TYRÉNS

Consultation document

SLITE VINDKRAFTSPARK

LandInfra

2024-10-15

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Contributors

Client:	Landinfra Alpha 2 AB
Contact person:	Daniel Bergvall
Consultant:	Tyréns Sverige AB
Assignment manager:	Johanna Thurdin
Author:	Louisa Borthwick, Lucy Morgan, Henrik Schreiber, Sandra Wärn
Quality Reviewer:	Lena Holm

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1 Introduction

1.1 Background and purpose

Landinfra Alpha 2 AB plans to establish an offshore wind farm named Slite Vindkraftspark, east of Slite, within Region Gotland.

Slite Vindkraftspark is estimated to produce 3.6 TWh of renewable electricity when fully developed, which is about the same as Gotland's entire energy deman. In 2022, 3.7 TWh of energy was consumed by Region Gotland, of which about 0.9 TWh consisted of electricity. (SCB, 2022)

The establishment of the project is in line with Sweden's national and Region Gotland's set climate goals.

The production of renewable electricity can reduce Europe's dependence on fossil energy sources and thus contribute to reducing the pace of climate change.

The planned activities consist of the investigation area[1], export cable corridors and landfall points. The investigation area is 690 km^2 and is located within Region Gotland in the Baltic Sea's offshore waters, about 14 km southeast of Slite, 12 km northeast of Herrvik and 13 km east of Åminne. The project area lies entirely within Swedish territorial waters, see Figure 1.

Six alternative export corridors and landing points for connection cables are being investigated. All export cable corridors are located within Swedish territorial waters and within Region Gotland. The export cable corridors are about 1 km wide and up to 16 km long.

[1] The area that is being investigated for the establishment of Slite Vinkraftspark.

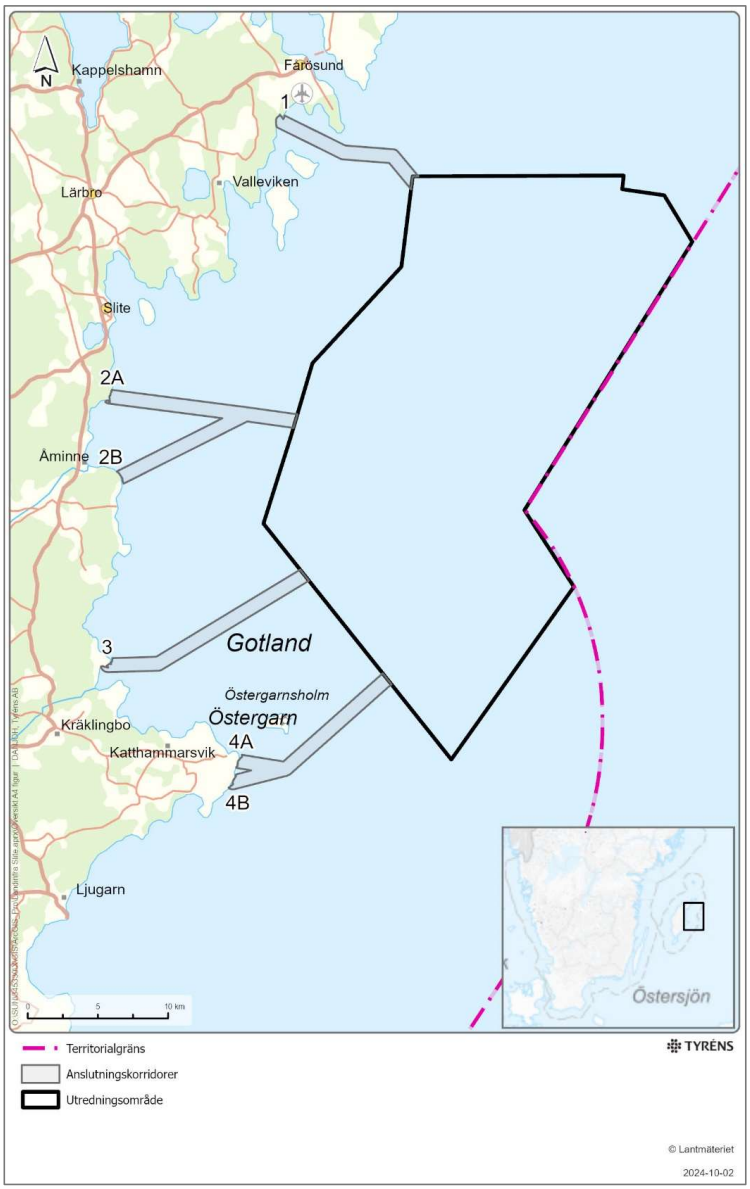

Figure 1. Overview map of the investigation area *(utredningsområde)*, export cable corridors *(anslutningskorridorer)*, landfall points and the Swedish territorial limit *(territorialgräns)*.

1.2 Administrative tasks

Applicant	Landinfra Alpha 2 AB 559440-3791 c/o Landinfra Energy AB Hyllie Boulevard 40 215 35 Malmö Sweden
Contact person	Daniel Bergvall +46 (0)76-005 73 11 daniel.bergvall@landinfra-energy.com
Consultant	Tyréns Sverige AB Johanna Thurdin +46 (0)10-452 34 93 johanna.thurdin@tyrens.se

1.3 Operator

Landinfra Alpha 2 AB, hereinafter referred to as *Landinfra* or *the Company*, a subsidiary of Landinfra Energy AB, intends to establish an offshore wind farm named Slite Vindkraftspark within Region Gotland.

Landinfra Energy AB is a Swedish company that develops and establishes renewable energy projects, focusing on solar power, onshore and offshore wind power, energy storage, hydrogen production and electrofuels, with main focus on the Nordic market. The company is based in Malmö, Sweden and relies on many years of experience in offshore wind power.

Landinfra is part of the green transition by developing competitive renewable energy projects and thus contributing to increased electrification, reduced greenhouse gas emissions and ensuring a more sustainable future. The operation model is based on the development of renewable energy projects from early phase in close collaboration and partnerships with land-owners, local stakeholders and investors. Local anchoring and creating local benefits from the projects is an important part of Landinfra's way of working.

Landinfra is developing a portfolio of offshore wind power projects around the coast of Sweden comprising approximately 6 GW. The projects are distributed along the entire coast of Sweden and are located in the North Sea, the Baltic Sea and the Bothnian Sea. The projects shall be both technically and economically feasible to realize by around 2030. To make this possible, the company has mainly focused on areas that enable

bottom-fixed foundation alternatives, have good opportunities for grid connection and that enable a low electricity production cost.

In connection with the offshore wind power projects, Landinfra aims to develop facilities for the production of hydrogen and electrofuels to enable local industries and the transport sector to transition from fossil fuels. The company is investigating several alternative locations in close proximity to the projects, such as existing industrial areas and ports for this purpose. By adding new electricity production and securing the electricity supply, unique opportunities are created for the existing local operation community, but also for new establishments of electricity-intensive industry in the regions where the projects are established. The company is in continuous dialogue with local stakeholders and industry to enable a faster green transition.

2 Consultation and permit process

2.1 Demarcation

This consultation document refers to consultations for construction, operation and decommissioning of a wind farm within the investigation area, export cable corridors and landfall points, including related activities such as substations, met masts, internal cable network, export cables and any follow-on activities such as dumping of dredged masses. Connection to the electricity grid on land from the landfall point to the overhead grid will be handled in a separate consultation process and is therefore not included in this consultation.

The consultation also covers possible effects on Natura 2000 protected areas.

The planned operations are located within the project area for the wind farm, alternative export cable corridors and at landfall points, see Figure 1. The project area of approximately 690 km^2 is delimited by coordinates according to Appendix 1. The project includes a maximum of 51 wind turbines with a total height of maximum 315 meters.

The export cable corridors are approximately 1 km wide. The landfall points consist of areas that extend 100 m up on land from the shoreline and have the same width as the export cable corridor at each landfall point.

Direct impacts are not expected to occur outside a radius of 10 km from the project area and 500 m from the export cable corridors, which is why the presentation of the geographical conditions focuses on values within these distances. To the extent that the activity is deemed to have a direct impact on any value at a greater distance, this will be described in the upcoming Environmental Impact Assessment (EIA).

Indirect impacts linked to environmental aspects such as climate impact and the management of natural resources are reported without geographical delimitation.

2.2 Required permits

The establishment of a wind farm within Swedish territorial waters requires a permit for environmentally hazardous activities and water operations in accordance with the Swedish Environmental Code (EC).

Cable laying during the construction phase requires a permit in accordance with the Continental Shelf Act (1966:314), a grid concession in accordance with the Electricity Act (1987:857) and a permit for water operations in accordance with the EC.

If a measure can have a significant impact on the natural environment in a Natura 2000 protected area, a Natura 2000 permit may be required in accordance with the EC.

2.3 Environmental impact assessment

Prior to an application to construct an offshore wind farm, an environmental impact assessment (EIA) in accordance with the EC must be implemented and an EIA conducted. According to the environmental assessment decree, an offshore wind farm constitutes an activity with a significant environmental impact.

2.3.1 Consultation

Since the activity is associated with a significant environmental impact, no investigation consultation is required. The environmental assessment process instead begins with a delimitation consultation. The purpose of the delimitation consultation is to determine the appropriate scope and delimitation of the EIA. The consultation includes the location, scope, design, and environmental effects of the activities, as well as the content and design of the EIA.

This document forms the basis for the scoping consultation.

2.3.2 Consultation circle

The delimitation consultation takes place with the County Administrative Board of Gotland, Region Gotland and other government authorities and individuals who can be assumed to be particularly concerend. Furthermore, consultations will be carried out with organisations, associations and the general public. Property owners affected by export cable corridors and landfall points will receive an invitation to the consultation by letter. For proposals for a consultation circle, see Appendix 3.

2.3.3 EIA

After the consultation, investigations and inventories are carried out, after which the EIA and the application are compiled. The application and

appendices are submitted to the Land and Environment Court, which decides whether a permit can be granted for the activity.

3 Localisation

3.1 Current location

The project area is located within Region Gotland in the Baltic Sea's offshore waters. The northern part of the project area is located about 6 km from the island of Bunge aur and at about the same distance from the cape Bungenäs. The southern part of the project area is about 7 km from the island of Östergarnsholm and just over 10 km from Gotland. The project area of about 690 km^2 are delimited by coordinate corner points as set out in Appendix 1. The project area lies entirely within Swedish territorial waters, see Figure 1.

Six alternative landfall points will be investigated further. Approximately 1 km wide export cable corridors lead to the landfall points, within which export cables will be constructed within one or a maximum of two. Landfall points and export cable corridors are reported in Figure 1. The properties that are affected by any of the export cable corridors and include a water area are listed in Appendix 2.

3.2 Location investigation

The chosen location of Slite Vindkraftspark has been preceded by an extensive location investigation and selection process of suitable areas for offshore wind power along the entire Swedish coast. Landinfra based selection process on the new energy areas for offshore wind power proposed by the Swedish Energy Agency, published during the spring in 2023 (Energimyndigheten, 2023). The Swedish Energy Agency's task was to, together with eight other authorities, identify suitable areas for energy production, to enable 90 TWh of annual electricity production from offshore wind. The assignment forms the supporting document for the Swedish Agency for Marine and Water Management's ongoing work on proposals for new maritime spatial plans (see section 5.1.1).

Landinfra has based its assessment on the area descriptions and general assessments presented by the Swedish Energy Agency and evaluated all proposed energy areas based on the following aspects:

- Sea depth and technical constructability
- Good wind conditions
- Opportunity to establish with existing technology
- Opportunity for financial profitability

- Proximity to possible grid connection
- Competing interests and projects
- Environmental aspects and other environmental impacts
- Regional need for new electricity production.

Based on these criteria, Landinfra initially selected about ten of the Swedish Energy Agency's 53 proposed energy areas for a more thorough selection process. This continued selection process included early dialogue with selected stakeholders such as commercial fishing organisations, municipalities and industrial actors to obtain their views on the locations. As part of the continued development of the projects, the company applied in the autumn of 2023 for an exploration permit for seabed surveys from SGU for the areas that the company considered to have the best conditions for offshore wind power.

At present, Landinfra has chosen to proceed with a handful of projects, the locations of which are considered more suitable overall. Slite Vindkraftspark is one of these projects, which is why consultations for future permit applications are now being carried out.

A location investigation covering the project area, landfall points and export cable corridors will be attached to the upcoming EIA.

3.3 The zero alternative

In the zero alternative, the wind farm will not be built, there will be no impact on interests in the immediate area, and there will also be no production of the renewable electricity that the wind farm could have contributed with. The impact of the zero alternative will be addressed in the upcoming EIA.

4 Operation description

4.1 The wind farm

The planned wind farm consists of wind turbines, foundations, internal cable networks, substations, connecting cables, landfalls and related activities that will be constructed within the project area, export cable corridors and landfall points.

The technical development of offshore wind power is taking place at a high pace, which is why it is difficult to predict exactly what technology is available in detailed design and procurement. The company intends to use the best available technology in the establishment of the wind farm to enable the lowest possible environmental impact and production cost for the electricity produced. A technical description will be attached to the upcoming EIA and the final choice of wind turbine model, foundation alternatives, cable dimensions and more will be made during the project's detailed design.

4.1.1 Wind turbine

For the project, three-blade horizontal-axis wind turbines in white or grey shades are planned. The wind turbines consist of towers, hubs with rotor blades and machine houses, mounted on a foundation.

Below are two alternative wind turbine models that are considered to be available on the market at the time of detailed design and procurement.

The wind turbines are estimated to have a rotor diameter between 236–284 m, a total height[2] between 263–312 m, and a hub height[3] between 145–170 m.

The dimensions above constitute a range that the company believes may be relevant for the project. In Table 1 Estimated dimensions are compiled for possible alternatives in the upper and lower range.

[2] Height from mean water surface up to the tip of the rotor blade when pointing straight up
[3] Height from mean water level to the engine house

Table 1. Example of design.

	Option 1	Option 2
Rotor diameter	284 m	236 m
Hub height	170 m	145 m
Overall height	312 m	263 m
Installed capacity per wind turbine	22 MW	15 MW
Number of wind turbines	35	51
Effekt wind farm	770 MW	765 MW

For the consultation document, an example layout with 35 wind turbines has been developed, see Figure 2. The example layout has been optimized based on aspects such as electricity production cost, power density, water depth and wind direction. Different design alternatives within the framework of the maximum number of wind turbines in the project area and the maximum total height will be investigated further. The final design is based on the results of future seabed surveys and information gathered during the consultation phase. The final design is decided during the detailed design phase.

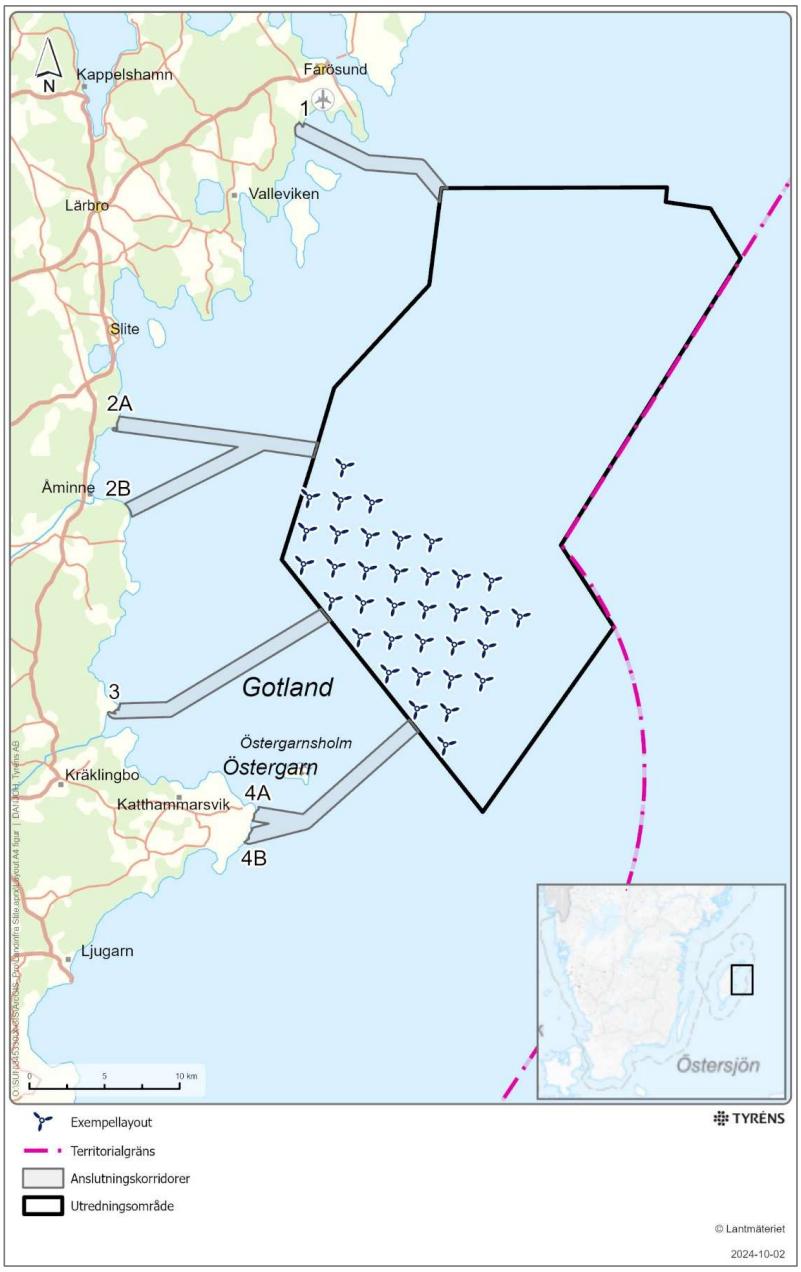

Figure 2. Example layout (exempellayout) of possible location of the wind turbines within the project area. Other groupings, distributions or spreading the works over the area are other

possible alternatives. Investigation area *(utredningsområde),* export cable corridors *(anslutningskorridorer)* and the Swedish territorial limit *(territorialgräns).*

4.1.2 Foundation

For Slite Vindkraftspark, bottom fixed foundations are planned for the wind turbines and substations. There are three main types of bottom fixed foundations for offshore wind turbines; *monopile foundations*, *Gravity foundations* and *Jacket foundations*. For a principle sketch of the various foundation alternatives, see Figure 3.

