVE	PRV
	PRESSURE RELIEF VALVE (RUPTURE DISC)	RD
	VACUUM RELIEF VALVE (RUPTURE DISC)	RD
	THREE-WAY VALVE	3W
	FOUR-WAY VALVE	4W
	ANGLE VALVE	AV

ACTUATORS

D	DIGITAL
M	MOTORIZED
S	SOLENOID

PROCESS LINE TYPES

	MAJOR PROCESS LINE
	MINOR PROCESS LINE
	NEW STRUCTURE
	ENCLOSURE OR BOUNDARY
	VENDOR PACKAGE SUPPLY BOUNDARY
	EXISTING PIPING & EQUIPMENT
	EXISTING STRUCTURE
E	INSULATED PIPE (WITH HEAT TRACING)

EQUIPMENT SYMBOLS

MOTORIZED EQUIPMENT

SYMBOL - TYPE - ABBREVIATION		
	AERATOR (SURFACE)	AER
	AIR DRYER BLOWER EXHAUST FAN	AD BL EF
	BOILER	B
	CENTRIFUGE	CFG
	MECHANICAL SCREEN	SCR
	CONVEYOR (BELT)	CON

SYMBOL - TYPE - ABBREVIATION		
	GRINDER	GDR
	GRIT CLASSIFIER	GCL
	MIXER (PROPELLER)	MXR
	SCREEN (BAR)	SCR
	SCREEN (ROTARY)	SCR
	SCREENINGS WASHER / COMPACTOR	CMP

NON-MOTORIZED EQUIPMENT

SYMBOL - TYPE - ABBREVIATION		
	CYCLONE	CY
	INJECTOR	INJ
	HEAT EXCHANGER	HEX
S	SAMPLER (AUTOMATIC)	SMP

SYMBOL - TYPE - ABBREVIATION		
S	SAMPLER (MANUAL)	SMP
	MIXER (STATIC)	SM
M	MOTOR	-

PUMPS

SYMBOL - TYPE - ABBREVIATION		
	CENTRIFUGAL PUMP	P
	COLUMN PUMP	P
	DIAPHRAGM PUMP	P
	PERISTALTIC PUMP	P
	METERING PUMP	P
	PROGRESSING CAVITY PUMP	P
	SUBMERSIBLE PUMP	P
	SUBMERSIBLE PROPELLER PUMP	P
	VERTICAL PUMP	P
	WELL PUMP	P

PRIMARY ELEMENT SYMBOLS

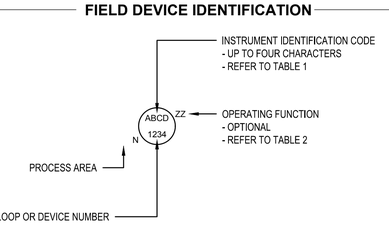
	ANNUBAR
D	DENSITY METER
	IN-LINE CAPACITANCE FLOW ELEMENT
	ANNULAR PRESSURE ISOLATOR
	PROPELLER OR TURBINE METER
	SONIC FLOW METER (DOPPLER OR TRANSIT TIME)
M	MAGNETIC FLOW METER
T	THERMAL MASS FLOW ELEMENT
### / ###	FLOAT LEVEL ELEMENT
### / ###	UNGUIDED WAVE ULTRASONIC / MICROWAVE LEVEL ELEMENT
### / ###	THERMAL ELEMENT WITH WELL
### / ###	CAPACITANCE / POINT LEVEL ELEMENT

MISCELLANEOUS SYMBOLS

I	INTERLOCK REFER TO CONTROL DESCRIPTION STRATEGY
R	RESET FOR LATCH-TYPE OPERATOR
VFD	VARIABLE FREQUENCY DRIVE
	ANNUNCIATOR HORN

INSTRUMENT FIELD DEVICE IDENTIFICATION

FIELD DEVICE IDENTIFICATION

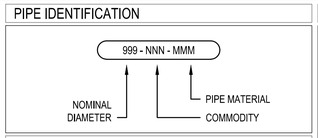


PIPE LINE DEVICES

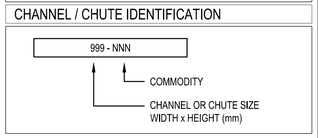
	AIR GAP
	AIR INTAKE
	BLIND FLANGE OR FLANGE CONNECTION
	CALIBRATION CHAMBER
	CAP OR PLUG
	CONNECTION TO VENDOR SUPPLY PACKAGE
V	DIFFUSER OR SPRAY NOZZLE
D	DRAIN
	EXPANSION JOINT
	EMERGENCY EYEWASH & SHOWER STATION
	FILTER
	FLAME ARRESTER
	FLEXIBLE CONNECTION
	PRESSURE SENSOR (IN-LINE)
	PULSATION DAMPENER
	QUICK CONNECTOR
	REDUCER
	SEPARATOR, AIR
	SEPARATOR, LIQUID
	SIGHT GLASS
	SILENCER
	STRAINER
	STRAINER, BASKET
T	TRAP
	UNION
XX	UTILITY CONNECTION
	UTILITY STATION
	VENT, AIR
	CAMLOCK
	HEAT TRACE

ANNOTATION SYMBOLS

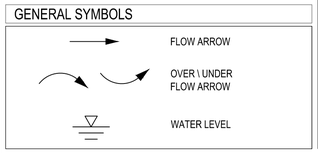
PIPE IDENTIFICATION



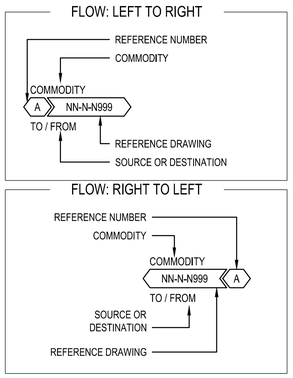
CHANNEL / CHUTE IDENTIFICATION



GENERAL SYMBOLS



PROCESS LINE IDENTIFICATION



SIGNAL LINE TYPES

PROPOSED - EXISTING - DESCRIPTION	
	INSTRUMENT SUPPLY OR PROCESS TAP
	FOUNDATION FIELDBUS
	ELECTRIC SIGNAL
	MECHANICAL LINK

STANDARD ABBREVIATIONS

COMMODITY ABBREVIATIONS

AIR	AIR
ASH	ASH
AWH	AIR WASH
BRW	BRINE WASTE
BW	BACKWASH WATER (FILTERED)
BWR	BACKWASH RETURN
BWW	BACKWASH WASTE WATER
DEWS	WET DEWATERED SLUDGE
DRA	DRAIN
DSB	DAF SUBNATANT
DSE	DISINFECTED SECONDARY EFFLUENT
FE	FINAL EFFLUENT
FSL	FERMENTED SLUDGE
FTW	FILTER TO WASTE
FLT	FILTRATE
FY	FERMENTER SCUM
HL	HAULED WASTEWATER
OF	OVERFLOW
PE	PRIMARY EFFLUENT
PI	PRIMARY INFLUENT
PA	PROCESS AIR
PS	PRIMARY SLUDGE
PY	PRIMARY SCUM
RA	RETURN AIR
RAS	RETURN ACTIVATED SLUDGE
RW	RAW WATER
SAM	SAMPLE
SAN	SANITARY SEWER
SE	SECONDARY CLARIFIER EFFLUENT
SLH	SETTLED HEATED SLUDGE
SPY	SCREENED PRIMARY SCUM
SRSW	RAW SEWAGE
SY	SECONDARY CLARIFIER SCUM
SW	SERVICE WATER
UW	UTILITY WATER

CHEMICAL ABBREVIATIONS

CDG	CARBON DIOXIDE
CDL	CARBON DIOXIDE LIQUID
CLD	CHLORINE DIOXIDE
CLL	CHLORINE LIQUID
CLS	CHLORINE SOLUTION
FC	FERRIC CHLORIDE
FEC	FERROUS CHLORIDE
FES	FERROUS SULPHATE
FS	FERRIC SULFATE
FSL	FERMENTER SLUDGE
HCL	HYDROCHLORIC ACID
HEL	HELIUM
HFS	FLUOSILIC ACID
HG	HYDROGEN GAS
HP	HYDROGEN PEROXIDE
MET	METHANOL
N2	NITROGEN
NAOH	SODIUM HYDROXIDE
NASF	SODIUM SILICOFLUORIDE
NOX	NITROUS OXIDE
PHA	PHOSPHORIC ACID
pH	pH
PLY	POLYMER
PP	POTASSIUM PERMANGANATE
PPP	PHOSPHATE
PYPH	POLYPHOSPHATE
SA	SULPHURIC ACID
SAS	SODA ASH SOLUTION
SH	SODIUM HYPOCHLORITE
SLT	SODIUM CHLORIDE
SS	SODIUM SILICATE

GENERAL

AI	ANALOG INPUT
AO	ANALOG OUTPUT
CCTV	CLOSED CIRCUIT TELEVISION
DB	DEVICE BUS
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DIGITAL INPUT
DO	DISSOLVED OXYGEN TRANSMITTER
D/P	DIFFERENTIAL PRESSURE
FB	FIELDBUS
HMI	HUMAN MACHINE INTERFACE
LEAK	LEAKAGE
LCP	LOCAL CONTROL PANEL
MCC	MOTOR CONTROL CENTRE
OBD	OUTBOARD BEARING
O/L	OVERLOAD
PLC	PROGRAMMABLE LOGIC CONTROLLER
RTD	RESISTIVE TEMPERATURE DEVICE
SOL	SOLENOID
T/C	THERMOCOUPLE
TOR	TORQUE

INSTRUMENT IDENTIFICATION

INSTRUMENT OR DEVICE IDENTIFIERS

AE	ANALYSIS ELEMENT
AIT	ANALYSIS INDICATING TRANSMITTER (ANALYTIC INST.)
AK	ANALYSIS (SAMPLER) CONTROL STATION
ASH	ANALYSIS SWITCH - HIGH
AT	ANALYSIS TRANSMITTER (ANALYTIC INST.)
FE	FLOW ELEMENT
FG	FLOW METER ULTRASONIC GENERATOR
FI	FLOW INDICATOR
FIC	FLOW INDICATING CONTROLLER
FIT	FLOW INDICATING TRANSMITTER
FQI	FLOW TOTALIZING INDICATOR
FQY	FLOW TOTALIZING / INTEGRATING RELAY
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
FT	FLOW TRANSMITTER
LE	LEVEL ELEMENT
LI	LEVEL INDICATOR
LIC	LEVEL INDICATING CONTROLLER
LIT	LEVEL INDICATING TRANSMITTER
LSL	LEVEL SWITCH LOW
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
PE	PRESSURE ELEMENT
PG	PRESSURE GAUGE
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATING TRANSMITTER
PS	PRESSURE SWITCH
pH	pH TRANSMITTER
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PSLL	PRESSURE SWITCH LOW LOW
PT	PRESSURE TRANSMITTER
SC	SPEED CONTROLLER
SI	SPEED INDICATOR
TC	TEMPERATURE CONTROLLER
TE	TEMPERATURE ELEMENT
TG	TEMPERATURE GAUGE
TI	TEMPERATURE INDICATOR
TIT	TEMPERATURE INDICATING TRANSMITTER
TSH	TEMPERATURE SWITCH HIGH
TSHH	TEMPERATURE SWITCH HIGH HIGH
TSL	TEMPERATURE SWITCH LOW
TSLL	TEMPERATURE SWITCH LOW LOW
TT	TEMPERATURE TRANSMITTER
UVT	ULTRAVIOLET TRANSMITTER

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P.R. BARSALOU
LICENSEE
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Date June 23, 2020
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0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310-269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **S. ELLIOTT**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

PROCESS & INSTRUMENTATION OVERALL DIAGRAM & SCHEMATICS LEGEND, ABBREVIATIONS AND INSTRUMENTATION

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	N-0001 OF	0

PWGSC – A1 – 841X594

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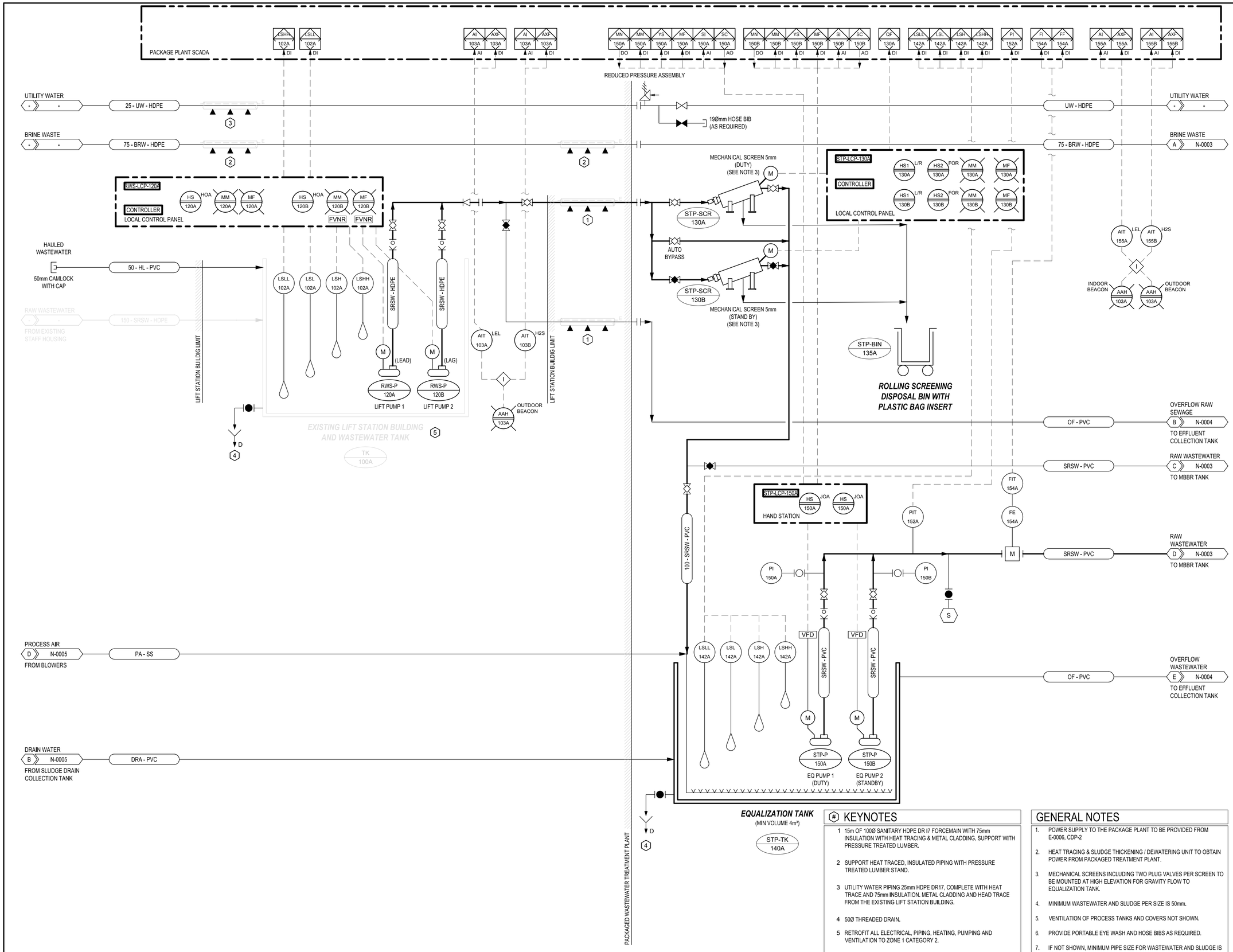

KEYNOTES

1. 15m OF 100Ø SANITARY HDPE DR 17 FORCEMAIN WITH 75mm INSULATION WITH HEAT TRACING & METAL CLADDING. SUPPORT WITH PRESSURE TREATED LUMBER.
2. SUPPORT HEAT TRACED, INSULATED PIPING WITH PRESSURE TREATED LUMBER STAND.
3. UTILITY WATER PIPING 25mm HDPE DR17, COMPLETE WITH HEAT TRACE AND 75mm INSULATION. METAL CLADDING AND HEAD TRACE FROM THE EXISTING LIFT STATION BUILDING.
4. 50Ø THREADED DRAIN.
5. RETROFIT ALL ELECTRICAL, PIPING, HEATING, PUMPING AND VENTILATION TO ZONE 1 CATEGORY 2.

GENERAL NOTES

1. POWER SUPPLY TO THE PACKAGE PLANT TO BE PROVIDED FROM E-0006, CDP-2
2. HEAT TRACING & SLUDGE THICKENING / DEWATERING UNIT TO OBTAIN POWER FROM PACKAGED TREATMENT PLANT.
3. MECHANICAL SCREENS INCLUDING TWO PLUG VALVES PER SCREEN TO BE MOUNTED AT HIGH ELEVATION FOR GRAVITY FLOW TO EQUALIZATION TANK.
4. MINIMUM WASTEWATER AND SLUDGE PER SIZE IS 50mm.
5. VENTILATION OF PROCESS TANKS AND COVERS NOT SHOWN.
6. PROVIDE PORTABLE EYE WASH AND HOSE BIBS AS REQUIRED.
7. IF NOT SHOWN, MINIMUM PIPE SIZE FOR WASTEWATER AND SLUDGE IS 50Ømm.
8. ALL INSTRUMENTS HAVE PREFIX IN TAG NUMBER. REFER TO EQUIPMENT AND LOCATION FOR PREFIX DETAILS. CONTRACTOR TO ENSURE ALL PROGRAMMING, CABLES AND NAMEPLATES ASSOCIATED TO INSTRUMENTS INCLUDE PREFIX IN TAGS.

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Client: **Public Works and Government Services Canada**
310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet
NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **S. ELLIOTT**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin
PROCESS & INSTRUMENTATION PACKAGED WASTEWATER TREATMENT PLANT & LIFT STATION PRETREATMENT DIAGRAM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	N-0002 OF ----	0

PWGSC – A1 – 841X594

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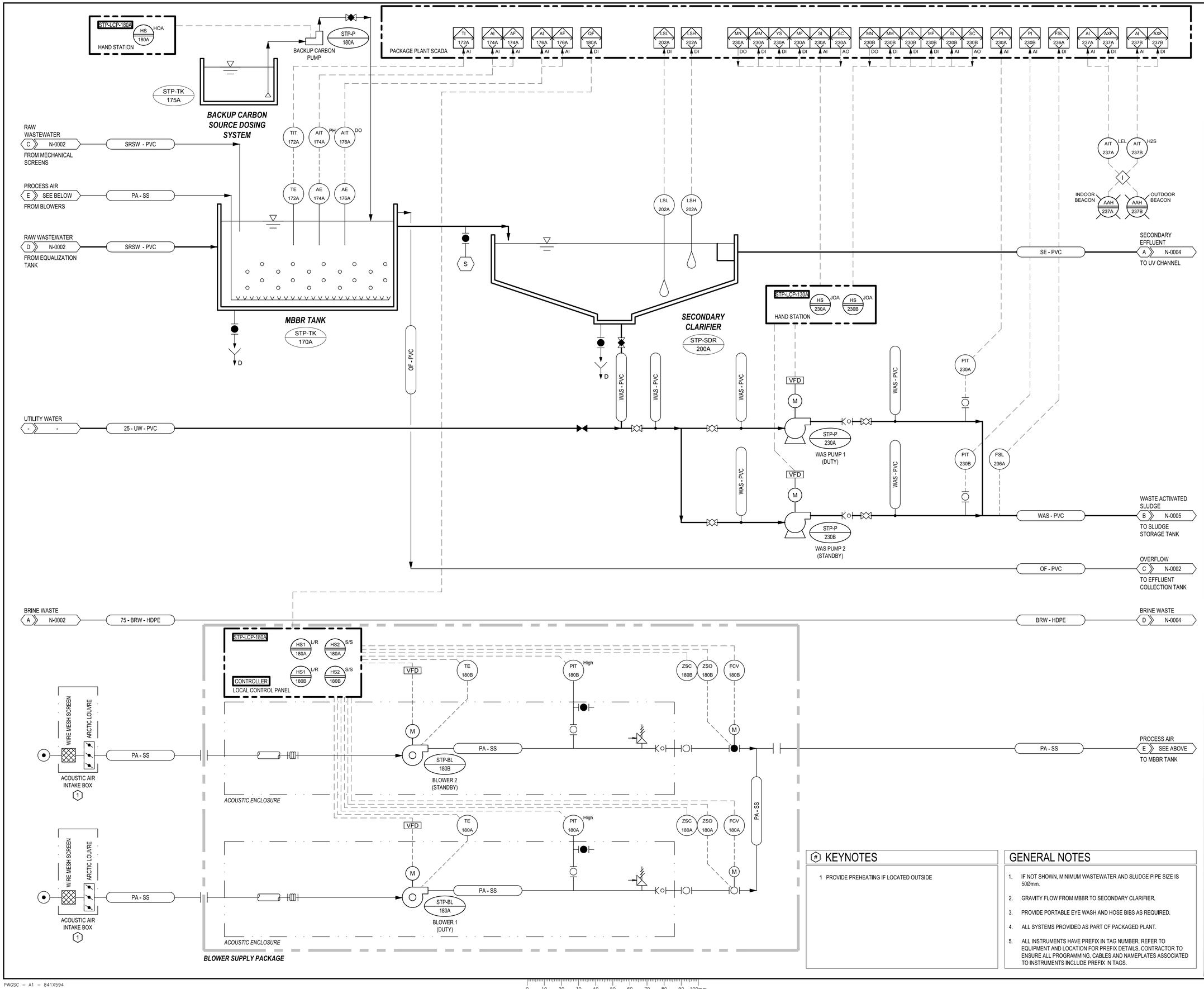

KEYNOTES

1 PROVIDE PREHEATING IF LOCATED OUTSIDE

GENERAL NOTES

1. IF NOT SHOWN, MINIMUM WASTEWATER AND SLUDGE PIPE SIZE IS 500mm.
2. GRAVITY FLOW FROM MBBR TO SECONDARY CLARIFIER.
3. PROVIDE PORTABLE EYE WASH AND HOSE BIBS AS REQUIRED.
4. ALL SYSTEMS PROVIDED AS PART OF PACKAGED PLANT.
5. ALL INSTRUMENTS HAVE PREFIX IN TAG NUMBER. REFER TO EQUIPMENT AND LOCATION FOR PREFIX DETAILS. CONTRACTOR TO ENSURE ALL PROGRAMMING, CABLES AND NAMEPLATES ASSOCIATED TO INSTRUMENTS INCLUDE PREFIX IN TAGS.

Public Works and Government Services Canada
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PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

PROCESS & INSTRUMENTATION PACKAGED WASTEWATER TREATMENT PLANT AERATION, SEDIMENTATION & BLOWER DIAGRAM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	N-0003 OF 006	0

PWGSC – A1 – 841X594

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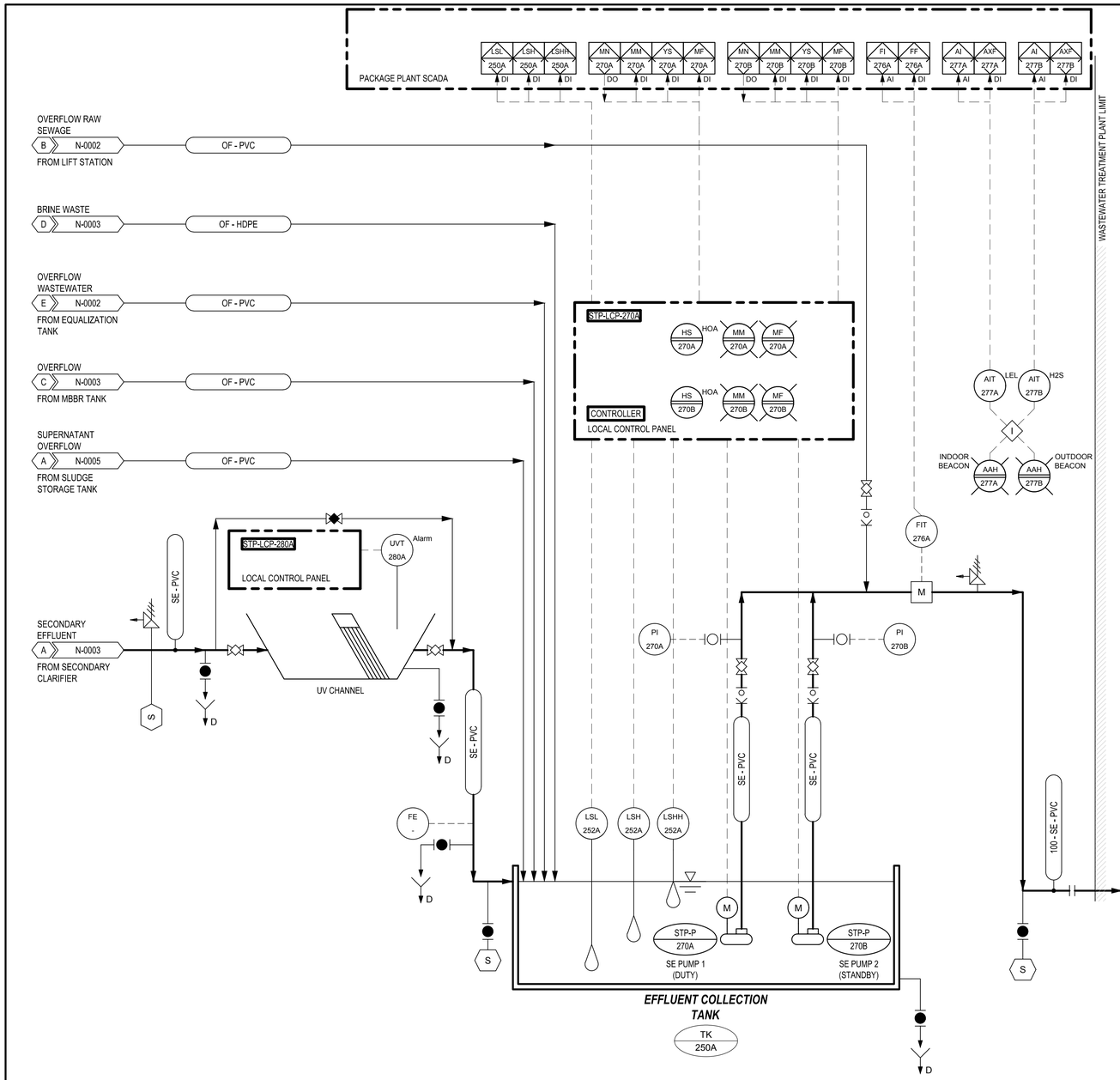

KEYNOTES

1 100Ø HDPE DR 17 EFFLUENT LINE WITH 75mm INSULATION WITH HEAT TRACING & CLADDING. APPROX. 0.6m BURY

2 TYPE D CAMLOCK FITTING.

GENERAL NOTES

1. IF NOT SHOWN, MINIMUM WASTEWATER AND SLUDGE PIPE SIZE IS 50Ø mm.
2. GRAVITY HYDRAULIC FLOW FROM CHANNEL UV TO EFFLUENT COLLECTION TANK
3. PROVIDE EYE WASH AND HOSE BIBS AS REQUIRED.
4. ALL INSTRUMENTS HAVE PREFIX IN TAG NUMBER. REFER TO EQUIPMENT AND LOCATION FOR PREFIX DETAILS. CONTRACTOR TO ENSURE ALL PROGRAMMING, CABLES AND NAMEPLATES ASSOCIATED TO INSTRUMENTS INCLUDE PREFIX IN TAGS.

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P.Barsalou June 23/2020

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Drawn by / Dessiné par
S. ELLIOTT

Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

PROCESS & INSTRUMENTATION
PACKAGED WASTEWATER TREATMENT PLANT
FINAL DISINFECTION DIAGRAM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
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PACKAGE PLANT SCADA

MN 350A DO | MF 350A DI | YS 350A DI
MN 370A DO | MF 370A DI | YS 370A DI
LSL 390A DI | LSH 390A DI | LSHH 390A DI
MN 390A DO | MM 390A DI | YS 390A DI | MF 390A DI
MN 390B DO | MM 390B DI | YS 390B DI | MF 390B DI | FSL 392A DI

UTILITY WATER — UW - PVC

SUPERNATANT OVERFLOW — A N-0003 — TO EFFLUENT COLLECTION TANK

OF - PVC

WAS - PVC

STP-LCP-320A
CONTROLLER
LOCAL CONTROL PANEL
HS 320A HOA | MM 320A | MF 320A

STP-LCP-330A
HS 330A HOA | MM 330A | MF 330A | LSLL 332A
HAND STATION

STP-LCP-350A
HS 350A HOA | MM 350A | MF 350A
HAND STATION

STP-LCP-370A
HS 370A HOA | MM 370A | MF 370A
HAND STATION

PIT 330A

PTT 320A

WAS - PVC

LSLL 332A

LIT 302A | LSL 302A | LSH 302A | LSHH 302A

PROCESS AIR — C SEE BELOW — SE - SS
FROM BLOWERS

WASTE ACTIVATED SLUDGE — B N-0003 — WAS - PVC
FROM WAS PUMPS

STP-P 320A
DECANT PUMP

STP-P 330A
SLUDGE PUMP

SLUDGE STORAGE TANK
STP-TK 300A

D

SERVICE WATER — SW - PVC

PLY - PVC

STP-P 350A
POLYMER METERING PUMP

20 LITER POWDER POLYMER C/W MEASURING CUP

STP-MXR 370A

MIXER

POLYMER MIXING TANK
STP-TK 360A

INLINE MIXER

SLUDGE BAGGING SYSTEM
1

SLUDGE DEWATER/BAGGING SYSTEM

STP-LCP-390A
CONTROLLER
LOCAL CONTROL PANEL
HS 390A HOA | MM 390A | MF 390A
HS 390B HOA | MM 390B | MF 390B

FSL 392A

DRAIN WATER — B N-0002 — TO EQUALIZATION TANK

DRA - PVC

LSL 382A | LSH 382A | LSHH 382A

STP-P 390A | STP-P 390B

SLUDGE DRAIN COLLECTION TANK
STP-TK 380A

D

WAS - PVC

STP-LCP-410A
CONTROLLER
LOCAL CONTROL PANEL
HS1 410A L/R | HS2 410A S/S
HS1 410B L/R | HS2 410B S/S

VFD | TE 410B | PI 410B

STP-BL 410B
BLOWER 2

VFD | TE 410A | PI 410A

STP- 410A
BLOWER 1

WIRE MESH SCREEN | ARCTIC LOUVRE
ACOUSTIC AIR INTAKE BOX
2

PA - SS

ACOUSTIC ENCLOSURE

BLOWER SUPPLY PACKAGE

PROCESS AIR — C SEE ABOVE — TO SLUDGE STORAGE TANK

PROCESS AIR — D N-0002 — TO EQUALIZATION TANK

KEYNOTES

1 REMOVABLE SLUDGE STORAGE BAGS, WITH 20kg CAPACITY. SLUDGE TO BE DEWATERED TO 20% DRY SOLIDS, MIN. AMOUNT FOR GRAVITY DRAIN.

