Jokkmokk Iron

CONSULTATION DOCUMENT

Basis for consultation according to Chapter 6 of the Environmental Code and Section 13 of the Seveso legislation regarding permit applications for mining in Kallak.

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The original Consultation Document was written in Swedish and has been translated into English for the ease of the reader. No assurances are made about the accuracy of the translation and there may be terms that do not translate exactly.

Table of contents

Forward from Jokkmokk Iron Mines AB

Dear Stakeholder,

On behalf of the Directors and employees of Jokkmokk Iron Mines AB and its parent company, Beowulf Mining plc, it is a pleasure to initiate the Consultation Process for the Environmental Permit for the Kallak or Gállok Iron Ore Project.

We commence this process with the view that this consultation is a central part of the Environmental Impact Assessment, and we welcome the participation of all stakeholders, with the aim of developing a meaningful and productive engagement that reflects the views, opinions and concerns of our valued stakeholder base.

There are a number of stakeholders for whom this process is particularly relevant; local landowners, the Sami villages, residents of the local communities, the County Administrative Board and a number of Government agencies. As a company, we also have other stakeholders who are not directly involved in this process but whose views must be acknowledged and listened to; our shareholders, employees, consultants, contractors, suppliers and ultimately our customers. As we continue to develop the Kallak Project, our objective is to balance the interests of all our stakeholders.

Guiding values

Beowulf and its subsidiaries have adopted a number of values that guide the way in which we operate, not only at Kallak but across the Company's wider portfolio. These values are:

- ***Transparency** – communicating in an open, clear and honest manner about the Company's objectives and activities.*
- ***Accountability** – we will take responsibility for the Company's actions, decisions, and performance, and recognise the impacts these have on broader society.*
- ***Meaningful stakeholder engagement** – we aim to develop a two-way dialogue with all stakeholders based on good-faith and respect where differing views and opinions can be freely shared and fairly heard.*
- ***Environmental stewardship** – we acknowledge that, as an extractive industry, mining does impact the natural environment, however, we are committed to avoiding such impacts, and where these are unavoidable, we will minimise and mitigate, then restore and ultimately offset to ensure an overall net positive impact. In addition, our projects have the potential to play an important role in the regional transition to a green economy – a potential that we will seek to maximise.*
- ***Innovation and technology** – through the adoption of new technologies and approaches to working, we believe we can significantly enhance the net positive impacts of our projects.*
- ***Corporate governance** – as a Company, we will continue to build the structures and controls within our operations to ensure we adhere to our guiding principles and build a sustainable business that delivers benefit to all our stakeholders.*

The Kallak Project

The Kallak Project has a long history and, regrettably, not all of it is positive. We acknowledge the strong views held by a number of stakeholders about the future development of the project, and we also acknowledge the mistakes and misjudgements that have been made by the Company in the past that have not helped the perception of either the Company or the project.

We must stress our personal commitment to working with our stakeholders and communities in a transparent and respectful manner. As the lead managers, we are responsible for ensuring these principles, and the guiding principles listed above, are adhered to by all employees, consultants and contractors working for the Company – and we are ultimately accountable for this. In all of our activities,

for this process and beyond, we will endeavour to treat all stakeholders with respect, minimising any negative impact that Kallak may have and mitigating those impacts should they be unavoidable, whilst optimising the benefits the project can offer.

Any industrial development creates impacts on the local environment and those who live and work within it. For a mining project, where material is extracted from the ground, it creates a permanent change to the landscape. Locally, these impacts may be caused by the physical presence of the industrial site, changes to land use and appearance, and direct and indirect impacts on natural and cultural values.

However, mining projects are also an important driver of local economic growth, generating skilled employment and tax revenues. The Kallak Project could have a major positive influence on the local economy, creating significant direct and indirect employment, providing bountiful opportunities for service industries, supporting local and regional supply chains, and generating significant tax revenues.

Mining projects also have a broader societal impact. Metals and minerals are required, not only to maintain the current standard of living and lift portions of the world out of poverty and underdevelopment, but also to deliver the transition to a more sustainable future.

Steel is critical for the development of infrastructure, including infrastructure needed to deliver the green transition, however, the industry is currently a major contributor to greenhouse gas emissions, accounting for approximately 5% of EU and 7% of global carbon dioxide emissions. A number of initiatives are being undertaken by the steel industry to reduce emissions, including replacing highly polluting blast furnaces with electric arc furnaces, and the development of direct reduction of iron (DRI) technology.

We are proud that Sweden is at the forefront of DRI development with significant investment in Hybrit and H2 Green Steel, yet for their potential to be realised, these decarbonising technologies also require high-grade, low impurity iron ore.

Test-work has demonstrated that Kallak can produce a very high-grade concentrate that is anticipated to be highly desirable for the production of this green, low-carbon steel. This places significant weight on the project's role in securing decarbonised steel supply chains that can reform the European and global steel industries and support the transition to a more sustainable economy.

The project has been described as Sweden's "largest undeveloped quartz banded iron ore deposit" and is of "national interest", according to the Swedish Government in its submission to the Supreme Administrative Court on 18 January 2024. Locally, it can generate significant economic development in a municipality that has seen a declining population over a number of decades and a lack of private sector job opportunities. The development of Kallak has the potential to catalyse the private sector and drive growth in small and medium-sized businesses, strengthen public services, and support the development of local and regional infrastructure that will have further positive knock-on effects.

Through an extensive, progressive and meaningful consultation, we can appropriately assess and balance any views and concerns surrounding the project, ensuring that it can be optimised with local and regional stakeholders at its epicentre, whilst securing the benefits that the project can afford those stakeholders, the Company, and national and international decarbonisation efforts.

The consultation process gives you the chance to shape the way the project is developed, operated and ultimately remediated and returned to nature. Your contribution is, therefore, a critical part of the development process. We welcome your engagement and look forward to building a collaborative relationship.

Kind regards,

Dmytro Siergieiev
Project Director, Jokkmokk Iron Mines AB

Ed Bowie
CEO, Beowulf Mining plc

1 Introduction

The steel industry is responsible for 5% of the EU's total carbon dioxide emissions. The ongoing transition of the steel industry from conventional steel production to fossil-free steel requires high-quality raw materials. As more players in Europe and the world redesign existing steel mills to be more climate-friendly, and new steel mills for the production of fossil-free steel are built, the need for the extraction of high-quality iron ore is also increasing.

In Sweden, steel production has developed as our need for high-quality steel has increased, for example in vehicles and infrastructure. According to the Swedish Geological Survey (SGU), iron and steel are an important economic piece of the puzzle for Sweden that will be needed for the construction of the smart cities of the future. Increasing domestic mining and reducing dependence on imports from other countries is also seen as a reason why more mines in Sweden should be opened.

Jokkmokk Iron Mines AB (JIMAB) plans to extract iron ore from an iron ore deposit in Jokkmokk municipality, named Kallak[1] North. The planned mining operations will include open pit ore mining, ore processing (crushing, grinding, enrichment and product handling) as well as the disposal of waste rock and tailings, etc. The mining rate is estimated to be about 9 million tonnes of ore per year.

The ore at the deposit consists of a quartz-banded iron oxide (magnetite, hematite and maghemite). There are only low levels of other elements such as titanium, vanadium, manganese, phosphorus and sulphur, which means that the iron mineralisation is of high quality. The ore contains different levels of iron in different parts of the orebody. The iron content is 28% on average.

The planned mining operations require a permit under the Environmental Code and this consultation document is part of the environmental assessment included in the application for a permit for the planned operation.

1.1 Existing permits and land use decisions

JIMAB holds the exploitation concession for the Kallak K No. 1 area (which includes the Kallak North mineralisation). In addition, the company holds a number of exploration permits.

Prior to the commencement of operations, JIMAB will also need to apply for land designation under the Minerals Act and construction permits under the Planning and Building Act. However, these are separate processes.

1.2 About the consultation and the permitting process

Consultation is part of the permit process according to the Environmental Code (1998:808) and the Environmental Assessment Ordinance (2017:966), which aims to create a better basis for decisions by obtaining knowledge, ensuring quality and scope and reducing uncertainties for the future project. Furthermore, the consultation also aims to delimit the environmental impact assessment and consult with authorities, especially those affected and the general public.

The present document forms the basis for consultations which, according to Chapter 6, Section 29 of the Environmental Code shall be carried out as part of the environmental assessment of the activities that are subject to the permit requirement pursuant to Chapter 9 or 11 of the Environmental Code. Since the activities in Kallak are of such a nature that they can be assumed to have a significant environmental impact according to Section 6 of the

[1] The Lule Sami name for Kallak is Gállok. In the consultation documents, the Swedish, or Swedishised, name is used.

Environmental Assessment Ordinance, an investigation consultation is not necessary according to Chapter 6, Section 23 of the Environmental Code. This delimitation consultation has therefore not been preceded by a survey consultation.

Figure 1 shows the main steps in the permitting process. The consultation is important for the applicant to be able to obtain views from those who may be affected by the planned operation. The views received during the consultation will be taken into account in further investigations and planning of the activities. All comments will be compiled in a statement that will be submitted with the application. The consultation report will also show how the issues that have arisen during the consultation have been handled.

Once the application has been submitted to the responsible review authority, in this case the Land and Environment Court, the application is usually sent to various authorities who are allowed to comment on whether the application constitutes sufficient documentation or if there is a need for supplementation.

If the Court considers that the application is not complete, the applicant is given the opportunity to supplement the application. When the application is deemed complete, it is announced. The purpose of the announcement is to give interested parties the opportunity to submit their views.

The applicant is given the opportunity to respond to the comments that have been received, after which a so-called main hearing is normally held. The main hearing is open to everyone and usually takes place in a meeting room close to the intended operation. Sometime after the main hearing, the Court will issue a judgment in the case.

A judgment from the Land and Environment Court can be appealed by both authorities and interested parties. Judgments from the Land and Environment Court are appealed to the Land and Environment Court of Appeal. In order for the Land and Environment Court of Appeal to take up the case, the Court must grant a so-called leave to appeal. If the Land and Environment Court of Appeal does not grant leave to appeal, the judgment of the Land and Environment Court applies, i.e. the decision becomes final and the permit can be used.

Figure 1. Steps in the permit process with highlighted boxes marking the occasions when there is an opportunity to formally express opinions on the planned activity.

The activities are covered by the Seveso legislation and the consultation therefore also includes a consultation in accordance with Section 13 of the Act (1999:381) on measures to prevent and limit the consequences of serious chemical accidents, in accordance with Chapter 6, Section 29 of the Environmental Code. The consultation is carried out with the aim of investigating whether there are factors in the environment that may affect the safety of the operation under application.

According to the Environmental Code's provisions for the conservation of resources in Chapters 3 and 4, land and water areas shall be used for the purpose for which the areas are most suitable with regard to their nature and location as well as existing needs. Through the granted exploitation concession (see chapter 1.1), the planned mining activities have been found to be the most suitable purpose. Chapters 3 and 4 of the Environmental Code were thus examined within the framework of the application for an exploitation concession. However, this does not apply to so-called ancillary activities such as transport. National interests in the area are described in chapter 2.3 below.

The company is working on the basis of the preliminary timetable in Table 1.

Table 1. Preliminary timetable.

Time	Activity
Spring and summer 2024	Feasibility studies, investigations and investigations prior to the application. Produce consultation documents.
Autumn 2024	Consultation.
Autumn/winter 2024	Further investigations prior to application.
Winter/spring 2025	Preparation of a technical description and environmental impact assessment which is attached to the application.
Spring 2025	Submission of application documents to the Land and Environment Court.

1.3 Administrative tasks

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Organisation number:	556844-2924
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Contact person:	Dmytro Siergieiev
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1.4 Scope of application

JIMAB plans to apply for a permit in accordance with Chapter 9 of the Environmental Code for iron ore mining in a planned open pit mine, referred to as Kallak. The planned activity is considered to have a significant environmental impact and is classified according to the Environmental Assessment Ordinance as an A activity, where the permit examination takes place in the Land and Environment Court. Water activities will also be included in the planned activities (in the form of groundwater removal) and the permit application will therefore include a permit for this in accordance with Chapter 11 of the Environmental Code. The planned operations include mining of ore, crushing, processing, disposal of waste rock and tailings, water management and transport.

The mining operations include:

- Mining of ore in open pit mines
- Processing in concentrator plant
- Disposal of waste rock and tailings
- Construction of an industrial area
- Drainage of surface and groundwater from open pit mines through ingress water management
- Discharge of ingress and process water to recipient
- Construction of collecting and shielding ditches around facilities
- Damping of water in tailings storage facility and clarifier reservoirs
- Transport within the operating area and to and from it

The operation may also require an exemption under the Species Protection Ordinance.

2 Overall description of the surroundings

2.1 Localisation

The planned operations are located about 40 km west of the urban area of Jokkmokk in Norrbotten, see Figure 2. The area of the applied activity is located on a peninsula between the villages of Björkholmen and Randijaur. These villages are both located about 2 km from the planned activities. The nearest buildings are in the village of Björkholmen, which is located in a river plain to the west. The village of Randijaur is located in low-lying areas on the eastern side of the peninsula. The agricultural land around the villages is limited.

The planned operation is located on a peninsula surrounded by the three larger lakes Randijaure/Ráddnávrre, Parkijaure/Bárgávrre and Skalka/Skálkká[2] as well as smaller watercourses. The peninsula consists of varying terrain with altitudes between 300 and 600 m above sea level. The surroundings for the planned activities consist of hilly forest terrain with elements of marshes and small lakes.

Logging since the 1800s and the expansion of hydropower during the 1900s have left an agricultural mark on the landscape.

Multiple names for the same place

Many geographic places in the area have both a Sami and a Swedish name. In some cases, the Swedish name is a Swedishised Sami word, e.g. the word -jaur/-jaure, which is a Swedishised Sami word for lake. The Lule Sámi word is jávvre.

Lantmäteriet is the national place name authority in Sweden and in Lantmäteriet's online map service, the Swedish name is sometimes used, sometimes the Sami name. It may also be the case that both a Swedish/Swedishised and a Sami name are shown in the map, this applies for example to the community of Jokkmokk/Jåhkåmåkke and the village of Randijaur/Ráddnávrre. The name and spelling in Lantmäteriet's map service may change.

Official names of nature reserves can be both Swedish and Sami, while the names of water bodies for the current management cycle in most cases hold the Swedish/Swedishised name. For the next management cycle, the names may change.

In the consultation document, both Sami and Swedish/Swedishised names are therefore used to describe geographic places.

[2] Many geographical locations have both a Sami and a Swedish or Swedishised name, see the information box above, Multiple names for the same place

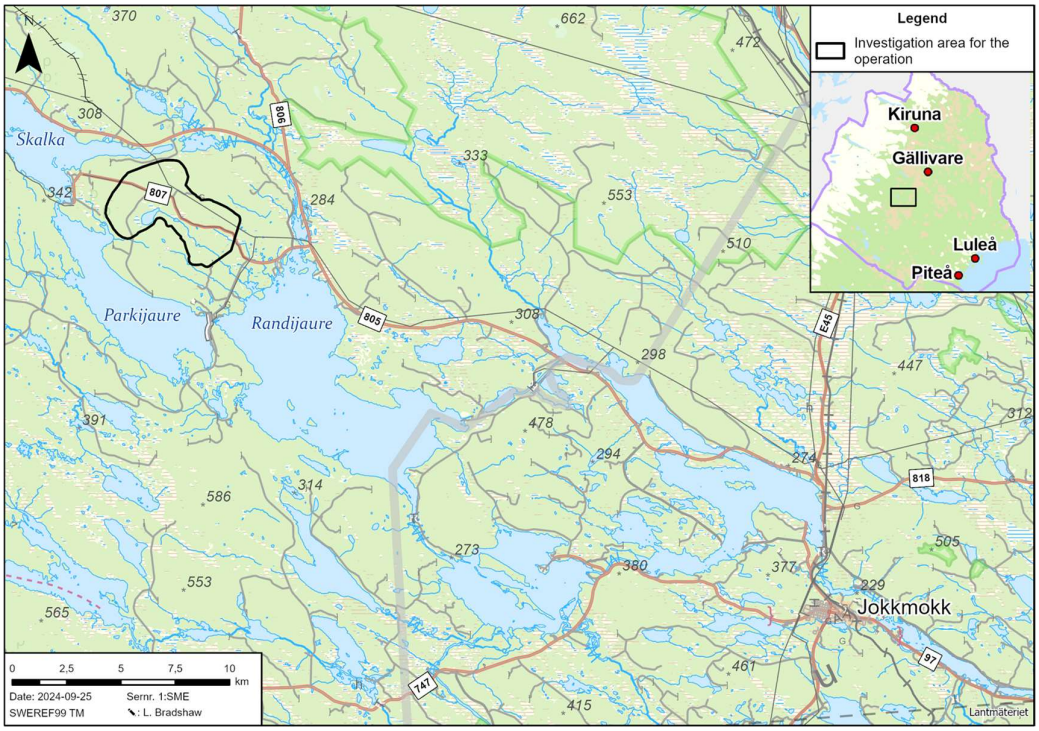

Figure 2. Location of the planned Kallak operation in Jokkmokk municipality.

