

## TECHNICAL NOTE

**TO:** Mr. Marc Croteau  
Provincial Administrator of the James Bay and  
Northern Quebec Agreement - Deputy Minister of the Ministry of the  
Environment and Fight against Climate Change

**FROM:** Mrs. Isabelle Cartier and Dominique Thiffault, WSP Canada Inc.

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Mr. Denis Couture, Head of Canadian Operations,  
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Mrs. Caroline Morissette, Director Environment and Permits,  
Galaxy Lithium (Canada) Inc.

**SUBJECT:** James Bay Lithium Mine Project -  
Sand extraction from the non-exclusive lease located at km 381

**PROJECT NO.:** 201-12362-00

**DATE:** September 22, 2022

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### 1. CONTEXT

Galaxy Lithium (Canada) Inc (GLCI) wishes to remove sand from the sand pit located at km 381 for use as a construction material for the James Bay Lithium Mine project. A portion of the sand pit is already in operation by Trimix Béton Inc., who holds the non-exclusive lease #BNE50701.

Due to the stripping and excavation of certain areas of the site during the construction phase, a certain volume of overburden may be used as construction material. Sand from the BNE will be used to fill in the missing quantities that cannot be recovered directly from the mine site.

This technical note provides additional information to the answer to question Qc4-16 of the fourth series of question from the COMEX , regarding the operation of borrow pits necessary for the James Bay Lithium Mine Project. For information purposes, the question Qc4-16 and the answer sent in April 2022 are presented below.

**QC4-16**

*In section 4.4.3 of the Environmental Impact Assessment document, version 2 (WSP, 2021), it is indicated that one or more borrow pits will have to be opened to meet the sand and gravel needs during the construction of the mining site. A few borrow pits were investigated in 2019.*

*It is also indicated that, depending on the required needs, the potential quantities to be extracted will be analyzed to validate which site to exploit would be the most appropriate. The proponent must present an assessment of the sand and gravel needs for the construction of the site and assess the area of the borrow pit required. In addition, the proponent must describe the work required to access the borrow pits already opened and those to be opened (clearing, road construction, etc.), the location and area to be exploited of the selected borrow pits, the work restoration to be provided if necessary, as well as the holder(s) of the lease provided for the operation of these borrow pits.*

**A-QC4-16:**

*A technical note has been written to explain the stages of construction of the haulage roads on the site (Appendix A-QC4-16).*

*In addition to the construction material that will be taken into the project footprint, additional material will come from the borrow pit at km 381 and the quarry at km 394, both already in operation. These two sites were chosen because they are already in operation, have enough material to meet project construction needs and given their proximity to the project site. In the event that more material is required following construction, it could then come from other borrow pits or previously identified quarries. The necessary permit applications would then be made at the appropriate time, well before the exploitation of one of these sites.*

*The borrow pit at km 381 is next to the engineered landfill. It's under the name of Trimix Béton inc. It is BNE 50701, renewable every year on April 1<sup>st</sup>. GLCI will apply to get material from this borrow pit. An area of 2.5 ha will have to be opened.*

*The effects associated to the operation of this borrow pit are mainly related to the transport of sand by truck, which can mainly contribute to modify the air quality. In total, 10,400 t of sand from this borrow pit will be needed for the work requiring clean sand, including the installation of the culvert at CE3 during the first month. Since the pit site materials are a mixture, they cannot be used for all purposes without sieving. This tonnage represents the loading of a total of 350 trucks of 30 t. The work requiring material from the borrow pit will be spread over a period of approximately 4 months. Thus, the transport of sand by truck would be about 20 trucks per week, for a period of 4 months. However, given the short distances to be traveled since the borrow pit is located next to the project site, the limited number of truck trips and the fact that the trucks will not have to take the Billy-Diamond road and that they will move at very low speed, the effects related to transport are considered insignificant. In addition, the mitigation measures provided in the second version of the EIS (Table 7-5 of the EIS) will help reduce the anticipated effects related to transportation during the construction phase as described in Chapter 7 of the second version of the EIS. These measures mainly involve watering the roads in order to avoid resuspension and the emission of dust as well as reducing the speed of vehicle traffic. No modification to the impact assessment presented in Chapter 7 of the second version of the EIS is therefore necessary.*