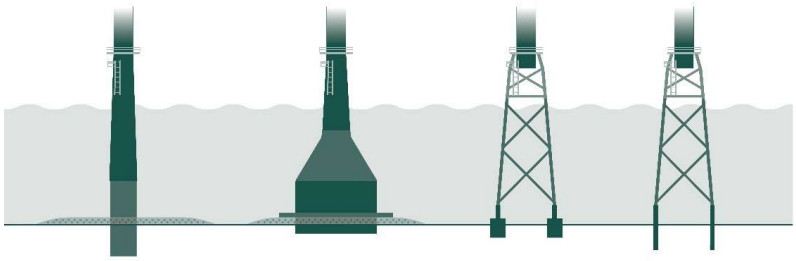

Figure 3. Principle sketch of bottom-fixed foundation alternatives. (From left: monopile foundations, gravity foundations, jacket foundations with suction buckets and jacket foundations with pin-piles). Source: Landinfra.

Monopile foundations consist of a hollow steel pipe that is anchored to the seabed by piling, vibration, drilling or flushing. The thickness and length of monopiles depend on things such as bottom conditions, loads from the wind turbines, water depth, wave and sea conditions, and how deep into the seabed they need to be anchored. The company currently estimates that monopiles with a diameter of about 10 m and a length of about 80–120 m are relevant for anchoring the wind turbines, with an anchoring depth of about 40–60 m.

Jacket foundations are a steel tube jacket structure with usually three or four legs. The legs of the foundation are anchored to the seabed with pin-

piles[4] that are either piled or drilled down. The length of pin-piles depends on things such as bottom conditions and how deep into the seabed they need to be anchored. Jacket foundations can also be anchored with suction caissons[5] , which are anchored to the bottom sediments with their own weight.

Gravity foundations typically consist of a hollow steel-reinforced concrete structure with either a cone-shaped or open base with a cylindrical structure above. The base is usually round or hexagonal and the foundation is placed on the seabed. Gravity foundations are designed and designed depending on the site-specific conditions of each wind turbine.

Landinfra currently assesses that monopile foundations are the most likely foundation alternative for anchoring the wind turbines and that jacket foundations are the most likely option for anchoring substations and platforms. A description of current foundation alternatives, current anchoring methods and dimensions, as well as an assessment of the environmental impact of each foundation alternative will be described in detail in the upcoming EIA.

The final choice of foundation options is based on technical conditions such as wind turbine model, loads and costs, as well as site specific conditions such as water depth, bottom conditions, weather and sea conditions, and environmental aspects.

Erosion protection is built around the foundations to avoid erosion due to currents and waves. The erosion protection usually consists of gravel and stone and extends about ten meters out from the foundations.

4.1.3 Internal cable network

An internal cable network with several loops is built to connect the wind turbines to the substations. The company currently estimates that a voltage level of 66 kV is relevant for the internal cable network, and that each loop can connect five wind turbines. This type of cable has a diameter of about 15–30 cm. Other dimensions and voltage levels up to 132 kV may also be relevant.

The company estimates that the total length of the internal cable network may amount to approximately 105 km. The final routing of the internal cable network is affected by bottom conditions and is optimized for minimal

[4] Smaller variant of monopile / hollow steel tube.
[5] Also called sucktion buckets. Steel cylinders with covered top.

environmental impact and to minimize cost and power losses for the internal cable network.

To protect the cables, they are mainly laid out in cable trenches. In places where this method is not suitable due to, for example, cables crossing each other or the bottom material not allowing burial, they are laid directly on the seabed and can instead be protected by being covered with stones, concrete mattresses, artificial seaweed mats or sandbags.

The final location and design of the internal cable network will not take place until the detailed design stage. The dimensions of the internal cable network, number of cables and length, as well as the location of the internal cable network, are optimized based on factors such as the final location and power of wind turbines and substations, bottom conditions, installation method and environmental aspects.

4.1.4 Substations

Within Slite Vindkraftspark, offshore substations and platforms are planned to be mounted on foundations within the project area. In these stations, the electricity produced by the wind turbines is transformed to higher voltage, to reduce losses when the electricity is transmitted via the export cables to land.

When calculating the dimensions of the substations, Landinfra has been based on sizes that are considered to be available at the time of detailed design and procurement. It is currently estimated that substations with a capacity of approximately 700–800 MW are relevant for the project. The substations are mounted either on a shared or on separate foundations, for a description of foundation types see section 4.1.2 . The substations and platforms on the foundations may also be used for servicing the wind farm. Other dimensions and designs of substations may also be relevant.

In the event that DC cables are used for the export cables, converters will also be used and the substations will then be called converter stations[6].

The final placement and design of the substations and platforms will not take place until the detailed design phase. The number, size and location of substations are optimized based on factors such as the wind turbines' final locations and power, bottom conditions, water depth, and whether direct or alternating current is used for connecting cables.

[6] Converts alternating current to direct current.

4.1.5 Met masts and measuring stations

Prior to the detailed design, one or more met masts are expected to be installed to confirm the wind resources in the area. The met masts are equipped with wind measurement equipment and other equipment to measure meteorological and hydrological conditions. The met masts are planned to have a height corresponding to the hub height of the wind turbines and be anchored to the seabed with foundations similar to those relevant for the wind turbines, but of smaller dimensions. The met masts may also remain within the wind farm during the operating period.

As an alternative, or in combination with met masts, the company assesses that LiDAR[7] will be used to measure meteorological and hydrological conditions in the area. LiDAR uses laser technology to measure the wind resources in the area and can be mounted either on a buoy or on a foundation. The company also assesses that one or more measuring stations that measure water and current conditions can be placed on the seabed for detailed design.

4.1.6 Obstacle marking

All of the wind farm's plant parts are marked as obstacles and marked in accordance with current legislation. Wind turbines and met masts will be marked as obstacles in accordance with the Swedish Transport Agency's current regulations (TSFS 2020:88[8]), or at the time other applicable regulations. According to current regulations, wind turbines that constitute the outer boundary of a wind farm must be marked with white paint and be equipped with high-intensity white flashing lights on the engine house. This also applies to wind turbines located inside the outer boundary of the wind farm, but which are not covered by any of the wind turbines located in the outer boundary line. For other wind turbines, low-intensity red lights must be installed. If the turbine housing of the wind turbines has a height above the water surface of more than 150 m, the tower must be marked with at least three low-intensity lights at half the height up to the engine house. The wind farm's plant parts will be designated in accordance with the Swedish Transport Agency's current regulations (TSFS 2017:66[9]), or at the time other applicable regulations. The final design of obstacle marking takes

[7] Light detection and ranging, optical measuring instrument that measures the properties of reflected light.
[8] The Swedish Transport Agency's regulations and general advice on marking objects that may pose a danger to aviation and on flight obstacle notification
[9] The Swedish Transport Agency's regulations and general guidelines on marking at sea with maritime safety devices

place in consultation with the relevant authorities based on the wind farm's final design.

4.2 Connecting cables

Connecting cables are laid to connect substations to the landfall point. The company currently assesses that the connecting cables consist of cable connections with high-voltage alternating current (HVAC[10]) or high-voltage direct current (HVDC[11]) with a voltage level of up to 525 kV, and that one to four cable connections will be installed. The cable connections are estimated to have a diameter of 15–30 cm and the maximum length of each cable joint is estimated to be about 25 km. Other dimensions and lengths may also be relevant.

The company is investigating several alternative landings with associated export cable corridors for the export cables. The export cable corridors are about 1 km wide to be able to take into account factors such as bottom conditions, protected areas, natural values and any presence of wrecks, dumped ammunition or waste. The cable connections are mainly placed in parallel, either in a cable trench, in cable protection pipes, or directly on the seabed. The cable joints can either be grouped or separated with an internal distance of up to approx. 250 m. Deviations from the internal distance can occur under sensitive or technically complicated conditions.

The final design and voltage level of the connecting cables depends on the power of the wind farm, the choice of substations, whether the transmission is by high-voltage direct current or high-voltage alternating current, the transmission capacity and number of the cable joints, and the distance to and voltage level at the connection point. The final choice of landing gear with associated export cable corridor depends on factors such as connection point, bottom conditions, natural values and conditions for landings. The final location of the connecting cables will be recorded on nautical charts and marked with signage where the cable connections go ashore.

4.3 Landfall point

At the landfall point, the cable assemblies will be brought ashore and, at one or more jointing locations, transition to either underground cables or overhead lines leading to the onshore connection point. Landinfra is

[10] High voltage alternating current
[11] High voltage direct current / High voltage direct current

investigating several alternative landfall points for the export cables, which will be investigated further in the process.

The landfall points consist of areas that extend 100 m up on land from the shoreline and are at the investigation stage the same width as the export cable corridor at each landfall point.

The company currently estimates that each joint point requires an area of approximately 10 x 20 m, and that up to four joint points may be constructed. The splice points consist either of a temporary splice pit in which cable connections are made underground, or in a smaller switching station. The number of splice points is the same as the number of cable joints pulled up on land, and splicing can take place in common or in separate splice pits.

4.4 Phases of the operation

This section describes the construction, operational and decommissioning phases of the planned operations. The different phases will be described in more detail in a technical description that will be attached to the upcoming permit application.

4.4.1 Construction phase

The construction phase includes preparatory work for the construction of the wind farm as well as construction work and installation of all parts of the wind farm. Installation of the wind farm is mainly continuous, and several different types of construction work may occur simultaneously in the operating area[12]. Construction work is ongoing around the clock during the construction phase, with a break in severe weather conditions. The company estimates that the construction of the wind farm will last for about two years.

Before the installation work begins, preparatory work such as dredging and levelling of the seabed may be necessary.

Installation will then begin with the construction of foundations and erosion protection, internal cable networks, connecting cables, landholds, splices and land-based electricity grid infrastructure. After that, wind turbines and substations will be installed. A general method for installing the wind farm is described below, but other methods may also be relevant.

[12] The area of activity is the area that finally becomes relevant and within which permission to carry out the activity is obtained.

Preparatory work

Prior to detailed design and construction, detailed investigations are carried out to obtain information about marine geological conditions on and under the seabed prior to the design and optimisation of the wind farm. In 2023, the company applied for an exploration permit under the Continental Shelf Act for these explorations.

Met masts, LiDAR and, if necessary, other measuring equipment are installed to confirm site-specific conditions regarding wind and sea conditions prior to the procurement and design of wind turbines and other plant parts.

Installation of foundations

Installation methods for the foundations largely depend on which foundation alternative is finally relevant for the project. The foundations are transported from the installation port or manufacturing site to the wind farm by either installation vessel, barge or by towing.

Monopile and jacket foundations are positioned with a floating crane or installation vessel and then anchored to the seabed by piling, drilling or flushing. The methods for the foundations are similar except that the jacket foundations are anchored with several smaller pin-piles instead of the monopile foundation where the foundation itself is driven into the seabed. The installation vessels often have jack-up legs[13] or dynamic positioning systems and are equipped with installation equipment such as drilling equipment or piling hammers. If piling is used as an installation method, this can lead to high and impulsive noise levels, which is why sound-absorbing protective measures such as bubble blinds may be relevant.

Gravity foundations are transported to the installation site on barges, installation vessels or by towing. The foundation is positioned with the help of tugboats or cranes and lowered to the seabed by filling the structure with water. When the foundation has been stabilised on the seabed by its own weight, the foundation is filled with gravel, sand, stone or pellets, for example. Erosion protection is then installed around the base of the foundation with the help of an excavator on a ship or barge.

Installation of internal cable networks and export cables

Internal cable networks and connecting cables are installed on the seabed from a cable installation vessel. How the installation takes place depends

[13] Adjustable legs used to hold a platform above the surface during underwater work regardless of wave conditions.

on, among other things, the bottom conditions and the degree to which the cables need to be protected. At the soft bottom, the cables are placed about 1–3 m down into the bottom sediment by ploughing, digging or flushing. In the case of a hard bottom, the cables are placed directly on the seabed and covered with the necessary cable protection, see section 4.1.3 .

As far as possible, crossovers between new cables and existing cables and pipelines are avoided. If crossing becomes necessary, this will be done with regard to existing cables and pipelines after contact with the cable owner. Existing cables and pipelines can be protected if necessary by covering them with concrete mats and stone, on which the new cables are then placed.

Construction of landings

The connecting cables are pulled up on land at the landfall point and routed to the splice point. Methods for pulling the export cables up on land can be through an open shaft, trenchless method or a combination of these. Other methods may also be relevant.

In the case of an open shaft, a cable trench is dug from the sea to the point of joint. The cable trench in the water is estimated to be 1–2 m deep and have a width at the bottom of about 1–2 m. The cable trench is kept open until the cable connections or protective pipes have been laid, and then covered.

The trenchless method is usually carried out with so-called guided horizontal drilling (HDD[14]), which requires a work surface with space for drilling equipment on land. The size of the work area is estimated to be about 50 by 50 m. Guided drilling at landfall involves less physical intervention in the coastal marine environment compared to open shaft, but instead a greater intervention on land as the need for a working surface is greater than with an open shaft. Guided drilling requires more homogeneous ground conditions and has limitations in the length of the desired drilling.

Installation of substations and wind turbines

Substations are often transported directly from the manufacturing site on a barge or installation vessel. With a floating crane or installation vessel, the

[14] Horizontal Directional Drilling.

substations are lifted up and mounted on the foundation. These lifts are often the largest and heaviest performed when installing a wind farm.

The wind turbines are usually transported from the installation port, where the pre-assembly of the tower, engine house and rotor blades takes place, on a special vessel intended for the installation of wind turbines. These vessels have jack-up legs or dynamic positioning systems to enable the vessel to be completely still during the installation phases. First, the tower is lifted into place and mounted on the foundation, then the machine house is lifted and assembled, and finally the rotor blades are installed. The installation of the wind turbines may have to be interrupted in case of severe weather conditions.

Vessel traffic

During the construction phase, intensive vessel traffic will be carried out by survey vessels, installation vessels, transport vessels, dredgers, barges, surveillance vessels and personnel transports within and to and from the operational area. The area of operation will be completely or partially closed to other vessel traffic during the construction phase. Vessel traffic will comply with the regulations for maritime safety in force at the time. When designing the wind farm, the company will take into account the Swedish Maritime Administration's and the Swedish Transport Agency's recommendations when planning and establishing offshore wind power (TSS 2023–2506) as well as guidelines from IALA. The extent of vessel traffic during the construction phase and the impact of this will be described in more detail in the upcoming EIA. The company will also analyze and assess an appropriate safety distance to nearby fairways based on the site-specific conditions and based on proposed protective measures.

Ports

In the construction phase, an installation port is used for pre-assembly, transshipment and storage of plant parts. Some plant parts can be transported directly from the production site to the wind farm.

There are several established ports that are possible to use for the project, but new ports may also be relevant. The final choice of installation port is made during the detailed design and depends on factors such as the wind turbine model and installation company.

Dredged material handling

When constructing foundations, preparatory bottom work is required, such as dredging, levelling of the seabed and moving of bottom material to varying extents, which can generate a surplus of masses.

Different options for handling the dredged masses will be investigated and assessed within the framework of a future EIA. The starting point is to identify alternatives to limit the scope of mass handling as far as possible. For example, this could mean that masses are reused within the project for filling foundations. It may also be necessary to recreate natural bottom conditions by covering erosion protection with excavated sediments. If it is not possible to reuse the masses within the project, and if the degree of contamination of the masses allows it, the company assesses that it may be possible to dump surplus dredged masses at sea. Such a procedure requires an exemption from the dumping ban, which is handled either in the same case as the permit application for the wind farm or in a separate exemption application.

4.4.2 Operational phase

During the operational phase, the wind farm is continuously monitored remotely via an operations centre. For regular maintenance of wind turbines and other plant components, a service port is used for warehouses, service centres and personnel transport. The service port needs to be relatively close to the project and the company currently assesses that several ports in the region, both large and small, can be used as a service port. During the operational phase, some vessel traffic, mainly smaller service vessels and personnel transports, will occur within, in the vicinity and to and from the wind farm.

4.4.3 Decommissioning phase

When the wind farm has reached its expected operating time, the facility will be decommissioned or extended for life[15]. Decommissioning normally takes place in the reverse order compared to the construction phase.

Wind turbines, foundations, substations and any other plant parts above the seabed are dismantled, recycled and handled in accordance with current practice and regulatory requirements at the time of decommissioning. The seabed will be retreated to the required extent after removal of foundations. Certain elements of the plant, such as internal cable networks, connecting

[15] Repowering / Lifetime extension - for example, that the wind turbines and other parts of the wind farm are completely or partially replaced with new or renovated plant parts in order to extend the service life.

cables, erosion protection and subsea foundation structures, may be left under the seabed if the environmental impact is considered to be less than if they were removed. Decisions on which plant parts are removed or remain are made at the time of decommissioning together with the supervisory authority.

4.5 Preliminary timetable

Before the wind farm can be constructed, several different permits are required, which are processed by authorities, courts and the government. The company currently estimates that the permit process and environmental assessment for the wind power project may take two to three years. Detailed design and procurement are estimated to take two to three years after the necessary permits have been obtained. The construction phase is thus expected to begin in 2028–2029 and is expected to last for about two years.

Landinfra currently estimates that the wind farm's expected operating time is about 35 years. As a result of technological developments, the operating time may be longer. The decommissioning phase is estimated to be about two years from the time the wind farm has been taken out of operation.

The schedule for detailed design, procurement and construction of the wind farm is highly dependent on the schedule for connection to the transmission grid.

5 Conditions for the area

The report on the area's conditions includes all relevant interests within 10 km of the project area and within 500 m of the export cable corridors.

5.1 Planning conditions and objectives

5.1.1 Maritime spatial plans

All EU coastal countries are responsible for their own country's maritime spatial planning. In Sweden, the Swedish Agency for Marine and Water Management is responsible for producing proposals for maritime spatial plans, and the government makes decisions. The Swedish maritime spatial plans cover the territorial sea and the EEZ for *the Gulf of Bothnia*, *the Baltic Sea* and *the North Sea*. The maritime spatial plans describe the appropriate use of marine areas. The purpose of the maritime spatial plans is to contribute to long-term sustainable development and serves as a guide in planning and assessment.