2.2 Affected properties and planning conditions

The investigation area for the operation lies within 11 properties, see Figure 3. The operation will be conducted within the majority of these properties, which are also listed below:

- Allmänningsskogen S:1
- Björkholmen 2:5
- Björkholmen 5:1
- Björkholmen 1:2
- Björkholmen 1:3
- Randijaur 1:18
- Randijaur 4:2
- Randijaur 9:1
- Randijaur 7:1
- Randijaur 5:1
- Randijaur 3:2

The planned area of operation with its various elements of activity will be located within the area designated as an investigation area for the operation.

There are also properties that may be affected by transport to and from the operation. The investigation area for transport solutions is shown in Figure 4 and transport is described in more detail in chapter 3.9.

The land area is not covered by detailed plans or area regulations.

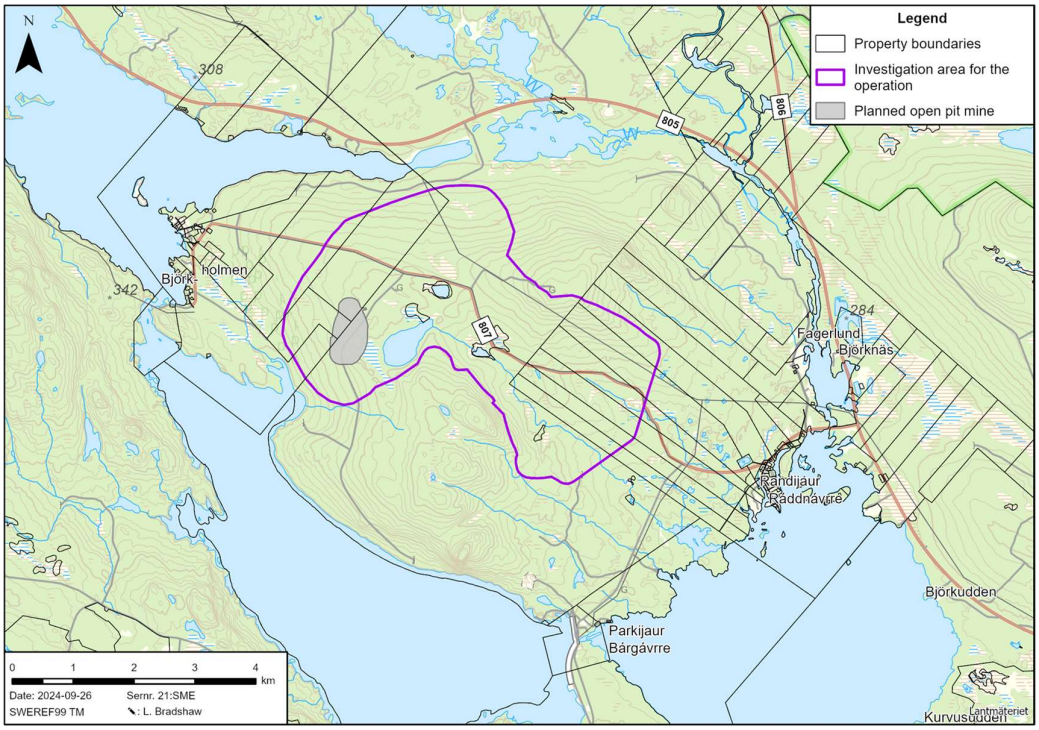

Figure 3. Property boundaries and investigation area for operations.

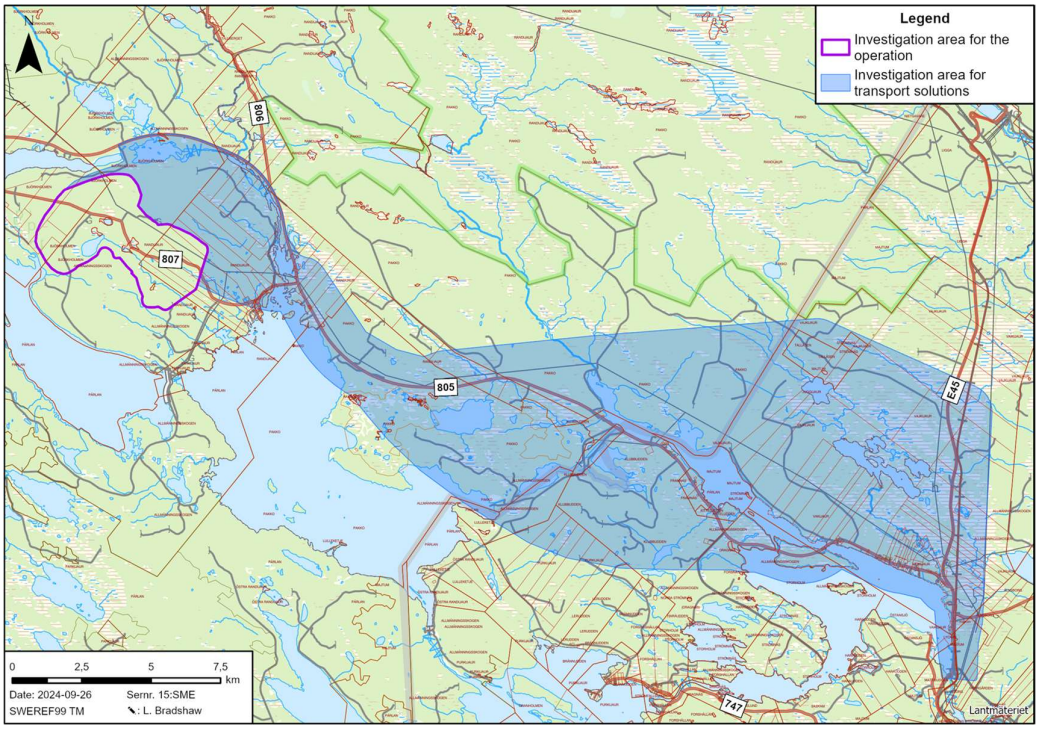

Figure 4. Investigation area for transport solutions and transshipment centre at Inlandsbanan.

2.3 National Interests Chapters 3 and 4, the Environmental Code

Mining is planned for an area that is designated as of national interest for valuable substances and materials according to Chapter 3, Section 7 of the Environmental Code. The planned activities mean that the national interest is safeguarded through the mining and extraction of iron ore. The national interest in reindeer husbandry, protected under Chapter 3, Section 5 of the Environmental Code, is designated in the area of the planned activity and overlaps with the national interest in valuable substances and materials in Kallak.

The planned operations are located within and right on the border of the area designated as a no-go area for high objects and low-flying, which according to the Armed Forces' decision of national interest is of importance for the military part of the Total Defence according to Chapter 3. 9 § 1 para. of the Environmental Code. This means that the area is not designated as a national interest, but that it must be protected as far as possible against measures that can significantly counteract the interests of Total Defence. The nearest area designated as a national interest, according to Chapter 3. 9 § 2 paragraph of the Environmental Code, is Jokkmokk's air base, just under 50 km southeast of the planned operations.

Within about 15 km of planned activities, there are national interests and Natura 2000 areas listed in Table 2. Natura 2000 areas are classified as of national interest according to Chapter 4, Section 8 of the Environmental Code. Further descriptions of areas covered by national interests and foreseen environmental effects are described in Chapter 4.

European route 45 and Inlandsbanan are designated as being of national interest for communication. These are located just under 30 km from the planned operations but may be impacted by the operations' external transportation. The national interests in relation to planned activities are shown in Figure 5 and Figure 6.

Table 2. Areas within approximately 15 km of planned activities, which are protected according to Chapter 3 and Chapter 4 of the Environmental Code. National interest in communication is included in the table even though it is further away than 15 km.

Type of national interest	**Name**	**Distance from planned activities**
Reindeer husbandry of national interest	Areas and migration routes mainly within Jåhkågaska tjiellde but also Sirges and Tuorpon Sami villages	Partly within and in connection with
National interest in outdoor recreation	Kaitum-Laponia-Kvikkjokk-Pärlälven	Just over 10 km west of
Nature conservation of national interest	Råvejaure-Saggat-Peuraure-Karatj-Purkijaure-Kabla	About 13 km southwest of
Nature conservation of national interest	Ultevis-Sitojauresänkan-Harrejaure	About 13 km northwest of
Cultural heritage conservation of national interest	Purkijaur	Just over 15 km southeast of
National interest unbroken mountain	Sarek-Mavas	About 15 km west of the closest
Natura 2000 site	Jielkká-Rijmagåbbå	At the closest about 4 km northeast of
Natura 2000 site	Pärlälvens fjällurskog	About 13 km west of
Natura 2000 site	Ultevis fjällurskog	At its closest about 10 km northwest of
Communications of national interest	European Route 45 (road)	Less than 30 km east of
Communications of national interest	Inlandsbanan (railway)	Less than 30 km east of

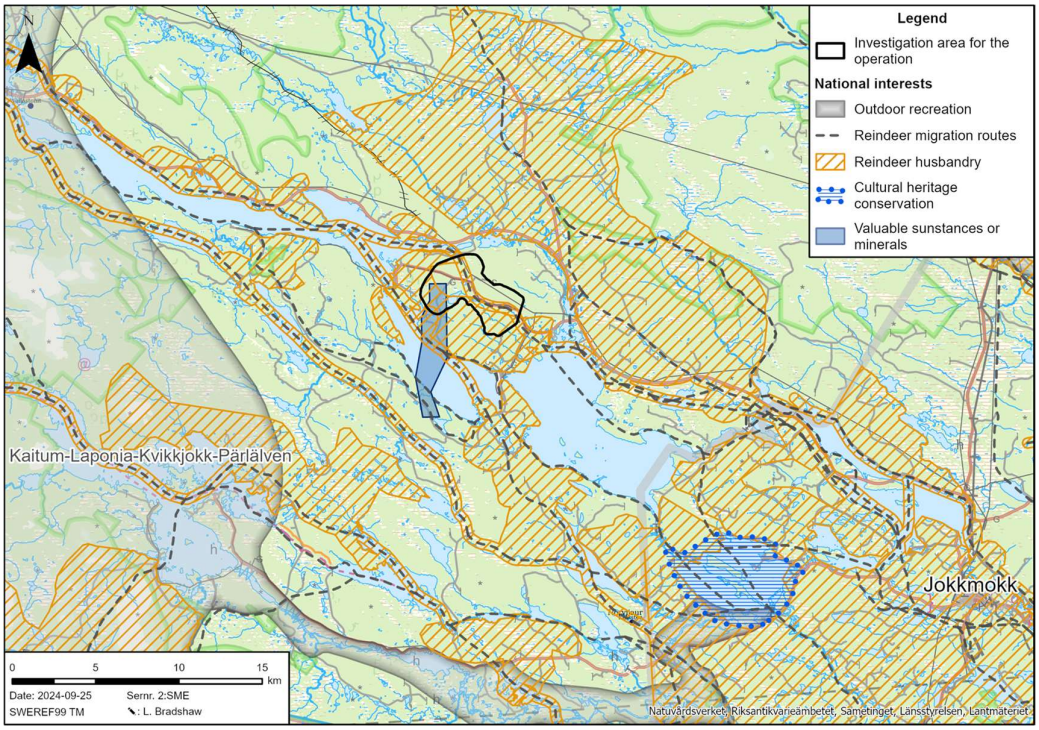

Figure 5. National interests in reindeer husbandry, outdoor recreation and cultural environment conservation.

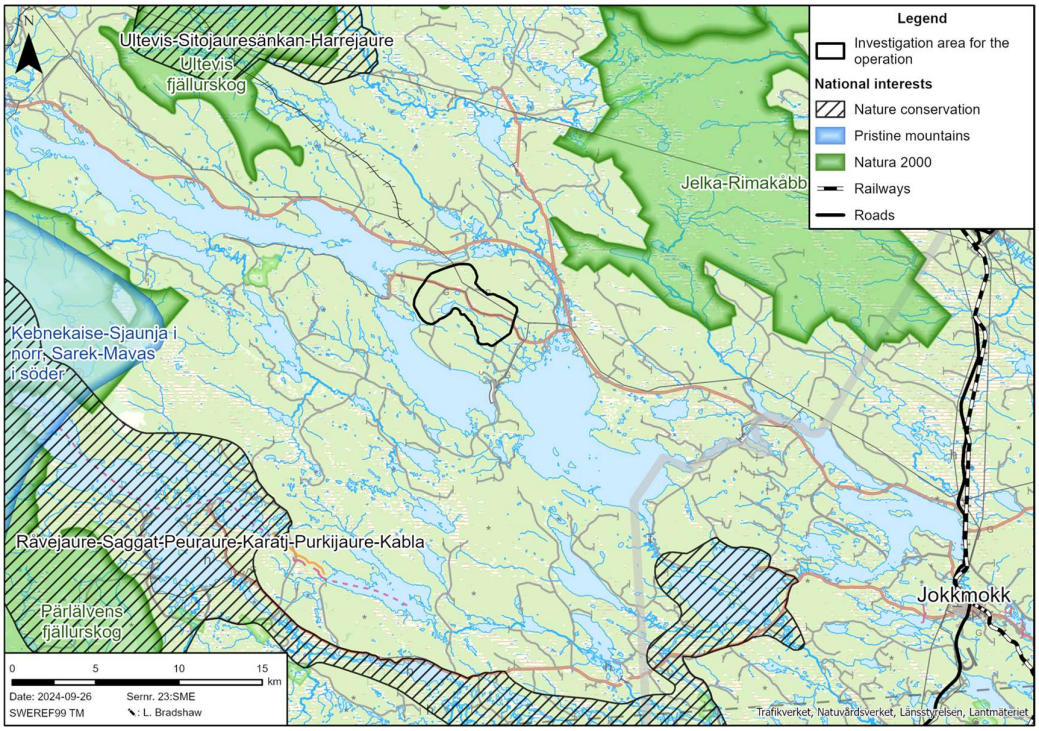

Figure 6. National interest in nature conservation, unbroken mountains, Natura 2000 and communications (road and rail).

2.4 Protected areas

Within a radius of 15 km from the operation there are four nature reserves. Just over 8 km west of the planned operation is the nature reserve Pietartievva and about 11 km southeast is the nature reserve Gánijvárre. The Natura 2000 areas Ultevis mountain primeval forest and Jielkká-Rijmagåbbå (see Table 2 and Figure 6), north and east of the operation also constitute nature reserves.

The nearest water protection area, Tjalmejaur, is located south of Jokkmokk and is not considered to be affected by the planned activities in Kallak.

2.5 Hydropower

The lakes Parkijaure, Randijaure and Skalka are part of the Lule River's largest tributary, the Little Lule River. Along the Little Lule River, there are several hydroelectric power plants that were expanded during the 60s and 70s. In the immediate area of the planned operations in Kallak are, among other things, the Randi and Parki power plants, which are owned by Vattenfall Vattenkraft AB. The Randi power plant uses the upstream lake Randijaure as a regulating reservoir with a regulation amplitude of about 2 m. The regulation takes place at the power plant and with an adjustable spillway in the southern part of the lake, Lullekietje, which discharges excess water towards Lake Purkijaure if necessary. Parki uses water stored in the lake in Parkijaure and is regulated with the help of the large Parki dam that separates Parkijaure from Randijaure in Jokkmokk municipality. The regulating amplitude in Parkijaure is about 9 m. North of Skalka, upstream of the planned operations in Kallak, there is also a hydropower plant, Seitevare, which is also owned by Vattenfall Vattenkraft AB.

2.6 World Heritage Site Laponia

The World Heritage Site Laponia, a unique wilderness-like cultural landscape in Norrbotten with an area of about 940,000 ha, is located at a distance of about 34 km from the Kallak North deposit, see Figure 7. Within Laponia there are several nature reserves and national parks, and it extends over the municipalities of Jokkmokk and Gällivare. The area was designated a World Heritage Site in 1996 by the UN agency UNESCO. Laponia received the award because the area has a combination of unique nature and cultural values. For a long time, reindeer herding has been carried out on the site and the landscape has been shaped in interaction with the Sami tradition. The landscape consists of mountains, glaciers, marshes and primeval forests, and there is a rich plant and animal life with several endangered species in the area. The World Heritage Site does not in itself entail any formal protection, but the basis for the protection lies primarily in national decisions. The area is protected by the regulations that apply to the national parks and nature and cultural reserves that are part of Laponia and by other legislation, such as the Off-Road Driving Act.