*The quarry that will be used for concrete production is located at km 394. As mentioned earlier, this quarry is already in operation. Communications with the SDBJ mention that the SDBJ holds an exclusive operating lease to mineral surface substances (BEX no. 1767) (R-QC4-16) for the quarry at km 394. This quarry is under an active authorization from MELCC (ref.: 7610-10-01-84028-00).*

*The effects associated with the exploitation of this quarry are related to the transport of aggregates by truck, from the quarry to the project site, i.e. over a distance of 12 km (24 km counting the round trip). In total, 29,000 t of aggregate will be needed for the construction (concrete production), which represents the loading of a total of 967 trucks of 30 t. The work requiring the most aggregates from the quarry will extend over a period of approximately 4 months. The transport of aggregates will therefore represent 8 trucks per day, for a period of 4 months.*

*The mitigation measures provided in the second version of the EIS (Table 7-5 of the EIS) will help reduce the anticipated effects related to transportation and traffic on the Billy-Diamond road during the construction phase as described in Chapter 7 of the second version of the EIS. No modification to the impact assessment presented in Chapter 7 of the second version of the EIS is necessary.*

## 2. SITE DESCRIPTION

The proposed sand pit is located near km 381, in the same area as the landfill operated by the *Société de développement de la Baie-James* (SDBJ). It is located approximately 300 m to the west of the sand pit. The site in question is already subject to sand extraction by Trimix Béton Inc (BNE50701). The construction of an access road will therefore not be necessary.

The sand pit is located in a terrestrial environment with a shrub-like stand, where there are no wetlands. Lake Kapisikama is located approximately 850 m to the northwest. The CE5 stream South of the sand pit is at approximately 850 m, while the CE4 stream to the north is at a distance of about 1 000 m.

A map showing the vegetation in the area is available in Appendix A. This map is taken from the environmental impact study submitted for the James Bay Lithium Mine project in July 2021. The sand pit is located near the truck stop, west of the Billy-Diamond road. The access road to the sand pit is also visible.

## 3. DESCRIPTION OF ACTIVITIES

GLCI plans to open and operate the sand pit that will have a surface area of 2.98 ha. Tree clearing will be necessary in order to access the resource. The volume is estimated at about 15 m<sup>3</sup> of wood. An application for a permit for tree clearing will be sent to the *ministère des Forêts, de la Faune et des Parcs* (MFFP) and obtained before any work is done. The removed organic material will be stockpiled and reused for site restoration at the end of the operation. The volume of sand that will be extracted is estimated at about 20,500 m<sup>3</sup>. Since the operation of the sand pit is already underway in the area, and since the sand pit is located next to a landfill, the construction of an access road will not be necessary as it is already in place.

Before the start of work, a verification of the presence of nesting will be carried out by a member of the GLCI team. The contractor will maintain a minimum distance of 50 m between the work and the colony during the nesting period of the bank swallow, from May 15 to August 31. The contractor will also pay particular attention to the nesting period of the common nighthawk between mid-May and mid August.

The operation of the sand pit will consist mainly of the extraction of the sand using a wheel loader or a mechanical shovel. The sand will be sieved on site in order to sort the material. The transport of sand to the mine site will be done using a ten-wheel or twelve-wheel tipping truck. Sand stacking may be necessary to optimize operations.

A location plan of the sand pit is available in Appendix B.

#### 4. MAIN ISSUES AND IMPACTS

As the sand pit is already in operation, the stakes are minor.

The risk of spills from equipment breakdown is present. All equipment will be inspected daily for leaks. In addition, all equipment will be equipped with a spill kit. No fuel tank storage will be permitted on site.