The study area is located in the maritime spatial plan area *Baltic Sea.* It is described in the maritime spatial plan as an area with high conservation values, which affects the future establishment of operationes such as wind power. The maritime spatial plan also describes that the Baltic Sea has extensive interests in total defence. According to the maritime spatial plan, the conditions for various activities are good, but the environment needs to be improved in order to achieve good environmental status, which can be made more difficult by the establishment of activities such as wind power and sand extraction. (Havs- och vattenmyndigheten, 2022)

More specifically, the project area is located in the sea area *Central Baltic Sea.* The current maritime spatial plan highlights the conditions for energy extraction in the Central Baltic Sea as good, but the plan does not identify any specific areas. (Havs- och vattenmyndigheten, 2022)

The largest part of the project area is located within an area of use that has been designated as an area for general use in the current maritime spatial plan (G, ID Ö232). General use areas are described as areas where no particular use takes precedence. The area in question also includes a *project area for shipping* and *an area for commercial fishing*.

The western corner of the project area overlaps with an additional area of general use (ID *Ö236*) where special consideration is to be given to high conservation values for the reef environment and seabirds. The project

area also partly overlaps with areas for commercial fishing in the west and in the east. (Havs- och vattenmyndigheten, 2022)

North of the project area there is an area designated for defence interests (ID *Ö239*). See (Havs- och vattenmyndigheten, 2022)Figure 4 for a plan map from current maritime spatial plans.

On 16 May 2024, the Swedish Agency for Marine and Water Management published a review version of the proposal for amended maritime spatial plans. The purpose of the update is to enable increased electricity production. In the review proposal, the central parts of the project area constitute an area designated as a project area for energy extraction. The proposal also states that the area requires more investigation into issues linked to waterfowl. The western parts are in a general use area with special consideration for natural values and the rest are in general use. See (Havs- och vattenmyndigheten, 2024a) Figure 4 for a plan map from the review proposal to the amended maritime spatial plan.

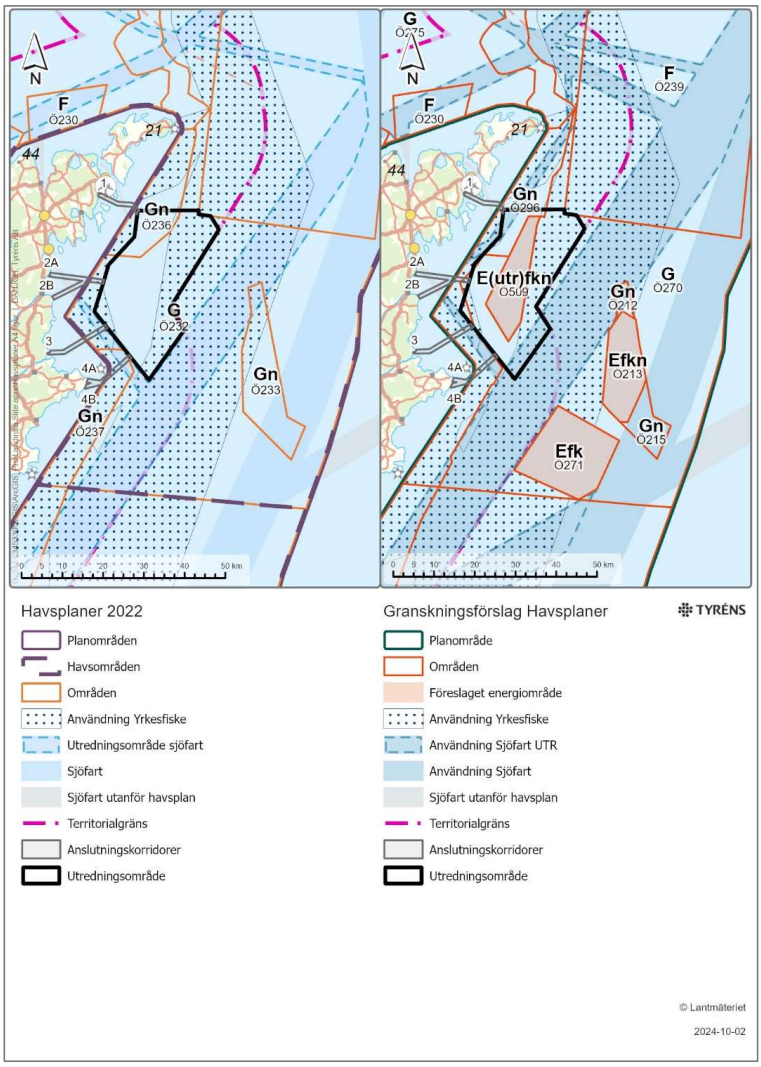

Figure 4. Existing maritime spatial plan for the Baltic Sea to the left. Proposal for an updated maritime spatial plan to the right (Havs- och vattenmyndigheten, 2022) (Havs- och vattenmyndigheten, 2024a). Commercial fishing (*yrkesfiske*), shipping (*sjöfart*), investigation area *(utredningsområde),* export cable corridors *(anslutningskorridorer)* and the Swedish territorial limit *(territorialgräns).*

5.1.2 Municipal plans

The current comprehensive plan for Region Gotland was adopted on 14th of June 2010. The project area is located in an area that is not classified in the comprehensive plan but was adopted on the 14th of June 2010. The project

area is located in an area that does not have a classification in the overview with designation Plan but as Is in connection with a area *Area in the sea for wind farms Area type 8*. The current comprehensive plan applies until 2025 when a new plan is to be adopted. In the review proposal for (Region Gotland, 2010) *Comprehensive Plan Gotland 2040* overlaps the project area with an area with a development direction energy production. (Region Gotland, 2024a)

Kommenterad [JT1]: YOKE

5.1.3 Environmental objectives

National objectives

Sweden has 16 overarching national environmental quality objectives that have been decided by the Swedish Parliament. The environmental objectives describe the characteristics that our nature and cultural environment must have in order for social development to be ecologically sustainable. The overall goal is to be able to hand over to the next generation a society where the major environmental problems have been solved.

For this wind power project, the following national environmental objectives have been deemed particularly relevant:

- Goal 1, Reduced climate impact.
- Goal 10, Sea in balance and lived coast and archipelago.
- Goal 16, A rich flora and fauna.

Municipal goals

Region Gotland has decided on priorities and goals that will apply to the entire region from 2024. The following should be prioritised

- Urgent energy and climate transition,
- Sustainable growth.

The region also aims to reduce its carbon dioxide emissions by an average of 15% per year over the period 2024-2027. (Region Gotland, 2024b)

5.2 National interests and protected areas

National interests are geographical areas that have been designated as containing nationally important values and qualities. Designated values in an area of national interest must not be significantly damaged, and special consideration must be shown in permit assessments.

In Chapter 3. MB the national interests that are identified as a result of their *particular land use interest* are described. These areas are designated by the responsible national authorities. Larger areas that are of national interest in their entirety are specified in Chapter 4. MB.

The national interests concerned are described in section 5.2.1 - 5.2.6 , Natura 2000 sites are described in section 5.2.7 and nature reserves in sections 5.2.8 .

All landfall points may be covered by the shore protection provisions in Chapter 7. 14 § MB. Nor can it be ruled out that landings may affect areas covered by the general biotope protection, also designated according to Chapter 7. MB.

The entire coast of Gotland is also a nature conservation area[16] .

5.2.1 National interest in commercial fishing

The Swedish Agency for Marine and Water Management points out national interests for commercial fishing according to Chapter 3. 5 § MB. National interest in commercial fishing shall work to ensure the fisheries sector's access to fishing areas, secure important spawning and nursery areas for significant species, and necessary infrastructure in the form of ports. (Havs- och vattenmyndigheten, 2024b)

The project area overlaps in the east with the national interest *Salvorev/Midsjöbank* RI YF 7 (previously 38-39). The national interest is extensive and extends from 40 km northeast to 120 km southeast of Gotland. The national interest is a fishing area for sprat, herring, cod and turbot. (Fiskeriverket, 2006) (Havs- och vattenmyndigheten, 2019)

West of the project are, the project area itself and all the export cable corridors overlap with the national interest *Gotland ost* RI YF 72 (previously 36). The area stretches along the entire east coast of Gotland and is a fishing area for turbot, cod, herring and sprat. (Havs- och vattenmyndigheten, 2019) (Fiskeriverket, 2006)

For an overview of national interests for commercial fishing, see Figure figu5.

[16] The form of protection of nature conservation areas was introduced in the Nature Conservation Act in 1974 but was discontinued with the introduction of the Environmental Code. The areas established before the introduction of the Environmental Code shall be considered nature reserves in their application, with certain differences.

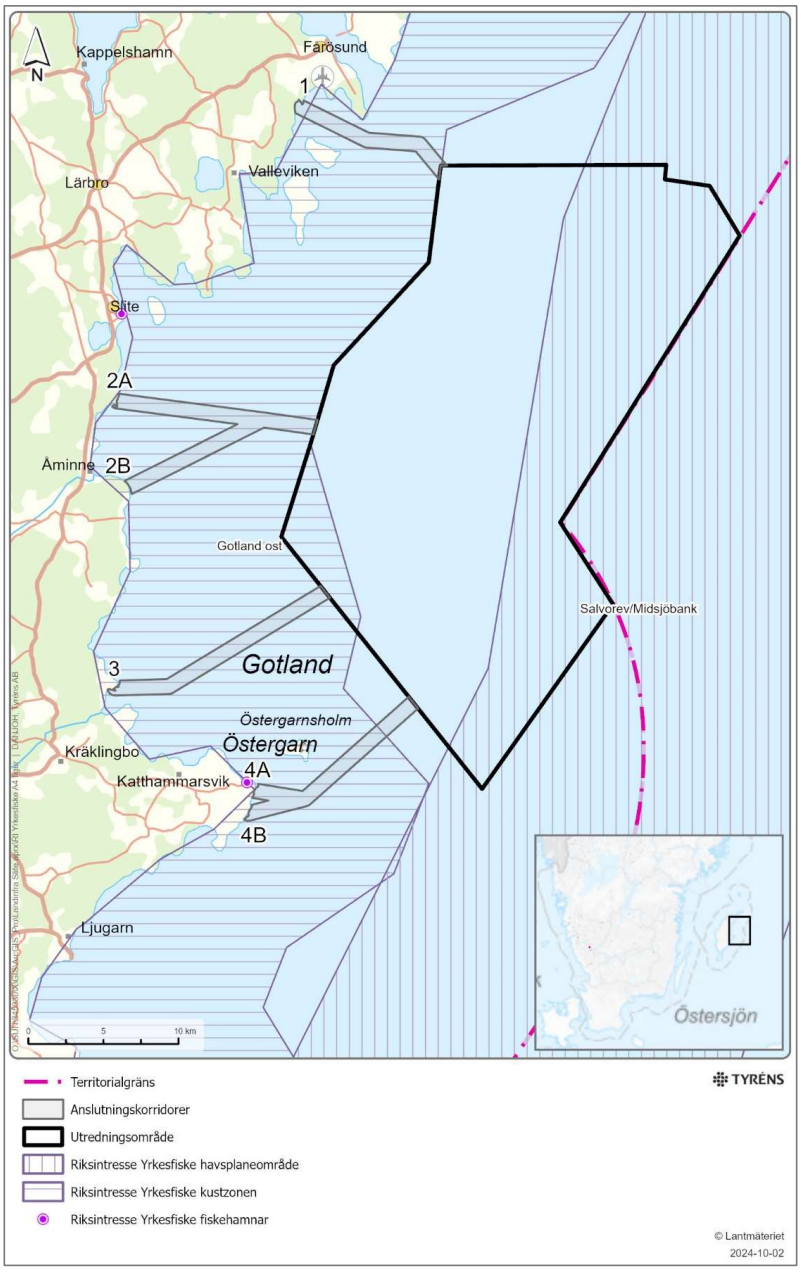

Figure figu5. National interest areas of commercial fishing. Commercial fishing (*yrkesfiske*), investigation area *(utredningsområde)*, export cable corridors *(anslutningskorridorer)* and the Swedish territorial limit *(territorialgräns)*.

5.2.2 National interest outdoor recreation, nature and cultural environment conservation

The Swedish Environmental Protection Agency points out national interests for outdoor recreation and nature conservation according to Chapter 3. 6 § MB. The national interests for outdoor recreation must have good conditions for people's stay and experiences in natural and cultural landscapes. National interests for nature conservation represent the main features of Swedish nature and are the most valuable areas from a national perspective. The Swedish National Heritage Board decides on national interests for the preservation of the cultural environment in accordance with Chapter 3. 6 § MB. Examples of interests that are pointed out are industrial environments, city centres, older industrial landscapes and post-war buildings. (Naturvårdsverket, 2005) (Riksantikvarieämbetet, 2012)

For an overview of the relevant areas of national interest for outdoor recreation, nature and cultural conservation, see Figure 6.

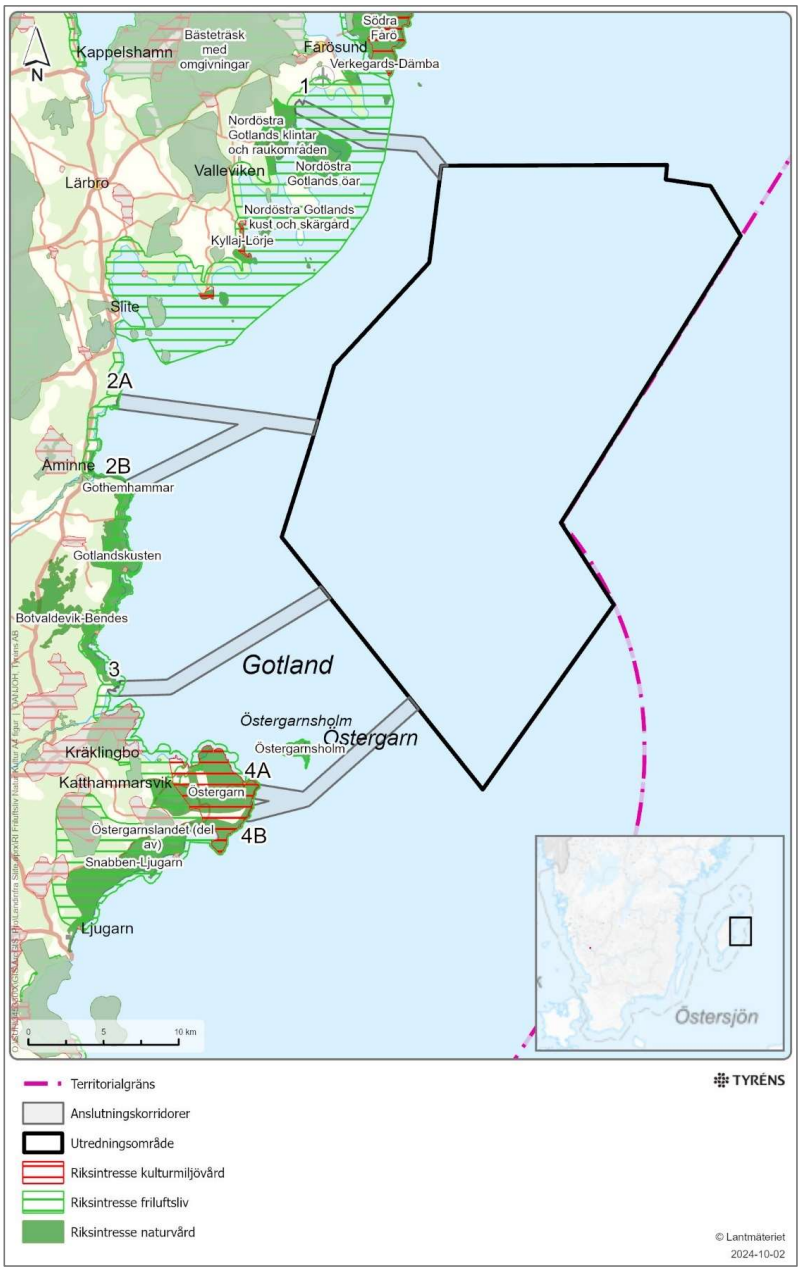

Figure 6. National interests for outdoor recreation (*friluftsliv*), nature conservation (*naturvård*) and cultural environment conservation (*kulturmiljövård*). Investigation area

(utredningsområde), export cable corridors *(anslutningskorridorer)* and the Swedish territorial limit *(territorialgräns).*

National interest in outdoor recreation

Most of Gotland's coast is covered by various national interests for outdoor recreation, but no such national interest overlaps with the project area.

Export cable corridor 1 overlaps with *Northeast Gotland's coast and archipelago*. The area is described in the value description as an area of varied character with great opportunities for enriching experiences in terms of both natural and cultural values. The area is also well suited for outdoor activities. (Naturvårdsverket, 2018a)

Export cable corridors 2A, 2B and 3 overlap with *The Gotland coast*. The area is described in the value description as untouched and varied nature, with rich and varied flora and fauna. The area has very good opportunities for a varied outdoor life and is very suitable for hiking, walking and walking, canoeing and recreational fishing (Naturvårdsverket, 2018b)

Export cable corridor 4 overlaps with *Östergarnslandet (part of)*. The value description emphasizes the area's distinctive landscape with great natural, cultural and beauty values. The area is attractive for outdoor recreation mainly thanks to its cliffs and mountains, its unexploited coastline and the sandy beaches within the area (Naturvårdsverket, 2018c).

National interest *Östergarnsholm*, about 7 km southwest of the project area, is, according to the value description, one of Gotland's most distinctive agricultural landscapes, which has been used as pasture for a very long time. The area is mainly used for hiking and nature experiences.(Naturvårdsverket, 2018d)

National interest *Fårö*, about 7 km northwest of the project area, has a natural environment that has largely remained unchanged for a long time with free-roaming sheep. The area is attractive for outdoor recreation mainly because of very high natural and cultural values.(Naturvårdsverket, 2018e)

Nature conservation of national interest

The project area does not overlap with any national interests for nature conservation.