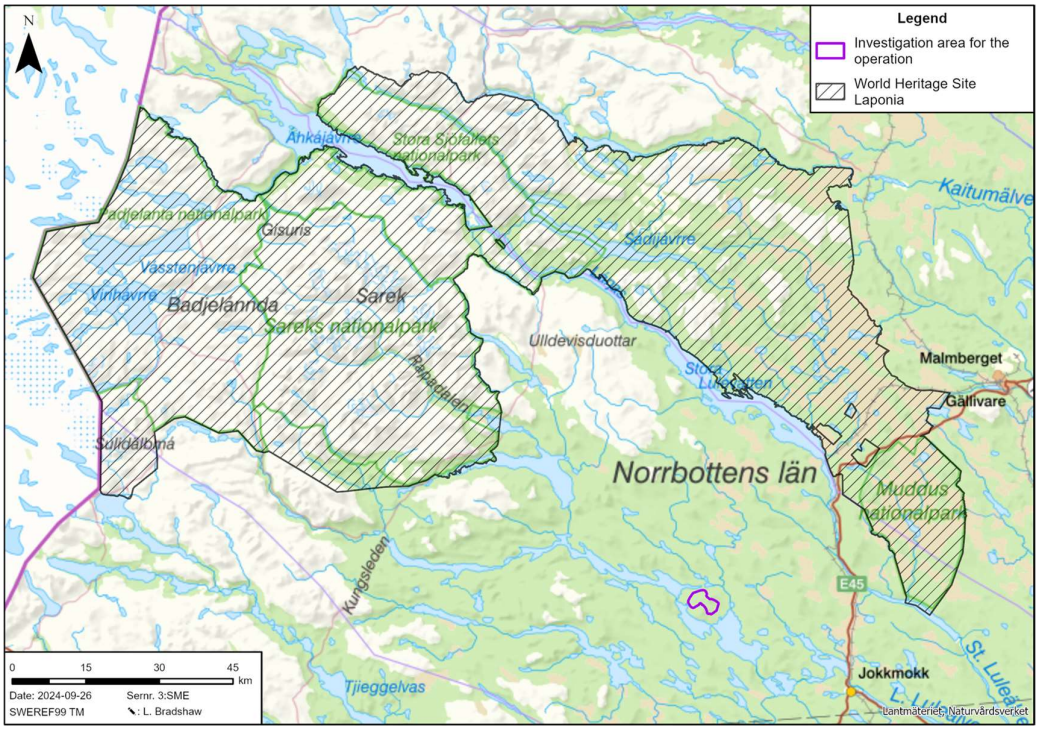

Figure 7. World Heritage Site Laponia.

3 Planned activities

The mining operations in Kallak will consist of an open pit mine where ore mining takes place. The location of the open pit mine is located where the ore is located, and an exploitation concession is held. For obvious reasons, the location for the open pit mine cannot be chosen but depends on the location of the ore in the ground. The ore that is mined is processed through an enrichment process into an iron ore concentrate. During mining and enrichment, residues are created in the form of waste rock and tailings that need to be deposited. Therefore, land areas are required for the placement of waste rock dumps and for a tailings storage facility. In addition, areas are also required for an industrial area and for roads, etc.

The following chapter provides an overall description of the planned activities. When submitting the application, a technical description will be attached, which describes the activities in more detail.

Figure 8 shows the investigation area within which the mining operations will be located.

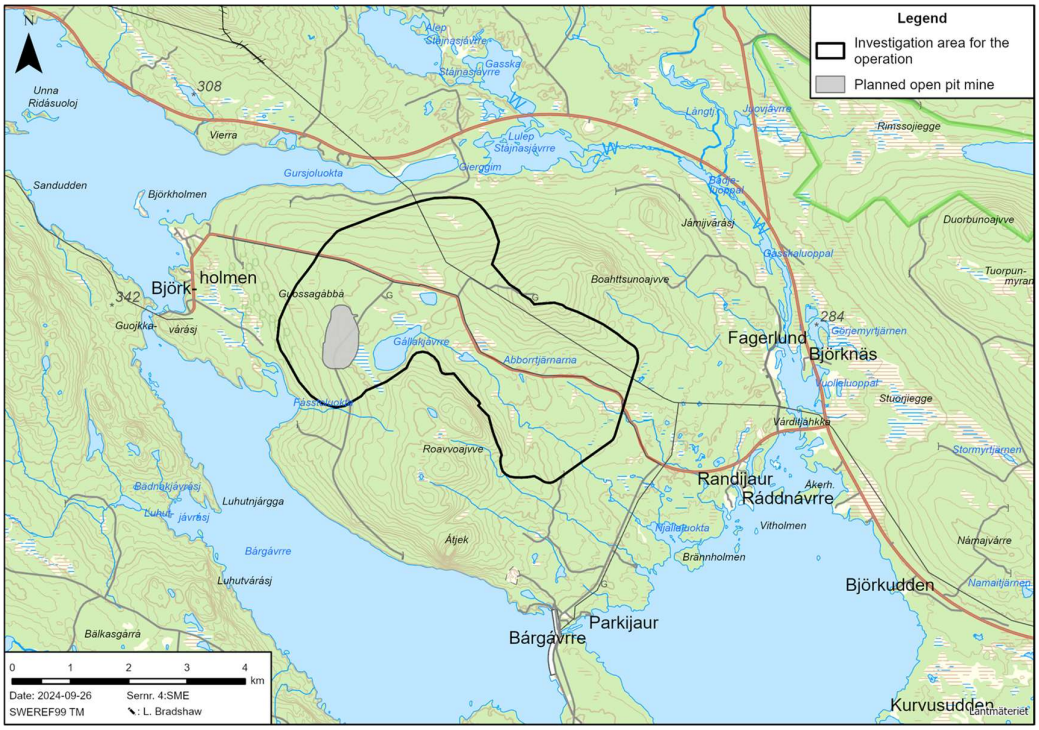

Figure 8. Investigation area for the operation and location of the planned open pit mine.

3.1 Mining

The iron ore will be mined in open pit mines. A large part of the ore will be relatively easily accessible with little waste rock mining because the deposit is close to the surface. The open pit mine will be mined in levels of mainly about 10-20 m (so-called benches) and the mining will be able to begin relatively quickly after removing the overlaying moraine. The maximum depth of the open pit mine is estimated to be about 270 m, which corresponds to level +130 (RH2000). According to what is now known about the extent of the deposit, mining is expected to last for about 14 years with extraction of about 9 million tonnes of ore per year. The amount will be slightly smaller in the first year, but the mining rate will already amount to the full production rate in the second year.

Mining of the rock is done by blasting with the help of explosives. The explosive is pumped into pre-drilled holes that are drilled with drill rigs. Blasting will normally take place during weekdays.

3.2 Crushing and grinding

The ore mined is transported by mining truck from the mining area to a primary crusher, where the ore is crushed as a first step in the processing. On areas in close proximity to the crushing station, mixing and/or separation of different ore batches may take place in order to maintain an even ore quality into the concentrator plant. Crushing is done with a gyratory crusher and when the material has been crushed, it is transported on by belt conveyor for further handling in the concentrator's grinding plant.

In the grinding plant, which consists of autogenous grinding, the process proceeds in a closed loop with sieves until 80 percent by weight of the material has a diameter of less than about 250 µm. If necessary, crushing of difficult-to-grind material that may be integrated into the

grinding process is performed. Since all material is recirculated in the grinding process, no residual products are created at this stage of the process. The material that is fully ground will be pumped as a slurry to the next step in the enrichment process.

3.3 Enrichment

The enrichment process is controlled by the composition and properties of the mineralisation and is described here in summary.

The first step in extraction consists of magnetic separation of minerals. The ore consists of the strongly magnetic magnetite and the weakly magnetic hematite. Through wet low-intensity magnetic separation, so-called LIMS (low intensity magnetic separation), which is carried out in the concentrator plant, the magnetite is separated from the other minerals in the ore. The separation process is repeated until the magnetic product has been sufficiently released from the non-magnetic content. The magnetic product, magnetite, undergoes another stage of wet weak magnetic separation. The material is then cycloned, whereby particles below 40 µm undergo a multi-stage wet weak magnetic separation. The coarser fraction is ground in a verti-mill and then cycled again. The final product, after undergoing multi-stage weak magnetic separation, is finally filtered and dry concentrate is formed. The reject from the magnetic separation steps constitutes so-called tailings, which after possible thickening is pumped out in the form of slurry to a tailing pond.

The non-magnetic intermediate product resulting from the extraction of magnetite is hematite and silicate. To separate the hematite from silicate, strong magnetic separation is required. In this step, a lot of water is consumed, which is predominantly circulated within the plant. This step is under investigation and will only be carried out if it is economically and environmentally viable.

The enrichment methods described above are physical and do not require the direct use of chemicals. It is only when thickening (of the tailings) that a small amount of chemicals may be needed.

3.4 Products

The main product resulting from the planned operations is magnetite concentrate with an annual average production rate of up to 2.8 million tonnes. Hematite concentrates may also be produced. This is under investigation.

3.5 Disposal of tailings

The largest proportion of residue created from the operations is the tailings. It is finely ground rock that arises as a result of the enrichment process.

Deposition of tailings is done by pumping the residual solids, mixed with water, from the concentrator to an embanked area, a so-called tailings pond or tailings storage facility. There, the particles settle (sink to the bottom) and water drains to a part of the tailings storage facility where a final particle separation takes place and the water quality is checked before discharge to the recipient. In some cases, a clarification magazine is used for the final purification part. However, this requires that the surface area of the clarification reservoir is sufficiently large in relation to the throughput. JIMAB is investigating the conditions for a clarification magazine.

The tailings storage facility is planned to be built in the valley between two ridges, in the eastern part of the investigation area for the operation in Figure 8, which provides a natural delimitation for the tailings pond's distribution in the southwest and northeast. A dam construction is required for the tailings storage facility boundary to the southeast. The highest elevation of the landfill will be lower than surrounding ridges.

The tailings pond will be raised as the tailings is deposited. The elevation is increased outwards by successively constructing support banks on the outside of the dam to create a stable structure. The tailings will be pumped via pumping lines from the concentrator to a thickener plant before being pumped to the tailings pond. Return pipes for recycled water from the thickener plant to the concentrator plant will also be constructed.

Downstream of that dam structure, collection ditches will be constructed and the collected leakage water will be returned to the water management system.

The design of the tailings pond will follow international practice and the Global Industry Standard for Tailings Management (GISTM). An impact classification will be carried out in order to determine which dam safety requirements must be met. Protective measures will be taken in accordance with the requirements that apply to the consequence classification according to the Swedish mining industry's guidelines for dam safety GruvRIDAS and GISTM. A dam failure investigation will also be carried out.

3.6 Disposal of waste rock

During the mining of the ore, un-mineralised rock, or waste rock, is also produced, which is planned to be used as construction material in the operating area and, in the event of a surplus, will be deposited in waste rock dumps. The volume of waste rock varies from year to year.

Possible landfill areas are investigated within the operational area, see Figure 8, based on current knowledge about natural values, reindeer husbandry, noise, dust, proximity to the nearest buildings and landscape.

A waste rock storage facility is proposed to be located west, north and south of the open pit mine on an area and to a height that reduces noise disturbance in the direction of Björkholmen and towards the reindeer migration route south of the planned operations. The storage area will be modelled for its final proposed design at a later stage and noise calculations will be carried out.

A second waste rock dump is proposed to consist of areas for joint disposal of waste rock together with or adjacent to the disposal of the tailings. The area in question is located between the planned dam construction in the east, ridges in the south and north, and the open pit mine and nearby lakes in the west. Deposition on this area creates a limited impact on the landscape compared to other areas and reduces the risk of other disturbances.

Other areas may also be relevant for the disposal of waste rock within the proposed area of operation.

3.7 Water management

The water management system will be designed in such a way that unaffected water is separated as far as possible from water that has come into contact with operational facilities. With the aim of creating an environmental and functional water management system, facilities such as ditches, basins and pipes will be constructed.

The potentially contaminated water that runs off from the mine's various facilities and parts of the operation will be collected with the help of constructed ditches, including downstream of waste rock dumps and tailings ponds. Cut-off ditches will also be constructed around the industrial area, upstream of the open pit mine, the tailings pond and waste rock storage to reduce the inflow of clean surface water from surrounding land areas.

In order to be able to temporarily store water and equalise water flows from the open pit mine, waste rock dumps and tailings pond, Lake Gállakjávvre[3] may be included in the water management system.

Water pipes will be constructed between the concentrator and the tailings pond as well as between different parts of the mining operations such as the transport of water from the open pit mine, the clarification reservoir, collecting ditches and basins to the water reservoir and the concentrator process. Stormwater pipes with oil separators will be constructed in the industrial area at workshops and possible refueling points.

3.8 Raw materials/inputs and chemicals

The planned activities include the use of a number of raw materials and chemicals. In the blasting phase, explosives in the form of emulsion explosives or other alternatives will be used. Conventional explosives may also be used in operations. Other chemicals that will be used by the operation are oils and lubricants, enrichment chemicals and dust control products.

Moraine masses and rock materials will be used in the construction of roads, dams, embankments, etc. The rock masses will mainly be taken from the waste rock that is mined in the open pit mine. Water pumped from the open pit mine will be used as process water in the operations.

Information about which raw materials and chemicals are planned in the operations will be reported in the technical description attached to the application.

3.9 Transportation

Several different types of transport will take place within the framework of the operation. Partly inside the operational area, between the different parts of the operation, for example to and from landfills, waste rock storage, concentrators, open pit mines, etc., and partly transport of the end product from the operational area.

3.9.1 Transport inside the operating area

Inside the operating area, all ore will be transported from the open pit mine by mining truck to a crushing station and from there on by belt conveyor to storage and on to the concentrator plant. The waste rock will be transported by mining truck to the waste rock dumps. In addition to these, there are other forms of transport linked to the operation.

3.9.2 Transport to and from the operating area

The finished product, iron ore concentrate, is planned to be exported primarily to overseas customers and needs to be transported to port for shipment. Several ports have been investigated. As the products will be shipped long distances, it is important to have access to a port that can load relatively large ships. JIMAB is evaluating two port alternatives in dialogue with each owner; Narvik Harbour in Narvik and Kvarken Ports in Umeå (Figure 9).

[3] The name of the lake according to Lantmäteriet's map service when preparing the consultation documentation. There are several similar names used for the same lake. See also the information box Multiple names for the same place in Chapter 2.

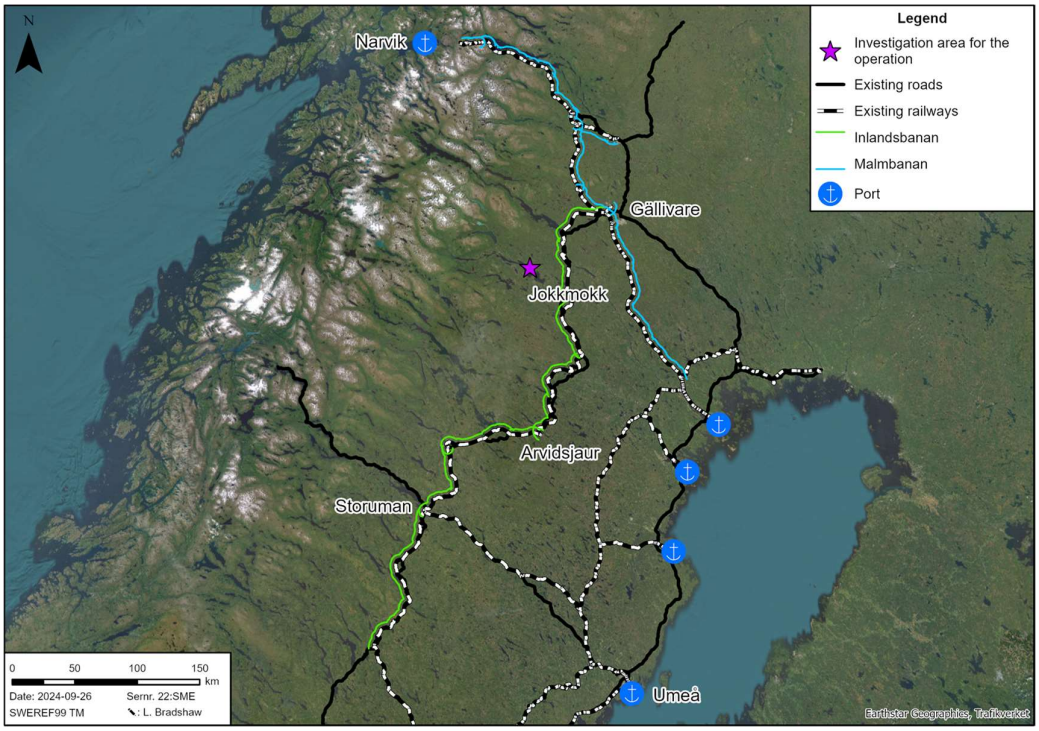

Figure 9. Railways, ports and major roads in northern Norrland.