2 PROVIDE PREHEATING IF LOCATED OUTSIDE

GENERAL NOTES

1. IF NOT SHOWN, MINIMUM WASTEWATER AND SLUDGE PIPE IS 50Ømm.
2. PROVIDE PORTABLE EYE WASH AND HOSE BIBS AS REQUIRED.
3. ALL SYSTEMS PROVIDED AS PART OF PACKAGED PLANT.
4. ALL INSTRUMENTS HAVE PREFIX IN TAG NUMBER. REFER TO EQUIPMENT AND LOCATION FOR PREFIX DETAILS. CONTRACTOR TO ENSURE ALL PROGRAMMING, CABLES AND NAMEPLATES ASSOCIATED TO INSTRUMENTS INCLUDE PREFIX IN TAGS.

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REGISTERED PROFESSIONAL ENGINEER — P.R. BARSALOU — LICENSEE — NWT/NU

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Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **S. ELLIOTT**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

PROCESS & INSTRUMENTATION PACKAGED WASTEWATER TREATMENT PLANT BLOWERS AND SOLIDS DIAGRAM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	N-0005 OF ----	0

PWGSC – A1 – 841X594

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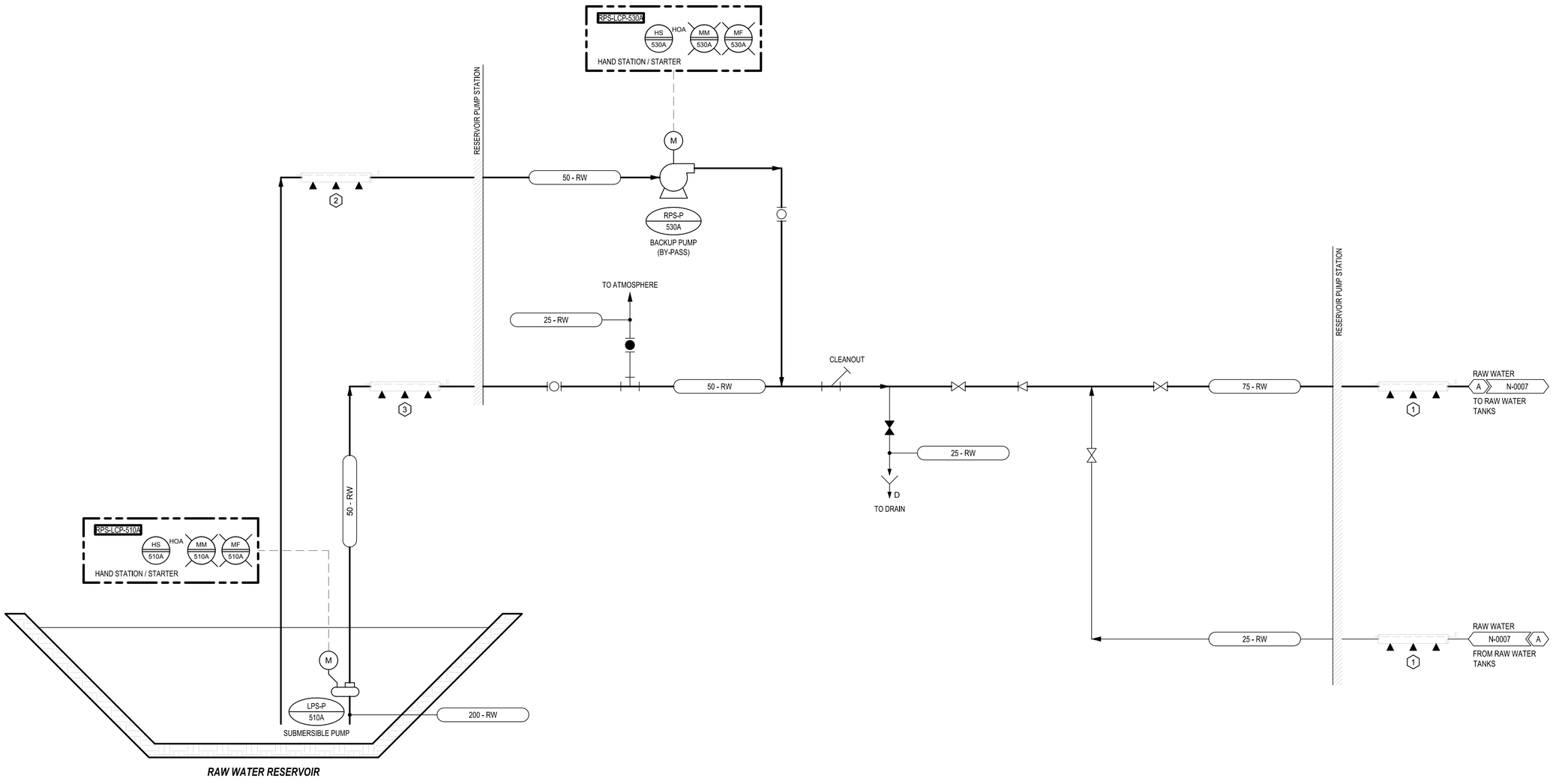

KEYNOTES

1 DUAL 75mm AND 25mm HDPE DR I7 PIPE LINES C/W DUAL HEAT TRACE. 75mm INSULATION AND GALVANIZED STEEL JACKET.

2 50mm FLEXIBLE HYDRAULIC HOSE WRAPPED IN SUBMERSIBLE HEAT TRACE INSIDE 150mm PRE-INSULATED HDPE DR I7 PIPE.

3 50mm HDPE DR I7 PIPE C/W 50mm INSULATION AND SUBMERSIBLE HEAT TRACE INSIDE 150mm HDPE DR I7 PRE-INSULATED PIPE.

GENERAL NOTES

1. ALL INSTRUMENTS HAVE PREFIX IN TAG NUMBER. REFER TO EQUIPMENT AND LOCATION FOR PREFIX DETAILS. CONTRACTOR TO ENSURE ALL PROGRAMMING, CABLES AND NAMEPLATES ASSOCIATED TO INSTRUMENTS INCLUDE PREFIX IN TAGS.

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P.P. Barsalou
P.P. BARSALOU
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June 23/20
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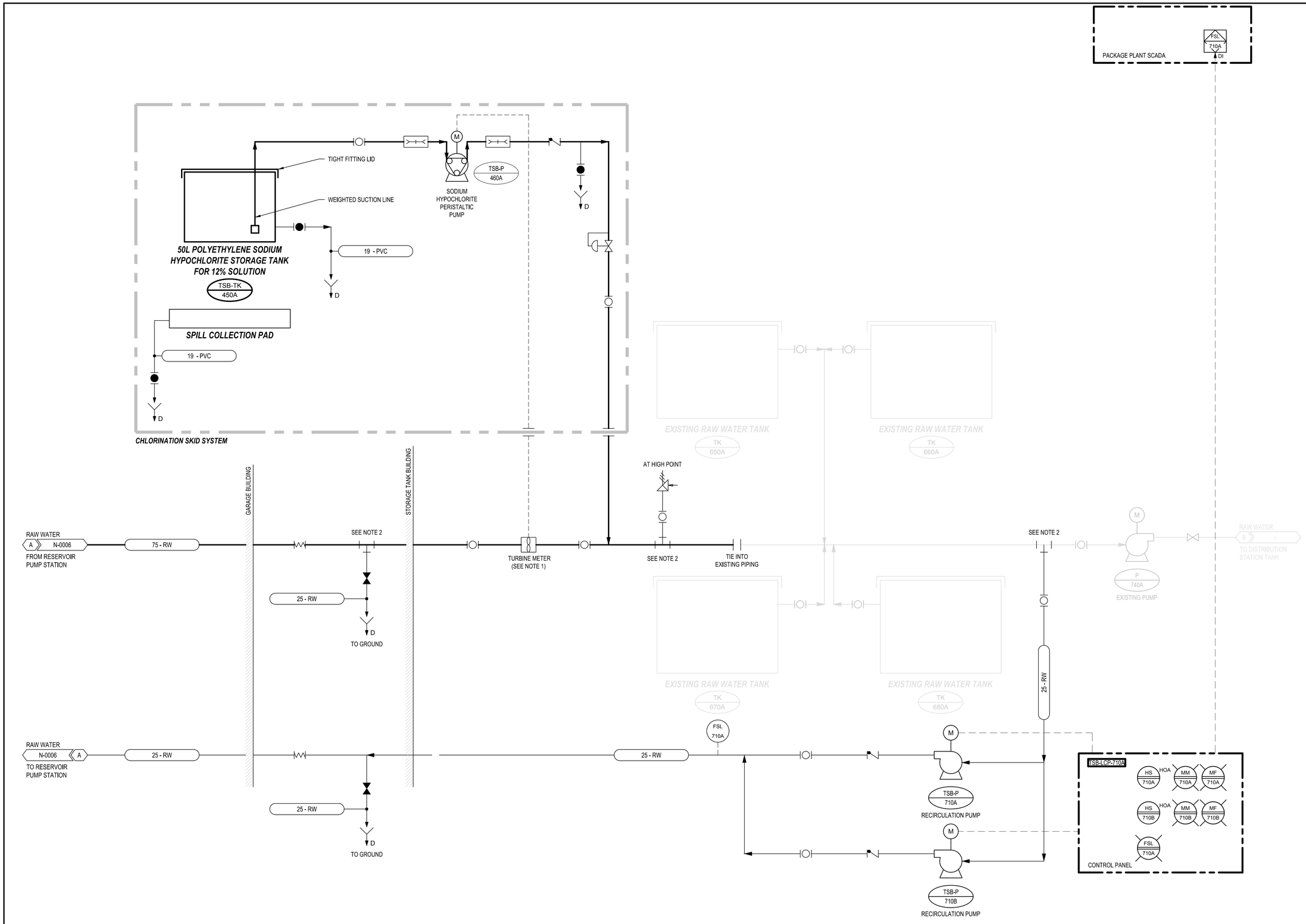
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

PROCESS & INSTRUMENTATION - RAW WATER RECIRCULATION SYSTEM AND BACKUP INTAKE

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	N-0006 OF ----	0



KEYNOTES

1

GENERAL NOTES

1. PULSE FROM TURBINE METER TO INITIATE PERISTALTIC PUMP.
2. INSTALL NEW REDUCING TEE 75x75x25mm.
3. ALL INSTRUMENTS HAVE PREFIX IN TAG NUMBER. REFER TO EQUIPMENT AND LOCATION FOR PREFIX DETAILS. CONTRACTOR TO ENSURE ALL PROGRAMMING, CABLES AND NAMEPLATES ASSOCIATED TO INSTRUMENTS INCLUDE PREFIX IN TAGS.

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P.P. Barsalou
P.R. BARSALOU
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June 23/20
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Designed by / Conçu par: **A. FARROKHI**
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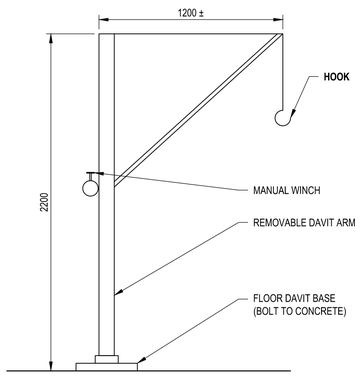
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

PROCESS & INSTRUMENTATION
-
RAW WATER RECIRCULATION SYSTEM DIAGRAM

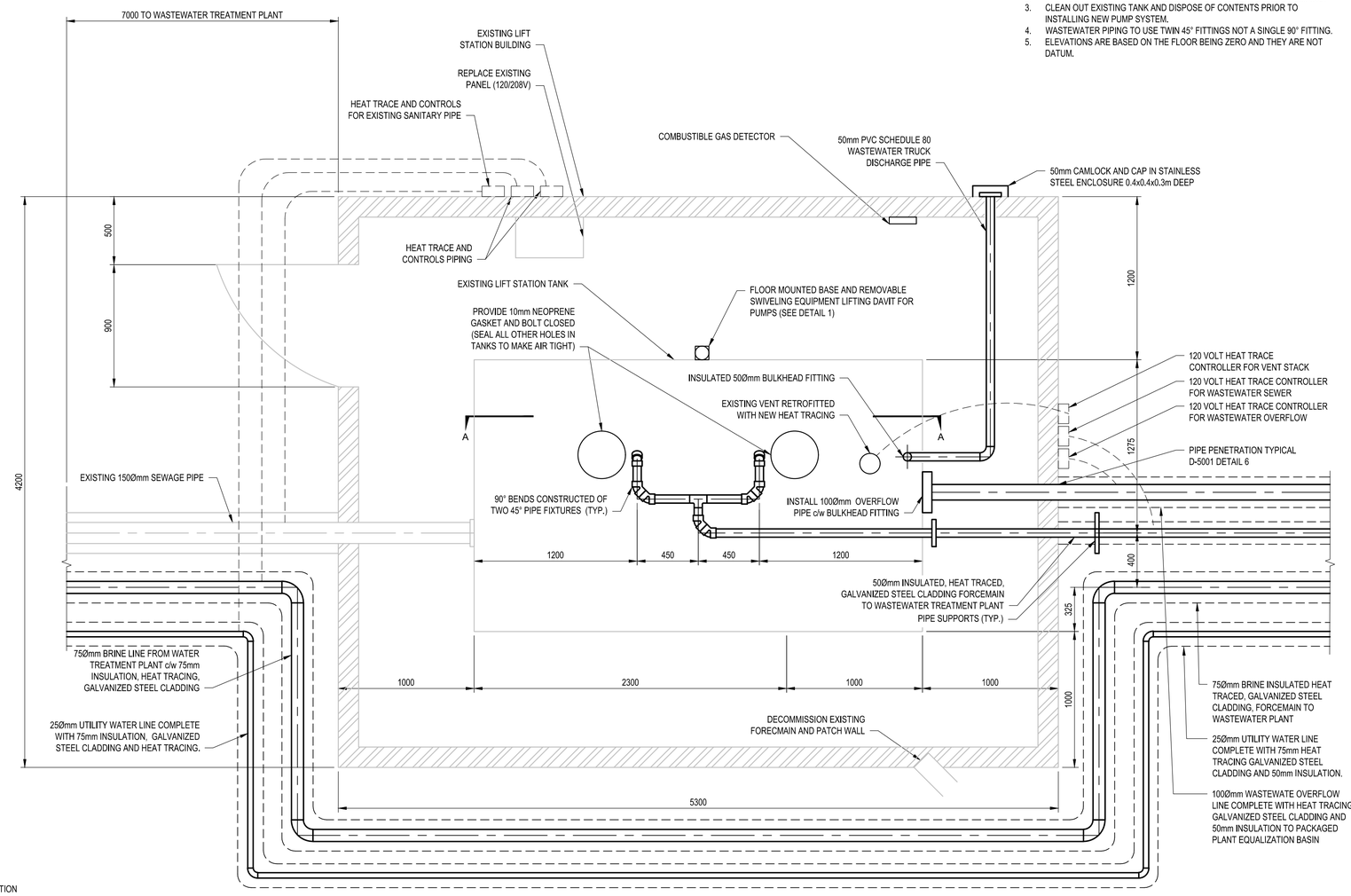
Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	N-0007 OF ----	0



1 EQUIPMENT LIFTING DAVIT
Scale 1:20

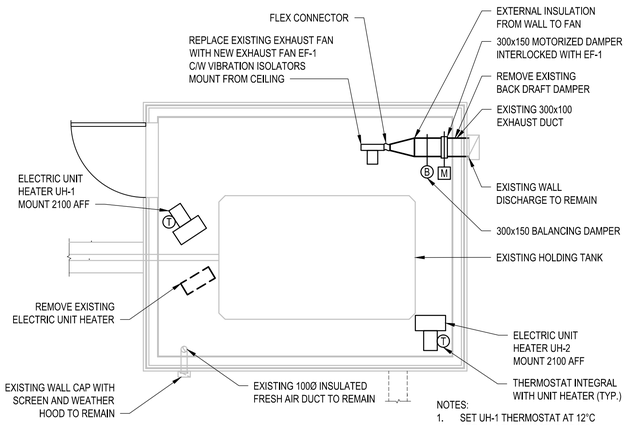
NOTES:

1. SEE PERFORMANCE SPECIFICATION FOR PUMP SPECIFICATIONS.
2. PROVIDE PIPE HANGERS TO PREVENT PIPE MOVEMENT DURING PUMPING.
3. CLEAN OUT EXISTING TANK AND DISPOSE OF CONTENTS PRIOR TO INSTALLING NEW PUMP SYSTEM.
4. WASTEWATER PIPING TO USE TWIN 45° FITTINGS NOT A SINGLE 90° FITTING.
5. ELEVATIONS ARE BASED ON THE FLOOR BEING ZERO AND THEY ARE NOT DATUM.



UPGRADED EXISTING LIFT STATION

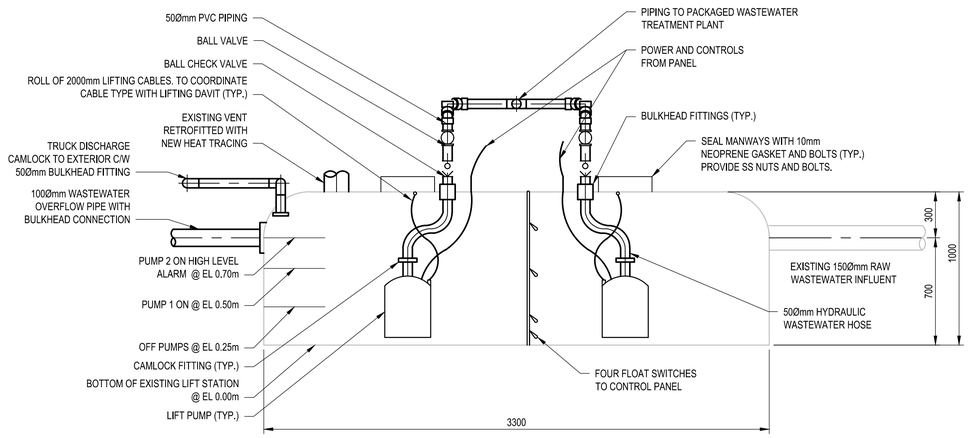
NOTE: PROVIDE EXTERIOR PIPE SUPPORTS AS PER D-5002 Scale 1:20



RAW WASTEWATER LIFT STATION BULDING PLAN
Scale 1:50

NOTES:

1. SET UH-1 THERMOSTAT AT 12°C SET UH-2 THERMOSTAT AT 8°C
2. ALL EQUIPMENT TO BE RATED FOR ZONE 1 (CLASS 1 ZONE1) APPLICATION
3. EF-1 SHALL START WHEN MOTORIZED DAMPER IS 85% OPEN.
4. MOTORIZED DAMPER AND EF-1 SHALL START BY MEANS OF A TIMER SWITCH LOCATED OUTSIDE THE BUILDING. REFER TO ELECTRICAL DRAWINGS.



A-A LIFT STATION SECTION
Scale 1:20

NOTE:

1. BRACE PIPING TO PREVENT MOVEMENT

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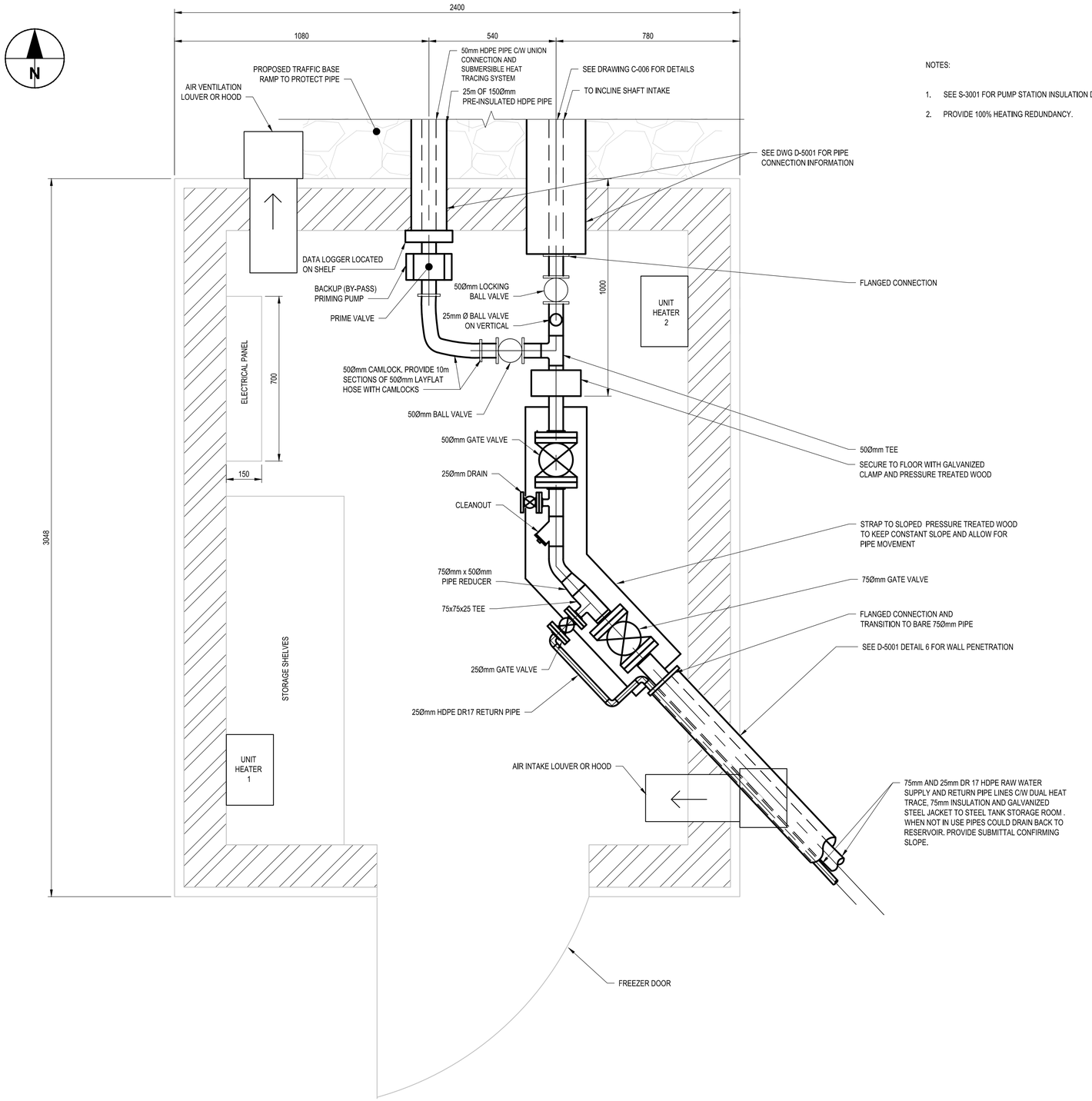
Drawn by / Dessiné par: **S. ELLIOTT**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

PROCESS MECHANICAL EXISTING LIFT STATION UPGRADE PLAN, SECTION AND DETAIL

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	D-0001 OF 005	0



NOTES:

1. SEE S-3001 FOR PUMP STATION INSULATION DETAILS.
2. PROVIDE 100% HEATING REDUNDANCY.

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A. FARROKHI

Drawn by / Dessiné par
S. ELLIOTT

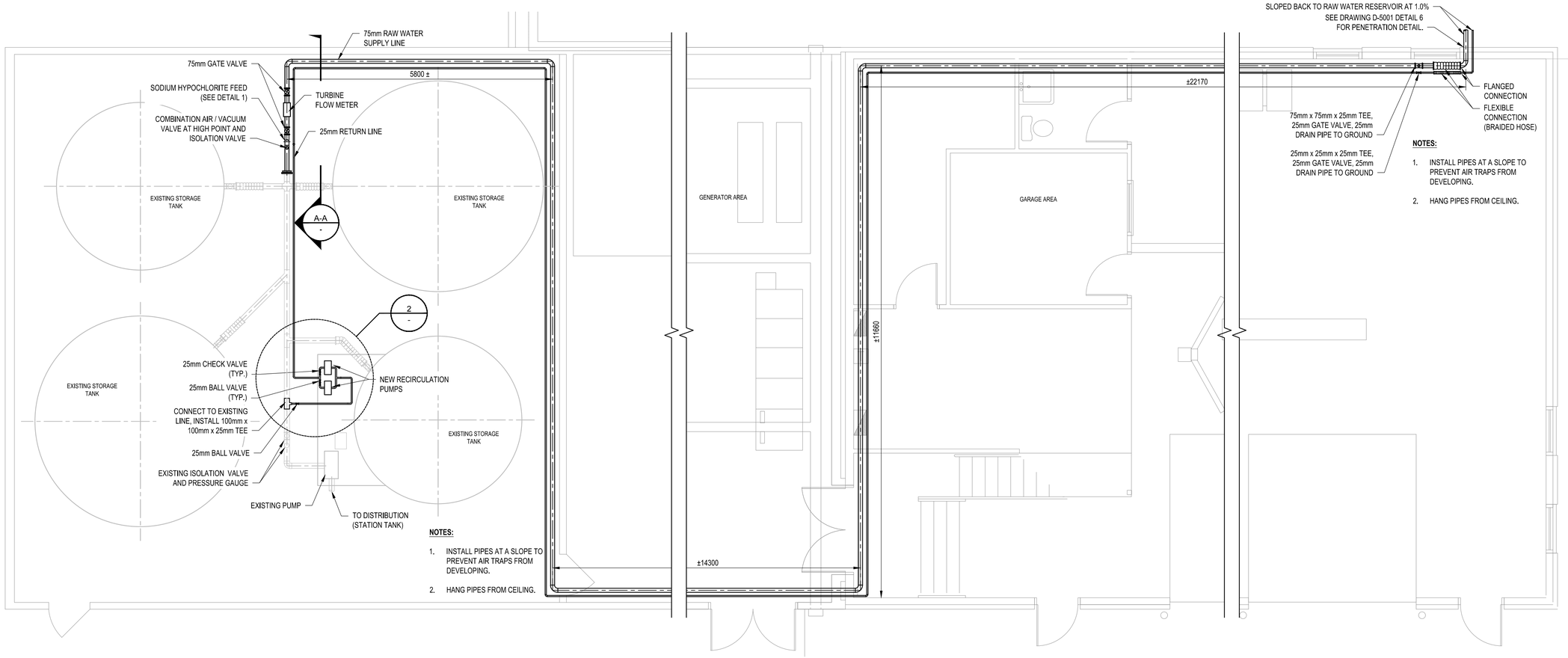
Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

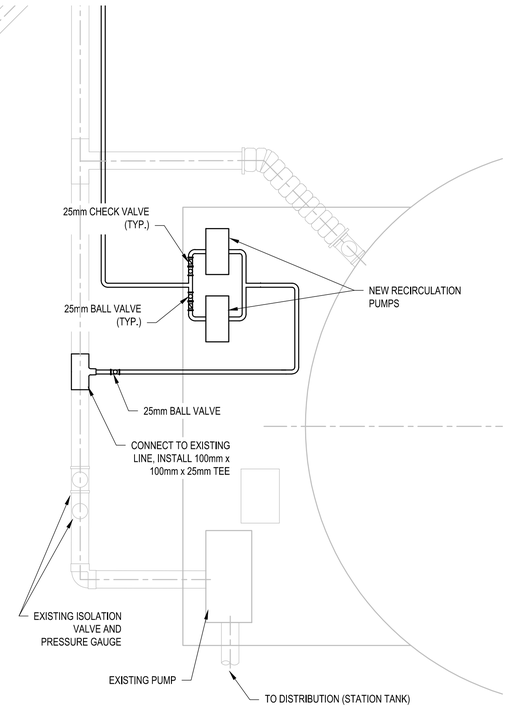
PROCESS MECHANICAL RAW WATER RESERVOIR PUMP STATION PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	D-0002 OF	0

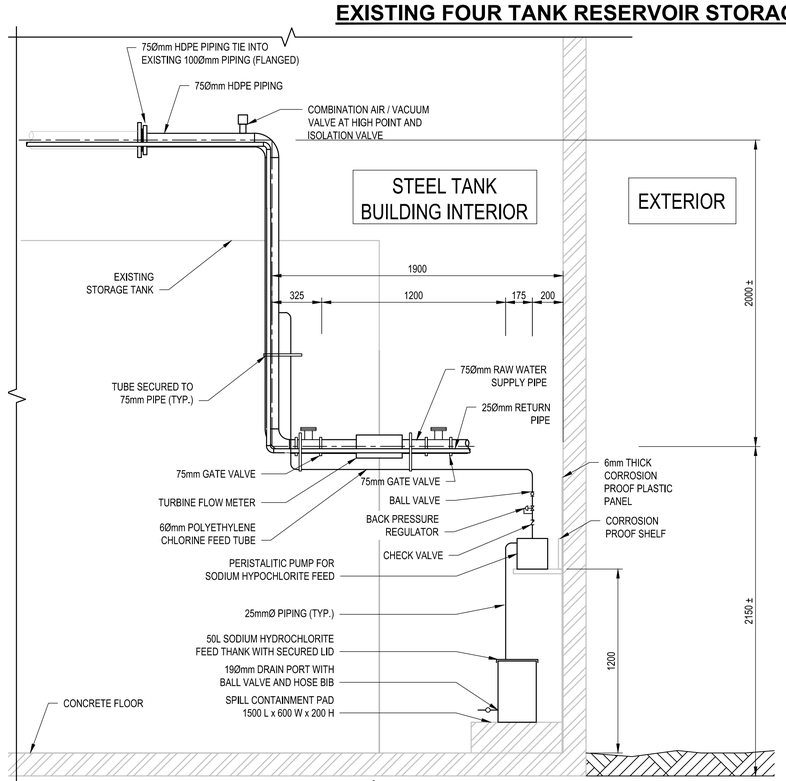


EXISTING FOUR TANK RESERVOIR STORAGE ROOM PLAN

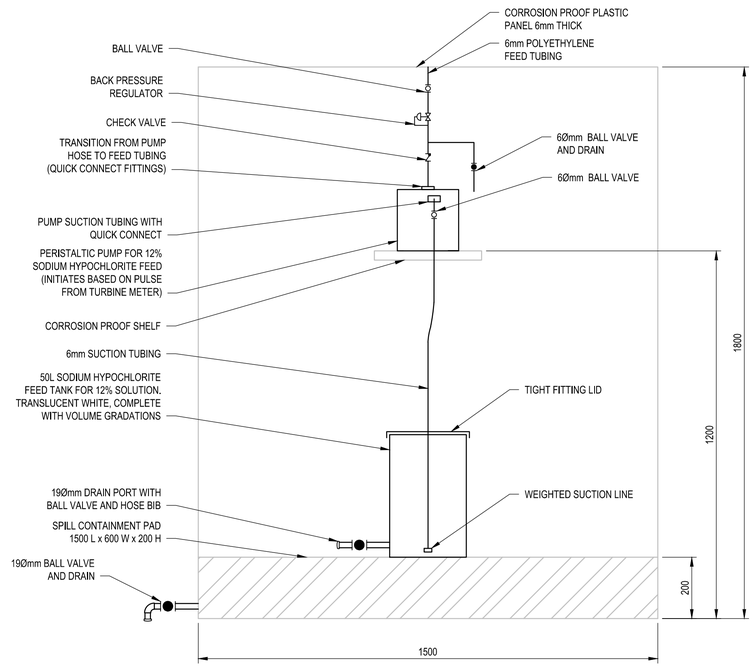
1:50



2 | RECIRCULATION PUMP DETAIL
Scale 1:20



A-A | SECTION
Scale 1:20



1 | SODIUM HYPOCHLORITE FEED DETAIL
Scale 1:10

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
P.P. Barsalou
P.R. BARSALOU
LICENSEE
June 23/20
NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
5		
4		
3		
2		
1		
0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
A. FARROKHI