Export cable corridor 1 overlaps with *Northeast Gotland's cliffs and the northern sub-area of the sea stacks (consists of five sub-areas)*. The project area is located 8–9 km away from the two southern sub-areas. The area is described as having great geoscientific interest, interesting flora and well-visited sea stacks. (Naturvårdsverket, 1999a)

Export cable corridor 2A overlaps with *Gotehem hammar* which is described as a cliff coast with rich fossil deposits with well-developed shingle embankments. (Naturvårdsverket, 1999b)

Export cable corridors 2B and 3 overlap with *Botvaldevik-Bendes.* The area is described as a large contiguous area of shoreland. The area is of national interest from both an ornithological and botanical point of view. (Naturvårdsverket, 1999c)

Export cable corridor 4 overlaps with *Snabben-Ljugarn* which is described as a coastline that is largely occupied by low coastal cliffs with numerous bedrock exposures. The area has erosion forms such as sea pots, sea stacks and overhangs.(Naturvårdsverket, 1999d)

The project area is located in close proximity to a number of the 17 islands that are part of the *Northern Gotland's islands.* The closest is the project area at a distance of about 5 km. The islands are spread between the southeastern mouth of Fårösund and Slite and form Gotland's most distinctive archipelago nature. The islands have different values, including wetland complexes and wetlands as well as ornithological values.(Naturvårdsverket, 1999d)

About 6 km southwest of the project area is one of two sub-areas that are included in the *Bästeträsk and surroundings,* A natural area that partly has a wilderness character. In the area there are a large number of wetlands with high values.(Naturvårdsverket, 1999d)

Södra Fårö, 7 km northwest of the project area is described as a distinct grazing landscape with long continuity that houses very high conservation values.(Naturvårdsverket, 1999e)

Östergarnsholm, 7 km southwest of the project area, is described above under the heading of outdoor recreation, but is also of national interest for nature conservation.

Cultural heritage conservation of national interest
The project area does not overlap with any national interests for cultural environment conservation.

Export cable corridor 4 overlaps with *Östergarn* which is a coastal agricultural landscape with prehistoric farming and settlement continuity since the Bronze Age (Farm environment). Export cable corridor 4 also overlaps with an industrial environment with strong links to the limestone industry and Gotland's only stately manor house *Katthamra gård* (Mill environment). (Riksantikvarieämbetet, 2012)

Verkegards-Dämba, 7 km northwest of the project area consists of agricultural landscapes with prehistoric farming and settlement continuity with small-scale, partly undivided farm environments, interspersed in grazed heathlands (Pre-industrial production environment). (Riksantikvarieämbetet, 2012)

Kyllaj-Lörje, 9 km west of the project area consists of lime industrial environments from the 1600s to the 1900s that reflect the technical development of lime production (Industrial environment, Farm environment, Cognitive environment). At a similar distance there is also St. Olofsholm with a traditional landscape and an industrial environment with Gotland's oldest lime industry with production from the early 1600s. (Riksantikvarieämbetet, 2012)(Riksantikvarieämbetet, 2012)

5.2.3 Communications of national interest

The Swedish Transport Administration points out national interests for communication according to Chapter 3. 8 § MB. This refers to facilities that constitute national interests for communications in the fields of rail, road, shipping and aviation. (Trafikverket, 2024)

The project area and the export cable corridors overlap with several public fairways and maritime traffic routes, for summary see Table 2 and Figure 7. In addition to the maritime related interests, certain parts of the MSA overlap[17]-area for scheduled flights Visby Airport (TM0030) see Figure 7 .

Table 2. A summary of the national interests for communication existing waterways that coincide with the project area or export cable corridors.

Name	Type	Fairway number	Plant parts
Salvorev - Slite	Maritime traffic routes	81	Project area, export cable corridor 1
Ölands södra udde - Finska viken	Maritime traffic routes	28	The project area, Export cable corridor 2B-4
Inloppet till Slite	Public fairway	382	Export cable corridor 2A
Inloppet till Fårösund (Södra gattet)	Public fairway	386	Export cable corridor 1

[17] Minimum Sector Altitude: areas within which obstacles may affect flight procedures to and from an aerodrome covers an area with a radius of 55 km starting from the aerodrome's landing aids.

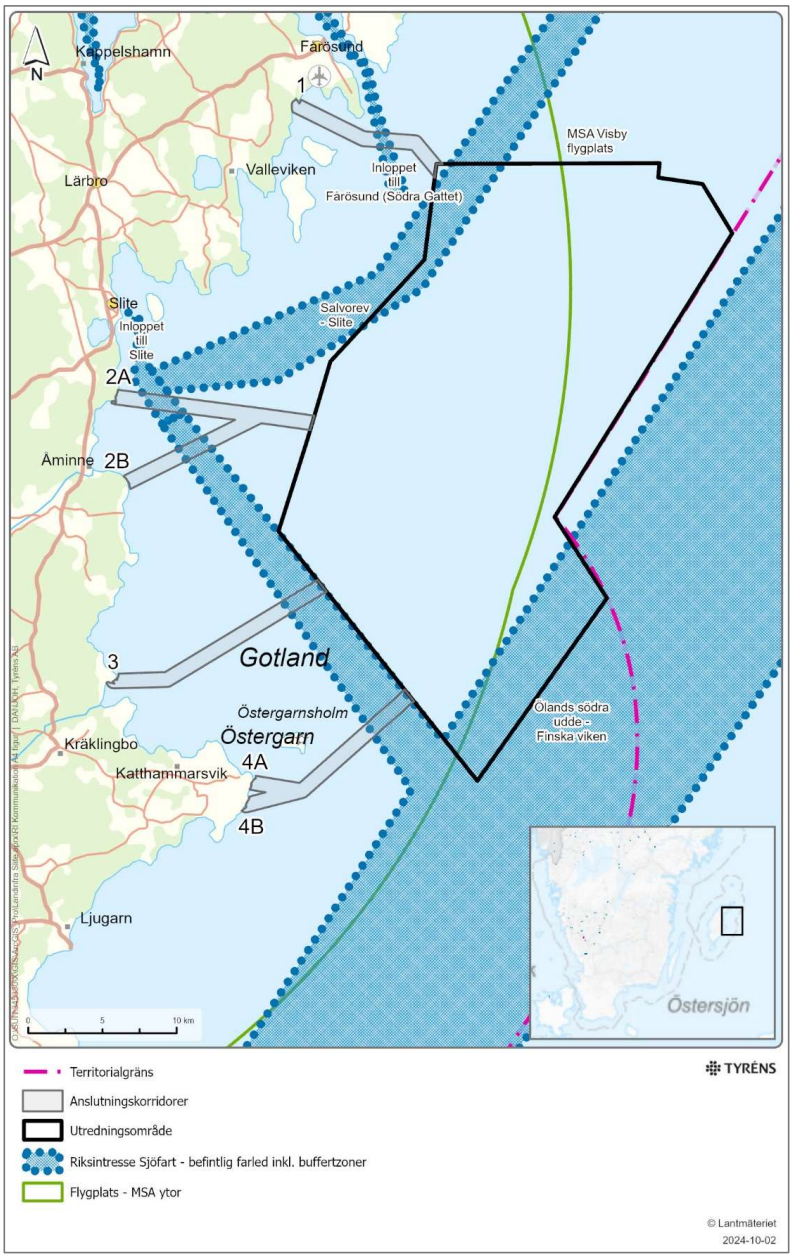

Figure 7. National interests for communication. Shipping (*sjöfart*), aviation (*flygplats*), investigation area *(utredningsområde)*, export cable corridors *(anslutningskorridorer)* and the Swedish territorial limit *(territorialgräns)*.

5.2.4 National interest in the military part of total defence

The Armed Forces identify areas that are of national interest for the total defence in accordance with Chapter 3. 9 § MB. The total defence refers to all authorities that are part of Sweden's territorial defence that are responsible for meeting and remedying the dangers that arise when the nation is faced with threats. (Försvarsmakten, 2023)

Directly adjacent to the northeastern border of the project area is *Sankt Olof* (TM0314), designated as a national interest for a naval exercise area.

The southwestern boundary of the project area and export cable corridors 2 A-B, 3 and 4 A-B are located within the impact area of the weather radar *Ase* (TM0091).

The project area and all export cable corridors are located within the MSA area for Visby Airport (TM0030), which has been identified as of national interest both for communication (as mentioned in section 5.2.3) and for the total defence.

The area around the landing point 4A and B constitutes *the impact area in the rest of Gotland* (TM0517). These are areas of national interest or areas of importance for the military part of total defence. Information about the exact location of the national interest or area of importance is covered by confidentiality, so no further information is available.

For an overview of national interests for the military part of total defence, see Figure 8.

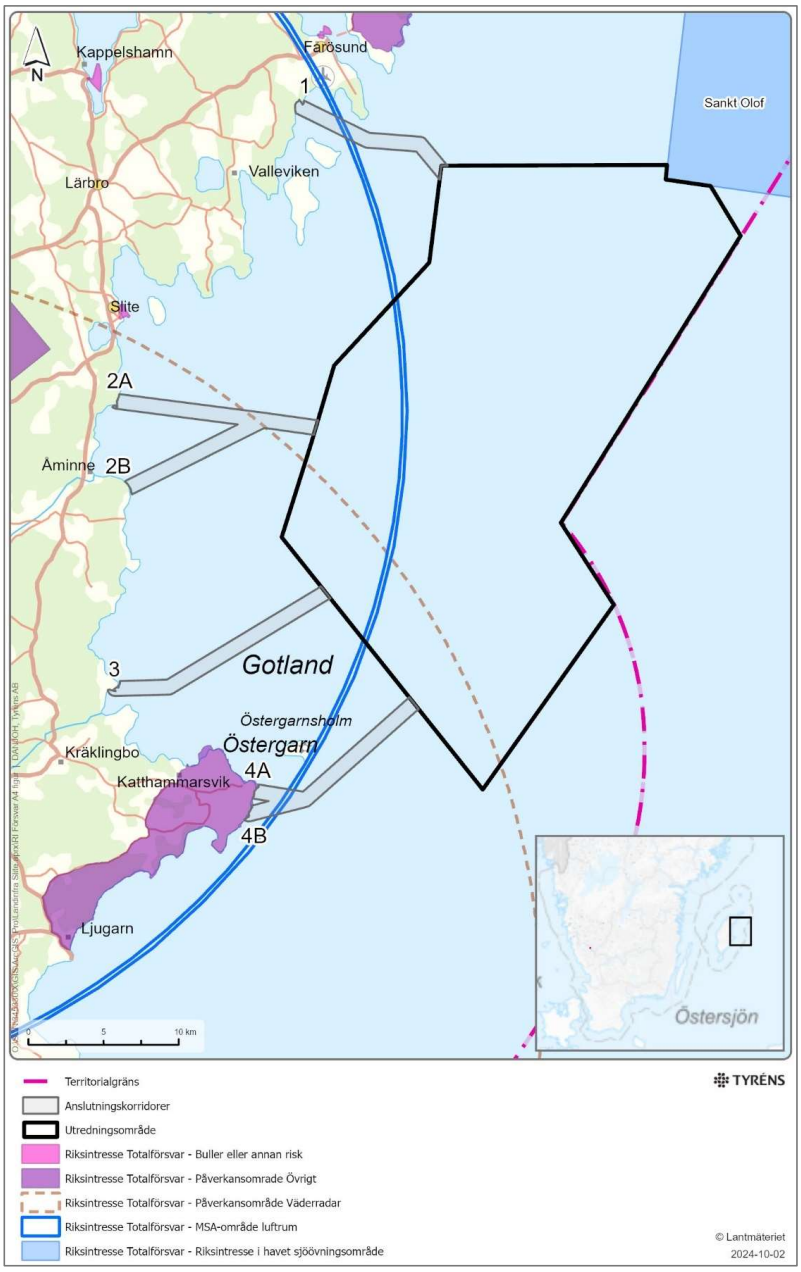

Figure 8. National interests for the military as a part of the total defence (*totalförsvar*). Investigation area *(utredningsområde)*, export cable corridors *(anslutningskorridorer)* and the Swedish territorial limit *(territorialgräns)*.

5.2.5 National interest in active outdoor recreation

National interests for active outdoor recreation consist of large areas in which the interests of tourism and outdoor recreation, primarily active outdoor recreation, are particularly taken into account when assessing the admissibility of development companies or other interventions in the environment. All areas are listed in Chapter 4. 2 § MB.

The project area and all export cable corridors are entirely within the national interest for active outdoor recreation *Gotland*.

5.2.6 National interest highly exploited coast

Areas that are covered by national interest for the Highly Exploited Coast are coastal areas that are in their entirety of national interest and must be protected from further exploitation. The areas, which in most cases are large, have been singled out with reference to great natural and cultural values. The areas are listed in Chapter 4. Sections 3–4 MB. (Naturvårdsverket, 2023)

The entire coast of Gotland is covered by the national interest according to Chapter 4, Section 4, which means that all landfall points and export cable corridors overlap with the national interest.

5.2.7 Natura 2000 sites

Natura 2000 is a network of valuable natural areas with species or habitat types that are considered particularly worthy of protection in a European perspective. It is prohibited to carry out activities or take measures that are likely to have a significant effect on the environment of Natura 2000 sites without a permit. Neither the project area nor any of the alternative export cable corridors are located within any Natura-2000 area.

Below are two Natura 2000 areas that are located within the geographical delimitation of 10 km from the project area and 500 m from export cable corridors, as well as two additional Natura 2000 areas, which have been assessed as being relevant with reference to the fact that they are designated under the Birds Directive, which is why the impact on these is deemed to need to be investigated. There are a couple of other smaller Natura 2000 areas north of the project area that are within 10 km, but they are not considered to be affected as they are not designated according to the Birds Directive and are entirely land-based.

The four Natura 2000 areas described in more detail below; *Ryssnäs* (SE0340155), *Skenholmen* (SE0340127), *Asunden* (SE0340154) and

Uppstaig (SE0810519), are designated under both the Birds Directive and the Species and Habitats Directive. Featured areas are highlighted in the Figure 9.

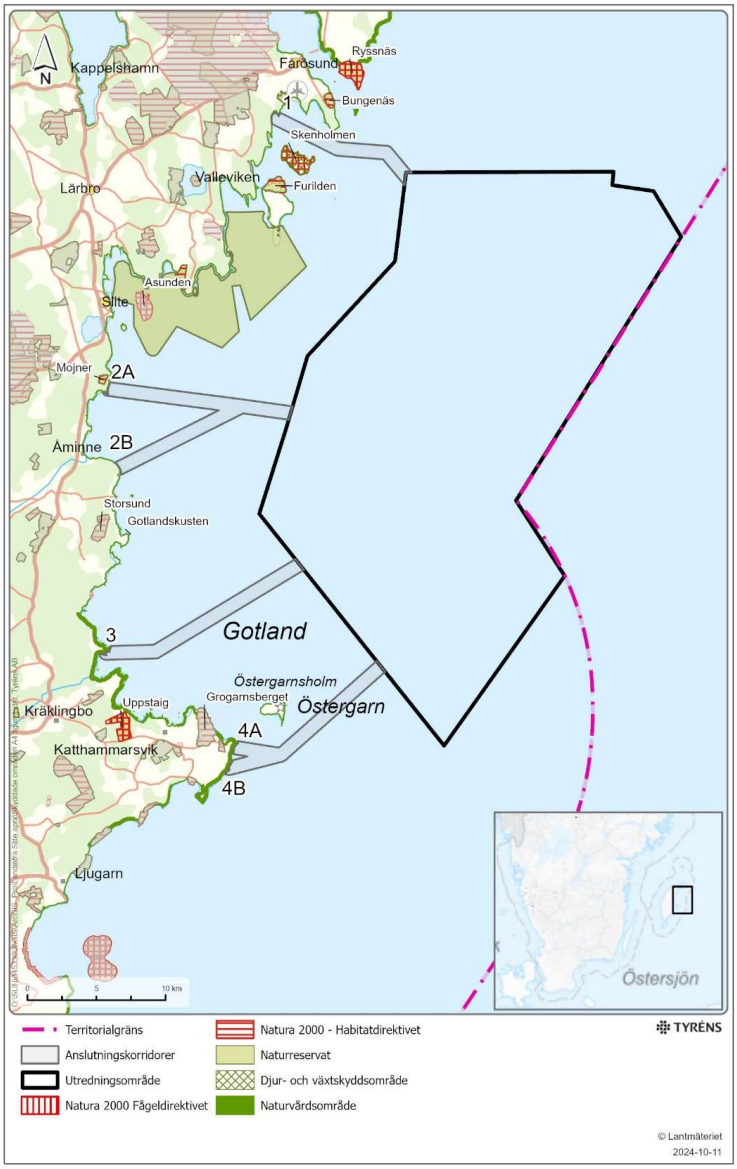

Figure 9. Natura 2000 areas, nature reserves (*naturreservat*), animal and plant protection areas (*djur- och växtskyddsområde*) and nature conservation areas (*naturvårdsområde*).

Investigation area *(utredningsområde),* export cable corridors *(anslutningskorridorer)* and the Swedish territorial limit *(territorialgräns)*.

Ryssnäs

Natura 2000 site *Ryssnäs* is a headland that is closest to about 7 km northwest of the project area. *Ryssnäs* is a grazing coastal landscape with wetlands and pastures close to the sea that offers habitats for many species and has great conservation value. The area's rich bird life and old pine forests carry important ecological functions. The conservation plan identifies habitat types and species that are to be preserved in the area, see Table 3 habitat types and Table 6 for bird species. The southernmost tip of the area is a bird protection area with access prohibited between 15th of March to 15th of July.

Ryssnäs is also designated as a national interest for nature conservation and outdoor recreation, according to Chapter 3, Section 6 of the MB. Since 2009, the *Ryssnäs* also is a nature reserve. (Länsstyrelsen Gotlands län, 2016)

Table 3. Habitat types in the Ryssnäs Natura 2000 area according to the Species and Habitats Directive.

Code	Habitat type
1220	Stone and gravel embankments
6210	Limestone grasslands
6280	Alvar
6410	Wetlands
7120	Damaged raised bogs
7210	Agkärr
9010	Taiga
9070	Wooded pasture

Table 4. Bird species in the Ryssnäs Natura 2000 area according to the Birds Directive.

Code	Bird species
A127	Common Crane *Grus Grus*
A193	Common tern *Sterna hirumdo*
A194	Arctic Tern *Sterna paradisaea*
A195	Little tern *Sternula albifrons*

A236	Black Woodpecker *Dryocopus martinus*
A246	Woodlark *Lullula arborea*
A338	Red backed Shrike *Lanius collurio*

Skenholmen

Skenholmen is an island located about 7 km west of the northernmost part of the project area. The area consists of flat coastal meadows and is an important environment and nesting site for several bird species. During the period of 15th of March to 15th of July, access is prohibited on the whole of Skenholmen. In Table 5 identified habitat types and in Table 6 bird species to be preserved in the area. (Länsstyrelsen Gotlands län, 2018)

Table 5. Habitat types in the Skenhomen Natura 2000 area according to the Species and Habitats Directive.