GLCI's spill procedure will be applied during the operation of the sand pit.

The dump trucks for transporting sand as well as the mechanical shovel or wheel loader for loading sand into trucks will be sources of greenhouse gas emissions.

Finally, the impacts related to the transport of sand has also been discussed in the answer to question QC4-16 presented above.

#### 5. PROJECT SCHEDULE

The start of earthworks on the mining site is scheduled for January 2023. According to sand requirements, the exploitation of the sand pit could therefore begin at that start of the construction phase. However, this schedule depends on the issuance of government authorizations. The cutting of wood cannot be done before obtaining authorization by the MFFP.

Prepared by:



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Environment

Reviewed by:



Dominique Thiffault, Geogr., B.Sc.  
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IC/DT/lp

p. j. Appendices



**APPENDIX A**  
MAP 6-12  
PLANT COMMUNITY AND  
SPECIAL STATUS PLANT SPECIES





— Infrastructures minières / Mining infrastructure  
 - - - Empreinte de la mine (zone tampon de 50 mètres) / Mine footprint (buffer 50 meters)  
 [Red box] Zone d'étude locale / Local study area

**Infrastructures / Infrastructure**  
 — Route principale / Main road  
 — Route d'accès / Access road  
 - - - Ligne de transport d'énergie / Transmission line  
 [Truck icon] Relais routier / Truck stop

**Hydrographie / Hydrography**  
 — Cours d'eau permanent / Permanent stream  
 - - - Cours d'eau à écoulement diffus ou intermittent / Intermittent or diffused flow stream  
 [Blue outline] Littoral des cours d'eau / Watercourses shoreline

**Espèce végétale susceptible d'être désignée / Plant Species Likely to be Designated**  
 [Pink circle with cross] *Carex sterilis*

**Parcelle d'inventaire / Survey Plot**  
 [Yellow circle] P-15 Parcelle (numéro de parcelle) / Plot (plot number)  
 [Black circle with cross] PF-09 Station d'échantillonnage des végétaux (numéro de station) / Plant sampling station (station number)

**Peuplements terrestres / Terrestrial Vegetation**  
 [Pink] Affleurement rocheux / Rock outcrop  
 [Orange] Arbustaie / Scrubland  
 [Light orange] Aulnaie crispé / Alder forest  
 [Green] Boisé / Woodland  
 [Brown] Dénudé sec / Dry barren land  
 [Dark green] Pessière noire à lichen / Black spruce lichen forest  
 [Light green] Pessière noire à aulnes / Black spruce alder forest  
 [Teal] Pinède grise / Jack pine forest  
 [Grey] Anthropique / Anthropogenic  
 [Red] Brûlis / Burnt area  
 [Dark brown] Végétation terrestre dans l'emprise / Terrestrial vegetation in right-of-way

**Peuplements humides / Wetland**  
 [Blue] Plan d'eau / Waterbody  
 [Light blue] Tourbière arbustive / Shrubby peatland  
 [Light green] Tourbière boisée / Treed peatland  
 [Yellow-green] Tourbière ouverte / Open bog  
 [Dark green] Végétation humide dans l'emprise / Wetland in right-of-way

**GALAXY**  
 Mine de lithium Baie-James / James Bay Lithium Mine

**Carte / Map 6-12**  
**Groupements végétaux et espèces floristiques à statut particulier / Plant Community and Special Status Plant Species**

Sources :  
 Orthoimage : Galaxy, août / august 2017  
 Inventaire / Inventory : WSP 2017  
 Données du projet / Project data : Galaxy, 2021

0 240 480 m  
 UTM, fuseau 18, NAD83

Juillet / July 2021

Dessin : A. Masson  
 Approbation : C. Martineau  
 201-12362-00\_c6-12\_wspT071\_vegetation\_210701.mxd