The Inlandsbanan railway runs from Jokkmokk to Gällivare. It does not currently have the capacity for heavy goods transportation. However, work is underway to get a decision on the renovation of the entire Inlandsbanan between Gällivare and Mora in general, but also especially on the section between Arvidsjaur and Gällivare. JIMAB assesses that this upgrade will have been completed before the company needs to use the railway for transport. If this is not the case, JIMAB may need to drive trucks to Gällivare, which may be possible for a limited time. The upgrading of Inlandsbanan may also be accelerated by Sweden's membership of NATO. JIMAB is in dialogue with Inlandsbanan about where a suitable loading terminal for loading the end product onto railway wagons can take place. The area will be located along the railway in the eastern part of the investigation area for transport solutions and transshipment terminal, see Figure 10, most likely in the southern part where there was previously a transshipment point for rail. In the future terminal area, a warehouse building is planned for the storage of approximately 50,000 tonnes of iron ore concentrate, 2 to 3 shunting tracks for the connection of wagon sets and a crew building.

From Gällivare, the Ore Railway or Malmbanan can be used for rail transport to Narvik. The Malmbanan is also in need of upgrading of existing infrastructure and an increased number of meeting places. However, with better control of how space on the Malmbanan is allocated, existing capacity is deemed to be sufficient for additional players.

For transport by train, it is estimated that 3 trains per day in both directions will be required. Each train is estimated to load up to about 3,000 tonnes. A further reinforcement of the Jokkmokk - Gällivare section would mean that it would be possible to load 4,000 tonnes and thus reduce the number of train movements to 2 per day for transports to Narvik. For transports to Umeå, reinforcement on the Northern Main Line would be required on the entire section Vaikijaur – Storuman – Hällnäs, alternatively Vaikijaur – Arvidsjaur – Jörn.

From the mining area to the loading terminal, several transport options are being investigated:

- Road transport
- Belt conveyor
- Pipeline

Road transport out to a transshipment terminal would require extensive upgrading of existing roads and is expected to take a long time to implement. This alternative would mean 180 - 200 vehicle movements in each direction per day based on the BK1 standard on the entire stretch of road. If the upgrade takes place to the BK4 standard, the number of vehicle movements will be reduced to 145 – 160 in each direction per day.

Another mode of transport that is being investigated is a belt conveyor that will be built partly in terrain and partly along existing infrastructure and transport dewatered concentrate from the concentrator to the train terminal. A smaller service road would also have to be built adjacent to the belt conveyor where no other road is nearby. The belt conveyor is built above ground on concrete foundations and can be raised or covered with soil on stretches where passage for wildlife, people or transport needs to be possible. Routes that are investigated for the belt conveyor are within the area shown in Figure 10.

The pipeline option means that the product is pumped as a slurry in a pipe to the train terminal. The pipeline could be built along existing infrastructure and partly underground. This alternative would mean that the last step in the process, dewatering the product, would be moved from the concentrator to the rail terminal. Water would therefore have to be handled at the terminal, either by pumping it back to the operational area or purification at the terminal before it is discharged. The section in question largely follows existing roads.

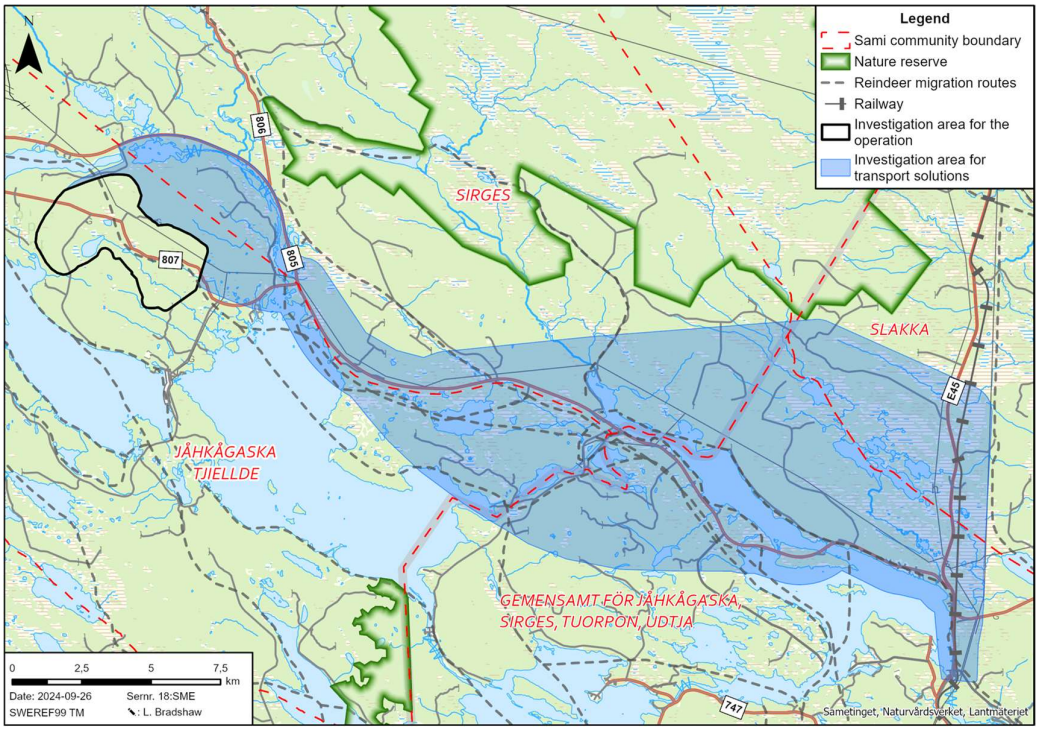

Figure 10. Investigation area for transport linked to the operation.

If Inlandsbanan has not had time to be refurbished and enabled for heavy goods transport by rail between Jokkmokk and Gällivare before operations have begun, the end product may

need to be transported by trucks from the operational area or the transshipment terminal in Jokkmokk to the port. Truck transport to the Port of Umeå could then take place via the E45, road 374 towards Piteå and the E4. Truck transports to the Port of Narvik can correspondingly take place via the E45 and E10.

3.10 Energy and mains connection

Two power lines run through the investigation area (Figure 11), one regional line and one distribution line. From the regional line, which is owned by Vattenfall Eldistribution AB, JIMAB will be able to connect to the electricity grid. The collections that pass through the future area of operation may need to be rerouted.

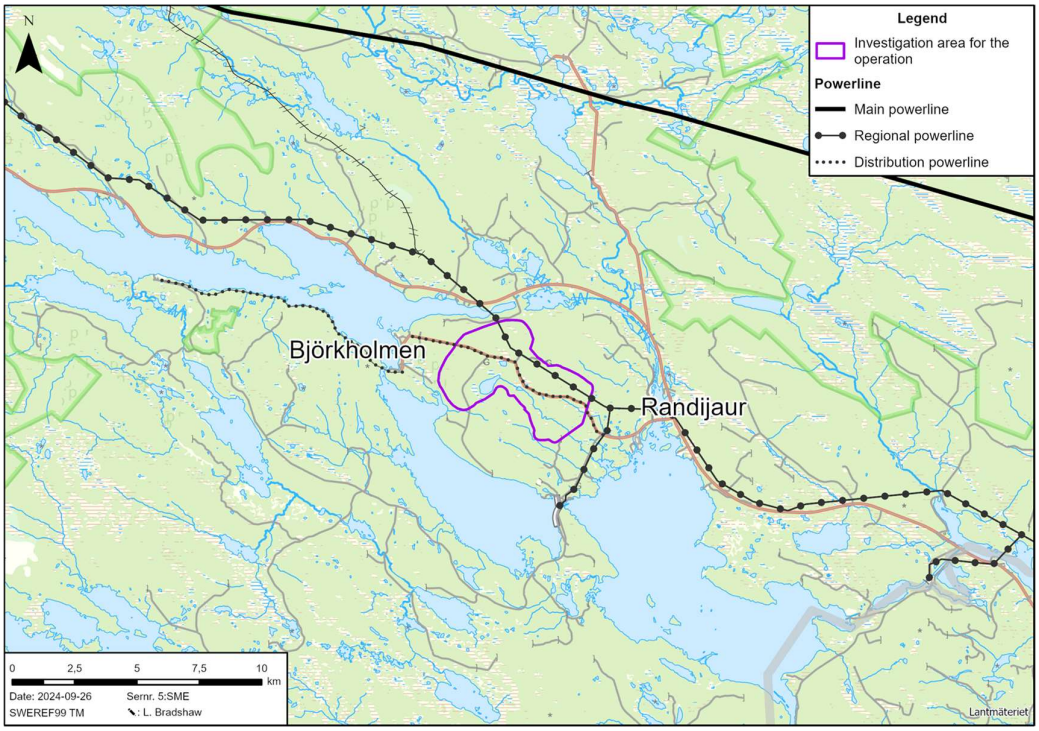

Figure 11. Planned area of operation and power lines.

4 Current conditions and foreseen effects

4.1 Landscape

It is inevitable that the landscape will be affected locally during planned mining operation. Mining means that land is used and a change in the landscape takes place in the form of new formations being created in the landscape. It can be, for example, new elevations or depressions that did not exist before. The landscape will gradually be transformed as open pit mines are developed and waste rock dumps and tailings ponds emerge. The industrial area will also be a new element in the landscape. How much impact these elements of the operation have depends on their proximity and where they lie in the terrain.

The area of the planned operation is located on a peninsula in the Little Lule River. Today, the area consists of forest with elements of marshland, lakes and watercourses. The landscape of the peninsula consists of steep hilly slopes towards Lake Parkijaure. The village of Björkholmen is located on the west side of the peninsula and the village of Randijaur is located

on the east side of the peninsula, in these places the landscape is more low-lying. The mountain Roavvoajvve is the highest point in the immediate area with an altitude of about 483 m.a.s.l. The Little Lule River is has an altitude of 288-297 m.a.s.l. upstream, and 282-284 m.a.s.l. downstream of Parkijaure.

The landscape has been affected by the hydropower expansion to the extent that the Little Lule River has been dammed and the area of the natural lakes has increased at the expense of land areas.

During the operation of the mine, the open pit will constitute a deep pit that needs to be drained from flowing surface and groundwater. When the operation is completed, the open pit mine will be filled with groundwater and surface water and create an open pit lake. The tailings storage facility and waste rock dumps will be returned to natural land after mining has ended, but some landscape adaptation may need to take place with regard to, for example, slope angles.

In summary, the landscape will be affected in the vicinity of the mine and different parts of the plant will be visible from several different places. When mining is completed, the area will be remediated and restored to natural land. The open pit mine will be filled with water and new elevation formations will be created by the waste rock dumps and the tailings pond. A more detailed description of how the landscape will change will be presented in the upcoming environmental impact assessment.

4.2 Noise

Noise will be generated from different parts of the mining operations. Among other things, from blasting in the open pit mine, loading and unloading of ore and from transports to and from the mine. Noise will be generated both during the establishment phase and the operation time of the mine. During the establishment phase, noise will mainly come from blasting, but also from operating machines and transportation during the construction of facilities in the industrial area. During the operating period, noise is expected to occur primarily around the industrial area during ore handling and from waste rock dumps, but also from transportation and machinery inside the area, blasting and crushing of rock and transportation in and out of the work area.

Operations will run around the clock, with some stoppages for maintenance.

A noise investigation will be carried out with noise calculations from the current known conditions for the operation. The investigation will report on the noise dispersion from the operation. Both the equivalent sound level and the maximum sound level will be calculated and compared with the Swedish Environmental Protection Agency's guideline values as stated in the Guidance on industrial and other operational noise (report 6538). The investigation also includes what measures can be taken to limit noise dispersion if necessary. This will be attached to the environmental impact assessment.

4.3 Vibrations, air shock and fly rock

Vibrations, air shock waves and fly rock occur during blasting in open pit mines. Blasting will normally take place during weekdays.

When blasting in the open pit mine, wave movements occur in the bedrock that give rise to vibrations in the ground. The extent and level of vibrations for the environment depends mainly on the distance between the blast site and the energy of the interacting charge, but other factors such as ground conditions and wave types also have an influence.

In connection with the application for the exploitation concession, a vibration investigation was carried out, which showed that no buildings sensitive to vibrations were identified. The

vibration calculation that was carried out at that time showed that the buildings in Björkholmen and in Randijaur only have low levels of vibrations, far below the guideline values for vibrations according to Swedish Standard SS 460 48 66.

The risk of technical damage or other adverse effects on Parki power station is non-existent based on the vibration calculations carried out in connection with the application for the exploitation concession.

In addition to vibrations in the ground, blasting creates pressure in the air, which gives rise to so-called air shocks. Results from calculations made in connection with the exploitation concession application showed levels that were marginally below the guideline value according to Swedish Standard SS 02 52 10 and below normal levels in environmental conditions.

Fly rock can occur in connection with blasting of rock. It is normal for fly rock to occur to a lesser extent with relatively short throw lengths, referred to as "normal throw length" and is based on a controlled blasting procedure with normal safety measures. A careful control of pre-loading, ignition sequence, rock clearing, borehole precision, loading of the first row of the salvo, etc. is crucial for how great the risk of fly rock is and how long throw lengths can be expected and allowed. These security measures constitute the assessment for how large the security area needs to be.

Prior to the application for an environmental permit, the investigations regarding vibrations, air shock and fly rock will be updated and the results will be reported in the upcoming environmental impact assessment together with the proposed safety distances.

4.4 Air

The Air Quality Ordinance (2010:477) contains the Swedish environmental quality standards for outdoor air. The standards contribute to the protection of human health and the environment and to meet the requirements of EU Directives 2008/50/EC and 2004/107/EC. Environmental quality standards for the air environment apply to outdoor air where people are present, with the exception of workplaces.

There are environmental quality standards for nitrogen dioxide/nitrogen oxides, sulphur dioxide, lead, particulate matter (PM10/PM2.5), ground-level ozone, benzene, carbon monoxide, arsenic, cadmium, nickel and benzo(a)pyrene.

The current air quality in the area is considered to be good even though no measurements have been carried out in the area for planned operation. The measurements made by Jokkmokk municipality (urban background) in 2007 did not show that any environmental quality standards for air quality were exceeded. In 2022, measurements have been made in Tjåmotis (regional background) of NOx, SO_2 and O_3. All parameters were well within the environmental quality standards.

The impact that can occur on air quality from operations comes mainly from transport emissions, operational emissions, explosive gases and dust. Explosive gases such as nitrogen oxides and carbon monoxide can be released from mining. Conventional transport of waste rock and ore with machinery as well as transport of fuel, explosives and goods produces emissions of nitrogen oxides. In addition, dust from transport, handling of products and the disposal of waste rock and tailings can release particles into the air.

A more detailed account of emissions to air and its impact will be made in the environmental impact assessment attached to the application.

4.4.1 Dust

The planned operations will generate dust that risks spreading in connection with activities such as internal transportation, loading and unloading of ore and waste rock, and disposal of tailings.

Large amounts of dust can cause irritation to the eyes as well as respiratory problems for humans and animals. Plants covered in thick layers of dust can risk reducing the photosynthetic processes. In watercourses, large amounts of dust that settles can cause higher turbidity and impair biological activity. The amount of dust that is at risk of spreading in the area depends partly on the wind strength and direction, and partly on the dust prevention measures that are taken in connection with the activities.

The spread of particles from internal transportation and loading as well as unloading of ore and waste rock is considered to be limited to the immediate area. However, wind strength and direction can affect how far and where the particles are transported. According to wind measurements carried out at Jokkmokk airport, the general wind direction is north-westerly, which means that areas east and south of the planned tailings pond are estimated to be most affected.

To reduce the amount of dust particles entering the air, water spraying and/or dust binding can be carried out if necessary. Irrigation of waste rock and tailings can help reduce the amount of particles entering the air. Higher vegetation surrounding waste rock dumps, open pit mines and access roads can also provide protection that limits dusting.

The environmental impact assessment will describe preventive and mitigation measures to reduce dusting.

4.5 Groundwater

In the area there are 10 shallow boreholes in soil and 6 deeper boreholes in rock, see Figure 12. Groundwater levels in these have been measured on a campaign-by-campaign basis. Since 2024, loggers have been installed in about ten of the pipes/boreholes. These loggers measure groundwater levels. According to measurements, the groundwater levels in soil in the area are between 1–10 m below surface.

East of the planned area of operation there is a groundwater body (WA88048031) that is mainly located in a north-south direction and also runs through the village of Randijaur, see Figure 12. The occurrence has good quantitative and chemical status (VISS, 2024a). The quantitative status is assessed as good as the availability of groundwater in the region is usually good, but the classification is made without data from the occurrence. The assessment of the chemical status has been made based on the fact that there is no data indicating a change in nitrate, chloride or sulphate compared to the classification of previous management cycles (VISS, 2024a).

What is VISS?

