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Municipal Public Works Department
Service des travaux publics municipaux

Kuujjuaq, March 24th, 2021

Monsieur Marc Croteau
Administrateur provincial de la Convention de la
Baie-James et du Nord québécois
Sous-Ministre de l'Environnement et de la Lutte contre les changements climatiques
Édifice Marie-Guyart, 30ième étage, boîte 02
675 , boul. René-Lévesque Est
Québec (Québec) G1R 5V7
reception.30e@environnement.gouv.qc.ca

By e-mail

Subject: **Preliminary information**
Construction of a 600m access road
Northern Village of Kuujjuaraapik

Sir,

Please find attached the preliminary information form as well as appendices relevant to the analysis of the construction of a 600m access road project in Kuujjuaraapik. It is our understanding that the project is in the grey zone.

This project is part of the construction of a new landfill piloted by Whapmagoostui First Nation. It is a shared infrastructure between both communities. The Northern Village of Kuujjuaraapik is responsible for the construction of the 600m access road, retrofitting of the main road on a distance of approximately 5km, and for the closure and rehabilitation of the two landfills on its territory. Because the latter two components are still under study and that the activities related to the construction of the new landfill are not reliant on their implementation, they will be presented in separate requests later.

Regards,

Paul Parsons
Director
Municipal Public Works Department

CC – Vanessa Chalifour, Coordinator and Team Leader, Northern Projects

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KATIVIK Municipal Public Works Department
Service des travaux publics municipaux

Kuujjuaq, le 24 mars 2021

Monsieur Marc Croteau
Administrateur provincial de la Convention de la
Baie-James et du Nord québécois
Sous-Ministre de l'Environnement et de la Lutte contre les changements climatiques
Édifice Marie-Guyart, 30ième étage, boîte 02
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Québec (Québec) G1R 5V7
reception.30e@environnement.gouv.qc.ca

Par courriel

Objet : Renseignements préliminaires
Projet de construction d'un chemin d'accès de 600m
Village nordique de Kuujjuaraapik

Monsieur,

Vous trouverez ci-joint le formulaire de demande de renseignements préliminaires de même que les annexes pertinentes à l'analyse pour le projet de construction d'un chemin d'accès d'environ 600m situé à Kuujjuaraapik. Selon notre compréhension, le projet se trouve en zone grise.

Ce projet s'insère dans le cadre de la construction d'un nouveau lieu d'enfouissement piloté par Whapmagoostui First Nation. Il s'agit d'une infrastructure partagée avec le village nordique de Kuujjuaraapik. De ce fait, le rôle de la municipalité est de voir à la construction du chemin d'accès, à la réfection de la route principale sur une longueur d'environ 5 km et à la fermeture des lieux d'enfouissement situés sur son territoire. Cependant, puisque ces deux dernières composantes sont toujours sous étude et que les activités de construction du nouveau lieu d'enfouissement n'en sont pas dépendantes, elles feront l'objet de demandes séparées.

Dans l'attente de votre réponse, veuillez agréer nos sincères salutations.

Paul Parsons
Directeur
Département du Service des travaux publics municipaux

cc. Vanessa Chalifour, coordonnatrice/cheffe d'équipe – projets nordiques

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Municipal Public Works Department
Service des travaux publics municipaux

RENSEIGNEMENT PRÉLIMINAIRES
CONSTRUCTION D'UN CHEMIN D'ACCÈS DE 600M
VILLAGE NORDIQUE DE KUUJJUARAAPIK

PRELIMINARY INFORMATION
CONSTRUCTION OF A 600M ACCESS ROAD
NORTHERN VILLAGE OF KUUJJUARAAPIK

Mars / March 2021

FORMULAIRE
Renseignements préliminaires / Preliminary information

PRÉAMBULE

La Convention de la Baie-James et du Nord québécois (CBJNQ), par ses chapitres 22 et 23, établit un régime de protection de l'environnement et du milieu social dans le Québec nordique. Certains aspects de ces chapitres relèvent du gouvernement du Canada, du gouvernement du Québec ou des deux ordres de gouvernement. Ceux qui relèvent du Québec ont été inscrits au chapitre II de la Loi sur la qualité de l'environnement (LQE) (chapitre Q-2). Ce chapitre de la LQE présente les procédures d'évaluation et d'examen des impacts sur l'environnement et le milieu social qui s'appliquent dans la région de la Baie-James (art. 133 de la LQE) ou au Nunavik (art. 168 de la LQE) (www.mddelcc.gouv.qc.ca/evaluations/mil-nordique/index.htm).

Les projets mentionnés à l'annexe A de la LQE sont obligatoirement soumis à l'une ou l'autre des procédures applicables en milieu nordique, contrairement à ceux qui sont mentionnés à l'annexe B, qui n'y sont pas assujettis. Ceux qui ne sont pas visés par ces annexes sont considérés comme des projets de « zone grise ». Ils doivent donc être soumis au ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques, qui déterminera leur assujettissement à l'une ou l'autre des procédures applicables en milieu nordique.

Le formulaire « Renseignements préliminaires » sert à décrire les caractéristiques générales du projet. Il doit être rempli de façon claire et concise et se limiter aux éléments pertinents pour la bonne compréhension du projet, de ses impacts et des enjeux appréhendés. Les renseignements préliminaires seront publiés dans le Registre des évaluations environnementales prévu à l'article 118.5.0.1 de la LQE.

Tout promoteur désirant réaliser un projet visé par l'annexe A de la LQE ou un projet de « zone grise » sur ces territoires doit d'abord demander un certificat d'autorisation ou une attestation de non-assujettissement, et ce, conformément aux articles 154 et 189 de la LQE. Le promoteur doit donc soumettre au Ministère les renseignements préliminaires concernant le projet visé.

Conformément aux articles 115.5 à 115.12 de la LQE, le demandeur de toute autorisation accordée en vertu de cette loi doit, comme condition de délivrance, produire la déclaration du demandeur ou du titulaire d'une autorisation délivrée en vertu de la Loi sur la qualité de l'environnement (chapitre Q-2) accompagnée des autres documents exigés par le ministre. Cette exigence ne s'applique pas aux projets jugés non assujettis pour lesquels une attestation de non-assujettissement est délivrée. Vous trouverez un guide explicatif et les formulaires requis à l'adresse électronique suivante : www.mddelcc.gouv.qc.ca/lqe/index.htm.

Le formulaire « Renseignements préliminaires » doit être accompagné du paiement prévu dans le cadre du système de tarification des demandes d'autorisations environnementales. Ce paiement doit être fait à l'ordre du ministre des Finances. Le détail des tarifs applicables est disponible à l'adresse électronique suivante : www.mddelcc.gouv.qc.ca/ministere/tarification/ministere.htm (en cliquant sur le lien « Procédure d'évaluation environnementale - Québec nordique). Il est à noter que le Ministère ne traitera pas la demande tant que ce paiement n'aura pas été reçu. Les renseignements préliminaires doivent être transmis en dix (10) copies papier françaises, quatre (4) copies papier anglaises et une copie électronique à l'adresse suivante :

Administrateur provincial de la Convention de la Baie-James et du Nord québécois
Sous-ministre du Développement durable, de l'Environnement
et de la Lutte contre les changements climatiques
Édifice Marie-Guyart, 30e étage
675, boul. René-Lévesque Est, boîte 02
Québec (Québec) G1R 5V7
Téléphone : 418 521-3933
Télécopieur : 418 646-0266

Par ailleurs, conformément à la LQE, le formulaire de renseignements préliminaires est transmis au Comité d'évaluation, si le projet concerne la région de la Baie-James, ou à la Commission de la qualité de l'environnement Kativik, si le projet vise le territoire du Nunavik. Ces deux comités examinent les renseignements préliminaires et, dans le cas des projets visés par l'annexe A de la LQE, ils produisent respectivement une recommandation ou un avis sur la directive indiquant la nature, la portée et l'étendue de l'étude d'impact que l'initiateur doit préparer. Pour les projets de « zone grise », les comités produisent respectivement une recommandation ou une décision sur l'assujettissement du projet à la procédure et, s'il y a lieu, sur la directive du projet. Ces recommandations, avis et décisions sont ensuite acheminés au Ministère, qui fait part de sa décision au promoteur. Cela peut se traduire par la délivrance d'une attestation de non-assujettissement dans le cas des projets non assujettis à la procédure ou par la délivrance d'une directive dans celui des projets qui y sont assujettis.

Le Comité d'évaluation est un comité tripartite formé de représentants nommés par le gouvernement de la Nation crie et de représentants du gouvernement du Canada et du gouvernement du Québec. La Commission de la qualité de l'environnement Kativik est un comité bipartite formé de représentants inuits ou naskapis nommés par l'Administration régionale Kativik et de représentants du gouvernement du Québec. Dans l'exercice de leurs fonctions, ces deux comités accordent une attention particulière aux principes suivants, lesquels sont énoncés aux articles 152 et 186 de la LQE :

a) la protection des droits de chasse, de pêche et de piégeage des Autochtones;
b) la protection de l'environnement et du milieu social;
c) la protection des Autochtones, de leurs sociétés, de leurs communautés et de leur économie;
d) la protection de la faune, des milieux physique et biologique et des écosystèmes du territoire;
e) les droits et garanties des Autochtones dans les terres de catégories II;
f) la participation des Cris, Inuits et Naskapis à l'application du régime de protection de l'environnement et du milieu social;
g) les droits et intérêts, quels qu'ils soient, des non-autochtones; et
h) le droit de réaliser des projets, que possèdent les personnes agissant légalement dans le territoire.

1. IDENTIFICATION ET COORDONNÉES DU DEMANDEUR

1.1 Identification du promoteur / Proponent Identification	
Nom : Village nordique de Kuujjuarapik	
Adresse municipale : 412 St-Edmund's Ave., Kuujjuaraapik QC, J0M 1G0	
Adresse postale (si elle diffère de l'adresse municipale) : Case postale 360	
Nom et fonction du ou des signataires autorisés à présenter la demande : Anthony Ittoshat, Maire	
Numéro de téléphone : 819 929-3360	Numéro de téléphone (autre) : -
Courrier électronique : proussel@nvkuujjuaraapik.ca	

1.2 Numéro de l'entreprise
Numéro d'entreprise du Québec (NEQ) : 8819128206

1.3 Résolution du conseil municipal / Resolution
Si le demandeur est une municipalité, les renseignements préliminaires sont assortis de la résolution du conseil municipal dûment certifiée autorisant le ou les signataires de la demande à la présenter au ministre. Ajoutez une copie de la résolution municipale à l'annexe I. Annexe 1a – Résolution du 2017-06 Conseil municipal pour l'approbation du projet et délégation de signatures / Municipal Resolution for Project approval and delegation agreement Annexe 1b - Résolution 2016-19 de l'ARK acceptant le projet et la délégation de pouvoirs / KRG resolution accepting the projet and delegation agreement Annexe 1c – Résolution 2003-29 de l'ARK autorisant le signataire à présenter la demande / autorisation to present request

1.4 Identification du consultant mandaté par le promoteur (s'il y a lieu)	
Nom : Administration régionale Kativik / Kativik Regional Government Personne-ressource: Chantal Lalonde, géo., M.Env.- Chargée de projets	
Adresse municipale : 860 Kaivivik Circle, Kuujjuaq QC, J0M 1C0	
Adresse postale (si elle diffère de l'adresse municipale) : Case Postale / PO Box 9	
Numéro de téléphone : 819 964-2961	Numéro de téléphone (autre) : -
Courrier électronique : clalonde@krg.ca	
Description du mandat : Organisme supra-municipal / Supra Municipal Organisation	

2. LOCALISATION ET CALENDRIER DE RÉALISATION DU PROJET

2.1 Identification et localisation du projet et de ses activités / Location
Nom de la municipalité, du village ou de la communauté où est réalisé le projet (indiquez si plusieurs municipalités, villages ou communautés sont touchés par le projet) : Le projet est situé en terre de catégorie I Inuit, à environ 2,5 km au nord-est des limites municipales, et s'arrête à la limite des terres de Catégorie IA Crie de Whapmagoostui. The project is located in Inuit Category I land, approximately 2.5km north-east of municipal limits, and ends at the Cree Category IA land limit.
Catégories des terres (I, II ou III) : Catégorie I
Coordonnées géographiques en degrés décimaux du point central du projet (pour les projets linéaires, fournir les coordonnées du point de début et de fin du projet) : Point central ou début du projet : Latitude : 55.332662° Longitude : -77.697161° Point de fin du projet (si applicable) : Latitude : 55.328705° Longitude : -77.692491° ***NOTE : Les limites sont approximatives, en projection WGS84**

2.2 Description du site visé par le projet / Description of the designated site
Décrivez les principales composantes des milieux physique, biologique et humain susceptibles d'être affectées par le projet en axant la description sur les éléments considérés comme ayant une importance scientifique, sociale, culturelle, économique, historique, archéologique ou esthétique (composantes valorisées de l'environnement). Indiquez, s'il y a lieu, le statut de propriété des terrains où la réalisation du projet est prévue, ainsi que les principales particularités du site : zonage, espace disponible, milieux sensibles, humides ou hydriques, compatibilité avec les usages actuels, disponibilité des services, topographie, présence de bâtiments, etc. (annexe 2 – Résumé de l'étude d'impact / summary of the ESIA) Voir section 3 du résumé de l'étude d'impact, jointe en annexe. See section 3 of the ESIA Summary, attached in appendix.
2.3 Calendrier de réalisation / Schedule
Fournissez le calendrier de réalisation (période prévue et durée estimée de chacune des étapes du projet) en tenant compte du temps requis pour la préparation de l'étude d'impact et le déroulement de la procédure. Il est prévu de construire le chemin d'accès le plus rapidement possible afin de permettre le début de la construction du nouveau lieu d'enfouissement, dont le promoteur est le Whapmagoostui First Nation. Il est souhaité de commencer les travaux en 2021, cependant, du à de nombreuses contraintes budgétaires et logistiques, il est plus probable que la construction débute plutôt en 2022 ou même en 2023. It is anticipated to build the access road as soon as possible to facilitate construction of the new landfill, the proponent of which is Whapmagoostui First Nation. Although constuction of the access road in 2021 is preferred, due to budgetary and logistical constraints, constuction in 2022 or even in 2023 is more likely.
2.4 Plan de localisation
Ajoutez à l'annexe III une carte topographique ou cadastrale de localisation du projet et, s'il y a lieu, un plan de localisation des travaux ou des activités à une échelle adéquate, en indiquant notamment les infrastructures en place par rapport au site des travaux. (annexe 3 – Plans et devis / Plans and specifications)

3. PRÉSENTATION GÉNÉRALE DU PROJET / PROJECT PRESENTATION

3.1 Titre du projet / Project Title
Projet de … (construction/agrandissement/aménagement/etc.) de… (installation/équipement/usine/etc.) sur le territoire de… (municipalité/village/communauté) Construction d'un chemin d'accès d'environ 600m / Construction of a 600m access road.
3.2 Assujettissement
Dans le but de vérifier l'assujettissement de votre projet, indiquez à quel paragraphe de l'annexe A de la Loi sur la qualité de l'environnement votre projet est assujetti, selon vous, et pourquoi (atteinte du seuil, par exemple). Indiquez si votre projet se situe « en zone grise », le cas échéant. Zone grise/Grey zone
3.3 Description sommaire du projet et des variantes de réalisation / Project Description and Variants

Décrivez sommairement votre projet (longueur, largeur, quantité, voltage, superficie, etc.) et, pour chacune de ses phases (aménagement, construction et exploitation et, le cas échéant, fermeture et restauration), décrivez sommairement les principales caractéristiques associées à chacune des variantes du projet, y compris les activités, aménagements et travaux prévus (déboisement, expropriation, dynamitage, remblayage, etc.).

Voir sections 2.2 et 4.2.2 du résumé de l'étude d'impact ainsi que les plans et devis.

Please see sections 2.2 and 4.2.2 of the ESIA Summary as well as the plans and specifications.

Si cela est pertinent, ajoutez à l'annexe II tous les documents permettant de mieux cerner les caractéristiques du projet (plan, croquis, vue en coupe, etc.).

3.4 Objectifs et justification du projet / Obectives and Project Justification

Mentionnez les principaux objectifs poursuivis et faites ressortir les raisons qui motivent la réalisation du projet.

Le projet de route faisant partie de la présente demande s'insère dans le cadre du projet de nouveau lieu d'enfouissement sur le territoire de Whapmagoostui First Nation. Il s'agit d'un projet réalisé en collaboration avec le Village nordique de Kuujjuarapik. La justification de ce plus grand projet se trouve à la section 1 du résumé de l'étude d'impact.

The road project that is the subject of the present request is part of the new landfill project in Whapmagoostui First Nation land. It is conducted in collaboration with the Northern Village of Kuujjuarapik. The larger project's justification is found in Section 1 of the ESIA Summary.

3.5 Activités connexes

Résumez, s'il y a lieu, les activités connexes projetées (exemples : aménagement de chemins d'accès, concassage, mise en place de batardeaux ou détournement de cours d'eau) et tout autre projet susceptible d'influencer la conception du projet proposé.

Le présent projet s'arrime avec l'accès du nouveau lieu d'enfouissement qui sera constuit par Whapmagoostui First Nation. Le village nordique de Kuujjuarapik sera également responsable de la réfection d'une route d'environ 5 km qui relie la municipalité au chemin d'accès qui fait l'objet de la présente, de même que la fermeture des deux lieux d'élimination situés sur son territoire. Cependant, puisque ces deux composantes sont toujours sous études et que les activités de construction du nouveau lieu d'enfouissement n'en sont pas dépendantes, elles feront l'objet de demandes différentes présentées à une date ultérieure.

The current project will connect to the access of the new landfill site to be built by Whapmagoostui First Nation. The Northern Village of Kuujjuarapik will also be responsible for retrofitting an approximate 5km segment of the main road linking the municipality to the access road that is the subject of this request, as well as for closure of the two landfill sites located within its boundaries. However, because these two componants are still under study and that the activities related to the construction of the new landfill are not reliant on their implementation, they will be presented in separate requests at a later date.

4. ACTIVITÉS D'INFORMATION ET DE CONSULTATION DU PUBLIC

4.1 Activités d'information et de consultation réalisées / Information and Consultation activities

Le cas échéant, mentionnez les modalités relatives aux activités d'information et de consultation du public réalisées dans le cadre de la conception du projet (méthodes utilisées, nombre de participants et milieux représentés), dont les activités réalisées auprès des populations locales, notamment les Cris, les Inuits et les Naskapis, et précisez, s'il y a lieu, les préoccupations soulevées et leur prise en compte dans la conception du projet.

Le présent projet à été inclus comme composante dans le cadre des consultations qui ont eues lieu pour le projet de nouveau lieu d'enfouissement. Les informations sur ce processus sont consolidées à la section 5 du résumé de l'étude d'impact.

The current projet was included as a component of the consultations conducted as part of the new landfill project. The information pertaining to this process are included in Section 5 of the ESIA Summary.

5. DESCRIPTION DES PRINCIPAUX ENJEUX ET IMPACTS APPRÉHENDÉS DU PROJET SUR LE MILIEU RÉCEPTEUR

5.1 Description des principaux enjeux du projet

Pour les phases d'aménagement, de construction et d'exploitation et, le cas échéant, de fermeture et restauration du projet, décrivez sommairement les principaux enjeux du projet, c'est-à-dire les préoccupations majeures pour le gouvernement, la communauté scientifique ou la population, y compris les communautés autochtones concernées, et dont l'analyse pourrait influencer la décision du gouvernement quant à l'autorisation ou non du projet.

La réalisation du présent projet est une phase critique du projet de construction du nouveau lieu d'enfouissement. Ce dernier est un projet de grande importance pour la communauté car l'utilisation des sites actuels, notamment celui situé au bout de la piste d'atterrissage, présente de nombreux risques. Par exemple, ce site peut constituer une entrave aux opérations aéroportuaires dû au péril aviaire, au dégagement de fumée lors du brûlage à ciel ouvert, et à la présence de faune sur la piste qui serait attirée par les matières résiduelles. La fumée, la faune comme vecteur potentiel de maladie et le libre-accès aux lieux d'enfouissement constituent également un risque à la santé et sécurité de la communauté.

The current project is a critical component for the construction of the new landfill. The latter is a project of great importance for the community as the operation of the existing site, namely the one located near the end of the airstrip, pose many risks. For instance, it is a threat to airport operations due to bird strike hazard, smoke plume from open burning, and to the presence or wildlife in the air field that may be attracted by the nearvy waste. The presence of smoke, wildlife as potentiel disease vectors, and open access to both sites also pose a risk to community members' health and safety

5.2 Description des principaux impacts appréhendés du projet sur le milieu récepteur

Pour les phases d'aménagement, de construction et d'exploitation et, le cas échéant, de fermeture et restauration du projet, décrivez sommairement les impacts appréhendés du projet sur le milieu récepteur (physique, biologique et humain).

L'évaluation des impacts du projet dans son ensemble est présentée à la section 7 du résumé de l'étude d'impact. Il est à noter que l'accès de 600m proposé dans le cadre de la présente demande n'est qu'une infirme portion du projet dans son ensemble. Considérant les mesures d'atténuation prévues, l'impact résiduel est considéré minimal.

Impact assessment for the project as a whole is presented at section 7 of the ESIA Summary. It should be noted that the 600m access road which is the subject of the current request is only a small portion of the project. Considering the mitigation measures provided, the residual impact is considered minimal.

Dans le cas d'un projet de « zone grise », fournissez suffisamment de renseignements pour permettre d'évaluer ses impacts sur l'environnement et sur le milieu social, et ce, afin de déterminer s'il y a lieu de l'assujettir à la procédure d'évaluation et d'examen des impacts sur l'environnement et le milieu social. Présentez les mesures d'atténuation ou de restauration prévues, s'il y a lieu.

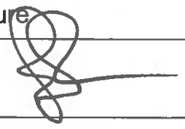
6. ÉMISSION DE GAZ À EFFET DE SERRE

6.1 Émission de gaz à effet de serre
Mentionnez si le projet est susceptible d'entraîner l'émission de gaz à effet de serre et, si oui, lesquels. Décrivez sommairement les principales sources d'émissions projetées aux différentes phases de réalisation du projet. Voir section 8 du résumé de l'étude d'impact. See Section 8 of the ESIA Summary.

7. AUTRES RENSEIGNEMENTS PERTINENTS

7.1 Autres renseignements pertinents
Inscrivez tout autre renseignement jugé nécessaire à une meilleure compréhension du projet.

8. DÉCLARATION ET SIGNATURE

8.1 Déclaration et signature
Je déclare que les documents et renseignements fournis dans ce formulaire de renseignements préliminaires sont exacts au meilleur de ma connaissance. ***Toute fausse déclaration peut entraîner des sanctions en vertu de la LQE. Tous les renseignements fournis feront partie intégrante de la demande et seront publiés sur le site Web du Comité d'évaluation (COMEV) ou de la Commission de la qualité de l'environnement Kativik (CQEK) ainsi qu'au Registre des évaluations environnementales.***
Prénom et nom
PAUL PARSONS
Signature

Date
24-03-21

ANNEXE 1.
Résolutions / Resolutions

NORTHERN VILLAGE OF KUUJJUARAAPIK

Resolution No. 2017-06

Concerning project(s) under the Isurruutiit Program – 4 and delegation of municipal functions and powers to the Kativik Regional Government (KRG) for the realization and financing of said project(s).

Whereas the Municipal Council (the Council) has the power pursuant to section 168 of *An Act respecting Northern villages and the Kativik Regional Government* (CQLR, c. V-6.1) (the Kativik Act) to delegate, by agreement, municipal functions and powers to perform any act that is required or authorized to perform by law to the KRG;

Whereas section 353.1 of the Kativik Act provides that where jurisdiction is delegated to the KRG under an agreement entered into under section 168 of the Kativik Act, the KRG has every power required to implement the agreement;

Whereas the KRG will be managing the Isurruutiit program – 4, a municipal infrastructure program financed by the Gouvernement du Québec (Québec);

Whereas negotiations are currently being undertaken for an agreement related to the above-mentioned program to be signed between the KRG and Québec;

Whereas to be admissible under the program, projects will have to provide or improve essential municipal services and be related to drinking water, wastewater, solid waste, roadways, recreation, administration and maintenance, repair and storage of rolling stock;

Whereas the KRG Municipal Public Works (MPW) Department has requested that Northern villages (NVs) interested in the program submit their project(s) by filling an application form;

Whereas all the NVs' admissible projects will be submitted to the KRG Council for decision as to the projects that will be retained and the realization of the retained projects is conditional to the signature of an agreement by the KRG and Québec;

Whereas the Secretary-Treasurer submitted an application form for each project listed and a copy of the delegation agreement entrusting the realization and financing of the project(s), copies of which are appended in Appendices A and B as an integral part of this resolution;

Whereas the Council has reviewed the appended documents and agrees with their content.

It is therefore resolved that:

1. the preamble be an integral part of this resolution;

2. the projects listed below be approved:

	Project(s) Name
1	**Water well completion**
2	**Solid waste and scrap yard (access and recycling)**
3	**Road improvement**
4	**Mechanic garage renovation**
5	**Baseball field**
6	**Rolling stock (excavator overhaul)**

3. the application form(s) in Appendix A be approved;

4. conditional on the signature by the KRG and Québec of an agreement related to the Isurruutiit program – 4, realization and financing of the project(s) retained by the KRG be entrusted to the KRG, as manager of the program, with the possibility, upon approval by the KRG, to conclude an agreement providing that part or all works related to a specific project(s) be done by the NV;

5. municipal functions and powers be delegated to the KRG for the project(s) retained in accordance with the delegation agreement as described in Appendix B;

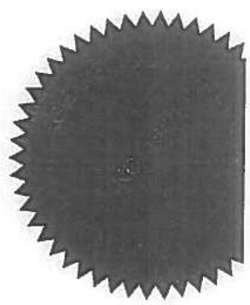
6. the project(s) realized under the program be operated, maintained and insured by the NV and the related costs borne by the NV;

7. the Mayor be authorized to sign any and all documents required to implement this resolution pursuant to section 37 of the Kativik Act;

8. an original copy of this resolution and of its appendices be sent by the Secretary-Treasurer to the KRG MPW Department;

9. this resolution come into effect on the day of its adoption.

MOVED BY:	**Salamiva Weetaltuk**
SECONDED BY:	**Cora Fleming**
IN FAVOUR:	**5**
OPPOSED:	**0**
ABSTENTIONS:	**0**
ABSENTEES:	**2**
DATE OF ADOPTION:	**February 10, 2017**
MAYOR'S SIGNATURE:	(S)
SECRETARY-TREASURER'S SIGNATURE:	(S)



Kativik Regional Government
Municipal Public Works Department
KATIVIK Tel: (877) 964-2961 Fax: (819) 964-0306

ISURRUUTIIT PROGRAM – 4

PROJECT REQUEST FORM

IDENTIFICATION OF APPLICANT

Northern Village of **Kuujjuaraapik**

P.O. Box 360 Phone 819-929-3360

Postal Code J0M 1G0 Fax 819-929-3453

REPRESENTATIVE FOR THE PROJECT

Mayor / Mayoress Lucassie Inukpuk

PROJECT DESCRIPTION

Project Name Water well completion

Description To cover the pipes from secondary well to main well

ADDITIONAL INFORMATION

Has a request for this project been submitted under another program?

___ Yes
X No

ATTESTATION

The undersigned guarantees that the above information is accurate and complete.

Mayor's signature

10/02/17
Date

MPW-KRG
REQUEST FORM IS4
2016/01

Kativik Regional Government
Municipal Public Works Department
Tel: (877) 984-2981 Fax: (819) 964-0306

ISURRUUTIIT PROGRAM – 4

PROJECT REQUEST FORM

IDENTIFICATION OF APPLICANT

Northern Village of **Kuujjuaraapik**

P.O. Box 360 Phone 819-929-3360

Postal Code J0M 1G0 Fax 819-929-3453

REPRESENTATIVE FOR THE PROJECT

Mayor / Mayoress Lucassie Inukpuk

PROJECT DESCRIPTION

Project Name Solid waste (Isurruutiit 4)

Description Road improvement to access the new dump site .

Crushed stone needed to be evaluated

Scrap yard recycling and metal recovery (see Kangirsuk project)

Closure of domestic waste site

ADDITIONAL INFORMATION

Has a request for this project been submitted under another program? ___ Yes

X No

ATTESTATION

The undersigned guarantees that the above information is accurate and complete.

Mayor's signature

10/02/17
Date

MPW-KRG
REQUEST FORM IS4
2016/01

Kativik Regional Government
Municipal Public Works Department
Tel: (877) 964-2961 Fax: (819) 964-0306

ISURRUUTIIT PROGRAM – 4

PROJECT REQUEST FORM

IDENTIFICATION OF APPLICANT

Northern Village of **Kuujjuaraapik**

P.O. Box 360 Phone 819-929-3360

Postal Code J0M 1G0 Fax 819-929-3453

REPRESENTATIVE FOR THE PROJECT

Mayor / Mayoress Lucassie Inukpuk

PROJECT DESCRIPTION

Project Name Road improvement (Isurruutiit 4)

Description Crushed stone reserve for the maintenance of the access road going to the tank farm, lagoon and scrap yard.
Quantity to be evaluated

ADDITIONAL INFORMATION

Has a request for this project been submitted under another program?

___ Yes
_X_ No

ATTESTATION

The undersigned guarantees that the above information is accurate and complete.

Mayor's signature

10/02/17
Date

MPW-KRG
REQUEST FORM IS4
2016/01

Kativik Regional Government
Municipal Public Works Department
Tel: (877) 964-2961 Fax: (819) 964-0306

ISURRUUTIIT PROGRAM – 4

PROJECT REQUEST FORM

IDENTIFICATION OF APPLICANT

Northern Village of **Kuujjuaraapik**

P.O. Box 360 Phone 819-929-3360

Postal Code J0M 1G0 Fax 819-929-3453

REPRESENTATIVE FOR THE PROJECT

Mayor / Mayoress Lucassie Inukpuk

PROJECT DESCRIPTION

Project Name Mechanic garage (Isurruutiit 4)

Description Renovation of the mechanic garage

Stock room, garage door, office, insulation, fencing renovations

ADDITIONAL INFORMATION

Has a request for this project been submitted under another program?

___ Yes
_X_ No

ATTESTATION

The undersigned guarantees that the above information is accurate and complete.

Mayor's signature

19/02/17
Date

MPW-KRG
REQUEST FORM IS4
2016/01

Kativik Regional Government
Municipal Public Works Department
KATIVIK Tel: (877) 964-2961 Fax: (819) 964-0306

ISURRUUTIIT PROGRAM – 4

PROJECT REQUEST FORM

IDENTIFICATION OF APPLICANT

Northern Village of Kuujjuaraapik

P.O. Box 360 Phone 819-929-3360

Postal Code J0M 1G0 Fax 819-929-3453

REPRESENTATIVE FOR THE PROJECT

Mayor / Mayoress Lucassie Inukpuk

PROJECT DESCRIPTION

Project Name Baseball field (Isurruutiit 4)

Description Construction of a baseball field at a location to be determined.
The old baseball field was obsolete and replaced for the construction of social housing

ADDITIONAL INFORMATION

Has a request for this project been submitted under another program?

___ Yes
X No

ATTESTATION

The undersigned guarantees that the above information is accurate and complete.

Mayor's signature

Date 10/02/17

MPW-KRG
REQUEST FORM IS4
2016/01

Kativik Regional Government
Municipal Public Works Department
Tel: (877) 964-2961 Fax: (819) 964-0306

ISURRUUTIIT PROGRAM – 4

PROJECT REQUEST FORM

IDENTIFICATION OF APPLICANT

Northern Village of Kuujjuaraapik

P.O. Box 360 Phone 819-929-3360

Postal Code J0M 1G0 Fax 819-929-3453

REPRESENTATIVE FOR THE PROJECT

Mayor / Mayoress Lucassie Inukpuk

PROJECT DESCRIPTION

Project Name Rolling stock (Isurruutiit 4)

Description Excavator CAT 320, 2002 overhaul

The boom needs to be replaced

ADDITIONAL INFORMATION

Has a request for this project been submitted under another program?

___ Yes

_X_ No

ATTESTATION

The undersigned guarantees that the above information is accurate and complete.