Drawn by / Dessiné par
S. ELLIOTT

Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

PROCESS MECHANICAL
RAW WATER RESERVOIR
RAW WATER SUPPLY AND CHLORINATION CROSS SECTION AND DETAILS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	D-3001 OF	0

PWGSC – A1 – 841X594

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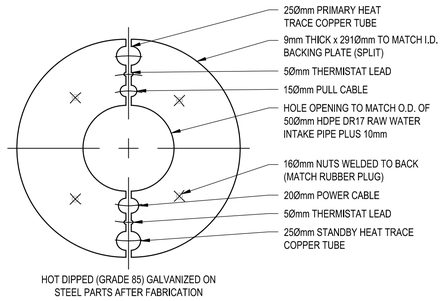
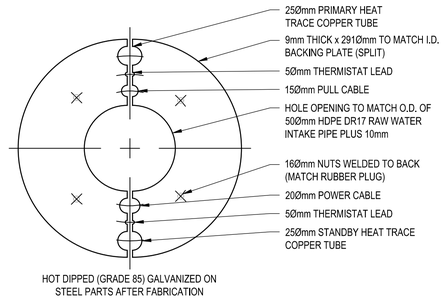


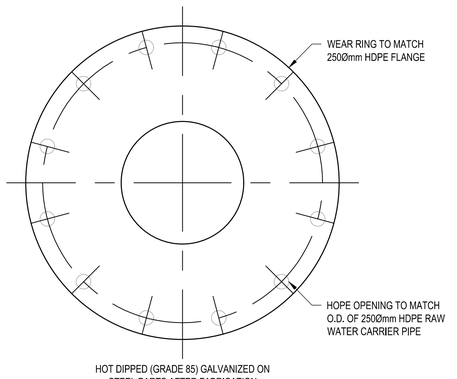
1 TYPICAL RUBBER PLUG DETAIL

D-0002 — N.T.S



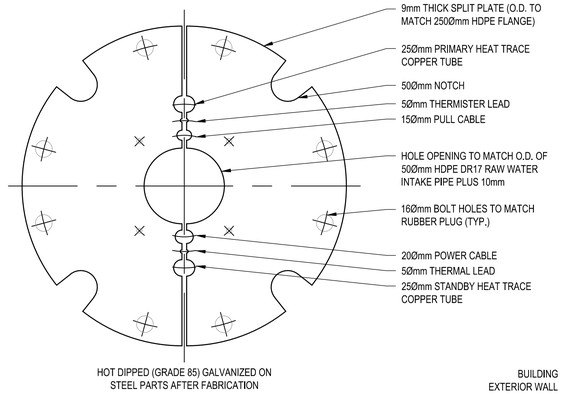
2 TYPICAL RUBBER PLATE DETAIL

D-0002 — N.T.S



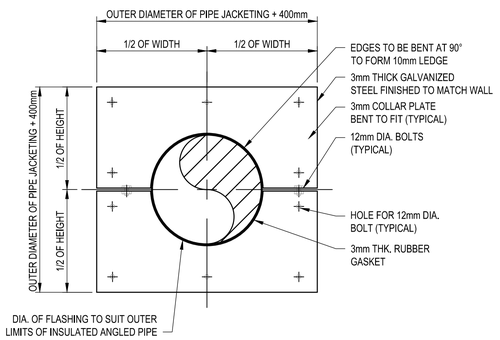
3 TYPICAL WEAR RING DETAIL

D-0002 — N.T.S



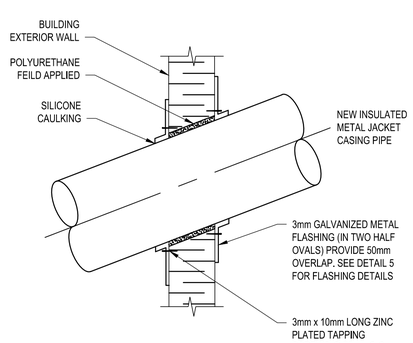
4 TYPICAL FACE PLATE DETAIL

D-0002 — N.T.S



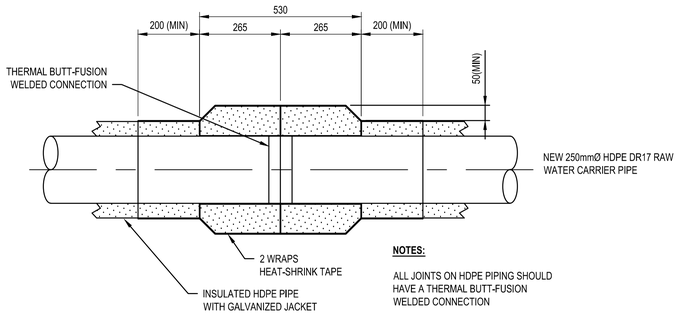
5 WALL PENETRATION PIPE FLASHING DETAIL

D-0002 — N.T.S



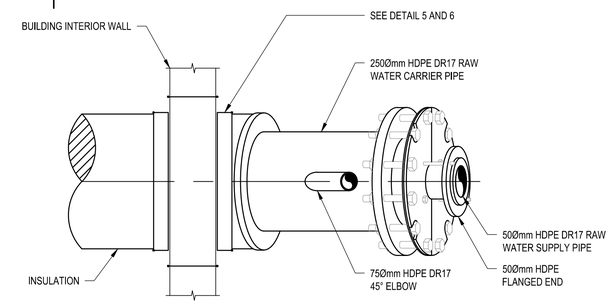
6 WALL PENETRATION SECTION

D-0002 — N.T.S



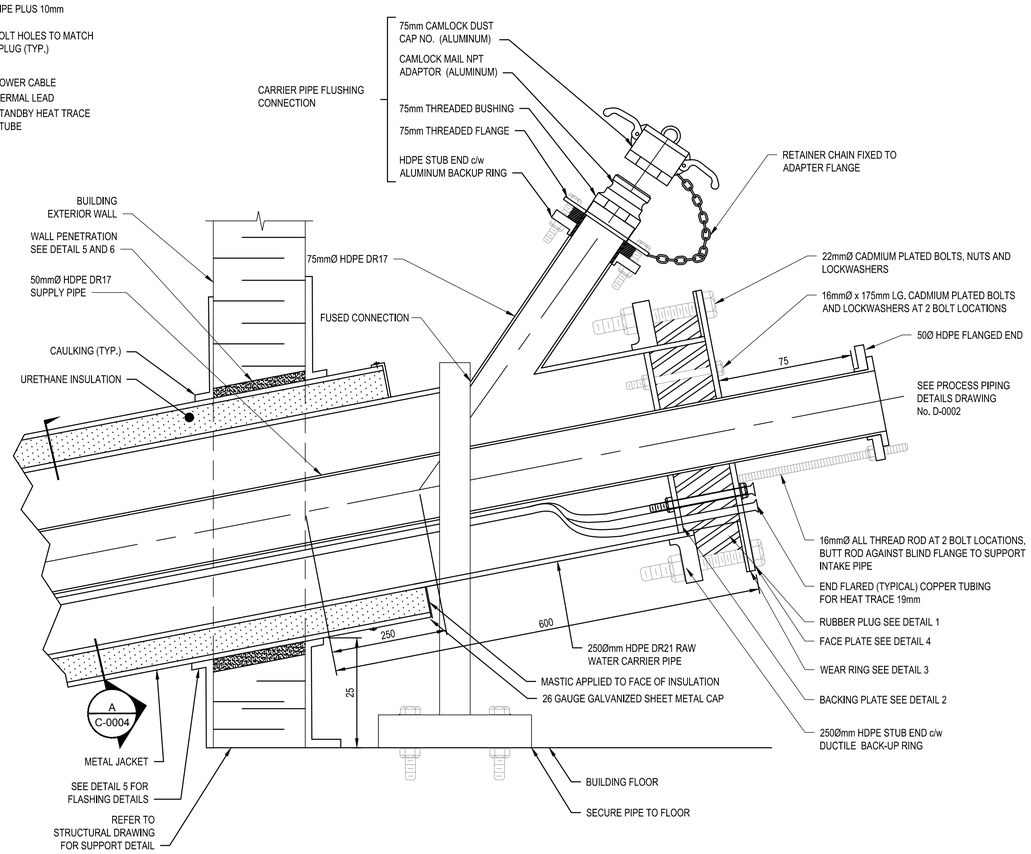
7 TYPICAL RAW WATER SUPPLY PIPE JOINT DETAIL

D-0002 — N.T.S



8 WALL PENETRATION PLAN

D-0002 — N.T.S



9 RAW WATER PIPE AND SEAL DETAIL

D-0002 — N.T.S

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER
P.R. BARSALOU
LICENSEE
NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

NOTE:

PRE-ASSEMBLE RAW WATER PIPING ASSEMBLY AT MANUFACTURER PRIOR TO BRINING TO SITE.

Revision	Description	Date
5		
4		
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0	ISSUED FOR TENDER	2020/06/19

Client: client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3 Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **S. ELLIOTT**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

PROCESS MECHANICAL
GENERAL
PIPING DETAILS
SHEET 1 OF 2

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	D-5001 OF	0

PWGSC – A1 – 841X594

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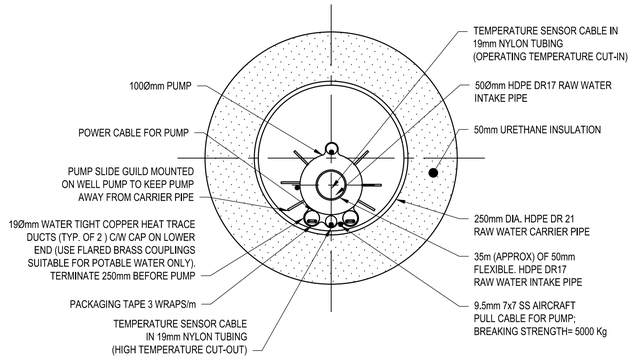
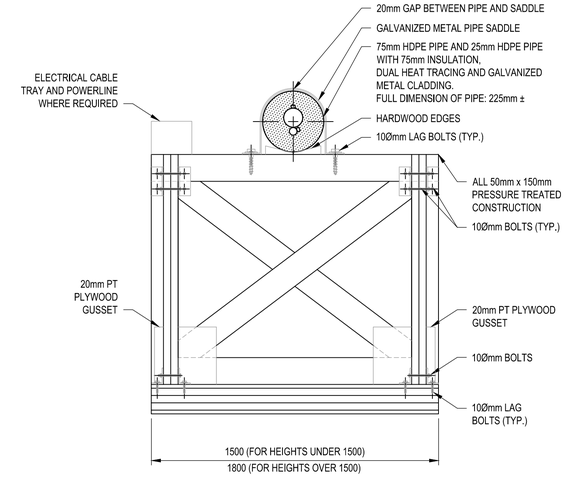
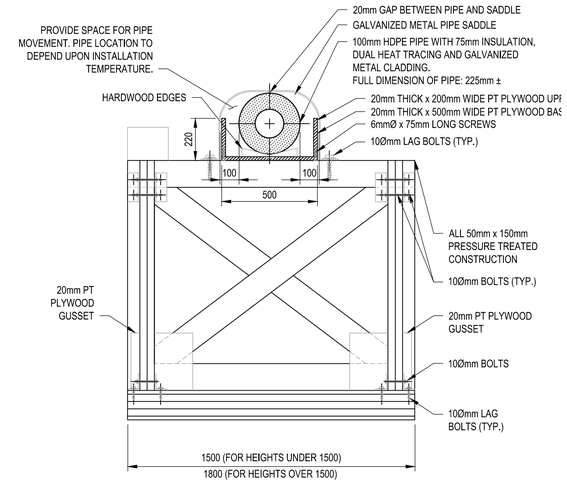


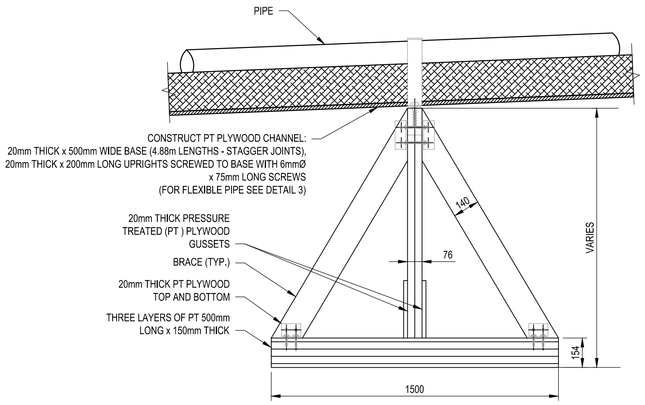
1 | RESERVOIR INTAKE PIPE DETAIL
C-0006 | N.T.S



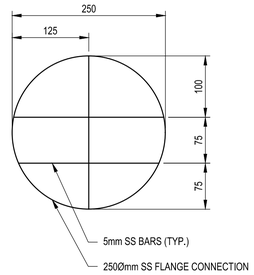
2 | RIGID PIPE SUPPORT DETAIL
C-0002 | NOTE: INSTALL ON STRAIGHT LENGTHS LEADING UP TO 10m FROM PIPE BENDS. N.T.S



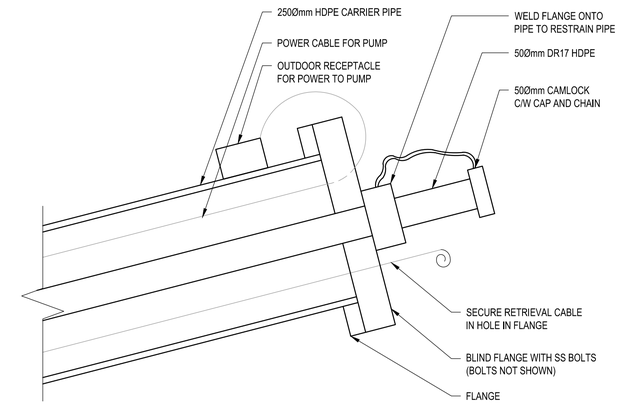
3 | FLEXIBLE MOVEMENT PIPE SUPPORT DETAIL
C-0002 | NOTE: INSTALL IN PIPE BEND AREA AND ON STRAIGHT SECTIONS WITHIN 10m OF THE BEND N.T.S



4 | PIPE SUPPORT (SIDE VIEW) DETAIL
D-3001 | N.T.S

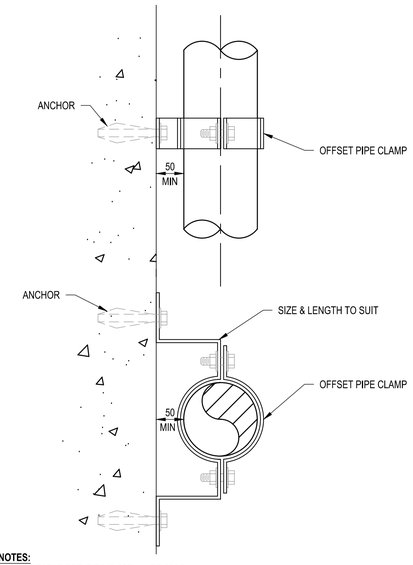


5 | PUMP STOP BAR DETAIL
C-0006 | N.T.S



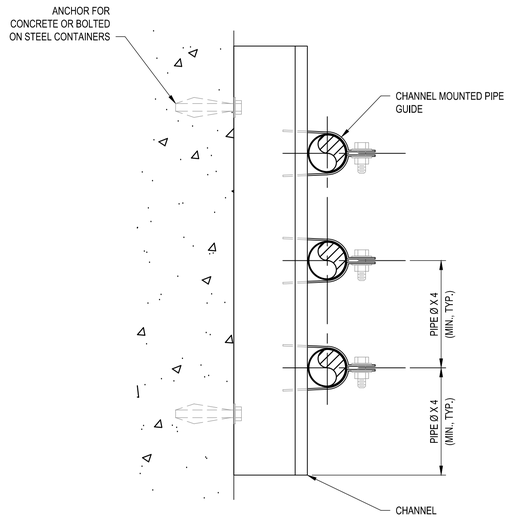
6 | RESERVOIR DRAINAGE PIPE CAP DETAIL
C-0006 | N.T.S

NOTES:
1. INSTALL PUMPS IN SHAFT 42 AND 43 ON DRAWING C-0003.
2. PROVIDE CABLE FROM THE DRAINAGE PUMPS, EXTENDING TO THE RESERVOIR PUMP HOUSE

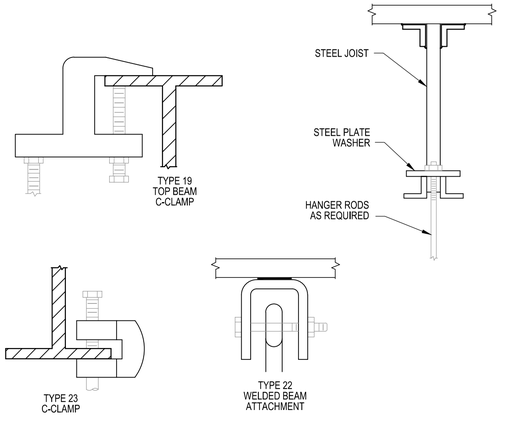


NOTES:
1. SUITABLE FOR PIPING 250mm TO 300Ømm
2. GALVANIZE ALL METAL PARTS AND HARDWARE
3. SUITABLE FOR WALL OR FLOOR SUPPORTED PIPE

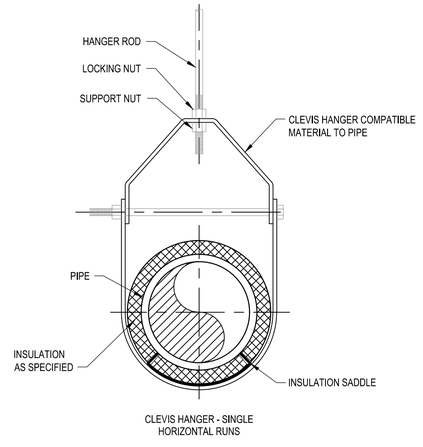
6 | OFFSET PIPE SUPPORT DETAIL
- | NOTE: SIZE TO MATCH PIPE N.T.S



7 | SMALL PIPE WALL MOUNTED SUPPORT DETAIL
- | NOTE: SIDE TO MATCH PIPE N.T.S



8 | PIPE CLEVIS HANGER WITH LOWER ATTACHMENT DETAIL
- | N.T.S



9 | PIPE CLEVIS HANGER WITH LOWER ATTACHMENT DETAIL
- | NOTE: SIZE TO MATCH PIPE N.T.S

Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER P.R. BARSALOU LICENSEE NWT/NU

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
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The Association of Professional Engineers and Geophysicists of the NWT/NU.

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0	ISSUED FOR TENDER	2020/06/19

Client / client
Public Works and Government Services Canada
310- 269 Main Street, R3C 1B3 Winnipeg, MB

Project title / Projet
NUNAVUT EUREKA
EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **A. FARROKHI**
Drawn by / Dessiné par: **S. ELLIOTT**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin
PROCESS MECHANICAL GENERAL PIPING DETAILS SHEET 2 OF 2

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	D-5002 OF	0

PWGSC – A1 – 841X594
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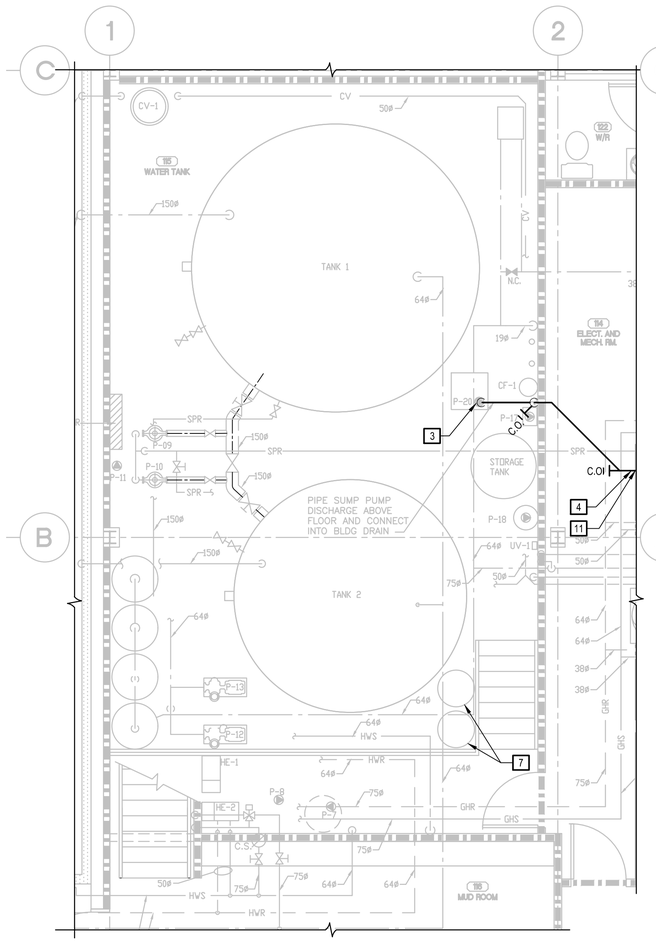
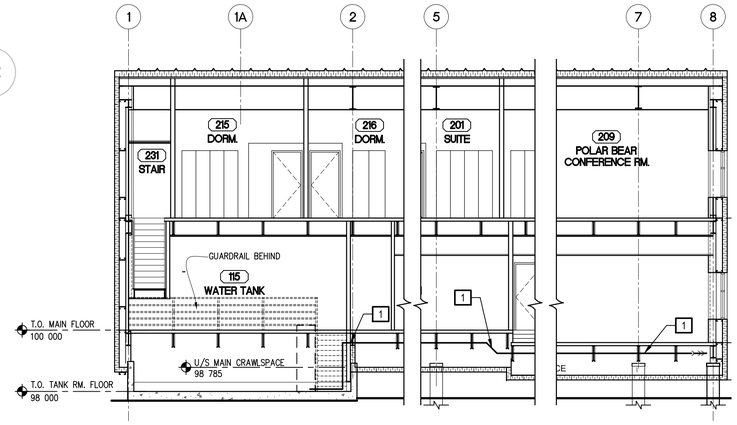


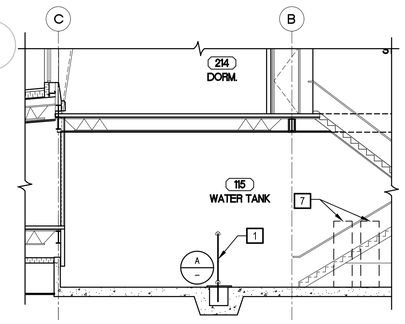
PARTIAL WATER TANK ROOM MODIFICATIONS

Scale 1:50



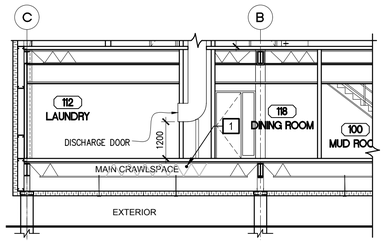
1 PARTIAL SECTION

Scale 1:100



2 PARTIAL SECTION

Scale 1:100



3 PARTIAL SECTION

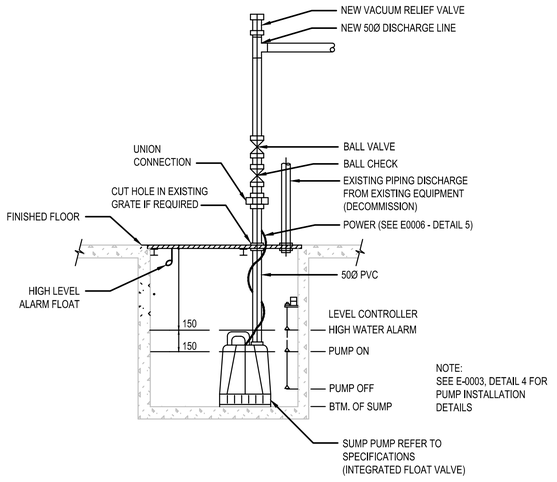
Scale 1:100

GENERAL NOTES:

1. CONTRACTOR TO MAKE SURE THAT ALL PENETRATIONS THROUGH FIRE RATED AREAS ARE PROPERLY SEALED ACCORDING TO THE NATIONAL BLDG. CODE.
2. CONTRACTOR SHALL SITE VERIFY ALL EQUIPMENT LOCATIONS AND COORDINATE WITH OTHER TRADES FOR HEAD ROOM AND SPACE ALLOCATION OF NEW PIPING IN CRAWL SPACE.

DRAWING NOTES:

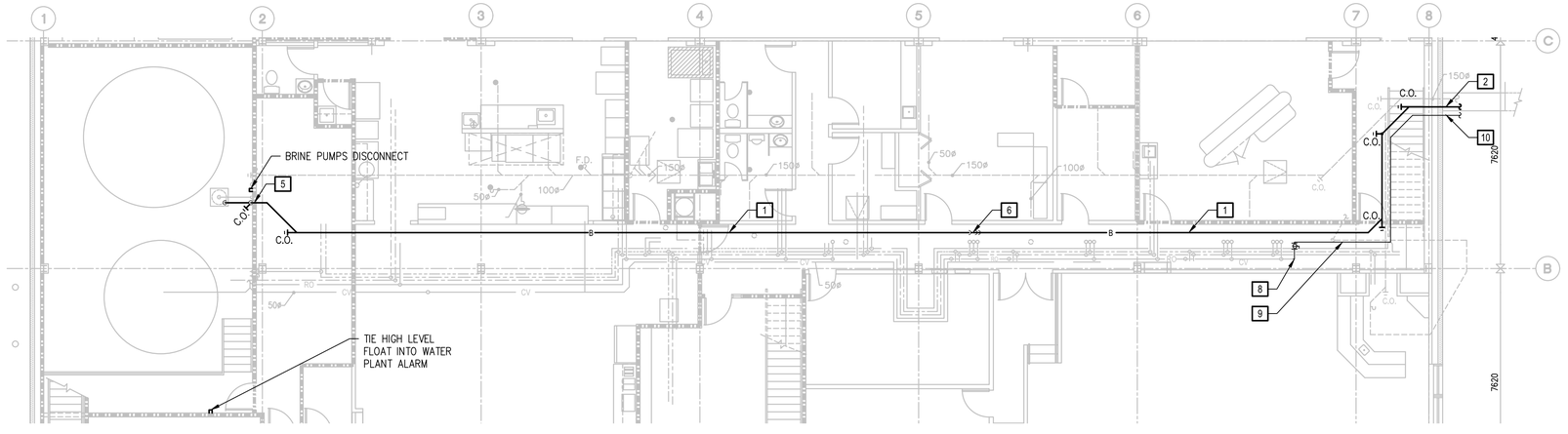
1. NEW 50mm PVC DISCHARGE FROM SUMP PIT TO RUN ALONG CRAWLSPACE AND STRAPPED TO UNDERSIDE OF STRUCTURE IN HEATED SPACE.
2. NEW 50mm HDPE DISCHARGE LINE FROM EXTERNAL LIFT STATION C/W 75mm THERMAL INSULATION, HEAT TRACE AND GALVANIZED JACKET, SEE CIVIL DRAWINGS FOR CONTINUATION. HEAT TRACE FROM LIFT STATION.
3. REMOVE AND REPLACE P-20 AND ASSOCIATED PIPING WITH NEW PUMP AND NEW DISCHARGE PIPING. PLACE NEW 50mm PVC DISCHARGE PIPING IN CRAWLSPACE.
4. FOR CONTINUATION SEE MAIN COMPLEX-PARTIAL MAIN FLOOR PLUMBING PLAN DETAIL 2.
5. CORE THROUGH CONCRETE. NEW PENETRATION TO ACCOMMODATE NEW 50mm PVC DISCHARGE LINE. TO BE PLACED IN CRAWLSPACE. PATCH EXISTING HOLE.
6. DIRECTION CHANGE AT THIS POINT SEE PARTIAL SECTION 1.
7. EXISTING WATER SOFTENERS.
8. NEW 25mm COPPER SERVICE FOR UTILITY WATER, COMPLETE WITH ISOLATION BALL VALVE.
9. NEW 25mm COPPER LINE FROM TAPPING POINT , STRAPPED TO UNDERSIDE OF STRUCTURE.
10. NEW 25mm HDPE EXTERNAL PIPE COMPLETE WITH 75mm INSULATION AND GALVANIZED JACKET. HEAT TRACE FROM LIFT STATION.
11. DISCONNECT EXISTING BRINE LINE FROM EXISTING SANITARY LINE AND PLUG HOLE.