VISS is an abbreviation of Water Information System Sweden and is a database that has been developed by the water authorities, the County Administrative Boards and the Swedish Agency for Marine and Water Management. VISS contains maps and information about all of Sweden's major lakes, watercourses, shallow and coastal waters. In VISS, it is possible to find information about how Sweden's waters are doing by receiving a status classification.

Definition of groundwater body

A groundwater body is defined according to the Water Management Ordinance (2004:660) as a limited volume of groundwater in one or more aquifers. An aquifer is layers of geological material that are sufficiently porous and permeable to allow a significant flow or withdrawal of groundwater.

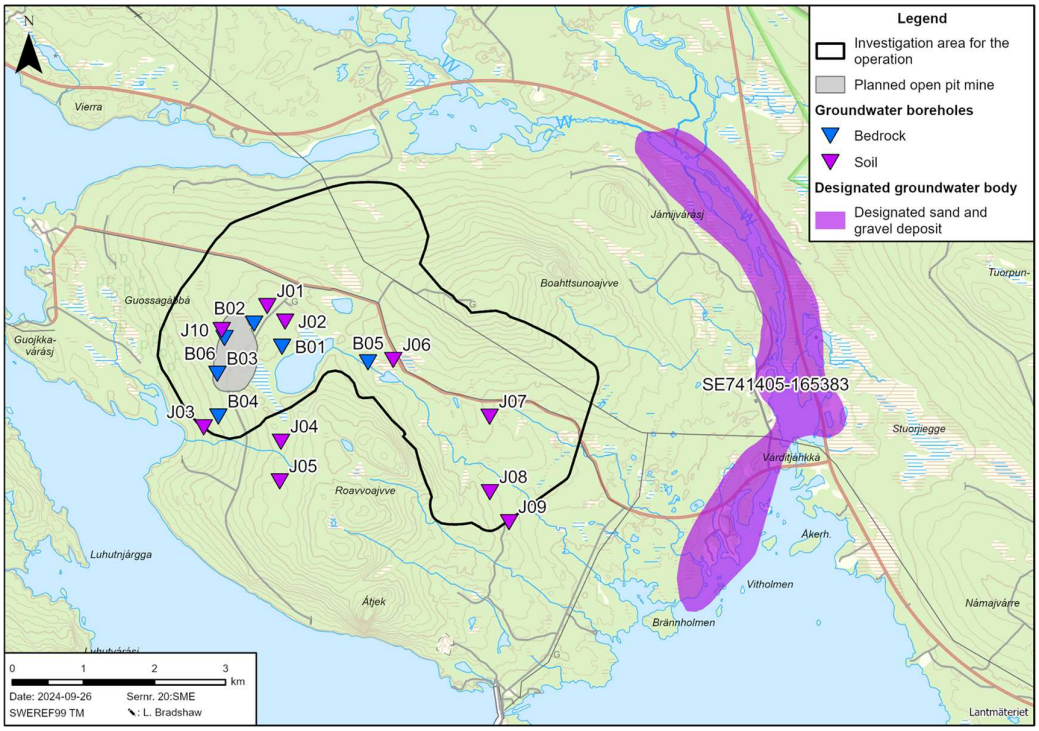

Figure 12. Investigation area for the operation, installed groundwater boreholes and nearby groundwater body.

In the village of Björkholmen northwest of the operational area, there are individual wells in the form of private water supply as well as wells with unknown use according to SGU's well archives. Southeast of the operational area in the village of Randijaur and next to Parkijaur power station, there are also rock-drilled energy wells according to the well archive, see Figure 13. In Fagerlund there is also a well for individual water supply.

It is likely that there are more wells than have been reported in SGU's well archive. The area has no municipal water, so all households should have an individual water supply.

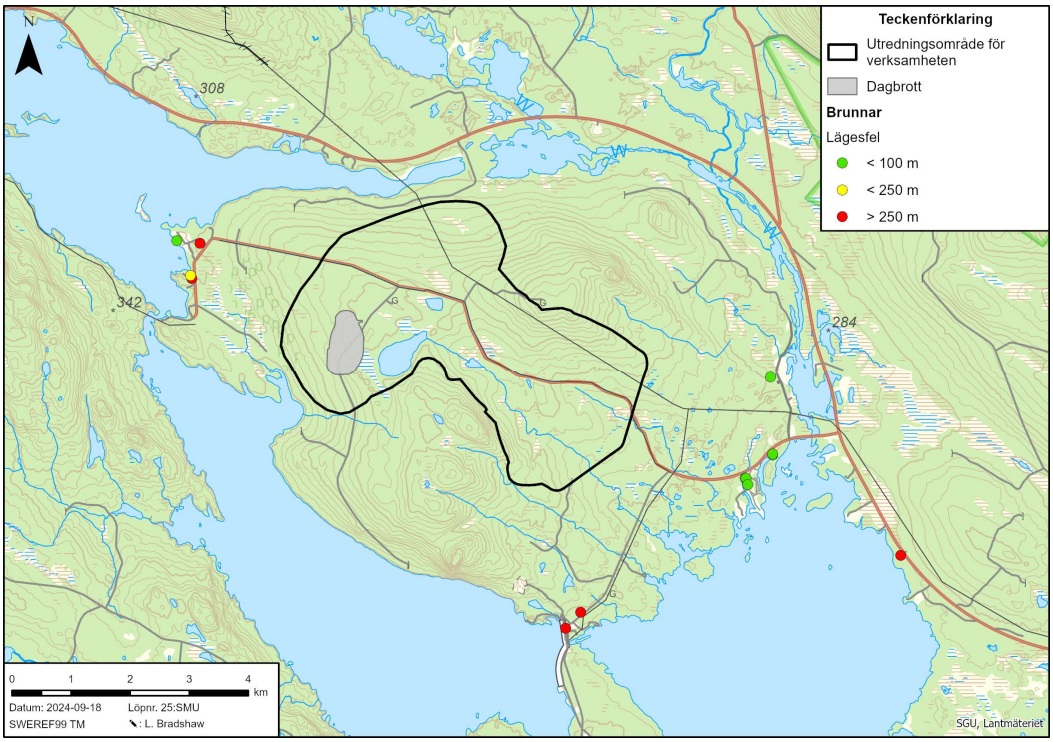

Figure 13. Wells from SGU's well archive (SGU, 2024).

To enable mining, running water, in the form of groundwater and precipitation, must be pumped up and diverted from the open pit. The removal of groundwater ingress into the pit gives rise to a groundwater impact in the form of groundwater drawdown and changed flow patterns in the vicinity of the mine.

When groundwater levels are lowered in soil and rock, there is a risk of impact on groundwater-dependent nature, as well as on watercourses and lakes. Another general effect may be that wells are affected by poorer opportunities for drinking water extraction or that energy wells become less effective.

The area where groundwater levels can potentially be lowered due to an activity is usually called an area of influence. How far out from the edge of the open pit mine the groundwater influence area in soil and rock extends due to the management of ingress water depends, among other things, on the water-conducting capacity of the soil layers and bedrock, which in turn can vary in different directions due to the direction of the fracture of the rock. Figure 14 shows a schematic picture of how the groundwater level changes as a result of management of ingress water during open pit mining. A dewatering funnel is formed for the groundwater, where the largest depressions occur closest to the open pit, and then decrease further out from the open pit mine. Depending on the fracture and fracture direction of the rock, the depression looks different in different directions.

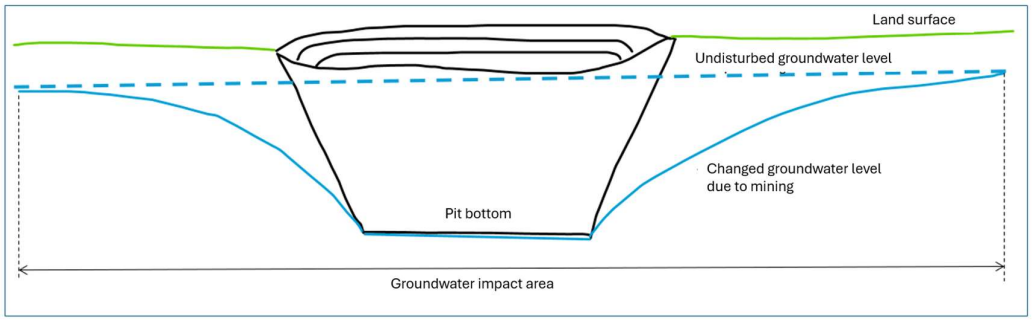

Figure 14. Schematic image showing the groundwater drawdown around an open pit mine.

During the snow-free season, field surveys have been carried out to characterise the hydrogeological conditions in the bedrock and soil layers around the planned mining area. The surveys will be analysed and then used as a basis for calculating and assessing how the groundwater can be affected by mining.

The maximum groundwater subsidence occurs at full mining depth, i.e. at the end of the mine's operating life. The magnitude of the assessed impact will be reported in the environmental impact assessment attached to the application.

In addition to the impact on groundwater levels, the activities can give rise to a water chemical impact. This can be done through leakage water from, for example, tailings storage facilities and waste rock dumps. To reduce the risk of water chemical impact, protective ditches will be dug downstream of tailings ponds and waste rock dumps to capture leakage water and pump it back to the processing plant as process water. To obtain information about current water chemistry, samples of water quality are taken in several of the groundwater boreholes shown in Figure 12.

In connection with the application for an environmental permit, the impact of the activities on groundwater will be described together with protective measures. The investigation that is being carried out assesses the impact the activities may have on nearby wells, on the groundwater body, how groundwater levels will change and what water chemical impact the activities may have. Everything will be reported in the environmental impact assessment.

4.6 Surface water

Planned operations are located within the Little Lule River catchment area, which is part of the Lule River's main catchment area. Within the area of the planned operation, there are no surface water bodies (see information box below), only smaller lakes and ponds that are classified as other water, see Figure 15. The nearest surface water bodies are the lakes Skalka in the northwest, Parkijaure to the south and southwest of the operational area and Randijaure to the southeast of the planned operation. North of the operational area are Lulemus Stainasjaure and the watercourses Låkkejåkkå and Nautasätno, which are classified as surface water bodies.

What is a surface water body?

The Water Management Decree defines a surface water body as "a limited and significant occurrence of surface water, such as a lake, river, stream or canal, transitional water or coastal water area". Surface water that has not been classified as a body of surface water constitutes 'other water'.

The reason why Sweden's waters are divided into water bodies comes from European legislation, more specifically the EU Water Framework Directive 2000/60/EC (the Water Framework Directive), which aims to protect and improve EU waters. Each water body is given a description of its current state through a classification of its chemical and ecological status. Furthermore, a goal is set for the classification of the water body a few years into the future. In addition to the objective of improving the surface water environment in the EU, there is a strict provision that they must not deteriorate their existing status.

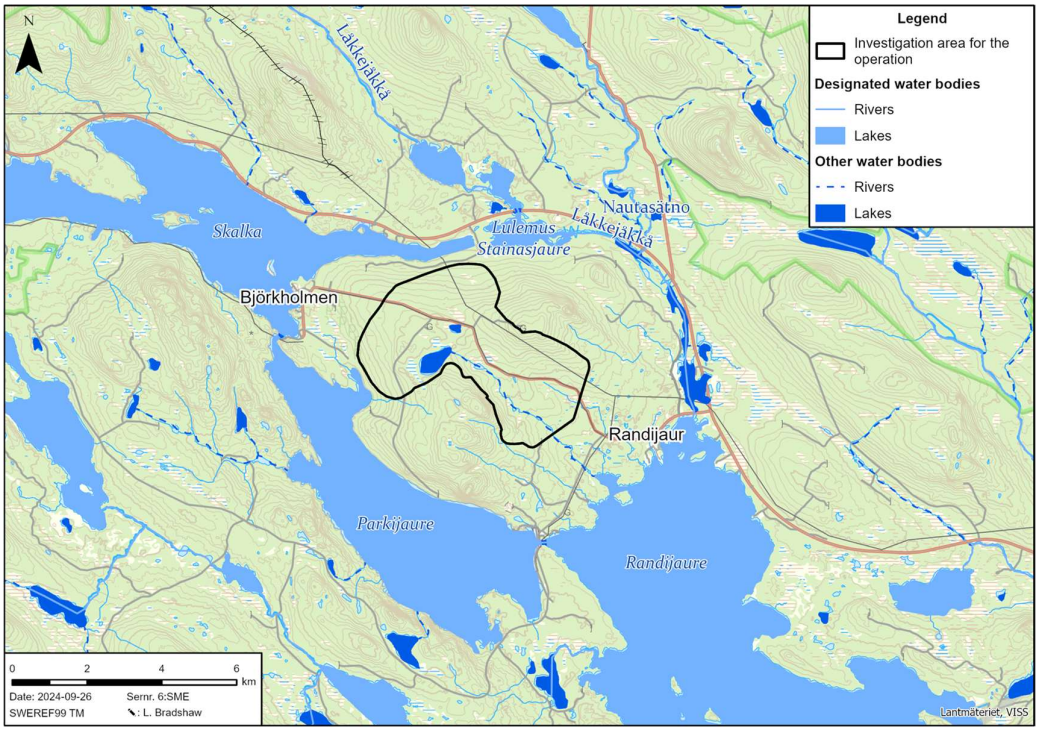

Figure 15. Water bodies and other waters classified in VISS.

Lakes Skalka, Parkijaure and Randijaure have unsatisfactory ecological potential[4] (VISS, 2024b) which is due to the fact that the Little Lule River's water system (as well as the Lule River in general) is affected by large-scale hydropower. The expansion of hydropower has had a major impact on the ecological status and natural ecosystems of the lakes. The dams limit the possibility for fish to move within or between the watercourses and lakes in the area. However, it is assessed that the measures required for the lakes to achieve good ecological status would have a significant negative impact on the socially important hydropower, which is why these have been declared to be heavily modified. The ecological status is good for

[4] For surface water bodies that have been declared as heavily modified or artificial water bodies, ecological potential is assessed instead of ecological status.

Lulemus Stainasjaure and Låkkejåkkå while it is moderate for Nautasätno due to the morphological condition of the watercourse.

According to VISS (2024b), Nautasätno has an unsatisfactory status as a result of the impact of previous floating. The assessment in VISS is based on spatial analyses and the knowledge that there has been a timber raft route in Nautasätno.

All nearby surface water bodies have good chemical status according to VISS (2024b), see Table 3, with the exception of mercury and brominated diphenyl ethers (PBDEs) in fish that are assessed to exceed limit values in all Swedish surface water bodies as a result of atmospheric deposition. Table 3 presents nearby surface water bodies and their current status.

Table 3. Status classification of nearby surface water bodies and other waters (VISS, 2024b).

Basic information		**Ecological status and potential**	**Surface Water Chemical Status**
ID	**Water body**	**Status or potential 2021**	**Status 2021***
WA54816993	Randijaure	Unsatisfactory ecological potential	Good
WA50986909	Parkijaure	Unsatisfactory ecological potential	Good
WA63813622	Skalka	Unsatisfactory ecological potential	Good
WA59622706	Lulemus Stainasjaure	Good ecological status	Good
WA43231485	Låkkejåkkå	Good ecological status	Good
WA75154858	Nautasätno	Moderate ecological status	Good

** Exemptions for brominated diphenyl ethers, mercury and mercury compounds.*

The surface water that lies within the planned area of operation will inevitably be affected by the activities. There are two smaller lakes/ponds and one watercourse that in VISS are classified as other water. It is under investigation whether one or more lakes can be used as water reservoirs or as a final step in the clarification. The proposed location of the tailings pond would mean that the source flow to two streams that flow towards Randijaure in the east will be impacted. For the lower parts of these streams, which do not disappear, the flow will decrease.

Surrounding water bodies will mainly be affected by the discharge of overflow from the operations at times when there is a surplus in the water system. The operations will be designed so that process water can be recirculated as much as possible. Excess water will be discharged to the recipient. The impact may also occur through the extraction of water when the process water system has a deficit of water. When operations are terminated, the extraction and discharge of water will cease.

The water that runs off the waste rock dumps may contain elevated levels of nitrogen, which is derived from explosive residues from the blasting of the rock material if traditional explosives are used. However, it is phosphorus that has been assessed as the naturally limited nutrient in the area, which means that the risk of eutrophication as a result of nitrogen application is assessed as small. To minimise the amount of water that runs off from the waste rock dumps, these will be surrounded by collection ditches. The waste rock has undergone initial characterisation, and the results show that the waste rock is net buffering and thus is not expected to produce acidic leachate either in the short or long term.

An investigation of the quality of the overflow water is ongoing. The water released to the recipient will be sampled based on a monitoring regime and purified as needed.

Surrounding water may also be affected by diffuse leakage through runoff groundwater. With the aim of reducing the impact, leaking water will be collected and returned to the water management system.