Mayor's signature

10/02/17
Date

MPW-KRG
REQUEST FORM IS4
2016/01

APPENDIX B

DELEGATION AGREEMENT

BETWEEN: **NORTHERN VILLAGE OF Kuujjuaraapik**, a municipality established by letters patent as described in section 13 of the *Act respecting Northern Villages and the Kativik Regional Government* (CQLR, c. V-6.1), having its head office at 412 Sy-Edmunds, in Kuujjuaraapik, province of Québec, J0M 1G0, herein represented by its Mayor, Lucassie Inukpuk, duly authorized for the purpose of this agreement,

(hereinafter referred to as the "**NV**")

AND: **KATIVIK REGIONAL GOVERNMENT**, a public law body corporation duly constituted under section 239 of *An Act respecting Northern villages and the Kativik Regional Government* (CQLR, c. V-6.1), having its head office at P.O. Box 9, in Kuujjuaq, province of Québec, J0M 1C0, herein represented by its Chairperson, Jennifer Munick, and Secretary, Ina Gordon, duly authorized for the purpose of this agreement,

(hereinafter referred to as the "**KRG**")

(The NV and the KRG are hereinafter referred as the "**Parties**")

WHEREAS pursuant to Section 168 of the *Act respecting Northern Villages and the Kativik Regional Government* (CQLR, c. V-6.1) (Kativik Act), a Northern village (NV) may, by agreement, delegate to the KRG the power to perform any act that it is required or authorized to perform by law, except the passing of a by-law;

WHEREAS section 353.1 of the Kativik Act provides that where jurisdiction is delegated to the Kativik Regional Government (KRG) under an agreement entered into under section 168 of the Kativik Act, the KRG has every power required to implement the agreement;

WHEREAS the KRG will be managing the Isumuutiit program – 4, a municipal infrastructure program financed by the Gouvernement du Québec (Québec);

WHEREAS negotiations are currently being undertaken for an agreement related to the above-mentioned program to be signed between the KRG and Québec;

WHEREAS to be admissible under the program, projects will have to provide or improve essential municipal services and be related to drinking water, wastewater, solid waste, roadways, recreation, administration and maintenance, repair and storage of rolling stock;

WHEREAS it is deemed appropriate that the NV delegate to the KRG its municipal functions to realize the hereunder described project(s).

1. Purpose of Agreement

The purpose of this agreement is the delegation of the NV's municipal functions to the KRG to carry out the following project(s) under the Isurruutiit program – 4:

	Project(s) Name
1	**Water well completion**
2	**Solid waste (access road, closure existing site, scrap yard recycling)**
3	**Road improvement (Stock pile)**
4	**Mechanic garage renovation**
5	**Baseball field**
6	**Excavator over4haul**

2. Scope of Delegation

The NV delegates to the KRG all necessary municipal functions to carry out the above-mentioned project(s). Without limiting the generality of the preceding statement, the KRG shall award any and all contracts, sign any and all documents, pay any and all amounts due, related to the project(s), subscribe all insurance coverage and pay the related premium for the duration of the project(s), undertake and manage all negotiations and legal proceedings to protect the rights of the NV, and perform any and all other necessary acts to realize the project(s).

3. Duration of Delegation

This delegation of municipal functions is irrevocable and shall be in force until the completion of the project(s) and of the settlement of any legal proceedings related to the project(s).

4. Renunciation

The NV hereby renounces any right of action against the KRG, its agents or employees, with regards to any damages resulting from any services rendered in the execution of their functions for any project(s) carried out for the NV in virtue of this delegation agreement.

The NV undertakes to defend the interests of the KRG, its agents or employees in any legal proceedings taken by a third party against them, including any recourse in warranty undertaken by a third party against whom the NV instituted legal proceedings for any project(s) carried out for the NV in virtue of this delegation agreement.

5. Conditional Agreement

The present delegation agreement and the realization by the KRG of the above-mentioned project(s) are subject to the signature by the KRG and Québec of an agreement related to the Isurruutiit program – 4.

IN WITNESS WHEREOF, the PARTIES have signed two (2) copies of this delegation agreement.

FOR THE NORTHERN VILLAGE OF KUUJJUARAAPIK

at kUUJJUARAAPIK, this 10 day of February 2017.

LUCASSIE INUKPUK
Mayor

FOR THE KATIVIK REGIONAL GOVERNMENT

at Kuujjuaq, this _____ day of _____ 2017.

JENNIFER MUNICK
Chairperson

INA GORDON
Secretary

NORTHERN VILLAGE OF KUUJJUARAAPIK
P.O. Box 360,
Kuujjuaraapik, Nunavik, P. Que.,
J0M 1G0
Tél. : (819) 929-3360
Fax : (819) 929-3453

ᐊᓪᓚᓯᒪᔪᓂ ᓱᑲᑦᑐᑯᕈᑎᒃ
TRANSMISSION SHEET

ᐅᓪᓗᖓ/DATE:	~~10/02/17~~ 13/02/17
ᐆᒧᖓ/TO:	Paul Parson.
ᐊᑦᔨᖓᓂ ᐱᔪᖅ/Cc:	
ᓱᑲᑦᑐᑯᕈᑎᐅᑉ ᑭᑎᑦᔪᑎᖓ: FAX NUMBER:	
ᐱᑦᔪᑎᒃ/SUBJECT:	

ᐅᐸᕐᕐᖓᑦ/FROM:

ᓘᑳᓯ ᐃᓄᒃᐸᒃ ᓯᐳᓂᑦᑎᒃ
Lucassie Inukpuk, MAYOR
(819) 929-3566
linukpuk@nvkuujjuaraapik.ca
☐

ᐱᐊᕐ ᕈᓯᐊᓪ, ᐊᓪᓚᑎ-ᑮᓇᐅᔭᓕᕆᔨ
Pierre Roussel, SEC-TREASURER
(819) 929-3511
proussel@nvkuujjuaraapik.ca
☑

ᔦᕙ ᐸᓚᒥ, ᐊᓪᓚᑎ-ᑮᓇᐅᔭᓕᕆᔨ ᑐᖓᓕᒃ
Jeffrey Fleming, AST
(819) 929-3544
Jef_fleming@live.ca
☐

ᐲᑕ ᐸᐅ ᑯᑭ. ᒫᕐᑭᑦ ᓴᐳᑦᒥᐱᖓᑕ ᑐᑭᒧᐊᕐᑎᓯᔨᖓᑦ
Peter Paul Cookie- HSP COORDINATOR
(819) 929-3544
ppcookie@nvkuujjuaraapik.ca
☐

ᐳᕐᓃᔅ ᑑᕐᑐ ᐊᓪᓚᑎᒃ-ᑭᐅᔨᒃ
Bernice Tooktoo
SECRETARY-RECEPTIONIST
(819) 929-3360
nvreceptionist@nvkuujjuaraapik.ca
☐

Other: ____________________ ☐

ᖃᑦᓯᐅᓂᖏᑦ ᓯᑯᑦᓴᑦ ᐃᓚᐅᑎᓪᓗᒍ ᓯᐳᑦᓂᑦᖓ
NUMBER OF PAGES INCLUDING TRANSMISSION SHEET ☐

☐ URGENT ☐ REPLY ASAP ☐ PLEASE COMMENT ☐ PLEASE REVIEW ☐ FOR YOUR INFORMATION

ᐅᖃᐅᓯᑦᓴᑦ / COMMENTS: ____________________

Notice: If you are not the intended person, please discard and call the receptionist at the above mentioned telephone number for some documents; letters, etc. may contain confidential information. Thank you for your co-operation.

OK

KATIVIK REGIONAL GOVERNMENT

Resolution No. 2016-19

Concerning the approval of projects under the Isurruutiit Program - 4 – Serie 1.

Whereas pursuant to Resolution No. 2015-32 adopted by the Council on April 23, 2015, the Kativik Regional Government (KRG) approved and later on submitted a proposal for the renewal of the Isurruutiit Program – 4 (hereinafter the «program»), a municipal infrastructure program financed by the Gouvernement du Québec (Québec);

Whereas negotiations are ongoing for an agreement to be signed between the parties;

Whereas to be admissible under the program, projects will have to provide or improve essential municipal services and be related to drinking water, wastewater, solid waste, roadways, recreation, administration and maintenance, repair and storage of rolling stock;

Whereas the Municipal Public Works (MPW) Department has received resolutions from several Northern villages (NVs) requesting projects to be undertaken and has to determine the admissibility of those projects under the program;

Whereas such resolutions entrust the realization and the financing of the projects retained to the KRG as manager of the program, and furthermore approve delegation of municipal functions and powers to the KRG for the realization and financing of said projects;

Whereas the norms of the program will allow the KRG, as manager of the program, to contract to a NV part or all the works related to a project and, pursuant to Ordinance No. 2016-03 adopted by the Council on February 24, 2016, the Executive Committee was given the authority to approve contracts of such nature as well as delegation agreements with NVs and, as the case may be, amendments to those contracts and delegation agreements;

Whereas the MPW Department recommends that the projects listed in the Expenditure Plan appended as an integral part of this resolution be approved;

Whereas due to time constraints, the approval of the projects listed in the Expenditure Plan, appended as an integral part of this resolutions, is necessary before the agreement related to the said program is signed;

Whereas the Council has reviewed the projects listed in the appended Expenditure Plan and agrees with them.

It is therefore resolved that:

1. the preamble be an integral part of this resolution;

2. the projects listed in the appended Expenditure Plan be approved, subject to the signature of an agreement related to the program;

3. the delegation of municipal functions from the NVs to the KRG for the above-mentioned projects be accepted;

4. the Secretary and the Chairperson be authorized to sign any and all documents necessary to implement this resolution, including delegation agreements between the KRG and the NVs and any required amendment to those agreements thereafter;

5. this resolution come into effect on the day of its adoption.

MOVED BY:	Salamiva Weetaltuk
SECONDED BY:	Sarollie Weetaluktuk
IN FAVOUR:	16
OPPOSED:	0
ABSTENTIONS:	0
ABSENTEES:	1
DATE OF ADOPTION:	February 24, 2016
SPEAKER'S SIGNATURE:	(S) Tommy Annatok
SECRETARY'S SIGNATURE:	(S) Ina Gordon

CERTIFIED COPY

BY: Ina Gordon

DATE: Feb 26 2016

ISURRUUTIIT PROGRAM - 4 (2016 - 2020)
ᐃᓱᕐᕉᑏᑦ ᐱᓂᐊᕐᓂᑕᖅᑲᑕ ᐱᖅᑲᔪᐊ
Approved Project – February 2016 (Serie 1)
ᐊᖏᕐᑕᐅᒪᔪᑦ ᐱᓇᓱᐊᕋᑦᓴᑦ - ᕖᕝᕗᐊᕆ 2016 (ᑐᖅᑲᓕᓃᖅᓂ ᐳᕐᑭᑭᓂᕐᑭ 1)

ᐃᓚᖓ 1: ᐃᓂᖏᓚᖓᐅᑎᒪᓃᑦ

Component 1: Infrastructures

	KRG	MAMOT	Approved Projects / ᐊᖏᕐᑕᐅᒪᔪᑦ ᐱᓇᓱᐊᕐᓃᑦ	
Kangiqsualujjuaq ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ	7111		Drinking water infrastructure (upgrade) ᐃᒥᕐᑕᕖᑦ ᓄᑕᐅᓯᓕᔭᒥᐊᕈᑎᖅᒥᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$300,000
Kuujjuaq ᑰᒃᔪᐊᖅ	7211		Drinking water infrastructure (upgrade) ᐃᒥᕐᑕᕖᑦ ᓄᑕᐅᓯᓕᔭᒥᐊᕈᑎᖅᒥᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$500,000
Puvirnituq ᐳᕕᕐᓂᑐᖅ	8111		Drinking water infrastructure (upgrade) ᐃᒥᕐᑕᕖᑦ ᓄᑕᐅᓯᓕᔭᒥᐊᕈᑎᖅᒥᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$600,000
Puvrinituq ᐳᕕᕐᓂᑐᖅ	8112		Wastewater treatment system (improvement) ᑭᓈᖅᓱᑯᕕᓂᓕᓇᓂᕐᒧᑦ ᐋᕐᕿᓯᒪᐅᑎᖅᑲᕐᓂᖅ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$1,000,000
Kangiqsualujjuaq ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ	7113		Solid waste site (improvement) ᑯᕕᕐᕖᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$500,000
Kuujjuaq ᑰᒃᔪᐊᖅ	7213		Solid waste site (improvement) ᑯᕕᕐᕖᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$500,000
Tasiujaq ᑕᓯᐅᔭᖅ	7313		Solid waste site (improvement) ᑯᕕᕐᕖᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$200,000
Aupaluk ᐊᐅᐸᓗᒃ	7413		Solid waste site (improvement) ᑯᕕᕐᕖᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$100,000
Puvirnituq ᐳᕕᕐᓂᑐᖅ	8113		Solid waste site (improvement) ᑯᕕᕐᕖᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$500,000
Kuujjuaraapik ᑰᑦᔪᐊᕌᐱᑦ	8413		Solid waste site (improvement) ᑯᕕᕐᕖᑦ (ᐱᐅᓯᓕᑎᓇᓂᖅ)	$250,000
Kangiqsualujjuaq ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ	7114		Roads (construction) ᐊᖅᑯᓯᐅᕐᓈᑦ (ᓄᓇᒃᑰᔪᖅᑲᐅᑎ)	$200,000
Kuujjuaq ᑰᒃᔪᐊᖅ	7214		Roads (construction) ᐊᖅᑯᓯᐅᕐᓈᑦ (ᓄᓇᒃᑰᔪᖅᑲᐅᑎ)	$500,000
Aupaluk ᐊᐅᐸᓗᒃ	7414		Roads (construction) ᐊᖅᑯᓯᐅᕐᓈᑦ (ᓄᓇᒃᑰᔪᖅᑲᐅᑎ)	$200,000
Puvirnituq ᐳᕕᕐᓂᑐᖅ	8114		Roads (construction) ᐊᖅᑯᓯᐅᕐᓈᑦ (ᓄᓇᒃᑰᔪᖅᑲᐅᑎ)	$200,000
Kuujjuaraapik ᑰᑦᔪᐊᕌᐱᑦ	8414		Roads (construction) ᐊᖅᑯᓯᐅᕐᓈᑦ (ᓄᓇᒃᑰᔪᖅᑲᐅᑎ)	$200,000
Kangiqsualujjuaq ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ	7115		Aqueduct and sewer ᐃᒥᓯᐃᒧᑎᖅᑲ ᓯᖅᑯᓕᒃ ᐊᒻᒪᓗ ᐃᒪᕐᓱᒍᑦ ᐊᖅᑯᑎᖅᑲ	$500,000

ᐃᓚᖓ 2: ᐃᒡᓗᔪᐊᑦ ᐊᒻᒪᓗ ᐊᓯᖏᑦ ᓇᑉᐸᑕᐅᓯᒪᔪᑦ

Component 2: Buildings and other fixed structures

	KRG	MAMOT	Approved Projects / ᐊᖏᕐᑕᐅᒪᔪᑦ ᐱᓇᓱᐊᕐᓃᑦ	
Aupaluk ᐊᐅᐸᓗᒃ	7423		Playground / Recreation ᐊᓐᓃᖅᑯᐊᕕᒃ/ᓯᕐᑲᑦᓯᕕᒃ (ᓴᓇᓂᖅ)	$100,000
Umiujaq ᐅᒥᐅᔭᖅ	8323		Playground / Recreation ᐊᓐᓃᖅᑯᐊᕕᒃ/ᓯᕐᑲᑦᓯᕕᒃ (ᓴᓇᓂᖅ)	$100,000

ᐃᓚᖓ 3: <u>ᓅᑦᑕᕈᓐᓇᑐᑦ ᐱᓇᓲᑏᑦ</u>

Component 3: **<u>Rolling stock</u>**

	KRG	MAMOT	Approved Projects / ᐊᖏᕐᑕᐅᒪᔪᑦ ᐱᓇᓯᐊᕐᓃᑦ	
Kangiqsualujjuaq ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ	7131		Water truck (purchase) ᐃᒥᕐᑕᐅᑎ (ᓂᐅᕕᕐᓂᖅ)	**$325,000**
Kuujjuaq ᑰᒃᔪᐊᖅ	7231		Water truck (purchase) ᐃᒥᕐᑕᐅᑎ (ᓂᐅᕕᕐᓂᖅ)	**$325,000**
Inukjuak ᐃᓄᒃᔪᐊᖅ	8231		Water truck (purchase) ᐃᒥᕐᑕᐅᑎ (ᓂᐅᕕᕐᓂᖅ)	**$325,000**
Puvirnituq ᐳᕕᕐᓂᑐᖅ	8131		Water truck (purchase) ᐃᒥᕐᑕᐅᑎ (ᓂᐅᕕᕐᓂᖅ)	**$325,000**
Puvirnituq ᐳᕕᕐᓂᑐᖅ	8132		Water truck (purchase) ᐃᒥᕐᑕᐅᑎ (ᓂᐅᕕᕐᓂᖅ)	**$325,000**
Ivujivik ᐃᕗᔨᕕᒃ	7931		Water truck (purchase) ᐃᒥᕐᑕᐅᑎ (ᓂᐅᕕᕐᓂᖅ)	**$325,000**
Umiujaq ᐅᒥᐅᔭᖅ	8331		Water truck (overhaul) ᐃᒥᕐᑕᐅᑎ (ᓴᓇᒥᐊᑦᓯᐊᓂᖅ)	**$50,000**
Kuujjuaq ᑰᒃᔪᐊᖅ	7241		Sewage Truck (purchase) ᑭᓈᓪᓗᑯᕐᓂᐊᕈᑎ ᓄᓇᒃᑰᔫᖅ (ᓂᐅᕕᕐᓂᖅ)	**$300,000**
Inukjuak ᐃᓄᒃᔪᐊᖅ	8241		Sewage Truck (purchase) ᑭᓈᓪᓗᑯᕐᓂᐊᕈᑎ ᓄᓇᒃᑰᔫᖅ (ᓂᐅᕕᕐᓂᖅ)	**$300,000**
Puvirnituq ᐳᕕᕐᓂᑐᖅ	8141		Sewage Truck (purchase) ᑭᓈᓪᓗᑯᕐᓂᐊᕈᑎ ᓄᓇᒃᑰᔫᖅ (ᓂᐅᕕᕐᓂᖅ)	**$300,000**
Kangiqsualujjuaq ᑲᖏᕐᓱᐊᓗᒃᔪᐊᖅ	7151		Garbage truck (purchase) ᓴᓂᑦᑕᐅᑎ (ᓄᓇᒃᑰᔫᖅ)	**$250,000**
Tasiujaq ᑕᓯᐅᔭᖅ	7351		Garbage truck (purchase) ᓴᓂᑦᑕᐅᑎ (ᓄᓇᒃᑰᔫᖅ)	**$250,000**
Kangirsuk ᑲᖏᕐᓱᒃ	7551		Garbage truck (purchase) ᓴᓂᑦᑕᐅᑎ (ᓄᓇᒃᑰᔫᖅ)	**$250,000**
Quaqtaq ᖁᐊᕐᑕᖅ	7651		Garbage truck (purchase) ᓴᓂᑦᑕᐅᑎ (ᓄᓇᒃᑰᔫᖅ)	**$250,000**
Salluit ᓴᓪᓗᐃᑦ	7851		Garbage truck (purchase) ᓴᓂᑦᑕᐅᑎ (ᓄᓇᒃᑰᔫᖅ)	**$250,000**
Inukjuak ᐃᓄᒃᔪᐊᖅ	8251		Garbage truck (purchase) ᓴᓂᑦᑕᐅᑎ (ᓄᓇᒃᑰᔫᖅ)	**$250,000**
Akulivik ᐊᑯᓕᕕᒃ	8051		Garbage truck (purchase) ᓴᓂᑦᑕᐅᑎ (ᓄᓇᒃᑰᔫᖅ)	**$250,000**
Tasiujaq ᑕᓯᐅᔭᖅ	7356		Dump truck (purchase) ᑐᐊᐸᔫᓂᒃ (ᐅᓯᑲᑦᑕᐅᑎ)	**$250,000**
Aupaluk ᐊᐅᐸᓗᒃ	7456		Dump truck (purchase) ᑐᐊᐸᔫᓂᒃ (ᐅᓯᑲᑦᑕᐅᑎ)	**$250,000**
Quaqtaq ᖁᐊᕐᑕᖅ	7656		Dump truck (purchase) ᑐᐊᐸᔫᓂᒃ (ᐅᓯᑲᑦᑕᐅᑎ)	**$250,000**
Quaqtaq ᖁᐊᕐᑕᖅ	7657		Dump truck (purchase) ᑐᐊᐸᔫᓂᒃ (ᐅᓯᑲᑦᑕᐅᑎ)	**$250,000**
Ivujivik ᐃᕗᔨᕕᒃ	7956		Dump truck (purchase) ᑐᐊᐸᔫᓂᒃ (ᐅᓯᑲᑦᑕᐅᑎ)	**$250,000**

Umiujaq ᐅᒥᐅᔨᖅ	8356	Dump truck (purchase) ᑐᐊᕆᔭᓂᒃ (ᐅᓯᒃᑕᐅᑎ)	$250,000
Tasiujaq ᑕᓯᐅᔨᖅ	7361	Loader (purchase) ᐃᒥᖏᑕᐅᑎ (ᓂᐅᐱᖏᓂᖅ)	$450,000
Kuujjuaq ᑭᓚᔪᐊᖅ	7261	Loader (purchase) ᐃᒥᖏᑕᐅᑎ (ᓂᐅᐱᖏᓂᖅ)	$450,000
Ivujivik ᐃᕐᔨᐱᒃ	7961	Loader (purchase) ᐃᒥᖏᑕᐅᑎ (ᓂᐅᐱᖏᓂᖅ)	$450,000
Kuujjuaraapik ᑭᖏᔪᐊᖏᐱᖏᑦ	8461	Loader (purchase) ᐃᒥᖏᑕᐅᑎ (ᓂᐅᐱᖏᓂᖅ)	$450,000
Kuujjuaq ᑭᓚᔪᐊᖅ	7262	Loader (overhaul) ᐃᒥᖏᑕᐅᑎ (ᕿᓇᒥᐊᖏᔪᐊᓂᖅ)	$50,000
Quaqtaq ᖁᑐᐊᖏᑕᖅ	7661	Loader (overhaul) ᐃᒥᖏᑕᐅᑎ (ᕿᓇᒥᐊᖏᔪᐊᓂᖅ)	$50,000
Akulivik ᐊᑯᓕᐱᒃ	8065	Excavator (purchase) ᖃᒻᒪᐅᑎᐊᓗᒃ (ᓂᐅᐱᖏᓂᖅ)	$375,000
Kuujjuaq ᑭᓚᔪᐊᖅ	7265	Excavator (overhaul) ᖃᒻᒪᐅᑎᐊᓗᒃ (ᕿᓇᒥᐊᖏᔪᐊᓂᖅ)	$50,000
Kuujjuaraapik ᑭᖏᔪᐊᖏᐱᖏᑦ	8465	Excavator (overhaul) ᖃᒻᒪᐅᑎᐊᓗᒃ (ᕿᓇᒥᐊᖏᔪᐊᓂᖅ)	$50,000
Kangiqsualujjuaq ᑲᖏᕿᔪᐊᓗᒃᔪᐊᖅ	7167	Backhoe loader (purchase) ᑐᓄᒥᔪᑦ ᑭᐊᖏᓇᑎᓕᒃ (ᓂᐅᐱᖏᓂᖅ)	$275,000
Quaqtaq ᖁᑐᐊᖏᑕᖅ	7667	Backhoe loader (purchase) ᑐᓄᒥᔪᑦ ᑭᐊᖏᓇᑎᓕᒃ (ᓂᐅᐱᖏᓂᖅ)	$275,000
Aupaluk ᐊᐅᐸᓗᒃ	7467	Backhoe loader (overhaul) ᑐᓄᒥᔪᑦ ᑭᐊᖏᓇᑎᓕᒃ (ᕿᓇᒥᐊᖏᔪᐊᓂᖅ)	$35,000
Aupaluk ᐊᐅᐸᓗᒃ	7469	Bulldozer (overhaul) ᑯᑭᓕᐊᓗᒃ (ᕿᓇᒥᐊᖏᔪᐊᓂᖅ)	$35,000
Ivujivik ᐃᕐᔨᐱᒃ	7971	Rock crusher (overhaul) ᐅᔨᕿᓪᓂᒃ ᓯᖏᑦᓂᑎᓇᔪᑎ (ᕿᓇᒥᐊᖏᔪᐊᓂᖅ)	$50,000
Kuujjuaq ᑭᓚᔪᐊᖅ	7272	Sand spreader box (purchase) ᓯᐅᕿᓂᒃ ᓯᐊᓚᑎᓇᔪᑎ (ᓂᐅᐱᖏᓂᖅ)	$50,000
Quaqtaq ᖁᑐᐊᖏᑕᖅ	7673	Acc.: Hydraulic hummer (purchase) ᓯᖏᑦᓂᑎᓇᐅᑎ ᑲᑦᔨᑎᐊᓗᒃ (ᓂᐅᐱᖏᓂᖅ)	$75,000
Umiujaq ᐅᒥᐅᔨᖅ	8374	Acc.: Bucket/loader (purchase) ᑐᐊᕆᔭᖏᑕᐅᑎ ᖃᑦᒋᓗᒃ (ᓂᐅᐱᖏᓂᖅ)	$15,000

KATIVIK REGIONAL GOVERNMENT

EXECUTIVE COMMITTEE

Resolution No. 2003-29

Concerning the authorization to allow the Municipal Public Works (MPW) Department director and project managers to present requests for certificates of authorization from the Ministère de l'Environnement du Québec (MEQ) in the name of the KRG.

Whereas the KRG entered into an agreement with the Ministère des Affaires municipales et de la Métropole (MAMM) on June 30, 1999, for a program to improve the municipal infrastructures in the NVs (Isurruutiit Program);

Whereas the MPW Department director and project managers are likely to be involved in projects under the Isurruutiit Program;

Whereas section 32 of the Loi sur la qualité de l'environnement from the Government of Québec mentions that all works involving drinking water supply or treatment systems, as well as wastewater collection or treatment systems must be approved by the MEQ;

Whereas section 54 of the Loi sur la qualité de l'environnement from the Government of Québec mentions that all works involving establishment or modification to waste management systems must be approved by the MEQ;

Whereas the Executive Committee adopted on October 10, 2001, Resolution No. 2001-187 concerning the authorization to allow specific KRG employees to present requests for certificates of authorization from the MEQ in the name of KRG;

Whereas it is deemed appropriate to replace Resolution No.2001-187, by the present one in order to allow the MPW Department director and project managers to present requests for certificates of authorization from the MEQ in the name of KRG;

It is therefore resolved that:

1. the preamble be an integral part of this resolution;

2. Resolution No.2001-187 be repealed upon the coming into effect of this resolution;

3. the MPW Department director and project managers be authorized to request certificates of authorization from the MEQ in the name of the KRG;

4. the Secretary be authorized to sign any and all documents required to implement this resolution;

5. this resolution comes into effect on the day of its adoption.

MOVED BY:	Johnny N. Adams
SECONDED BY:	Josie Tullaugak
IN FAVOUR:	4
OPPOSED:	0
ABSTENTIONS:	0
ABSENTEES:	1
DATE OF ADOPTION:	February 11, 2003
CHAIRMAN'S SIGNATURE:	(S) Johnny N. Adams
SECRETARY'S SIGNATURE:	(S) Ina Gordon

KATIVIK

CERTIFIED COPY

BY: Ina Gordon

DATE: Feb 21/03

ᑭᓇᐅᔭᖅ ᐃᓄᐃᑦᑐᑦᓯᐊᕐᓂᖅ ᐱᔪᓐᓇᖅᑐᑦ ᐱᓇᓱᐊᕐᓂᖅ
Municipal Public Works Department
Service des travaux publics municipaux

ANNEXE 2.
Résumé de l'étude d'impact / Summary of the ESIA

Stantec

Development of a New Landfill in Whapmagoostui – ESIA Summary

Environmental and Social Impact Assessment Summary

Prepared for:

Whapmagoostui First Nation
Cree Nation Government

Prepared by:

Stantec Consulting Ltd.

167020191-220-EN-R-0002-0

March 6, 2019

Prepared by Marie-Hélène Côté
(signature)
Marie-Hélène Côté, anthropol.

Reviewed by
(signature)
Julien Rosset, B.Sc., M.A.A.

Approved by Julie Massicotte
(signature)
Julie Massicotte, biol.

Revision	Description	Author	Quality Review	Independent Review
0	final	M.-H. Côté	J. Rosset	J. Massicotte

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Abbreviations

ATV	All-terrain vehicle
CNG	Cree Nation Government
COMEX	Environmental and Social Impact Review Committee
COMEV	Environmental and Social Impact Evaluating Committee
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	[Department of] Fisheries and Oceans Canada
ESIA	Environmental and socio-economic impacts assessment
JBNQA	James Bay and Northern Québec Agreement
KRG	Kativik Regional Government
LSA	Local study area
MBCA	Migratory Birds Convention Act
MELCC	Ministère de l'Environnement et de la Lutte contre les changements climatiques
MFFP	Ministère de la Forêt, de la Faune et des Parcs
NEQA	Northeastern Quebec Agreement
NVK	Northern Village of Kuujjuarapik
PDA	Project development area
RRLIRM	Regulation Respecting the Landfilling and Incineration of Residual Materials
RSA	Regional study area
SAR	Species at risk
SARA	Species at Risk Act
VC	Valued [environmental] component
WFN	Whapmagoostui First Nation

Abréviations

ARK	Administration régionale Kativik
CBJNQ	Convention de la Baie James et du Nord québécois
CNEQ	Convention du Nord-Est québécois
COMEV	Comité d'évaluation des répercussions sur l'environnement et le milieu social
COMEX	Comité d'examen des répercussions sur l'environnement et le milieu social
COSEPAC	Comité sur la situation des espèces en péril au Canada
CV(E)	Composante valorisée (de l'environnement)
EIEMS	Étude des impacts sur l'environnement et le milieu social
GNC	Gouvernement de la Nation Crie
LCOM	Loi sur la convention concernant les oiseaux migrateurs
MELCC	Ministère de l'Environnement et de la Lutte contre les changements climatiques
MFFP	Ministère de la Forêt, de la Faune et des Parcs
MPO	(Ministère des) Pêches et Océans Canada
REIMR	Règlement sur l'enfouissement et l'incinération de matières résiduelles
VNK	Village nordique de Kuujjuarapik
VTT	Véhicule tout-terrain
WFN	Whapmagoostui First Nation
ZDP	Zone de développement du projet
ZEL	Zone d'étude locale
ZER	Zone d'étude régionale

Glossary

Bird hazard	Hazard relating to the conduct of flight operations that results from the presence of birds, primarily in the vicinity of an aerodrome.
Category 1 land	Pursuant to the *James Bay and Northern Quebec Agreement*, lands reserved for Cree beneficiaries, interested band or Cree village.
Category 1A land	Pursuant to the *James Bay and Northern Quebec Agreement*, lands reserved for the exclusive use and benefit of the local governments.
Cover materials	Soil or other granular materials that are spread over compacted waste.
Diversion programs	Services that contribute to reducing the amount of waste ending up at the landfill, for example: recycling, composting or ecocentre services.
Eeyou Istchee	The "People's land": traditional territory of the James Bay Cree which includes 11 Cree communities.
Project development area (PDA)	Area covered by the Project's components (e.g. landfill site, storage platforms and access road); footprint of each Project component.
Hunting blind	Something offering a place of concealment (e.g. trees, tall grass, enclosure) when hunting.
Intermittent watercourse	A watercourse that flows only at certain periods of the year.
In-trench landfill	Landfill established within an excavated area.
Leachate	The liquid that has been in contact with waste and has undergone chemical or physical changes; water which has percolated through stacked waste or organic materials.

Local study area	A 500 m buffer (or radius) around all of the Project components.
Mitigation	Preventing and/or minimizing potential negative effects from a development project through, for example, design features, construction practices or operational procedures.
Monitoring well	A well (cavity constructed in the soil) which provides access to underground water for collection of water samples and other tests.
Northern landfill	Type of landfill adapted to northern context, where, for example, burning is allowed and less technical constraints are required.
Platform	Horizontal and flat surface providing easy access for loading and unloading.
Proponent	A company or other organization which intends to undertake a project, program or activity having potential environmental effects.
Regional study area	Area comprised of the Whapmagoostui community, the northern village of Kuujjuarapik, the local Project area, and the lands in between.
Rehabilitation	Any procedure to restore damaged or degraded land and return it back to a beneficial use.
Residual impact	Impact remaining after the implementation of mitigation measures or for which there is no appropriate mitigation.
Trapline	Area where harvesting activities are by tradition carried on under the supervision of a tallyman.

Glossaire

Atténuation	Action de prévenir et/ou de limiter les effets négatifs potentiels d'un projet de développement via, par exemple, des éléments de la conception, des pratiques de construction ou des procédures opérationnelles.
Cache (pour la chasse)	Quelque chose offrant un lieu pour se cacher ou se camoufler (par exemple: arbres, herbes hautes, cabane) lors de la chasse.
Cours d'eau intermittent	Un cours d'eau présentant un écoulement seulement à certaines périodes de l'année.
Eeyou Istchee	"Notre territoire": territoire traditionnel des Cris de la Baie James, lequel inclut 11 communautés cries.
Impact résiduel	Impact subsistant après l'application de mesures d'atténuation ou pour lequel il n'y a pas d'atténuation appropriée.
Lieu d'enfouissement en milieu nordique	Type de lieu d'enfouissement adapté au contexte nordique où, par exemple, le brûlage est permis et moins de contraintes techniques s'appliquent.
Lieu d'enfouissement en tranchée	Lieu d'enfouissement aménagé à l'intérieur d'une zone excavée.
Lixiviat	Liquide ayant été en contact avec des déchets et ayant subi des changements chimiques ou physiques; eau ayant percolé à travers des déchets ou des matières organiques entreposés.
Matériaux de recouvrement	Terre ou autres matériaux granulaires qui sont épandus sur les déchets compactés.