NOTE:
SEE E-0003, DETAIL 4 FOR PUMP INSTALLATION DETAILS

1 SUMP PUMP DETAIL

EXISTING MODIFIED SUMP PIT NTS



EUREKA STATION-PARTIAL MAIN FLOOR PLUMBING PLAN

Scale 1:100

MECHANICAL LEGEND

	CONTROL VALVE
	3-WAY CONTROL VALVE
	BALL VALVE
	CHECK SWING GATE VALVE
	CHECK GATE VALVE C/W BALL DRIP
	BUTTERFLY VALVE
	GLOBE VALVE
	GATE VALVE
	NORMALLY CLOSED VALVE
	PUMP
	PRESSURE GAUGE
	STRAINER
	CAPPED END
	UNION
WM	WATER METER
GM	GAS METER
EWS	EYE WASH
	TRAP
	HOSE BIBB
	QUICK CONNECT
FFD	FUNNEL FLOOR DRAIN
FD	FLOOR DRAIN
RD	ROOF DRAIN
	DRAIN
C.O.	CLEAN OUT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATING
SAN	SANITARY SEWER ABOVE GRADE
SAN	SANITARY SEWER BELOW GRADE
ST	STORM DRAIN ABOVE GRADE
ST	STORM DRAIN BELOW GRADE
RWL	RAIN WATER LEADER ABOVE GRADE
SD	SUMP DISCHARGE
V	SANITARY VENT LINE
FE	FINAL EFFLUENT
B	BRINE LINE
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
FOV	FUEL OIL TANK VENT
	PIPING DOWN
	PIPING UP
	TEE FITTING DOWN FLOW
	TEE FITTING UP FLOW
	FLOW DIRECTION

DRAWING TAGS

1	DRAWING NOTE No.
SH-3	PLUMBING FIXTURE
UH 1	EQUIPMENT DESIGNATION EQUIPMENT No.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
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AECOM

REGISTERED PROFESSIONAL ENGINEER P.R. BARSALOU LICENSEE NWT/NU

PERMIT TO PRACTICE
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Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
C. COURCHAINE

Drawn by / Dessiné par
D. PEREZ

Approved by / Approuvé par
P.BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

MECHANICAL
EUREKA STATION
PARTIAL MAIN FLOOR PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	H-0001 OF	0

PWGSC – A1 – 841X594

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LEGEND

POWER

- WITHDRAWABLE CONNECTION
- LOW VOLTAGE POWER CIRCUIT BREAKER (LVPCB) — 800AF LSIG 600AT
  MODIFIERS: 800AF - FRAME; LSIG - TRIP FUNCTIONS; 600AT - TRIP
  FUNCTIONS: 100% - 100% RATED
- LOW VOLTAGE THERMAL/MAGNETIC BREAKER — TM 3P 120A
  MODIFIERS: 3P - # OF POLES; 120A - TRIP
  FUNCTIONS: 100% - 100% RATED; MCP - MOTOR PROTECTOR
- 7A MCP — MOTOR CIRCUIT PROTECTOR, MAGNETIC ONLY MODIFIERS: 7A CONTINUOUS RATING. 3 POLE UNLESS OTHERWISE NOTED.
- DISCONNECT SWITCH (SINGLE LINE)
- K — KIRK KEY INTERLOCK
- THERMAL OVERLOAD DEVICE
- CONTACT - NORMALLY OPEN
- CONTACT - NORMALLY CLOSED
- X — CAPACITOR C/W KVAR RATING
- DM — DIGITAL METERING
- SPD — SURGE PROTECTION DEVICE
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSOR
- VFD — VARIABLE FREQUENCY DRIVE
- M — UTILITY METER
- ELECTRIC MOTOR - SINGLE PHASE
- ELECTRIC MOTOR - THREE PHASE
- DISTRIBUTION TRANSFORMER
- DELTA CONNECTION
- WYE CONNECTION
- WYE WITH SOLIDLY GROUNDED NEUTRAL
- GROUND CONNECTION
- 100A #X — DISCONNECT SWITCH #X - NEMA RATING
- STARTER - FVNR, FULL VOLTAGE NON-REVERSING
- GROUND ROD

- DUPLEX RECEPTACLE
- ABOVE COUNTER RECEPTACLE
- DRYER RECEPTACLE
- ISOLATED GROUND RECEPTACLE
- SPLIT-FEED RECEPTACLE
- GROUND FAULT (GFCI) RECEPTACLE
- 240V RECEPTACLE
- 120V DIRECT CONNECTION / POWER ROUGH-IN
- 600V DIRECT CONNECTION / POWER ROUGH-IN
- SPECIAL 600V RECEPTACLE
- DISCONNECT SWITCH (FLOOR PLAN)
- FUSED DISCONNECT SWITCH
- COMBINATION DISCONNECT/ MAGNETIC MOTOR STARTER
- M — MANUAL COMBINATION MOTOR STARTER
- UNIT HEATER
- PANEL BOARD - SURFACE MOUNTED
- MISC. PANEL BOARD - FLUSH MOUNTED
- TRANSFORMER
- HAND DRYER
- TERMINAL IN MOTOR STARTER COMPARTMENT
- TERMINAL IN LCP-XXXX
- TERMINAL IN LIT-XXXX
- G — INDICATING LIGHT R = RED, A = AMBER, G = GREEN
- TRANSIENT VOLTAGE SUPPRESSOR
- DUCT HEATER
- 1Ø MOTOR
- 49 — WINDING TEMPERATURE PROTECTION
- CIRCUIT BREAKER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- 3Ø MOTOR
- FUSE
- J — JUNCTION BOX

LIGHTING

- LED LUMINAIRE - SUSPENDED
- LED LUMINAIRE - WALL MOUNTED
- LED WALL PACK
- EXTERIOR WALL MOUNTED
- WALL MOUNTED EXIT LIGHT - ARROWS AS REQUIRED
- WALL MOUNTED EXIT LIGHT WITH REMOTE HEADS
- DUAL FACEPLATE EXIT SIGN - SUSPENDED
- BATTERY PACK C/W HEADS AS INDICATED
- WALL MOUNTED EMERGENCY REMOTE HEADS
- PC — PHOTO ELECTRIC CELL
- OS — OCCUPANCY SENSOR
- # — LUMINAIRE TYPE
- Y — LIGHTING SWITCH
  Y=3: THREE WAY
  Y=4: FOUR WAY
  Y=D: DIMMER
  Y=PL: PILOT LIGHT
  Y=OS: OCCUPANCY SENSOR

COMMUNICATION

- VOICE OUTLET
- DATA OUTLET
- VOICE/DATA OUTLET

FIRE ALARM

- MANUAL PULL STATION
- WALL MOUNTED HORN
- WALL MOUNTED HORN/STROBE
- WALL MOUNTED STROBE
- SMOKE DETECTOR
- HEAT DETECTOR
- RATE OF RISE THERMAL DETECTOR
- DUCT SMOKE DETECTOR
- END OF LINE RESISTOR
- IM — INSULATION MODULE

SECURITY

- CARD READER
- DPS — DOOR POSITION SWITCH
- MD — MOTION DETECTOR
- PUSHBUTTON FOR DOOR BUZZER
- DOOR BUZZER
- KP — KEYPAD
- PAN/TILT/ZOOM (PTZ) CAMERA

CABLES

- OVERHEAD
- DIRECT BURIED

ABBREVIATIONS

AHU	AIR HANDLE UNIT
A.F.F.	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
BLK	BLACK
BMS	BUILDING MANAGEMENT SYSTEM
BU	BATTERY CHARGER CABINET
CEC	CANADIAN ELECTRICAL CODE
CF	CEILING FAN/AIR CONDITIONER
CSTE	CUSTOMER SERVICE TERMINATION ENCLOSURE
DP	600V DISTRIBUTION PANEL BOARD
DCS	DISTRIBUTED CONTROL SYSTEM
DCU	DISTRIBUTED CONTROL UNIT
DN	DOWN
DRI	DIGITAL REMOTE INTERFACE
EF	EXHAUST FAN
EQ	EQUIPMENT
ETR	ELECTRICAL CABLE TRAY
FACP	FIRE ALARM CONTROL PANEL
FD	SMOKE/HEAT DETECTOR
FK	PULL STATION
FSC	FIBRE.COMMUNICATIONS CABINET
FVNR	FULL VOLTAGE NON REVERSING STARTER
FVR	FULL VOLTAGE REVERSING STARTER
GRD	GROUND
HN	HORN/STROBE
IR	INFRARED
ITR	INSTRUMENTATION CABLE TRAY
KB	CONTROL PANEL
LP	LIGHTING PANEL 120/208V
LCP	LIGHTING CONTROL PANEL
LSIG	LONG-TIME, SHORT-TIME, INSTANTANEOUS, GROUND FAULT TRIP BREAKER
MAU	MAKE-UP AIR UNIT
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
mmC	MILLIMETRE CONDUIT
MP	MECHANICAL POWER PANEL 120/208V
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
OH	OVERHEAD
OS	OCCUPANCY SENSOR
PMCS	POWER MANAGEMENT CONTROL SYSTEM
PP	POWER PANEL 120/208V
RED	RED
RTU	ROOF TOP UNIT
RR	RATE OF RISE
SPM	SMART POWER METER
SS	SOFT STARTER
SP	SECURITY PANEL
SPD	SURGE PROTECTION DEVICE
SPT	SPLITTER
SW	SWITCHBOARD
TR	TRANSFORMER
UH	UNIT HEATER
UPS	UNINTERRUPTABLE POWER SUPPLY
UX	UPS DISTRIBUTION PANEL BOARD
WHT	WHITE
WP	WATERPROOF
XP	EXPLOSION PROOF
YLW	YELLOW

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AECOM

REGISTERED PROFESSIONAL ENGINEER — R. BOGDANOV — LICENSED — NWT/NU
Roman Bogdanov, PEng
June 23, 2020

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AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
1	-----	-----
0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **R. BOGDANOV**
Drawn by / Dessiné par: **R. CHAVEZ**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

ELECTRICAL LEGEND

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0000 OF -----	0

EXISTING	LEGEND - PLAN	NEW
P	ABOVEGROUND CABLE	P
UG	UNDERGROUND CABLE	UG

NOTES:

1. CABLE ROUTES SHOWN ARE APPROXIMATE. SITE CONDITIONS MAY REQUIRE MODIFICATION OF ROUTE.
2. CONTRACTOR IS RESPONSIBLE FOR ALL SITE UNDERGROUND AND OVERHEAD SERVICES WITHIN THE WATER AND WASTEWATER INFRASTRUCTURE AND ASSOCIATED TRENCHING ROUTES.
3. CONTRACTOR TO BE RESPONSIBLE FOR ALL CABLES AND SERVICES DAMAGED BY CONSTRUCTION ACTIVITIES.
4. FENCE GROUNDING AS PER 36-312 OF CEC.

1 SITE PLAN
\- Scale 1:1000

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

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Western Region
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REGISTERED PROFESSIONAL ENGINEER R. BOGDANOV LICENSED NWT/NU
Roman Bogdanov, P.Eng
June 23, 2020

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Client / client
Public Works and Government Services Canada
310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet
NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
R. BOGDANOV

Drawn by / Dessiné par
R. CHAVEZ

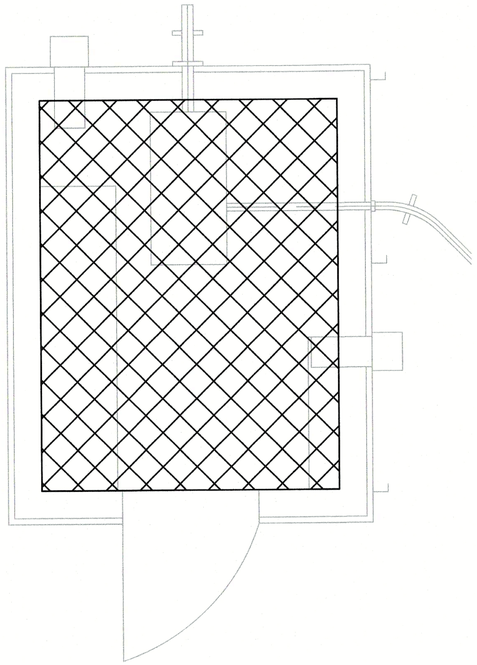
Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

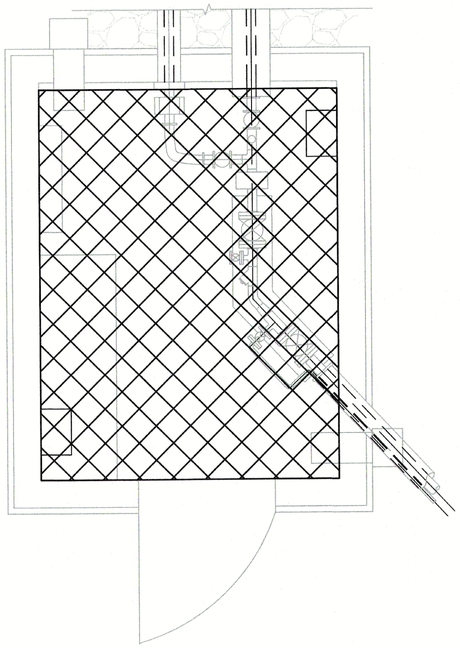
Drawing title / Titre du dessin
ELECTRICAL SITE PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0001 OF ----	0

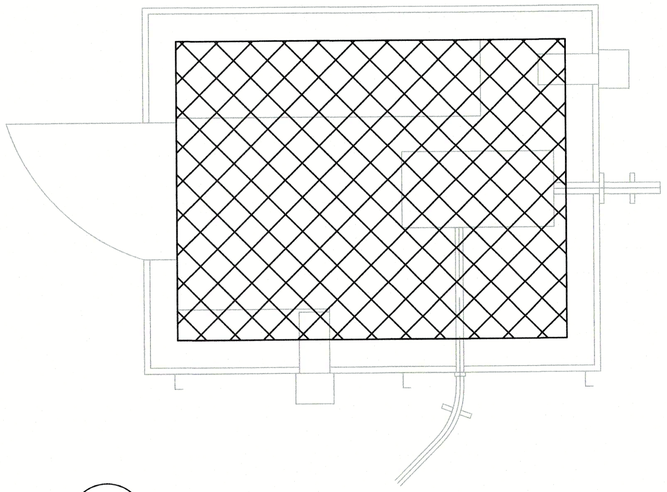
A000



1 | CREEK PUMP STATION PLAN
Scale 1:20



2 | NEW RESERVOIR PUMP STATION PLAN
Scale 1:20

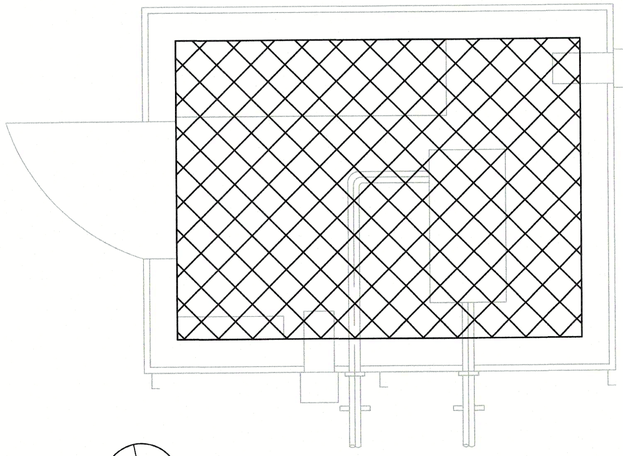


3 | NEW RETENTION BASIN PUMP STATION PLAN
Scale 1:20

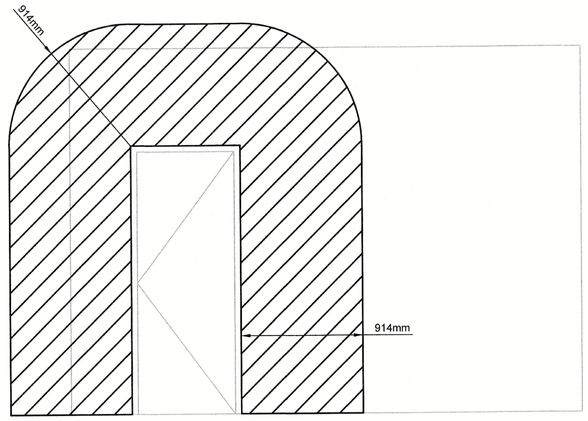
CLASSIFICATION:

- CATEGORY 1
- CATEGORY 2 CORROSIVE (CLASS 1, ZONE 1)
- CATEGORY 2 CORROSIVE (CLASS 1, ZONE 2)

4 | EXISTING RAW WASTEWATER LIFT STATION PLAN
Scale 1:25



6 | NEW RAW WATER TRANSFER STATION
Scale 1:20



5 | EXISTING RAW WASTEWATER LIFT STATION ELEVATION
Scale 1:25

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Roustem Bogdanov, P.Eng
June 23, 2020

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Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
R. BOGDANOV

Drawn by / Dessiné par
R. CHAVEZ

Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

ELECTRICAL CATEGORY & HAZARDOUS AREA CLASSIFICATION

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0002 OF ----	0

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PWGSC – A1 – 841X594

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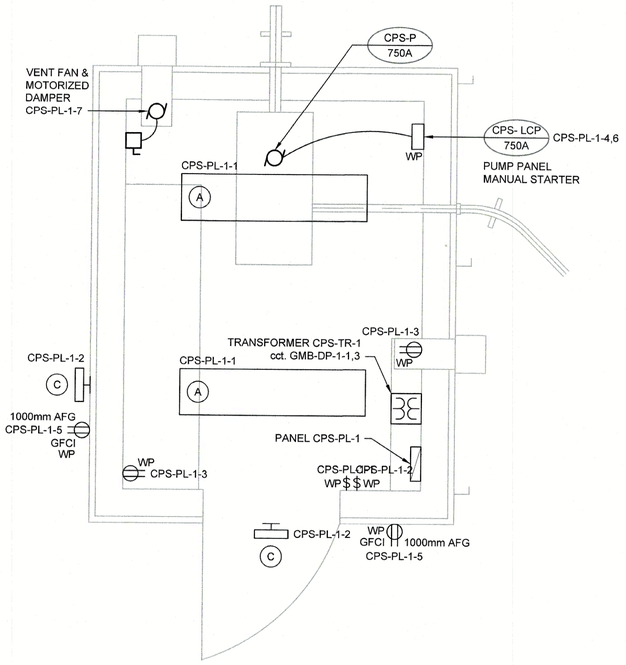
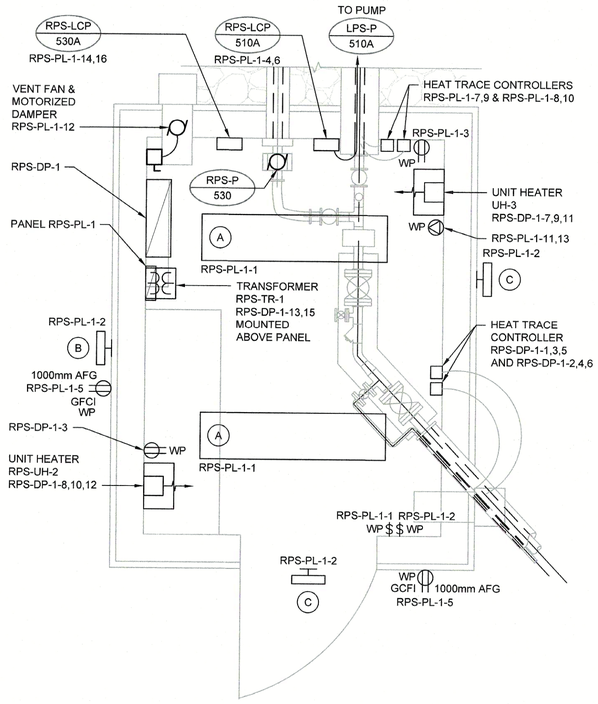
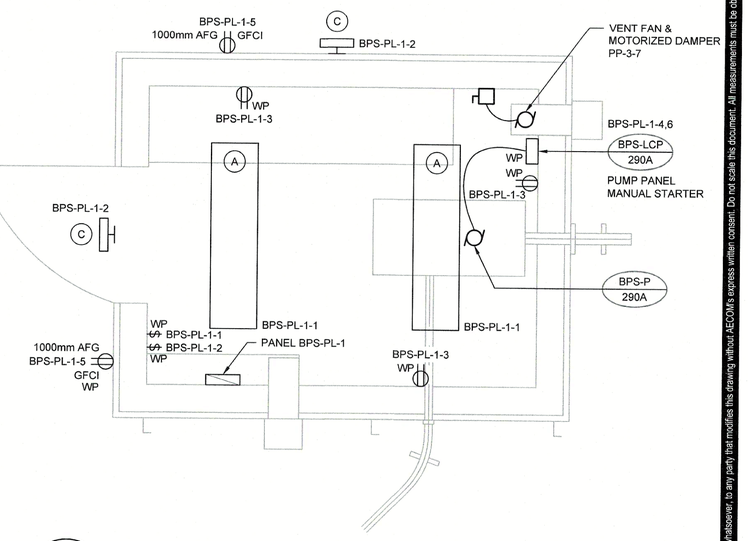


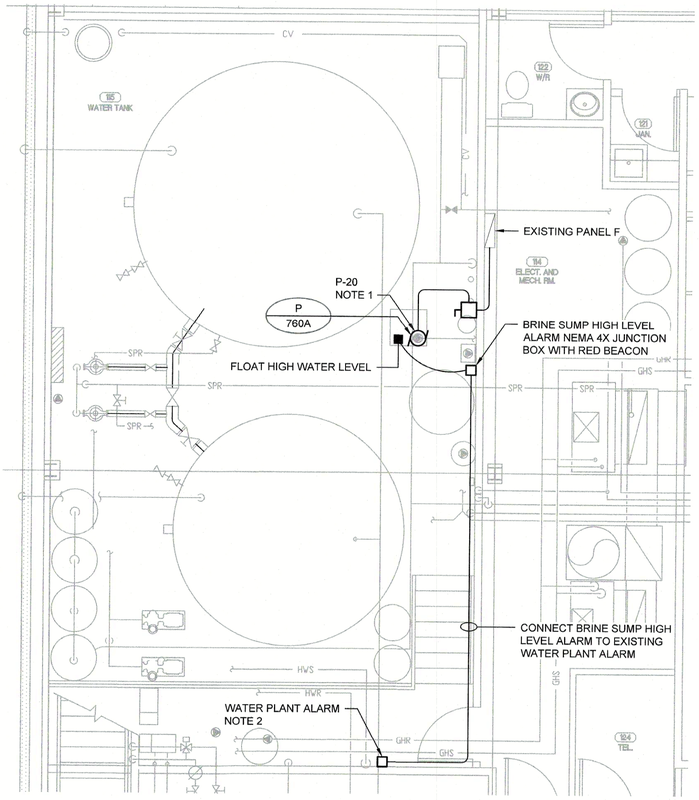
1 | CREEK PUMP STATION PLAN
Scale 1:20



2 | NEW RESERVOIR PUMP STATION PLAN
Scale 1:20



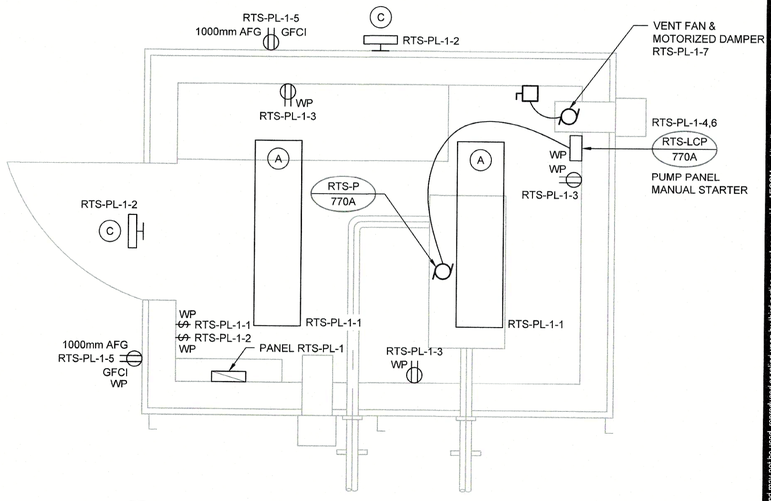
3 | NEW RETENTION BASIN PUMP STATION PLAN
Scale 1:20



4 | BRINE WATER TREATMENT ROOM MODIFICATIONS
Scale 1:50

NOTES:

1. REMOVE AND REPLACE EXISTING SUMP PUMP P-20 WITH NEW SUMP PUMP WITH HIGH LEVEL FLOAT SWITCH. PROVIDE AND INSTALL NEW 120/208V, 3 POLE, 15A BREAKER IN PANEL F cct. 61,63,65. PROVIDE AND INSTALL NEW 3C #12AWG TECK CABLE FROM PANEL F TO NEW PUMP P-20.
2. TIE HIGH LEVEL FLOAT SWITCH IN BRINE SUMP INTO WATER TREATMENT PLANT GENERAL ALARM.



5 | NEW RAW WATER TRANSFER STATION
Scale 1:20

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Roman Bogdanov, P.Eng
June 23, 2020

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Date June 23, 2020
PERMIT NUMBER: P 639
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Revision	Description	Date
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0	ISSUED FOR TENDER	2020/06/19

Client: Public Works and Government Services Canada
310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet
NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: R. BOGDANOV
Drawn by / Dessiné par: R. CHAVEZ
Approved by / Approuvé par: P. BARSALOU
PWGSC Project Manager / Administrateur de Projets TPSGC: M. MOGAN

Drawing title / Titre du dessin
ELECTRICAL
PUMP HOUSES & UPGRADED
EXISTING LIFT STATION PLANS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0003 OF	0

A000

PWGSC – A1 – 841X594

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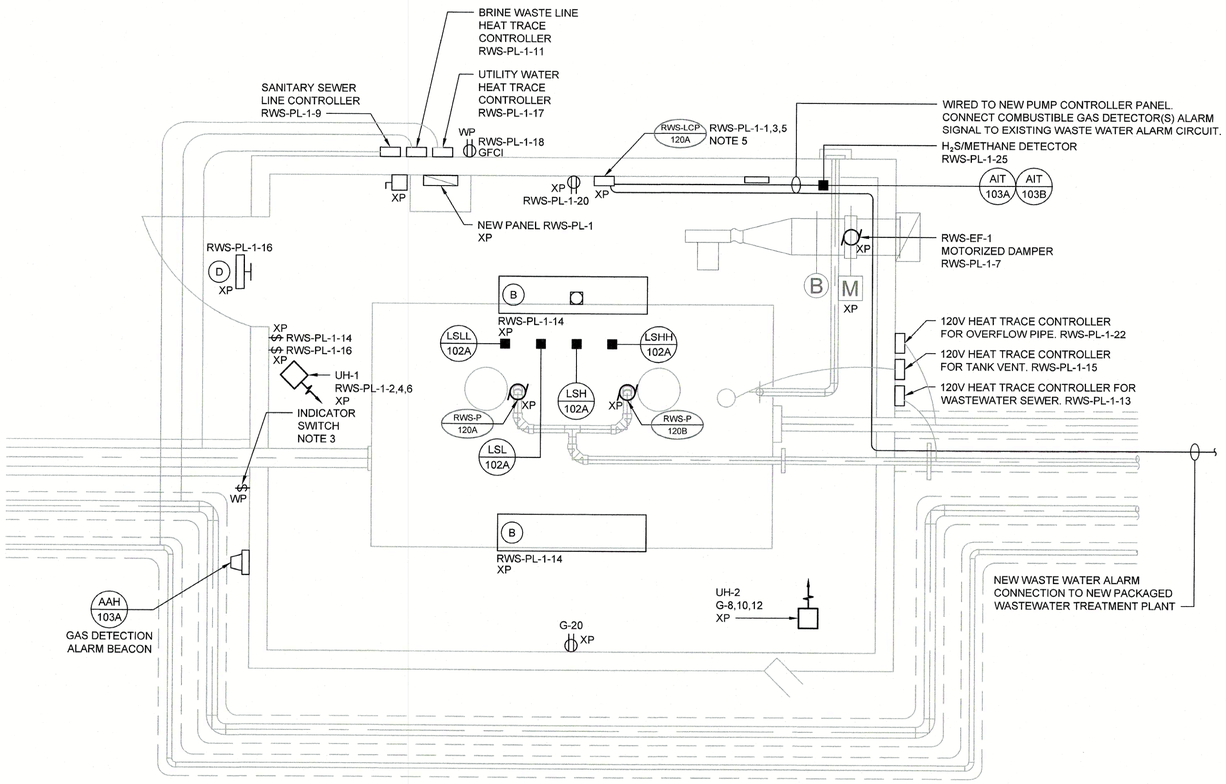

1 EXISTING RAW WASTEWATER LIFT STATION

Scale 1:25

DEMOLITION NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL NOT DISCONNECT EQUIPMENT AND ELECTRICAL CIRCUITS WITHOUT PRIOR NOTIFICATION AND PERMISSION FROM THE DEPARTMENTAL REPRESENTATIVE.
2. DEMOLISH ALL ELECTRICAL EQUIPMENT IN LIFT STATION BUILDING INCLUDING BUT NOT LIMITED TO PUMPS, ELECTRICAL PANEL, LIGHTING FIXTURES, CONDUITS AND WIRING, INSTRUMENTS, SWITCHES, CONTROL PANELS, ETC. ALL DEMOLISHED EQUIPMENT SHALL BE RETURNED TO OWNER.
3. CONTRACTOR WILL BE RESPONSIBLE FOR PATCHING ALL OPENINGS IN EXISTING CONSTRUCTION AFTER REMOVAL OF EQUIPMENT AND ELECTRICAL DEVICES.

INSTALLATION NOTES:

1. ALL ELECTRICAL EQUIPMENT IN LIFT STATION SHALL BE ZONE 1 HAZARDOUS LOCATION RATED (SECTION 18, CEC).
2. ALL ELECTRICAL INSTALLATION SHALL MEET REQUIREMENTS OF SECTION 18, CEC FOR ZONE 1 (CLASS 1, ZONE 1).
3. ZONE 2 RATED 30 MINUTE MECHANICAL TIMER TO ENERGIZE MOTORIZED DAMPER. WHEN DAMPER IS FULLY OPEN TURN ON EXHAUST FAN EF-1.
4. GENERAL ALARM FROM PACKAGED PLANT TO BE WIRED TO GENERAL LIFT STATION ALARM.
5. TIE NEW PANEL INTO EXISTING LIFT STATION ALARM. REPLACE WIRE TO MEET ZONE 1 RATING.
6. USE HAZARDOUS LOCATION RATED FOR ZONE 1 TECK CABLES WITH XP RATED TECK CONNECTORS FOR ALL CABLING WITHIN THE RAW WASTEWATER LIFT STATION.

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REGISTERED PROFESSIONAL ENGINEER R. BOGDANOV LICENSEE NWT/NU

Roman Bogdanov P.Eng
June 23, 2020

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Revision	Description	Date
1	---	---
0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
R. BOGDANOV

Drawn by / Dessiné par
R. CHAVEZ

Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin

ELECTRICAL
EXISTING LIFT STATION PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0004 OF	0

PWGSC – A1 – 841X594

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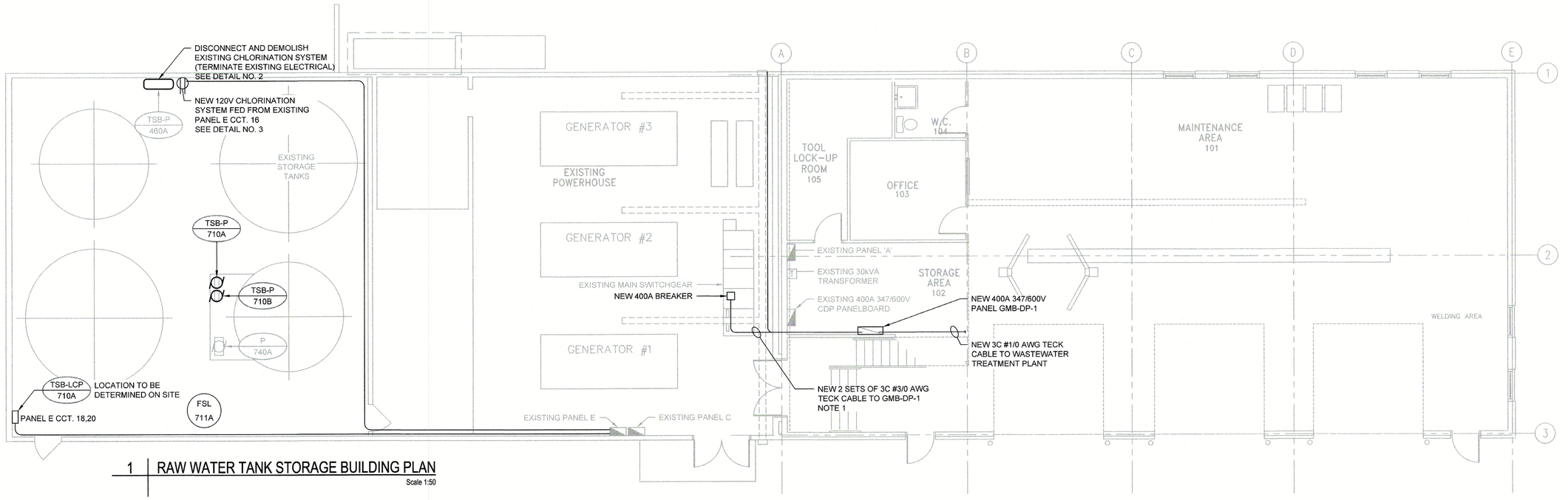
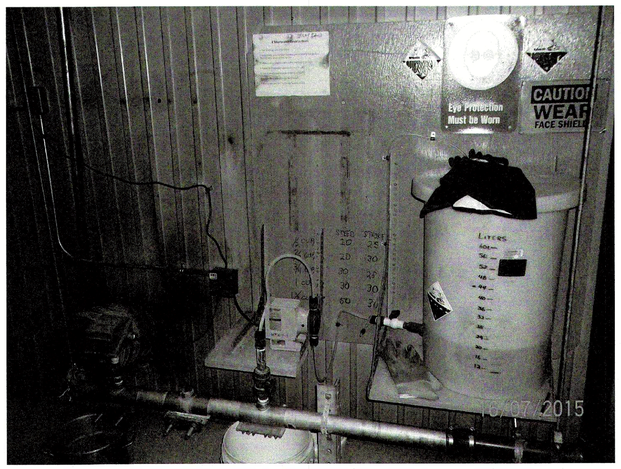
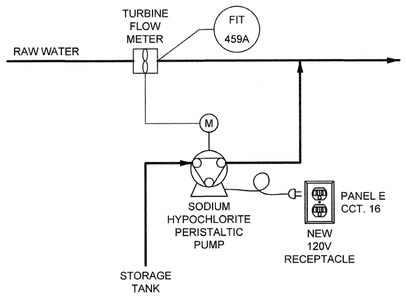


1 | RAW WATER TANK STORAGE BUILDING PLAN
Scale 1:50



2 | EXISTING CHLORINATION SYSTEM FOR DEMOLITION
Scale N.T.S.