Code	Habitat type
1210	Operating Fields
1220	Stone and gravel embankments
1630	Coastal meadows by the Baltic Sea
6210	Limestone grasslands
6410	Wetlands

Table 6. Bird species in the Skenholmen Natura 2000 area according to the Birds Directive.

Code	Bird species
A045	Barnacle goose *Branta leucopsis*
A132	Pied Avocet *Recurvirostra avosetta*
A140	European Golden Plover *Pluvialis apricaria*
A151	Ruff *Calidris pugnax*
A190	Caspian tern *Hydroprogne caspia*
A191	Sandwich tern *Thalasseus sandvicensis*
A193	Common tern *Sterna hirumdo*
A194	Arctic Tern *Sterna paradisaea*
A195	Little tern *Sternula albifrons*

Asunden

Asunden is an island in the Slite archipelago located 12 km west of the project area. The island consists of coastal wetlands that offer habitats for many species. The open, wetland-rich landscape is particularly valuable as a resting place and nesting place for birds. See Table 7 for designated habitat types and Table 8 bird species to be preserved in the area.

Asunden is also designated as a national interest for nature conservation, according to Chapter 3. 6 § MB.(Länsstyrelsen Gotland, 2015)

Table 7. Habitat types in Asunden's Natura 2000 area according to the Species and Habitats Directive.

Code	Habitat type
1210	Operating Fields
1220	Stone and gravel embankments
1230	Vegetation-clad sea cliffs
1630	Coastal meadows by the Baltic Sea
6210	Limestone grasslands
6410	Wetlands
8210	Limestone slopes

Table 8. Bird species in Asunden's Natura 2000 area according to the Birds Directive.

Code	Bird species
A045	Barnacle goose *Branta leucopsis*
A132	Pied Avocet *Recurvirostra avosetta*
A151	Ruff *Calidris pugnax*
A190	Caspian tern *Hydroprogne caspia*
A191	Sandwich tern *Thalasseus sandvicensis*
A193	Common tern *Sterna hirumdo*
A194	Arctic Tern *Sterna paradisaea*
A195	Little tern *Sternula albifrons*
A466	Baltic Dunlin *Calidris alpina schinzii*

Uppstaig

Natura 2000 site *Uppstaig* is a 1.9 km2 forest area on Gotland, located 17 km southwest of the project area. The untouched forest in *Uppstaig* has

developed into a natural forest with thick trees and plenty of dead wood. A great deal of biodiversity has Uppstaig from a variation in the age and moisture of the trees. These conditions create good conditions for many organisms, including wood-dwelling insects, mosses, fungi and primeval forest birds. See Table 9 for designated habitat types and Table 10 for species, which are to be preserved in the area.

Table 9. Habitat types in the Uppstaig Natura 2000 area according to the Species and Habitats Directive.

Code	Habitat type
3260	Smaller watercourses
6210	Limestone grasslands
6280	Alvar
6410	Wetlands
7210	Sedge fens
7230	Rich fens
9010	Taiga

Table 10. Bird species in the Uppstaig Natura 2000 area according to the Birds Directive.

Code	Bird species
A223	Boreal owl *Aegolius funereus*
A236	Black Woodpecker *Dryocopus martius*

5.2.8 Nature reserve

Along the eastern coast of Gotland there are several areas that have been designated as nature reserves. The largest area is *Slite archipelago*, see marked nature reserve outside Slite in Figure 9

Nature reserve *Slite archipelago* is a protected landscape and marine area, located on the northeastern coast of Gotland, about 12 km from the project area. According to the (Naturkartan, u.d.)[2] land and 50 km^2 of water. The reserve includes about ten islands, including: *Asunden* and *Furilden*. These islands are characterized by long grazing traditions, which contributes to biodiversity.

The Slite archipelago is Gotland's only area with an archipelago character and has high natural values both in the water and on land. The area is an accessible but relatively untouched area with low buildings and great value for outdoor life. There is a rich bird life, many cultural remains and typical geological formations such as sea stacks and beach walls. Below the surface of the water there is a great variety of eelgrass meadows, bladderwrack belts and mussel banks. The nature reserve also contains several flat coastal meadows where many birds lay their eggs.

In addition to this area, there are a few other nature reserves within 10 km of the project area or 500 m from the export cable corridors. These are reported in Figure 9 and in Table 11 where the nature reserves are listed from north to south.

Table 11. Nature reserves within 10 km of the project area and/or within 500 m of the export cable corridors.

Area:	Character:	Area (km^2)
Ryssnäs	Mosaic	2,12
Bungenäs	Old coniferous forest and beach meadow	0,56
Furliden	Coastal meadow	1,31
Gadgets	Swamp forest	0,31
Storsund	Lake	1,18
Groggarnsberget	Pebble beach, alvar land and steep cliffs.	2,53

5.3 Environmental quality standards

Environmental quality standards (EQS) are a legal instrument with the aim of protecting human health or the environment in the long term. Today, there are environmental quality standards for noise, fish and mussel water, air, marine environment, and surface and groundwater. For the current project, the standards for surface water and the marine environment are most relevant. When assessing the impacts of the construction phase, it may also be relevant to calculate the impact in relation to the EQS for noise and air quality.

The EQS for water relevant to Slite Vindkraftspark are covered by the Water Management Ordinance (2004:660) and the Marine Environment Ordinance (2010:1341).

5.3.1 Water management

According to the Water Management Ordinance (2004:660) and the work on water management, coastal waters are divided into water bodies. EQS indicate the environmental quality to be achieved or prevail. In water management, good ecological status and good chemical status must normally be achieved in the water bodies by 2027 at the latest. In some cases, the water authorities have decided on exemptions with less stringent requirements or deadlines.

The project area lies within the water body *Part of the Gotland Sea's offshore waters* and the export cable corridors concern four water bodies, all water bodies are reported in Table 12.

Not all water bodies achieve good chemical status, as they exceed limit values for brominated diethyl ether and mercury and mercury compounds, which they have in common with all Swedish water bodies. Both brominated diphenyl ether and mercury and mercury compounds are derived from diffuse sources by atmospheric deposition. All water bodies concerned have a moderate ecological status in terms of nutrients and/or biological quality factors linked to eutrophication.

Table 12. Summary of water bodies with associated chemical and ecological status, EQS and comments on impact.

Name and ID	EQS	Status	Influence
Del av Ö Gotlandshavets utsjövatten SE573224-190746	Offshore water, lacks EQS	Not achieving good chemical status Achieves good status without overarching topics	Exceeds brominated diethyl ether as well as mercury and mercury compounds.
Fårö sö Kustvatten WA78152661	Good ecological status by 2039	Moderate ecological status	Nutrients and/or biological quality factors linked to eutrophication.
Ö Gotlands n kustvatten WA87715877	Good ecological status 2027	Moderate ecological status	Biological quality factors for eutrophication.
Ö Gotlands m kustvatten WA35955800	Good ecological status 2027	Moderate ecological status	Biological quality factors linked to eutrophication
Ö Gotlands m kustvatten WA59098932	Good ecological status by 2039	Moderate ecological status	Nutrients and/or biological quality factors linked to eutrophication.

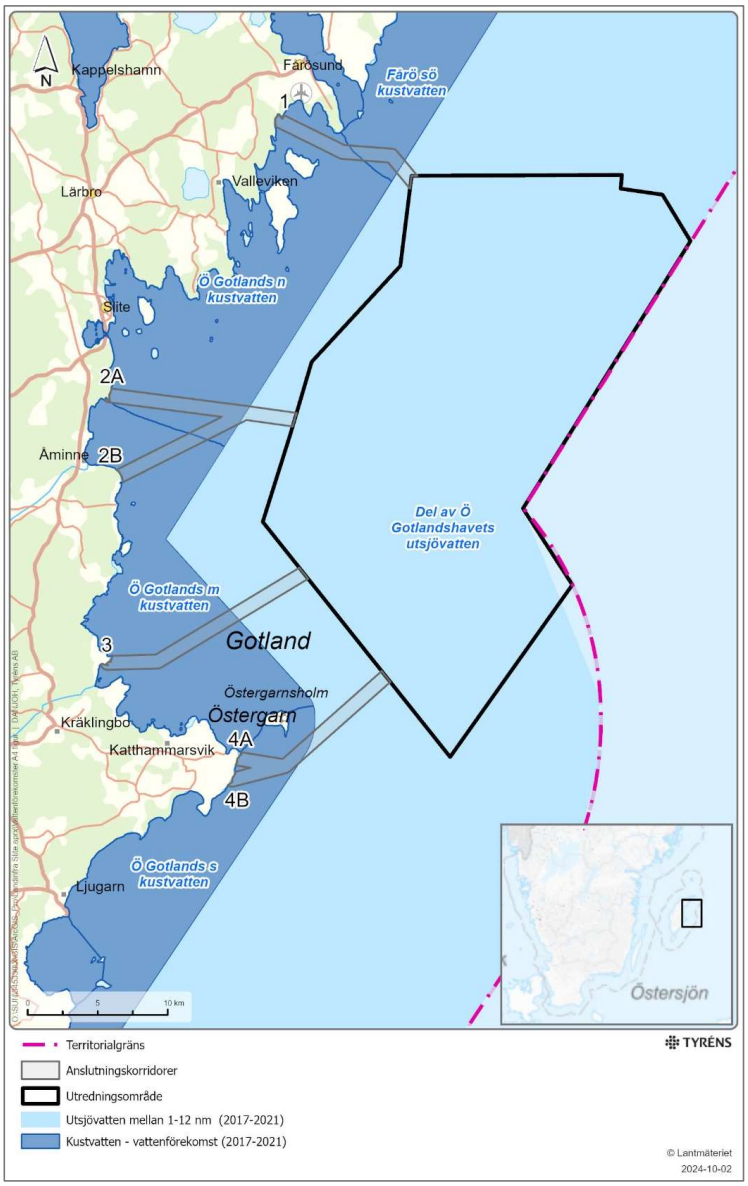

Figure 10. Water bodies adjacent to the project area (*utredningsområde*), export cable corridors (*anslutningskorridorer*) and the Swedish territorial limit *(territorialgräns)*.

5.3.2 Marine environment management

In the marine environment administration (Marine Environment Ordinance 2010:1341), different geographical divisions are used as so-called assessment areas. In marine environmental management, good environmental status is sought. In order to achieve good environmental status, eleven Swedish EIAs, each of which is followed up via an indicator, have been established. These environmental quality standards are policy instruments that are intended to ensure that good environmental status is maintained or achieved.

The project area is located within the Marine Environment Administration's area no. 10 Öland's and Gotland's coastal waters and the Ö Gotland Sea's offshore waters.

5.4 Depth and seabed conditions

5.4.1 Oceanography

The project area is located within the Central Baltic Sea, the part of the Baltic Sea that stretches from the southern Sea of Åland to the Danish straits. The average depth in the Central Baltic Sea is about 55 m, but around Gotland there are deep holes that are important for the mixing and oxygenation of the water.

The depth within the project area is between 40–80 m, and it is shallower in the western parts of the project area with a gradually greater depth towards the eastern parts of the area. The seabed conditions are somewhat more complex with a higher degree of variation in the southwest around Östergarnsholm.

The salinity of the Baltic Sea varies from north to south and between surface and seabed waters. In the southwestern Central Baltic Sea, salinity varies with changing conditions over the year. In the central parts, the salinity is low; 6–8 per thousand in surface water and 11–14 per thousand in seabed water. The change in salinity and oxygenation of the water in the Central Baltic Sea is dependent on new salt water pouring in over the shallow thresholds of the Danish Straits. When saline oxygen-rich seabed water is pushed in, the deep holes of the Central Baltic Sea are oxygenated, but since there is a difference in salinity between surface and deep water, this leads to a stable salinity leap layer (halocline) between the water masses at a depth of about 40 metres in the southern Central Baltic Sea and about 80 metres deep in the northern Central Baltic Sea. The

halocline counteracts vertical mixing of the water masses, which can lead to anoxic seabed conditions.

During the summer months, a temperature leap layer (thermocline) is usually formed that separates warm surface water from colder seabed water, which can counteract the mixing even further.

The Baltic Sea is the recipient of a very extensive surrounding catchment area. In Sweden, the large rivers contribute with a large inflow and the fresh surface water forms a slow coastal current along the Swedish coast. Further out to sea, the currents are more irregular because they are largely driven by prevailing winds and fluctuations in water levels.

5.4.2 Seabed substrate and sediment dynamics

In data available on marine sediments in the Baltic Sea, which are partly based on data from SGU, marine sediments in the Baltic Sea are classified into five classes:

1. Bedrock
2. Complex hard seabed (single hard surfaces, coarse sand, blocks)
3. Sand
4. Hard clay
5. Mud

The documentation compiled in Figure 11 shows that the seabed substrate in the project area is mainly expected to consist of a mixture of the classes hard clay and muddy clay. There are significant areas classified as sand and a smaller contiguous area classified as complex hard seabed. Within the project area, the occurrence of exposed rock is considered to be very rare.

Within the export cable corridors, the seabed substrate is expected to be similar, but slightly more complex hard seabed is found within export cable corridor 1 in the north.

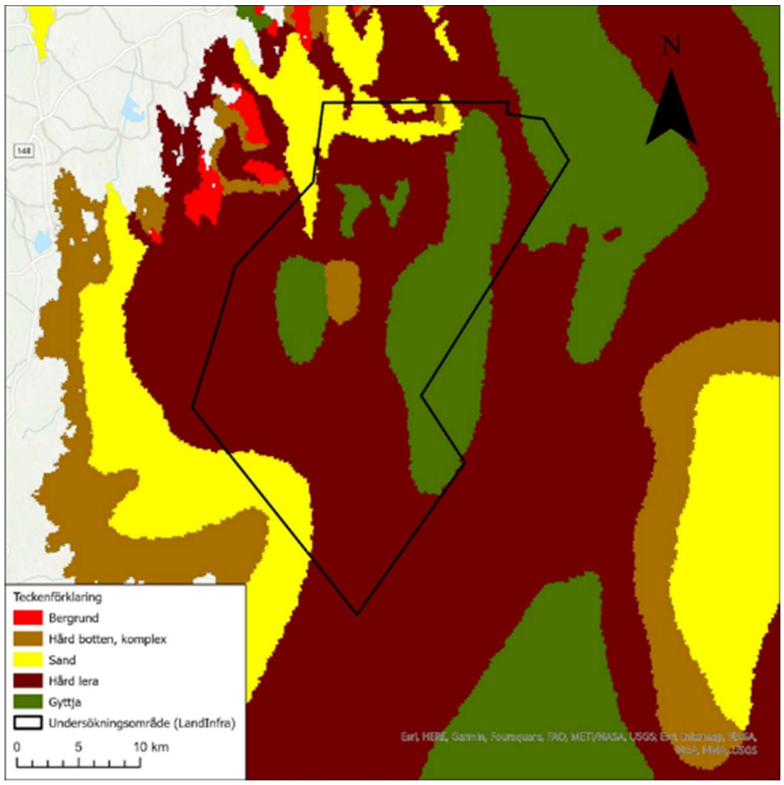

Figure 11. Overview surface sediments. Bedrock *(berggrund*), Complex hard seabed (*hård botten, komplex*), Sand, Hard clay (*hård lera*), Mud (*gyttja*). Data: (Al-Hamdani & Reker, 2007). Investigation area (utredningsområde).

In coastal areas, there is continuous erosion, transport and accumulation, especially of sand. The process is mainly driven by wind and wave-induced currents. Fine particles in silt and clay fractions as well as organic matter are transported further out into the sea and deposited in environments that allow accumulation. Within these areas, there may be mighty layers of postglacial clay and recent deposits. Deposition of post-glacial fines is a good indicator that conditions are continuously accumulating.

The surface geological interpretation shown in the Figure 11 shows the presence of sand closest to the coast, which may indicate a continuous coastal erosion with transport and deposition regulated by the prevailing northerly current direction along the east coast of Gotland. There is also hard seabed with exposed rock and friction material. This may indicate that the conditions on the seabed are transporting, which means that the energy

of the water mass does not allow for accumulation. Low accumulation may also be due to a small amount of suspended matter in the water body.

The seabed conditions with relatively large depths of more than 40 m within the project area are expected to be mainly accumulative. Deep water flows relatively slowly and with low energy and therefore has a limited eroding and transporting power. The relationship between accumulation, transport and possible erosion in the project area is considered to be largely linked to variation in depth conditions.

5.4.3 Geology

The bedrock outside Slite consists mainly of limestone, clay shale and sandstone where limestone is dominant. Available information on the marine geology indicates that sedimentary rock dominates just northeast of the project area, with a surface geology consisting mainly of postglacial clay, mud clay, clay mud and smaller areas of glacial clay. In terms of how the large-scale marine surface geology is distributed off the northeastern coast of Gotland, equivalent conditions are expected to prevail within the project area. The marine geological conditions of the project area will be investigated in more detail within the framework of the EIA.