Péril aviaire	Danger relatif à la conduite d'opérations de vol résultant de la présence d'oiseaux, principalement dans le voisinage d'un aérodrome.
Plateforme	Surface horizontale et plane offrant un accès facile pour le chargement et le déchargement.
Programmes de détournement	Services contribuant à réduire la quantité de déchets qui se retrouvent au lieu d'enfouissement, par exemple: le recyclage, le compostage ou les services d'écocentre.
Promoteur	Une entreprise ou une autre organisation qui a l'intention d'entreprendre un projet, un programme ou une autre activité ayant potentiellement des effets environnementaux.
Puits de surveillance	Un puits (une cavité aménagée dans le sol) permettant d'accéder à l'eau souterraine afin de recueillir des échantillons d'eau ou de réaliser d'autres tests.
Remise en état	Toute intervention visant à restaurer un terrain endommagé ou dégradé et à le ramener à une utilisation bénéfique.
Terrain de trappage	Zone où les activités récolte (chasse, pêche et trappage) ont traditionnellement lieu sous la supervision d'un maître de trappage (tallyman).
Terres de catégorie 1	En vertu de la *Convention de la Baie James et du Nord québécois*, terres mises de côté pour l'usage des bénéficiaires cris, des bandes ou villages cris intéressés.
Terres de catégorie 1A	En vertu de la *Convention de la Baie James et du Nord québécois*, terres mises de côté pour l'usage exclusif et le profit des gouvernements locaux.
Zone de développement du projet (ZDP)	Superficie couverte par les composantes du projet (par exemple, le lieu d'enfouissement, les plateformes d'entreposage et le chemin d'accès); empreinte de chaque composante du projet.

Zone d'étude locale (ZEL)	Zone formée en ajoutant une zone tampon (ou rayon) de 500 m autour de toutes les composantes du projet.
Zone d'étude régionale (ZER)	Zone comprenant la communauté de Whapmagoostui, le village nordique de Kuujjuarapik, la zone d'étude locale et le territoire se trouvant entre les deux.

Executive Summary

Whapmagoostui First Nation (WFN) is located in the James Bay region of Northern Quebec, at the mouth of the Great Whale River, on the north shore. Established along the boundary of the 55th parallel, Whapmagoostui is the northernmost of the Cree communities recognized by the James Bay and Northern Québec Agreement (JBNQA). WFN shares the use of certain infrastructures and services with the neighbouring Northern Village of Kuujjuarapik (NVK), the southernmost Inuit village.

WFN and NVK have been using the same in-trench landfill for the disposal of solid waste since the 1950's. The existing landfill, owned and operated by NVK, is located on Category I Inuit land just outside community limits. The communities of WFN and NVK have identified the need to close the existing site as it is about to reach capacity. Stantec (previously Dessau), in collaboration with WFN, began site selection for a new landfill in 2010.

The landfill site retained for evaluation in the environmental and social impacts assessment (ESIA) was selected in 2016 based on preliminary field investigations and validated with further field investigations conducted in 2017. It is located 5 km north of the community limits by way of the main road and approximately 1.5 km inland from the main road (see Figure 1), therefore construction of an access road is required as part of the Project. The proposed access road passes from the main road on Category I Inuit land into Category IA Cree land where the landfill will be located.

WFN and NVK plan also to develop a shared metal storage platform adjacent to the future landfill site in order to prepare and store bulky metallic items (end of life vehicles, appliances and metallic construction waste) before shipping to a recycling facility. The communities of WFN and NVK generate and handle contaminated soils resulting mainly from accidental oil spills. To accommodate this waste, the community's plan to develop a contaminated soil storage platform adjacent to the proposed landfill. The platform will be used for storage of contaminated soil while they await treatment.

The development, operation and closure of the proposed landfill and the storage platforms will be the responsibility of WFN, so WFN and the Cree Nation Government (CNG) are the proponents of the Project. They mandated Stantec for the preparation of the ESIA, which was submitted to the COMEV by the proponent in March 2019.

The present document is a summary of the ESIA conducted for the "Development of a New Landfill in Whapmagoostui" project. Key information presented in the ESIA was summarized with the objective of offering the general public an accessible overview of the Project and its potential impacts on natural and human environments. For further details regarding topics discussed in this summary, the reader can refer to the complete ESIA report (Stantec 2019).

Prepared based on the Administrator and COMEV specifications, the ESIA presents in Section 2 the Project context in terms of regulations and guidelines, and the Project justification by describing the actual state of waste management in the communities and future needs. Population growth was assessed over a 40-year period using data available, and waste projections were made for a 40-year period following a waste characterization study performed by Stantec in 2017.

Project Justification

Search for an appropriate site to develop a new landfill began in 2010 and continued until 2016 when a site was retained for the Project. Then, three access road layouts were considered to connect the proposed new landfill site with the main road until the proposed layout was retained in 2018. The steps and rationale behind the site and access road selection processes are explained in detail in Section 3 of the ESIA.

Three study areas were defined in order to describe baseline conditions in the receiving environment and to further assess Project impacts on the environmental components: the Project development area (PDA), the local study area (LSA), and the regional study area (RSA). Data used to describe the receiving environment was collected through desktop research, photointerpretration, communication with the client and participants to the consultation activities, as well as specific studies conducted by Stantec: hydrogeological study, climate projection research, field surveys from October 3 to 5, 2017 (vegetation, wetlands, watercourses), and land and resource use interviews from March 13 to March 15, 2018. Section 4 of the ESIA contains a description of the Project's receiving environment, divided into physical, natural and human environments.

Section 5, dedicated to the Project description, provides information on each Project component: access road, northern landfill, metal storage platform and contaminated soils storage platform. Additionally, it lists construction and operation activities associated with each Project component as well as closure and post-closure management activities.

Throughout Project planning and design phases, information regarding the Project was transmitted to the members of both communities. On various occasion, they had an opportunity to ask their questions and share their comments about the Project. The information collected on these occasions has influenced project planning and the development of the ESIA. Section 6 of the ESIA summarizes consultation efforts to date for both WFN and NVK communities, and planned consultation and engagement activities for construction, operation, and closure phases of the project.

The impact assessment method used to evaluate the potential impacts of the Project on the receiving environment is explained in Section 7 of the ESIA, and then applied to each valued component (VC) of the physical, biological and human environments in Section 8. Potential impacts of climate change on the Project are summarized in Section 9 of the ESIA based on the climate projection research conducted by Stantec, while potential risks of accidents, malfunctions and unplanned events are discussed in Section 10.

Environmental supervision measures planned for the construction, operation, closure and post-closure phases of the Project are covered in Section 11, along with environmental follow-up programs which consist mainly of groundwater and surface water monitoring. Activities related to the closure, or "decommissioning", and remediation of the old sites (existing landfill, bulky waste storage site and metal storage site) are presented in Section 12.

Sommaire exécutif

Whapmagoostui First Nation (WFN) est située dans la région de la Baie James, dans le nord du Québec, à l'embouchure de la Grande rivière de la Baleine, sur sa rive nord. Établie le long du 55e parallèle, Whapmagoostui est la plus nordique des communautés cries reconnues par la Convention de la Baie James et du Nord québécois (CBJNQ). WFN partage l'utilisation de certaines infrastructures et certains services avec la municipalité voisine, le village nordique de Kuujjuarapik (VNK), village inuit situé le plus au sud.

WFN et le NVK utilisent le même site d'enfouissement en tranchées pour les déchets solides depuis les années 1950. Le NVK détient et gère le site d'enfouissement actuel situé sur des terres inuites de catégorie I, juste à l'extérieur des limites de la communauté. Les communautés de WFN et NVK ont identifié le besoin de fermer le site d'enfouissement actuel car il atteindra bientôt sa capacité. Stantec (autrefois Dessau), en collaboration avec WFN, a entrepris le processus de sélection d'un nouveau site en 2010.

Le site retenu pour évaluation dans l'étude des impacts sur l'environnement et le milieu social (ÉIEMS) a été sélectionné en 2016 à la suite d'études de terrain préliminaires, puis confirmé par d'autres études de terrain menées en 2017. Il est situé 5 km au nord des limites de la communauté via la route principale et environ 1,5 km à l'intérieur des terres à partir de la route (voir Figure 1), par conséquent la construction d'une route d'accès est requise pour la réalisation et l'exploitation du projet. À partir de la route principale, la route d'accès proposée traverse des terres inuites de catégorie I puis des terres cries de catégorie IA jusqu'à l'emplacement du site d'enfouissement proposé.

Par ailleurs, WFN et le VNK ont prévu de développer deux plateformes adjacentes au lieu d'enfouissement : une plateforme d'entreposage de métal pour préparer et entreposer les éléments métalliques (véhicules hors d'usage, électroménagers, résidus de construction métalliques) avant leur transport vers une installation de recyclage et une plateforme d'entreposage des sols contaminés en attente de leur traitement sur un autre site.

L'aménagement, l'exploitation et la fermeture du lieu d'enfouissement proposé ainsi que des deux plateformes seront la responsabilité de WFN, alors WFN conjointement avec le Gouvernement de la Nation Crie sont les promoteurs du Projet. Ils ont mandaté Stantec pour la préparation de l'étude des impacts sur l'environnement et le milieu social (ÉIEMS) qui a été déposée au COMEV par le promoteur en mars 2019.

Le présent document constitue un résumé de l'ÉIEMS réalisée pour le projet « Aménagement d'un nouveau lieu d'enfouissement à Whapmagoostui ». Les principales informations présentées dans l'ÉIEMS ont été synthétisées dans le but d'offrir au grand public une vue d'ensemble du Projet, de son contexte ainsi que de ses impacts potentiels sur les milieux naturel et humain qui soit accessible. Pour plus de détails concernant les thèmes abordés dans ce résumé, le lecteur peut se référer au rapport complet de l'ÉIEMS (Stantec 2019).

Project Justification

Préparée selon les spécifications de l'Administrateur et du Comité d'évaluation des répercussions sur l'environnement et le milieu social (COMEV), l'ÉIEMS présente à la Section 2 le contexte du projet en termes de réglementation et de normes, ainsi que la justification du projet en décrivant l'état actuel de la gestion des matières résiduelles dans les communautés et les besoins futurs. La croissance de la population a été évaluée pour une période de 40 ans en utilisant les données disponibles et des projections de quantités de matières résiduelles ont été réalisées pour une période de 40 ans suite à une caractérisation des matières résiduelles effectuée par Stantec en 2017.

La recherche d'un site approprié pour l'aménagement d'un nouveau lieu d'enfouissement a débuté en 2010 et s'est poursuivie jusqu'en 2016, lorsqu'un site a été retenu pour le projet. Ensuite, trois tracés ont été considérés pour la route d'accès reliant le nouveau lieu d'enfouissement proposé à la route principale jusqu'à ce que le tracé proposé soit retenu, en 2018. Les étapes et le raisonnement derrière les processus de sélection du site et de la route d'accès sont expliqués en détails dans la Section 3 de l'ÉIEMS.

Trois zones d'étude ont été définies afin de décrire les conditions de référence dans le milieu récepteur et ensuite évaluer les impacts du projet sur les composantes de l'environnement : la zone de développement du projet (ZDP), la zone d'étude locale (ZEL) et la zone régionale d'étude (ZER). Les données utilisées pour décrire le milieu récepteur ont été obtenues par recherche documentaire, photo-interprétation, communication avec le client et les participants aux activités de consultation, de même qu'à travers la réalisation d'études spécifiques par Stantec : étude hydrogéologique, projections climatiques, relevés au terrain du 3 au 5 octobre 2017 (végétation, milieux humides, cours d'eau) et entrevues sur l'utilisation du territoire et des ressources du 13 au 15 mars 2018. La section 4 de l'ÉIEMS contient une description du milieu récepteur du projet subdivisé en milieux physique, naturel et humain.

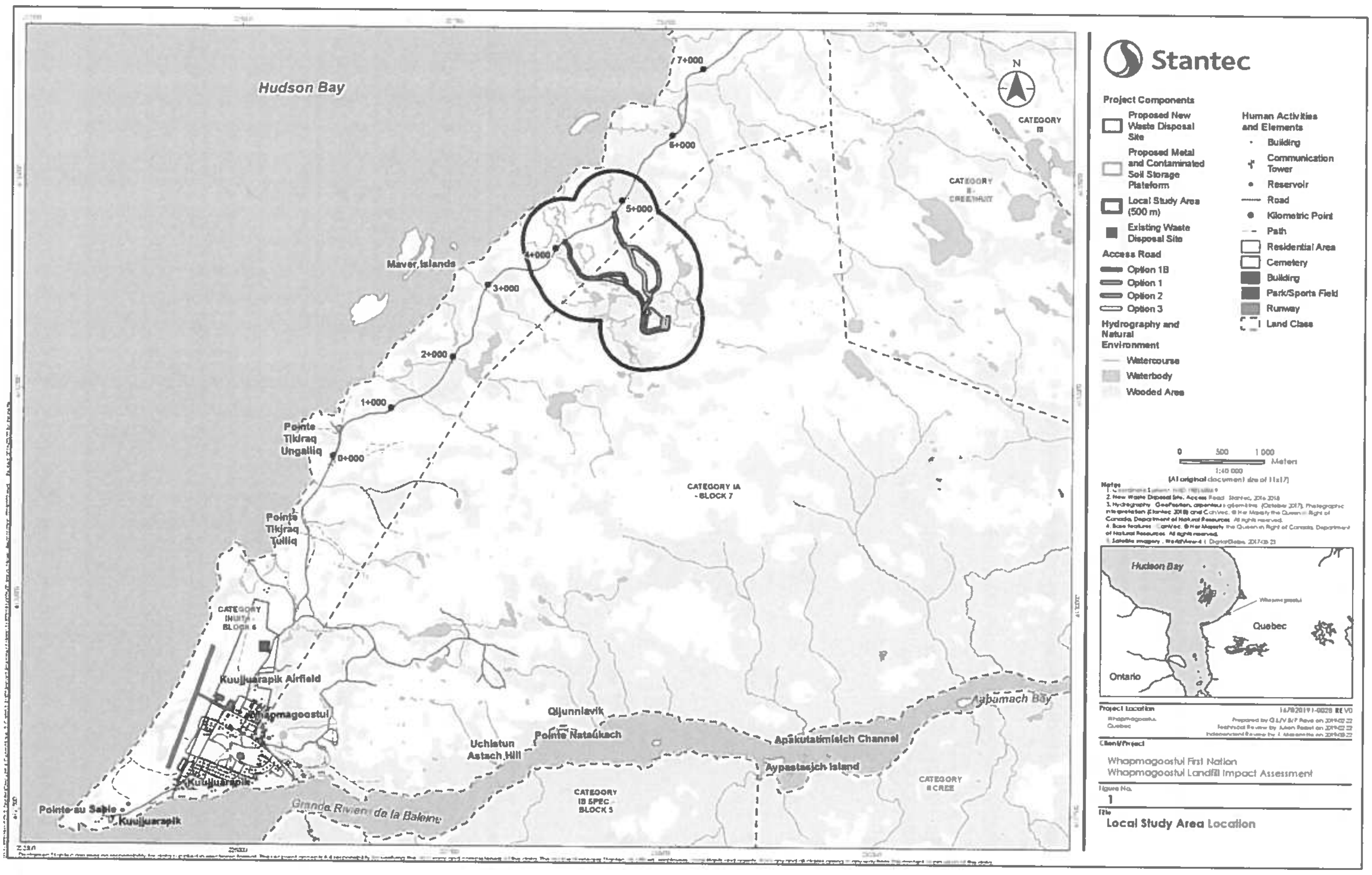
La section 5, consacrée à la description de projet, fournit de l'information sur chacune des composantes du projet : la route d'accès, le lieu d'enfouissement en milieu nordique, la plateforme d'entreposage des résidus métalliques et la plateforme d'entreposage de sols contaminés. De plus, les activités de construction et d'exploitation associées à chaque composante du projet ainsi que les activités de gestion de la fermeture et du suivi post-fermeture y sont énumérées.

Tout au long des phases de planification et de conception du projet, de l'information au sujet du projet a été transmise aux membres des deux communautés. Ils ont eu l'opportunité de poser leurs questions et partager leurs commentaires à propos du projet à diverses occasions. L'information ainsi amassée a été prise en compte dans la planification du projet et la réalisation de l'ÉIEMS. La section 6 de l'ÉIEMS résume les efforts de consultation de WFN et VNK entrepris à ce jour de même que les activités de consultation et d'implication prévues en phases construction, exploitation et fermeture du projet.

La méthode d'évaluation des impacts utilisée pour évaluer les impacts potentiels du projet sur le milieu récepteur est expliquée à la section 7 de l'ÉIEMS et ensuite appliquée à chaque composante valorisée (CV) des milieux physique, naturel et humain à la section 8. Les impacts potentiels des changements climatiques sur le projet sont résumés à la section 9 de l'ÉIEMS à partir de la recherche de projection climatique réalisée par Stantec, tandis que les risques potentiels d'accident, de défaillance et d'incidents imprévus sont discutés à la section 10.

Project Justification

Les mesures de surveillance environnementale prévues en phases construction, exploitation, fermeture et post-fermeture du projet sont abordées à la section 11 avec la description des programmes de suivi environnemental, principalement le suivi de l'eau souterraine et des eaux de surface. Les activités liées à la fermeture, ou à la « mise hors service », et à la remise en état des anciens sites (lieu d'enfouissement, site d'entreposage des encombrants et site d'entreposage des résidus métalliques existants) sont présentées à la section 12.



Hudson Bay
7+000
6+000
5+000
4+000
3+000
2+000
1+000
0+000
Maver Islands
Pointe Tikiraq Ungalliq
Pointe Tikiraq Tulliq
CATEGORY IB
CATEGORY II-CREE/INUIT
CATEGORY IA - BLOCK 7
CATEGORY INUIT - BLOCK 6
Kuujjuarapik Airfield
Whapmagoostui
Kuujjuarapik
Pointe-au Sable
Qiljunniavik
Pointe Natakach
Uchistun Astach Hill
Apskutatimisich Channel
Aypestasich Island
Grande Rivière de la Baleine
CATEGORY IB SPEC BLOCK 5
CATEGORY II CREE
Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m)
Existing Waste Disposal Site
Access Road
Option 1B
Option 1
Option 2
Option 3
Hydrography and Natural Environment
Watercourse
Waterbody
Wooded Area
Human Activities and Elements
Building
Communication Tower
Reservoir
Road
Kilometric Point
Path
Residential Area
Cemetery
Building
Park/Sports Field
Runway
Land Class
0 500 1 000 Meters
1:40 000
(At original document size of 11x17)
Notes
2. New Waste Disposal Site, Access Road: Stantec, 2016-2018
Hudson Bay
Quebec
Ontario
Project Location
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
1
Title
Local Study Area Location

1.0 PROJECT JUSTIFICATION

1.1 EXISTING WASTE MANAGEMENT FACILITIES

The communities of WFN and NVK currently share the use of the landfill owned and operated by NVK, which has been in use since the 1950's and is about to reach the planned landfilling capacity (Photo 1). The actual landfill is located in close proximity to WFN and NVK villages, and to the airport as well. Its location presents an increased risk for airplanes due to the presence of birds that frequent the landfill. Additionally, smoke generated by the burning of waste impacts the communities by reducing air quality.

Garbage is collected Monday to Friday and unloaded at the landfill site five times per week for WFN and ten times per week for NVK. NVK's garbage truck is of smaller capacity, thus requiring two trips per day. NVK operators burn waste in the trench every two to three months to reduce the amount of waste that is landfilled. Burning may take several days to complete and is a health concern for the nearby communities.

A bulky waste platform (called the "Canadian Tire" by residents of both communities), located 850 m north of the existing landfill, is used for the storage of metallic bulky waste, concrete, tires and other non-burnable and bulky waste, which are stored in three to four-meter-high piles (Photo 2). The platform is used by both WFN and NVK and is under the responsibility of NVK. Old vehicles as well as large metal waste items are stored at a separate site opened in 1990, in WFN village, behind the social center (Photo 3).

Given that the actual landfill is about to reach its capacity, the communities plan to develop a new landfill where open air burning is allowed (northern landfill) and to implement diversion programs as measures to extend the life of the proposed new landfill site. Along with the landfill, a new metal storage platform which would replace the existing sites (the bulky waste platform and the old vehicles site) and a contaminated soils storage platform are also proposed.

The bulky waste platform and the old vehicles site are close to reaching full capacity too and they are contaminated. Following the construction of the new landfill site and storage areas, the former sites are planned to be closed and rehabilitated.

Photo 1 **Existing Landfill**

Photo 2 **Existing Non-burnable Bulky Waste Platform ("The Canadian Tire")**

Photo 3 Existing Metallic Waste Storage Site

1.2 WASTE PROJECTIONS AND LANDFILLING NEEDS

Waste projections were estimated during the site study performed in 2017 for a 40-year period. Two categories of waste were considered:

- Residential and business waste, commonly called garbage, including domestic waste produced by houses, institutions, and businesses.
- Construction and bulky waste including waste from construction work in the communities and bulky waste from houses such as appliances and furniture.

Two scenarios were considered in order to estimate the quantity of waste to be landfilled:

- No burning: Waste is landfilled. Three options are considered for this scenario: 1- no diversion program, 2- a construction waste diversion program and better compaction rate, and 3- the same conditions as option 2 with inclusion of a composting program.
- Burning: Open air burning of waste and landfilling of ashes and non-burnable waste in the trench. Two reduction rate options were applied to represent possible efficiency rates: 1 - a minimum (Min) option with a higher reduction rate and 2 - a maximum (Max) option with a lower reduction rate.

The total landfilling needs including waste and weekly cover in cubic metres for both WFN and NVK combined are presented in Table 1 for each scenario.

Table 1 Landfilling Needs Projections for Whapmagoostui and Kuujjuarapik Communities, in Cubic Metres

Lifespan	No Burning			Burning	
	Scenario 1: No diversion	Scenario 2: Construction waste diversion & better compaction	Scenario 3: Scenario 2+ Composting program	Scenario 1: Max. (low reduction rate)	Scenario 2: Min. (high reduction rate)
5 years	38,111	26,435	19,069	12,623	8,168
10 years	74,747	51,886	36,788	24,758	14,379
15 years	115,460	80,175	56,126	38,243	24,745
20 years	160,188	111,254	76,815	53,058	34,331
25 years	208,974	145,152	99,380	69,217	44,787
30 years	261,884	181,917	123,854	86,742	56,127
35 years	319,282	221,799	150,403	105,753	68,428
40 years	381,279	264,877	179,080	126,288	81,715

WFN has retained the scenario of burning waste as part of the proposed landfill's initial waste management plan in order to extend the life of the site. For health and environmental considerations, WFN plans to stop burning once diversion programs are established. As it is uncertain when burning will cease and diversion will take over, the total landfilling needs after 30 years of operation are estimated as a range between 100,000 m^3 and 200,000 m^3. This is the minimum capacity targeted to develop the new landfill.

1.3 METAL STORAGE NEEDS

WFN and NVK plan to develop a shared metal storage platform adjacent to the future landfill site in order to prepare and store bulky metallic items (end of life vehicles, appliances and metallic construction waste) before shipping to a recycling facility. Considering that the metal will be stored for a maximum of 15 years, the number of end-of-life vehicles was estimated per year for the next 20 years using population projections and known vehicle waste generation from other northern communities (see Appendix B). It is estimated that the communities will generate 10 ordinary vehicles, 20 snowmobiles and 1 truck each year in 2028.

The total number of vehicles was then estimated in tonnes per year considering an average density of 0.15 tonnes/m^3. A tonnage of other metallic items (mainly appliances and construction waste) was added according to the metal quantity observed in other northern communities. The total yearly generation of metallic waste should range between 75 tonnes in 2018 and 83 tonnes in 2028.

1.4 CONTAMINATED SOILS STORAGE NEEDS

The communities of WFN and NVK generate and handle contaminated soils resulting mainly from accidental oil spills. To accommodate this waste, the community's plan to develop a contaminated soil storage platform adjacent to the proposed landfill. The platform will be used for storage of contaminated soil while they await treatment. Soils will be stockpiled before being sampled for analysis in the laboratory. Analysis will measure the level of contamination and identify a relevant treatment method and usage.

2.0 SITE AND ACCESS ROAD SELECTION

2.1 SITE SELECTION PROCESS

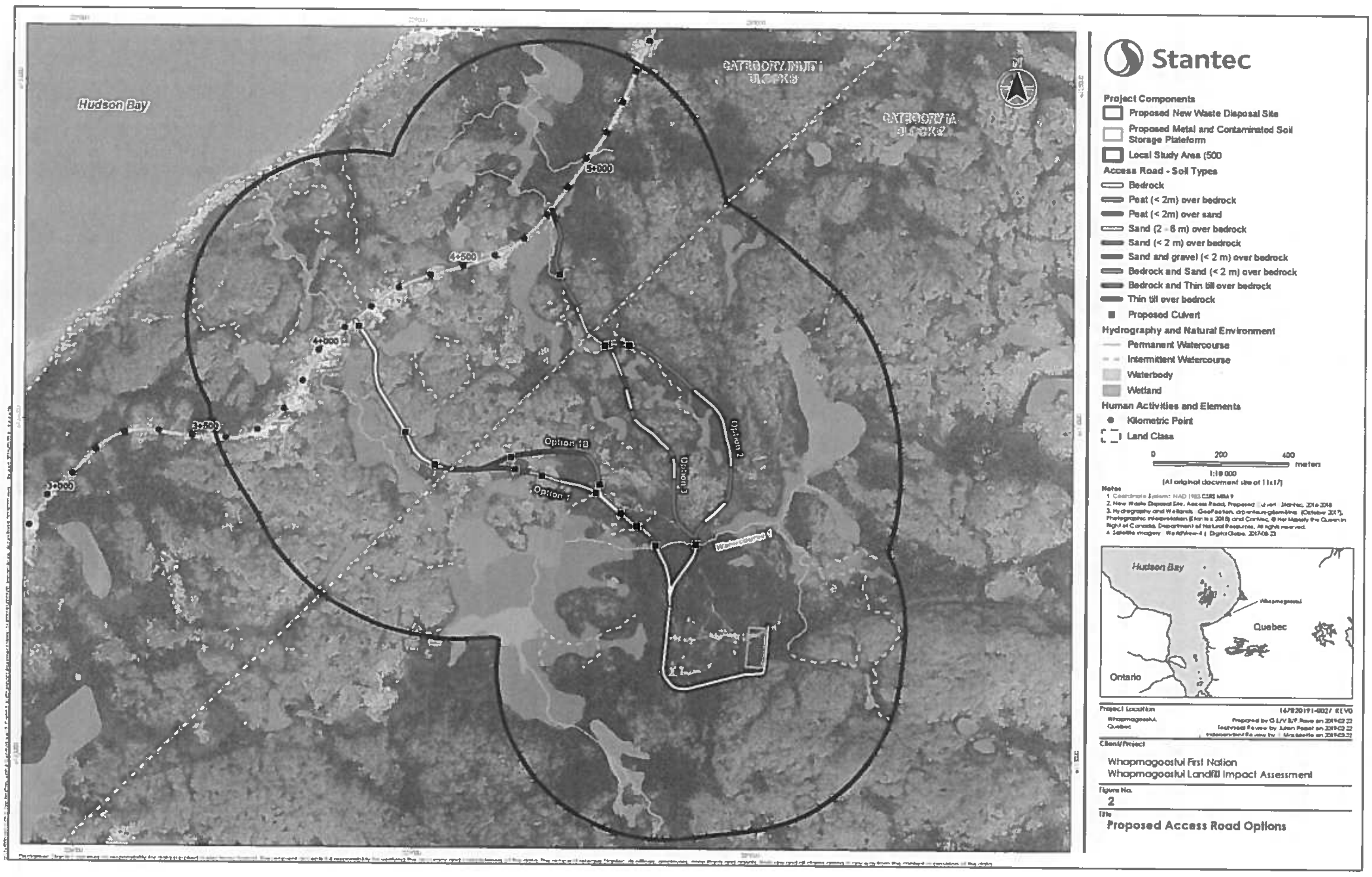
The site selection process began in October 2010. Based on desktop information, Stantec (previously Dessau) in collaboration with WFN preliminarily identified five areas (Dessau 2011). Topography, drainage, flora, fauna, heritage and distance from waterbodies and watercourses were considered during the site selection. In March 2011, "Site 1" was retained for further field studies. In 2014, hydrological studies led to the abandonment of "Site 1" because the construction of a landfill on this site could have put current and future potable water quality at risk of contamination.

In September 2015, Stantec was mandated by the CNG to review baseline information and conduct fieldwork on "Site 2" from the 2011 study. After consideration, "Site 2" was retained for further study and all other sites were eliminated. "Site 2" is the subject of the ESIA and is since then referred to as the "proposed landfill site". Location of the sites and details of sites evaluation are available in Appendix C of the ESIA (Stantec 2017).

2.2 ACCESS ROAD SELECTION PROCESS

Three potential access road options were proposed for desktop and field evaluation as part of "Site 2" studies (Stantec 2017). They were identified from aerial photo interpretation conducted by a geomorphologist. The road layouts were determined taking into account the rivers and lakes, the types of soil, the topography and the natural barriers. Characteristics of each road option and details of their evaluation are available in Appendix D of the ESIA (Stantec 2018a).

WFN chose access road Option 1 for analysis in the ESIA. Snow removal challenges were an important operational factor for WFN in their decision-making process. Modification of access road Option 1 was requested in order to avoid a wetland area that was located within the access road layout. The layout was modified and thereafter named access road Option 1B for the ESIA (see Figure 2)


Hudson Bay
5+000
4+500
4+000
3+500
3+000
Option 1B
Option 1
Option 2
Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500
Access Road - Soil Types
Bedrock
Peat (< 2m) over bedrock
Peat (< 2m) over sand
Sand (2 - 6 m) over bedrock
Sand (< 2 m) over bedrock
Sand and gravel (< 2 m) over bedrock
Bedrock and Sand (< 2 m) over bedrock
Bedrock and Thin till over bedrock
Thin till over bedrock
Proposed Culvert
Hydrography and Natural Environment
Permanent Watercourse
Intermittent Watercourse
Waterbody
Wetland
Human Activities and Elements
Kilometric Point
Land Class
0
200
400
meters
1:10 000
(At original document size of 11x17)
Notes
Hudson Bay
Quebec
Ontario
Project Location
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
2
Title
Proposed Access Road Options

3.0 DESCRIPTION OF RECEIVING ENVIRONMENT

3.1 STUDY AREA

Three study areas were defined and used to describe the receiving environment in the ESIA: the Project development area (PDA), the local study area (LSA) and the regional study area (RSA) (see Figure 1, in section 1). The PDA includes the area of physical disturbance associated with the construction and/or operations of all of the Project components: the landfill site, the access road options and the storage platforms.

The LSA includes the area over which the environmental and/or socio-economic effects of the Project could be measurable. For the purposes of the present ESIA, the LSA encompasses an area that extends 500 m beyond the PDA. The area comprised of the Whapmagoostui community, the northern village of Kuujjuarapik, the PDA, and the lands in between is considered the RSA.