3 | NEW CHLORINATION SYSTEM
Scale N.T.S.

NOTES:

1. MAINTAIN 100% SPACING BETWEEN POWER CABLES OR DE-RATE CABLES ACCORDING TO TABLE 5C OF CEC. PROVIDE BARRIER BETWEEN POWER AND CONTROL CABLES.

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REGISTERED PROFESSIONAL ENGINEER R. BOGDANOV LICENSEE NWT/NU
Roman Bogdanov, P.Eng
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Client: client

Public Works and Government Services Canada
310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title: Projet
NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **R. BOGDANOV**
Drawn by / Dessiné par: **R. CHAVEZ**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**
Drawing title / Titre du dessin:
ELECTRICAL
GENERATOR BUILDING PLAN

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0005 OF	0

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

A000

NEW PANEL CPS-PL-1

CCT. NO.	DESCRIPTION	BKR	A	B	BKR	DESCRIPTION	CCT. NO.
1	LIGHTING	15A	*		15A	EXTERIOR LIGHTING	2
3	RECEPTACLES	15A		*	15A 2P	CPS-LCP-750A	4
5	EXTERIOR RECEPTACLES	15A	*				6
7	VENT. FAN	15A		*	15A	SPARE	8
9	SPARE	15A	*		15A	SPARE	10
11	SPACE			*		SPACE	12
13	SPACE		*			SPACE	14
15	SPACE			*		SPACE	16
17	SPACE		*			SPACE	18
19	SPACE			*		SPACE	20
21	SPACE		*			SPACE	22
23	SPACE			*		SPACE	24
25	SPACE		*			SPACE	26
27	SPACE			*		SPACE	28
29	SPACE		*			SPACE	30

VOLTAGE: 120/240V, 1 Phase, 3 Wire	LOCATION : CREEK PUMP STATION
MAIN BREAKER: 60A	FED FROM : CPS-TR-1
MAINS: 100A	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 10KA

NOTES:
-
-
-
-

NEW PANEL RPS-PL-1

CCT. NO.	DESCRIPTION	BKR	A	B	BKR	DESCRIPTION	CCT. NO.
1	LIGHTING	15A	*		15A	EXTERIOR LIGHTING	2
3	RECEPTACLES	15A		*	15A 2P	RPS-LCP-510A	4
5	EXTERIOR RECEPTACLES	15A	*				6
7	HEAT TRACE CONTROLLER GFCI	20A 2P		*	20A 2P	HEAT TRACE CONTROLLER GFCI	8
9			*				10
11	RPS-LCP-510A	15A 2P		*	15A	VENT FAN	12
13			*		15A	SPARE	14
15	SPARE	15A		*	15A	SPARE	16
17	SPACE		*			SPACE	18
19	SPACE			*		SPACE	20
21	SPACE		*			SPACE	22
23	SPACE			*		SPACE	24
25	SPACE		*			SPACE	26
27	SPACE			*		SPACE	28
29	SPACE		*			SPACE	30

VOLTAGE: 120/240V, 1 Phase, 3 Wire	LOCATION : NEW RESERVOIR PUMP STATION
MAIN BREAKER: 60A	FED FROM : RPS-TR-1
MAINS: 100A	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 10KA

NOTES:
-
-
-
-

NEW PANEL BPS-PL-1

CCT. NO.	DESCRIPTION	BKR	A	B	BKR	DESCRIPTION	CCT. NO.
1	LIGHTING	15A	*		15A	EXTERIOR LIGHTING	2
3	RECEPTACLES	15A		*	15A 2P	BPS-LCP-290A	4
5	EXTERIOR RECEPTACLES	15A	*				6
7	VENT. FAN	15A		*	15A	SPARE	8
9	SPARE	15A	*		15A	SPARE	10
11	SPACE			*		SPACE	12
13	SPACE		*			SPACE	14
15	SPACE			*		SPACE	16
17	SPACE		*			SPACE	18
19	SPACE			*		SPACE	20
21	SPACE		*			SPACE	22
23	SPACE			*		SPACE	24
25	SPACE		*			SPACE	26
27	SPACE			*		SPACE	28
29	SPACE		*			SPACE	30

VOLTAGE: 120/240V, 1 Phase, 3 Wire	LOCATION : NEW RETENTION BASIN PUMP STATION
MAIN BREAKER: 60A	FED FROM : HYD-01
MAINS: 100A	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 10KA

NOTES:
-
-
-
-

NEW PANEL GMB-DP-1

CCT. NO.	DESCRIPTION	BKR	A	B	C	BKR	DESCRIPTION	CCT. NO.
1	CREEK PUMP HOUSE	20A 2P	*			30A 2P	RAW WATER RESERVOIR PUMP HOUSE	2
3				*				4
5	FAN #1	15A 3P			*	15A 3P	FAN #2	6
7			*					8
9				*				10
11	RAW WASTEWATER LIFT STATION	30A 3P			*	90A 3P	NEW PACKAGED WASTEWATER TREATMENT PLANT	12
13			*					14
15				*				16
17	NEW RAW WATER TRANSFER STATION	15A 2P			*	30A 3P	SPARE	18
19			*					20
21	SPARE	15A		*				22
23	SPARE	15A			*		SPACE	24
25	SPACE		*				SPACE	26
27	SPACE			*			SPACE	28
29	SPACE				*		SPACE	30

VOLTAGE: 600V, 3 Phase, 3 Wire	LOCATION : STORAGE AREA 102 (GENERATOR ROOM)
MAIN BREAKER: 400A	FED FROM : SWITCHGEAR
MAINS: 400A	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 25KA

NOTES:
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NEW PANEL RWS-PL-1

CCT. NO.	DESCRIPTION	BKR	A	B	C	BKR	DESCRIPTION	CCT. NO.
1	RWS-LCP-120A	20A 3P	*			20A 3P	5kW RWS-UH-1 UNIT HEATER	2
3				*				4
5					*			6
7	EF-1 MOTORIZED DAMPER	15A	*			20A 3P	5kW RWS-UH-2 UNIT HEATER	8
9	SANITARY SEWER HEAT TRACE	15A		*				10
11	BRINE LINE HEAT TRACE	15A			*			12
13	WASTEWATER SEWER HEAT TRACE	15A	*			15A	LIGHTING	14
15	TANK VENT HEAT TRACE	15A		*		15A	EXTERIOR LIGHTING	16
17	UTILITY WATER HEAT TRACE	15A			*	15A	EXTERIOR RECEPTACLE	18
19	SPARE	20A 3P	*			15A	INTERIOR RECEPTACLES	20
21				*		15A	OVER FLOW HEAT TRACE	22
23					*	15A	SPARE	24
25	SPARE	15A 3P	*			15A	SPARE	26
27				*		15A	SPARE	28
29					*	15A	SPARE	30

VOLTAGE: 120/208V, 3 Phase, 4 Wire	LOCATION : RAW WASTEWATER LIFT STATION
MAIN BREAKER: 100A	FED FROM : RWS-TR-1
MAINS: 125A	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 10KA

NOTES:
1.PROVIDE GFCI BREAKERS FOR HEAT TRACE CONTROLLERS, CIRCUITS 9,11,13,15 AND 22. REVIEW HEAT TRACE CONTROLLERS MANUFACTURER INSTRUCTION BEFORE PANEL ORDERING. IF CONTROLLERS COMES WITH INTERNAL GFCI PROTECTION, GFCI BREAKERS NOT REQUIRED.
2. ZONE 1, CATEGORY 2 RATED.

EXISTING PANEL E

CCT. NO.	DESCRIPTION	BKR	A	B	C	BKR	DESCRIPTION	CCT. NO.
1	TANK ROOM UNIT HEATERS	15A	*			40A 3P	SPARE	2
3	TANK ROOM LIGHTS	15A		*				4
5	TANK ROOM PLUGS	15A			*			6
7	ROOF FANS	15A	*			20A	HEAT TRACE GFI	8
9	HEAT TRACE	15A		*		20A	LIGHT	10
11	SPACE				*	20A 2P	HIGH BAY	12
13	-	15A 3P	*					14
15				*		15A	CHLORINATION SYSTEM	16
17					*	15A 2P	TSB-LCP-710A	18
19	UNKNOWN	30A 2P	*					20
21				*		15A	SPARE	22
23	SPARE	15A			*	15A	SPARE	24
25	SPARE	15A	*			15A	SPARE	26
27	SPACE			*			SPACE	28
29	SPACE				*		SPACE	30

EXISTING

EXISTING

VOLTAGE: 120/240V, 3 Phase, 3 Wire	LOCATION : RAW WATER TANK STORAGE BUILDING
MAIN BREAKER:	FED FROM :
MAINS:	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 10KA

NOTES:
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LUMINAIRE SCHEDULE

SYMBOL	LABEL	TYPE	VOLTS	LAMP	DESCRIPTION	MOUNTING
	A	LED	120V	N/A	INDUSTRIAL LINEAR LED LUMINAIRE WITH FIBERGLASS HOUSING , STAINLESS STEEL WIRE GUARD, 3500K, MINIMUM 50000 LIFETIME HOURS, NEMA 4X. ARCTIC WEATHER RATED.	CEILING MOUNTED
	B	LED	120V	N/A	INDUSTRIAL LINEAR LED LUMINAIRE, STAINLESS STEEL WIRE GUARD, 3500K, MINIMUM 50000 LIFETIME HOURS, RATED FOR ZONE 1 (CLASS 1, ZONE 1 HAZARD LOCATION)	CEILING MOUNTED
	C	LED	120V	N/A	LED LUMINAIRE WITH DIE-CAST ALUMINUM HOUSING, GASKETED, STAINLESS STEEL WIRE GUARD, RATED FOR OUTDOOR AND ARCTIC WEATHER INSTALLATIONS.	WALL MOUNTED
	D	LED	120V	N/A	LED LUMINAIRE WITH DIE-CAST ALUMINUM HOUSING, GASKETED, STAINLESS STEEL WIRE GUARD, RATED FOR CLASS 1, ZONE 2. ARCTIC WEATHER RATED.	WALL MOUNTED

NEW PANEL RPS-DP-1

CCT. NO.	DESCRIPTION	BKR	A	B	C	BKR	DESCRIPTION	CCT. NO.
1	HEAT TRACE	15A 3P	*			15A 3P	HEAT TRACE	2
3				*				4
5					*			6
7	5kW UNIT HEATER RPS-UH-1	15A 3P	*			15A 3P	5kW UNIT HEATER RPS-UH-2	8
9				*				10
11					*			12
13	PANEL RPS-PL-1	15A 2P	*			15A 3P	SPARE	14
15				*				16
17	SPACE				*			18

VOLTAGE: 600V, 3 Phase, 3 Wire	LOCATION : NEW RESERVOIR PUMP STATION
MAIN BREAKER: 30A	FED FROM : GMB-DP-1
MAINS: 225A	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 25KA

NOTES:
1. PROVIDE GFCI BREAKERS FOR HEAT TRACE CONTROLLERS.

NEW PANEL RTS-PL-1

CCT. NO.	DESCRIPTION	BKR	A	B	BKR	DESCRIPTION	CCT. NO.
1	LIGHTING	15A	*		15A	EXTERIOR LIGHTING	2
3	RECEPTACLES	15A		*	15A 2P	RTS-LCP-770A	4
5	EXTERIOR RECEPTACLES	15A	*				6
7	VENT. FAN	15A		*	15A	SPARE	8
9	SPARE	15A	*		15A	SPARE	10
11	SPACE			*		SPACE	12
13	SPACE		*			SPACE	14
15	SPACE			*		SPACE	16
17	SPACE			*		SPACE	18
19	SPACE			*		SPACE	20
21	SPACE		*			SPACE	22
23	SPACE			*		SPACE	24
25	SPACE		*			SPACE	26
27	SPACE			*		SPACE	28
29	SPACE			*		SPACE	30

VOLTAGE: 120/240V, 1 Phase, 3 Wire	LOCATION : RAW WATER TRANSFER STATION
MAIN BREAKER: 60A	FED FROM : RTS-TR-1
MAINS: 100A	FEEDER :
MOUNTING: SURFACE	BREAKER I.C. : 10KA

NOTES:
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Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF THE NWT/NU
R. BOGDANOV
LICENSEE
June 23, 2020

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
1	----	----
0	ISSUED FOR TENDER	2020/06/19

Client: Public Works and Government Services Canada
310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet: NUNAVUT EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: R. BOGDANOV
Drawn by / Dessiné par: R. CHAVEZ
Approved by / Approuvé par: P. BARSALOU
PWGSC Project Manager / Administrateur de Projets TPSGC: M. MOGAN

Drawing title / Titre du dessin: ELECTRICAL SCHEDULES

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0006 OF	0

A000

PWGSC – A1 – 841X594

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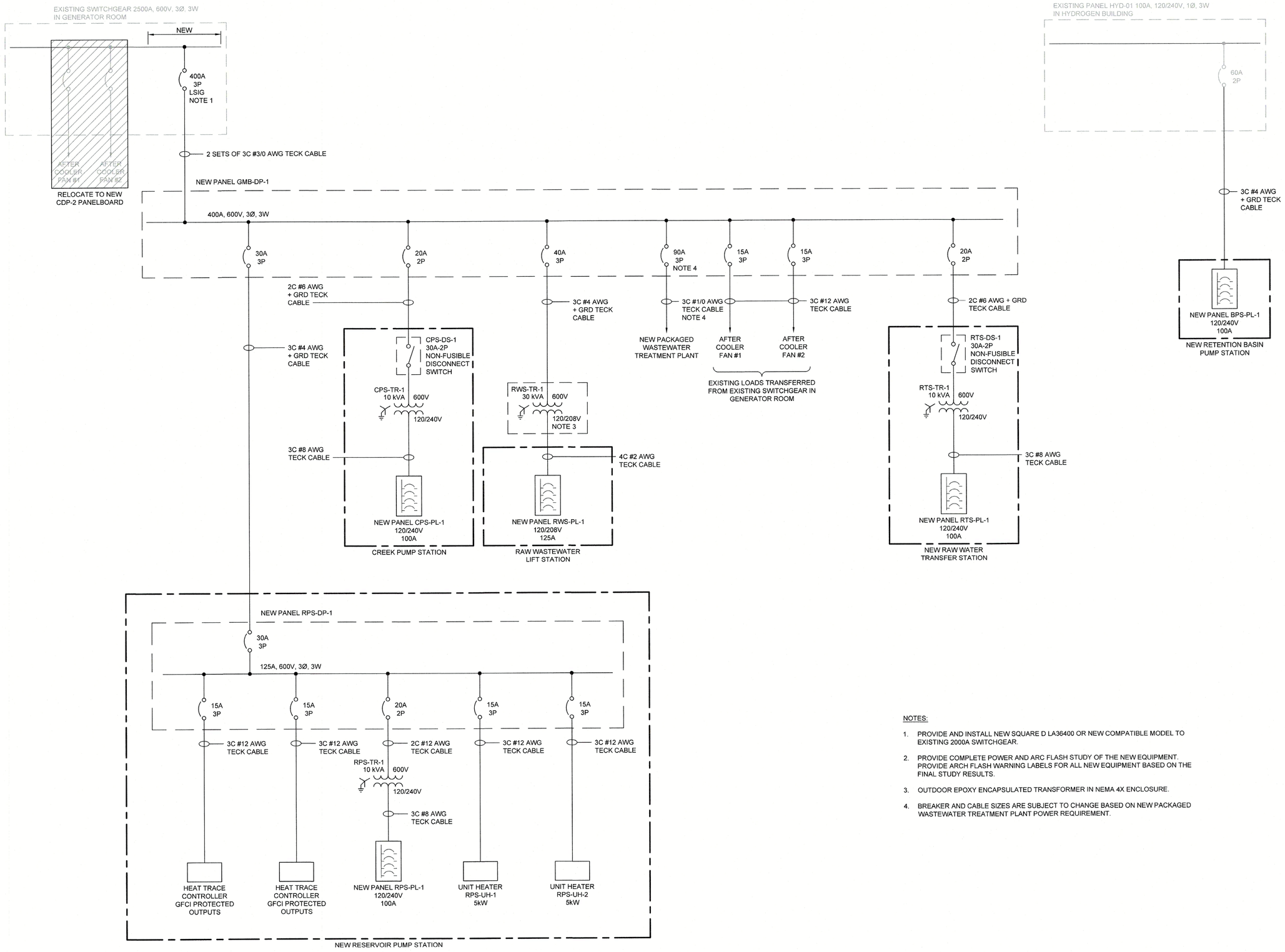

NOTES:

1. PROVIDE AND INSTALL NEW SQUARE D LA36400 OR NEW COMPATIBLE MODEL TO EXISTING 2000A SWITCHGEAR.
2. PROVIDE COMPLETE POWER AND ARC FLASH STUDY OF THE NEW EQUIPMENT. PROVIDE ARCH FLASH WARNING LABELS FOR ALL NEW EQUIPMENT BASED ON THE FINAL STUDY RESULTS.
3. OUTDOOR EPOXY ENCAPSULATED TRANSFORMER IN NEMA 4X ENCLOSURE.
4. BREAKER AND CABLE SIZES ARE SUBJECT TO CHANGE BASED ON NEW PACKAGED WASTEWATER TREATMENT PLANT POWER REQUIREMENT.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER R. BOGDANOV LICENSEE NWT/NU
Roman Bogdanov P.Eng
June 23, 2020

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
1	---	---
0	ISSUED FOR TENDER	2020/06/19

Client / client

Public Works and Government Services Canada

310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet

NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par: **R. BOGDANOV**
Drawn by / Dessiné par: **R. CHAVEZ**
Approved by / Approuvé par: **P. BARSALOU**
PWGSC Project Manager / Administrateur de Projets TPSGC: **M. MOGAN**

Drawing title / Titre du dessin

ELECTRICAL SINGLE LINE DIAGRAM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0007 OF	0

PWGSC – A1 – 841X594

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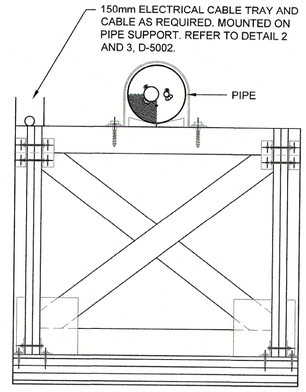
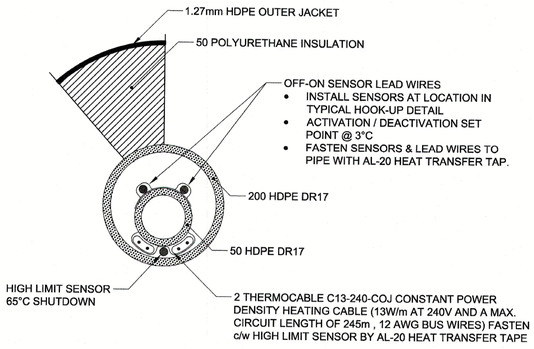


1 CABLE TRAY AND PIPE SUPPORT DETAIL

Scale N.T.S.

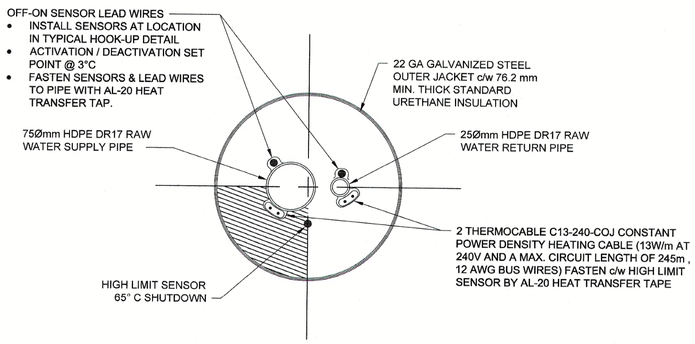


2 WATER INTAKE PIPE HEAT TRACE DETAIL

Scale N.T.S.

- SENSORS TO BE 2-LEAD-TYPE THERMISTORS WHICH SENSE TEMP. CHANGE WITH CHANGE IN ELECTRICAL RESISTANCE.
- REQUIRE EXTRA LONG LEAD FOR ON-OFF SENSOR AS DETAILED

(THERMISTORS, CONTROLLER, ELECTRIFICATION AND EXTENSION OF SERVICE TO BE BY OTHERS)



3 RAW WATER SUPPLY AND RETURN PIPE DETAIL

N.T.S

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

AECOM

REGISTERED PROFESSIONAL ENGINEER R. BOGDANOV LICENSEE NWT/NU
Rostem Bogdanov P.Eng
June 23, 2020

PERMIT TO PRACTICE
AECOM Canada Ltd.
Signature
Date June 23, 2020
PERMIT NUMBER: P 639
The Association of Professional Engineers and Geophysicists of the NWT/NU.

Revision	Description	Date
1	----	----
0	ISSUED FOR TENDER	2020/06/19

Client / client
Public Works and Government Services Canada
310- 269 Main Street, R3C 1B3
Winnipeg, MB

Project title / Projet
NUNAVUT
EUREKA

EUREKA WATER AND SEWAGE SYSTEM

Designed by / Conçu par
R. BOGDANOV

Drawn by / Dessiné par
R. CHAVEZ

Approved by / Approuvé par
P. BARSALOU

PWGSC Project Manager / Administrateur de Projets TPSGC
M. MOGAN

Drawing title / Titre du dessin
ELECTRICAL DETAILS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.037261.001	E-0008 OF	0

A000

PWGSC – A1 – 841X594

0 10 20 30 40 50 60 70 80 90 100mm

Attachment F

Description of Exfiltration Trench

Grey Water Exfiltration Trench

Purpose

The purpose of the proposed grey water exfiltration trench (referred to as "sump" in NPC File No. 149617) is for treatment of an estimated 5 m^3 of grey water produced daily by the Nuna Camp (**Figure 1**) for a 3-month period in the summer from 2022 to 2025. The grey water will mainly consist of water from sinks, showers, and the kitchen. Black waste from toilets would continue to be treated separately with incineration toilets. The grey water would mainly consist of wash water, with a low level of solids and ammonia in it.

Description

Grey water produced by the Temporary Camp referred to in the Licence will be collected and batch discharged into a grey water exfiltration trench. The trench is a subsurface system consisting of a perforated pipe, surrounded by aggregate, which provides temporary storage and then passive treatment of received water by exfiltration. Water flows from the perforated pipe through the layer of surrounding aggregate and in-situ soil reducing BOD5, TSS, total ammonia nitrogen, and other parameters. Treatment occurs through natural filtration and organic treatment prior to flowing into a water body, like a septic field but with a much less concentrated input load.

Grey water is proposed to be collected in a holding tank instead of an "old-fashioned" soak pit due to the higher daily flow and the permafrost layer in the area. Collected grey water will be pumped from the tank into the exfiltration trench for passive treatment. The trench bottom would be flat, with zero grade to ensure that water exfiltrates through soil at the same rate. Groundwater would seep through the soil going downhill taking many years to reach a body of water thereby significantly reducing parameters of concern. It is assumed that the trench would be constructed in the existing soil on site, that is typically silty, gravelly sand.

The soil will allow the water to percolate through it, but the fine components will slow the exfiltration, allowing some natural soil treatment. The proposed location of the trench is identified in **Figure 1**, however its siting may vary by 100 meters to optimize the soil properties and location. The exfiltration trench will be located at minimum of 100 meters from the nearest body of water.

(Source: Google Earth, 2022)

Figure 1: Proposed Grey Water Exfiltration Trench.

It is proposed to install one exfiltration trench 60 m long, 1.5 m wide and 0.6 m deep as shown in **Figure 2**. The total storage capacity of the trenches would be approximately 45 m^3, which would be adequate for a temporary storage of a 9-day grey water discharge volume to accommodate high flows or wet conditions. Unsaturated exfiltration capacity of the proposed exfiltration trench was estimated at 32.5 litres/m3/day (0.8 US Gal/ft2/day).

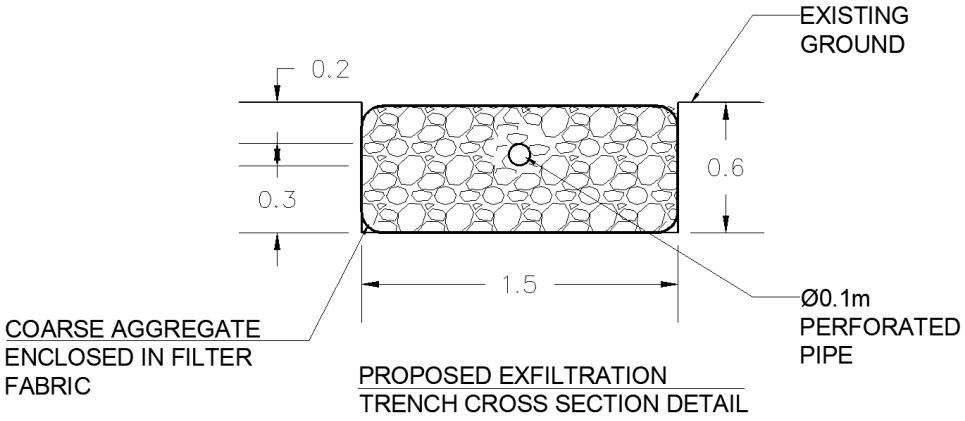


Figure 2: Proposed Exfiltration Trench Cross Section

Plans for Operation

The grey water would flow to a holding tank and periodically be pumped into the trench, based on float levels in the holding tank. Operation of the trench with a periodic pumped feed is required rather than a gravity feed system. It is important to soak the entire trench, each time it is dosed.

As this system will operate during summer months only, it was designed as a very shallow system. The system would be used over the summer and the collection tank would be drained for winter. In spring, the system can be restarted in late June once the upper 0.1 m of ground has thawed. The system will rapidly melt over the upcoming weeks. It is recommended that the inground 100mm perforated pipe be HDPE with holes drilled in it, as that material performs well with freeze thaw. The trench would be filled with granular that has a low fines content to allow for distribution of the water. The proposed exfiltration system layout is shown in **Figure 3**.

The Summary of Operation and Maintenance Procedures for Drinking Water Sewage, Solid Waste Disposal and Waste Treatment Facilities (June 2021 Application Attachment E) previously provided will be revised to include the plans for trench operation described above and provided to the Nunavut Water Board within 90-days of the construction of the trench.

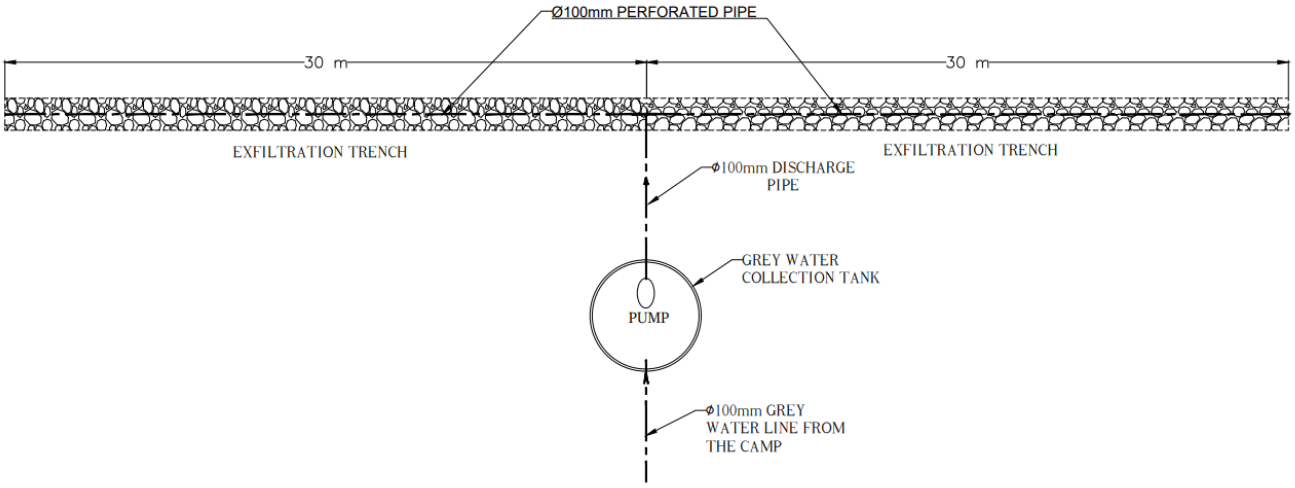


Figure 3: Proposed Exfiltration System Layout

Plans for Decommissioning

Once the exfiltration trench is no longer required, the distribution pipe should be removed, and the site should be leveled and allowed to return to pre-existing conditions. The Abandonment and Restoration Plan (June 2021 Application Attachment F) previously provided will be revised to include the plans for exfiltration trench decommissioning described above and provided to the Nunavut Water Board at least 90-days after construction of the trench.

Attachment G

Applicable NPC and NIRB determinations

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Nunavunmi Parnaiyiit
Nunavut Planning Commission
Commission d'Aménagement du Nunavut

February 9, 2021
NPC File No.: 149457

Talia Maksagak
Manager, Technical Administration
Nunavut Impact Review Board (NIRB)
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Alexander Stubbing
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Jean-Philippe Cloutier-Dussault
Environment Canada
Eureka wheather Station
Montreal Québec H3C 4G8 Canada
By email: jean-philippe.cloutier-dussault@canada.ca; robin.reese@aecom.com

Dear Ms. Maksagak, Mr. Dwyer, Ms. McCaie, Ms. D'Amours-Gauthier, Ms. Stubbing, and Ms. Cloutier-Dussault:

RE: NPC File # 149457 [West Remus Creek Quarry Expansion]

- **Related NPC File No.:** *148232 [Renewal of Eureka weather station Land use permit], 148241 [Eureka Weather Station Water Licence Renewal], 148746 [Amended Land Use Permit application for Eureka Weather Station], 149440 [Building Demolition and Temporary Camp at Eureka High Arctic Weather Station (HAWS), Amendment and Renewal of Water Licence and Extension of Quarry Permit]*
- ***Related NIRB File No.:** 11MN034; **Related NWB File No.:** 2 AM -MEL1631.*
- ***Location:** Qikiqtani Region; [Eureka, approximately 400 km North of Resolute Bay]*

The following works and activities have been proposed in the above-noted project proposal:

1. Quarry site: Additional aggregate, estimated at 175,000 m3 a portion of which is contingency, is required to support project activities at the Eureka High Arctic Weather Station (HAWS). Therefore, an expansion of the quarry at West Remus Creek is needed as the additional aggregate required is not available within the current permitted boundaries. The primary expansion area is immediately east of the quarry and north Remus Creek; two other contingency areas located east of the quarry and south of Remus Creek are propose in the case that acceptable aggregate grade is not available in the primary expansion area. Additional project activities include

the construction of two temporary culvert stream crossings across Remus Creek and West Remus Creek, and archeological investigations.