5.4.4 Ice extent

During a normal ice winter, the Baltic Sea's all-over ice extends as far south as to the height of Norrtälje, see Figure 12. During a normal ice winter, neither the project area nor the export cable corridors are therefore expected to be under ice cover. During severe ice winters, full ice can reach the project area. In the last 10 years, the maximum extent has not reached the project area. (SMHI, 2021) (SMHI, 2024)

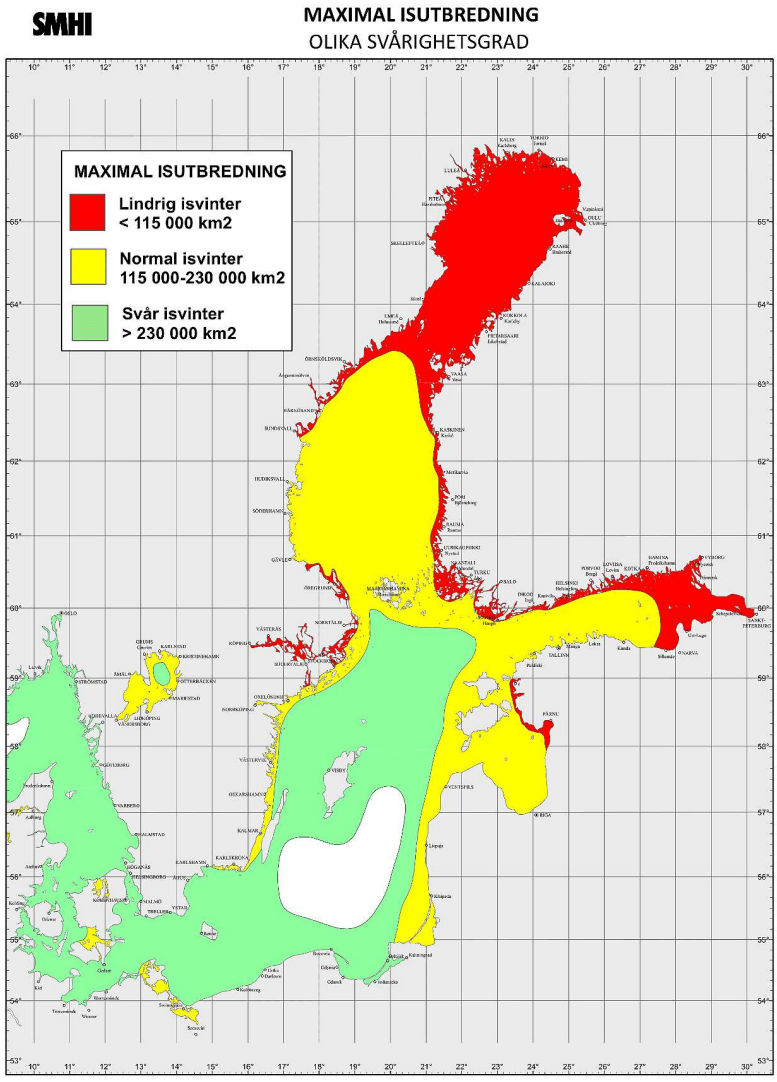

Figure 12. Maximum ice extent in the Baltic Sea (SMHI, 2021). Mild (*lindrig*), normal (*normal*) and severe (*svår*).

5.4.5 Contaminated sediments

Swedish industrial history has left traces in the form of pollution, soil and sediment. The chemical industry, pulp industry, sawmills and waste

management are examples of operationes whose old emissions of pollutants can be found in the sediments along the nearby coast. However, it is possible that pollutants have been carried to sites further out from the coast and deposited in sediments on the accumulation seabed.

(SGU, 2022) SGU has mapped environmental pollutants in coastal and offshore sediments, as part of the national monitoring program of environmental toxins in sediments. Positions for sampling in offshore sediments off the east coast of Gotland are at greater depths than those within the project area, but may provide an indication of which pollutants may also be present within the project area. The sampling stations closest to the project area are located at a depth of 195 m (SE-6) and 173 m depth (SE-7), see Figure 13.

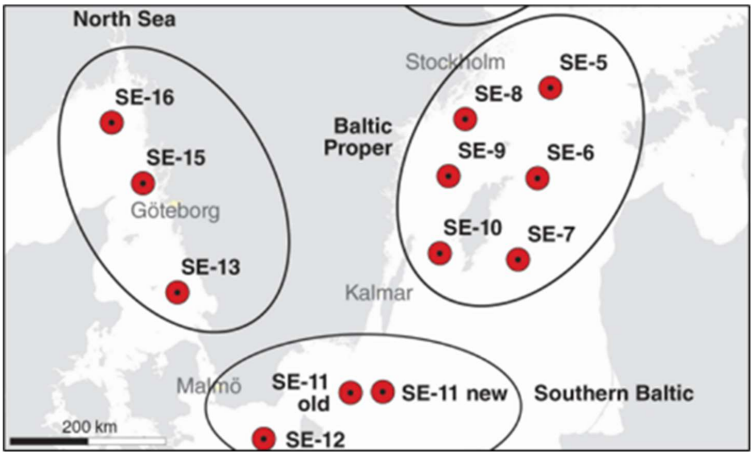

Figure 13. Sampling points in SGU's monitoring program for environmental toxins, points SE-6 and SE-7 are adjacent to the project area. (SGU, 2022)

Sediment samples from these sampling points have shown elevated levels of cadmium, copper and zinc compared to reference values representing pre-industrial levels.

SGU reports analyses of organic pollutants; PAHs, Tributyltin, DDT, PCBs and dioxins, in sampling points in the Central Baltic Sea. The concentrations detected in this study were higher east of Gotland than between Gotland and the Swedish mainland. (SGU, 2023b)

5.4.6 Ammunition

The eastern part of the project area is partly within an area that has been classified by the Armed Forces as "Presence of ammunition". The basis

comes from the Swedish Armed Forces' brochure "Information about mines, unexploded ordnance and chemical warfare agents". The presence of ammunition is divided into three classes, *Low incidence*, *Occurrence* and *High incidence*. The approximate extent of the area can be seen in (Försvarsmakten, u.d.) Figure 14.

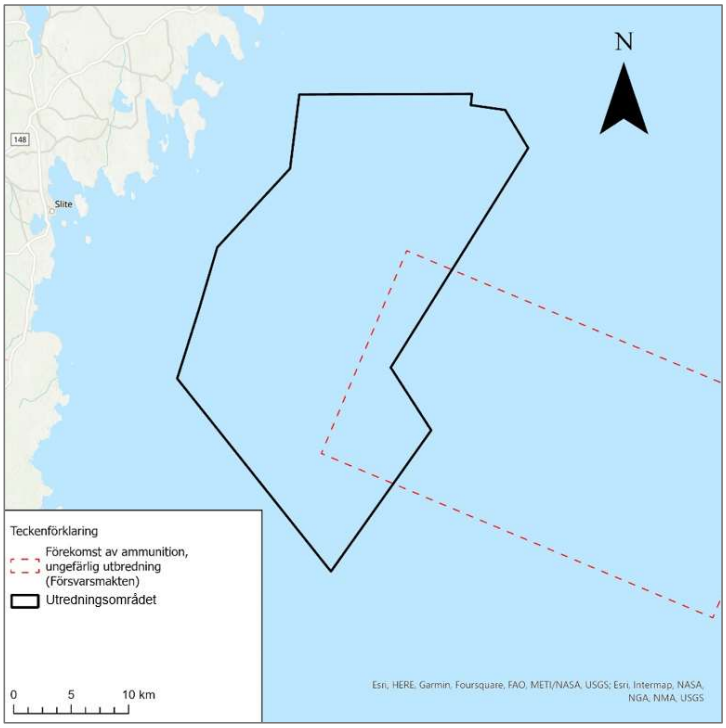

Figure 14. Overview of ammunition in the project area (*utredningsområdet*). The surface area is approximate.

5.5 Natural environment

5.5.1 Terrestrial environments

The east coast of Gotland consists of a distinctive natural environment that is strongly influenced by the sea, weather conditions, and the calcareous bedrock. Wetlands, sandy beaches and pebbles occur alternately with herbaceous meadows, deciduous forests and rocky outcrops.

5.5.2 Benthic animals and plants

Depth within the field of investigation varies between about 40 and 80 m. The seabeds are dominated by hard clay and mud with smaller sections of sandy and hard seabeds Figure 11.

Benthic vegetation is considered absent within the investigation area due to the considerable depth. The benthic fauna community at these depths in the Baltic Sea is sparse and species-poor. Species found here include the amphipod Monoporeia affinis, the isopod Saduria entomon, the blue mussel (Mytilus edulis), the Baltic clam (Macoma balthica), the lagoon cockle (Cerastoderma glaucum), and various polychaete worms (Polychaeta), including the invasive Marenzelleria viridis.On hard substrates, mainly present in smaller and slightly shallower areas within the investigation area, species such as sponges (Porifera), hydrozoans (Hydrozoa), barnacles (Balanus spp.), and bryozoans (Bryozoa), including Electra spp., may occur.

The shallow and coastal seabeds that may be affected in the export cable corridors are typically vegetated with bladderwrack (*Fucus vesiculosus*), sea lace (*Chorda filum*), and various filamentous algae. On sandy bottoms in more sheltered environments, eelgrass (*Zostera marina*), spiral tasselweed (*Ruppia spiralis*) and beaked tasselweed (*Ruppia maritima*), as well as various pondweed species (*Stuckenia spp*. and *Potamogeton perfoliatus*), are often found. The benthic fauna in these vegetated seabeds is richer in both species and individuals. In addition to the species mentioned above, various types of crustaceans may occur, such as Gammarus spp., the European mud scud (*Corophium volutator*), and insects like Bloodworms (Chironomidae). (SLU artdatabanken, 2024a)

All mentioned species of benthic fauna are classified as viable (LC) according to the Swedish Species Information Centre's Red List.

5.5.3 Fish

The Baltic Sea is a brackish sea that goes from almost limnic conditions at the far end of the Gulf of Bothnia to a salinity of 10 per thousand at the Sound. The salinity in the central parts of the Central Baltic Sea, in which the study area is located, is 6–8 per thousand for surface water and 11–14 per thousand in the deeper parts. (Havet.nu, u.d.)

The low salinity limits the distribution of marine species, which means that the number of fish species is lower than in most other sea areas. Around 90 species of fish reproduce in the Baltic Sea and the Belt Sea. A large proportion of the biomass of fish inhabiting the open water column consists

of Baltic herring (*Clupea harengus*), sprat (*Sprattus sprattus*), three-spined stickleback (*Gasterosteus aculeatus*), and also cod (*Gadus morhua*), of which all except the stickleback are commercially important species. Black goby (*Gobius niger*), the invasive round goby (*Neogobius melanostomus*), sand gobies (*Pomatoschistus* spp.), as well as flounder (*Platichthys flesus*) and turbot (*Scophthalmus maximus*), are also commonly found.

There are signs that both the herring population and the body size of the fish have declined in recent decades. Stocks in the Baltic Sea are close to the limit of what is viable. In the Baltic Sea, spawning takes place at a depth of 0–10 m, especially around May-June, but there are also autumn spawning stands. In the project area, the depth is great and suitable spawning areas are only considered to be located near landfall points.(Havs- och vattenmyndigheten, 2023)

Sprat is generally found throughout the Baltic Sea and lives in large shoals mainly pelagically near the coast. Sprat is found down to a depth of 150 m, but usually at a depth of 10–50 m. It dwells at greater depths during the day and less deep at night. The species spawns along the coast at depths of 10–40 m during March–August. The stocks of herring and sprat are assessed as viable (LC) according to the Swedish Species Information Centre's Red List. The western parts of the project area overlap with areas that have the potential to be a spawning area for sprat, while the eastern side is most likely to be a spawning area. (SLU Artdatabanken, 2024b)(Helcom, 2021)

Cod (*Gadus morhua*) resides mainly near the coastal seabed and coastal seas over the continental shelf. It is often found at a depth of 0 to 600 m, but usually between 10 and 200 m. In the Baltic Sea, cod mainly spawn during the summer months, with spawning areas in the Central Baltic Sea and Belts. Successful reproduction in the Baltic Sea requires oxygen-rich water and a salinity of at least 11 per thousand, something that does not occur regularly in the Baltic Sea. Since water with this salinity does not occur at the relatively small depths in the project area, cod are not expected to reproduce in connection with the project area. The stocks of cod are assessed as vulnerable (VU) according to the Swedish Species Information Centre's Red List, high fishing pressure is currently the greatest threat to .(SLU Artdatabanken, 2024c)

Three-spined Stickleback live in pelagic shoals during the winter months, but during spawning during the summer, the individuals spread out along the coast. The species is small but numerous and has been shown to have major effects on the ecology of the Baltic Sea.

5.5.4 Marine mammals

In the Central Baltic Sea, grey seals and harbour porpoises are found. Other marine mammals are only sporadic visitors. The ringed seal is mainly found in the northern Baltic Sea and is therefore not described in more detail in this report.

Porpoise

Harbour porpoises (*Phocoena phocoena*) are the most common whale in Swedish waters. The Swedish harbour porpoises have been divided into populations based on three areas:

- Skagerrak population: North Sea, Skagerrak, northern Kattegat
- Belt Sea population: Southern Kattegat, Belt Sea
- Baltic Sea population: Inner Baltic Sea

Harbour porpoises that live in the Central Baltic Sea belong to the Baltic Sea population. The number of reproductive individuals has been estimated at about 100 and the population is classified as critically endangered (CR) in the Swedish Red List. The Baltic Sea porpoise moves from east of Bornholm up to the Stockholm archipelago. Hanö Bay, the area south of Öland, the Midsjö banks and the Hoburgs bank, as well as the area around northern Öland, are all very important for the Baltic Sea harbour porpoise. (SLU Artdatabanken, 2024d)(Carlström & Carlén, 2016)

Parts of the project area are likely to be an important area for the harbour porpoise's reproduction during February-April when last year's calves stop suckling. Areas that are likely to be of importance to harbour porpoises are illustrated Figure 15.

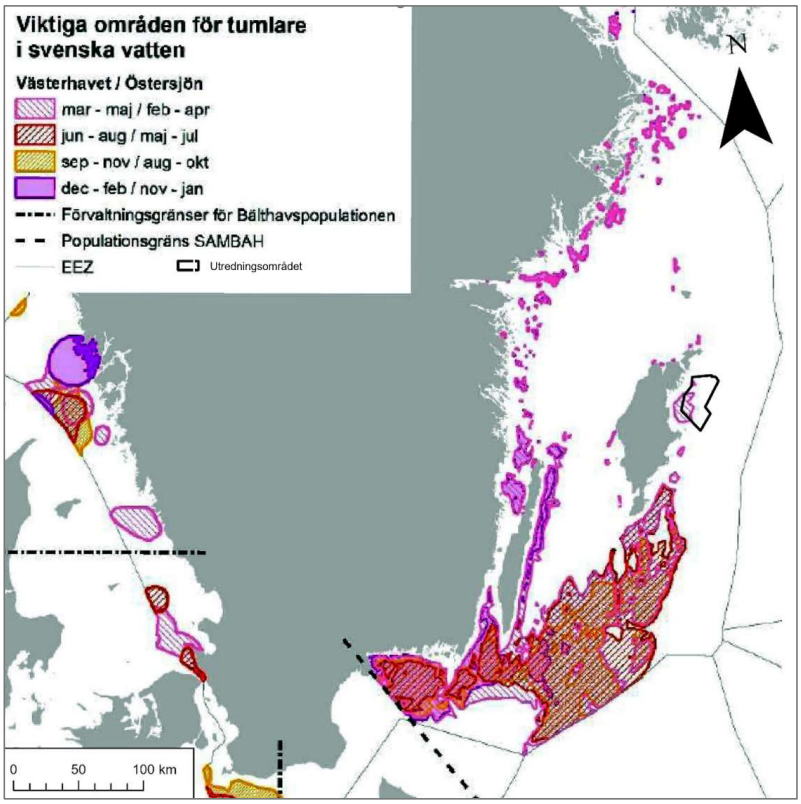

Figure 15. Important areas for harbour porpoises (*tumlare*) in Swedish waters (Sveegaard et al. 2011b, SAMBAH 2016). Management boundaries (dotted lines) for the Belt Sea population according to Sveegaard et al. (2015) and geographical population division between the Belt Sea and Baltic Sea populations according to SAMBAH. (Figure taken from Carlström, J & Carlén, I. 2016). Overlay graphics: Tyréns

According to the Species and Habitats Directive (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora), the harbour porpoise is a species of Community interest and it is protected by the Swedish Constitution by Section 4a of the Species Protection Ordinance (2007:845). This means, for example, that it is forbidden to deliberately capture, deliberately kill or deliberately disturb individuals of the specie. Nor may you damage or destroy breeding sites or resting places.

The harbour porpoise is also listed in Annex II of the Berne Convention for strict protection and is covered by the International Agreement on Small Cetas in the Baltic, North-East Atlantic, Irish Sea and North Sea (ASCOBANS) which is subject to the Bonn Convention. The harbour

porpoise is also included on OSPAR's list of threatened species and habitats and on HELCOM's Red List.

Grey seal

Grey seal (*Halichoerus grypus*) is the largest of the Swedish seal species and is found throughout the Baltic Sea. In Swedish law, grey seals are covered by the protection in Section 5 of the Species Protection Ordinance and are listed in Annex 2 of the Species and Habitats Directive and in Annex III of the Berne Convention.

The grey seal is out at sea most of its life. It is only during the reproductive period that they are on land. The most important reproduction areas are in the Bay of Bothnia, the Northern Quark and the Gulf of Finland, but also the Stockholm archipelago, Åland and Estonia. Seal cubs are born on land in the Stockholm archipelago, on Åland or in Estonia, but also on the ice in the Gulf of Bothnia, the Northern Quark or the Gulf of Finland. The period occurs during February-March when the females give birth to their cubs and then mating takes place. The female leaves the cub at the end of the lactation period to go out to sea to replenish her energy supply. In May, they shed their fur and are also then on land. Today, there are about 30,000 grey seals in the Baltic Sea and the species is categorized as Viable (LC) in the Swedish Red List. (SLU Artdatabanken, 2024e)

5.5.5 Bird

The Central Baltic Sea and its coasts are home to habitats for a large number of bird species During spring and summer, seabirds such as loons, grebes, and gulls nest in coastal areas. Inland-breeding species like eagles and ospreys may also move toward the coast and sea in search of food. During spring and autumn, there is extensive migration across the Baltic Sea between summer and winter settlements. Several seabird species overwinter in ice-free seas adjacent to shallows and offshore banks.

The Natura 2000 areas closest to the project area are: *Ryssnäs* and *Skenholmen*, both located about 7 km from the project area. Both Natura 2000 areas are also fully or partially bird protection areas with access prohibited during the breeding season. Protected areas are discussed in more detail in section 5.2.7 .

Nesting birds

No bird species are considered to breed in the study area, as the environment consists of open sea. Birds that breed on the coast can forage in and around the project area. It is likely that birds that eat benthic

organisms such as mussels are only found to a small extent in the project area, due to the lack of shallow areas.