Within the framework of the application for an environmental permit, a surface water investigation is carried out and a water balance is developed. Sampling of surface water has been carried out with varying frequency during the years 2011-2014 and autumn 2022-2024 in the points reported in Figure 16. The investigations aim, among other things, to identify the best location for an overflow water outlet, with the ambition to find the most optimal solution to minimise environmental impact. Given that the recipient consists of the Little Lule River with an average water flow (MQ) at Parki of about 130 m^3/s, the conditions are considered to be good for the impact on the aquatic environment to be small.

Results from investigations and an assessment of the impact on surface water together with any protective measures will be reported in the environmental impact assessment.

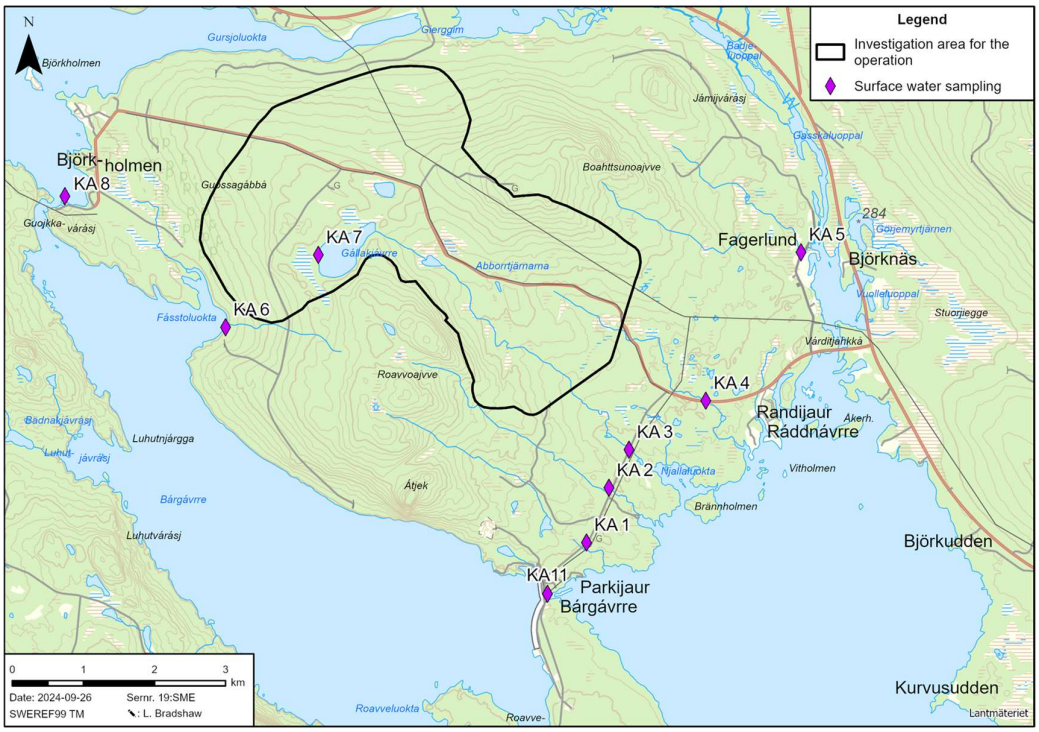

Figure 16. Sampling points for surface water sampling.

4.7 Reindeer husbandry

The area for the planned mining operations is located within the year-round land of Jåhkågaska tjielde and the land that is planned to be used for the mine's various facilities will be inaccessible for reindeer herding. Both within and adjacent to the operational area, there are important land use areas for reindeer husbandry. A migration route of national interest runs through the area (Figure 17) and partly within the area there is “rivselland” or land that reindeer can thrive (Figure 18). Adjacent to the area there are also collection and rest pasture

areas. A reindeer fence separating the Sirges Sami village is located northwest of the area, but on the peninsula where the deposit is located there are no fences or fixed facilities.

National interest in reindeer husbandry according to Chapter 3, Section 5 of the Environmental Code is designated in the area of the planned operation and overlaps with the national interest in valuable substances and materials in Kallak.

About 2 km north of the planned area of operation is the neighbouring Sirges Sámi village and 7-8 km south of the area of operation is Tuorpon Sámi village.

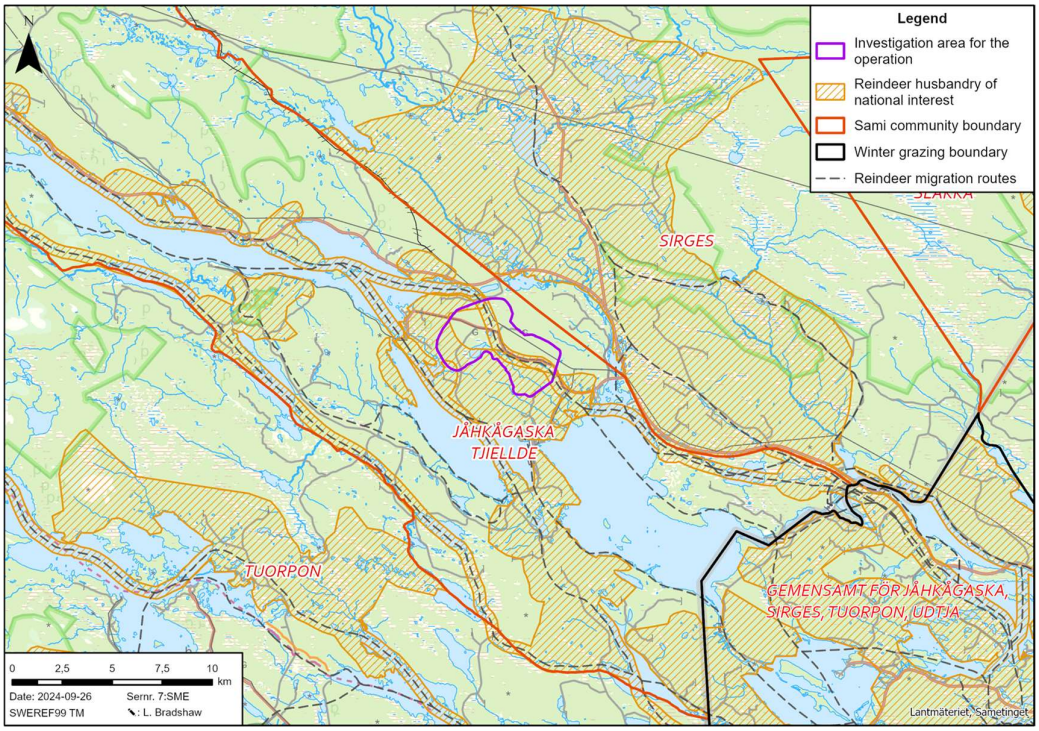

Figure 17. Reindeer husbandry of national interest.

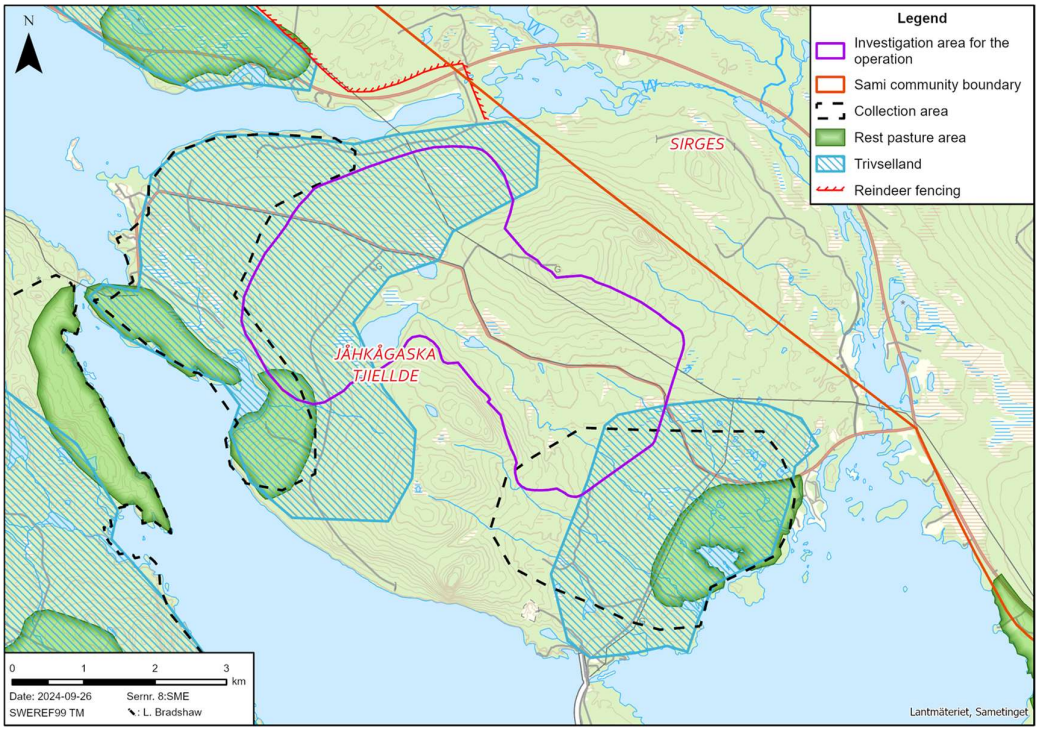

Figure 18. Rest grazing, “trivselland” and reindeer fencing within the peninsula.

Apart from direct impacts such as changing land use, reindeer husbandry will be affected indirectly and cumulatively. Indirect effects may occur from, for example: noise, vibrations, light, vehicle movements and dust from mining operations. This leads to the creation of an area of influence, which is an area that reindeer may to some extent avoid. When reindeer avoid the area, the risk of confusion with other Sámi communities also increases. Transportation also has an impact on reindeer herding. Increased traffic on roads and railways has an impact on reindeer husbandry in the form of a higher risk of collisions, more vehicle movements and noise from the roads. Depending on the choice of transport solution, several Sámi communities may be affected.

Prior to the application for the exploitation concession in Kallak, a reindeer herding analysis was produced. In connection with the environmental permit application, an in-depth reindeer husbandry analysis will be produced. The goal is that this will be completed in collaboration with the affected Sámi communities, where, among other things, existing land use, effects and consequences for reindeer husbandry will be presented together with proposed protection measures. The company has an established way of working where affected Sámi communities are invited to quarterly meetings. The work will be carried out on the basis of the principles of the hierarchy of considerations and include the conditions set out in the decision on the exploitation concession.

4.8 Natural environment

Within a radius of 15 km from the operation there are four nature reserves (Figure 19). Just over 8 km west of the planned operation is the nature reserve Pietartievva and about 11 km southeast is the nature reserve Gánijvárre. The Natura 2000 areas Ultevis mountain primeval forest and Jielkká-Rijmagåbbå, 10 km north of and 4 km east of the operation, are also nature reserves.

On the peninsula there are some forest areas that are classified as key habitats. These areas are not legally protected but constitute a form of voluntary nature protection for forest owners and timber buyers. Some of these areas are at risk of being affected or disappearing due to planned landfills. There are no wetlands classified according to the national wetland inventory on the peninsula where the activities are planned. Nor are there any areas designated as state forests worthy of protection.

The mine's operations will generate noise, dust, vibrations, affect groundwater levels and require land claims, which will affect the natural environment in the immediate area. Some habitats may change or disappear completely. These disturbances from the activities and human presence can be a major reason why animals avoid staying in the immediate area. In the upcoming environmental impact assessment, the company will report on the impact the planned operations may have on protected areas and species.

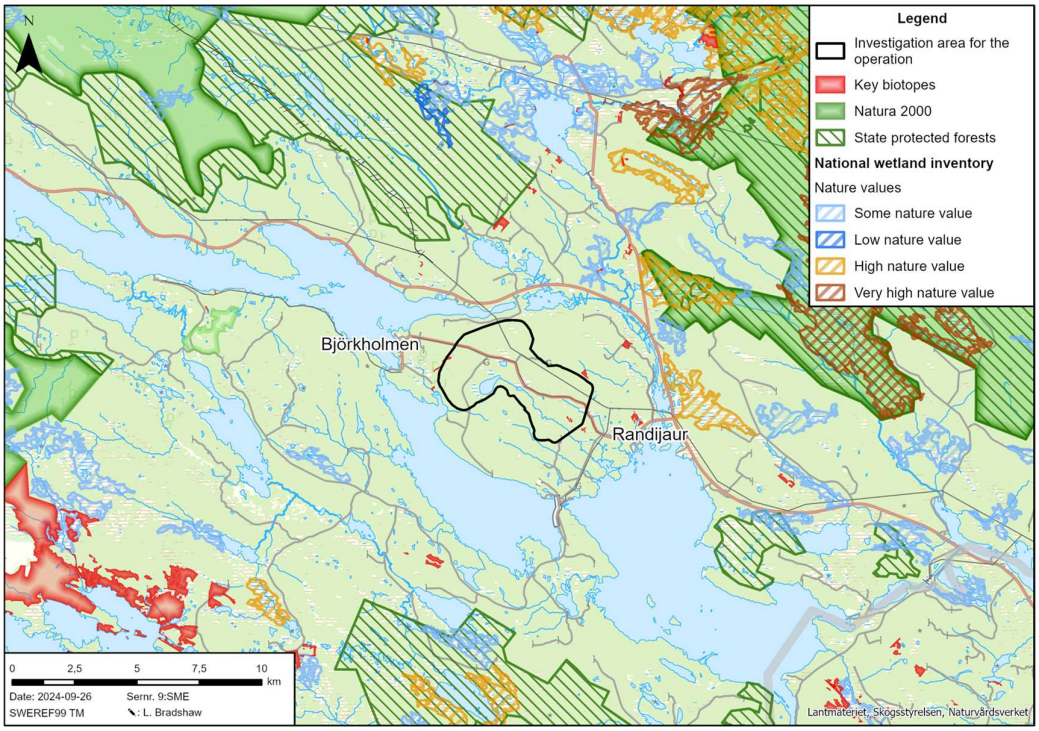

Figure 19. Nature reserves, Natura 2000 areas, key biotopes, state forests and wetlands classified according to the national wetland inventory.

Within the framework of the work on the environmental impact assessment, a nature value inventory has been carried out with the aim of delimiting areas of particular importance for biodiversity. The inventory area is presented in Figure 20. When the investigation of transport solutions has progressed further, the routes that are still relevant will be investigated with regard to the natural environment. The nature value inventory has been carried out in accordance with Swedish Standard SS 199000:2023; SIS 2023.

Nature value assessments are based on conclusions from field visits and other available knowledge about the inventory area. A conservation value inventory includes the search for special conservation species for the assessment of species value. This includes protected species, red-listed species and signal species. Results from the nature value inventories will be reported in the environmental impact assessment. When the investigation of transport solutions has progressed further, the routes that are still relevant will be investigated with regard to the natural environment.

A targeted inventory of protected species has also been carried out, which included birds (Figure 21), bats, amphibians and otters. The results of the ongoing investigation will form the basis for whether the company considers it necessary to apply for an exemption under the Species Protection Ordinance. The assessment will be reported in the environmental impact assessment.

The environmental impact assessment will report on the assessed impact on the natural environment and what proposed protective measures the company intends to take to reduce the impact on protected species and biodiversity.

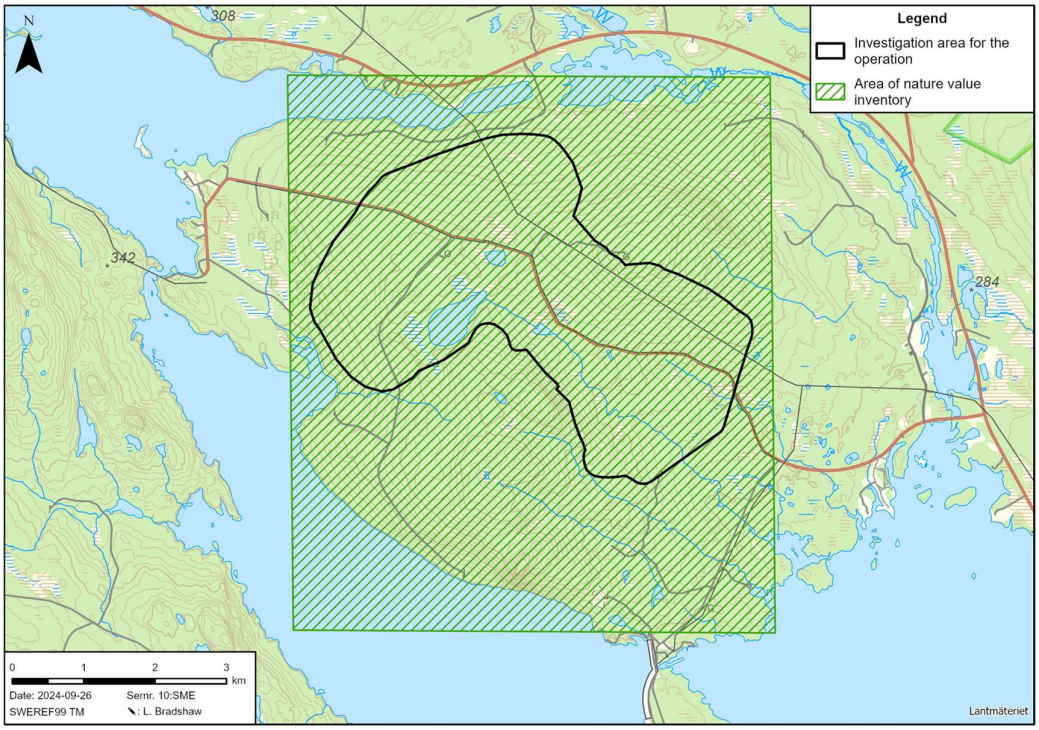

Figure 20. Area covered by nature value inventory within the framework of investigation of the location of the operational area. When the investigation of transport solutions has progressed further, the routes that are still relevant will be investigated with regard to the natural environment.