A complete description of the project proposal reviewed by the NPC can be accessed online using the link below.

The Nunavut Planning Commission (NPC) has completed its review of the above noted project proposal. The NPC previously reviewed works and activities associated with the current proposal, including a type B water license and the development of a quarry site. Conformity determinations were issued on December 17, 2010, April 19, 2012, April 14, 2016, and March 7, 2018, and most recently January 22,2021. This conformity determination still applies. In addition, associated activities were previously screened by the Nunavut Impact Review Board (NIRB FILE NO.: 12XN020).

The NPC has determined that the above-noted project proposal is a significant modification to the project because it includes the expansion of a quarry site. It conforms to the North Baffin Regional Land Use Plan (NBRLUP). The proponent has undertaken to comply with the applicable conformity requirements of Appendix C, H, and I of the NBRLUP.

The above-noted project proposal requires screening by the NIRB under section 12.4.3 of the Nunavut Agreement as amended because it is for a component or activity that was not part of the original or previously amended proposal, and its inclusion is a significant modification of the project. By way of this letter, the NPC is forwarding the project proposal with this determination to the NIRB for screening. Project materials, including the applicable conformity requirements, are available at the following address:
https://lupit.nunavut.ca/portal/project-dashboard.php?appid=149457&sessionid=

The regulatory authorities to which this letter is addressed are responsible under the Nunavut Planning and Project Assessment Act (NUPPAA) to implement any of the applicable requirements by incorporating the requirements directly, or otherwise ensuring that they must be met, in the terms and conditions of any authorizations issued.

This conformity determination applies only to the above-noted project proposal as submitted. Proponents may not carry out projects, and regulatory authorities may not issue licenses, permits and other authorizations in respect of projects if a review by the NPC is required. Regulatory authorities may consult with the NPC to obtain recommendations on their duties to implement the existing land use plans prior to issuing licenses, permits and other authorizations under subsection 69(6) of the NUPPAA.

My office would be pleased to discuss how best to implement the applicable requirements and to review any draft authorizations that regulatory authorities wish to provide for that purpose. If you have any questions, please do not hesitate to contact me at (867) 979-3444.

Sincerely,

Goump Djalogue
Senior Planner, MCIP, RPP
Nunavut Planning Commission

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Nunavunmi Parnaiyiit
Nunavut Planning Commission
Commission d'Aménagement du Nunavut

February 22, 2021
NPC File No.: 149476

Talia Maksagak
Manager, Technical Administration
Nunavut Impact Review Board (NIRB)
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Veronique D'Amours-Gauthier
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Alexander Stubbing
Director of Culture and Heritage
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sleblanc1@gov.nu.ca

Jean-Philippe Cloutier-Dussault
Environment Canada
Eureka wheather Station
Montreal Québec H3C 4G8 Canada
By email: jean-philippe.cloutier-dussault@canada.ca; robin.reese@aecom.com

Dear Ms. Maksagak, Mr. Dwyer, Ms. McCaie, Ms. D'Amours-Gauthier, Ms. Stubbing, and Ms. Cloutier-Dussault:

RE: NPC File # 149476 [Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades, Temporary Camp and Amendment of Water Licence, for the Eureka High Arctic Weather Station]

- **Related NPC File No.:** *148232 [Renewal of Eureka weather station Land use permit], 148241 [Eureka Weather Station Water Licence Renewal], 148746 [Amended Land Use Permit application for Eureka Weather Station], 149440 [Building Demolition and Temporary Camp at Eureka High Arctic Weather Station (HAWS), Amendment and Renewal of Water Licence and Extension of Quarry Permit], 149457 [West Remus Creek Quarry Expansion]*
- ***Related NIRB File No.:*** *12XN020;* ***Related NWB File No.:*** *8BC-EUR 1621.*
- ***Location:*** *Qikiqtani Region; [Eureka, approximately 400 km North of Resolute Bay]*

The following works and activities have been proposed in the above-noted project proposal:

1. Activities include the construction of a new landfarm, a Non-Hazardous Solid Waste Facility, the upgrade of the Water and Sewage Treatment Infrastructures, and the construction of a Temporary Camp for approximately for 21120 man-days.

A complete description of the project proposal reviewed by the NPC can be accessed online using the link below.

The Nunavut Planning Commission (NPC) has completed its review of the above noted project proposal. The NPC previously reviewed works and activities associated with the current proposal, including a type B water license and the development of a quarry site. Conformity determinations were issued on December 17, 2010, April 19, 2012, April 14, 2016, and March 7, 2018, on January 22,2021, and on February 9, 2021. This conformity determination still applies. In addition, associated activities were previously screened by the Nunavut Impact Review Board (NIRB FILE NO.: 12XN020).

The NPC has determined that the above-noted project proposal is a significant modification to the project because it involve new activities including: the construction of new landfarm, a solid waste facility, a new raw water storage reservoir, a new wastewater treatment plant, and a 21120 man-days camp. It conforms to the North Baffin Regional Land Use Plan (NBRLUP). The proponent has undertaken to comply with the applicable conformity requirements of Appendix C, H, and I of the NBRLUP.

The above-noted project proposal requires screening by the NIRB under section 12.4.3 of the Nunavut Agreement as amended because it is for a component or activity that was not part of the original or previously amended proposal, and its inclusion is a significant modification of the project. By way of this letter, the NPC is forwarding the project proposal with this determination to the NIRB for screening. Project materials, including the applicable conformity requirements, are available at the following address:
https://lupit.nunavut.ca/portal/project-dashboard.php?appid=149476&sessionid=

The regulatory authorities to which this letter is addressed are responsible under the Nunavut Planning and Project Assessment Act (NUPPAA) to implement any of the applicable requirements by incorporating the requirements directly, or otherwise ensuring that they must be met, in the terms and conditions of any authorizations issued.

This conformity determination applies only to the above-noted project proposal as submitted. Proponents may not carry out projects, and regulatory authorities may not issue licenses, permits and other authorizations in respect of projects if a review by the NPC is required. Regulatory authorities may consult with the NPC to obtain recommendations on their duties to implement the existing land use plans prior to issuing licenses, permits and other authorizations under subsection 69(6) of the NUPPAA.

My office would be pleased to discuss how best to implement the applicable requirements and to review any draft authorizations that regulatory authorities wish to provide for that purpose. If you have any questions, please do not hesitate to contact me at (867) 979-3444.

Sincerely,

Goump Djalogue
Senior Planner, MCIP, RPP
Nunavut Planning Commission

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Nunavunmi Parnaiyiit
Nunavut Planning Commission
Commission d'Aménagement du Nunavut

November 2, 2021
NPC File No. 149617

Richard Dwyer
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Dear Mr. Dwyer, Mr. Morrison, Ms. McCaie, Ms. D'Amours-Gauthier, Mr. Stubbing, and Mr. Cloutier-Dussault:

RE: NPC File # 149617 [Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades, Temporary Camp and Amendment of Water Licence, for the Eureka High Arctic Weather Station]

The following works and activities have been proposed in the above-noted project proposal:

1. The previously approved activities (i.e., the water and sewage projects and solid waste non-hazardous facility) have been delayed and are scheduled to begin in summer of 2022 and summer of 2023 respectively. The Proponent is therefore proposing the following modification activities:
   - Increase the capacity of the landfarm from 6,000 m^3 to 10,000 m^3 to allow for a contingency of 4000 m^3 for potentially contaminated soils found at the west side of the Eureka HAWS.
   - Excavation of up to 1600 m^3 of soil to support the water and sewage infrastructure project.
   - Construction of an additional temporary stockpile placed adjacent to the existing temporary stockpile.
   - Use of excavated soils and sludge removed from the existing sewage lagoon as fill onsite at a non-environmentally sensitive location or treated in the landfarm.

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2. Related NPC File Nos: 149476, 149587, 148232, 148241, 148746, 149440, 149457; NIRB File Nos. 12XN020, 21QN005, 21XN012, 21UN002; NWB File No. 8B-EUR1621.
3. Location: Qikiqtani Region [Eureka, approximately 400km North of Resolute Bay]

A complete description of the project proposal reviewed by the NPC can be accessed online using the link below.

The Nunavut Planning Commission (NPC) has completed its review of the above noted project proposal. The activities associated with this proposal were previously reviewed by NPC, including a Type B water license and the development of a quarry site and conformity determination issued on December 17, 2010, January 6, 2011, April 14, 2016, March 7, 2018, January 22, 2021, February 9, 2021, & February 22, 2021, respectively which still applies. In addition, the activities were previously screened by the Nunavut Impact Review Board (NIRB File Nos.: 12XN020, 21QN005, 21XN012 & 21UN002). It conforms to the North Baffin Regional Land Use Plan (NBRLUP). The proponent has undertaken to comply with the applicable conformity requirements of Appendix C, H, and I of the NBRLUP.

The above-noted project proposal is exempt from screening by the NIRB because the NPC is of the understanding that the proposed modification activities does not change the general scope of the original or previously amended project activities, and the exceptions noted in Section 12.4.3 (a) and (b) of the Nunavut Agreement do not apply.

By way of this letter, the NPC is forwarding the project proposal to the regulatory authorities identified by the proponent. Project materials, including the applicable conformity requirements, are available at the following address:
https://lupit.nunavut.ca/portal/project-dashboard.php?appid=149617&sessionid=

The regulatory authorities to which this letter is addressed are responsible under the Nunavut Planning and Project Assessment Act (NUPPAA) to implement any of the applicable requirements by incorporating the requirements directly, or otherwise ensuring that they must be met, in the terms and conditions of any authorizations issued.

This conformity determination applies only to the above noted project proposal as submitted. Proponents may not carry out projects and regulatory authorities may not issue licenses, permits and other authorizations in respect of projects if a review by the NPC is required. Regulatory authorities may consult with the NPC to obtain recommendations on their duties to implement the existing land use plans prior to issuing licenses, permits and other authorizations under subsection 69(6) of the NUPPAA.

My office would be pleased to discuss how best to implement the applicable requirements and to review any draft authorizations that regulatory authorities wish to provide for that purpose. If you have any questions, please do not hesitate to contact me at (867) 983-4625.

Sincerely,

Solomon Amuno, PhD
Senior Planner
Nunavut Planning Commission

SCREENING DECISION REPORT
NIRB FILE No.: 21QN005

NPC File No.: 149457

April 21, 2021

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Environment and Climate Change Canada's (ECCC) "West Remus Creek Quarry Expansion" is not required pursuant to Article 12, Section 12.4.4(a) of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*) and s. 92(1)(a) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*).

Subject to the Proponent's compliance with the terms and conditions as set out in below, the NIRB is of the view that the project proposal is not likely to cause significant public concerns, and it is unlikely to result in significant adverse environmental and social impacts. The NIRB therefore recommends that the responsible Minister(s) accepts this Screening Decision Report.

OUTLINE OF SCREENING DECISION REPORT

REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Article 12, Section 12.2.5 of the *Nunavut Agreement* and are confirmed by s. 23 of the *NuPPAA*:

> *Nunavut Agreement*, Article 12, Section 12.2.5: In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.

The purpose of screening is provided for under Article 12, Section 12.4.1 of the *Nunavut Agreement* and s. 88 of the *NuPPAA* which states:

> *NuPPAA*, s. 88: The purpose of screening a project is to determine whether the project has the potential to result in significant ecosystemic or socio-economic impacts and, accordingly, whether it requires a review by the Board…

To determine whether a review of a project is required, the NIRB is guided by the considerations as set out under Article 12, Section12.4.2(a) and (b) of the *Nunavut Agreement* and s. 89(1) of *NuPPAA* which states:

> *NuPPAA*, s. 89(1): The Board must be guided by the following considerations when it is called on to determine, on the completion of a screening, whether a review of the project is required:
>
> (a) a review is required if, in the Board's opinion,
>
> i. the project may have significant adverse ecosystemic or socio-economic impacts or significant adverse impacts on wildlife habitat or Inuit harvest activities,
> ii. the project will cause significant public concern, or
> iii. the project involves technological innovations, the effects of which are unknown; and
>
> (b) a review is not required if, in the Board's opinion,
>
> i. the project is unlikely to cause significant public concern, and
> ii. its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

It is noted that under Article 12, Section 12.4.2(c) and s. 89(2) of the *NuPPAA* provides that the considerations set out in s.89(1)(a) prevail over the considerations set out in s. 89(1)(b) of the *NuPPAA*.

As set out under Article 12, Section 12.4.4 of the *Nunavut Agreement* and s. 92(1) of the *NuPPAA*, upon conclusion of the screening process, the Board must provide its written report the Minister. The contents of the NIRB's report are specified under *NuPPAA*:

NuPPAA, s. 92(1): The Board must submit a written report to the responsible Minister containing a description of the project that specifies its scope and indicating that:

(a) a review of the project is not required;

(b) a review of the project is required; or

(c) the project should be modified or abandoned.

Where the NIRB determines that a project may be carried out without a review, the NIRB has the discretion to recommend specific terms and conditions to be attached to any approval of the project proposal pursuant to paragraph 92(2)(a) of *NuPPAA* as follows:

NuPPAA, s. 92(2) In its report, the Board may also

(a) recommend specific terms and conditions to apply in respect of a project that it determines may be carried out without a review.

PROJECT REFERRAL

On February 9, 2021 the NIRB received a referral to screen ECCC's "West Remus Creek Quarry Expansion" project proposal from the Nunavut Planning Commission (Commission), with an accompanying positive conformity determination with the North Baffin Regional Land Use Plan.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Nunavut Agreemen*t and s. 87 of the *NuPPAA*, the NIRB commenced screening this project proposal and assigned it file number **21QN005**.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Screening Process Timelines

The following key stages were completed for the screening process:

Date	Stage
February 9, 2021	Receipt of project proposal and positive conformity determination (North Baffin Regional Land Use Plan) from the Commission.
February 15, 2021	Request to complete public registry online and provide information pursuant to s. 144(1) of the *NuPPAA*
February 23, 2021	Request to Proponent for additional information in order to carry out screening pursuant to s. s. 144(1) of the *NuPPAA*
March 1, 2021	Proponent responded to information request(s) and provided additional information
March 1, 2021	Scoping pursuant to s. 86(1) of the *NuPPAA*
March 18, 2021	Public engagement and comment request
April 8, 2021	Receipt of public comments
April 21, 2021	Issuance of Screening Decision Report

2. Project Scope

All documents received and pertaining to this project proposal can be accessed from the NIRB's online public registry at www.nirb.ca/project/125587.

Project:	West Remus Creek Quarry Expansion				
Region:	Qikiqtani (North Baffin)				
Location:	Eureka High Arctic Weather Station				
Closest Community:	Grise Fiord	**Distance (approximate)**	400 kilometres (km)	**Direction**	North
Summary of Project Description:	The Proponent intends to conduct an expansion of the quarry at West Remus Creek is needed as the additional aggregate required is not available within the current permitted boundaries.				
Project Proposed Timeline:	July 2021 to October 2025				

As required under s. 86(1) of the *NuPPAA*, the Board accepts the scope of the project as set out by ECCC in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Conducting geotechnical surveys to determine the area of an expansion of the quarry;
- Conducting an archeological assessment of the expansion area;
- Expansion of West Remus Creek Quarry;
    - Three (3) areas proposed for expansion: the primary expansion area is east of the quarry and north of Remus Creek, the two others are east of the quarry and south of Remus Creek;
    - Use of various heavy equipment to expand quarry site;
- Potential construction of two temporary culvert stream crossings in the case that acceptable aggregate grade is not available in the primary expansion area;
- Use and storage of fuel (approximately 478,000 L) for project activities;
- Food and paper waste to be incinerated on site within existing facility; and
- Hazardous and non-combustible wastes to be properly disposed of off-site at an appropriate facility.

3. Inclusion or Exclusion to Scoping List

The NIRB has identified no additional works or activities in relation to the project proposal. As a result, the NIRB proceeded with screening the project based on the scope as described above.

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on March 18, 2021 to community organizations in Grise Fiord, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by April 8, 2021 regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic or socio-economic effects; and if so, why;
- Whether the project proposal is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; and if so, why;
- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (and providing any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

On or before April 8, 2021 the NIRB received comments from the following interested parties:

- **Crown – Indigenous Relations and Northern Affairs Canada**

a. Summary of Public Comments and Concerns Received during the Public comment period of this file

The following provides a summary of the comments and concerns received by the NIRB:

Crown – Indigenous Relations and Northern Affairs Canada

- Recommends that the Proponent prioritize the employment and training of local Inuit when implementing project activities. Such efforts will allow for positive effects to be realized by community members and the local Inuit population.
- Recommends that the Proponent maintain open communication with the Hamlet of Grise Fiord and the Iviq Hunters and Trappers Organization, as well as other community members and organizations which may have an interest in the project's activities. Issues that should be considered as part of any consultation activities include:
    - Incorporation of Inuit knowledge or Inuit Qaujimajatuqangit into project activities;
    - Mitigation measures designed to prevent any disturbance to wildlife and the environment;
    - The experience of community members who participate in traditional and non-traditional activities in close proximity to the project area;
    - Training and employment opportunities for community members; and
    - Regular updates on the status of project activities.

b. Comments and Concerns with respect to Inuit Qaujimaningit, Traditional, and Community Knowledge

No concerns or comments were received with respect to Inuit Qaujimaningit or traditional and community knowledge in relation to the proposed project.

In determining whether a review of the project is required, the Board considered whether the project proposal had potential to result in significant ecosystemic or socio-economic impacts.

Accordingly, the assessment of impact significance was based on the analysis of those factors that are set out under s. 90 of the *NuPPAA*. The Board took particular care to take into account Inuit Qaujimaningit, traditional and community knowledge in carrying out its assessment and determination of the significance of impacts.

The following is a summary of the Board's assessment of the factors that are relevant to the determination of significant impacts with respect of this project proposal:

Factor	Comment
The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.	▪ The physical footprint of the proposed project components is within the Eureka High Arctic Weather Station footprint. ▪ The proposed project would take place within habitats of far-ranging wildlife species such as migratory and non-migratory birds, Arctic fox, Arctic hare and Species at Risk such as Polar Bears.
The ecosystemic sensitivity of that area.	▪ No specific areas of ecosystemic sensitivity have been identified by the Proponent within the physical footprint of the proposed project.
The historical, cultural and archaeological significance of that area.	▪ No specific areas of historical, cultural and archaeological significance have been identified by the Proponent within the physical footprint of the proposed project.
The size of the human and the animal populations likely to be affected by the impacts.	▪ The proposed project is unlikely to result in impacts to local human and animal populations.
The nature, magnitude and complexity of the impacts; the probability of the impacts occurring; the frequency and duration of the impacts; and the reversibility or irreversibility of the impacts.	▪ A zone of influence of up to 30 km from the most potentially-disruptive project activities was selected for the NIRB's assessment. ▪ With adherence to the relevant regulatory requirements and application of the mitigation measures recommended by the NIRB, no significant residual effects are expected to occur.
The cumulative impacts that could result from the impacts of the project combined with those of any other project that has been carried out, is being carried out or is likely to be carried out.	▪ The NIRB has not identified any past, present, and reasonably foreseeable projects at this time; however, the mitigation measures recommended by the NIRB have been designed to reduce cumulative effects should projects occur in the area in the future.

Factor	Comment
Any other factor that the Board considers relevant to the assessment of the significance of impacts.	▪ The project is necessary to provide significant aggregate for the continued maintenance and operation of the HAWS facility.

VIEWS OF THE BOARD

In considering the factors as set out above in the screening of the project proposal, the NIRB has identified a number of issues below and respectfully provide the following views regarding whether or not the proposed project has the potential to result in significant impacts. In addition, the NIRB has proposed terms and conditions that would mitigate the potential adverse impacts identified.

The NIRB has listed specific Acts and Regulations below that may be applicable to the project proposal but this list should not be considered as a complete list and the Proponent is responsible to ensure that it follows all Acts and Regulations that may be applicable to the project proposal.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Valued Component	Terrestrial wildlife such as migratory and non-migratory birds, Arctic fox, Arctic hare and Species at Risk such as Polar Bears from quarry activities
Potential effects:	Potential adverse effects to terrestrial wildlife such as migratory and non-migratory birds, Arctic fox, Arctic hare and Species at Risk such as Polar Bears from noise and visual disturbance generated from the transportation of personnel and equipment via heavy equipment to the quarry sites as well as quarry activities
Nature of Impacts:	The potential for impacts is considered to be limited due to infrequent and temporary activities and any resulting impacts would be expected to be reversible
Mitigating Factors:	The Proponent commits to hiring a local field assistant to monitor for disturbance to terrestrial wildlife
Proposed Terms and Conditions:	Wildlife General – 20 through 25 Migratory Birds and Raptors Disturbance – 26 though 29 Road and Ground Disturbance – 30 Aggregate Removal within Existing and New Quarries – 31 through 35
Related Acts and/or Regulations:	1. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (http://laws-lois.justice.gc.ca/eng/acts/M-7.01/). 2. The *Species at Risk Act* (http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html). Attached in **Appendix A** is a list of Species at Risk in Nunavut. 3. The *Wildlife Act (Nunavut)* and its corresponding regulations (http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html).

Valued Component	Fish and fish habitat and surface water quality
Potential effects:	Potential adverse impacts to fish, water, and the aquatic environment due to quarry operations and the storage, transportation and use of fuel and chemicals.
Nature of Impacts:	The potential for impacts is considered to be limited and mostly reversible if regulations and best practices for quarry operations and storage and use of fuel and chemicals are followed.
Mitigating Factors:	The Proponent has developed a Regulatory Compliance and Environmental Management Plan which contains the Spill Plan for the project. Further, the Proponent has committed to make available adequate spill response equipment materials, have personnel present at all times during fuel transfer, and to maintain fuel storage and transfer within secondary containment. The Board is also recommending terms and conditions and it is expected that these terms and conditions would mitigate any potential adverse impacts to water quality, fish and fish habitat in the direct project area and areas adjacent to the proposed project.
Proposed Terms and Conditions:	Waste Management – 6 and 7 Fuel and Chemical Storage – 8 through 17 Wildlife General – 20 though 25
Related Acts and/or Regulations:	1. The *Fisheries Act* (http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html). 2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (http://laws-lois.justice.gc.ca/eng/acts/n-28.8/). 3. The *Transportation of Dangerous Goods Act* (http://laws-lois.justice.gc.ca/eng/acts/t-19.01/) and the *Transportation of Dangerous Goods Regulations* (http://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm). 4. The *Canadian Environmental Protection Act* (http://lawslois.justice.gc.ca/eng/acts/C-15.31/).

Valued Component	Land, terrestrial vegetation, and ground stability
Potential effects:	Potential adverse impacts to the ground stability, vegetation quality, and terrain due to moving of equipment and personnel and quarry activities.
Nature of Impacts:	The potential for impacts is considered to be limited if regulations and best practices for quarry operations are followed. The potential for disturbance due to other activities is considered to be minimal due to the localized and temporary nature of the activities.
Mitigating Factors:	The Proponent also has committed to developing a *Spill Contingency Plan* that would be implemented as required. Further, combustible disturbance to the land would be minimal and waste generated by the

	project would be disposed of properly. Noncombustible and hazardous waste would be taken for proper disposal.
Proposed Terms and Conditions:	Waste Management – 6 and 7 Fuel and Chemical Storage – 8 through 17 Road and Ground Disturbance – 30 Aggregate Removal within Existing and New Quarries – 31 through 35 Land Use and Restoration of Disturbed Areas – 36 through 39
Related Acts and/or Regulations:	N/A

Valued Component	Air Quality
Potential effects:	There is potential for adverse effects to air quality in the immediate vicinity of the quarry due to an increase in fugitive dust and emissions from equipment on site and incineration activities
Nature of Impacts:	The potential for impacts to air quality is considered to be moderate due to the limited period of site activity and mitigable through application of dust suppressants and mitigation measures.
Mitigating Factors:	It is recommended that the potential adverse impacts from the quarrying activities may be mitigated by ensuring the Proponent undertakes appropriate dust suppression as well as comply with appropriate mitigation measures.
Proposed Terms and Conditions:	Waste Management – 6 and 7 Air Quality – 18 and 19 Road and Ground Disturbance – 30 Aggregate Removal within Existing and New Quarries – 31 through 35
Related Acts and/or Regulations:	N/A

Valued Component	Public and traditional land use activities
Potential effects:	No specific concerns or impacts to public and traditional land use activities in the area have been identified, however, the Board is recommending terms and conditions to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
Nature of Impacts:	Potential for impacts is considered to be minimal due to the location of the project.
Mitigating Factors:	Proponent has committed to executing its work in a way that minimizes the negative effects to wildlife.
Proposed Terms and Conditions:	Other – 40 through 42
Related Acts and/or Regulations:	N/A

Socio-economic effects on northerners:

Valued Component	Historical, archeological, and heritage sites
Potential effects:	No historical sites in the proposed project area were identified by the Proponent, however, the Board is recommending terms and conditions to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not negatively effect historical or heritage sites.
Nature of Impacts:	The potential for impacts are considered minimal as the area has no historical, archeological, and heritage sites that have been previously identified. The nature of the proposed project operations are unlikely to impact any unknown archeological sites.
Mitigating Factors:	As noted, the Board is recommending terms and conditions to ensure that project activities do not negatively effect historical or heritage sites.
Proposed Terms and Conditions:	Other – 40 and 41
Related Acts and/or Regulations:	1. The *Nunavut Act* (http://laws-lois.justice.gc.ca/eng/acts/N-28.6/). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix B**.

Significant public concern:

Valued Component	Public concern
Potential effects:	No significant public concern was expressed during the public commenting period for this file, however, the Board recommends terms and conditions to ensure project activities do not interfere with Inuit wildlife harvesting or traditional land use activities, to the extent possible hire local people and access local services where possible, and to ensure planned activities in the area utilizes available Inuit Qaujimaningit.
Nature of Impacts:	The potential for impacts is considered to be minimal as long as the Proponent follows the recommended terms and conditions.
Mitigating Factors:	Given the distance from the closest community, direct impacts on Inuit are considered highly unlikely and are addressed through the proposed terms and conditions.
Proposed Terms and Conditions:	Other – 40 through 42
Related Acts and/or Regulations:	N/A

Technological innovations for which the effects are unknown:

- No specific issues have been identified associated with this project proposal.

Administrative Conditions:

To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the following project-specific terms and conditions have been recommended: 1-5.

In considering the above factors and subject to the Proponent's compliance with the terms and conditions necessary to mitigate against the potential adverse environmental and social effects, the Board is of the view that the proposed project is unlikely to cause significant public concern and its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS

The Board is recommending the following specific terms and conditions to apply in respect of the project:

General

1. Environment and Climate Change Canada (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times and make it accessible to enforcement officers upon request.
2. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (NPC File No.: 149457) and the NIRB (Online Application Form, March 1, 2021). This information should be accessible to enforcement officers upon request.
3. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.
4. The Proponent shall ensure that it meets the standards and/or limits as set out in the authorizing agencies' permits or licences as required for this project.
5. The Proponent shall ensure that all personnel, staff and contractors are adequately trained prior to commencement of all project activities, and shall be made aware of all operational plans, management plans, guidelines and Proponent commitments relating to the project.

Waste Management

6. The Proponent shall manage all hazardous and non-hazardous waste including food, domestic wastes, debris and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) in such a manner to avoid release into the environment and access to wildlife at all times until disposed of appropriately or at an approved facility.
7. The Proponent shall incinerate all combustible wastes as needed and dispose of as required by the appropriate authorizing agencies. All non-combustible wastes from the project site shall be removed to an approved facility for disposal.

Fuel and Chemical Storage

8. The Proponent shall locate all fuel and other hazardous materials a minimum distance away from the high-water mark of any water body and environmentally sensitive areas as required by the appropriate authorizing agencies. The materials shall be stored in such a manner as to prevent their release into the environment.
9. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing barreled fuel and chemicals at all locations.
10. The Proponent shall ensure that re-fuelling of all equipment occurs a minimum distance away from the high-water mark of any water body as required by the appropriate authorizing agencies.
11. Fuel and hazardous material storage areas and fuel lines should be clearly marked with signs or flagging to avoid accidental breaks and punctures, and to ensure areas remain visible during the winter months.
12. All fuel and chemical storage containers must be clearly marked with the Proponent's name for ease of identification.
13. The Proponent shall routinely inspect and document the conditions of fuel and hazardous material storage containers and containment areas as required by the appropriate authorizing agencies. Fuel containment areas shall be kept clear of debris, water and snow to facilitate inspections for leaks.
14. The Proponent shall have a Spill Contingency Plan in place at all fuel storage or transfer locations and shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available.
15. The Proponent shall follow the authorizing agencies' direction for management and removal of hazardous materials and wastes (e.g., contaminated soils, sediment and waste oil).
16. The Proponent shall ensure that wildlife deterrent systems are utilized at the time of a spill incident in order to avoid wildlife (terrestrial or marine) and migratory birds from being contaminated.
17. The Proponent shall ensure that all spills of fuel or other deleterious materials of 100 litres or more must be reported immediately to the 24-hour Spill Line at (867) 920-8130.

Air Quality

18. The Proponent shall take appropriate dust suppression measures in conducting all activities for this Project including using approved dust suppression additives and techniques as necessary to maintain ambient air quality.
19. The Proponent shall eliminate unnecessary idling to reduce greenhouse gas emissions as much as possible.

Wildlife – General

20. The Proponent shall not substantially alter or damage or destroy any wildlife habitat in conducting this operation unless otherwise authorized by the appropriate authorizing agencies.
21. The Proponent shall not chase, weary, harass or molest wildlife. This includes persistently circling, chasing, hovering over, pursuing or in any other way harass wildlife, or disturbing large groups of animals.
22. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
23. The Proponent shall ensure that all wildlife have the right-of-way on any roads or trails. Vehicles are required to slow down or stop and wait to permit the free and unrestricted movement of wildlife across roads or trails at any location.
24. The Proponent shall enforce safe speed limits for vehicles travelling along the road to ensure drivers have sufficient time to react in a safe manner if wildlife are encountered on or adjacent to the road or trail.
25. The Proponent shall ensure that drivers maintain spacing appropriate for driving and road conditions, and speed limits, to ensure drivers have time to safely react to any wildlife on the road.

Migratory Birds and Raptors Disturbance

26. The Proponent shall carry out all phases of the project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall take into account Environment and Climate Change Canada's *Avoidance Guidelines*. The Proponent's actions in applying the *Avoidance Guidelines* shall be in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*.
27. The Proponent shall not disturb or destroy the nests or eggs of any birds. If active nests of any birds are discovered or located (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have naturally left the vicinity of the nest by establishing a protection buffer zone[1] appropriate for the species and the surrounding habitat.
28. The Proponent shall avoid the seaward site of seabird colonies and areas used by flocks of migrating waterfowl, a minimum distance away on the recommendation of the appropriate authorizing agencies.
29. The Proponent shall not pursue seabirds or waterbirds swimming on the water surface and shall avoid concentrations of these birds if encountered on the water.