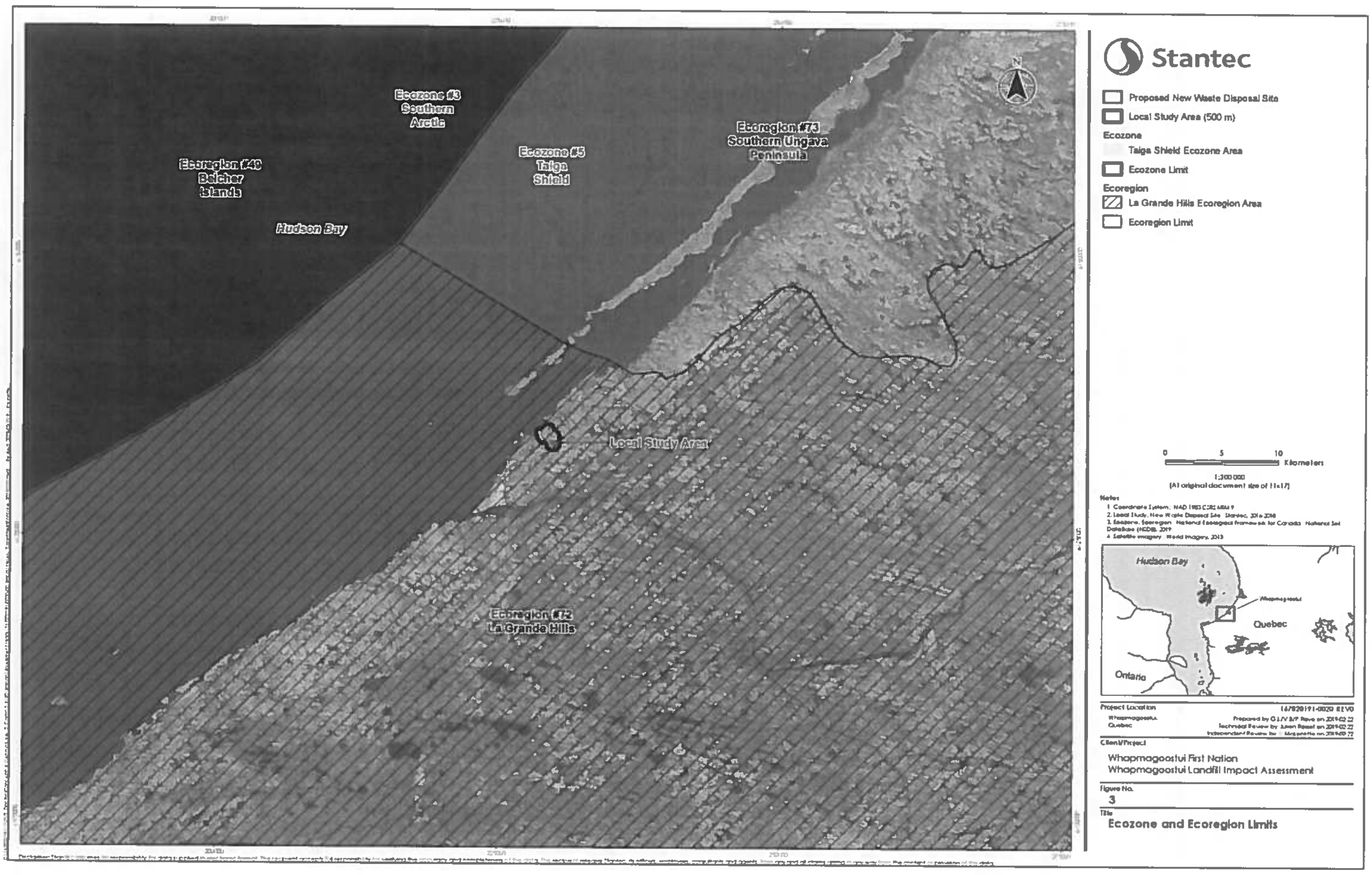
3.2 PHYSICAL ENVIRONMENT

Quebec's natural provinces boundaries are determined by contrasts in physiographic features including bedrock characteristics, topography, surficial deposits and hydrography (MDDELCC 2014). There are 15 natural provinces in Quebec as described by the Cadre écologique de référence du Québec (CERQ), and WFN and NVK are located in Province H: Basses Collines de la Grande Rivière. Province H covers a surface area of 171,062 km^2. At the federal level, the region is classified within the Taiga Shield Ecozone.

3.2.1 Project Location Ecological Context

The Project is located in the La Grande Hills Ecodistrict 72 which extends over 450 km east from James Bay in northern Quebec, between the Grande Riviere de la Baleine in the north and the riviere Eastmain to the south (Figure 3). Its open coniferous forests are transitional to tundra and alpine tundra vegetative communities to the north where the RSA falls. Open stands of lichen-black/white spruce woodland with an understory of feathermoss are dominant. Black spruce is the climax species. This ecoregion is composed predominantly of massive Archean granites, granitic gneiss, and acidic intrusives with localized occurrences of sedimentary rock found on the coast (ESWG 1995).

Generally, hummocky and drumlinized, sandy, bouldery, morainal surface deposits dominate the upper surfaces of the ecodistrict. However, deposits in the RSA are often thin or absent giving rise to exposed rock. Dystric Brunisols are the dominant soils with significant inclusions of Humo-Ferric Podzols and Organic (Mesisol and Fibrisol) soils. Permafrost has little to no ice content, and is limited to isolated patches, mainly wetlands. The highest concentration of wetlands occurs in the area extending 75-150 km inland from James Bay (ESWG 1995)


Ecozone #3
Southern
Arctic
Ecoregion #49
Belcher
Islands
Hudson Bay
Ecozone #5
Taiga
Shield
Ecoregion #73
Southern Ungava
Peninsula
Local Study Area
Ecoregion #72
La Grande Hills
Stantec
Proposed New Waste Disposal Site
Local Study Area (500 m)
Ecozone
Taiga Shield Ecozone Area
Ecozone Limit
Ecoregion
La Grande Hills Ecoregion Area
Ecoregion Limit
0
5
10
Kilometers
1:300 000
(At original document size of 11x17)
Notes
4. Satellite imagery: World Imagery, 2013
Hudson Bay
Quebec
Ontario
Project Location
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
3
Title
Ecozone and Ecoregion Limits

3.2.2 Topography, Geology and Surficial Deposits

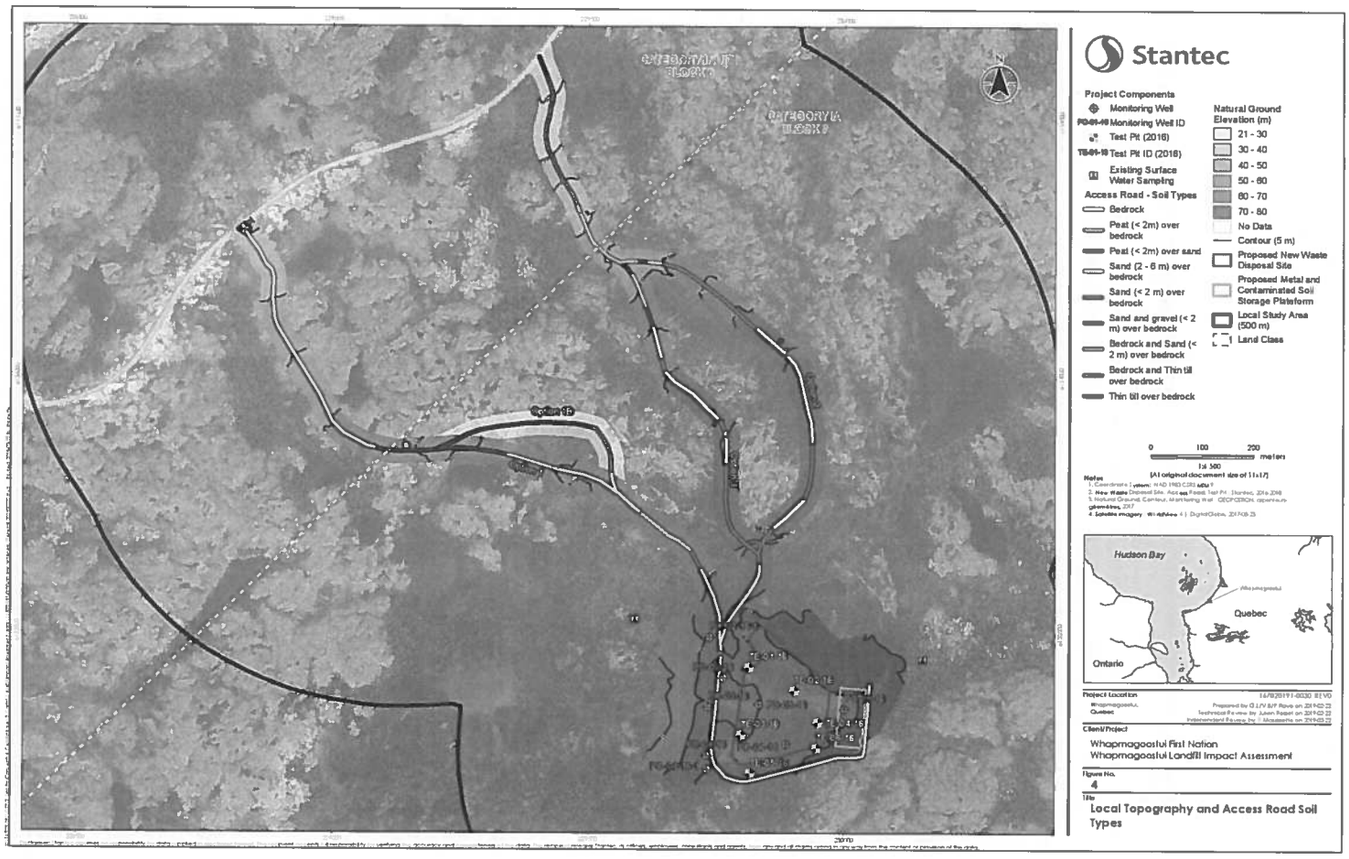
The Taiga Shield area is characterized by large rolling hills and formed by the bedrock of the Canadian Shield (Environment Canada 2013).

The RSA is located within the Superior Geological Province of the Canadian Shield. The rocks in the province are very old (Archean age) and are often referred to as hard crystalline rocks. Satellite imagery and aerial photographs clearly show that bedrock outcrops are dominant in the study area. The bedrock in the area consists mainly of granitic and gneissic rocks (granite, granodiorite, quartzic monzonite, quartzic diorite; gneiss, including some amphibolite) (Gouvernement du Québec 2018e).

The RSA is classified as having 10-50% of land area underlain by permafrost or Sporadic Discontinuous Permafrost (Department of Energy, Mines and Resources Canada 1995). Permafrost in this region is generally limited to palsa bogs, a type of wetland that is not found in the local and regional study areas (L'Hérault E. et al 2013; Allard et al 2007).

The site is well above sea level. Local topography is generally uneven, with a general slope towards the Hudson Bay. The proposed landfill is located on a sandy deposit with surroundings typical of the region (Figure 4). The bedrock surface topography suggests that the sand deposits at the proposed landfill site are confined to a circular bedrock depression. The thickness of the sand deposits is smaller to the north, east and south of the site. The deposits are thicker in the central portion and toward the western limit of the site.

The chosen access road route (Option 1B) intercepts areas of exposed bedrock and sandy deposits. In the area closest to the main road it is considered greater than 50% exposed bedrock. In the second half of the access road sandy deposits are less than 2 m in thickness except in the area closest to the proposed landfill site where it is thicker.

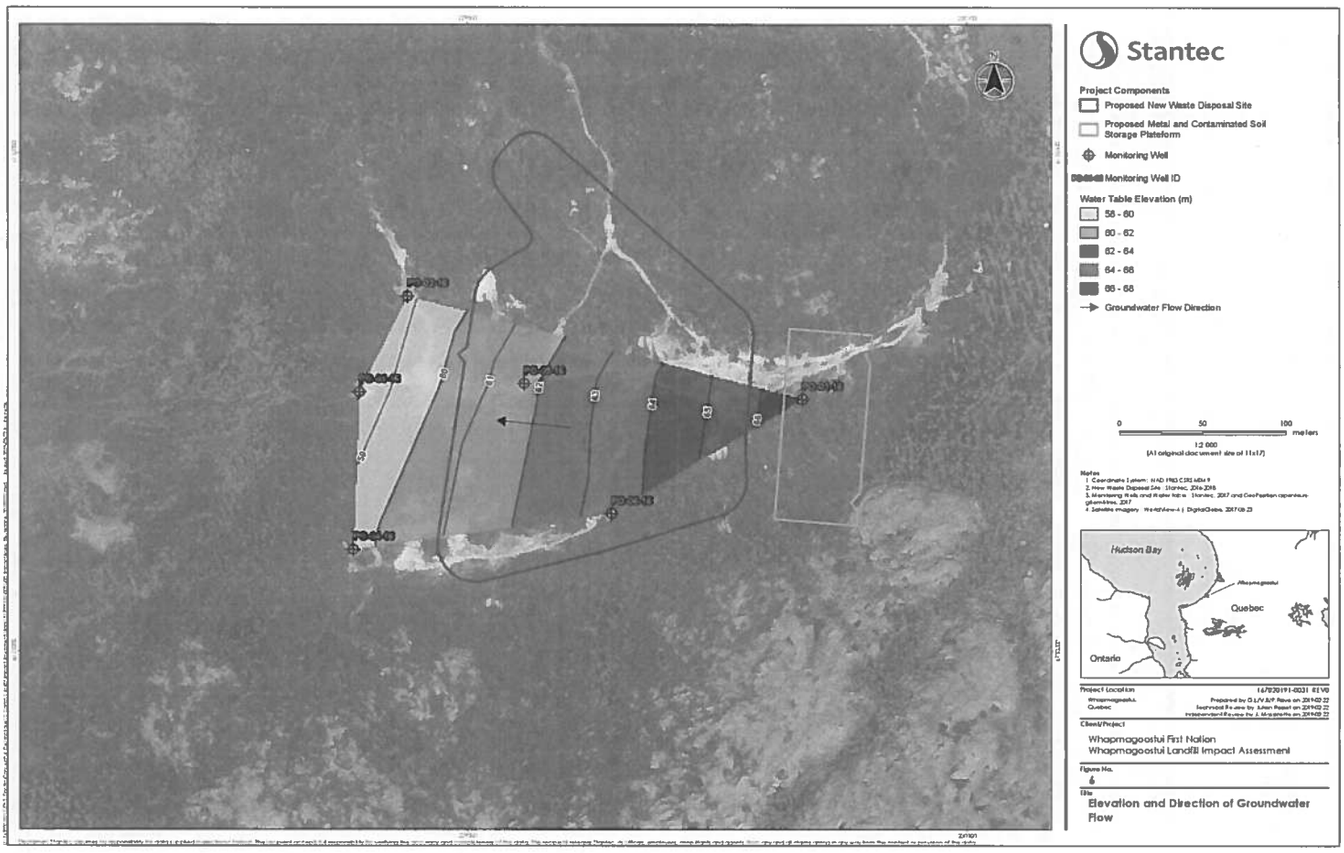

Stantec
Project Components
Monitoring Well
PGW-19 Monitoring Well ID
Test Pit (2016)
TP-19 Test Pit ID (2016)
Existing Surface Water Sampling
Access Road - Soil Types
Bedrock
Peat (< 2m) over bedrock
Peat (< 2m) over sand
Sand (2 - 6 m) over bedrock
Sand (< 2 m) over bedrock
Sand and gravel (< 2 m) over bedrock
Bedrock and Sand (< 2 m) over bedrock
Bedrock and Thin till over bedrock
Thin till over bedrock
Natural Ground Elevation (m)
21 - 30
30 - 40
40 - 50
50 - 60
60 - 70
70 - 80
No Data
Contour (5 m)
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m)
Land Class
0
100
200
meters
1st 500
(At original document size of 11x17)
Hudson Bay
Quebec
Ontario
Project Location
Whapmagoostui, Quebec
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
4
Title
Local Topography and Access Road Soil Types

3.2.3 Hydrography and Hydrogeology

The proposed landfill site is located in the Hudson's Bay watershed and more specifically in the residual basin adjacent to the Grande Rivière de la Baleine watershed (MDDELCC 2018a). The hydrographic network of the region is generally of east-west orientation (MDDELCC 2014).

The information available indicate that the hydrogeological conditions at the proposed landfill site do not exhibit the characteristics of a high potential aquifer, as defined in the RRLIRM and related guidelines.

Based on the hydrogeological study conducted by Stantec, available in Appendix E of the ESIA (Stantec 2018b), the main groundwater flow direction is oriented toward the west with a horizontal hydraulic gradient in the order of 0.031 m/m (see Figure 6). The flow in the sand deposits is controlled by the limits of aquifer (bedrock). It can be assumed that the groundwater discharge occurs in the wetland area west of the proposed landfill.


Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Monitoring Well
Monitoring Well ID
Water Table Elevation (m)
58 - 60
60 - 62
62 - 64
64 - 66
66 - 68
Groundwater Flow Direction
0
50
100
meters
1:2 000
(A1 original document size at 11x17)
Notes
Hudson Bay
Quebec
Ontario
Project Location
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
6
Title
Elevation and Direction of Groundwater Flow

3.2.4 Climate

Based on data recorded at the Environment Canada's Kuujjuarapik A Weather Station (ID 7103536) between 1981 and 2010, the average daily temperature varied between -23.3 C° in January and 11.8 C° in August. The daily maximum temperature recorded varied between 16 C° and -18 C°, while the daily minimum temperature ranged from -28 C° to 8 C° (Environment Canada 2018).

The rainfall was more abundant in September with an average of 106.5 mm and less abundant in January with an average of 0.1 mm; whereas the snowfall was more abundant in November with an average of 58.5 mm and totally absent in July and August. The average annual amount of rain received was calculated to 422 mm, and the average annual amount of snow was 248.8 cm (Environment Canada 2018).

For the purpose of the ESIA, Stantec completed a climate projection research, available in Appendix F of the ESIA (Stantec 2018c). The results indicated that, in recent decades, the area has seen an increase in temperatures for all seasons. With respect to precipitation, rainfall has increased in all seasons except summer, and there is a decrease in snowfall, particularly in the fall and spring months. Climate related observations were documented during the land and resource use interviews facilitated by Stantec, from 13 to March 15, 2018 (WFN and NVK participants). For the most part interviewees reported warming trends.

3.3 NATURAL ENVIRONMENT

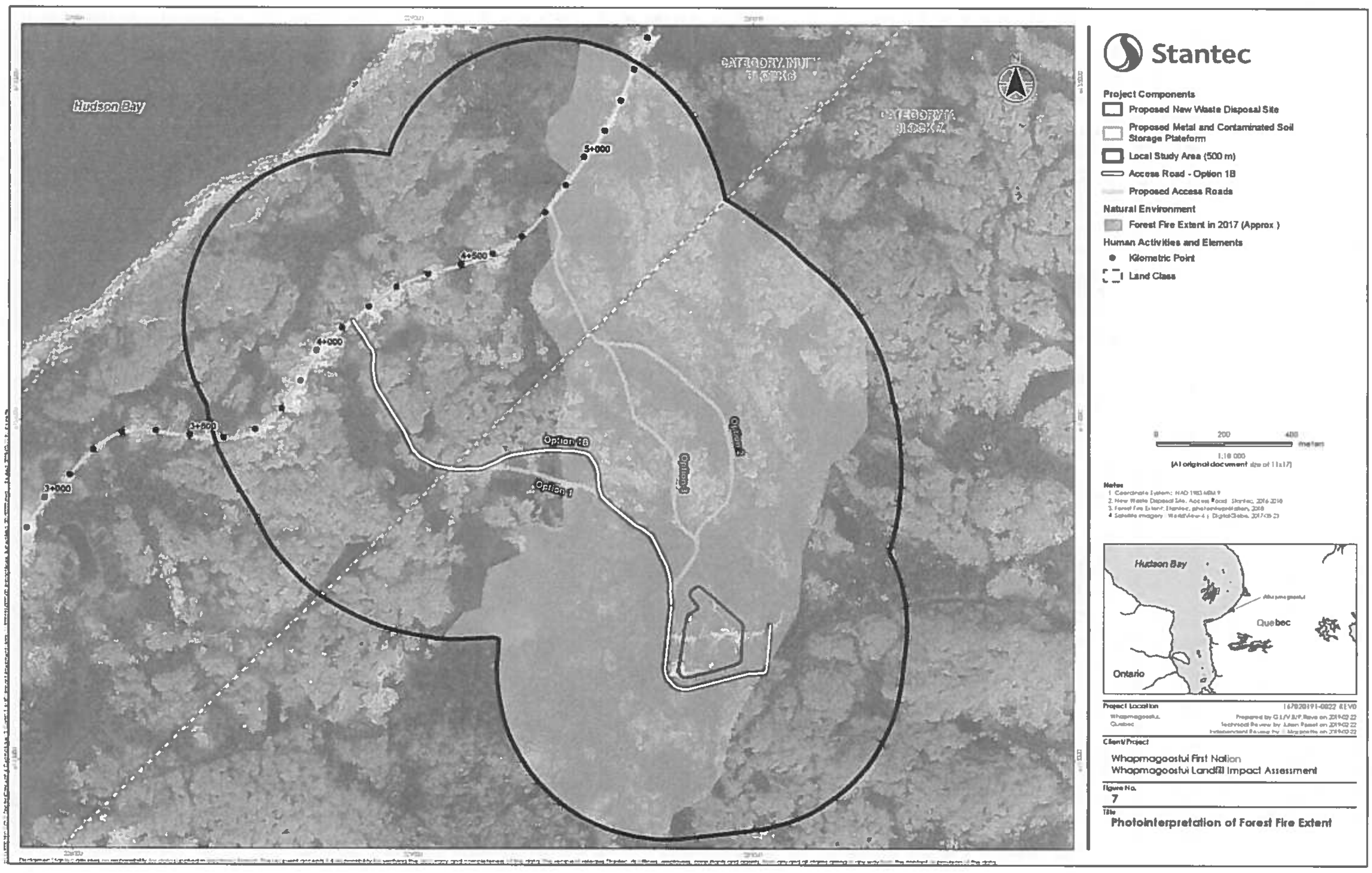
3.3.1 Vegetation

In the black spruce-lichen woodlands of the Taiga, black spruce occurs at lower density than in the spruce-moss forest (Environment Canada 2013). As commercial forestry activities take place south of the Taiga, the region includes some of the largest expanses of old-growth forests in Québec (Environment Canada 2013). The region has a short growing season and is regularly experiencing forest fires (MDDELCC 2014). Fires in the region cover large areas and influence diversity creating a patchwork of species and successions of growth (Environment Canada 2013). A forest fire passed through the LSA in 2017 (George Sandy 2017, personal communication), burning most of the vegetation in the PDA (see Figure 7). After fire in spruce-lichen woodland, soil surfaces may remain blackened for many years as black spruce and lichen are very slow to recover (ESTR Secretariat 2014).

A request of information to the Centre de données sur le patrimoine naturel du Québec (CDPNQ) provided information on vegetation species at risk within 8 km of the Project. According to their database, there is a possibility of finding two species susceptible to be designated as vulnerable or threatened (S3): Robinson's hawkweed (*Hieracium robinsonii*) and Raup's paintbrush (*Castilleja raupii*) (CDPNQ-Flora 2017). Both observations fell outside the LSA.

Description of Receiving environment

Stantec also carried out vegetation field surveys from October 3rd to 5th, 2017. A total of 24 vegetation plots were inventoried in the PDA, including the three access road options and the proposed landfill site. No provincially listed or federally listed species at risk were found during field surveys. Species frequently observed in regeneration postfire were; bog bilberry (blueberry), common Labrador tea, glandular birch, green alder, and fireweed. Given the timing of the survey, and that much of the PDA was burned, it is possible that some species were missed. However, any species overlooked are likely common as the habitats encountered did not suggest the presence of rare species.


Hudson Bay
5+000
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Option 1B
Option 1
Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m)
Access Road - Option 1B
Proposed Access Roads
Natural Environment
Forest Fire Extent in 2017 (Approx.)
Human Activities and Elements
Kilometric Point
Land Class
0
200
400
meters
1:10 000
(At original document size of 11x17)
Notes
1. Coordinate System: NAD 1983 MTM 9
Hudson Bay
Quebec
Ontario
Project Location
167820191-0022 REV0
Client/Project
Whapmagoostui First Nation
Whapmagoostui Land(fi)l Impact Assessment
Figure No.
7
Title
Photointerpretation of Forest Fire Extent

3.3.2 Wetlands

Wetlands are increasing in size and number in the Taiga Shield ecozone due to melting permafrost, namely permafrost found in palsa bogs. The potential for wetland expansion in the PDA due to permafrost melting is not considered a factor as the PDA is not found in a region dominated by palsa bogs (L'Hérault et al 2013; Allard et al 2007; ESTR Secretariat 2014).

During field surveys carried out from October 3 to 5, 2017, one wetland area was delineated within the PDA of access road Option 1. Based on the results of the field surveys, WFN chose to move forward with access road Option 1 with a modification to avoid the wetland (Option 1B).

Watercourses and wetlands were delineated for the LSA by photointerpretation (see Figure 8). A large complex of wetland areas has been outlined in association with Water System West. This wetland is classified in the ecoforestry maps (Gouvernement du Québec 2018a) as a fen.

The first wetland area west of the proposed landfill site (Photos 2 and 3) is known to both Cree and Inuit communities as "the Snow Goose Marsh" (namely Cree) and "inland parallel to the islands" (namely Inuit). The naming of the wetland and its recognition by both communities is an indicator of its cultural importance, especially as a traditional goose hunting area. Species inventoried in the wetland included black spruce, tamarack, bog bilberry (blueberry), glandular birch, Labrador tea, species of willow, pale bog laurel (*Kalmia polifolia)*, tall northern green orchid, bog cranberry, species of *Carex*, species of horsetail (*Equisetum)*, and species of cottonsedge (*Eriophorum)*.

Description of Receiving environment

Photo 4 **Overview of the wetland area from the proposed landfill**

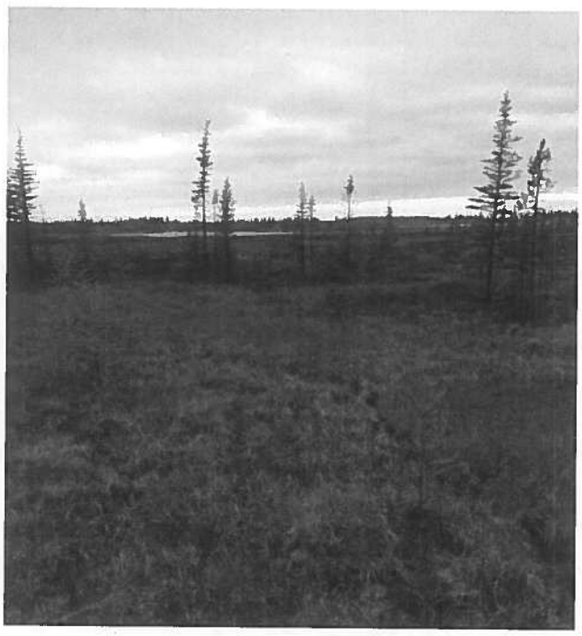


Photo 5 **View of the wetland area from the proposed landfill taken on the sloped transitional area between the landfill and the fen habitat**

3.3.3 Aquatic Wildlife

One permanent watercourse, named "Watercourse 1" for the purpose of the ESIA, will be crossed by the PDA of access road Option 1B (see Figure 8). Watercourse 1 was characterized during field surveys conducted from October 3 to 5, 2017. Fish spawning and rearing is deemed possible in Watercourse 1 although, no evidence of this was recorded. Spawning of "trout" is presumed possible as a participant in the consultation sessions noted this species in Watercourse 1. Land use interview participants have noted brook trout spawning in the Water System West and this is connected to Watercourse 1. It is possible the brook trout are spawning in Watercourse 1.

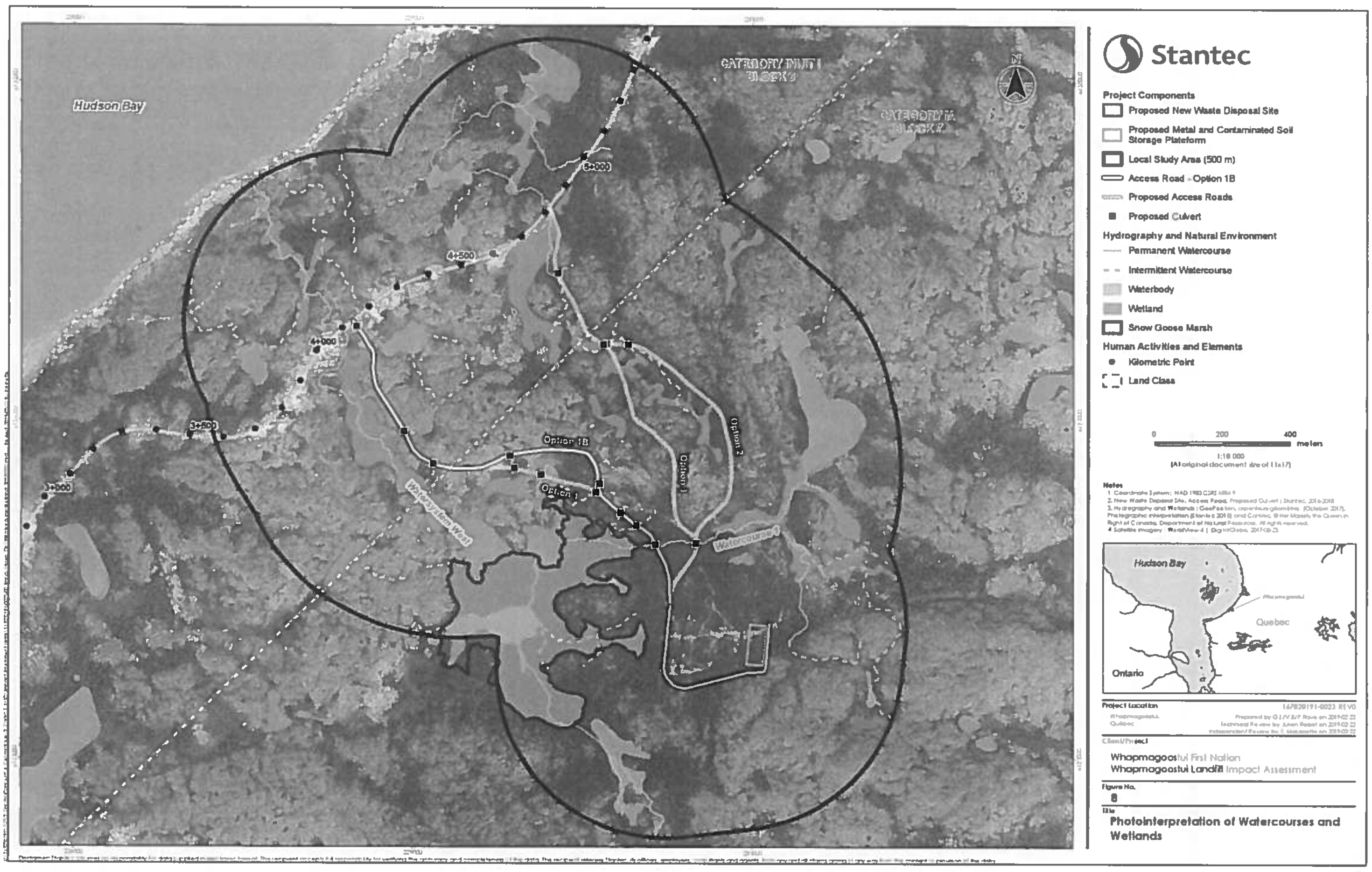
The complex of streams, ponds and wetlands west of the PDA is referred to collectively for the purpose of the ESIA as the "Water System West". It is located downstream of the proposed landfill site and is closest to the PDA near access road Option 1B in the portion connecting to the main road. The water system runs parallel to the PDA and is flowing towards Hudson Bay. It falls within the LSA and is composed of a series of streams and small lakes/ponds easily accessible by the main road and ATV trails.

A request to the Centre de données sur le patrimoine naturel du Québec (CDPNQ) provided information on aquatic species present in the Whapmagoostui area (CDPNQ-Fauna 2017b). Among the freshwater fish species, one is considered species of management concern: Lake Sturgeon, Southern Hudson Bay and James Bay populations (*Acipenser fulvescens*).

The characterization of Watercourse 1 within the PDA showed no suitable habitat for this species. The watercourses and waterbodies associated with Watercourse 1 in the LSA are also unlikely to provide habitat.

Eight intermittent watercourses were identified by photointerpretration as intercepted by the PDA of access road Option 1B. There is no evidence to suggest that any of the fish species identified by the CDPNQ would inhabit the intermittent watercourses when water levels are favourable, with the possible exception of brook trout.

WFN and NVK community members fish in watercourses and waterbodies that connect to Watercourse 1. The participants in the land and resource use interviews mentioned the presence of small trout species. Species harvested were commonly referred to as brook trout, little trout, and speckled trout and were all likely *Salvelinus fontinalis*. One trout species was identified as arctic char (*Salvelinus alpinus*) in an identification book. Spawning for speckled trout was documented by interviewees in the watercourse that is associated with the complex of wetland areas west of the PDA.


Hudson Bay
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Option 1B
Option 1
Option 2
Watercourse 1
Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m)
Access Road - Option 1B
Proposed Access Roads
Proposed Culvert
Hydrography and Natural Environment
Permanent Watercourse
Intermittent Watercourse
Waterbody
Wetland
Snow Goose Marsh
Human Activities and Elements
Kilometric Point
Land Class
0
200
400
meters
1:10 000
Notes
Hudson Bay
Quebec
Ontario
Project Location
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
8
Title
Photointerpretation of Watercourses and Wetlands

3.3.4 Terrestrial Wildlife

The Taiga is a transition zone between the boreal and arctic ecosystem that offers a variety of habitats for wildlife (Environment Canada 2013; ESTR Secretariat 2014). Large animal species known to frequent the region of Whapmagoostui include migratory caribou, woodland boreal caribou, moose, black bear, polar bear and muskox (SFPQ 2003, MFFP 2016 and CDPNQ 2017b). Small game animals and furbearers that have distributions overlapping the RSA include snowshoe hare, arctic hare, gray wolf, arctic fox and red fox, least weasel, beaver, wolverine, ermine, Labrador collard lemming, otter, lynx, woodchuck, American marten, porcupine, muskrat, and mink (SFPQ 2003; CWF 2018; Skyrienė and Paulauskas 2012; Environment Canada 2014; MFFP 2016; CDPNQ 2017b).