Migrating and resting birds

The Central Baltic Sea is part of the migration routes of a large number of bird species that move between summer and winter. Gotland is an important resting place, for example for loons, geese, ducks, passerines, and more. Several of the nature reserves and Natura 2000 areas that are designated on Gotland are with regard to resting birds, including Asunden, Skenholmen, and Ryssnäs.

Wintering birds

A large number of birds winter along the coast of Gotland. Offshore banks and shallows in the Central Baltic Sea are particularly important for long-tailed ducks, where a high proportion of the global population overwinters. Other species groups that overwinter along Gotland's coast and use the sea for foraging include auks, loons, gulls, and terns.

Benthic foraging overwintering diving ducks, such as scoter, common eider, long-tailed duck, and velvet scoter, typically use the same geographical areas year after year, primarily shallow areas and offshore banks. This is because the foraging areas need to have a high density of mussels to meet the birds' energy requirements. The distribution of fish-eating overwintering birds can vary to a greater extent, as their food availability is not as closely linked to seabed conditions.

5.5.6 Bats

In Sweden, there are 19 bat species, of which 18 are reported as observed on Gotland. All bat species are protected under Section 4 of the Species Protection Ordinance, and all are listed in Annex 4 of the Habitats Directive. A number of species are classified as high-risk species for wind power, as they like to forage for insects in the open air at altitudes above treetop height. These species include the Common noctule (*Nyctalus noctule)*, Nothern bat (*Eptesicus nilssonii)*, Parti-coloured bat (*Vespertilio murinus)*, Soprano pipistrelle (*Pipistrellus pygmaeus*), Common pipistrelle (*Pipistrellus pipistrellus*) and Nathusius' pipistrelle (*Pipistrellus nathusii)*. (SLU Artdatabanken, 2024f) (Rydell, et al., 2017)

Bats generally follow a pattern of a spring migration, reproduction period during the summer, autumn migration and a winter rest. Some species are stationary and do not migrate at all or only very short distances from the colony site, while others are long-migrating and can move hundreds to

thousands of kilometers between summer and winter habitats. It also differs between species how far from the colony and in which environments foraging takes place during the reproductive period.(Schneider & Fritzén, 2020)

Gotland is part of a migration route that is used by bats during the migration periods. However, it is not known how strictly the bats adhere to these migration routes, or how they choose to use them. Studies have shown that bats are unlikely to migrate solely by flying directly in one direction, but can oscillate between directions before finally reaching their destination. This means that bats potentially stay in migration routes for longer periods of time and can pass the same points several times. (Gaultier, et al., 2020)(Voigt, et al., 2023)

5.5.6.1 Species deemed relevant

The bat species that are currently considered to be of interest to Slite Vindkraftspark are those that have been found along the east coast of Gotland, are long- or regionally migratory, and/or exhibit foraging behaviors that mean that they may occur within the project area. (SLU Artdatabanken, 2024f)

The Nathusius' pipistrelle is found scattered along the eastern coast of Gotland, including in Katthammarsvik and Valleviken by the periods that coincide with spring migration, reproduction time and autumn migration. The species is highly migratory and can be assumed to migrate to and from Gotland during spring and autumn. The Nathusius' pipistrelle is a high-risk species for wind power.

Parti-coloured bat is found scattered along the eastern coast of Gotland during the reproductive period. The observations were made within the sub-programme for bats in the regional environmental monitoring. The species is highly migratory and can be assumed to migrate to and from Gotland during spring and autumn. The Parti-coloured bat is a high-risk species for wind power.

Common noctule (*Nyctalus noctule)* is found scattered along the eastern coast of Gotland during periods that coincide with spring migration, reproduction time and autumn migration. The species is long-migratory, a high-risk species for wind power, and has been found in studies foraging far from colonies over the open sea.(Lagerveld & Mostert, 2023)

Soprano pipistrelle have been found along the eastern coast of Gotland, with an emphasis on observations in Fide, located on southern Gotland. The observations were made during the reproductive period. The species is

a high-risk species for wind power and is regionally migratory, where migration of up to 200 km has been demonstrated. (Schneider & Fritzén, 2020)

Common pipistrelle (*Pipistrellus pipistrellus*) has been found a few times on Gotland, all observations during the reproduction period. The species is a high-risk species for wind power and is regionally migratory where migration of up to 200 km has been demonstrated. (Schneider & Fritzén, 2020)

5.6 Living environment and landscape

5.6.1 Landscape

The landscape image is the experience and impression that people get of a given landscape. The experience and impression include both visual and emotional aspects, which means that the summarized landscape image becomes subjective.

The project area and its immediate area consist of open sea, where the landscape is characterised by flat surfaces and long sight lines. Depending on the direction, the horizon line can be broken by islands and skerries, with or without vegetation. However, the coastline at the height of the project area is relatively poor on islands and skerries, which provides clear lines of sight both from the sea inland towards land, and from the mainland over the sea and the horizon.

The Gotland coastal landscape is unique with its variety of sandy beaches, sea stacks, alvar lands, deciduous forests, and more. The buildings are mainly low, with churches and lighthouses as the tallest structures. In many places, pastures stretch all the way to the sea, and the calcareous soil combined with sometimes barren weather conditions gives rise to a distinctive flora and landscape.

5.6.2 Housing

The project area is located about 11 km from Fårösund, which is the closest urban area. Other communities along the coast with visibility in the direction of the project area are Bungenäs (6 km), Nystugu (9 km), Slite (14 km), and Herrvik (13 km).

5.6.3 Cultural environment

Gotland's eastern coast has a strong cultural-historical connection to the sea. Several cultural environments with fishing villages, lighthouses and harbours can be found along the coast. Several national interests for cultural heritage conservation are located along the east coast of Gotland, including Östergarn, Verkegards-Dämba, and Kyllaj-Lörje. National interests are described in more detail in section 5.2.2 .

A search of the Swedish National Heritage Board's Fornsök reveals eight pieces of information about ship remains within the project area. Two of the data points are deleted as these are likely double registrations. Of those that remain, three of the remains have not been confirmed in the field, which is why no antiquarian assessment has been made. One relic has been assessed to be a possible ancient relic from a ship wrecked before 1850, based on side scan sonar images. Two remains have been confirmed and have been assessed to be *Other cultural-historical remains* from after 1850. For a summary of remains within the project area and the export cable corridors, see Table 13 and for illustration see Figure 16.

Table 13. List of remains within the project area.

Remnant number	Antiquarian assessment	Type of Drop-off	Overlap
L1975:6409	Deleted: Double registration of L1975:6498	Ship/boat drop-off	Project area
L1975:6562	Deleted: Probable double registration of L1975:6762	Ship/boat drop-off	Project area
L1975:6762	Other cultural-historical remains	Ship/boat drop-off	Project area
L1975:7722	Possible ancient monument	Ship/boat drop-off	Project area
L1975:6498	Other cultural-historical remains	Ship/boat drop-off	Project area
L1975:6751	No antiquarian assessment	Ship/boat drop-off	Project area
L1975:6688	No antiquarian assessment	Ship/boat drop-off	Export cable corridor 4B
L1975:6517	No antiquarian assessment	Ship/boat drop-off	Export cable corridor 3

In addition to the remains located within the project area or export cable corridors, there are approximately 300 remains in the vicinity of the project area or export cable corridors. The majority of the remains consist of

ships/boat remains, clearing cairns and stone settings, and most are classified as *Other cultural-historical remains.* For a breakdown between different antiquarian assessments, see Table 14, for an overview see Figure 16.

Table 14. Remains within 500 m of the export cable corridors and 10 km of the project area, divided on an antiquarian assessment.

Assessment	Number
Other cultural-historical remains	140
Ancient monument	67
No antiquarian assessment	50
Possible ancient monument	35
Total	292

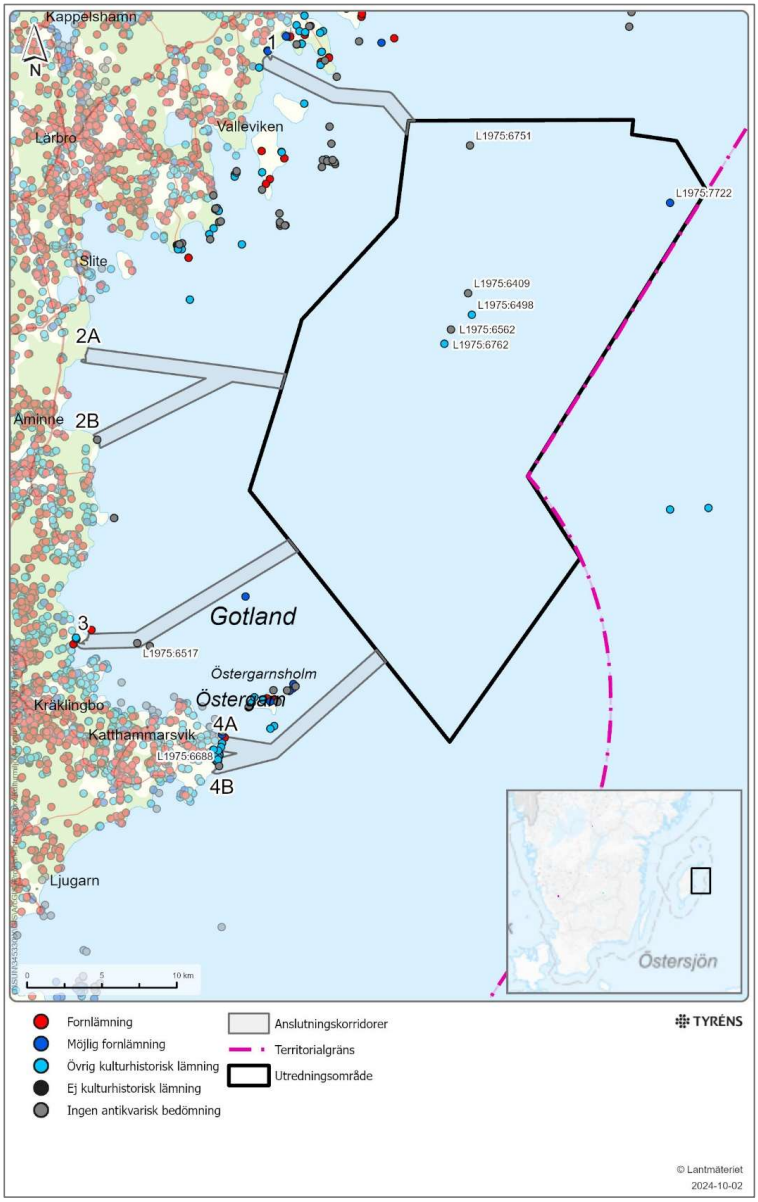

Figure 16. Registered remains within and near the project area and export cable corridors. Project area (*utredningsområde*), export cable corridors (*anslutningskorridorer*) and the Swedish territorial limit *(territorialgräns)*.

5.6.4 Recreation and outdoor life

Recreation and outdoor recreation include organized outdoor recreation such as guided tours and courses, as well as unorganized outdoor recreation, such as hiking and sailing.

The nearest designated outdoor recreation area is the national interest in outdoor recreation Östergarnsholm. The eastern coast of Gotland at the height of the project area is as a whole designated within several national interests for outdoor recreation: Östergarnslandet, Gotland, and Northeastern Gotland's coast and archipelago. Activities that are included in the national interests are, for example, swimming, boating, horseback riding, recreational fishing, and nature experiences. More about national interests can be found in section 5.2 .

Parts of the export cable corridors are expected to be used by motorboats, sailboats, sea kayaks and jet skis in the summer. In winter, the coastal environments are used for walks and other unorganized outdoor activities.

5.7 Infrastructure and shipping

5.7.1 Navigation

As mentioned under section 5.2.3 The project area lies between national interests for communication for existing maritime traffic routes. This is well in line with the maritime traffic that is conducted in connection with the project area with the highest traffic east of the area. All export cable corridors cross at least one fairway or maritime traffic route, see section 5.2.3 and Figure 7.

For an illustration of vessel traffic in 2022, based on AIS data, see Figure 17.

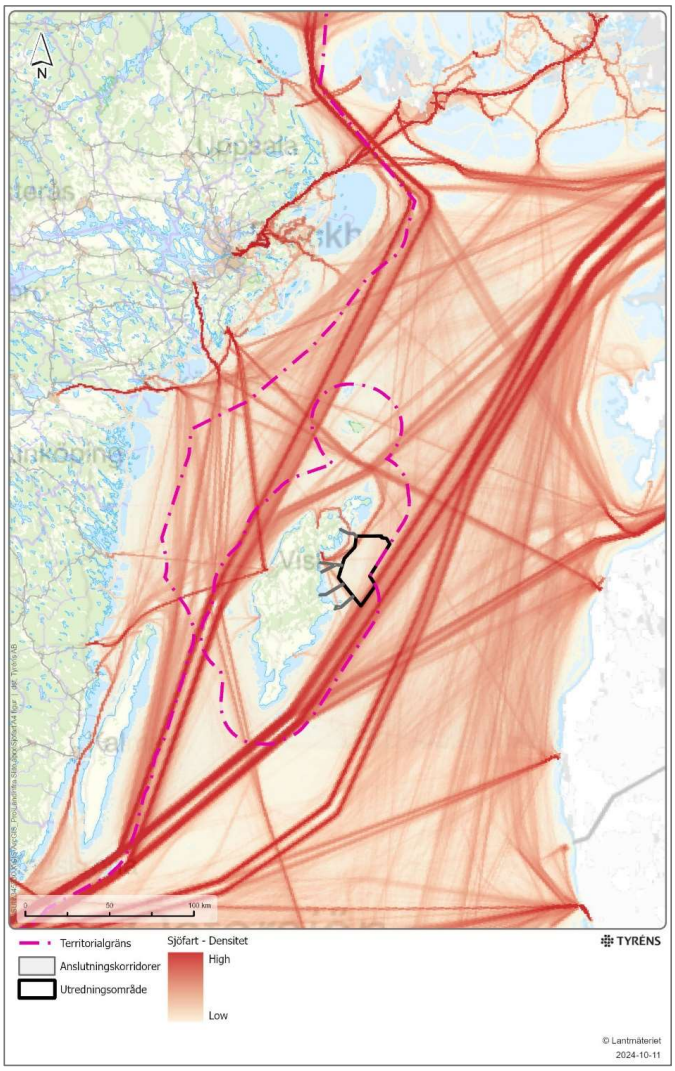

Figure 17. Vessel density based on AIS data for all vessel types from 2022. (Helcom, 2022) Project area (*utredningsområde*), export cable corridors (*anslutningskorridorer*) and the Swedish territorial limit *(territorialgräns).*

5.7.2 Commercial fishing

The project area is located in catch area 27.3.d *Baltic Sea*, subdivision 28 East *about Gotland and the Gulf of Riga.* The subdivision is divided into 28.1 *Gulf of Riga* and 28.2 *East of Gotland* in which the project area is located, see Figure 18.

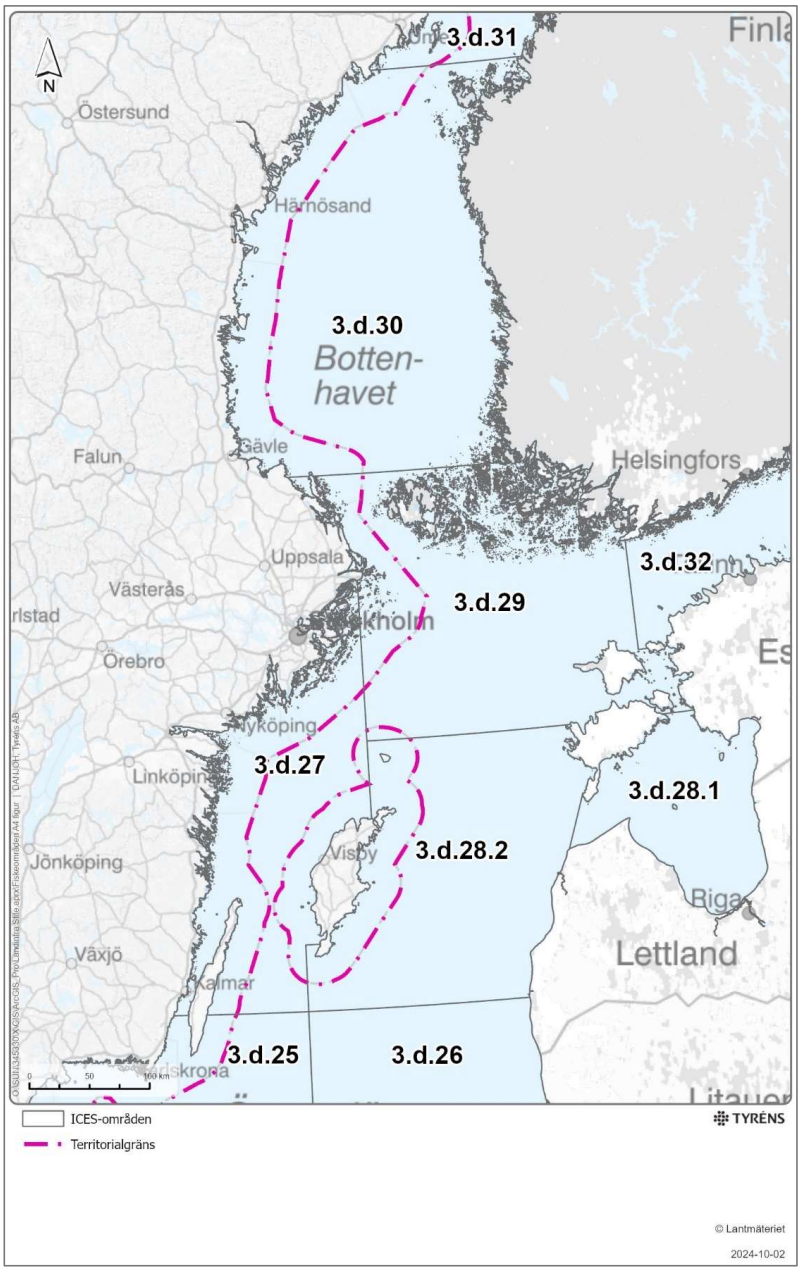

Figure 18. ICES subdivisions in the Baltic Sea (ICES, 2019). The Swedish territorial limit *(territorialgräns)*.