1 Recommended setback distances to define buffer zones have been established by Environment and Climate Change Canada for different bird groups nesting in tundra habitat and can be found at www.ec.gc.ca/paom-itmb.

Road and Ground Disturbance

30. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles must be suspended if rutting occurs.

Aggregate Removal within Existing and New Quarries

31. The Proponent shall not remove any material from below the ordinary highwater mark of any lake or stream and shall maintain an undisturbed buffer zone as required by the appropriate authorizing agencies between quarry site and any highwater mark of any water body to ensure erosion control.
32. The Proponent shall install silt fences/curtains down stream of any quarry activities.
33. The Proponent shall ensure there is no obstruction of natural drainage, flooding or channel diversion from quarry/pit access, stockpiles, or other structures or facilities.
34. The Proponent shall locate screening and crushing equipment on stable ground, at a location with ready access to stockpiles.
35. The Proponent shall clearly stake and flag pit and quarry boundaries, so they remain visible to other land users.

Land Use and Restoration of Disturbed Areas

36. The Proponent shall use existing trails where possible during project activities on the land.
37. The Proponent shall ensure that the land use area is kept clean and tidy at all times.
38. The Proponent shall remove all garbage, fuel and equipment at the end of each field season and/or upon completion of work and/or upon abandonment.
39. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state using Best Available Technology Economically Achievable (BATEA) upon completion of work and/or abandonment.

Other

40. The Proponent should consult with local residents regarding their activities in the area and solicit available Inuit Qaujimajatuqangit and information that can inform project activities.
41. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
42. The Proponent should, to the extent possible, hire local people and access local services where possible.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board is recommending the following:

Change in Project Scope

1. Responsible authorities or Proponent shall notify the Nunavut Planning Commission and/or Parks Canada as appropriate, and the NIRB of any changes in operating plans or conditions, including phase advancement, associated with this project prior to any such change.

Copy of licences, etc. to the Board and Commission

2. The NIRB respectfully requests that responsible authorities submit a copy of each licence, permit or other authorization issued for the Project to the NIRB to assist in enabling possible project monitoring that may be required. Please forward a copy of the licences, permits and/or other authorizations to the NIRB directly at info@nirb.ca or upload a copy to the NIRB's online registry at www.nirb.ca.

Use of Inuit Qaujimaningit

3. The Proponent is encouraged to work with local communities and knowledge holders to inform project design, to carry out the project, and to confirm or validate the perspectives represented in publications produced as part of the project. Care should be taken to ensure that Inuit Qaujimaningit and local knowledge collected for the project is used with permission and is accurately represented.

Bear and Carnivore Safety

4. The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf. Further information on bear/carnivore detection and deterrent techniques can be found in the "*Safety in Grizzly and Black Bear Country*" pamphlet, which can be downloaded from this link: https://www.enr.gov.nt.ca/sites/enr/files/resources/safety_in_grizzly_and_black_bear_country_english.pdf.

5. There are Polar Bear and grizzly bear safety resources available from the Bear Smart Society with videos on Polar Bear safety available in English, French and Inuktitut at http://www.bearsmart.com/play/safety-in-polar-bear-country/. Information can also be obtained from Parks Canada's website on bear safety at the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx or in reviewing the "*Safety in Polar Bear Country*" pamphlet, which can be downloaded from the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx.

6. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Grise Fiord, phone: (867) 980-4614).

Species at Risk

7. The Proponent review Environment and Climate Change Canada's "Environment Assessment Best Practice Guide for Wildlife at Risk in Canada", available at the following link:

http://www.sararegistry.gc.ca/virtual_sara/files/policies/EA%20Best%20Practices%202004.pdf. The guide provides information to the Proponent on what is required when Wildlife at Risk, including *Species at Risk*, are encountered or affected by the project.

Migratory Birds

8. The Proponent review Canadian Wildlife Services' "Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut", available at the following link: http://publications.gc.ca/site/eng/317630/publication.html and "Key marine habitat sites for migratory birds in Nunavut and the Northwest Territories", available at the following link: http://publications.gc.ca/site/eng/392824/publication.html. The guide provides information to the Proponent on key terrestrial and marine habitat areas that are essential to the welfare of various migratory bird species in Canada.

9. For further information on how to protect migratory birds, their nests and eggs when planning or carrying out project activities, consult Environment and Climate Change Canada's Incidental Take web page and the fact sheet "Planning Ahead to Reduce the Risk of Detrimental Effects to Migratory Birds, and their Nests and Eggs" available at: http://publications.gc.ca/collections/collection_2013/ec/CW66-324-2013-eng.pdf.

Incineration of Wastes

10. The Proponent review Environment and Climate Change Canada's "Technical Document for Batch Waste Incineration", available at the following link: http://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=F53EDE13-1. The technical document provides information on appropriate incineration technologies, best management and operational practices, monitoring and reporting.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Environment and Climate Change Canada's "West Remus Creek Quarry Expansion". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated April 21, 2021 at Baker Lake, NU.

M. Kaluraq

Kaviq Kaluraq, Chairperson

Attachments: Appendix A: Species at Risk in Nunavut
Appendix B: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

APPENDIX A: SPECIES AT RISK IN NUNAVUT

Due to the requirements of Section 79(2) of the Species at Risk Act (SARA), and the potential for project-specific adverse effects on listed wildlife species and its critical habitat, measures should be taken as appropriate to avoid or lessen those effects, and the effects need to be monitored. Project effects could include species disturbance, attraction to operations and destruction of habitat. This section applies to all species listed on Schedule 1 of SARA, as listed in the table below, or have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which may be encountered in the project area. This list may not include all species identified as at risk by the Territorial Government. The following points provide clarification on the applicability of the species outlined in the table.

- Schedule 1 is the official legal list of Species at Risk for SARA. SARA applies to all species on Schedule 1. The term "listed" species refers to species on Schedule 1.
- Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.
- Some species identified at risk by COSEWIC are "pending" addition to Schedule 1 of SARA. These species are under consideration for addition to Schedule 1, subject to further consultation or assessment.

If species at risk are encountered or affected, the primary mitigation measure should be avoidance. The Proponent should avoid contact with or disturbance to each species, its habitat and/or its residence. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the species at risk Registry at http://www.sararegistry.gc.ca for information on specific species.

Monitoring should be undertaken by the Proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of species at risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.

For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.

Mitigation and monitoring measures must be undertaken in a way that is consistent with applicable recovery strategies and action/management plans.

Schedules of SARA are amended on a regular basis so it is important to check the SARA registry (www.sararegistry.gc.ca) to get the current status of a species.

Updated: September 2019

Terrestrial Species at Risk[2]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility[3]
Migratory Birds			
Buff-breasted Sandpiper	Special Concern	Schedule 1	Environment and Climate Change Canada (ECCC)
Common Nighthawk	Threatened	Schedule 1	ECCC
Eskimo Curlew	Endangered	Schedule 1	ECCC
Harlequin Duck	Special Concern	Schedule 1	ECCC
Harris's Sparrow	Special Concern	Schedule 1	ECCC
Horned Grebe	Special Concern	Schedule 1	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Olive-sided Flycatcher	Threatened	Schedule 1	ECCC
Peregrine Falcon	Special Concern	Schedule 1	ECCC
Red Knot Islandica Subspecies	Special Concern	Schedule 1	ECCC
Red-necked Phalarope	Special Concern	Schedule 1	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	ECCC
Short-eared Owl	Special Concern	Schedule 1	ECCC
Vegetation			
Porsild's Bryum	Threatened	Schedule 1	Government of Nunavut (GN)
Arthropods			
Transverse Lady Beetle	Special Concern	No Schedule	GN
Terrestrial Wildlife			
Caribou (Dolphin and Union Population)	Endangered	Schedule 1	GN
Caribou (Barren-ground Population)	Threatened	No Schedule	GN
Caribou (Torngat Mountains Population)	Endangered	No Schedule	GN
Grizzly Bear (Western Population)	Special Concern	Schedule 1	ECCC
Peary Caribou	Endangered	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	ECCC
Wolverine	Special Concern	Schedule 1	GN
Marine Wildlife			
Atlantic Walrus (High Arctic Population)	Special Concern	No Schedule	Fisheries and Oceans Canada (DFO)
Atlantic Walrus (Central/Low Arctic Population)	Special Concern	No Schedule	DFO
Beluga Whale (Cumberland Sound Population)	Threatened	Schedule 1	DFO
Beluga Whale (Eastern Hudson Bay Population)	Endangered	No Schedule	DFO

2 The Department of Fisheries and Oceans has responsibility for aquatic species.

3 Environment and Climate Change Canada (ECCC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.

Terrestrial Species at Risk[2]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility[3]
Beluga Whale (Eastern High Arctic-Baffin Bay Population)	Special Concern	No Schedule	DFO
Beluga Whale (Western Hudson Bay Population)	Special Concern	No Schedule	DFO
Fish			
Atlantic Cod (Arctic Lakes Population)	Special Concern	No Schedule	DFO
Fourhorn Sculpin (Freshwater Form)	Data Deficient	Schedule 3	DFO
Lumpfish	Threatened	No Schedule	DFO
Thorny Skate	Special Concern	No Schedule	DFO

APPENDIX B: ARCHAEOLOGICAL AND PALAEONTOLOGICAL RESOURCES TERMS AND CONDITIONS FOR LAND USE PERMIT HOLDERS

INTRODUCTION

The Department of Culture and Heritage (CH) routinely reviews land use applications sent to the Nunavut Water Board, Nunavut Impact Review Board and the Indigenous and Northern Affairs Canada. These terms and conditions provide general direction to the permittee/proponent regarding the appropriate actions to be taken to ensure the permittee/proponent carries out its role in the protection of Nunavut's archaeological and palaeontological resources.

TERMS AND CONDITIONS

1) The permittee/proponent shall have a professional archaeologist and/or palaeontologist perform the following **Functions** associated with the **Types of Development** listed below or similar development activities:

	Types of Development (See Guidelines below)	**Function** (See Guidelines below)
a)	Large scale prospecting	Archaeological/Palaeontological Overview Assessment
b)	Diamond drilling for exploration or geotechnical purpose or planning of linear disturbances	Archaeological/Palaeontological Overview Assessment and/or Inventory and Documentation and/or Mitigation
c)	Construction of linear disturbances, Extractive disturbances, Impounding disturbances and other land disturbance activities	Archaeological/Palaeontological Overview Assessment and/or Inventory and Documentation and/or Mitigation

Note that the above-mentioned functions require either a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit. CH is authorized by way of the *Nunavut and Archaeological and Palaeontological Site Regulations*[4] to issue such permits.

[4] P.C. 2001-1111 14 June, 2001

2) The permittee/proponent shall not operate any vehicle over a known or suspected archaeological or palaeontological site.
3) The permittee/proponent shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.
4) The permittee/proponent shall immediately contact CH at (867) 934-2046 or (867) 975-5500 should an archaeological site or specimen, or a palaeontological site or fossil, be encountered or disturbed by any land use activity.
5) The permittee/proponent shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation until permitted to proceed with the authorization of CH.
6) The permittee/proponent shall follow the direction of CH in restoring disturbed archaeological or palaeontological sites to an acceptable condition. If these conditions are attached to either a Class A or B Permit under the Territorial Lands Act Indigenous and Northern Affairs Canada directions will also be followed.
7) The permittee/proponent shall provide all information requested by CH concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.
8) The permittee/proponent shall make best efforts to ensure that all persons working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.
9) If a list of recorded archaeological and/or palaeontological sites is provided to the permittee/proponent by CH as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.
10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

Legal Framework

As stated in Article 33 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*):

Where an application is made for a land use permit in the Nunavut Settlement Area, and there are reasonable grounds to believe that there could be sites of archaeological importance on the lands affected, no land use permit shall be issued without written consent of the Designated Agency. Such consent shall not be unreasonably withheld. [33.5.12]

Each land use permit referred to in Section 33.5.12 shall specify the plans and methods of archeological site protection and restoration to be followed by the permit holder, and any other conditions the Designated Agency may deem fit. [33.5.13]

Palaeontology and Archaeology

Under the *Nunavut Act*[5], the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under the *Nunavut Archaeological and Palaeontological Sites Regulations*[6], it is illegal to alter or disturb any palaeontological or archaeological site in Nunavut unless permission is first granted through the permitting process.

Definitions
As defined in the *Nunavut Archaeological and Palaeontological Sites Regulations*, the following definitions apply:

> *"archaeological site" means a place where an archaeological artifact is found.*
>
> *"archaeological artifact" means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement).*
>
> *"palaeontological site" means a site where a fossil is found.*
>
> *"fossil" includes:*
> *Fossil means the hardened or preserved remains or impression of previously living organisms or vegetation and includes:*
> *(a) natural casts;*
> *(b) preserved tracks, coprolites and plant remains; and*
> *(c) the preserved shells and exoskeletons of invertebrates and the preserved eggs, teeth and bones of vertebrates.*

Guidelines for Developers for the Protection of Archaeological Resources in the Nunavut Territory

(**Note:** Partial document only, complete document at: www.ch.gov.nu.ca/en/Archaeology.aspx)

Introduction
The following guidelines have been formulated to ensure that the impacts of proposed developments upon heritage resources are assessed and mitigated before ground surface altering activities occur. Heritage resources are defined as, but not limited to, archaeological and historical sites, burial grounds, palaeontological sites, historic buildings and cairns Effective collaboration between the developer, the Department of Culture, and Heritage (CH), and the contract archaeologist(s) will ensure proper preservation of heritage resources in the Nunavut Territory. The roles of each are briefly described.

CH is the Nunavut Government agency which oversees the protection and management of heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and

[5] s. 51(1)
[6] P.C. 2001-1111 14 June, 2001

the federal government. Its role in mitigating impacts of developments on heritage resources is as follows: to identify the need for an impact assessment and make recommendations to the appropriate regulatory agency; set the terms of reference for the study depending upon the scope of the development; suggest the names of qualified individuals prepared to undertake the study to the developer; issue an archaeologist or palaeontologist permit authorizing field work; assess the completeness of the study and its recommendations; and ensure that the developer complies with the recommendations.

The primary regulatory agencies that CH provides information and assistance to are the Nunavut Impact Review Board, for development activities proposed for Inuit Owned Lands (as defined in Section 1.1.1 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*)), and the Indigenous and Northern Affairs Canada, for development activities proposed for federal Crown Lands.

A developer is the initiator of a land use activity. It is the obligation of the developer to ensure that a qualified archaeologist or palaeontologist is hired to perform the required study and that provisions of the contract with the archaeologist or palaeontologist allow permit requirements to be met; i.e. fieldwork, collections management, artifact and specimen conservation, and report preparation. On the recommendation of the contract archaeologist or palaeontologist in the field and the Government of Nunavut, the developer shall implement avoidance or mitigative measures to protect heritage resources or to salvage the information they contain through excavation, analysis, and report writing. The developer assumes all costs associated with the study in its entirety.

Through his or her active participation and supervision of the study, the contract archaeologist or palaeontologist is accountable for the quality of work undertaken and the quality of the report produced. Facilities to conduct fieldwork, analysis, and report preparation should be available to this individual through institutional, agency, or company affiliations. Responsibility for the curation of objects recovered during field work while under study and for documents generated in the course of the study as well as remittance of artifacts, specimens and documents to the repository specified on the permit accrue to the contract archaeologist or palaeontologist. This individual is also bound by the legal requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations*.

Types of Development

In general, those developments that cause concern for the safety of heritage resources will include one or more of the following kinds of surface disturbances. These categories, in combination, are comprehensive of the major kinds of developments commonly proposed in Nunavut. For any single development proposal, several kinds of these disturbances may be involved

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*
- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*

- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*

- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources*.

Types of Studies Undertaken to Preserve Heritage Resources

Overview: An overview study of heritage resources should be conducted at the same time as the development project is being designed or its feasibility addressed. They usually lack specificity with regard to the exact location(s) and form(s) of impact and involve limited, if any, field surveys. Their main aim is to accumulate, evaluate, and synthesize the existing knowledge of the heritage of the known area of impact. The overview study provides managers with baseline data from which recommendations for future research and forecasts of potential impacts can be made. A Class I Permit is required for this type of study if field surveys are undertaken.

Reconnaissance: This is done to provide a judgmental appraisal of a region sufficient to provide the developer, the consultant, and government managers with recommendations for further development planning. This study may be implemented as a preliminary step to inventory and assessment investigations except in cases where a reconnaissance may indicate a very low or negligible heritage resource potential. Alternately, in the case of small-scale or linear developments, an inventory study may be recommended and obviate the need for a reconnaissance.

The main goal of a reconnaissance study is to provide baseline data for the verification of the presence of potential heritage resources, the determination of impacts to these resources, the generation of terms of reference for further studies and, if required, the advancement of preliminary mitigative and compensatory plans. The results of reconnaissance studies are primarily useful for the selection of alternatives and secondarily as a means of identifying impacts that must be mitigated after the final siting and design of the development project. Depending on the scope of the study, a Class 1 or Class 2 Permit is required for this type of investigation.

Inventory: A resource inventory is generally conducted at that stage in a project's development at which the geographical area(s) likely to sustain direct, indirect, and perceived impacts can be well defined. This requires systematic and intensive fieldwork to ascertain the effects of all possible and alternate construction components on heritage resources. All heritage sites must be recorded on Government of Nunavut Site Survey forms. Sufficient information must be amassed from field, library and archival components of the study to generate a predictive model of the heritage resource base that will:

- allow the identification of research and conservation opportunities;
- enable the developer to make planning decisions and recognize their likely effects on the known or predicted resources; and
- make the developer aware of the expenditures, which may be required for subsequent studies and mitigation. A Class 1 or 2 permit is required.

Assessment: At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

Mitigation: This refers to the amelioration of adverse impacts to heritage resources and involves the avoidance of impact through the redesign or relocation of a development or its components; the protection of the resource by constructing physical facilities; or, the scientific investigation and recovery of information from the resource by excavation or other method. The type(s) of appropriate mitigative measures are dictated by their viability in the context of the development project. Mitigation strategies must be developed in consultation with, and approved by, the Department of Culture and Heritage. It is important to note that mitigation activities should be initiated as far in advance of the construction of the development as possible.

Surveillance and monitoring: These may be required as part of the mitigation program.

Surveillance may be conducted during the construction phase of a project to ensure that the developer has complied with the recommendations.

Monitoring involves identification and inspection of residual and long-term impacts of a development (i.e. shoreline stability of a reservoir); or the use of impacts to disclose the presence of heritage resources, for example, the uncovering of buried sites during the construction of a pipeline.

SCREENING DECISION REPORT
NIRB FILE No.: 21XN012

NPC File No.: 149476

May 13, 2021

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Environment and Climate Change Canada's (ECCC) "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station" is not required pursuant to Article 12, Section 12.4.4(a) of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*) and s. 92(1)(a) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*).

Subject to the Proponent's compliance with the terms and conditions as set out in below, the NIRB is of the view that the project proposal is not likely to cause significant public concerns, and it is unlikely to result in significant adverse environmental and social impacts. The NIRB therefore recommends that the responsible Ministers accepts this Screening Decision Report.

OUTLINE OF SCREENING DECISION REPORT

REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Article 12, Section 12.2.5 of the *Nunavut Agreement* and are confirmed by s. 23 of the *NuPPAA*:

> *Nunavut Agreement*, Article 12, Section 12.2.5: In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.

The purpose of screening is provided for under Article 12, Section 12.4.1 of the *Nunavut Agreement* and s. 88 of the *NuPPAA* which states:

> *NuPPAA*, s. 88: The purpose of screening a project is to determine whether the project has the potential to result in significant ecosystemic or socio-economic impacts and, accordingly, whether it requires a review by the Board.

To determine whether a review of a project is required, the NIRB is guided by the considerations as set out under Article 12, Section12.4.2(a) and (b) of the *Nunavut Agreement* and s. 89(1) of *NuPPAA* which states:

> *NuPPAA*, s. 89(1): The Board must be guided by the following considerations when it is called on to determine, on the completion of a screening, whether a review of the project is required:
>
> (a) a review is required if, in the Board's opinion,
>
> i. the project may have significant adverse ecosystemic or socio-economic impacts or significant adverse impacts on wildlife habitat or Inuit harvest activities,
> ii. the project will cause significant public concern, or
> iii. the project involves technological innovations, the effects of which are unknown; and
>
> (b) a review is not required if, in the Board's opinion,
>
> i. the project is unlikely to cause significant public concern, and
> ii. its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

It is noted that under Article 12, Section 12.4.2(c) and s. 89(2) of the *NuPPAA* provides that the considerations set out in s.89(1)(a) prevail over the considerations set out in s. 89(1)(b) of the *NuPPAA*.

As set out under Article 12, Section 12.4.4 of the *Nunavut Agreement* and s. 92(1) of the *NuPPAA*, upon conclusion of the screening process, the Board must provide its written report the Minister. The contents of the NIRB's report are specified under *NuPPAA*:

NuPPAA, s. 92(1): The Board must submit a written report to the responsible Minister containing a description of the project that specifies its scope and indicating that:

(a) a review of the project is not required;

(b) a review of the project is required; or

(c) the project should be modified or abandoned.

Where the NIRB determines that a project may be carried out without a review, the NIRB has the discretion to recommend specific terms and conditions to be attached to any approval of the project proposal pursuant to paragraph 92(2)(a) of *NuPPAA* as follows:

NuPPAA, s. 92(2) In its report, the Board may also

(a) recommend specific terms and conditions to apply in respect of a project that it determines may be carried out without a review.

PROJECT REFERRAL

On February 22, 2021 the NIRB received a referral to screen ECCC's "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station" project proposal from the Nunavut Planning Commission (Commission), with an accompanying positive conformity determination with the North Baffin Regional Land Use Plan. The Commission noted that the current project proposal is a significant modification to the previous conformity determinations issued on December 17, 2010, April 19, 2012, April 16, 2016, March 7, 2018, January 22, 2021 and most recently on February 9, 2021 because it involves new activities including: the construction of a new landfarm, a solid waste facility, a new raw water storage reservoir, and a new wastewater treatment plant.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Nunavut Agreemen*t and s. 87 of the *NuPPAA*, the NIRB commenced screening this project proposal and assigned it file number **21XN012**.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Screening Process Timelines

The following key stages were completed for the screening process:

Date	Stage
February 22, 2021	Receipt of project proposal and positive conformity determination (North Baffin Regional Land Use Plan) from the Commission.
February 22, 2021	Request to complete public registry online and provide information pursuant to s. 144(1) of the *NuPPAA*
March 4, 2021	Receipt of online application from Proponent
March 4, 2021	Scoping pursuant to s. 86(1) of the *NuPPAA*
March 18, 2021	Public engagement and comment request

Date	Stage
April 8, 2021	Receipt of public comments
April 14, 2021	Proponent provided with an opportunity to address comments/concerns raised by public
April 26, 2021	Proponent responded to comments/concerns raised by public
April 28, 2021	Ministerial extension requested from the Minister of Northern Affairs
May 13, 2021	Issuance of Screening Decision Report

2. Project Scope

All documents received and pertaining to this project proposal can be accessed from the NIRB's online public registry at www.nirb.ca/project/125586.

Project:	Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades at the Eureka High Arctic Weather Station				
Region:	Qikiqtani (North Baffin)				
Location:	Eureka High Arctic Weather Station				
Closest Community:	Grise Fiord	**Distance (approximate)**	400 kilometres (km)	**Direction**	North
Summary of Project Description:	The Proponent intends to construct a new landfarm, a Non-Hazardous Solid Waste Facility and intends to upgrade the Water and Sewage Treatment Infrastructures.				
Project Proposed Timeline:	August 2021 to 2042				

As required under s. 86(1) of the *NuPPAA*, the Board accepts the scope of the project as set out by ECCC in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Conducting an archeological assessment for all potentially affected areas that haven't been previously assessed;
    - If any archeological areas of significance are identified, they will be protected through mitigation measures approved by the Department of Culture and Heritage.
- Use of heavy equipment for project activities;
- Construction of a new landfarm to store and treat an estimated amount of 4,500-6,000m³ of contaminated soils;
- Construction of a Non-Hazardous Solid Waste Facility to store waste from the demolition of various structures and infrastructure;
- Development of a new raw water storage reservoir and associated infrastructure, as well as incorporation of the existing raw water storage reservoir;
    - A new packaged wastewater treatment plant will also be constructed.
- Withdrawal of water from Black Top Creek and West Remus Creek to support station construction, dust suppression, and temporary camp use;
- Use and storage of fuel (approximately 741,000 L) for project activities;

- Food and paper waste to be incinerated on site within existing facility; and
- Hazardous and non-combustible wastes to be properly disposed of off-site at an appropriate facility.

3. Inclusion or Exclusion to Scoping List

The NIRB has identified no additional works or activities in relation to the project proposal. As a result, the NIRB proceeded with screening the project based on the scope as described above.

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on March 18, 2021 to community organizations in Grise Fiord, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by April 8, 2021 regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic or socio-economic effects; and if so, why;
- Whether the project proposal is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; and if so, why;
- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (and providing any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

On or before April 8, 2021 the NIRB received comments from the following interested parties:

- **Crown-Indigenous Relations and Northern Affairs Canada**

a. Summary of Public Comments and Concerns Received during the Public comment period of this file

The following provides a summary of the comments and concerns received by the NIRB:

Crown-Indigenous Relations and Northern Affairs Canada

- Recommends that the Proponent follow measures to aid in mitigation of potential environmental impacts from the non-hazardous waste facility and landfarm activities;
- Clarify information regarding contaminated soils and treatment and disposal methods of the expected combustible waste;
- Recommends that the Proponent employ and train local Inuit, as well as maintain open communication with all interested parties throughout the life of the project;
- Notes that the Environmental Protection Plan should be sent to interested parties to comment on prior to commencement of activities can potentially lower risk involved in potential project activities.

b. Comments and Concerns with respect to Inuit Qaujimaningit, Traditional, and Community Knowledge

No concerns or comments were received with respect to Inuit Qaujimaningit or traditional and community knowledge in relation to the proposed project.

5. Proponent's Response to Public Comments and Concerns

On April 8, 2021, due to the concerns and questions identified in the comments received from parties, the NIRB provided an opportunity for the Proponent to respond to the concerns raised during the commenting period. The following is a summary of the Proponent's response to concerns as received on April 26, 2021:

- In response to recommended mitigation measures for non-hazardous waste facility and landfarm activities, the Proponent noted appreciation and the suggested measures will be considered for integration into the Project's planning phase;
- In response to comments regarding treatment and disposal methods of combustible waste, the Proponent noted that 5,000 lbs of combustible wastes ash will be deposited in the existing solid waste facility and also noted that the wastes and disposal method are still within design stages, however it is anticipated that waste will be de-watered and disposed in either the existing solid waste facility or off-site, at an approved location;
- In response to concerns regarding the Environmental Protection Plan being sent to interested parties for review, the Proponent noted the plan will be part of the construction tender process and a requirement for the successful contractor to provide, to ensure compliance with regulations and execution of mitigation measures;
- In response to concerns regarding the Proponent prioritizing the employment and training of local Inuit, the Proponent noted that local Inuit individuals will be hired throughout the duration of the project. Furthermore, these groups, as well as other interested organizations, communities and Inuit businesses, will also be further notified prior to any procurement/employment opportunities being made public.

6. Time of Report Extension

As a result of the time required to accommodate opportunity for the Proponent to respond to concerns raised during the public commenting period, the NIRB was not able to provide its screening decision report to the responsible Minister within 45 days as required by Article 12, Section 12.4.5 of the *Nunavut Agreement* and s. 92(3) of the *NuPPAA*. Therefore, on April 27, 2021 the NIRB wrote to the Minister of Northern Affairs, Government of Canada, seeking an extension to the 45-day timeline for the provision of the Board's Report.

ASSESSMENT OF THE PROJECT PROPOSAL IN ACCORDANCE WITH PART 3 OF *NUPPAA*

In determining whether a review of the project is required, the Board considered whether the project proposal had potential to result in significant ecosystemic or socio-economic impacts.

Accordingly, the assessment of impact significance was based on the analysis of those factors that are set out under s. 90 of the *NuPPAA*. The Board took particular care to take into account Inuit

Qaujimaningit, traditional and community knowledge in carrying out its assessment and determination of the significance of impacts.

The following is a summary of the Board's assessment of the factors that are relevant to the determination of significant impacts with respect of this project proposal:

Factor	Comment
The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.	▪ The physical footprint of the proposed project components is within the Eureka High Arctic Weather Station footprint. ▪ The proposed project would take place within habitats of far-ranging wildlife species such as migratory and non-migratory birds, Arctic fox, Arctic hare, and Species at Risk such as Polar Bears.
The ecosystemic sensitivity of that area.	▪ No specific areas of ecosystemic sensitivity have been identified by the Proponent within the physical footprint of the proposed project.
The historical, cultural and archaeological significance of that area.	▪ No specific areas of historical, cultural and archaeological significance have been identified by the Proponent within the physical footprint of the proposed project.
The size of the human and the animal populations likely to be affected by the impacts.	▪ The proposed project is unlikely to result in impacts to local human and animal populations.
The nature, magnitude and complexity of the impacts; the probability of the impacts occurring; the frequency and duration of the impacts; and the reversibility or irreversibility of the impacts.	▪ A zone of influence of up to 20 km from the most potentially-disruptive project activities was selected for the NIRB's assessment. ▪ With adherence to the relevant regulatory requirements and application of the mitigation measures recommended by the NIRB, no significant residual effects are expected to occur.
The cumulative impacts that could result from the impacts of the project combined with those of any other project that has been carried out, is being carried out or is likely to be carried out.	▪ The NIRB has not identified any past, present, and reasonably foreseeable projects at this time; however, the mitigation measures recommended by the NIRB have been designed to reduce cumulative effects should projects occur in the area in the future.
Any other factor that the Board considers relevant to the assessment of the significance of impacts.	▪ The proposed project would update the waste management facilities at HAWS thus reducing potential impacts on the environment from the facility's activities.

VIEWS OF THE BOARD

In considering the factors as set out above in the screening of the project proposal, the NIRB has identified a number of issues below and respectfully provide the following views regarding whether or not the proposed project has the potential to result in significant impacts. In addition, the NIRB has proposed terms and conditions that would mitigate the potential adverse impacts identified.

The NIRB has listed specific Acts and Regulations below that may be applicable to the project proposal but this list should not be considered as a complete list and the Proponent is responsible to ensure that it follows all Acts and Regulations that may be applicable to the project proposal.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Valued Component	Terrestrial wildlife such as migratory and non-migratory birds, Arctic fox, Arctic hare, and Species at Risk such as Polar Bears from project activities
Potential effects:	Potential adverse effects to terrestrial wildlife such as migratory and non-migratory birds, Arctic fox, Arctic hare, and Species at Risk such as Polar Bears from noise and visual disturbance generated from the construction activities, incinerating activities, as well as the development of a new raw water storage reservoir, landfarm, and landfill.
Nature of Impacts:	The potential for impacts is considered to be limited due to infrequent and temporary activities and any resulting impacts would be expected to be reversible
Mitigating Factors:	Proponent proposes to ensure construction activities occur with minimal impact to wildlife. The proposed activities are taking place at the existing HAWS facility, and thus additional impacts are expected to be minimal.
Proposed Terms and Conditions:	Waste Management – 9 and 10 Wildlife General – 24 through 28 Migratory Birds and Raptor Disturbance – 29 and 30
Related Acts and/or Regulations:	1. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (http://laws-lois.justice.gc.ca/eng/acts/M-7.01/). 2. The *Species at Risk Act* (http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html). Attached in **Appendix A** is a list of Species at Risk in Nunavut. 3. The *Wildlife Act (Nunavut)* and its corresponding regulations (http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html).