According to the CDPNQ, species potentially present in the LSA include moose, migratory caribou, gray wolf, black bear, arctic fox, red fox, muskox and polar bear. However, no known habitat has been mapped. The presence of muskox was noted as possible at all times of the year, though unlikely, and polar bear was noted as infrequent. A land use interviews participant explained that polar bear might be seen in the area once in a while, but not every year. Another explained that polar bears were absent from the area in the 1950s and 1960s, but now visit occasionally.

Incidental wildlife observations were recorded during field surveys conducted from October 3 to 5, 2017. Most of the PDA habitat observed was in postfire regeneration. Evidence of moose (scat), red squirrel and caribou (scat) were observed. Caribou scat is likely that of migratory caribou which is considered as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), but not listed under SARA and not listed provincially

Boreal caribou have been listed as vulnerable (S2/S3) in Quebec since 2005. The PDA is located at the species' northern limit. Furthermore, boreal caribou were not identified by the CDPNQ as occurring within the project area. The Quebec local population was considered stable based on publications from 2011 (ESTR Secretariat 2014).

Given its distribution and habitat needs, wolverine is potentially present in the RSA. However, it has not been recorded by the CDPNQ within 8 km of the project, nor was it mentioned by land use interviewees. Wolverine is listed as threatened (S1) provincially by the CDPNQ and Special Concern Schedule 1 by SARA federally (CDPNQ 2018b; SARA 2018).

According to the CDPNQ, polar bear is considered occasionally present on the pack ice and around the villages of WFN and NVK, more frequently in winter. Polar bear is listed as Special Concern (Schedule 1) under SARA and Vulnerable (S2) by the CDPNQ.

The participants in the land and resource use interviews mentioned that the following animals are present in the RSA: black bear, brown bear, polar bear (occasionally), moose, caribou, fox (different kinds), lynx, marten, mink, porcupine, rabbit, and wolf. One participant reported that brown bears were present in the past and have since been eradicated about 100 years ago due to hunting. Another participant noted an increase in moose frequenting the area within the last five years, and that lynx have started frequenting the area in the last three years.

3.3.5 Avian Wildlife

The Project falls within the Taiga Shield and Hudson Plains Bird Conservation Region BCR 7-QC. A total of 152 bird species use BCR 7-QC for breeding, molting and migration (Environment Canada 2013). A detailed list of those species, their status and their associated population objectives is available in Appendix G of the ESIA. Representative species that may frequent the PDA include Canada goose, ring-necked duck, green-winged teal, herring gull, red-throated loon and common loon, willow ptarmigan, osprey, northern shrike, common raven, gray-cheeked thrush, American tree sparrow, white-crowned sparrow and common redpoll (Environment Canada 2013). Herring gulls and ravens are considered nuisance species with respect to landfill operation.

Rusty blackbird (*Euphagus carolinus)* is listed as Special Concern under SARA (Schedule 1) (ESTR Secretariat 2014). From 1966 to 2005 their numbers have decreased in abundance by 78% according to Christmas Bird Count data. The main threats to Rusty Blackbird populations are related to habitat degradation in its wintering grounds in the southeastern United States. The Rusty Blackbird breeds in coniferous dominated forests adjacent to wetlands.

There are no bird sanctuaries or protected areas that fall within the LSA (Environment Canada 2013; MDDELCC 2018b). The closest conservation area is La Grande Rivière de la Baleine Important Bird Area (IBA QC-145) and consists of La Grande Rivière de la Baleine and its tributaries (BirdLife International 2018).

During the land and resource use interviews, participants reported the following species in the RSA: "all different kinds of birds", ducks, goose (Canada goose and snow goose), grouse, and ptarmigan.

3.3.6 Other Wildlife Species

Herpetofauna (reptiles and amphibians) is limited to eight species in the Taiga, largely due to climate. According to the Atlas des Amphibiens et des reptiles du Québec, boreal chorus frog, northern spring peeper, northern leopard frog, mink frog, blue-spotted salamander and common garter snake have not been documented in the RSA (SHNVSL 2009). Wood frog and American toad could occur within the PDA however, no herpetofauna species were observed during field studies. No herpetofauna species at risk were reported within an 8 km radius of the PDA by the CDPNQ.

3.4 HUMAN ENVIRONMENT

3.4.1 Legislation and Land Tenure

The community of Whapmagoostui is situated at the northern limits of Cree territory and Kuujjuarapik at the southern limits of Inuit territory. The communities co-exist as neighbours while maintaining their own governance. Whapmagoostui falls under the CNG and Kuujjuarapik falls under the Kativik Regional Government (KRG). Permanent settlement for both communities began in 1930 – 1940 and took hold partly in relation to a newly established military air base.

The proposed landfill site is located on category IA Cree land, in an area where there is no trapline. The area has been put aside for use by all community members. The proposed access road is located on Cree land in proximity to the landfill site and on category 1 Inuit land where it connects to the main road.

3.4.2 Demographics and Socio-economic Context

At the time of the 2016 census, Whapmagoostui had 984 residents, 515 males and 470 females (Statistics Canada 2017a). The population was composed of 335 residents in the 0 to 14-year range, 605 in the 15 to 64-year range and 45 residents in the 65 years and over category. The median age of the population was 23 years. The average household had 4.7 residents inhabiting the dwelling and there were 210 dwellings. Languages spoken were mainly English and Cree. The percentage of the population aged 15 years and over whom were part of the active labour force in 2016 was 70%. A majority of the labour force was working in the health care and social assistance field, followed by public administration and educational services.

At the time of the 2016 census, Kuujjuarapik had 686 residents, 370 males and 320 females (Statistics Canada 2017b). The population was composed of 215 residents in the 0 to 14-year range, 450 in the 15 to 64-year range and 25 in the 65 years and over category. The median age of the population was 25.6 years. The average household had 3 residents inhabiting the dwelling and there were 230 dwellings. Languages spoken were namely English and Inuktitut. The percentage of the population aged 15 years and over whom were part of the active labour force in 2016 was 60%. Health care and social assistance, public administration, and educational services employed most of the labour force.

3.4.3 Infrastructure and Services

Community services available in Whapmagoostui include a clinic managed by the James Bay Cree Board of Health and Social Services, a fire department, Cree police services, social services, Cree Trappers Association, elementary and high school (Badabin Eeyou School) as well as adult education (Sabtuan Adult Education Services), and Awash Estchees Child Care Center. Other community facilities include the Northern Store (a grocery and general store), a community radio station, the Tommy Masty Memorial Hall, a municipal garage, housing maintenance carpentry shop and an arena. Subsidiaries under WFN involved in construction services include WCDC Excavations and Logistics (drilling, blasting and rock crushing) and Minheku Construction.

Community services available in Kuujjuarapik include a clinic managed by the Centre de Santé Inuulitisivik, a fire department, police services (Kativik Regional Police Force), social services, elementary and high school (Asimauttaq School) as well as adult education (Kativik Ilisarniliriniq) and a daycare (Saqliavik Childcare Centre). There is also a community radio station.

Due to the communities' close proximity, a number of infrastructure and management responsibilities related to educational, social and economic services are shared. (Fédération des coopératives du Nouveau-Québec 2018). Garbage collection is a service managed by NVK and delivered to both WFN and NVK including household garbage pickup. Hydro-Québec Distribution presently supplies electricity generated by a diesel thermal plant in the Cree and Inuit autonomous electric grid of Whapmagoostui-Kuujjuarapik. Kuujjuarapik and Whapmagoostui have a shared drinking water and sewer hook-up and associated aerated

lagoon. The Cree and Inuit health services are distributed separately by the aforementioned health departments however, they share the same building. The post office serves both communities and is located in Kuujjuarapik. The airport services both communities and is operated by the Kativik Regional Government. Airlines include Air Creebec and Air Inuit, and accommodations are available at the Co-op Hotel (Les Fédérations des Coopératives du Nouveau-Québec), Sinittavik Inn, and Auberge Qilalugak Hotel Resto-Pub. Cargo can be shipped by air year-round and by boat in the summer between July and September. Sealift is the only way to transport heavy equipment to or from the community. The Center for Northern Studies (Centre d'études nordiques), a research centre involving three academic institutions, is located in Whapmagoostui and provides accommodation and research equipment to both communities and visiting researchers.

3.4.4 Land and Resource Use

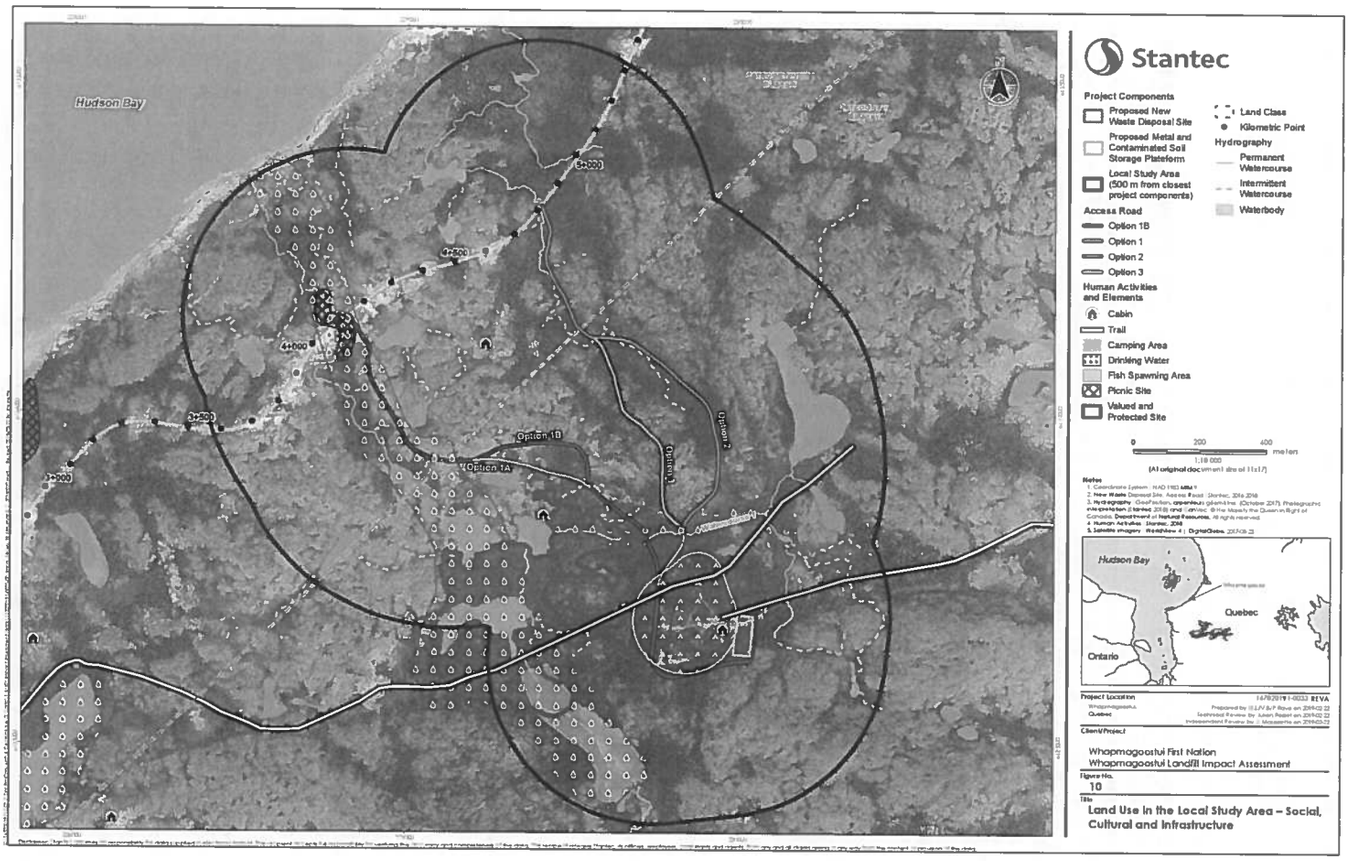
Stantec conducted land and resource use interviews from March 13 to March 15, 2018. Seven participants from both communities who are active land users in the LSA took part in mapping interviews. The result of the interviews provides a general overview of the land use taking place in the LSA (Figures 9 to 11), but it is not considered comprehensive.

The area is easy to access from the main road and nearby trails. Cree and Inuit land users are making use of the LSA: Cree users tend to frequent inland areas and Inuit users tend to frequent coastal areas, though this is a generalization and not always the case.

3.4.4.1 Camps and Trails

Three cabins were identified in the LSA, with one present within the PDA (Figure 10). In the PDA of the proposed landfill site, there is a camping area and a permanent wood cabin. The owner goes to the camp regularly during the spring, summer, and fall to hunt. Several family members make use of the camp and area. There is another cabin near the northern limit of the wetland found southwest of the proposed landfill (the Snow Goose Marsh), in proximity to access road Option 1B. A third cabin, described as useable but not finished, lies between access road Option 1B and Option 3.

When considering the LSA, a participant reported that, "there are all kinds of ATV trails around here" and that the trails are used by many people from both communities. Some participants mentioned that the routes of all three proposed access road options follow existing ATV/skidoo trails. People are using the many trails to carry out their traditional activities. One participant noted that some of the trails have small bridges, allowing ATVs to cross watercourses. A trail starting near the coast and going northeast can be seen on Figure 10 and would be intersected by the proposed landfill site. Another trail starting from the PDA and going northeast may also be intersected; the exact location of the trail needs to be validated in the field.


Hudson Bay
Option 1B
Option 1A
Option 2
Option 3
Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m from closest project components)
Access Road
Option 1B
Option 1
Option 2
Option 3
Human Activities and Elements
Cabin
Trail
Camping Area
Drinking Water
Fish Spawning Area
Picnic Site
Valued and Protected Site
Land Class
Kilometric Point
Hydrography
Permanent Watercourse
Intermittent Watercourse
Waterbody
0 200 400 meters
1:18 000
(A1 original document size of 11x17)
Hudson Bay
Quebec
Ontario
Project Location
Whapmagoostui
Quebec
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
10
Title
Land Use in the Local Study Area – Social, Cultural and Infrastructure

3.4.4.2 Hunting and Trapping

A compilation of all hunting areas reported in the LSA can be seen on Figure 9. Overall, Cree and Inuit land users report hunting for snow goose, Canada goose, grouse, ptarmigan, wolf, caribou, moose, black bear, porcupine and generally "small game" and "big animals" within the LSA. Several participants confirmed that land users are using the entire LSA. One participant specified that all the LSA is good for fall waterfowl hunting and that it is practiced by the Cree and the Inuit. Another participant indicated that they hunt ptarmigan and caribou "all over" the LSA, while an additional interviewee indicated hunting grouse and occasionally porcupine, "If I'm lucky", in the LSA and regional area surrounding it to the east.

The participant who has a cabin within the PDA and other interviewees mentioned hunting and trapping areas within the PDA. The participants reported hunting goose, ptarmigan, grouse, small game, and on occasion larger animals when they pass through (caribou, moose and black bear), for subsistence. Several participants indicated that the proposed landfill site and the wetland located west of it (Snow Goose Marsh) are hunting areas where mainly Cree, but also Inuit hunt. An interviewee specified that Crees frequent the wetland in fall and spring to hunt "fall birds", mainly snow goose. Another participant specified an area associated with the wetland used for ptarmigan hunting in close proximity to the PDA.

Going to the west, following the access road Option 1B, a small lake was identified by one participant as a fall goose hunting area. The trees in the area provide a hunting blind. The interviewee and approximately 10 family members use this area and access it by an ATV trail that follows the access road Option 1B. Further west, a small area in proximity to access road Option 1B was identified for fall goose hunting by one participant. It is considered a very good spot because the trees act as a natural blind and the birds feed in the area during migration. At the time when the land use interviews were conducted, it was too early after the 2017 forest fire for the land users to fully assess the impacts of it on the vegetation cover and on the natural environments in general.

Overall the species trapped by Cree and Inuit land users are but not limited to; marten, rabbit, fox ("different kinds") and mink. Participants identified the area of the proposed landfill PDA as a trapping area where people harvest all the aforementioned species (see Figure 9).

3.4.4.3 Fishing

One participant explained that they use the study area "a lot" during spring and summer for fishing.

Watercourse 1 is intersected by the PDA of the proposed access road. Land use interviewees did not mention any fishing activities specifically taking place in this watercourse. However, during an information session held June 14, 2018, an Inuit user mentioned fishing "small trout" in the watercourse. The user provided an Inuit name for the watercourse, *Natirnaaraaluk*.

Several interviewees mentioned fishing in Water System West (see Figure 9). Participants mentioned fishing from the shore and being normally accompanied by friends and family. One participant noted fishing the water system on both sides of the main road for "small trout" with friends and family that are mainly women. They reported that many women are using this area because it is easy to access.

In terms of species, participants reported catching brook trout and speckled trout (also identified by one participant in a book as arctic char) in the Water System West.

Two participants noted fishing in the lake located northeast of access road Option 2 within the LSA (see Figure 9). They are fishing for speckled trout.

3.4.4.4 Berry Harvesting

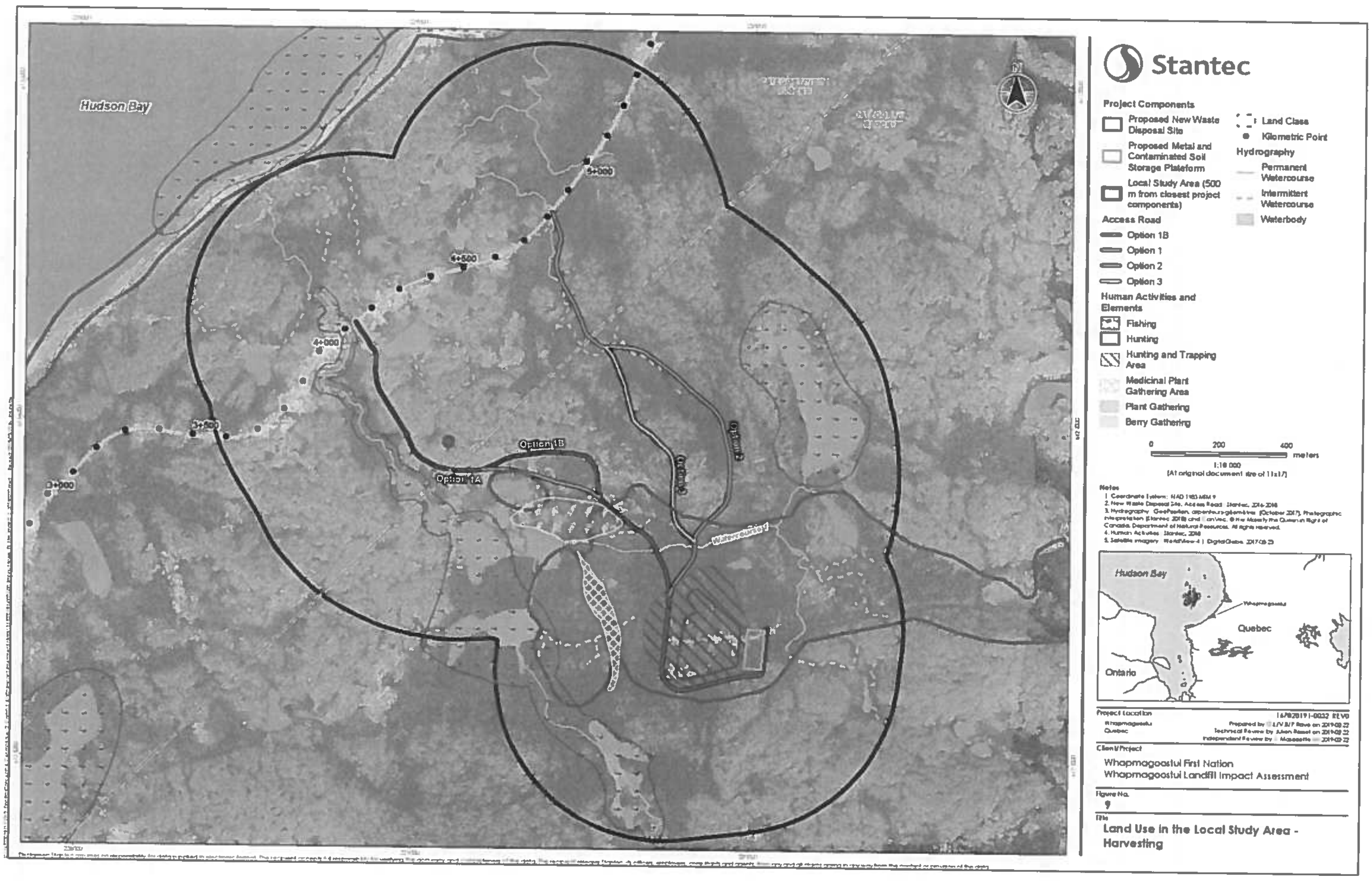
Participants reported berry gathering sites throughout the local and much of the regional study areas excluding the community. When berry gathering sites are compiled and mapped, they cover the entire LSA (see Figure 9). Participants noted the harvest of mainly blueberries, blackberries (crowberries), redberries (partridge cranberries), and salmon berries (cloudberries), but also raspberries, plumboys, juniper berries, and strawberries. One participant confirmed that the entire area surrounding the proposed landfill site is used for gathering blueberries, blackberries (crowberries), red berries (partridge berries) and salmon berries (cloudberries).

The LSA is used for berry harvesting by many people and in particular during the berry picking contest in September. Others have mentioned harvesting in August and September or generally in the fall. Interviewees reported that berries are eaten fresh or they are frozen. In some cases, they are used for medicine. Berries are generally harvested with friends and family, sometimes in large groups. They are shared with friends and family or sold. Sites in the LSA were reportedly accessed by ATV or truck.

3.4.4.5 Other Plant Harvesting

The LSA is considered a good plant gathering area for "big" (*Rhododendron groenlandicum*) and "small" (*Rhododendron tomentosum*) Labrador tea. Participants mentioned using Labrador tea for tea and as a medicine. According to the participants, many people, mostly Cree, harvest Labrador tea; people from other communities even order Labrador tea from Whapmagoostui-Kuujjuarapik. Two plant gathering areas were reported in the LSA in proximity to access road Option 1B; one gathering area is located at the wetland's northern limit (see Figure 9) and the other at the wetland's eastern limit.

With respect to firewood gathering, one participant noted using the LSA and specified that they will use what is left from "last year's" (2017) forest fire as firewood.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Option 1B
Option 1A
Option 2
Option 3
Watercourse 1
Stantec
Project Components
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Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m from closest project components)
Land Class
Kilometric Point
Hydrography
Permanent Watercourse
Intermittent Watercourse
Waterbody
Access Road
Option 1B
Option 1
Option 2
Option 3
Human Activities and Elements
Fishing
Hunting
Hunting and Trapping Area
Medicinal Plant Gathering Area
Plant Gathering
Berry Gathering
0
200
400
meters
1:10 000
(At original document size of 11x17)
Notes
Hudson Bay
Quebec
Ontario
Project Location
167828191-0032 REV0
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
9
Title
Land Use in the Local Study Area - Harvesting

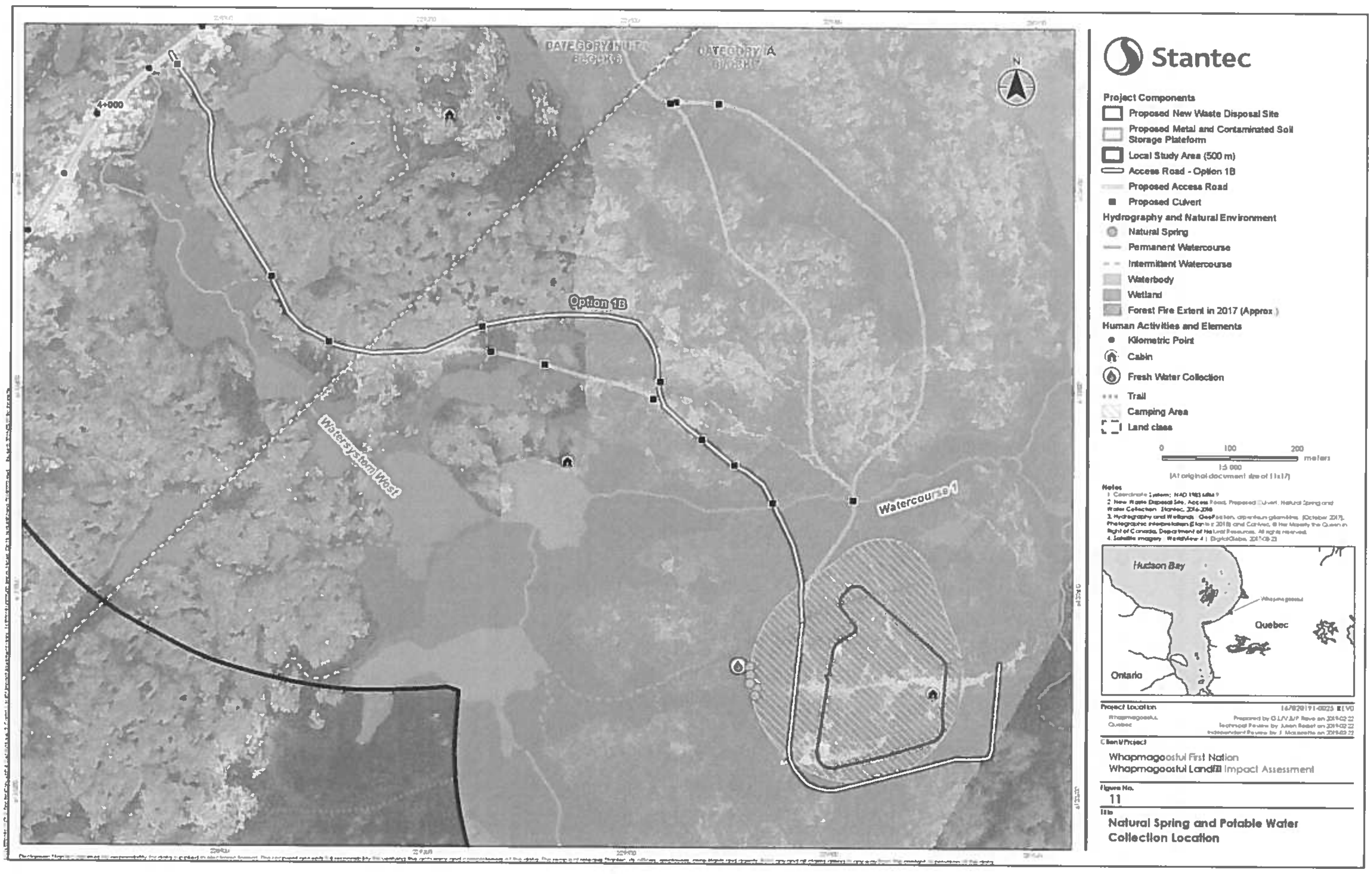
3.4.4.6 Water Resources

Water System West is considered by participants to be a very good source of drinking water. The water quality of those watercourses and waterbodies is well known and people drink the water without boiling it. Water from this water system is consumed while out on the land, but also collected by "people coming from town" to get it. Watercourse 1, which would be intersected by the PDA of the access road, was identified as a good source of drinking water by participants in the land use interviews.

Some participants in the interviews said they were concerned about potential contamination flowing from the proposed landfill site into the Water System West, down to Hudson Bay.

There is a natural spring used for water collection located near Watercourse 1 (See Figure 11).

Another source of drinking water was identified at kilometer 11 on the main road (George Sandy 2019. Personal communication.).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Watersystem West
Watercourse 1
Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m)
Access Road - Option 1B
Proposed Access Road
Proposed Culvert
Hydrography and Natural Environment
Natural Spring
Permanent Watercourse
Intermittent Watercourse
Waterbody
Wetland
Forest Fire Extent in 2017 (Approx.)
Human Activities and Elements
Kilometric Point
Cabin
Fresh Water Collection
Trail
Camping Area
Land class
0 100 200 meters
1:5 000
(At original document size of 11x17)
Notes
Hudson Bay
Quebec
Ontario
Project Location
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
11
Title
Natural Spring and Potable Water Collection Location

3.4.5 Archeological and Cultural Resources

During the land use interviews conducted by Stantec from March 13 to 15, 2018, participants were asked about the presence of archeological and cultural sites. They have indicated a number of sites, all located outside the LSA.

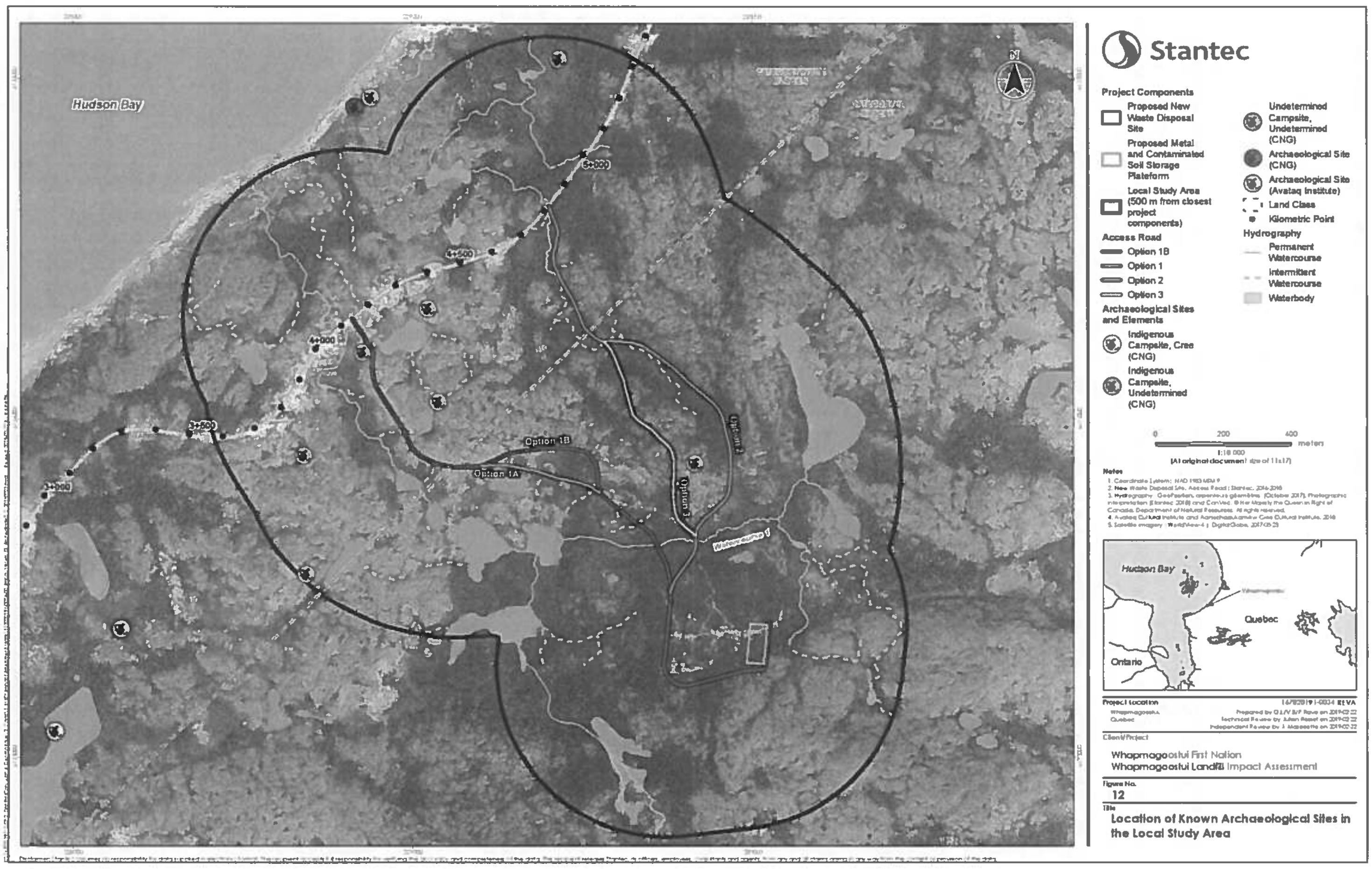
Stantec requested assessments of archeological potential of the proposed landfill site and access roads from the CNG Archaeology Unit and from the Avataq Cultural Institute, the Inuit cultural organization for Nunavik. Archeological potential assessment reports provided by both organizations are available in Appendix I of the ESIA.

Based on archeological record, the Whapmagoostui-Kuujjuarapik area has been occupied for close to 4,000 years. Contemporary and pre-contemporary campsites and other archeological sites have been documented in the local area (see Figure 12). Contemporary sites along the coast indicate that significant land use activity and camping has been taking place in the recent past in the vicinity of the proposed landfill site. Presence of contemporary sites further raises the possibility of finding earlier archeological sites associated with hunting in the area.