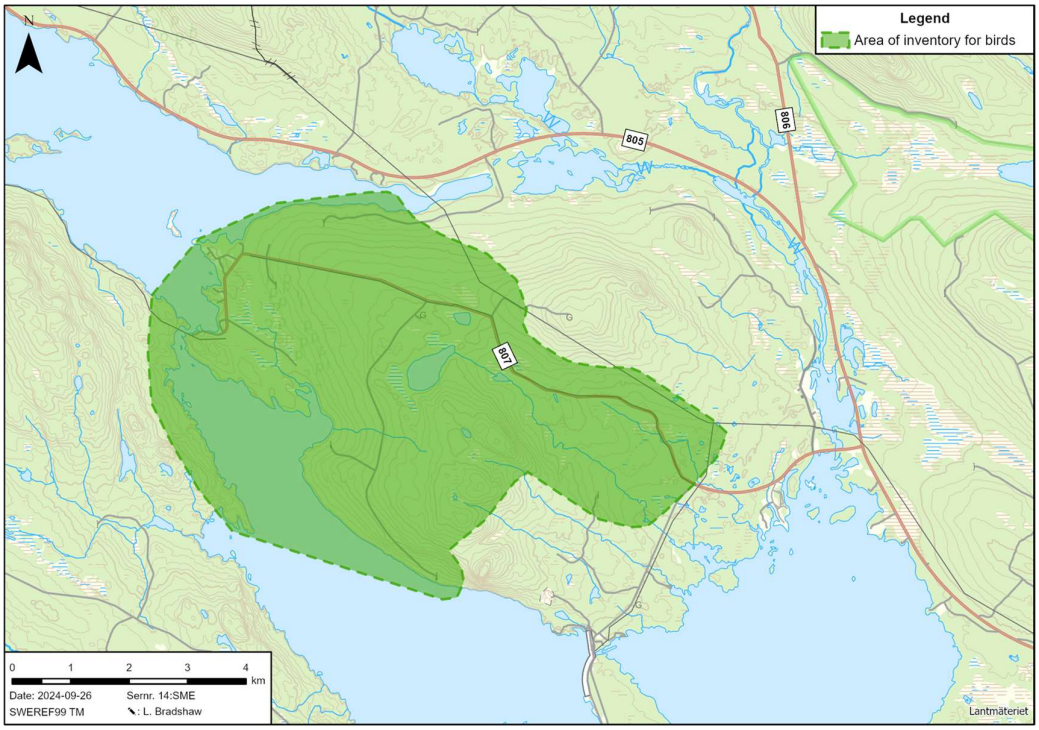

Figure 21. Area covered by bird inventory within the framework of investigation of the location of the operational area. When the investigation of transport solutions has progressed further, the routes that are still relevant will be investigated with regard to the natural environment.

4.9 Cultural environment

In the area of the applied operation, there are a number of cultural-historical remains that will or may be impacted. The types of ancient monuments that are identified according to archaeological investigations in the area and information from the Swedish National Heritage Board's map service Fornsök include traces of previous mining exploration, house foundations, hearths and bark harvesting, see Figure 22.

Archaeological land inventories in the local area have previously been carried out by the Swedish National Heritage Board in 1968, 1994 and 1996, by Umeå University in the early 1980s and in the Swedish Forest Agency's project Forest & History in the early 2000s. In 2011, Norrbotten Museum conducted an archaeological investigation that was reported in the exploitation concession application for Kallak North, and in 2012 a supplementary archaeological investigation was carried out by Revita Archaeology and History in selected parts of the area that Norrbotten Museum had investigated.

Within the framework of the work on the permit application, a cultural-historical investigation, an inventory of ancient monuments and a cultural environment analysis have been carried out to supplement previous investigations and update the material, among other things in accordance with current cultural environment legislation. The work has included a regional overview of the cultural history in relevant parts of the interior of upper Norrland and an inventory of ancient monuments in the field. The cultural environment analysis covers an area that extends about 10-15 km around the planned operation. When the investigation of transport solutions has progressed further, the routes that are still relevant will be investigated for cultural environment.

Negative impact on ancient monuments and other cultural-historical remains will be avoided as far as possible, however, it is inevitable that remains will be affected during a mining establishment in the area. Some negative effects cannot be excluded as remains will have to be removed to enable the applied activities. However, the overall negative consequences of a mine in Kallak for cultural environments and cultural environment sites are estimated to be small in the regional perspective. No known cultural environment values of national or regional interest have been evaluated by the public cultural environment management within 10 km of the planned operation. Even if some ancient monuments are removed, the assessment is that cultural-historical structures and connections in the landscape will continue to be perceived, except in the industrial area itself. The ancient monuments that are at risk of being removed within the planned area of operation generally lack such a character that they can be assessed as having a greater conservation value similar to ancient monuments in the surroundings, of which there are many. The nearest area designated as a national interest for cultural heritage conservation is about 20 km southeast of the planned operation. The area is located at such a distance from the operation that they are not considered to be affected by planned activities.

A mine in Kallak will be visible from a number of places in the surroundings and thus affect the landscape, but not from national interests for cultural heritage conservation nor from other places that have been deemed to be particularly important from a cultural environment point of view. While a mine may be perceived as a foreign element in the cultural-historical structure of the landscape, there has been a history, since the 1600s, of the extraction of minerals. The known mining-related remains in Kallak can primarily be considered to be from the mid-1900s, but much older evidence, including from the 1600s, can be found in several places in the surrounding landscape.

Today's land use for reindeer herding has a cultural-historical background with cultural environment values that are incorporated into the cultural environment analysis. However, today's migration routes and how these are affected by mining are outside the cultural environment analysis. Instead, it is included in the reindeer husbandry analysis that is carried out, see chapter 4.7.

In summary, the assessment is that future mining in Kallak is compatible with the protection of particularly valuable cultural environments and cultural and historical objects of particular interest in the interior of upper Norrland. A more detailed description of the impact and effects on the cultural environment will be presented in the environmental impact assessment.

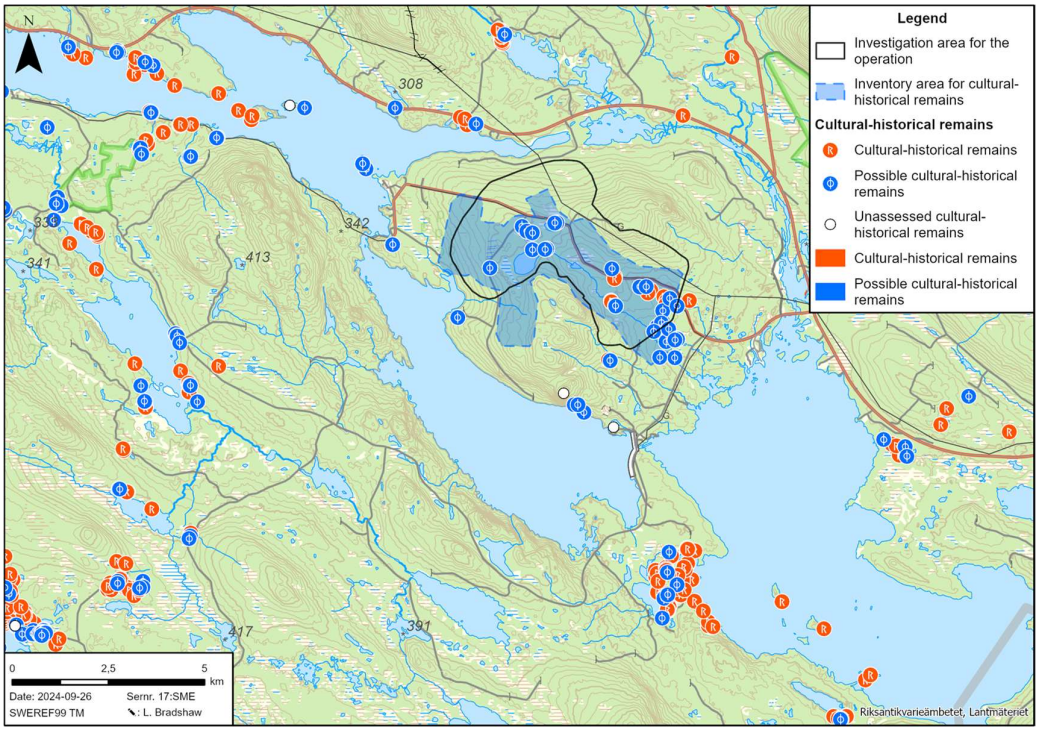

Figure 22. Ancient monuments, possible ancient monuments and other cultural-historical remains (Swedish National Heritage Board, 2024) together with the inventory area for the antiquities inventory. When the investigation of transport solutions has progressed further, the routes that are still relevant will be investigated for the cultural environment.

4.10 Conservation of natural resources

Kallak in Jokkmokk municipality is designated as a national interest for valuable substances and materials according to Chapter 3, Section 7 of the Environmental Code. Areas containing deposits that are of national interest must be protected against measures that significantly impede extraction.

The planned mining operation would mean that the purpose of the national interest in the extraction of valuable substances or materials is safeguarded. An extraction of iron ore would thus have a positive impact on the national interest.

In order to gain access to the ore, the moraine that overlies the deposit must be removed (pre-strip material). This material will be able to be used as construction and filling materials in the construction of, for example, internal infrastructure and in the construction of the tailings pond. For these purposes, waste rock will also be used. The pre-strip material may also be saved in stockpiles to be used in the remediation of the area.

Water extracted from the open pit mine will be used as process water as far as possible and then recirculated in the process.

4.11 Communications

European route 45 and Inlandsbanan (Gällivare-Hoting) and Malmbanan (Riksgränsen-Boden) constitute national interest for communication, see Figure 23. The port of Umeå is also designated as a national interest by the Swedish Transport Administration. Chapter 3.9 presents the alternatives available for transportation to and from the operation. The increase

in transport by rail, road and port depends on the transport option and the connection that can be used.

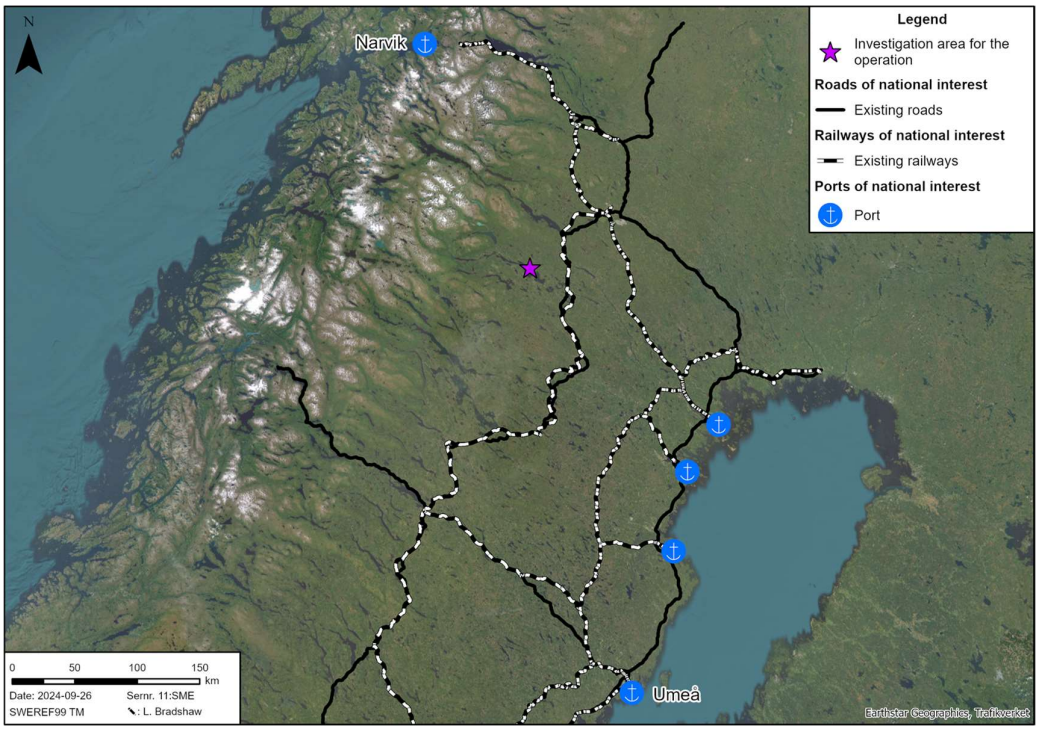

Figure 23. National interests for communications.

4.11.1 New road connection to Björkholmen

The road that currently runs to the village of Björkholmen (road 807) goes via Randijaur and through the area that is being investigated for mining activities. If the operation comes into being, a new road route will need to be developed. The new road connection could either be made north of the operating area and continue to connect at Randijaur, or there could be the possibility that the road could be developed via Kierkemvägen and connect to road 805. JIMAB will initiate a dialogue with the Swedish Transport Administration and Vattenfall on this issue.

4.12 Outdoor recreation, hunting and fishing

In the area immediately adjacent to and within the operating area, there are no known hiking or snowmobile trails, but the area is reportedly used for nature tourism. Jokkmokk municipality has several tourist companies that focus on guiding and outdoor activities and e.g. a canoe trails along the Little Lule River between Kvikkjokk and Jokkmokk via Lake Parkijaure just south of Kallak North. The World Heritage Site Laponia and the large National Parks are well-known tourist attractions for outdoor life and recreation, but are located at a longer distance from Kallak. Hunting and fishing occur in the area and Kallak, and land in the immediate vicinity, are part of Jokkmokk's game conservation district. Moose hunting is coordinated by landowners and affected Sámi communities and is conducted by hunting teams in the area. Fishing takes place for household needs in ponds and lakes in the immediate area. In Lake Kallakjaure, fish were stocked in 1999-2013 by the property owner Jokkmokks Allmänning. However, no stocking seems to be taking place at present.

In the area, Jokkmokk's Hunting & Fishing Conservation Association is responsible for fish farming and protection including biotope management and management of fish numbers

through introduction of new fish, compensatory introduction and restocking. The association, which has existed since 1937, manages most of the Pärlälven and a number of fishing waters in central Jokkmokk. Fishing is regulated. There are no fisheries conservation areas within or in close proximity to the planned operation.

An area of approximately 1,600 ha of land between the villages of Björkholmen and Randijaur, which is currently used as a recreational area for berry and mushroom picking, etc., will be used for the operation's facilities. In addition to this, noise and dust may occur that could affect areas outside the actual area of operation. In addition, vibrations and air shock waves related to blasting can be perceived as disturbances. Within a safe distance from the mining area, there is also a risk of fly rock in connection with blasting.

The operating area will not be able to be used directly for recreation and/or outdoor activities during the mine's operating period. On the other hand, appropriate land use, e.g. as today, can be recreated after mining ceases.

4.13 Powerlines

Powerlines owned by Vattenfall Eldistribution AB run through the investigation area of the operation. The impact of the operation on these powerlines will be discussed with the powerline owner.

4.14 Total Defence

The planned area of operation is located within the Low Flying Area with an area of influence that, according to the Armed Forces' decision of national interest, is of importance for the military part of the Total Defence according to Chapter 3. 9 § 1 para. of the Environmental Code. This means that the area is not designated as a national interest, but that it must be protected as far as possible against measures that can significantly counteract the interests of Total Defence. The planned area of operation is located on the border of the Swedish Armed Forces' Tall Objects Stop Area. It is an area around an airport that is of national interest where measures in the area can cause damage to the national interest.

Within a Stop Area for tall objects (Figure 24), wind turbines and other tall structures risk causing significant damage to the national interest. Tall objects refer to those higher than 20 m outside cohesive buildings and higher than 45 m within cohesive buildings. In general, no tall objects can be erected within the Stop Area for tall objects without causing significant damage to the national interest.