Valued Component	Land, terrestrial vegetation, and ground stability
Potential effects:	Potential adverse impacts to the ground stability, vegetation quality, and terrain due to the removal of contaminated soils, creation of a landfarm and landfill, moving of equipment and personnel, and construction activities.
Nature of Impacts:	The potential for impacts is considered to be limited if regulations and best practices for construction operations and landfill and landfarm operations are followed. The potential for disturbance due to other activities is considered to be minimal due to the localized and temporary nature of the activities.
Mitigating Factors:	The Proponent also has committed to developing a *Spill Contingency Plan* that would be implemented as required. Further, combustible disturbance to the land would be minimal and waste generated by the project would be disposed of properly. Noncombustible and hazardous waste would be taken for proper disposal.
Proposed Terms and Conditions:	Waste Management – 9 and 10 Fuel and Chemical Storage – 11 through 20 Landfarm Operations – 21 and 22 Landfill Operations - 23 Road and Ground Disturbance – 31 Land Use and Restoration of Disturbed Areas – 32 through 36
Related Acts and/or Regulations:	1. Environmental Guidelines for the Management of Contaminated Sites, Department of the Environment, Government of Nunauvt, Revised December 2014 (http://www.gov.nu.ca/sites/default/files/contaminated_sites_remediation_2014.pdf). 2. Environmental Guideline for Contaminated Site Remediation, Department of the Environment, Government of Nunavut; Revised March 2009 (https://www.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Site%20Remediation.pdf). 3. Solid Waste Management for Northern and Remote Communities (Environment and Climate Change Canada, 2017) (https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html).

Valued Component	Environment (land, water and air)
Potential effects:	Potential negative effects from the establishment of a landfarm and landfill.
Nature of Impacts:	Landfarm and landfill operations could increase risks of contamination in the environment from waste and contaminated soils.

Mitigating Factors:	Adhering to the NIRB's terms and conditions as well as regulations and the respective authorizations for the operation of landfarm and landfill activities would allow for the safe operation of these facilities.
Proposed Terms and Conditions:	Landfarm Operations – 21 and 22 Landfill Operations - 23
Related Acts and/or Regulations:	1. Environmental Guidelines for the Management of Contaminated Sites, Department of the Environment, Government of Nunauvt, Revised December 2014 (http://www.gov.nu.ca/sites/default/files/contaminated_sites_remediation_2014.pdf). 2. Environmental Guideline for Contaminated Site Remediation, Department of the Environment, Government of Nunavut; Revised March 2009 (https://www.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Site%20Remediation.pdf). 3. Environmental Guidelines for the Management of Hazardous Waste, Government of Nunavut, Revised October 2010 (https://www.gov.nu.ca/sites/default/files/Guideline%20-%20General%20Management%20of%20Hazardous%20Waste%20%28revised%20Oct%202010%29_0.pdf). 4. Solid Waste Management for Northern and Remote Communities (Environment and Climate Change Canada, 2017) (https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html).

Valued Component	Environment (land, water and air)
Potential effects:	Potential positive effects from the remediation activities including the identification and removal of hazardous wastes, uncontrolled wastes, and contaminated soil remediation.
Nature of Impacts:	Treating and removing contaminated soils, removing and disposing of structures and disposing of hazardous waste and site debris will reduce some of the environmental risks at the Eureka High Arctic Weather Station which could contribute to more serious contamination and environmental degradation without intervention.
Mitigating Factors:	Adhering to the NIRB's terms and conditions as well as the respective authorizations, it is expected that the project would provide an increase to the ecosystemic and environmental integrity of the area.
Proposed Terms and Conditions:	Landfarm Operations – 21 and 22 Landfill Operations - 23 Land Use and Restoration of Disturbed Areas – 32 through 36

Related Acts and/or Regulations:	1. Environmental Guidelines for the Management of Contaminated Sites, Department of the Environment, Government of Nunauvt, Revised December 2014 (http://www.gov.nu.ca/sites/default/files/contaminated_sites_remediation_2014.pdf). 2. Environmental Guideline for Contaminated Site Remediation, Department of the Environment, Government of Nunavut; Revised March 2009 (https://www.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Site%20Remediation.pdf). 3. Environmental Guidelines for the Management of Hazardous Waste, Government of Nunavut, Revised October 2010 (https://www.gov.nu.ca/sites/default/files/Guideline%20-%20General%20Management%20of%20Hazardous%20Waste%20%28revised%20Oct%202010%29_0.pdf). 4. Solid Waste Management for Northern and Remote Communities (Environment and Climate Change Canada, 2017) (https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html).

Valued Component	Water and Fish Habitat
Potential effects:	Potential impacts to water quantity and quality and fish habitat due to the withdrawal of water from West Remus and Black Top Creeks
Nature of Impacts:	The potential for impacts is applicable to a small geographic area and considered to be low probability, and low in magnitude, infrequent, and reversible. Standard operating procedures would mitigate most risks.
Mitigating Factors:	The Proponent will be required to abide by the terms of the amended water license issued by the Nunavut Water Board and any requirements of the Department of Fisheries and Oceans.
Proposed Terms and Conditions:	Other – 37 and 28
Related Acts and/or Regulations:	1. The *Fisheries Act* (http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html). 2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (http://laws-lois.justice.gc.ca/eng/acts/n-28.8/).

Valued Component	Public and traditional land use activities
Potential effects:	No specific concerns or impacts to public and traditional land use activities in the area have been identified, however, the Board is recommending terms and conditions to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not interfere with Inuit wildlife harvesting or traditional land use

	activities.
Nature of Impacts:	Potential for impacts is considered to be minimal due to the location of the project.
Mitigating Factors:	Proponent will follow the Wildlife and Wildlife Habitat Management Plan to minimize impacts to wildlife and has committed to executing its work in a way that minimizes the negative effects to wildlife.
Proposed Terms and Conditions:	Other – 37 through 39
Related Acts and/or Regulations:	N/A

Socio-economic effects on northerners:

Valued Component	Historical, archeological, and heritage sites
Potential effects:	No historical sites in the proposed project area were identified by the Proponent, however, the Board is recommending terms and conditions to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not negatively effect historical or heritage sites.
Nature of Impacts:	The Proponent has committed to conducting an archeological assessment for all areas that haven't been previously assessed.
Mitigating Factors:	As noted, the Board is recommending terms and conditions to ensure that project activities do not negatively effect historical or heritage sites.
Proposed Terms and Conditions:	Other – 37 and 38
Related Acts and/or Regulations:	1. The *Nunavut Act* (http://laws-lois.justice.gc.ca/eng/acts/N-28.6/). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix B**.

Valued Component	Local hiring, contracting and economic impact
Potential effects:	Potential positive impacts from the hiring of local community members for various projects and activities.
Nature of Impacts:	Potential for impacts is considered to be positive if the Proponent adheres to its commitment to hiring locally to the extent possible.
Mitigating Factors:	The Board is recommending terms and conditions to ensure that the Proponent continues to inform the communities of the ongoing site activities and to ensure community members are aware of and best able to successfully connect with hiring opportunities.
Proposed Terms and Conditions:	Other – 37 and 39
Related Acts and/or Regulations:	N/A

Significant public concern:

Valued Component	Public concern
Potential effects:	No significant public concern was expressed during the public commenting period for this file, however, the Board recommends terms and conditions to ensure project activities do not interfere with Inuit wildlife harvesting or traditional land use activities, to the extent possible hire local people and access local services where possible, and to ensure planned activities in the area utilizes available Inuit Qaujimaningit.
Nature of Impacts:	The potential for impacts is considered to be minimal as long as the Proponent follows the recommended terms and conditions.
Mitigating Factors:	Given the distance from the closest community, direct impacts on Inuit are considered highly unlikely and are addressed through the proposed terms and conditions.
Proposed Terms and Conditions:	Other – 37 through 39
Related Acts and/or Regulations:	N/A

Technological innovations for which the effects are unknown:

- No specific issues have been identified associated with this project proposal.

Administrative Conditions:

To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the following project-specific terms and conditions have been recommended: 1-5.

In considering the above factors and subject to the Proponent's compliance with the terms and conditions necessary to mitigate against the potential adverse environmental and social effects, the Board is of the view that the proposed project is unlikely to cause significant public concern and its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS

The Board is recommending the following specific terms and conditions to apply in respect of the project:

General

1. Environment and Climate Change Canada (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times and make it accessible to enforcement officers upon request.
2. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (NPC File No.: 149476) and the NIRB

(Online Application Form, March 4, 2021). This information should be accessible to enforcement officers upon request.

3. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.
4. The Proponent shall ensure that it meets the standards and/or limits as set out in the authorizing agencies' permits or licences as required for this project.
5. The Proponent shall ensure that all personnel, staff and contractors are adequately trained prior to commencement of all project activities, and shall be made aware of all operational plans, management plans, guidelines and Proponent commitments relating to the project.

Water courses/Water bodies (including fresh and marine waters)

6. The Proponent shall not extract water from any fish-bearing water body unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish. Small lakes or streams should not be used for water withdrawal unless otherwise authorized by the appropriate authorizing agency.
7. The Proponent shall ensure that no disturbance of the stream bed, lake bed or the banks of any definable watercourse be permitted, except where deemed necessary for maintaining project-specific operational commitments or approved by a responsible authority in cases of spill management.
8. The Proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes (including wastewater) or sediment into any water body. The Proponent should have in place an Emergency Spill Response Plan that is approved by the appropriate authorizing agency(ies).

Waste Management

9. The Proponent shall manage all hazardous and non-hazardous waste including food, domestic wastes, debris and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) in such a manner to avoid release into the environment and access to wildlife at all times until disposed of appropriately or at an approved facility.
10. The Proponent shall incinerate all combustible wastes as needed and dispose of as required by the appropriate authorizing agencies. All non-combustible wastes from the project site shall be removed to an approved facility for disposal.

Fuel and Chemical Storage

11. The Proponent shall locate all fuel and other hazardous materials a minimum distance away from the high-water mark of any water body and environmentally sensitive areas as required by the appropriate authorizing agencies. The materials shall be stored in such a manner as to prevent their release into the environment.
12. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing barreled fuel and chemicals at all locations.

13. The Proponent shall ensure that re-fuelling of all equipment occurs a minimum distance away from the high-water mark of any water body as required by the appropriate authorizing agencies.
14. Fuel and hazardous material storage areas and fuel lines should be clearly marked with signs or flagging to avoid accidental breaks and punctures, and to ensure areas remain visible during the winter months.
15. All fuel and chemical storage containers must be clearly marked with the Proponent's name for ease of identification.
16. The Proponent shall routinely inspect and document the conditions of fuel and hazardous material storage containers and containment areas as required by the appropriate authorizing agencies. Fuel containment areas shall be kept clear of debris, water and snow to facilitate inspections for leaks.
17. The Proponent shall have a Spill Contingency Plan in place at all fuel storage or transfer locations and shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available.
18. The Proponent shall follow the authorizing agencies' direction for management and removal of hazardous materials and wastes (e.g., contaminated soils, sediment and waste oil).
19. The Proponent shall ensure that wildlife deterrent systems are utilized at the time of a spill incident in order to avoid wildlife (terrestrial or marine) and migratory birds from being contaminated.
20. The Proponent shall ensure that all spills of fuel or other deleterious materials of 100 litres or more must be reported immediately to the 24-hour Spill Line at (867) 920-8130.

Landfarm Operations

21. The Proponent shall treat only petroleum and hydrocarbon contaminated soils at the landfarm facility. Materials contaminated with other substances such as glycol and heavy metals are not to be stored at the landfarm and must be disposed of at an authorized facility.
22. The Proponent shall ensure that the equipment used for aeration in the landfarm operation have been cleaned off within the landfarm facilities prior to exiting.

Landfill Operations

23. The Proponent shall dispose of non-hazardous materials only at the landfill and shall limit this disposal to those materials listed as acceptable for disposal. Hazardous materials, materials listed as unacceptable for disposal at the landfill, or materials that contain asbestos, fluorescent tubes or ozone depleting substances are not to be disposed of in the landfill and must be disposed of at an authorized facility.

Wildlife – General

24. The Proponent shall not substantially alter or damage or destroy any wildlife habitat in conducting this operation unless otherwise authorized by the appropriate authorizing agencies.

25. The Proponent shall not chase, weary, harass or molest wildlife. This includes persistently circling, chasing, hovering over, pursuing or in any other way harass wildlife, or disturbing large groups of animals.
26. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
27. The Proponent shall ensure that all wildlife have the right-of-way on any roads or trails. Vehicles are required to slow down or stop and wait to permit the free and unrestricted movement of wildlife across roads or trails at any location.
28. The Proponent shall enforce safe speed limits for vehicles travelling along the road to ensure drivers have sufficient time to react in a safe manner if wildlife are encountered on or adjacent to the road or trail.

Migratory Birds and Raptors Disturbance

29. The Proponent shall carry out all phases of the project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall take into account Environment and Climate Change Canada's *Avoidance Guidelines*. The Proponent's actions in applying the *Avoidance Guidelines* shall be in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*.
30. The Proponent shall not disturb or destroy the nests or eggs of any birds. If active nests of any birds are discovered or located (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have naturally left the vicinity of the nest by establishing a protection buffer zone[1] appropriate for the species and the surrounding habitat.

Road and Ground Disturbance

31. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles must be suspended if rutting occurs.

Land Use and Restoration of Disturbed Areas

32. The Proponent shall use existing trails where possible during project activities on the land.
33. The Proponent shall ensure that the land use area is kept clean and tidy at all times.
34. The Proponent shall avoid disturbance on slopes prone to natural erosion, and alternative locations shall be utilized.
35. The Proponent shall remove all garbage, fuel and equipment at the end of each field season and/or upon completion of work and/or upon abandonment.
36. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state using Best Available Technology Economically Achievable (BATEA) upon completion of work and/or abandonment.

1 Recommended setback distances to define buffer zones have been established by Environment and Climate Change Canada for different bird groups nesting in tundra habitat and can be found at www.ec.gc.ca/paom-itmb.

Other

37. The Proponent should consult with local residents regarding their activities in the area and solicit available Inuit Qaujimaningit and information that can inform project activities.
38. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
39. The Proponent should, to the extent possible, hire local people and access local services where possible.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board is recommending the following:

Change in Project Scope

1. Responsible authorities or Proponent shall notify the Nunavut Planning Commission and/or Parks Canada as appropriate, and the NIRB of any changes in operating plans or conditions, including phase advancement, associated with this project prior to any such change.

Copy of licences, etc. to the Board and Commission

2. The NIRB respectfully requests that responsible authorities submit a copy of each licence, permit or other authorization issued for the Project to the NIRB to assist in enabling possible project monitoring that may be required. Please forward a copy of the licences, permits and/or other authorizations to the NIRB directly at info@nirb.ca or upload a copy to the NIRB's online registry at www.nirb.ca.

Use of Inuit Qaujimaningit

3. The Proponent is encouraged to work with local communities and knowledge holders to inform project design, to carry out the project, and to confirm or validate the perspectives represented in publications produced as part of the project. Care should be taken to ensure that Inuit Qaujimaningit and local knowledge collected for the project is used with permission and is accurately represented.

Bear and Carnivore Safety

4. The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf. Further information on bear/carnivore detection and deterrent techniques can be found in the "*Safety in Grizzly and Black Bear Country*" pamphlet, which can be downloaded from this link: https://www.enr.gov.nt.ca/sites/enr/files/resources/safety_in_grizzly_and_black_bear_country_english.pdf.
5. There are Polar Bear and grizzly bear safety resources available from the Bear Smart Society with videos on Polar Bear safety available in English, French and Inuktitut at http://www.bearsmart.com/play/safety-in-polar-bear-country/. Information can also be

obtained from Parks Canada's website on bear safety at the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx or in reviewing the "*Safety in Polar Bear Country*" pamphlet, which can be downloaded from the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx.

6. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Grise Fiord, phone: (867) 980-4164).

Species at Risk

7. The Proponent review Environment and Climate Change Canada's "Environment Assessment Best Practice Guide for Wildlife at Risk in Canada", available at the following link: http://www.sararegistry.gc.ca/virtual_sara/files/policies/EA%20Best%20Practices%202004.pdf. The guide provides information to the Proponent on what is required when Wildlife at Risk, including *Species at Risk*, are encountered or affected by the project.

Migratory Birds

8. The Proponent review Canadian Wildlife Services' "Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut", available at the following link: http://publications.gc.ca/site/eng/317630/publication.html and "Key marine habitat sites for migratory birds in Nunavut and the Northwest Territories", available at the following link: http://publications.gc.ca/site/eng/392824/publication.html. The guide provides information to the Proponent on key terrestrial and marine habitat areas that are essential to the welfare of various migratory bird species in Canada.

9. For further information on how to protect migratory birds, their nests and eggs when planning or carrying out project activities, consult Environment and Climate Change Canada's Incidental Take web page and the fact sheet "Planning Ahead to Reduce the Risk of Detrimental Effects to Migratory Birds, and their Nests and Eggs" available at: http://publications.gc.ca/collections/collection_2013/ec/CW66-324-2013-eng.pdf.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Environment and Climate Change Canada's "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated May 13, 2021 at Baker Lake, NU.

Kaviq Kaluraq, Chairperson

Attachments: Appendix A: Species at Risk in Nunavut
Appendix B: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

APPENDIX A: SPECIES AT RISK IN NUNAVUT

Due to the requirements of Section 79(2) of the Species at Risk Act (SARA), and the potential for project-specific adverse effects on listed wildlife species and its critical habitat, measures should be taken as appropriate to avoid or lessen those effects, and the effects need to be monitored. Project effects could include species disturbance, attraction to operations and destruction of habitat. This section applies to all species listed on Schedule 1 of SARA, as listed in the table below, or have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which may be encountered in the project area. This list may not include all species identified as at risk by the Territorial Government. The following points provide clarification on the applicability of the species outlined in the table.

- Schedule 1 is the official legal list of Species at Risk for SARA. SARA applies to all species on Schedule 1. The term "listed" species refers to species on Schedule 1.
- Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.
- Some species identified at risk by COSEWIC are "pending" addition to Schedule 1 of SARA. These species are under consideration for addition to Schedule 1, subject to further consultation or assessment.

If species at risk are encountered or affected, the primary mitigation measure should be avoidance. The Proponent should avoid contact with or disturbance to each species, its habitat and/or its residence. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the species at risk Registry at http://www.sararegistry.gc.ca for information on specific species.

Monitoring should be undertaken by the Proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of species at risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.

For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.

Mitigation and monitoring measures must be undertaken in a way that is consistent with applicable recovery strategies and action/management plans.

Schedules of SARA are amended on a regular basis so it is important to check the SARA registry (www.sararegistry.gc.ca) to get the current status of a species.

Updated: September 2019

Terrestrial Species at Risk[2]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility[3]
Migratory Birds			
Buff-breasted Sandpiper	Special Concern	Schedule 1	Environment and Climate Change Canada (ECCC)
Common Nighthawk	Threatened	Schedule 1	ECCC
Eskimo Curlew	Endangered	Schedule 1	ECCC
Harlequin Duck	Special Concern	Schedule 1	ECCC
Harris's Sparrow	Special Concern	Schedule 1	ECCC
Horned Grebe	Special Concern	Schedule 1	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Olive-sided Flycatcher	Threatened	Schedule 1	ECCC
Peregrine Falcon	Special Concern	Schedule 1	ECCC
Red Knot Islandica Subspecies	Special Concern	Schedule 1	ECCC
Red-necked Phalarope	Special Concern	Schedule 1	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	ECCC
Short-eared Owl	Special Concern	Schedule 1	ECCC
Vegetation			
Porsild's Bryum	Threatened	Schedule 1	Government of Nunavut (GN)
Arthropods			
Transverse Lady Beetle	Special Concern	No Schedule	GN
Terrestrial Wildlife			
Caribou (Dolphin and Union Population)	Endangered	Schedule 1	GN
Caribou (Barren-ground Population)	Threatened	No Schedule	GN
Caribou (Torngat Mountains Population)	Endangered	No Schedule	GN
Grizzly Bear (Western Population)	Special Concern	Schedule 1	ECCC
Peary Caribou	Endangered	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	ECCC
Wolverine	Special Concern	Schedule 1	GN
Marine Wildlife			
Atlantic Walrus (High Arctic Population)	Special Concern	No Schedule	Fisheries and Oceans Canada (DFO)
Atlantic Walrus (Central/Low Arctic Population)	Special Concern	No Schedule	DFO
Beluga Whale (Cumberland Sound Population)	Threatened	Schedule 1	DFO
Beluga Whale (Eastern Hudson Bay Population)	Endangered	No Schedule	DFO

2 The Department of Fisheries and Oceans has responsibility for aquatic species.

3 Environment and Climate Change Canada (ECCC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.

Terrestrial Species at Risk[2]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility[3]
Beluga Whale (Eastern High Arctic-Baffin Bay Population)	Special Concern	No Schedule	DFO
Beluga Whale (Western Hudson Bay Population)	Special Concern	No Schedule	DFO
Fish			
Atlantic Cod (Arctic Lakes Population)	Special Concern	No Schedule	DFO
Fourhorn Sculpin (Freshwater Form)	Data Deficient	Schedule 3	DFO
Lumpfish	Threatened	No Schedule	DFO
Thorny Skate	Special Concern	No Schedule	DFO

APPENDIX B: ARCHAEOLOGICAL AND PALAEONTOLOGICAL RESOURCES TERMS AND CONDITIONS FOR LAND USE PERMIT HOLDERS

INTRODUCTION

The Department of Culture and Heritage (CH) routinely reviews land use applications sent to the Nunavut Water Board, Nunavut Impact Review Board and the Indigenous and Northern Affairs Canada. These terms and conditions provide general direction to the permittee/proponent regarding the appropriate actions to be taken to ensure the permittee/proponent carries out its role in the protection of Nunavut's archaeological and palaeontological resources.

TERMS AND CONDITIONS

1) The permittee/proponent shall have a professional archaeologist and/or palaeontologist perform the following **Functions** associated with the **Types of Development** listed below or similar development activities:

	Types of Development (See Guidelines below)	**Function** (See Guidelines below)
a)	Large scale prospecting	Archaeological/Palaeontological Overview Assessment
b)	Diamond drilling for exploration or geotechnical purpose or planning of linear disturbances	Archaeological/Palaeontological Overview Assessment and/or Inventory and Documentation and/or Mitigation
c)	Construction of linear disturbances, Extractive disturbances, Impounding disturbances and other land disturbance activities	Archaeological/Palaeontological Overview Assessment and/or Inventory and Documentation and/or Mitigation

Note that the above-mentioned functions require either a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit. CH is authorized by way of the *Nunavut and Archaeological and Palaeontological Site Regulations*[4] to issue such permits.

[4] P.C. 2001-1111 14 June, 2001

2) The permittee/proponent shall not operate any vehicle over a known or suspected archaeological or palaeontological site.

3) The permittee/proponent shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.

4) The permittee/proponent shall immediately contact CH at (867) 934-2046 or (867) 975-5500 should an archaeological site or specimen, or a palaeontological site or fossil, be encountered or disturbed by any land use activity.

5) The permittee/proponent shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation until permitted to proceed with the authorization of CH.

6) The permittee/proponent shall follow the direction of CH in restoring disturbed archaeological or palaeontological sites to an acceptable condition. If these conditions are attached to either a Class A or B Permit under the Territorial Lands Act Indigenous and Northern Affairs Canada directions will also be followed.

7) The permittee/proponent shall provide all information requested by CH concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.

8) The permittee/proponent shall make best efforts to ensure that all persons working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.

9) If a list of recorded archaeological and/or palaeontological sites is provided to the permittee/proponent by CH as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.

10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

Legal Framework

As stated in Article 33 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*):

Where an application is made for a land use permit in the Nunavut Settlement Area, and there are reasonable grounds to believe that there could be sites of archaeological importance on the lands affected, no land use permit shall be issued without written consent of the Designated Agency. Such consent shall not be unreasonably withheld. [33.5.12]

Each land use permit referred to in Section 33.5.12 shall specify the plans and methods of archeological site protection and restoration to be followed by the permit holder, and any other conditions the Designated Agency may deem fit. [33.5.13]

Palaeontology and Archaeology
Under the *Nunavut Act*[5], the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under the *Nunavut Archaeological and Palaeontological Sites Regulations*[6], it is illegal to alter or disturb any palaeontological or archaeological site in Nunavut unless permission is first granted through the permitting process.

Definitions
As defined in the *Nunavut Archaeological and Palaeontological Sites Regulations*, the following definitions apply:

> *"archaeological site" means a place where an archaeological artifact is found.*
>
> *"archaeological artifact" means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement).*
>
> *"palaeontological site" means a site where a fossil is found.*
>
> *"fossil" includes:*
> *Fossil means the hardened or preserved remains or impression of previously living organisms or vegetation and includes:*
> *(a) natural casts;*
> *(b) preserved tracks, coprolites and plant remains; and*
> *(c) the preserved shells and exoskeletons of invertebrates and the preserved eggs, teeth and bones of vertebrates.*

Guidelines for Developers for the Protection of Archaeological Resources in the Nunavut Territory

(**Note:** Partial document only, complete document at: www.ch.gov.nu.ca/en/Archaeology.aspx)

Introduction
The following guidelines have been formulated to ensure that the impacts of proposed developments upon heritage resources are assessed and mitigated before ground surface altering activities occur. Heritage resources are defined as, but not limited to, archaeological and historical sites, burial grounds, palaeontological sites, historic buildings and cairns Effective collaboration between the developer, the Department of Culture, and Heritage (CH), and the contract archaeologist(s) will ensure proper preservation of heritage resources in the Nunavut Territory. The roles of each are briefly described.

CH is the Nunavut Government agency which oversees the protection and management of

[5] s. 51(1)
[6] P.C. 2001-1111 14 June, 2001

heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and the federal government. Its role in mitigating impacts of developments on heritage resources is as follows: to identify the need for an impact assessment and make recommendations to the appropriate regulatory agency; set the terms of reference for the study depending upon the scope of the development; suggest the names of qualified individuals prepared to undertake the study to the developer; issue an archaeologist or palaeontologist permit authorizing field work; assess the completeness of the study and its recommendations; and ensure that the developer complies with the recommendations.

The primary regulatory agencies that CH provides information and assistance to are the Nunavut Impact Review Board, for development activities proposed for Inuit Owned Lands (as defined in Section 1.1.1 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*)), and the Indigenous and Northern Affairs Canada, for development activities proposed for federal Crown Lands.

A developer is the initiator of a land use activity. It is the obligation of the developer to ensure that a qualified archaeologist or palaeontologist is hired to perform the required study and that provisions of the contract with the archaeologist or palaeontologist allow permit requirements to be met; i.e. fieldwork, collections management, artifact and specimen conservation, and report preparation. On the recommendation of the contract archaeologist or palaeontologist in the field and the Government of Nunavut, the developer shall implement avoidance or mitigative measures to protect heritage resources or to salvage the information they contain through excavation, analysis, and report writing. The developer assumes all costs associated with the study in its entirety.

Through his or her active participation and supervision of the study, the contract archaeologist or palaeontologist is accountable for the quality of work undertaken and the quality of the report produced. Facilities to conduct fieldwork, analysis, and report preparation should be available to this individual through institutional, agency, or company affiliations. Responsibility for the curation of objects recovered during field work while under study and for documents generated in the course of the study as well as remittance of artifacts, specimens and documents to the repository specified on the permit accrue to the contract archaeologist or palaeontologist. This individual is also bound by the legal requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations*.

Types of Development

In general, those developments that cause concern for the safety of heritage resources will include one or more of the following kinds of surface disturbances. These categories, in combination, are comprehensive of the major kinds of developments commonly proposed in Nunavut. For any single development proposal, several kinds of these disturbances may be involved

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*

- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*
- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*
- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources*.

Types of Studies Undertaken to Preserve Heritage Resources

Overview: An overview study of heritage resources should be conducted at the same time as the development project is being designed or its feasibility addressed. They usually lack specificity with regard to the exact location(s) and form(s) of impact and involve limited, if any, field surveys. Their main aim is to accumulate, evaluate, and synthesize the existing knowledge of the heritage of the known area of impact. The overview study provides managers with baseline data from which recommendations for future research and forecasts of potential impacts can be made. A Class I Permit is required for this type of study if field surveys are undertaken.

Reconnaissance: This is done to provide a judgmental appraisal of a region sufficient to provide the developer, the consultant, and government managers with recommendations for further development planning. This study may be implemented as a preliminary step to inventory and assessment investigations except in cases where a reconnaissance may indicate a very low or negligible heritage resource potential. Alternately, in the case of small-scale or linear developments, an inventory study may be recommended and obviate the need for a reconnaissance.

The main goal of a reconnaissance study is to provide baseline data for the verification of the presence of potential heritage resources, the determination of impacts to these resources, the generation of terms of reference for further studies and, if required, the advancement of preliminary mitigative and compensatory plans. The results of reconnaissance studies are primarily useful for the selection of alternatives and secondarily as a means of identifying impacts that must be mitigated after the final siting and design of the development project. Depending on the scope of the study, a Class 1 or Class 2 Permit is required for this type of investigation.

Inventory: A resource inventory is generally conducted at that stage in a project's development at which the geographical area(s) likely to sustain direct, indirect, and perceived impacts can be well defined. This requires systematic and intensive fieldwork to ascertain the effects of all possible and alternate construction components on heritage resources. All heritage sites must be recorded on Government of Nunavut Site Survey forms. Sufficient information must be amassed from field, library and archival components of the study to generate a predictive model of the heritage resource base that will:

- allow the identification of research and conservation opportunities;
- enable the developer to make planning decisions and recognize their likely effects on the known or predicted resources; and

- make the developer aware of the expenditures, which may be required for subsequent studies and mitigation. A Class 1 or 2 permit is required.

Assessment: At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

Mitigation: This refers to the amelioration of adverse impacts to heritage resources and involves the avoidance of impact through the redesign or relocation of a development or its components; the protection of the resource by constructing physical facilities; or, the scientific investigation and recovery of information from the resource by excavation or other method. The type(s) of appropriate mitigative measures are dictated by their viability in the context of the development project. Mitigation strategies must be developed in consultation with, and approved by, the Department of Culture and Heritage. It is important to note that mitigation activities should be initiated as far in advance of the construction of the development as possible.

Surveillance and monitoring: These may be required as part of the mitigation program.

Surveillance may be conducted during the construction phase of a project to ensure that the developer has complied with the recommendations.

Monitoring involves identification and inspection of residual and long-term impacts of a development (i.e. shoreline stability of a reservoir); or the use of impacts to disclose the presence of heritage resources, for example, the uncovering of buried sites during the construction of a pipeline.