According to the archeological potential assessments, there is the possibility of finding Predorset, Amerindian and contemporary Cree and Inuit archeological remains or artifacts within the proposed PDA and LSA. The CNG and the Avataq Institute have recommended a field study including archeological inventory of the proposed access road and landfill site before construction begins. The CNG recommends a joint effort between Avataq Cultural Institute and CNG Archeologists with support from technicians from Whapmagoostui and Kuujjuarapik to complete the study.

When asked about social and cultural sites in the study area, participants in the land use interviews mentioned the wetland located west of the proposed landfill site known to both Cree and Inuit communities as "the Snow Goose Marsh" (namely Cree) and "inland parallel to the islands" (namely Inuit). The wetland area falls within the LSA. Interviewees have indicated that it is an important goose hunting area used mainly by the Cree (identified as a hunting area on Figure 9 and as a valued and protected site on Figure 10). The naming of the wetland and its recognition by both communities is an indicator of its cultural importance. The name reflects an important resource that is found there: snow goose. A Cree participant in the land and resource use interviews explained that this particular wetland is "well-known and was protected by our ancestors" and shared their concern: "Contamination (from the proposed landfill) will flow towards the wetland and contaminate good water". A caller during the Wata Radio information session (June 14, 2018) also indicated the cultural value of this wetland as a traditional hunting area.

Additionally, several sites were mentioned by interviewees for use as social gathering or picnicking areas. The gatherings are usually tied to a resource harvesting activity taking place in the area. In the PDA and LSA, participants mentioned picnicking with family members and/or friends while berry gathering and fishing.


Hudson Bay
Option 1B
Option 1A
Option 1
Option 2
Watercourse 1
3+500
4+000
4+500
5+000
Stantec
Project Components
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
Local Study Area (500 m from closest project components)
Access Road
Option 1B
Option 1
Option 2
Option 3
Archaeological Sites and Elements
Indigenous Campsite, Cree (CNG)
Indigenous Campsite, Undetermined (CNG)
Undetermined Campsite, Undetermined (CNG)
Archaeological Site (CNG)
Archaeological Site (Avataq Institute)
Land Class
Kilometric Point
Hydrography
Permanent Watercourse
Intermittent Watercourse
Waterbody
0
200
400
meters
1:10 000
(At original document size of 11x17)
Notes
Hudson Bay
Quebec
Ontario
Project Location
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
12
Title
Location of Known Archaeological Sites in the Local Study Area

4.0 PROJECT DESCRIPTION

4.1 PROJECT LOCATION

The site is located more than 5 km from the communities of WFN and NVK and 1.5 km away from the main road. The main road is located north of the site and the construction of an access road will be required. The access road will pass from the main road on Category I Inuit land into Category IA Cree land where the landfill will be located.

The site has a land area of 80,000 m^2. The site shows a regular topography with a gentle slope to the west. One cabin is located on the landfill site and two others in the LSA. Several small lakes are located southwest of the site. There is a wetland (Snow Goose Marsh) located west of the landfill site and a permanent watercourse (Watercourse 1) that is crossed by access road Option 1B.

4.2 PROJECT CONSTRUCTION

4.2.1 General site layout

The project involves the development of an access road, northern landfill, and two storage platforms as shown on Figure 5-1. A workforce of approximately 20 people will be required for the construction phase of the Project and will be present on site for a total period of approximately 14 weeks to complete the whole project. Workers will be drawn from an existing local workforce.

The plans are available in Appendix M of the ESIA.

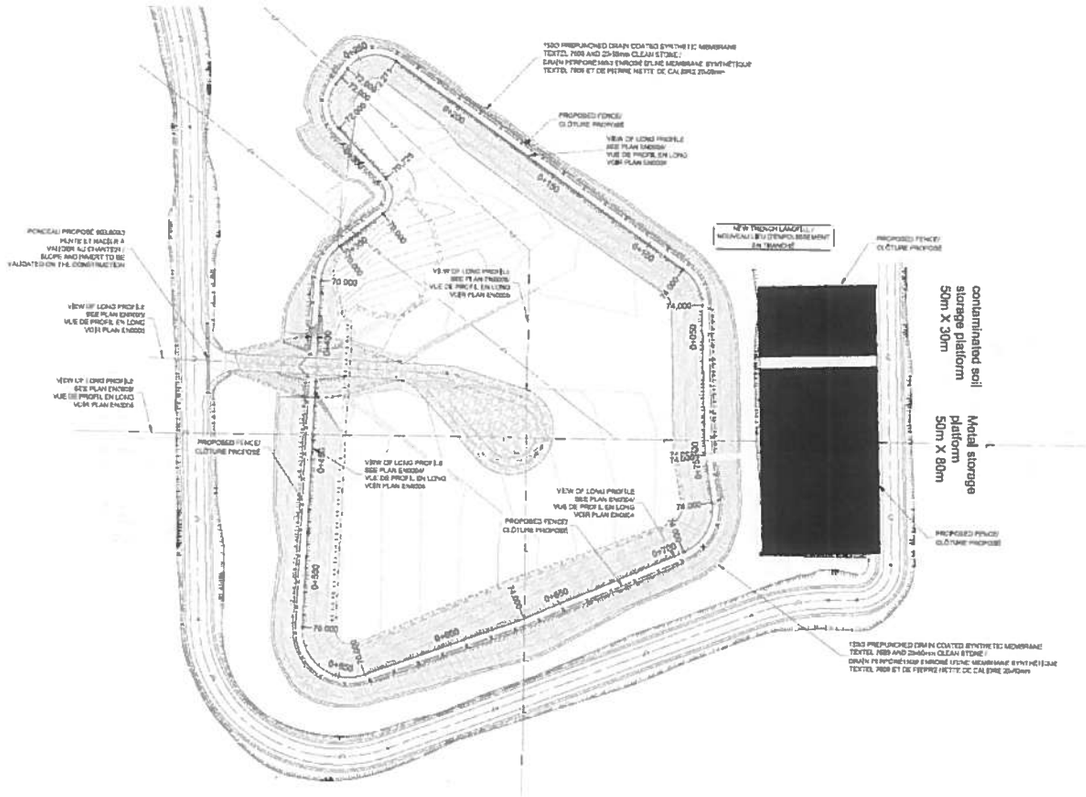


Figure 5.1 General Site Layout

The landfill design includes the excavation of a trench and building of a surrounding berm with the excavated materials. The berm will increase landfill capacity, limit visibility of landfilling operations, prevent contamination of surface water and prevent wind dispersed waste from spreading. As sections of the landfill are progressively filled, operators will cover the waste with granular material to further prevent waste dispersal, deter nuisance animals and reduce odour emissions. The landfill site will be fenced, and a gate will be installed in order to limit public access. The fence will also reduce wildlife prowling and scavenging and waste spreading outside the landfilling area by animals and wind dispersal.

A metal storage platform and a contaminated soils storage platform will also be built near the landfill site and will be fenced.

There are no borrow pits located in the LSA. Granular materials required for construction will be sourced from an existing borrow pit close to the community.

4.2.2 Access Road

Resurfacing and drainage improvement of the main road and construction of a new access road are required for the Project. The construction of the road will comply with all applicable regulations in order to reduce dust, noise and other impacts of the works.

The main road requires drainage improvement and resurfacing on 4.5 km as it presents deficiencies that could pose safety risks. Resurfacing will include the removal of the first 50 mm of the road, levelling and addition of 200 mm of MG-20 and compaction.

The proposed access road (Option 1B):

- 1.5 km long, 7 m wide running surface, one lane in each direction;
- road right-of-way 19 m wide: 7 m wide running surface, plus a 6 m buffer on each side of the road (ditches and cleared area);
- composed of (from bottom to top): a geotextile, a layer of MG-112 and a layer of MG-20, which thickness will depend on the natural conditions (bedrock, till or sand);
- will cross one permanent and six intermittent watercourses that will require the installation of culverts.
- will include ramps at the intersection of certain ATV and snowmobile trails to facilitate crossing.

4.2.3 Northern Landfill

Several important differences exist for northern versus in-trench landfills, most associated with site development. WFN has chosen to develop a northern landfill, however, the Project design will include certain parameters that are more conservative and characteristic of in-trench landfills to mitigate potential impacts. A list of provincial requirements and operational differences between northern and in-trench landfills is presented in section 2.1.3 of the ESIA.

Burning is planned in the initial years of operation and will serve to increase the lifespan of the landfill by reducing the volume of waste landfilled. Although WFN has opted to develop a northern landfill, groundwater and surface water monitoring are planned as part of the recommended mitigation measures. WFN also recognizes that open burning results in the production of smoke and potential release of hazardous compounds such as, dioxins, furans, arsenic, mercury, PCBs, and lead that can persist in the environment and in the food chain. These considerations and their potential impacts on human health has influenced WFN's decision to develop a plan that will include waste diversion programs. Once established and proved successful, diversion programs, such as an ecocentre and/or a composting program, will allow burning to be phased out while improving the lifespan of the landfill.

Project Description

The landfill construction includes the excavation of one continuous trench and the development of a berm surrounding the excavation. Design specifications are based on existing landfills developed for James Bay Cree Communities (continuous trenches in excavation) and Nunavik Inuit Communities (surrounding berms).

The proposed landfill site:

- land area of 44,000 m^2 including the surrounding berm, as shown on Figure 5-1;
- waste area (usable area of the landfill) of 32,000 m^2;
- will be located more than 210 m from downstream waterbodies and watercourses;
- estimated burial capacity of 190,000 m^3 and lifespan between 25 to 35 years depending on duration of open burning, success of waste diversion programs and efficiency of operations;
- removed topsoil will be stored on the site to be reused as vegetative layer for the berms and final closure;
- excavated materials will be used to build the berm and the surplus stored onsite to be reused as weekly cover during the operations;
- bottom of the trench located at least 1m above the groundwater level (2 to 6 m deep) to limit groundwater contamination;
- construction of surrounding berms and drainage ditches to prevent surface water from being contaminated by waste and from penetrating into the disposal area;

The berm:

- 5 m high and average width of 28 m, with a 2 to 1 slope, as shown on Figure 5-2;
- reinforced with Geocell geoclothing and a vegetative layer on the top and outer surface to prevent erosion;
- essential to increase the landfill capacity since the depth of the excavation is limited by the depth of the groundwater (2 to 6 m);
- 40,000 m^3 of excavated materials required for its construction.

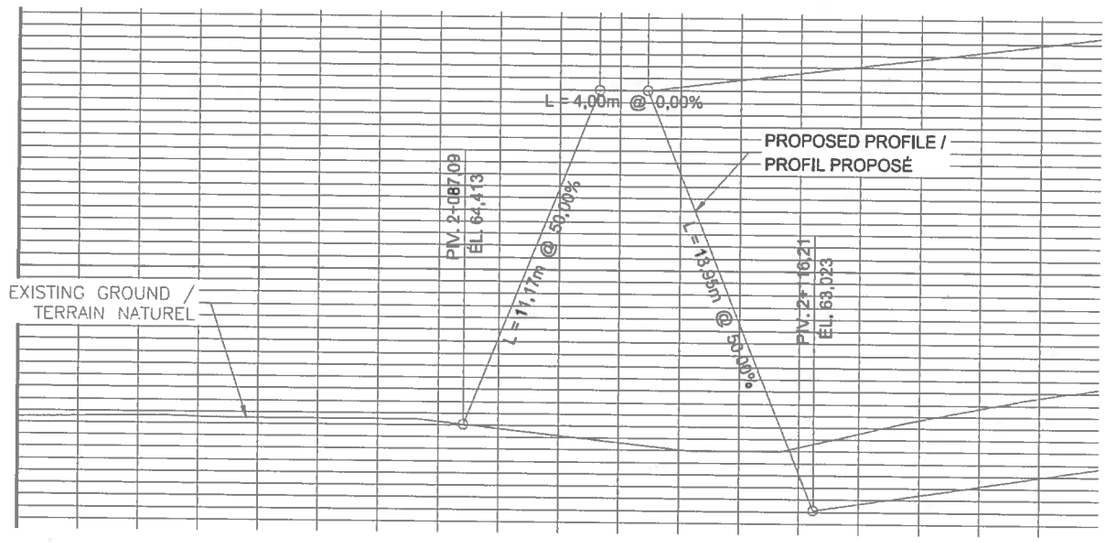


Figure 5.2 Berm Cross Section

In order to limit short term construction costs, the northern landfill will be constructed in two phases. Phase 1 of the project will provide a landfilling capacity of 12 to 15 years and phase 2 will provide capacity for the remaining lifespan.

The installation of a fence around the landfill and a gate at the entrance of the site will prevent the public from having access to the site outside the hours of operation and prevents waste from spreading in the surrounding area. An 8 feet high fence will be installed around the landfill area (770 linear meters) and storage platforms.

In order to limit the risk of fires, the area surrounding the landfill will be cleared of vegetation creating a 15 m wide buffer.

4.2.4 Metal Storage Platform

There are two existing bulky waste platforms that require decommissioning, one located in WFN and one located in NVK. Decommissioning will take place once the proposed metal storage platform is operational.

Metal transportation from Whapmagoostui to the south of the province for the purpose of recycling is expensive. The proposed platform will allow WFN and NVK to accumulate enough metal to lower transportation costs, and properly prepare and ship the metal to a recycling facility.

The new metal storage platform:

- 4,000 m^2 gravel platform;
- composed of (from bottom to top): a geotextile, 300 mm of MG-112 and 300 mm of MG-20;

- located 69 m downstream from Watercourse 1;
- metal shipping estimated to happen every ten to fifteen years;
- construction of drainage ditches around the platform to reduce the risk of surface water contamination;
- end-of-life vehicles decontaminated at municipal garages before they are transported to the platform for storage.

A gate at the entrance and an 8-feet high fence will be installed around the two platforms (550 linear meters) to prevent people from scavenging for safety reasons.

The construction will take place during the same 14-week period during which the landfill site is being completed.

Details concerning the assessment of needs and design for a new metal storage platform are available in Appendix B of the ESIA (Stantec 2019b).

4.2.5 Contaminated Soils Storage Platform

A platform for contaminated soils storage will be built in proximity to the metal storage platform. Construction of the platform will take place during the same 14-week period as when the landfill site is being completed

The new contaminated soils storage platform:

- 1,500 m^2 gravel platform
- composed of (from bottom to top) a geotextile, 600 mm of MG-112, a watertight membrane and 300 mm of MG-20;
- located 69 m downstream from Watercourse 1;
- storage capacity up to 920 m^3 of contaminated soils;
- construction of drainage ditches all around the platform to reduce the risk of surface water contamination;
- watertight membrane installed on the surface of the platform and similar membranes used to cover piles of contaminated soil to prevent precipitation from infiltrating the piles;
- after analysis, soil will be transported to another site in the community for treatment.

A gate at the entrance and an 8 feet high fence will be installed around the two platforms (300 linear meters) to limit access and prevent animal exposure to contaminants. Details concerning the assessment of needs and design for a new contaminated soils storage platform are available in Appendix B of the ESIA (Stantec 2019b).

4.3 PROJECT OPERATION

4.3.1 Access Road

The access road will be used for the transportation of garbage, metal, contaminated soils and heavy equipment to the landfill site and storage platforms. It will be maintained regularly, as well as the main road, in order to access the site at all seasons. The speed on the access road will be limited to 30 km/h in order to reduce noise and dust generation.

4.3.2 Main Gate and Fences

The fence and gate will be regularly maintained and repaired when required, in order to prevent access to the public outside the opening hours and keep the site clean.

4.3.3 Landfill Operation Activities

WFN will operate the new landfill. The landfill site operators will be given landfill operation and maintenance training.

The waste accepted at the landfill will include garbage from residences, businesses and institutions, construction waste and bulky waste. Septic tank sludge will not be accepted at the landfill. Hazardous waste will be prohibited at the landfill. The operator will perform a visual inspection during unloading in order to limit as much as possible leachate generation and groundwater contamination.

The landfill will be progressively filled. Open air burning of waste is included in the initial years of landfill site operations in order to reduce waste volume however, this practice will be progressively phased out as diversion programs become successful. Given that burning waste can have negative health and environment impacts, the following procedure will be implemented:

- Non-burnable and burnable waste will be separated;
- When possible, recyclable items such as metal, will be removed and sent to the metal storage platform;
- When possible, treated wood and hazardous waste will be removed from the waste to be burned to limit air and water contamination;
- Burning of waste will be performed at least once a week, weather conditions permitting,
- Burning will be performed only by the site operator;
- Burning will be performed when winds are weak and not blowing towards the village;
- Burning will be done in small batches to maximize quality of combustion;
- After complete combustion and cooling, ash will be compacted and buried in the landfill.

In order to minimize negative impacts, operators will follow a strict filling sequence: each week a tipping area is established where waste is unloaded into the trench. The tipping area will move progressively along the border of the trench as the trench is filled. Burnable waste is piled and burned once a week, when the weather conditions are acceptable.

Non-burnable waste and ash are then pushed, placed and compacted on the working face of the landfill. It is covered with soil from the excavation of the landfill and a new tipping area for the following week is established (see Figure 5-3). Maintaining the tipping area surface as small as possible and having a weekly cover, are efficient ways to limit the impacts of waste landfilling.

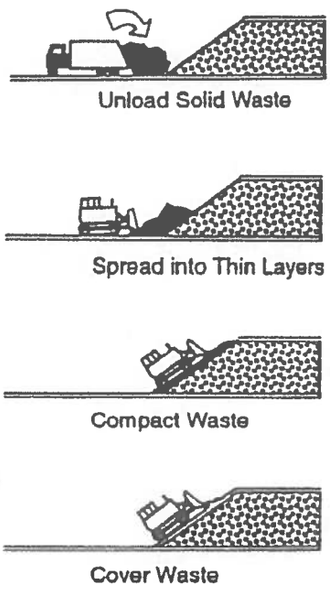


Figure 5.3 Filling Sequence at the Landfill Site

Residual materials containing asbestos, sludge and animal carcasses or animal parts will be covered as soon as they are deposited. An area for the disposal of animal remains is being considered as part of the project operations. Animal remains will be covered shortly after they are disposed to prevent scavenging and odour.

A litter patrol will take place once a year in order to clean the area surrounding the site. Closed sections will be inspected to identify deficiencies such as water ponding and erosion and then corrected.

4.3.4 Metal Storage Platform Activities

End-of-life vehicles and appliances are brought to the platform for storage after being decontaminated. Decontamination will take place in a municipal garage. All hazardous materials such as liquids, batteries, lights and tires will be removed. Metallic construction and bulky waste recovered at the future Whapmagoostui ecocentre will be stored on the platform.

After decontamination, old cars are semi-flattened with a front-end loader and stacked at a maximum of four cars high. ATVs will be piled up to 3 m and snow-mobiles semi-flattened with a front-end loader and stacked at a maximum of three vehicles high. Heavy equipment will be stored in rows. Metallic construction and bulky waste, including appliances will be piled a maximum of 3 m high. A minimum of once in a period of ten years, metal waste will be shipped south by boat to a recycling facility.

Hazardous waste will be prohibited on the metal storage platform. The operator will perform a visual inspection during unloading in order to limit as much as possible leachate generation and groundwater contamination. Organization of waste into sorted piles, restricted access to the site, maintenance of the fence, litter patrol and an annual cleaning will help to prevent litter on and off the site.

4.3.5 Contaminated Soils Storage Platform Activities

The operator will perform a visual inspection during unloading to verify that the waste contains only soil. A well-maintained fence and gate will limit access and prevent animal exposure to contaminated soil.

Contaminated soils will be unloaded and stored on the platform, in a specific area, on a membrane and covered with a membrane tarp to limit leachate production and water contamination, awaiting the results of the analysis to determine the type and level of contamination. Contaminated soils will then be stored in two distinct piles: one for the slighter contamination (with volatiles, gasoline) and one for the heavier contamination (with HAP, heating oil).

Depending on the type and level of contamination, the soils will be regrouped and transported to another location for treatment. Contaminated soils falling in the MELCC B-C range and in the MELCC A-B range for volatile organic compounds can be used in weekly cover during landfill operations. Soils of MELCC A-B range can be used for the final cover.

4.3.6 Closure and Post-closure Management of the Proposed Landfill

4.3.6.1 Future Landfill Closure Management

When the height of the waste deposited in the continuous trench will reach the berm height at the perimeter of the landfill area, it will be covered with a 60 cm soil layer including, in its upper portion, a 15 cm layer of organic soil suitable for vegetation. It will be reinforced with a Geocell type geoclothing and vegetation. That will help to reduce surface water and groundwater contamination. The soils required for the closure will be transported from the village. The typical cross section is presented in Figure 5-4.

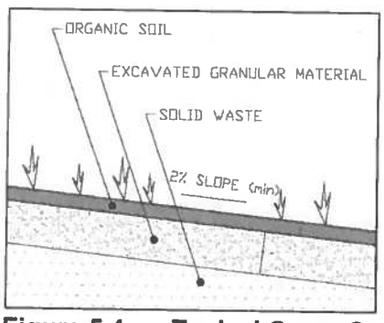


Figure 5.4 Typical Cross Section of the Final Cover

4.3.6.2 Future Landfill Post-Closure Management

The environmental supervision and monitoring program implemented during the operation phase will be maintained during the post-closure period. Environmental supervision will include:

- Maintenance of final cover integrity; the final cover will be inspected to identify deficiencies such as water ponding or erosion and then corrected;
- Maintenance of groundwater monitoring wells; cleaning and upkeep of wells;
- Water sampling and analyses campaign.

4.4 PROJECT SCHEDULE AND COSTS

A proposed work schedule was developed and presented in the ESIA. The construction activities will be completed over 14 months: the access road will be constructed the first year and the landfill and storage platforms, the second year. The operations will start in fall 2020.

Construction costs were estimated including provisions and 20% contingencies, as presented in Table 2. The detailed construction costs estimate is available in Appendix J of the ESIA.

Table 2 Opinion of Probable Construction Costs

	Item	Total Cost
1.0	a. Access road (Inuit, 631m)	$735,684
	b. Access road (Cree, 852m + 254m + 594m)	$1,971,540
2.0	Landfill	$3,305,500
3.0	Metal storage platform	$397,358
4.0	Contaminated soils storage platform	$267,644
5.0	Provisions	$454,750
6.0	Professional services	$350,000
	Subtotal	**$7,482,476**
	Contingencies (20%)	**$1,496,495**
	TOTAL	**$8,978,971**

Operation costs were estimated including 15% contingencies, as presented in Table 3. The detailed operation costs estimate is available in Appendix J of the ESIA.

Table 3 Opinion of Probable Operation Costs

	Item	Total Cost
1.0	Supervision and administration	**$6 825**
2.0	Landfill operation	**$127 850**
3.0	Others (monitoring, maintenance, etc.)	**$52 550**
	Subtotal	**$187,225**
	Contingencies (15%)	**$28,084**
	TOTAL	**$215 309**

5.0 CONSULTATION AND ENGAGEMENT

5.1 INFORMATION AND CONSULTATION PROCESS

Information and consultation of residents of both communities concerning the Project are ongoing since the site selection process started, in October 2010. WFN representatives worked with Stantec (formerly Dessau) and involved representatives of NVK and the KRG at each phase of the Project.

WFN initiated information and consultation of its members in 2011, at the occasion of the annual general assembly, providing information on the Project and offering the members an opportunity to ask questions and share concerns. Landfill related information has been shared at all general assemblies since then. Consultation has been ongoing in order to inform the community of Project updates and gather information regarding WFN's concerns. For its part, NVK initiated information and consultation of its members in January 2017 and is ongoing in order to inform the community of Project updates and gather information regarding NVK's concerns. The information gathered to date form both communities has influenced project planning and the development of the ESIA. WFN members' feedback has aided in the definition of Valued Components (VCs), the treatment of their impact analysis and the identification of mitigation measures.

Additionally, land users of the Project area (PDA and LSA) were invited to participate in land and resource use interviews which took place in March 2018. At the occasion of those interviews, participants shared information concerning their land and resource use in the PDA, LSA and RSA (see sections 4.4.4 and 4.4.5), and expressed their concerns about the Project, if any. The information gathered during the interviews were transmitted to WFN and NVK representatives. It was not possible to consult with each person using the area however, WFN and NVK technical committee members identified key stakeholders for the land use interviews in order to document their use, concerns and mitigation recommendations. Some interviewees came forward as a result of an open invitation on the local NVK radio station.

Following completion of most of the technical and environmental studies required for the Project, public consultation sessions and radio communications were held in June 2018 in both communities. First, updated information on the Project was presented, then participants were invited to share their questions and concerns. Topics of conversation included the state of the existing landfill and related challenges; health effects of burning waste in proximity to the community; safety challenges related to the presence of nuisance birds in proximity to the airport; and the lifespan of the landfill. Regarding the proposed landfill, topics included: site selection; location in relation to the community; project schedule and job opportunities. A detailed list of topics and concerns discussed is available in Section 6 of the ESIA.

Engagement activities will begin after the approval of the Project in order to inform and involve the public regarding the construction, operation and closure of the existing and proposed landfill sites. Engagement activities will also seek feedback from the community on the implementation of diversion programs and will look for ways to ensure a successful partnership between the communities and WFN government in community waste management.

5.2 FUTURE ENGAGEMENT AND CONSULTATION

WFN and NVK will prepare and implement a communication strategy in order to inform community members and businesses regarding the project steps, schedule and outcomes as well as gather their input. The communication strategy will include future diversion programs (e.g.: new bulky waste platform, recycling). The final planning stages of the strategy will take place after the Project is approved and will identify communication targets (residents, schools, businesses), messages to deliver and means to be used for the communication (radio announcements, articles on relevant websites and social media, posters, etc.). A schedule will then be prepared to ensure the delivery of the right message at the right time, according to the new landfill site project schedule. Residents and businesses will be asked to provide feedback during the project in order to document the general understanding of stakeholders, apply their input for improvement of waste management planning and track the efficacy of engagement efforts.

Residents and businesses will be provided information regarding the existing landfill and metal storage sites closure, that will take place as the new landfill site, contaminated soils and metal storage platforms are opened. Information regarding the new landfill site construction, opening and operation will also be provided. The overall goal is to improve waste management practices, starting at home, and give residents an appreciation of their role and responsibility in the proper operation of waste management programs and protection of the environment. Communication will focus on avoiding improper landfilling of hazardous waste and reduction of environmental and health impacts. Presentations and discussions with residents and businesses will garner their participation and facilitate the programs' implementation.

After the new landfill site is opened, residents and businesses will be updated regularly on monitoring activities and results of surface and groundwater analysis. A Watchdog Committee composed of WFN and NVK stakeholders will be created in order to follow the new site activities and be sure the operation of the site is effectively managing environmental and health risks of waste landfilling.

As children are usually more sensitive to environmental issues, specific school programs will be developed in order to present ongoing and future "go greener" projects and improve long-term waste management practices.

6.0 IMPACTS ASSESSMENT METHOD

6.1 VALUED ENVIRONMENTAL COMPONENTS (VECS)

VECs are components of the environment, both natural and social, that are valued by the society. VEC selection is based on the environmental setting and issues scoping (professional judgment, issues raised by regulators including project guidelines, issues raised during public consultations, workshops and meetings with key stakeholders). The VEC selection process also considered the nature, temporal and spatial scope of the Project, and anticipated potential interactions between the Project and the environment.

6.2 POTENTIAL INTERACTIONS BETWEEN PROJECT AND VEC

The interactions between the VEC and Project components are identified for each Project phase. Interactions between key Project activities and the environment are ranked according to their potential for an activity to interact with one or more VEC.

6.3 IMPACT ASSESSMENT CRITERIA

Impacts are evaluated for each Project phase; construction, operation and closure. Three criteria are considered in the evaluation of impact for each component; the **intensity** of the impact, the **extent** of the impact, and the **duration** of the impact. The intensity of the impact is based on the value of the component and the degree of disturbance apprehended.

6.3.1 Value of Component

The relative value of each component takes into consideration the abundance of the resource, distribution of that resource, the susceptibility of that resource to modifications (sensitivity, resilience, integrity), the ecological role of the resource, the importance of the resource to the local population, specialists, regulators and other interest groups. The value of a component can be low, moderate or high.

6.3.2 Degree of Disturbance

The degree of disturbance assesses the magnitude of the negative changes in the structural and functional characteristics of the component affected by the project, it depends on how the integrity and function of that component is modified by the Project. The degree of disturbance can be qualified as low, moderate, high or indeterminate.

6.3.3 Intensity of the Impact

The intensity of an impact is determined by relating the degree of disturbance of a given component to its value. The intensity of a project impact on a component can range from low to high.

6.3.4 Extent of the Impact

The extent of a Project impact refers to the surface area and the portion of the population that will be impacted. The extent can be classified as site-specific (confined to the PDA), local or regional.

6.3.5 Duration of the Impact

The duration of the impact refers to the period a Project impact will be experienced in the environment. The duration can be short (from days to one year), moderate (over a period of time that is shorter than the life of the Project) or long (over the entire life of the Project and potentially after Project completion).

6.4 MITIGATION OF NEGATIVE IMPACTS

Following analysis of the impacts, mitigation measures for negative impacts are identified based on projects that have been realized with similar parameters and under similar environmental conditions. Social context and concerns have been taken into consideration in the development of recommendations. Once mitigation measures are integrated to the analysis, the importance of residual impacts on each VEC is determined.

6.5 DETERMINATION OF IMPORTANCE OF RESIDUAL IMPACTS

The determination of importance of impacts (includes project conception mitigations) and residual impacts (includes post-project conception mitigations) is based on the three criteria used to characterise Project impacts; intensity, extent and duration. The nature of the impact (negative, positive, indeterminate) is established during the determination of importance step of the analysis.

7.0 IMPACTS ON THE ENVIRONMENT AND MITIGATION MEASURES

7.1 SOURCES OF IMPACT

The identification of the impacts of the project was carried out on the basis of the analysis grid presented in Table 4. This grid includes, on the y-axis (horizontally), the environmental components potentially affected by the project activities, and on the x-axis (vertically), these activities according to the stages of project implementation.

The identification of potential interactions takes into account the following elements:

- technical characteristics of the project and the working methods proposed;
- knowledge of the environmental setting through existing documentation and data from the field;
- lessons learned from similar projects;
- community's concerns about the project.

Impacts on the Environment and mitigation measures

Table 4 Project Interactions Summary Table

		Receiving Environment Components															
		Physical Environment					Biological Environment					Human Environment					
		1- Slope Stability/Soil Erosion	2- Surface Water Flow	3- Surface and Groundwater Quality	4- Soil Quality	5- Air Quality	6- Vegetation	7- Wetlands	8- Terrestrial Wildlife	9 - Aquatic Wildlife	10- Species of Concern	11- Land and Resource Use	12- Water Resources	13-Infrastructure and Equipment	14- Quality of Life	15- Archeological and Cultural Resources	16- Visual Environment
Construction	A- Vegetation Clearing						▼		▼		▼	▼					▼
	B- Construction Site and Work Area Preparation				▼					▼	▼	▼				-	
	C- Resurfacing of the Main Road													▲			
	D- Construction of the Access Road	▼	▼	▼						▼	▼	▼	▼	▲			
	E- Traffic			▼		▼	▼		▼	▼	▼	▼	▼	▼	▼		
	F- Construction of the Landfill and Berm	▼	▼													-	▲
	G- Construction of roads within the landfill	▼															
	H- Development of Storage Platforms	▼	▼														
	I- Installation of a gate and fencing								▼						▲		▲
	J- Rehabilitation of Work Area				▼		▼										▲
Operation	K- Traffic			▼		▼	▼		▼	▼	▼	V	▼	▼	▼		
	L- Waste Disposal (unload, sort, place)			▼	▼			V	▼	▼	▼	V	V		▼		▼
	M- Waste Burning			▼	▼	V	▼	V	▼	▼	▼	V	V		▼		▼
	N- Waste Compaction and Progressive Cover								▲		▲				▲		▲
	O- Operation of Storage Platforms			▼	▼			V	▼	▼	▼	▼	V				
	P- Maintenance of the Site and Equipment			▼	▼		▼			▼		▼	▼				
	Overall Importance	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	V	V	▼	▼		▼
Closure	Q- Closure of old landfill site	▲	▲	▲	▲	▲	▲	-	▲	-	▲	-	▲	▲	▲	-	▲
	R- Closure of new landfill site	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	-	▲	-	▲

Legend :

▼ Minor negative
V Moderate negative
▼ Major negative
- Indeterminate

▲ Minor positive
Λ Moderate positive
▲ Major positive

7.2 IMPACTS TO THE PHYSICAL ENVIRONMENT

The results of the assessment of Project impacts on the physical environment are summarized in Table 5.