Low-flying areas (visualised with a blue dotted area in Figure 24) are areas that meet the necessary and valuable criteria for low-flying and are needed for low-flying exercises by the Armed Forces. Within the Stop Area for high objects and low-flying areas, all high objects shall be referred to the Armed Forces for assessment of significant damage in an area of importance to the military part of Total Defence.

Five kilometres from the planned operation, there is an MSA area, Minimum Safe Altitude, which is an area of influence around an airport that is of national interest for the military part of the Total Defence. The MSA specifies the minimum altitude around a military airport within which it is safe to conduct approaches and departures. The MSA aims to ensure the possibility of conducting visual approach to an airport.

Jokkmokk Air Base and Vidsel Firing Range, which are of national interest, Figure 24, are located 25 and 50 km from the planned activities, respectively. These are listed as national interest on land in Figure 24. The impact area for noise is 40 and just over 20 km from planned activities, respectively.

The dam embankment of the tailings storage facility will be higher than 20 m and the other building heights of the operation are under investigation. The design of the operation will be referred to the Armed Forces.

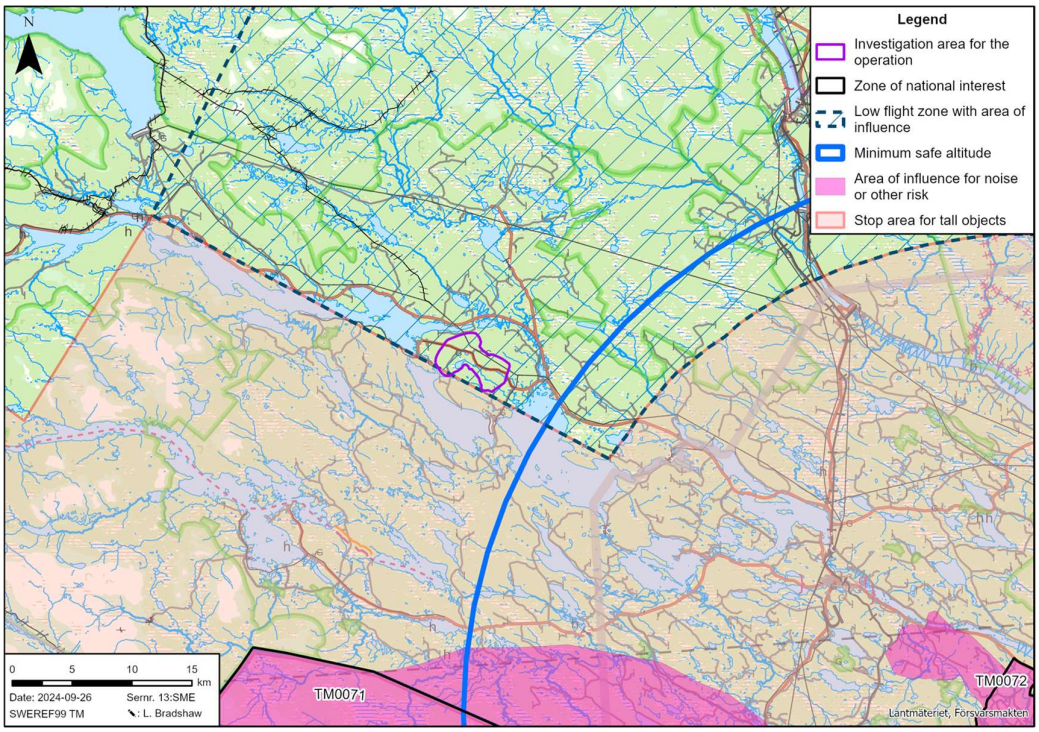

Figure 24. National interests, areas of importance and areas of influence for the military part of total defence.

4.15 Hydropower

Water bodies around the peninsula where mining operations are planned are part of the Little Lule River. Along this there are a number of power plants and dams, see Figure 25, which are owned by Vattenfall Hydropower AB.

An investigation is underway as to whether the planned mining operations may affect hydropower, for example through vibrations and fly rock. The operation of hydropower is less dependent on the quality of the water, but highly dependent on quantity. Therefore, the possible impact of mining operations on water flows in the river will also be investigated. However, the initial assessment is that the water demand that the operation has will not affect the flow in the river due to its size.

Prior to submitting the application, a dam failure investigation will be carried out which describes the consequences of a dam failure, including on power plants and dams.

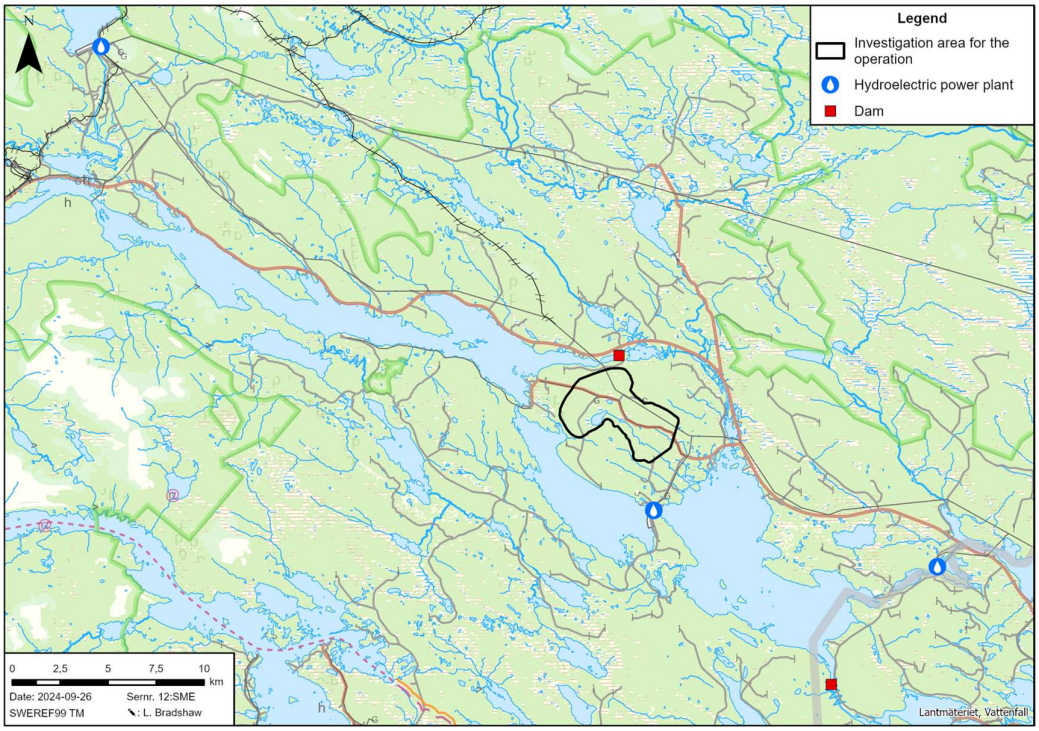

Figure 25. Hydroelectric power plants and dams in the surrounding area.

4.16 World Heritage Site Laponia

The World Heritage Site Laponia is located at a distance of about 34 km from the deposit of Kallak. Depending on the transport solution chosen, these may take place along existing infrastructure through the area. Laponia is a so-called combined World Heritage Site as it is an area that is designated on the basis of both natural and cultural values, and these two are strongly linked. The World Heritage Site Laponia is managed by Laponiatjuottjudus, which is a non-profit association with offices in Jokkmokk. Since 2013, Laponiatjuottjudus has gradually taken over responsibility for the management of Laponia from the County Administrative Board of Norrbotten. The association includes representatives of the nine Sami communities that are affected, Gällivare and Jokkmokk municipalities, the County Administrative Board of Norrbotten and the Swedish Environmental Protection Agency.

In connection with the environmental permit application, the company will conduct a specific impact assessment for Laponia, a World Heritage Impact Assessment (WHIA). It will be implemented in accordance with UNESCO's principles and guidance. This impact assessment is being prepared in consultation with relevant stakeholders and authorities and will also be submitted to the World Heritage Centre and Riksantikvarieämbetet, the Swedish National Heritage Board.

An assessment of how planned activities may affect the Laponia World Heritage Site will be described in the environmental impact assessment attached to the environmental application.

5 Waste management and aftercare

At the planned mine in Kallak, extractive waste in the form of waste rock (un-mineralised rock material from open pit mining) and tailings (un-mineralised fine material separated during the processing) will be produced as residual products from mining and enrichment. These waste materials can lead to leaching of substances such as metals and nitrogen, which can affect the soil and water in the mine's surroundings.

The Extractive Waste Ordinance (2013:319) contains rules and guidelines that require companies to classify their extractive waste and report emissions that may arise from planned extractive waste facilities even before a mine starts. A waste management plan and a remediation plan must be drawn up and included in the application. The waste management plan must report on how the operation handles its extractive waste in a safe way for people and the environment, both during the operation and in a long-term perspective.

Below is a description of previous and planned investigations and investigations that will form the basis for the upcoming waste management and remediation plan.

5.1 Waste management

Extractive waste from JIMAB's operations at Kallak will consist of waste rock in various fractions from mining and the rest of the process, as well as tailings from the concentrator plant. The facilities that are classified as extractive waste facilities according to Section 9 of the Extractive Waste Ordinance are tailings ponds and waste rock dumps.

Characterisation has been done on different types of waste rock from drill core from Kallak North in batches. The tests carried out on the waste rock show very low sulphur levels (<0.1%), which means that the waste rock is considered to be inert in terms of acid-forming properties. Based on studies carried out so far, it is estimated that the waste rock can be used as fill material and aggregate in the mining area without any negative effects on the environment.

Within the framework of the permit application, further geochemical investigations and analyses of waste rock and tailings have been carried out. The in-depth characterisation consists of supplementary total content analyses, mineralogical analyses and ABA tests (which is a measure of the acidification and neutralisation capacity of rocks) to verify previous results, as well as kinetic experiments to provide a basis for leachate concentrations from landfills and concentrations in process water.

The results obtained from the in-depth characterisation carried out in accordance with the current technical guidelines are used in the classification of the extractive wastes. The results are reported in a characterisation and classification report that is an appendix to the waste management plan.

Other waste that is not extractive waste will be adequately managed.

As part of the application, investigations will also be carried out and reported on the design and location of both the tailings storage facility and clarifier reservoirs as well as waste rock dumps.

5.2 Aftercare

According to Section 71 of the Extractive Waste Ordinance (2013:319), the operator, during operation or closure, of an extractive waste facility must ensure that the area affected by the facility is restored to a satisfactory condition in connection with the closure.

After the end of mining operations, the land areas used during the mine's operating period must be remediated. A conceptual post-treatment plan will be developed prior to the

application, which describes future needs for post-treatment, methods for post-treatment and costs for these. When the area is remediated, the land will be restored to the greatest extent possible, where one purpose is for the area to be used for reindeer husbandry again. The plan for the remediation will be prepared in consultation with Sámi communities and other interested parties. The remediation plan is a living document that, according to the Extractive Waste Ordinance, must be updated at least every five years or in the event of major changes in the design of the operations (Section 29 of the Extractive Waste Ordinance).

Depending on the characterisation of the extractive waste, different requirements are set for the design of the final covering of the tailings storage facility and waste rock dumps in order to reduce the environmental impact of these facilities. This is investigated within the framework of the permit application and the characterisation of the extractive waste that is carried out.

Once mining is completed and the remediation phase begins, a monitoring programme will be established to follow up on the remediation measures.

In order to ensure that the remediation measures are carried out according to the established plan and in accordance with current legal requirements, a financial security will be provided. This security is intended to cover the costs of remediation and is determined on the basis of a cost estimate produced in connection with the preparation of the remediation plan. The financial estimate will include all necessary measures to restore the site to a satisfactory condition, which may include land restoration, vegetation restoration and other environmental protection measures, as well as monitoring and control costs.

5.3 Risk and safety

Risk management is based on how the operation is designed and run on a daily basis. The security strategy will be based on the following three steps:

- Preventing accidents from occurring through the design of the plant (building technical protection)
- In the event of an accident, the consequences are minimised by installing safety systems that limit the extent of the accident (process technical protection)
- Active damage control (fire extinguishing, remediation, etc.)

As the operation is built up and developed, the safety protocols will be updated, to reflect the operation at all times and entail good governance. The risks of the activities will be described in the environmental impact assessment, and are deemed to be primarily associated with the:

- Chemical accident
- Dam failure
- Fire
- Hazardous waste management
- Gas handling

Other risks may also be identified and described.

5.3.1 Prevention of serious chemical accidents

The planned operations will handle chemicals in a quantity that makes them subject to the requirements of the Act on Measures to Prevent and Limit the Consequences of Serious Chemical Accidents (Seveso). Above all, explosives will be handled within the operations for use in blasting in the open pit mine.

If more than 10 tonnes of explosives are used at the same time, the activity is covered by the lower level of requirements. If more than 50 tonnes of explosives are used at the same time,

the activity is covered by the higher level of requirements. The assessment is that the operation will be covered by the higher level of requirements according to the Seveso legislation, i.e. that more than 50 tonnes of explosives can be used at the same time.

The consumption of explosives in the planned mining operations therefore entails a requirement that a safety report be prepared in accordance with Section 10 of the Ordinance (1999:381) on measures to prevent and limit the consequences of serious chemical accidents. The safety report must describe the activities and identify risks. The safety report shall be a "living" document during mining operations and shall also contain an action plan and a plan for internal rescue operations in accordance with Section 12 of the same Ordinance. A safety report will be produced for the application for a permit under the Environmental Code.

5.3.2 Dam safety

The dams in the tailings storage facility and clarifier reservoirs may pose a particular risk to the environment. With regard to dam safety, an impact classification must be carried out in order to then be able to determine which dam safety requirements must be met. Protective measures will be taken in accordance with the requirements that apply to the consequence classification of each reservoir according to GruvRIDAS and GISTM.

An investigation will also be produced for the application of the consequences that could arise in the event of a dam failure. A safety report will also be produced for a risk facility according to the Extractive Waste Ordinance. This will report on JIMAB's safety management system where routines, operation and control of dam facilities are clarified and internal contingency plans in the event of a dam failure are reported.

6 Status report

According to the Industrial Emissions Ordinance (2013:50), anyone who intends to conduct an industrial emissions activity must prepare a status report. The status report shall, for the area where the operations will be conducted, include land and groundwater measurements that reflect prevailing conditions in the area, as well as describe the area's current and previous use. What constitutes industrial emissions activities is defined according to Chapter 1, Section 2 of the Industrial Emissions Ordinance through the business codes that apply to the activities under the Environmental Assessment Ordinance (2013:251). For relevant parts of the planned activities, a status report will be prepared. A separate dialogue will be held with the supervisory authority.

7 Monitoring programme

Prior to the commencement of mining operations, a monitoring programme will be drawn up, the purpose of which is to monitor, among other things, water chemistry, groundwater levels, noise and air emissions during and after the end of operations.

8 Design and content of the environmental impact assessment

As part of the specific environmental assessment according to Chapter 6, Section 28 of the Environmental Code, an environmental impact assessment will be prepared and submitted together with other application documents to the Land and Environment Court, which examines the permit application. The environmental impact assessment will describe the current conditions for areas that may be affected by the planned operation. Furthermore, it

describes in what way and to what extent the planned activities affect the environment and what this means for consequences and effects on human health and the environment.

The basis for assessments will consist of the Environmental Code and regulations, and regulations issued pursuant to the Code, relevant EU directives, environmental quality standards, guideline values and assessment criteria that are relevant to the operation and its surroundings.

The environmental impacts are assessed on the basis of each aspect's sensitivity or protection value in combination with the size of the impact and subsequent environmental impact. If the known values are high, it can be assumed that a smaller impact is accepted, and vice versa.

The proposed disposition and overall content of the environmental impact assessment:

- Non-technical summary
- Introduction
- Localisation
- Valid permits and other decisions
- What the application relates to
- Boundaries
- Consultation
- Description of planned activities
- Alternative locations and technologies, zero alternatives. (Alternative accounting)
- Environmental description
- Conditions and environmental impacts
- Risk and safety
- Waste management and aftercare
- Overall assessment

The planned operations will be adapted to predicted/expected changes in precipitation and temperature as a result of a changing climate. When planning and dimensioning the operations, climate change will be taken into account and the application will also include a description of how the facility can be adapted to meet a future changing climate, for example in terms of torrential rain and flood risks.

The environmental impact assessment is accompanied by relevant studies that form the basis for descriptions and assessments.

8.1 Ongoing and planned investigations

Below is a summary of ongoing and planned investigations.

- Hydrogeological surveys
- Natural values, biodiversity, water quality
- Noise investigation including noise dispersion calculations
- Vibrations, air shocks, fly rock
- Air investigation including dispersion calculations
- Cultural heritage
- Cultural value inventory
- Reindeer Husbandry Analysis
- World Heritage Impact Assessment for Laponia
- Ecological compensation
- Recipient investigation
- Characterisation and classification of extractive waste
- Aftercare plan

- Transport investigation

9 References

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