**wsp**





**APPENDIX 2**  
PLAN DE LOCALISATION  
DE LA SABLIERE  
*(IN FRENCH ONLY)*

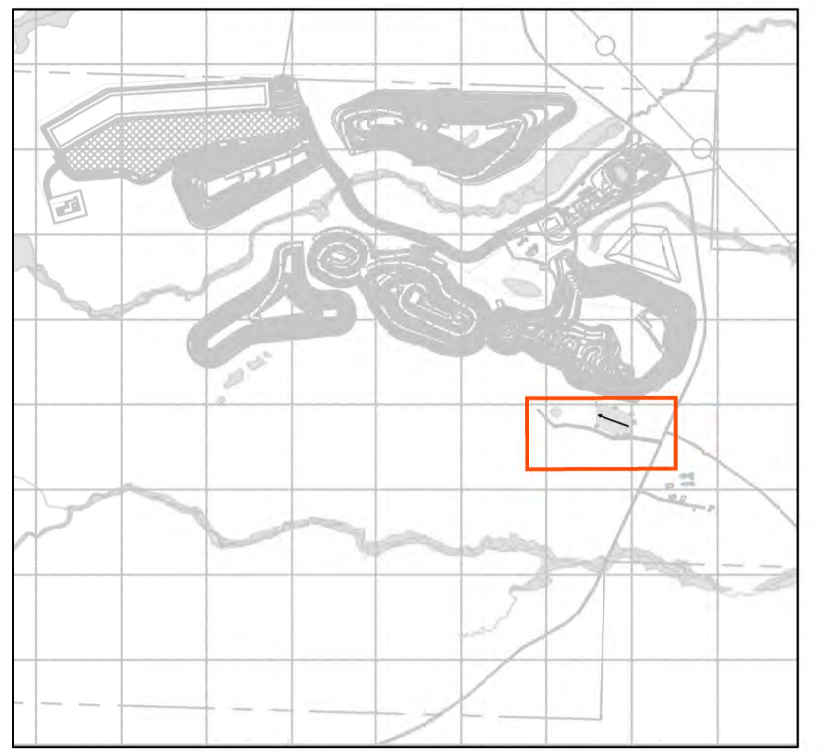




COORDONNÉES  
UTM NAD 83 FUSEAU 18

1:	358 989.601
	5 788 813.794
2:	358 916.700
	5 788 814.413
3:	358 791.938
	5 788 872.808
4:	358 790.318
	5 789 001.060
5:	358 903.523
	5 788 981.186
6:	358 997.067
	5 788 940.672

1 VUE EN PLAN  
1:2500



PLAN PRINCIPAL

LEGENDE

- LIEU D'ENFOUISSEMENT EN TERRITOIRE ISOLÉ (LET) DE LA SOCIÉTÉ DE DÉVELOPPEMENT DE LA BAIE-JAMES (SDB.J)
- LOCALISATION DU BNE DE TRIMIX BÉTON
- ROUTE D'ACCÈS
- SUPERFICIE À OUVRIR POUR LE PROJET



ÉMIS POUR DEMANDE DE PERMIS

NE PAS UTILISER POUR CONSTRUCTION

REV	DESCRIPTION	PAR	ING	DATE
C	ÉMIS POUR PERMIS	P.H	E.S	22-05-30
B	ÉMIS POUR REVUE DU CLIENT	P.H	E.S	22-05-17



CONCEPTEUR: E. HUELAR	22-05-04
DESSINATEUR: P. HERISSE	22-05-04
VÉRIFIE PAR: C. FABRO	22-05-04
INGÉNIEUR: C. FABRO	22-05-04
ÉCHELLE: TEL QU'INDIQUÉ	DATE

PROJET: **BAIE-JAMES**  
PHASE: **INGÉNIERIE DE DÉTAIL**

TITRE: **TERRASSEMENT  
LOCALISATION DU BNE KM 381  
VUE EN PLAN**

DESSIN NUM.:	CAJB - 1			
<b>001_EW_DWG_0018_C</b>				
SECTEUR	DISC.	TYPE	NUM. SEQ.	REV.