Table 5 Summary of Project Impacts on Physical Environment

Valued Component	Value of Component	Importance of Impact	Mitigation Measures	Residual Impact
Slope Stability/Soil Erosion	low	minor	• Vegetate any disturbed areas with native species and cover such areas with mulch to prevent erosion and to help seeds germinate. If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring; • Maintain effective sediment and erosion control measures until re-vegetation of disturbed areas is achieved	minor
Surface Water Flow	low	minor	• Construction of collector ditches, berm and installation of culverts in intermittent and permanent watercourses. • Piezometer measurement for groundwater depth. • Direction of water flow away from sensitive wetland areas. • Respecting the minimum distance between the landfill and water sources. • Appropriate training for local personnel assigned to the site preparation and operational phases.	minor
Surface and Groundwater Quality	high	minor	• Enforcement of speed limits • Installation of riprap, sediment barriers and sedimentation ponds if necessary. • Revegetation. • Regular maintenance of vehicles and machinery, refueling and maintenance at a minimum distance of 30 m from watercourses and water bodies. • Spraying of calcium chloride on access roads • Waste burning when winds are calm and away from the Water System West • Groundwater and surface water monitoring. • Mitigation if contamination takes place Awareness program.	minor
Soil Quality	moderate	minor	• Use machinery in good operating condition in order to avoid any oil or fuel leaks; any leaks shall be repaired immediately; • Take all possible precautions when refuelling vehicles and machinery in order to avoid fuel spills. Oil changes should be performed off the construction site in designated locations (garages, etc.); • Avoid refuelling or parking machinery on permeable surfaces, other than those specifically designated for the purpose. Limit such surfaces as much as possible and clearly identify their boundaries; • Establish secure storage areas for hazardous products, and ensure access is controlled. Storage containers for	minor

Impacts on the Environment and mitigation measures

Valued Component	Value of Component	Importance of Impact	Mitigation Measures	Residual Impact
			hazardous substances should be watertight, sealed, adequately labelled and clean. • Keep products on hand at all times to manage and control accidental spills, such as sawdust, absorbent material and brooms; • Provide for the implementation and application of an emergency plan in case of accidental contaminant spills. Install a sign in full view indicating names and phone numbers of persons to call and describing measures to be taken in emergency; • Train employees on the emergency plan. • Implement an awareness program for the communities.	
Air Quality	moderate	minor	• Roads sprayed with Calcium Chloride. • Enforcement of speed limit. • Burning once a week, small quantities • Avoid burning during windy days especially when prevailing winds are towards the communities. • Proper waste sorting. • Diversion program replaces burning.	minor

7.3 IMPACTS TO THE NATURAL ENVIRONMENT

The results of the assessment of Project impacts on the natural environment are summarized in Table 6.

Table 6 Summary of Project Impacts on Natural Environment

Valued Component	Value of Component	Importance of Impact	Mitigation Measures	Residual Impact
Vegetation	low	minor	• Operational PDA, access road and work area kept to a minimum. • Spraying of calcium chloride.	minor
Wetlands	moderate	minor	• Groundwater and surface water monitoring. • Mitigation if contamination takes place. • Proper waste sorting. • Diversion program replacing burning.	minor
Terrestrial Wildlife	low	minor	• Planning of contaminated soils watertight membrane. • Regular burning, waste compaction and progressive cover. • Groundwater and surface water monitoring. • Enforcement of speed limit. • Avoid burning during windy days. • Proper waste sorting. • Diversion program replaces burning	minor
Aquatic Wildlife	low	minor	• Planning of contaminated soils watertight membrane. • Application of calcium chloride on access roads	minor

Impacts on the Environment and mitigation measures

Valued Component	Value of Component	Importance of Impact	Mitigation Measures	Residual Impact
			• During in-water work, install site isolation measures or measures to contain suspended sediment (e.g., silt boom or silt curtain), where possible. • Postpone watercourse or water body crossing construction if excessive flows or flood conditions exist or are anticipated, and construction methods cannot be modified to cope with the increased flow. • Limit clearing at watercourse crossings to the removal of trees and shrubs to the ditch line and work side areas required for vehicle crossings. • Fell trees away from watercourses and water bodies. Immediately remove trees, debris or soil inadvertently deposited below the high watermark of a watercourse. • Reduce grubbing near watercourses and water bodies, muskeg, and other wet areas to facilitate the restoration of shrub communities. • Conduct fish salvage using appropriate methods and equipment. Release all captured fish to areas outside of the work area that provide suitable habitat. • Installation of riprap, sediment barriers and sedimentation ponds if necessary. • Revegetation. • Regular maintenance of vehicles and machinery, refueling and maintenance at a minimum distance of 30 m from watercourses and water bodies. • Groundwater and surface water monitoring. • Avoid burning during windy days. • Proper waste sorting. • Diversion program replaces burning	
Species of Concern	moderate	Minor	• Enforcement of speed limit. • Spraying of calcium chloride on access roads • Revegetation.	Minor

7.4 IMPACTS TO THE HUMAN ENVIRONMENT

The results of the assessment of Project impacts on the human environment are summarized in Table 7.

Table 7 Summary of Project Impacts on Human Environment

Valued Component	Value of Component	Importance of Impact	Mitigation Measures	Residual Impact
Land and Resource Use	moderate	moderate	• Relocation and/or compensation for loss of cabins or loss of use. • Ramps to ensure the continued use of trails in the project area. • Enforcement of speed limit. • Spraying of calcium chloride on access roads • Avoid construction during main hunting and trapping periods • Groundwater and surface water monitoring. • Avoid burning during windy days especially when prevailing winds are towards the wetland. • Proper waste sorting. • Diversion program replaces burning • Offer the land users and community members to gather wood resources, plants and berries before vegetation clearing • Watchdog committee to review recommendations related to subsistence fish species consumption annually and inform members of both communities	moderate
Water Resources	moderate	moderate	• Planning of contaminated soils watertight membrane • Enforcement of speed limits • Installation of riprap, sediment barriers and sedimentation ponds if necessary • Revegetation • Avoid burning during windy days especially when prevailing winds are towards the wetland. • Awareness program • Regular maintenance of vehicles and machinery • Spraying of calcium chloride on access roads • Groundwater and surface water monitoring • Watchdog Committee oversight of water monitoring and recommendations • Avoid consuming water directly from watercourses and waterbodies located within 500 m downstream of the landfill site.	minor
Infrastructure and Services	low	moderate	• Enforcement of speed limit. • Maintenance of signage and equipment. • Closure of existing landfill • Improved waste management practices	minor
Quality of Life	moderate	moderate	• Enforcement of speed limits. • Spraying of calcium chloride (a dust control agent) on the roads. • Main construction activities to take place in summer months outside main hunting periods. • Limiting operations to specific times.	minor

Impacts on the Environment and mitigation measures

Valued Component	Value of Component	Importance of Impact	Mitigation Measures	Residual Impact
			• Avoid burning during windy days especially when prevailing winds are towards the wetland. • Regular compaction and cover of waste. • Implementation of diversion programs to allow burning to be phased out. • Posting road signs along the main road and access roads • Safety orientation for construction workers, machinery operators and landfill operators.	
Archeology	high	moderate	• Development of training for construction and operational workers • Development of a plan to avoid or preserve artifacts if they are found • Stopping construction work in the area of a finding and contacting an archaeologist. •	minor
Visual Environment	moderate	moderate	• Avoid burning during windy days especially when prevailing winds are towards the community. • Diversion program replaces burning. • Revegetation • Maintenance of the fence and regular cleanup of the fence • Regular site cleanup and annual litter patrol.	minor

8.0 CLIMATE CHANGE IMPACTS ON THE PROJECT

The infrastructure risk assessment was completed based on three changes in climate that are anticipated for the site area given the results of the climate projections research conducted by Stantec, available in Appendix F of the ESIA (Stantec 2018c):

- increased temperatures;
- increased short duration rainfall intensity;
- increased annual precipitation.

Sea level rise and extreme wind were ignored for this assessment. The elimination of sea level rise was possible because the access road is more than 20 m above sea level and the proposed landfill site is located roughly 50 m above sea level. With respect to changes in wind speeds, they have been disregarded as some research suggests there will not be significant increases in wind speed and those potential changes are not well understood.

The greatest climate change threat to the project was determined to be the projected increase in frequency and intensity of short duration rainfalls. The infrastructure determined to be most at risk were the access road culverts at intermittent watercourses and the crossing of Watercourse 1.

Culvert sizing and design of the crossing at Watercourse 1 will consider a projected increase in storm intensities. In addition to the increased demands for storm water flow, further investigation should be undertaken to determine if the projected increase in annual rainfall will affect the area occupied by wetlands in the LSA and if this may have impacts on the access road.

Based on the assumption that fires are most prevalent in hot and dry conditions, the temperature and precipitation projections for summers in the future climate are valuable in assessing this risk. Because future summers in the Whapmagoostui area are projected to become hotter and receive no increase in precipitation, conditions susceptible to fires can be expected to increase. Open air burning of waste is proposed as part of the new landfill's operations. This practice, combined with the projected climate changes in the region, suggest that the risk of wildfires and uncontrolled waste fires may increase during the lifespan of the landfill.

Another climate-infrastructure impact that should be considered at the detailed design stage is permafrost degradation/soil instability. There is low risk that permafrost will impact the access road and main road as the project is not in an area of palsa bogs. If permafrost is encountered, geotechnical investigation would be required in the area.

9.0 ACCIDENTS, MALFUNCTIONS AND UNPLANNED EVENTS

9.1 FIRE

Fire risks can be classified in two categories; naturally occurring fire risks from forest fires and operational related fire risks. Uncontrolled burning of waste in the landfill could lead to burning of hazardous waste and hazardous emissions, risk to operators' safety and spread of fire from the landfill to surrounding landscape causing a safety risk for communities and land users.

There is a risk of fire during operations due to open air waste burning in initial years of operation. The process of burning waste and ash biproduct can cause ignition within the landfill site if not properly controlled. Wind blown ash has the potential to ignite surrounding vegetation under dry conditions. Improper disposal of ash biproduct could lead to unplanned ignition of waste in the landfill. Chemical reactions between waste products leading to fire ignition are also possible in accumulated waste.

Vegetation will be managed within a 15 m buffer surrounding the landfill to prevent fire risks. This is typical for northern landfills. Fire risk can also be decreased by making general site clean-up a regular part of operations. Open air burning will be restricted to a designated areas and climatic conditions. It is recommended burning only take place when wind speed is under 10 km/hr. To reduce the impact of accidental ignition, the availability of a permanent water pump (dry hydrant) on site is recommended. The hydrant can be installed at the nearest waterbody so that operators can control a small fire until the fire department arrives. The development of an emergency response plan in case of fire and related training for operators is necessary.

9.2 LEAKS AND SPILLS

No permanent storage of hazardous materials required for mobile equipment is anticipated at the new landfill. Mobile equipment will be fuelled using a fuel truck from the community. No refuelling will be done less than 75 m from a hydrous environment or sensitive area, and operators will stay with the equipment at all times during refuelling in case of any mechanical problem. However, if a diesel fuel tank must be set up onsite in order to provide emergency fuel for mobile equipment in the event of a temporary fuel shortage, the tank will be located at least 75 m from any hydrous environment or sensitive area.

Accidents, Malfunctions and Unplanned Events

Preventive maintenance will be performed directly onsite by local personnel and/or qualified contractors. Used oil and filters will not be stored onsite but will be returned to the community and disposed of appropriately in accordance with current regulations. If there is a leak or spill during refuelling, maintenance or general operation of the equipment, actions will be taken immediately to stop and contain the spillage. Spill kits containing emergency materials and products will be available onsite at strategic locations (operational sectors and traffic prone areas) so that spills can be cleaned up immediately. All contaminated material will be collected and stored appropriately (leak-proof containers and/or membranes) so that it is not released into the environment until it can be managed.

10.0 ENVIRONMENTAL MONITORING AND FOLLOW-UP PROGRAMS

10.1 ENVIRONMENTAL MONITORING

The environmental surveillance and monitoring programs aim to ensure compliance with mitigation and corrective measures proposed in the ESIA, and that all legislative and regulatory documents are respected. These measures cover all Project phases and will be the responsibility of the WFN.

10.1.1 Construction Phase

Environmental surveillance during construction ensures that all contractual conditions upon approval of the ESIA are implemented. Environmental and technical supervision will be undertaken by qualified professionals during this phase. Conformity will be documented in a certification report following the work completion.

An insurance and quality control program will be implemented by a qualified professional to monitor the construction work. It will ensure that the requirements on the materials and the construction are met.

10.1.2 Operation Phase

An operation and maintenance manual will provide comprehensive operation procedures as well as the specifications of the environmental monitoring program. The program is to be in compliance with project plans, regulatory agency stipulations and specification of the RRLIRM. Regular maintenance of equipment will be based on manufacturer guidelines, or in absence of these on a yearly basis in order to avoid deficiencies. Equipment will be repaired or maintained as needed if a deficiency is observed during operation. Operators will follow a training course in order to familiarize themselves with operational, maintenance and environmental procedures before the landfill is in use.

The following measures will be taken to control the nature of the waste that will be landfilled:

- The installation of a fence around the landfill and a gate at the entrance of the site will prevent the public from having access to the site outside the hours of operation;
- A visual inspection will be conducted during the unloading of each truck;
- The burnable and non-burnable waste will be separated and when possible, treated wood and hazardous waste will be removed from the waste.
- For each unloading truck, the nature, origin and eligibility of incoming waste will be checked and noted in a registry with the name of the carrier, quantity of waste and date. No vehicle will be able to access the landfill site outside opening hours or when there is no operator on the site.

- A visual inspection will be carried out by the operator driving the bulldozer when waste will be unloaded. If there is any hazardous waste identified, it will be removed and brought to a dedicated area in the village. Information will be noted in the registry.

Each year, the WFN will prepare an annual report.

10.1.3 Closure

The WFN will close the landfill site when waste reaches the height of the berm and maximum capacity is reached. Within six months following the site closure, the WFN will have an independent expert prepare a state of closure report. The state of closure report will specify any deficiencies and corrective measures required in order to meet the specifications of the RRLIRM. Upon closure of the landfill, a sign will be placed at the entrance indicating any further waste disposal is forbidden.

10.1.4 Post-Closure

The environmental supervision and monitoring program will continue during the post-closure period, in compliance with the RRLIRM. During this period, environmental supervision will include:

- Upkeep in order to maintain the integrity of the final cover, the gates and the fence;
- The checking, maintenance and cleaning of the groundwater observation wells system;
- The water sampling and analyses campaign as described in section 11.2.

10.2 ENVIRONMENTAL FOLLOW-UP PROGRAM

The proposed environmental monitoring program aims to ensure the integrity of the landfill development and project layout. Specifically, it involves the monitoring of groundwater and surface water quality in order to ensure regulations are respected during the operation, closure and post-closure phases.

10.2.1 Groundwater and Surface Water Monitoring

In accordance with Section 65 of the RRLIRM, the groundwater monitoring program will utilise a network of observation wells dedicated to the landfilling zone (see Figure 13). This network is composed of four observation wells including one upstream and three downstream. They were installed in November 2016.

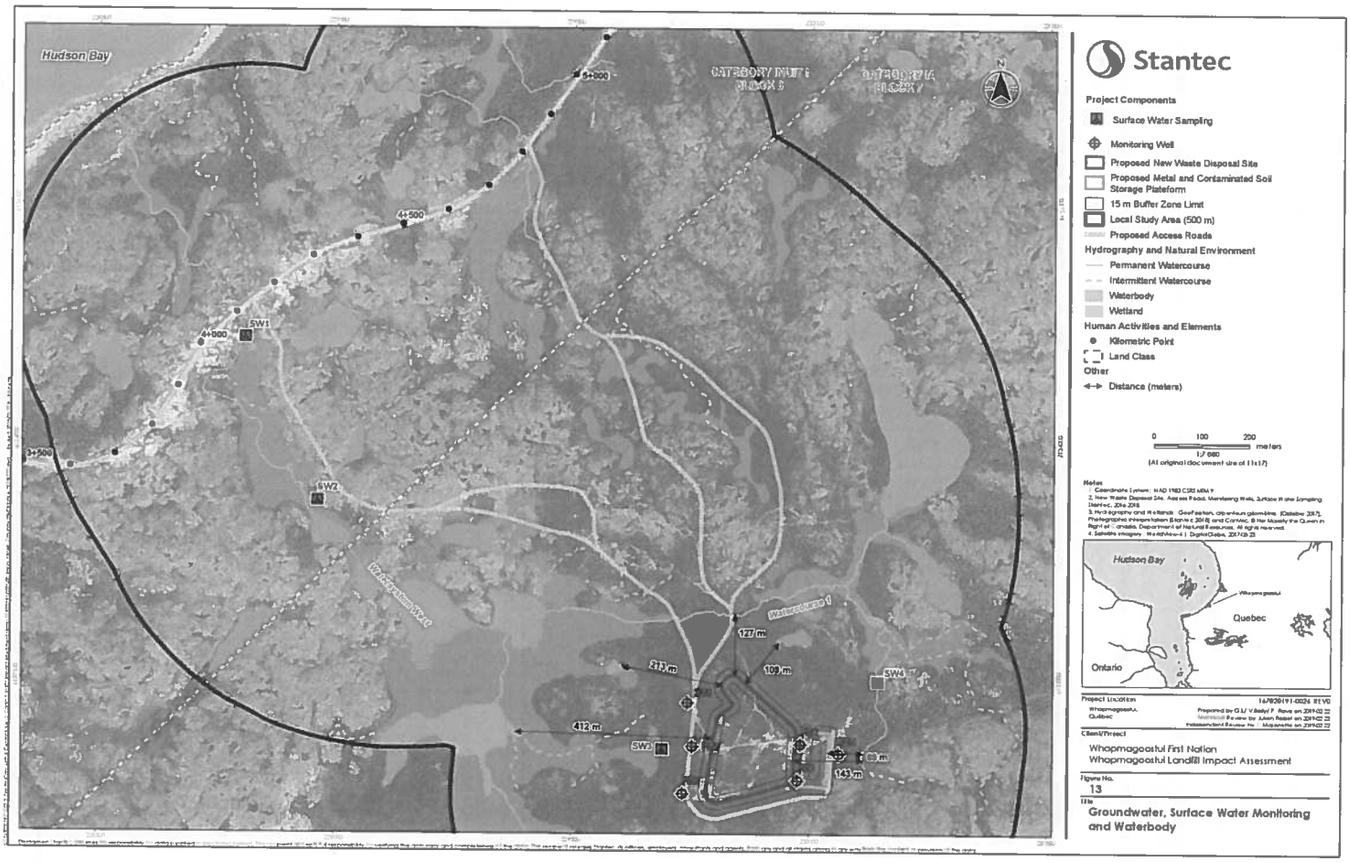
Two additional groundwater observation wells will be installed: one upstream of the contaminated soils and metal storage platforms and one downstream. The existing well that is considered upstream of the landfill is downstream of the storage platforms. This will make for a total of two wells downstream of the storage platforms and one well upstream for the purpose of analysis.

Surface water will also be sampled upstream of the landfill in Watercourse 1 (SW4) and at three locations downstream of the landfill site in Water System West (SW1 to SW3) (see Figure 13, Appendix N).

Environmental Monitoring and Follow-up Programs

Due to the sensitivity of the Water System West, it is proposed to sample and analyze the monitoring points (surface and groundwater) every two months during spring, summer and autumn during the first three years. The chemical parameters analyzed are those presented in Sections 57 and 66 of the RRLIRM, and three additional parameters will be also analyzed because of the presence of a contaminated soils storage platform. The water level is also measured in each well during each sampling campaign.

After five years of monitoring, recommendations and follow-up studies will be proposed. If no contamination is found, the monitoring points will be tested three times a year, in spring, summer and autumn. Samples will consist of one instant sample.


Hudson Bay
CATEGORY IN LIT I
BLOCK 5
CATEGORY IA
BLOCK V
N
5+800
4+500
4+800
SW1
3+500
SW2
Watercourse 2
Watercourse 1
127 m
313 m
109 m
SW4
412 m
SW3
143 m
0
100
200
meters
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Hudson Bay
Quebec
Ontario
Stantec
Project Components
Surface Water Sampling
Monitoring Well
Proposed New Waste Disposal Site
Proposed Metal and Contaminated Soil Storage Plateform
15 m Buffer Zone Limit
Local Study Area (500 m)
Proposed Access Roads
Hydrography and Natural Environment
Permanent Watercourse
Intermittent Watercourse
Waterbody
Wetland
Human Activities and Elements
Kilometric Point
Land Class
Other
Distance (meters)
Client/Project
Whapmagoostui First Nation
Whapmagoostui Landfill Impact Assessment
Figure No.
13
Title
Groundwater, Surface Water Monitoring and Waterbody

10.2.2 Watchdog Committee

The WFN proposes to form a committee before the landfilling operations will start. The committee will have the responsibility to oversee and monitor the operation, closure and post-closure management.

The committee will be composed of representatives of the following institutions and groups:

- WFN
- NVK
- Cree Nation Government
- Kativik Regional Government
- Land users
- Other users
- Other environmental protection groups

The members of the committee will meet at least once a year.

11.0 DECOMMISSIONING AND REMEDIATION

As mentioned in section 2.1, the communities of WFN and NVK currently use three different waste disposal sites:

- Two sites are owned and operated by NVK: the existing landfill and a bulky waste storage site (known as the "Canadian Tire");
- One site is owned and operated by WFN: the metal storage site for old vehicles and large metal items.

The decommissioning and remediation of the two NVK sites is NVK's responsibility. The MELCC visited the NVK sites in August 2018 and will provide the guidelines for site rehabilitation. The final strategy for the decommissioning and remediation of the two NVK waste sites is not finalized yet.

In the same way, the decommissioning and remediation of the WFN metal storage site is WFN's responsibility. WFN mandated a firm in August 2018 to evaluate the situation and propose an action plan to properly decontaminate and close the existing metal storage site located in the village.

12.0 REFERENCES

Allard, M. et al. 2007. *Cartographie des conditions de pergélisol dans les communautés du Nunavik en vue de l'adaptation au réchauffement climatique.* Consortium Ouranos et Ressources Naturelles Canada.

Avataq Cultural Institute. 2018. *Kuujjuaraapik New Landfill – Summary evaluation of archaeological potential.*

BirdLife International. 2018. *Grande Rivière de la Baleine Kuujjuarapik et Whapmagoostui, Québec IBA Site (QC-145) Summary*. Accessed May 28, 2018 at https://www.ibacanada.org/site.jsp?lang=EN&siteID=QC145

Canadian Wildlife Federation (CWF). 2018. *Faune et Flore du Pays*. Accessed on June 18, 2018 at http://www.hww.ca/fr/faune/mammiferes/

Centre de données sur le patrimoine naturel du Québec (CDPNQ-Flora). 2017a. Personal communication. Benoit Larouche, MDDELCC. October 27, 2017.

Centre de données sur le patrimoine naturel du Québec (CDPNQ-Fauna). 2017b. Personal communication. Jean-François Simard, MFFP. October 16, 2017.

Centre d'expertise hydrique du Québec. 2004. *Grande Rivière de la Baleine watershed.*

COSEWIC. 2017. *COSEWIC assessment and status report on the Caribou Rangifer tarandus, Eastern Migratory population and Torngat Mountains population, in Canada.* Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvii + 68 pp. Available online at: http://www.registrelepsararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1

Cree Nation Government (Archaeology Unit). 2018b. *Proposed Waste Disposal Site for Whapmagoostui – Summary evaluation of archaeological potential.*

Department of Energy, Mines and Resources. 1995.*The National Atlas of Canada 5th Edition.* Available online at: https://www.nrcan.gc.ca/earth-sciences/geography/atlas-canada

[Department of] Fisheries and Oceans Canada (DFO). 2018. *Lake Sturgeon (Southern Hudson Bay-James Bay populations)*. Available online at: http://www.dfo-mpo.gc.ca/species-especes/profiles-profils/sturgeon7-esturgeon-eng.html

Dessau. 2011. *New Solid Waste Disposal Site – Site Selection and Baseline Study*. Final report.

Ecological Stratification Working Group (ESWG). 1995. *A National Ecological Framework for Canada*. Agriculture and Agri-Food Canada, Research Branch, Centre for Land and Biological Resources Research and Environment Canada, State of the Environment Directorate, Ecozone Analysis Branch, Ottawa/Hull. Report and national map at 1:7500 000 scale.

References

Ecosystem Status and Trends Report (ESTR) Secretariat. 2014. *Taiga Shield Ecozone+ evidence for key findings summary.* Canadian Biodiversity: Ecosystem Status and Trends 2010, Evidence for Key Findings Summary Report No. 9. Canadian Councils of Resource Ministers. Ottawa, ON. vii + 80 p. Accessed June 1, 2018 http://www.biodivcanada.ca/default.asp?lang=En&n=137E1147-1)

Environmental Protection Agency (EPA). 2017. *Wetlands Classification and Types.* Accessed on June 11, 2018 at https://www.epa.gov/wetlands/wetlands-classification-and-types#fens

Environment and Climate Change Canada. 2017. *Solid Waste Management for northern and Remote Communities – Planning and Technical Guidance Document.*

Environment Canada. 2018. *Canadian Climate Normal 1981-2010 Station Data – Kuujjuarapik Weather Station.*Available online at: http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnName&txtStationName=kuujj&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=6083&dispBack=0

Environment Canada. 2014. *Recovery Strategy for the Wolverine (Gulo gulo), Eastern population, in Canada [Proposed].* Species at Risk Act Recovery Strategy, Environment Canada, Ottawa, vi + 21 pp.

Environment Canada. 2013. *Bird Conservation Strategy for Bird Conservation Region 7 in Quebec: Taiga Shield and Hudson Plains.* Abridged Version. Accessed June 4, 2018 at: https://www.canada.ca/en/environment-climate-change/services/migratory-bird-conservation/regions-strategies/description-region-7.html

Fédération des coopératives du Nouveau-Québec. 2018. *Kuujjuarapik.* Disponible en ligne : http://www.fcnq.ca/en/kuujjuarapik

Freeze, R. A. and J. A. Cherry. 1979. *Groundwater.* Available online at: http://hydrogeologistswithoutborders.org/wordpress/textbook-project/

Gouvernement du Québec (2018a) *I.G.O. Données Écoforestières: Végétation du Nord Québécois.* Accessed May 29, 2018 at: https://geoegl.msp.gouv.qc.ca/igo/mffpecofor/?id=a7332e1cf4

Gouvernement du Québec (2018b) *I.G.O. Données Écoforestières: Dépôts de Surface du Nord Québécois.* Accessed May 29, 2018 at: https://geoegl.msp.gouv.qc.ca/igo/mffpecofor/?id=a7332e1cf4

Gouvernement du Québec (2018c) *I.G.O. Données Écoforestières: Photographie Oblique.* Accessed June 13, 2018 at: https://geoegl.msp.gouv.qc.ca/igo/mffpecofor/?id=a7332e1cf4

Gouvernement du Québec (2018d) *I.G.O. Classification Écologique du Territoire.* Accessed May 29, 2018 at: https://geoegl.msp.gouv.qc.ca/igo/mffpecofor/?id=a7332e1cf4

Gouvernement du Québec (2018e) *SIGÉOM : Système d'information géominière du Québec.* Accessed May 30, 2018 at: http://sigeom.mines.gouv.qc.ca/signet/classes/I1108_afchCarteIntr

References

Gouvernement du Québec. 1998. *James Bay and Northern Quebec Agreement (1975) and Complementary Agreements*. Les publications du Québec. Available online at: http://webarchive.bac-lac.gc.ca:8080/wayback/20071115104340/http://www.ainc-inac.gc.ca/pr/agr/que/jbnq_f.html

Gouvernement du Québec.1984. *Cree -Naskapi (of Québec) Act (1984)*. Available online: https://laws-lois.justice.gc.ca/eng/acts/C-45.7/20100201/P1TT3xt3.html

Government of Quebec. 2017a. *Regulation respecting threatened or vulnerable plant species and their habitats*, chapter E-12.01, r. 3. Accessed May 05, 2017 at: http://legisquebec.gouv.qc.ca/en/ShowDoc/cr/E-12.01,%20r.%203

Government of Quebec. 2017b. *Sustainable Forest Development Act*, chapter A-18.1. Accessed May 05, 2017 at: http://legisquebec.gouv.qc.ca/en/ShowDoc/cs/A-18.1

Kativik. 2014. *Nunavik Residual Materials Management Plan.*

L'Hérault, E et al. 2013. *Production de cartes des caractéristiques du pergélisol afin de guider le développement de l'environnement bâti pour quatre communautés du Nunavik.* Rapport final. Centre d'études nordiques, Université Laval, 90 p.

MDDELCC. 2018a. *Portrait régional de l'eau – Nord-du-Québec (région administrative 10)*. Available online at : http://www.environnement.gouv.qc.ca/eau/regions/region10/10-nord-du-qc.htm

MDDELCC. 2018b. *Aires Protégées du Québec : Interactive Map*. Accessed June 8, 2018 at: https://services-mddelcc.maps.arcgis.com/apps/MapSeries/index.html?appid=8e624ac767b04c0989a9229224b91334

MDDELCC. 2014. *Les provinces naturelles : première fenêtre sur l'écologie du Québec.* Accessed May 29, 2018 at: http://www.mddep.gouv.qc.ca/biodiversite/cadre-ecologique/index.htm

MFFP. 2016. *Gibiers du Québec : Identification Sheets*. Accessed on June 18, 2018 at https://www.mffp.gouv.qc.ca/faune/chasse/gibiers/tetras-canada.jsp

MFFP. 2013. *Gestion des ours noirs importuns sur la Côte-Nord de 2005 à 2009 et analyse des facteurs aggravants.* Available online at : https://mffp.gouv.qc.ca/publications/cote-nord/ours-noirs-facteurs-aggravants.pdf

Skyriené, G. and A. Paulauskas. 2012. *Distribution of invasive muskrats (Ondatra zibethicus) and impact on ecosystem.* EKOLOGIJA, Vol. 58 3. P.357-367.

Société d'histoire naturelle de la Vallée du Saint-Laurent (SHNVSL). 2009. *Atlas des Amphibiens et des Reptiles du Québec (AARQ)*. Accessed on June 26, 2018 at http://www.atlasamphibiensreptiles.qc.ca/index.php?option=com_content&view=article&id=1&Itemid=165

Société pour la faune et les parcs du Québec (SFPQ). 2003. *Plan de développement régional associé aux ressources fauniques du Nord-du-Québec*. Direction de l'aménagement de la faune du Nord-du-Québec, Chibougamau, 115 pages.

References

Stantec. 2019a. *Development of a New Landfill in Whapmagoostui – Environmental and Social Impact Assessment.* 159 pages and append.

Stantec. 2019b. *Whapmagoostui New Landfill Site Environmental and Social Impact Study – Metal and Contaminated Soils Storage Platforms Needs and Design.*

Stantec. 2018a. *Whapmagoostui New Waste Disposal Site - Technical Note Concerning Access Road Options Report.*

Stantec. 2018b. *Whapmagoostui New Waste Disposal Site Impact Assessment Study – Hydrogeological Study Memo.*

Stantec. 2018c. *Future Whapmagoostui Landfill Climate Impact Assessment Report.*

Stantec. 2017. *Future Waste Disposal Site of Whapmagoostui First Nation.* Final report.

Stantec. 2016. *New Landfill Project Recommendations Memo.*

Statistics Canada. 2017a. *Whapmagoostui, TC [Census subdivision], Quebec and Quebec [Province]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. Available online at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?B1=All&Code1=2499816&Code2=24&Data=Count&Geo1=CSD&Geo2=PR&Lang=E&SearchPR=01&SearchText=Whapmagoostui&SearchType=Begins&TABID=1

Statistics Canada. 2017b. *Kuujjuarapik, VN [Census subdivision], Quebec and Quebec [Province]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. Available online at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?B1=All&Code1=2499075&Code2=24&Data=Count&Geo1=CSD&Geo2=PR&Lang=E&SearchPR=01&SearchText=Kuujjuarapik&SearchType=Begins&TABID=1

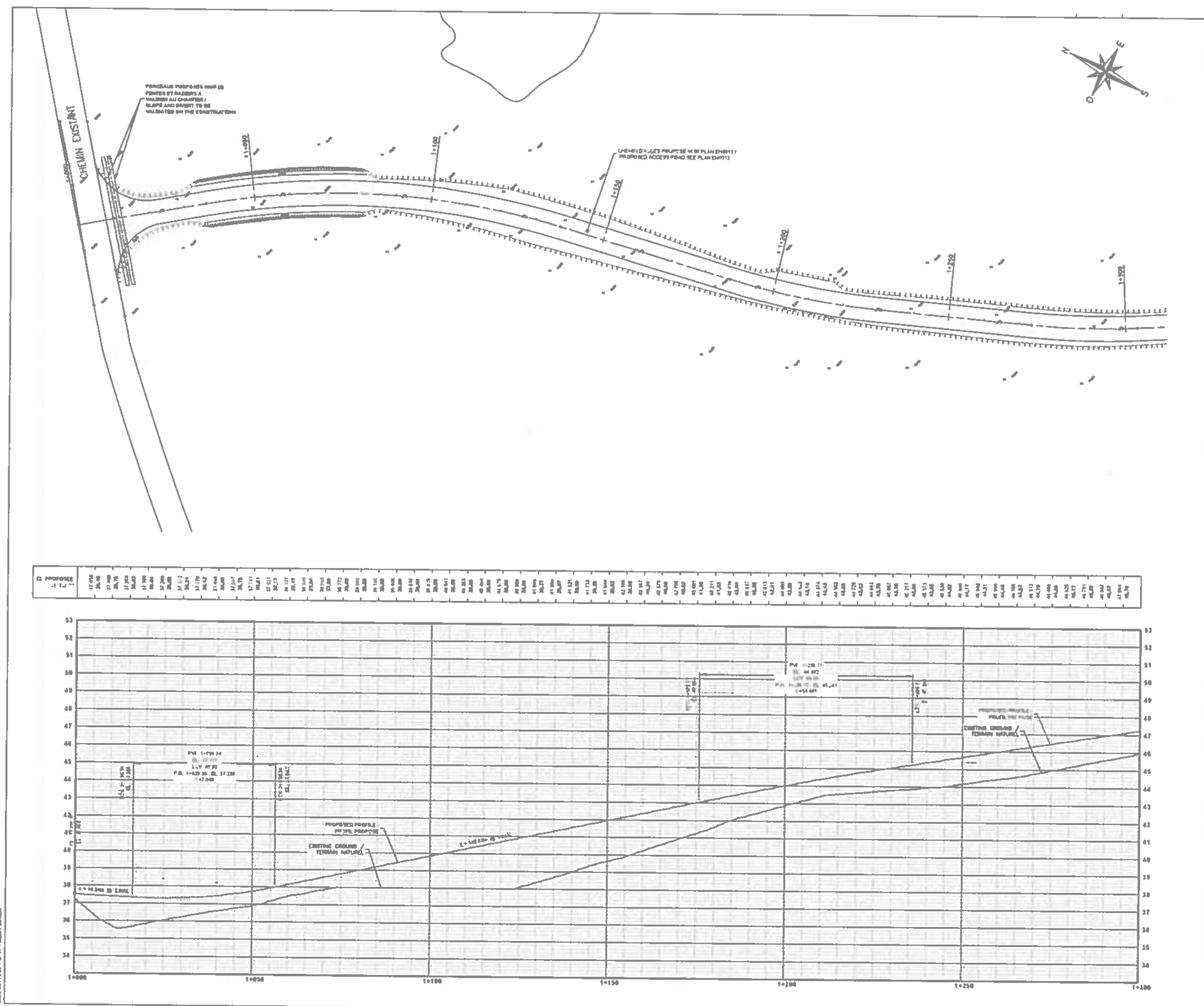
Transport Canada. 2004. *Sharing the skies: an aviation industry guide to the management of wildlife hazards.* Catalogue number T52-4-6-2004E. Available online at: http://publications.gc.ca/collections/Collection/T52-4-6-2004E.pdf

Personal Communications

Sandy, George – Capital Projects Manager at Whapmagoostui First Nation. January 16, 2019. Conference call with Julien Rosset.

Sandy, George – Capital Projects Manager at Whapmagoostui First Nation. November 28, 2017. Personal communication via email with Julien Rosset.

ANNEXE 3.
Plans et devis / Plans and Specifications



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NOUVEAU LIEU D'ENFOUISSEMENT EN TRANCHÉ À WHAPMAGOOSTUI / NEW TRENCH LANDFILL AT WHAPMAGOOSTUI

Titre / Title

PLAN AND PROFILE ROAD ACCESS TO THE SITE / PLAN ET PROFIL ROUTE ACCÈS AU SITE 1+000 at 1+300

Projet No. / Project No.	Échelle / Scale
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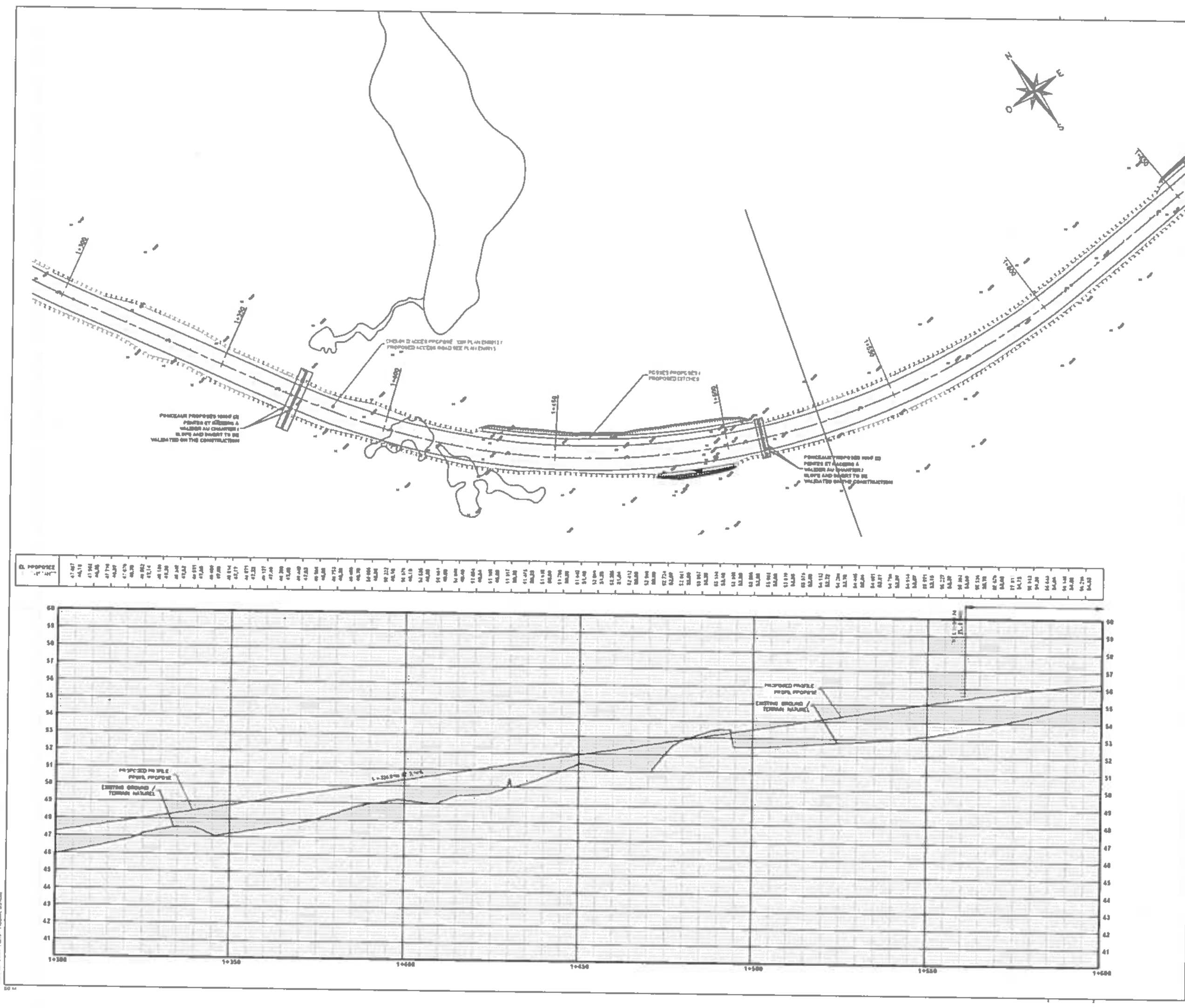

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Titre / Title

PLAN AND PROFILE ROAD ACCESS TO THE SITE / PLAN ET PROFIL ROUTE ACCÈS AU SITE 1+300 @ 1+600

Projet No. / Project No.	Échelle / Scale	
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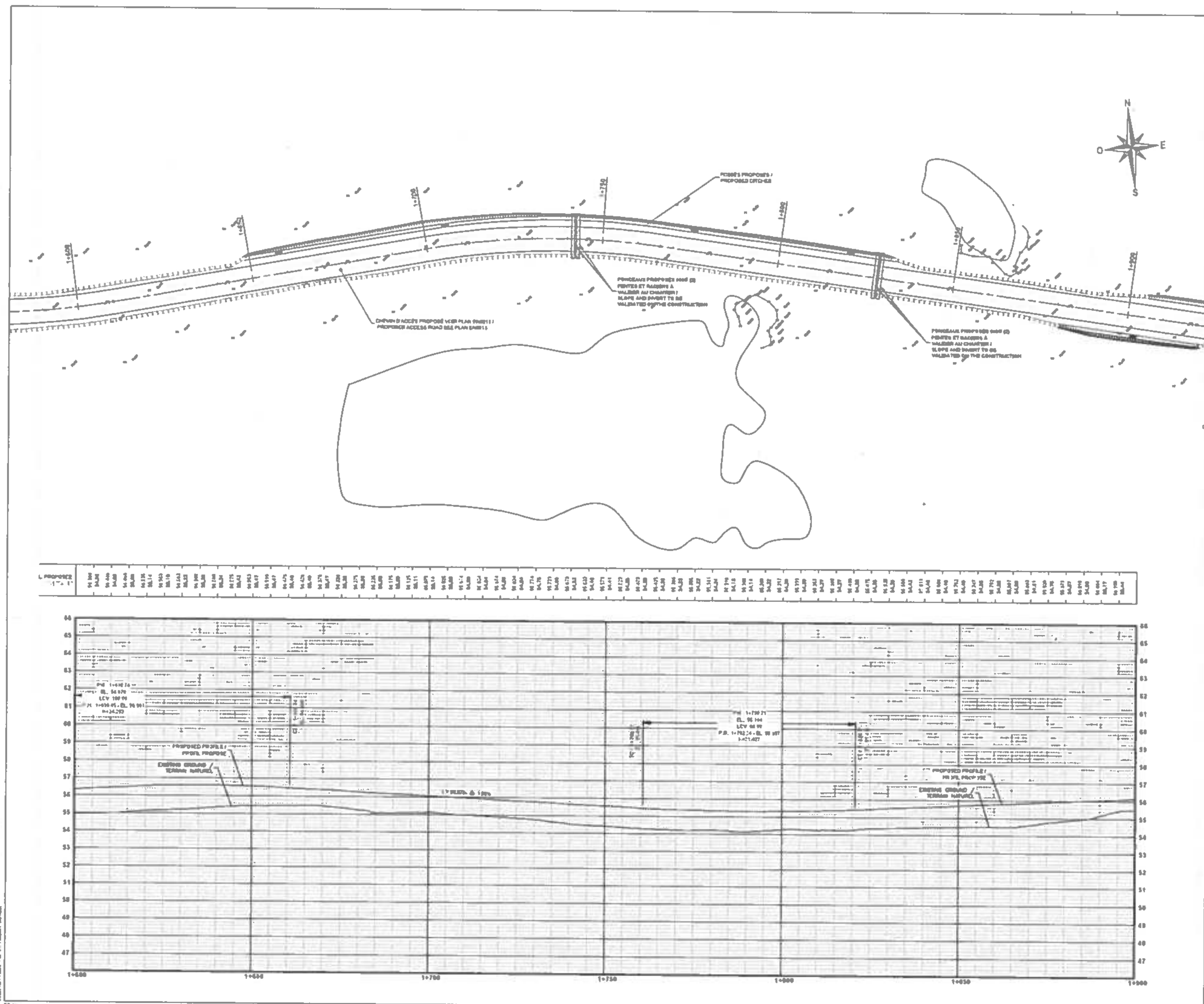

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NOUVEAU LIEU D'ENFOUISSEMENT EN TRANCHÉ À WHAPMAGOOSTUI / NEW TRENCH LANDFILL AT WHAPMAGOOSTUI

WHAPMAGOOSTUI, QC

Titre / Title
PLAN AND PROFILE ROAD ACCESS TO THE SITE / PLAN ET PROFIL ROUTE ACCÈS AU SITE
1+600 @ 1+900

Projet No. / Project No.	Échelle / Scale	
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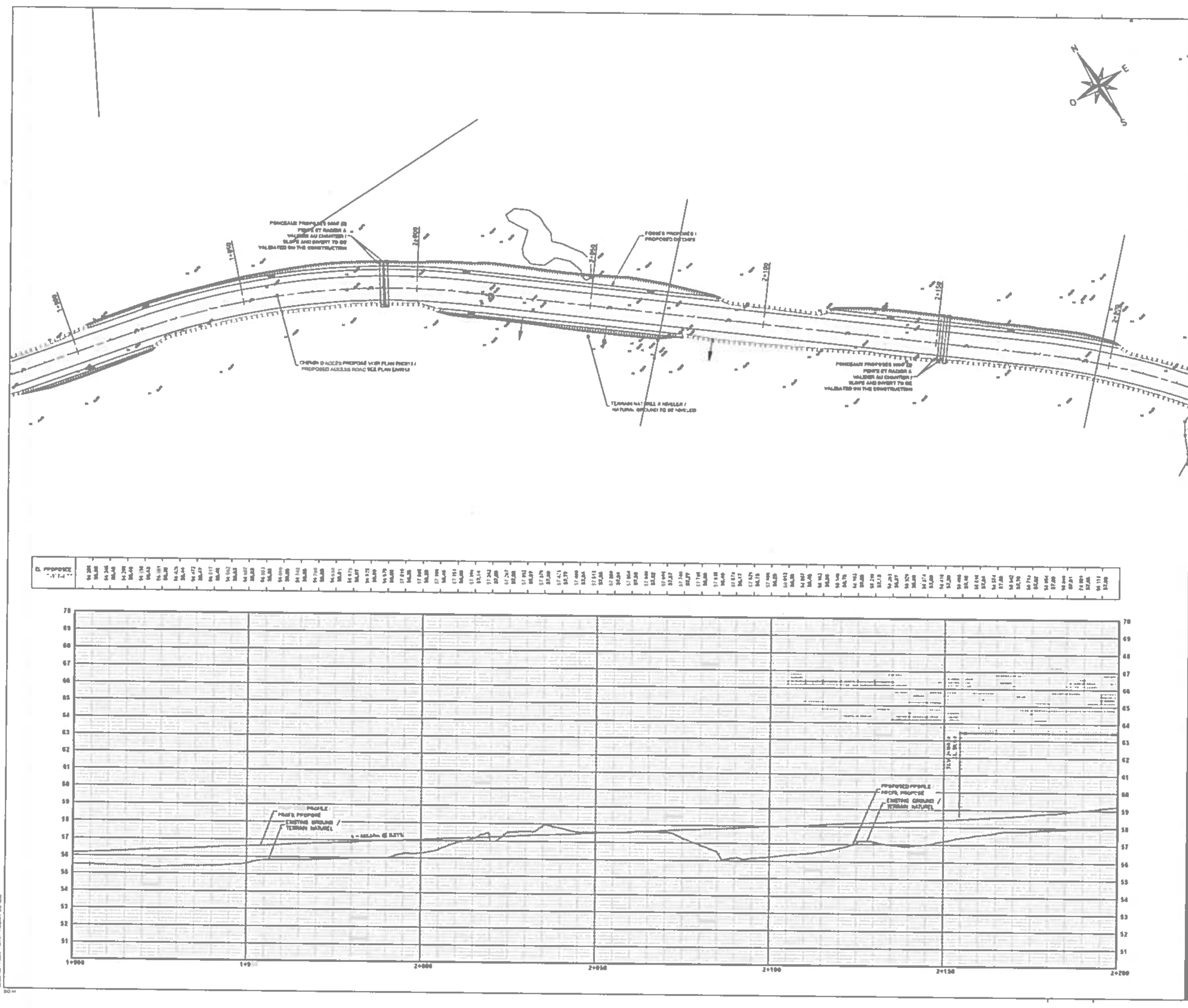

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NOUVEAU LIEU D'ENFOUISSEMENT EN TRANCHÉ À WHAPMAGOOSTUI / NEW TRENCH LANDFILL AT WHAPMAGOOSTUI

Titre / Title

PLAN AND PROFILE ROAD ACCESS TO THE SITE / PLAN ET PROFIL ROUTE ACCÈS AU SITE 1+900 at 2+280

Projet No / Project No	Échelle / Scale	
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Dessin No. / Drawing No.	Feuille / Sheet	Révision / Revision
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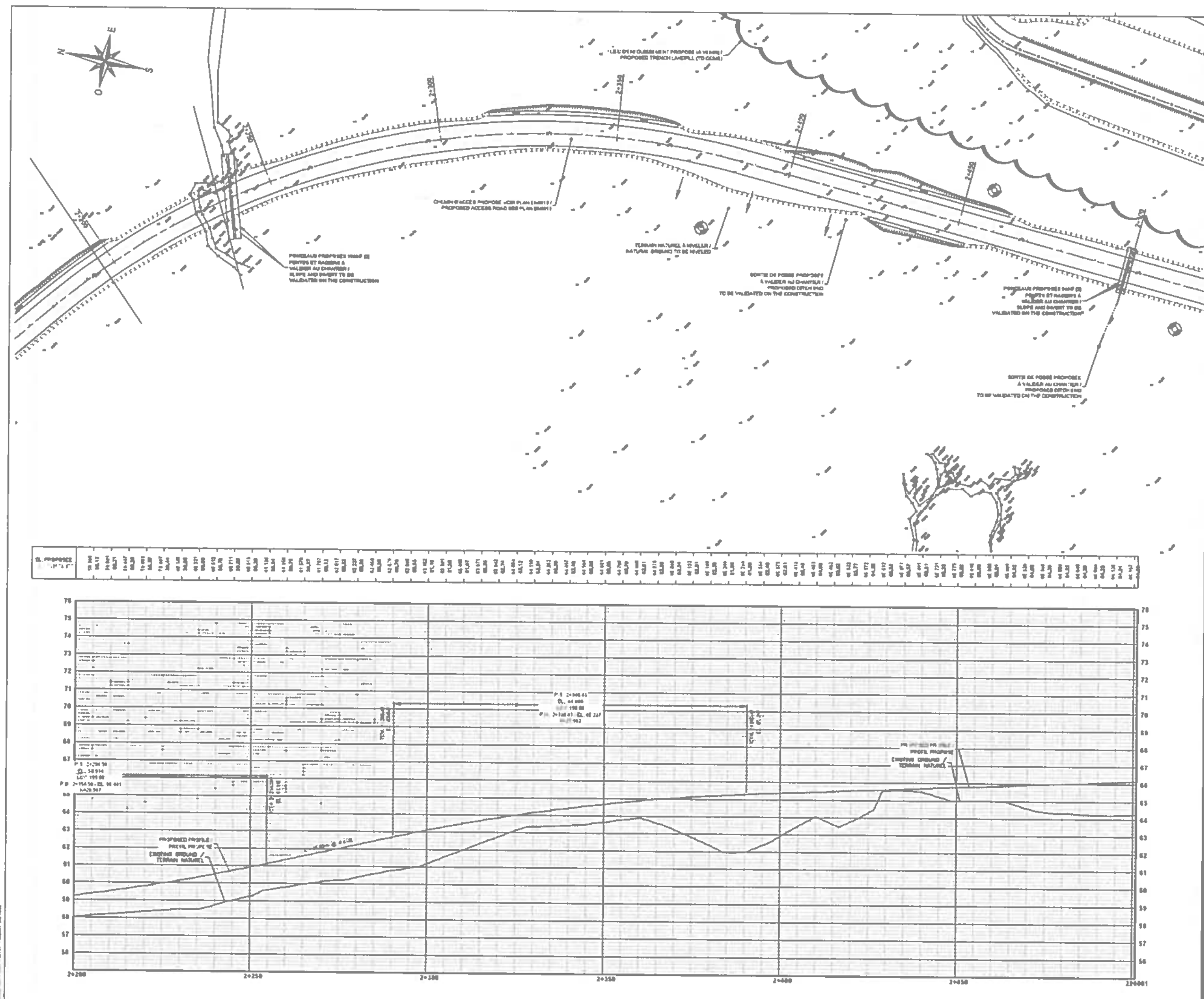

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Titre / Title
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2+200 @ 2+500

Projet No. / Project No.	Échelle / Scale	
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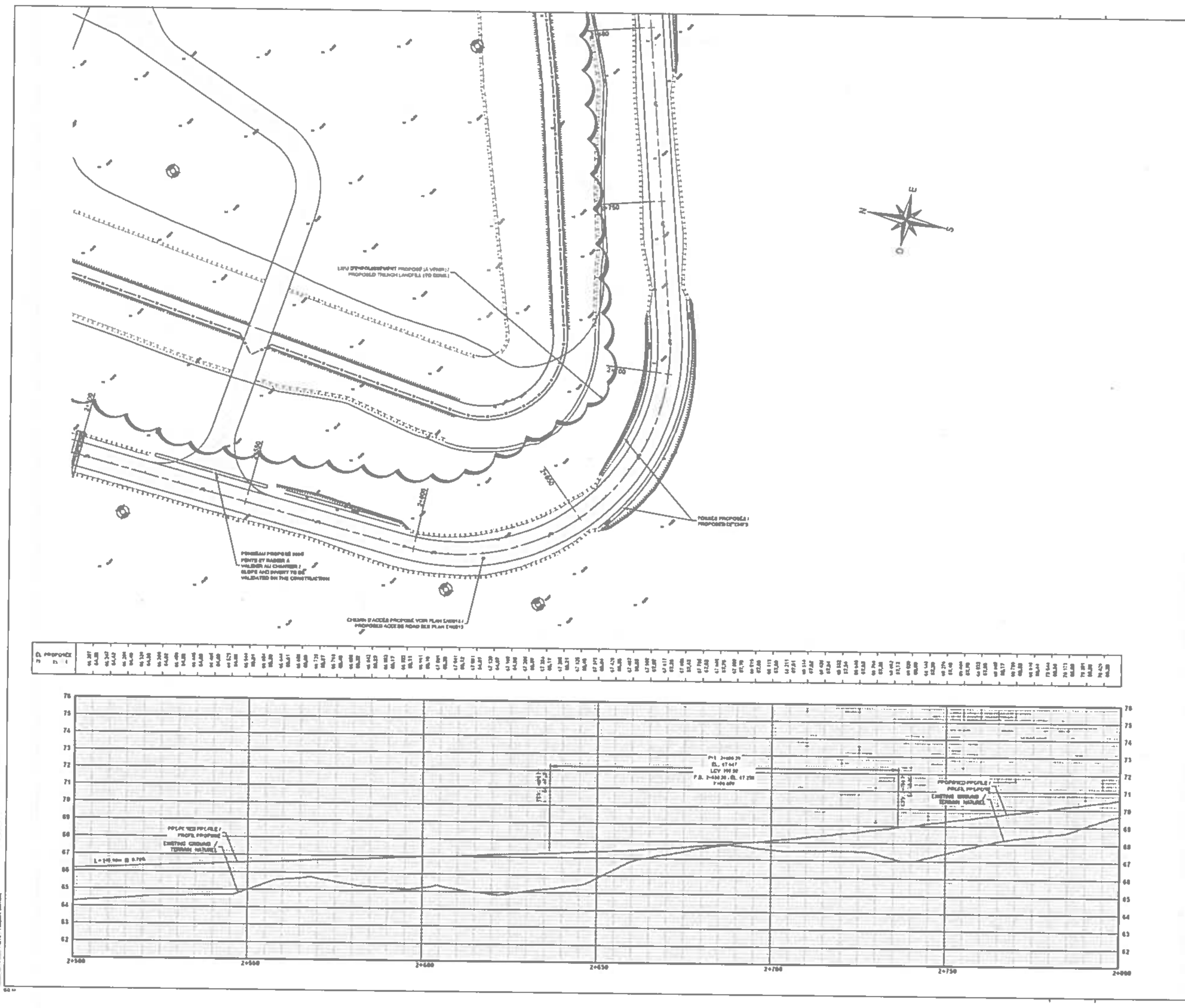

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WHAPMAGOOSTUI, QC

Titre / Title
PLAN AND PROFILE ROAD ACCESS TO THE SITE / PLAN ET PROFIL ROUTE ACCÈS AU SITE 2+500 @ 2+800

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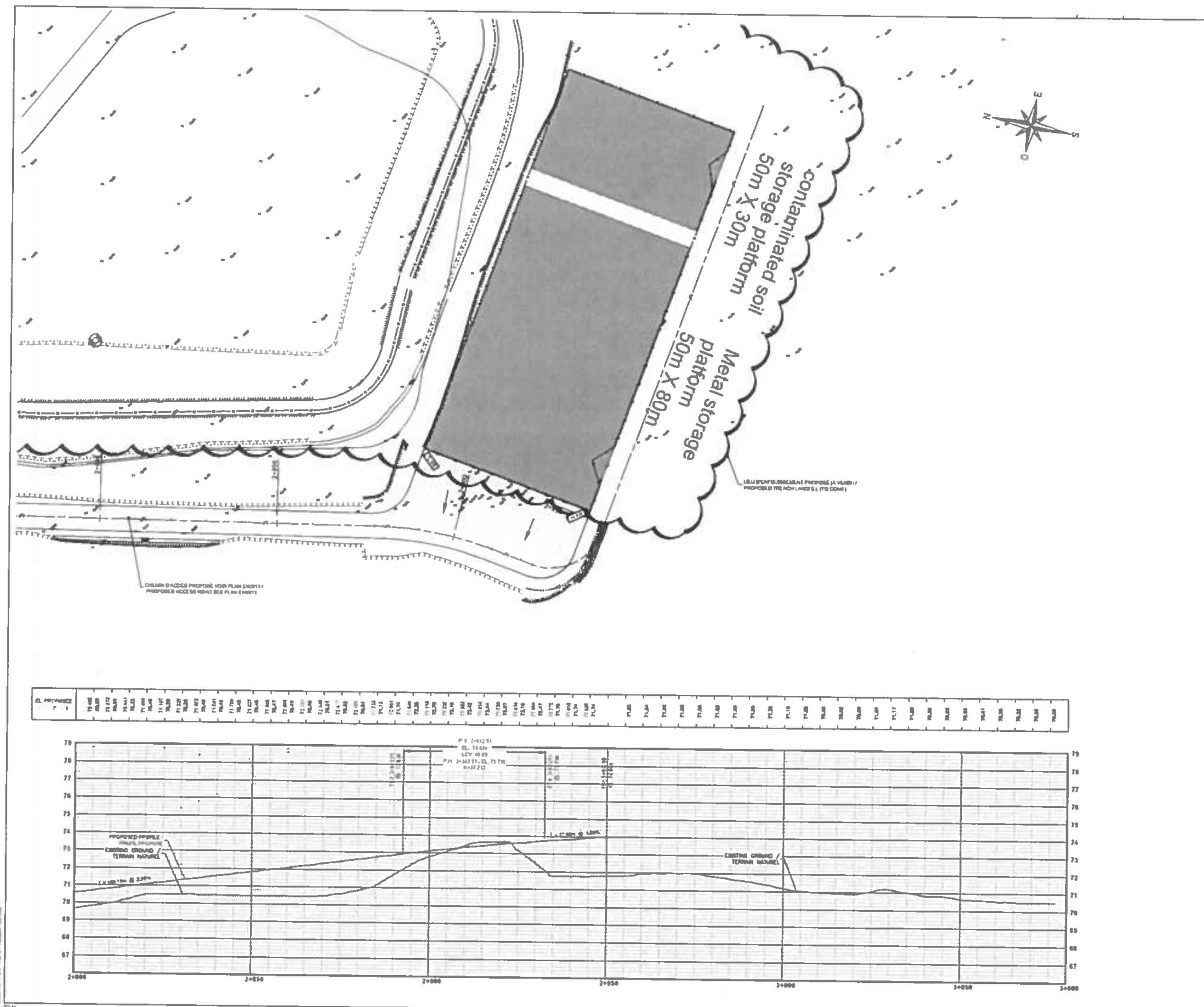

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Titre / Title

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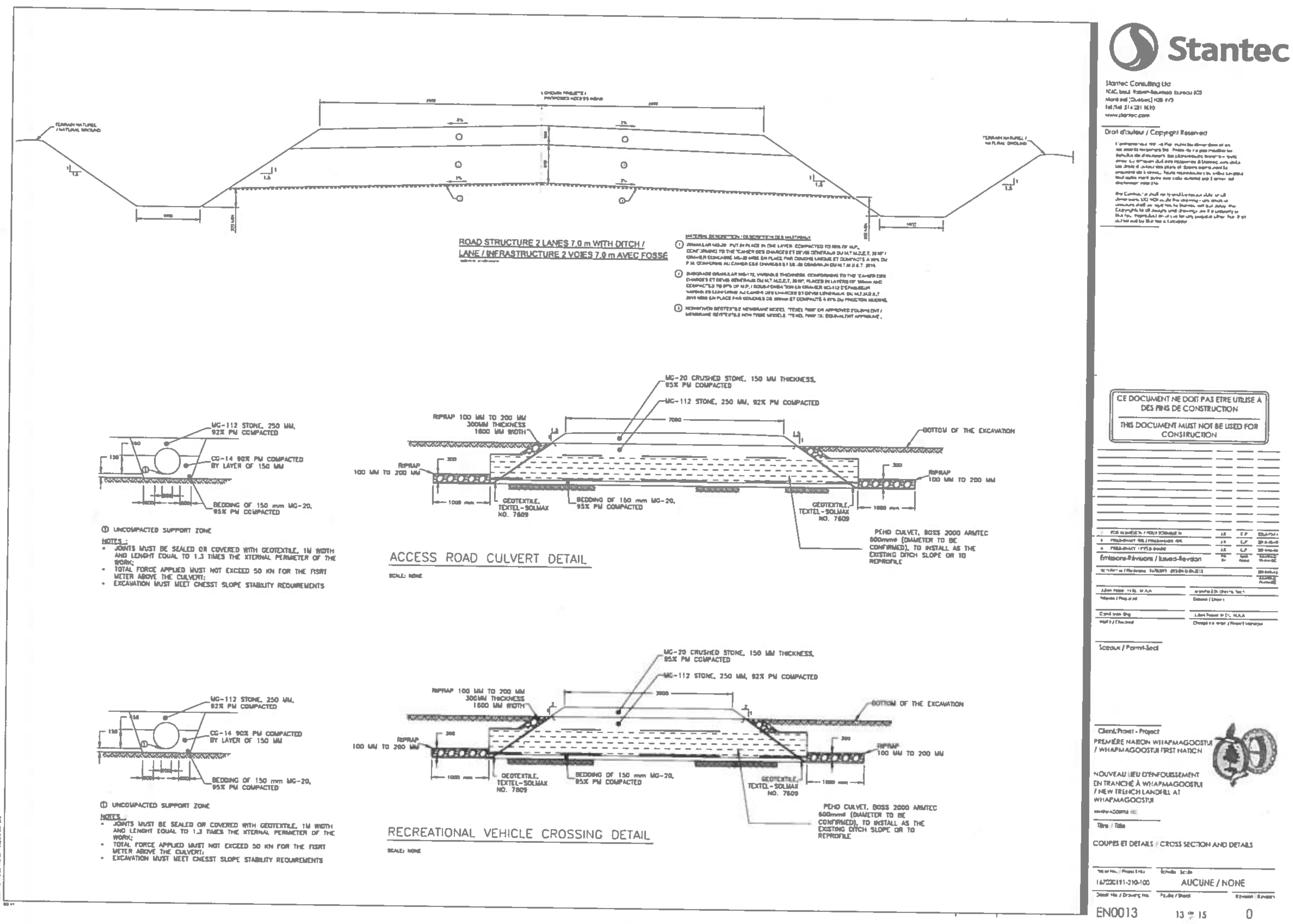
ROAD STRUCTURE 2 LANES 7.0 m WITH DITCH /
LANE / INFRASTRUCTURE 2 VOIES 7.0 m AVEC FOSSE
MG-20 CRUSHED STONE, 150 MM THICKNESS, 95% PM COMPACTED
MG-112 STONE, 250 MM, 92% PM COMPACTED
RIPRAP 100 MM TO 200 MM 300MM THICKNESS 1600 MM WIDTH
7000
BOTTOM OF THE EXCAVATION
RIPRAP 100 MM TO 200 MM
GEOTEXTILE, TEXTEL-SOLMAX NO. 7609
BEDDING OF 150 mm MG-20, 95% PM COMPACTED
PEHD CULVET, BOSS 2000 ARMTEC 600mm (DIAMETER TO BE CONFIRMED), TO INSTALL AS THE EXISTING DITCH SLOPE OR TO REPROFILE
MG-112 STONE, 250 MM, 92% PM COMPACTED
CG-14 90% PM COMPACTED BY LAYER OF 150 MM
① UNCOMPACTED SUPPORT ZONE
NOTES :
• JOINTS MUST BE SEALED OR COVERED WITH GEOTEXTILE, 1M WIDTH AND LENGHT EQUAL TO 1.3 TIMES THE XTERNAL PERIMETER OF THE WORK;
• TOTAL FORCE APPLIED MUST NOT EXCEED 50 KN FOR THE FISRT METER ABOVE THE CULVERT;
• EXCAVATION MUST MEET CNESST SLOPE STABILITY REQUIREMENTS
ACCESS ROAD CULVERT DETAIL
SCALE: NONE
3000
RECREATIONAL VEHICLE CROSSING DETAIL
SCALE: NONE
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