In the area, the largest fishery in terms of landed weight is for herring, sprat and flounder. Nearby national interests for commercial fishing include fishing areas for herring, sprat, cod and turbot, which is why commercial fishing after these is also described below. An average of 56,000 tonnes of sprat were landed annually in the period 2013–2022, during the same period an average of 24,000 tonnes of herring, 900 tonnes of flounder, 130 tonnes of cod and 5 tonnes of turbot were landed. The Swedish and Latvian fisheries are largest in the sub-area. For distribution between countries, see Figure 19.

Figure 19. Volumes of landed fish caught in SD28.2 during the period 2013-2022, note that the scale on the x-axis varies. From left, top to seabed: 1: Sprat (*Skarpsill)* species code SPR, 2: Herring (*Sill/strömming)* species code HERE, 3: Flounder (*Skrubbskädda*) code PLE), 4: Cod (*Torsk*) species code COD, 5: Turbot (*Piggvar*) species code TUR. Substrate: ICES

6 Foreseeable environmental effects

The establishment of the wind farm entails a risk of significant environmental impact. The risks to environmental impacts identified are described below.

6.1 National interests and protected areas

Any impact on national interests depends on the extent to which the environmental aspects that form the basis of the national interest are affected. The impact on commercial fishing described in section 6.7 could potentially affect national interest in commercial fishing. Similarly, the impacts described in section 6.2 potentially have an impact on nature conservation in the national interest. Furthermore, the impact on aviation, shipping and total defence is reported in sections 6.7 . Impact on outdoor recreation in sections 6.5 and impact on cultural environment management in section 6.4 . In the upcoming EIA, the impact on each national interest will be assessed.

The Natura 2000 areas that are considered to be affected by the planned activities are Skenholmen, Asunden, Ryssnäs and Uppstaig. The risk of any impact from the wind farm on the Natura 2000 areas will be thoroughly investigated in the upcoming EIA. Aspects that will be investigated further include:

- Impact on birds with habitats in Natura 2000 areas that forage within the wind farm.
- Barrier effects for the migratory bird species that occur in the Natura 2000 areas and whose migration routes cross the Central Baltic Sea and Gotland.
- Impact on habitats from, for example, turbidity.

If further investigations show that there is a risk of significant impact on the Natura 2000 areas, a Natura 2000 permit will be applied for.

6.2 Natural environment

6.2.1 Terrestrial environments

At the final landfall point, the natural environment will be affected by earthworks. Depending on the species composition, impacts can also occur as a result of construction noise during construction work. The extent of the

impact depends on the landfall point chosen and the methods deemed appropriate for the execution of the work.

Further work includes investigating the natural environment within the landfall points, after which landfall points with overall poorer conditions may be delimited. In the EIA, protective measures will be proposed if they are deemed appropriate to reduce the impact on the natural environment at landfall points.

6.2.2 Benthic environment

The benthic environment is considered to be affected by the fact that facilities occupy a certain living space as well as by turbidity and increased sedimentation in the construction phase. The area for the plant's use is limited and the increased turbidity and sedimentation that occurs is considered to be short-lived. In the long term, the facility can benefit benthic fauna by reducing the impact of bottom trawling and by creating an increased habitat for species that live on hard substrates.

6.2.3 Fish

Increased noise levels, especially during the construction phase, could disturb fish in connection with the wind farm. Fish without or with a small swim bladder can only perceive sounds with a low frequency, while fish with a swim bladder can also perceive higher frequencies. Fish with swim bladders also use hearing to judge distance. During the construction and decommissioning phase, impulsive noises may occur from, for example, piling or similar measures, and continuous noise from, for example, ships. These sounds can be disturbing to fish that are in the area. (Båmstedt, et al., 2009)

During the construction and decommissioning phase, fish can also be affected by increased turbidity during e.g. preparatory dredging, installation of foundations and laying of connecting cables. However, the turbidity is not considered to be of such a magnitude that fish stocks are harmed.

Magnetic fields in connection with electric cables have been shown to be able to cause migratory fish such as salmon and eels to temporarily reduce their movements. Single magnetic fields are not considered to affect migration behaviors, but the cumulative effect will be analyzed in future EIAs. (Öhman, 2023)

Positive effects can occur as a result of the foundations creating artificial reefs and vertical hard seabeds that can provide habitats for fish and their food, so-called reef effects.

The impact and appropriate protective measures for fish will be investigated further within the framework of the upcoming EIA.

6.2.4 Marine mammals

The porpoise has very good hearing in a wide frequency range, with the best sensitivity at 125 kHz. Despite this special adaptation to high frequencies, the hearing is also very good down to below 10 kHz. This means that harbour porpoises hear and can be disturbed by most of the noise in the sea generated by humans, with the possible exception of low-frequency noise (<200 Hz). Harbour porpoises react negatively to impulsive sounds that are 40–50 dB louder than they have the ability to perceive, regardless of frequency. (Amundin, 1991)(Southall, et al., 2007)

Seals have well-functioning hearing both in the air and underwater. Of the Swedish seal species, there are published data for harbor seals and ringed seals, where ringed seals are described as the more sensitive of the two. Grey seals are believed to be similar to harbor seals when it comes to sensitivity. In air, seals' hearing is similar to that of humans, while below the surface of the water, they have a larger frequency range. The seals' hearing is used in foraging, navigation and communication.(Tougaard, 2021)

Marine mammals can be adversely affected mainly during the construction phase and during preparatory investigations when there is a risk of increased impulsive and high-intensity noise, mainly in connection with preparatory work and assembly. The increased noise levels are associated with behavioural reactions such as fleeing the area but can also result in hearing damage if the animal remains in the area (Tougaard, 2021). High noise levels can also affect the animals' communication.

In the operational phase, the wind farm, as described in section 6.2.3 , provide reef effects and thus potentially provide an increased food availability in connection with the area of activity, which can also have positive effects for marine mammals.

The consequences and appropriate protective measures are further investigated in the EIA.

6.2.5 Bird

Birds can be affected by offshore wind power through the risk of collision, displacement effects, and barrier effects during migration and movement. The impact primarily occurs during the operational phase, but some

disturbance can also occur during the construction and decommissioning phase through increased human presence and noisy activities.

The risk of collision is greatest for species that exhibit low avoidance behaviors and can therefore be in close proximity to the rotor blades. This may occur as a result of increased food availability around the wind farm. Examples of species that can reside around offshore wind turbines are gulls and gulls. Collision can also occur during migration if the avoidance behavior is low.

Species groups that are particularly sensitive to displacement as a result of offshore wind power include loons and certain ducks, all of which are at risk of being displaced from foraging areas and resting places. Displacement can occur as an effect of changed foraging availability, or as an effect of disturbing noise, movement or lighting from the wind farm.

Barrier effects can occur during migration and movement when birds choose to take a longer route to avoid wind power establishments. Sensitivity to the barrier effect varies between species groups. Species that can rest on the sea surface and species that migrate long distances are likely to be less sensitive to detours, while species that are reluctant to stay over open water and species that migrate short distances are likely to be more sensitive to changes in routes.

During the continued process, the wind farm's impact on bird life will be investigated. The investigation will include a survey of which bird species currently use the project area for foraging and which species migrate through the area. The conservation plans for the Natura 2000 areas Asunden, Ryssnäs, Skenholmen and Uppstaig include several species that either use the open sea for migration or for foraging, and it cannot be ruled out that an impact on these species would occur at present. Extra focus will therefore be placed on investigating possible impact on these species.

6.2.6 Bats

Bats are at risk of being affected by collision if they fly too close to the wind turbines. The individuals can be killed as a result of the pressure changes that occur around the rotor blades, or as a result of a direct collision with the rotor blades or turrets. If bats are present in the project area, it is likely to occur at low wind speeds and favourable weather conditions, i.e. at times when the wind turbines rotate slowly or are switched off.

During migration periods, bats seek food and rest in places accessible along the migration route. Insects could reside around offshore wind turbines, which in turn could lead to bats being attracted to the area to a

greater extent than at present. With more bats in the project area, the risk of collision may also increase.(Ahlén, et al., 2009)

During the reproductive period, species such as the greater brown bat, in particular, can fly far from the colony site for foraging. Bays and other coastal environments are probably used to a greater extent than the open sea for foraging, but it cannot be ruled out that sporadic occurrences may be found in the project area under favourable conditions.(Lagerveld & Mostert, 2023)

The wind farm's impact on bats will continue to be investigated. Particular focus is planned to be placed on the migration periods, when it is considered to be the time when the density of bats in the project area may be greatest.

In the upcoming EIA, the protective measures that will be taken are reported as well as an assessment of the impact on bats.

6.3 Landscape

Regardless of whether wind turbines are placed at sea or on land, new sight lines are created that affect the landscape. The impact of a wind farm depends on the number of wind turbines, their height, location and distance between them. The impact is also determined by how the landscapes are perceived and how sensitive certain places are to visual impacts. Therefore, it is important to have a comprehensive understanding of both the landscapes and people's relationship to them. The landscapes around the sea are of great importance for cultural and natural environments, recreational and outdoor life values, attractive housing locations and communities. A complete landscape image analysis and impact assessment of the wind farm's visual impression will therefore be carried out as part of the EIA.

To ensure that the assessment of the landscape is representative, proposals are requested within the framework of the delimitation consultation for specific locations that are suitable for special analysis and production of photomontages.

6.4 Cultural environment

The impact on cultural environment values may arise from the visibility and change of landscape that the planned wind farm entails. Depending on the

final choice of landfall point, the impact may occur on cultural values and remains in the area in question.

Cultural environment values whose experience values are linked to a place or environment, in this case the sea, can be particularly sensitive to visual impacts. In order to investigate the impact on the cultural environment along the east coast of Gotland, which through sub-areas in its entirety is designated as of national interest based on several aspects, a comprehensive landscape analysis will be carried out. In order to investigate the conditions in the project area and the export cable corridors, a maritime archaeological investigation will be carried out.

Any protective measures taken to reduce or avoid the impact on cultural environment values will be reported in the forthcoming EIA.

6.5 Outdoor recreation and recreation

The project area is considered to be able to be used for recreational boat traffic. Outdoor recreation and recreation are considered to be affected by visibility from the wind turbines, which can affect the experience values in the places where outdoor recreation is practiced.

The export cable corridors are expected to be used frequently for outdoor recreation and the accessibility may be affected during the construction phase. In the operational phase, the area where the export cables are located can be used as usual again, and no restrictions are planned on the use of recreational boats between the wind turbines. Depending on the final chosen export cable corridor, some impact on an area with value for outdoor recreation on land may be relevant during the construction phase. This will be investigated and described in the EIA.

The EIA will also include a description of how outdoor life on land may be affected by the wind turbines being visible out at sea.

6.6 Living environment and health

The influencing factors that are currently considered regarding the living environment and health are sound, shadow, and visibility from obstacle lighting.

Noise is expected to occur in the construction and decommissioning phase as a result of, for example, the installation of foundations. During the operational phase, noise is expected as a result of the passage of the rotor blades through the air. The project area is located about 6 km from the

nearest settlement (Bungenäs) and the noise levels are not expected to exceed the Swedish Environmental Protection Agency's guidelines of 40dB(A) for permanent or holiday homes. (Naturvårdsverket, 2020)

Moving shadows occur as a result of solar radiation on the rotor blades. The distance from the project area to the nearest buildings means that no moving shadows are expected to affect the living environment.

The wind turbines will be equipped with obstacle lighting in accordance with the Swedish Transport Agency's regulations (TSFS 2020:88). Especially during the dark hours of the day, the wind turbines' lighting will be visible in good weather conditions. The impact can be reduced by synchronizing the flashing of the obstacle lights to give a calmer impression and by lowering the intensity to the minimum permitted brightness according to current regulations during the dark hours of the day.

The impact of the wind farm on the living environment and health will be further investigated in the upcoming EIA through, among other things, sound immission calculations, modelling of shadow, visibility analysis, as well as the production of photomontages and visualisations during both day and night. Current guidelines and recommendations regarding sound, shadow, and obstacle lighting will be followed.

6.7 Infrastructure, shipping and commercial fishing

The impact on air traffic will be investigated in collaboration with the Swedish Civil Aviation Administration and Visby Airport. If it turns out that there is an impact due to wind turbines being proposed to be located in an area used by aviation, the design of the wind farm may need to be adapted. Alternatively, the airport's routes or MSA area can be adjusted.

The wind farm and associated plant parts may affect the interests of the Armed Forces during all phases. The impact on the interests of the Armed Forces will be investigated in consultation with the Armed Forces and will be dealt with in the upcoming EIA.

Shipping can be affected if fairways need to be relocated or if the capacity of the fairway is affected, especially in the construction phase. An appropriate safety distance between wind turbines and the fairway will be investigated through a nautical risk analysis.

Commercial fishing in the area can be affected in all phases as the wind farm constitutes a physical obstacle that limits the possibility of conducting fishing in the area. However, the wind farm can have a positive effect on

fish stocks and thus have an indirect positive effect on commercial fishing. Both local fishermen and professional fishing interest groups are invited to consultation, and the comments received will form the basis for further investigations of the wind farm's possible impact on fishing. The company intends to have an ongoing dialogue with the commercial fisheries' interest groups regarding the project.

6.8 Risk of accidents

The types of accidents that can affect the environment or third parties can be summarized under the headings, breakdown, collision, icing, fire, chemical release and accidents in the construction phase.

Climate-related events, such as extreme storms, can affect the risk of accidents in both the construction and operation phases and need to be taken into account in the EIA.

6.8.1 Collision

The obstacle marking is designed according to the Swedish Transport Agency's rules and must be visible to ships and aircraft in all directions. Marking on nautical charts and flight maps complements the lighting. Wind turbines and substations must also be equipped with maritime safety devices in accordance with international guidelines and the Swedish Transport Agency's rules.

6.8.2 Icing

During the operational phase, ice can form on the rotor blades of wind turbines. Ice that comes off the rotor blades poses a risk of accidents for people in the vicinity. Since the planned wind farm is so far from the coast, there are probably very few people staying in the area in winter.

6.8.3 Fire and release of chemicals

A fire can occur in a wind turbine during the operational phase, but is rare. A fire could lead to the release of oil from the wind turbine's engine housing. Breakdowns and collisions could also lead to spills of oil or other chemical substances that may be present in wind turbines and substations. In order to prevent and prevent spills, there are monitoring systems, collection containers and procedures for accident preparedness, which will be described in the EIA.

6.8.4 Breakdown

A very rare accident in wind turbines is that all or part of a wind turbine's rotor blades break and fall under the wind turbine.

6.8.5 Accidents in the construction phase

In the construction phase and in the decommissioning phase, large cranes, large vessels and a large number of transports on land and at sea will entail increased risks for people staying in the project area and between the port and the construction sites. The work will be planned so that it can be carried out in a safe way both in terms of the working environment and for third parties and the environment. Detailed planning of the construction phase with risk analyses of all elements will be carried out during the detailed design, but certain general protective measures will be addressed in the EIA.

6.9 Environmental quality standards

The starting point for assessing the project's impact on the EQS is that it can be shown that no unauthorised impact on the ecological or chemical status of the water bodies concerned, on protected areas under water management, or on the EQS under the Marine Environment Ordinance. The assessment of the impact on EQS is based on the cumulative effects of planned activities and other planned activities carried out in other projects in the area.

6.9.1 Water management

Assessment of the impact on the chemical and ecological status of surface water is based on Chapter 5. MB, the Swedish Agency for Marine and Water Management's regulations (HVMFS 2019:25) and current practice as follows:

- The existing status and impact on the water body are based on the most recently updated information in VISS 2024-09-30.
- Analyses regarding the impact on ecological status are made at the quality factor level and chemical status is assessed at the parameter level.
- If limit values to a lower class limit are exceeded on a permanent basis for the water body representative monitoring stations, the assessment is made that unauthorized influence occurs. This applies to biological and physicochemical quality factors as well as

chemical status. In addition, for quality factors that are subject to maximum permitted concentration limit values for a substance, unauthorised influence occurs if the concentration exceeds the maximum permitted concentration limit value on a single occasion in a monitoring station representative of the water body.

- In the event that the status of a quality factor has been assessed as its worst status class, unlawful influence arises if the planned activity further deteriorates the condition of the quality factor, even if it does not lead to a lower status class in these cases.
- Unauthorized influence occurs if the planned activity jeopardizes the possibility of achieving EQS in terms of ecological status.

Assessment of the impact on EQS is also made on the basis of any impact on protected areas of relevance to water management, i.e. areas covered by Annex IV of the EU Directive. This includes Natura 2000 areas with aquatic Natura 2000 habitat types.

The environmental effects of the planned activities that are of relevance to ecological or chemical status are mainly assessed to be the use of the seabed and habitats, changes in the wave regime and, in the construction and decommissioning phase, the effects of increased turbidity, sedimentation and possible mobilisation of environmental toxins. The project can also lead to indirect positive effects in the form of increased amounts of fish as a result of fishing ceasing in the area and through so-called reef effects. Reef effects can occur when a relatively homogeneous sea area is added to an increased amount of physical structures that create living space for more individuals and species of different organism groups.

If necessary, technical adaptations and protective measures can be implemented in order to avoid negative effects on ecological and chemical status.

In the forthcoming EIA, the effects of these types of impacts on decided EQS, indicators and descriptors will be described.

6.9.2 Marine environment management

The environmental effects of the project in the parts of the sea covered by marine environment management are assessed to be largely the same as in the coastal water bodies, see section 6.9.1 .

In the upcoming EIA, the impact, effects and consequences on decided environmental quality standards, indicators and descriptors will be assessed.

6.10 Cumulative effects

If a natural area, species or other value is affected by several wind farms or by other activities at the same time, cumulative effects may occur. In the EIA, the consequences for each environmental aspect will be described both in terms of the impact from Slite Vindkraftspark and also in terms of cumulative impact from other sources of impact.

Cumulative impacts are considered to be relevant primarily for the aspects of the natural environment (birds), landscape, EQS, commercial fishing, shipping and defence.

7 Continued work

7.1 Planned investigations

Before the permit application and EIA are completed and submitted to the review authorities, the following investigations may be relevant:

Locating export cables and landfall point. Continued investigation of export cable corridors and landfall points.

Sound and shadow. Calculation of sound levels at land and spread of underwater noise. Calculation of shadow impact at land.

Visualizations. Photomontages from places that are important from a landscape and cultural environment perspective.

Bird inventory. How the project area is used by stationary and migratory birds. Migration routes, resting and foraging facilities.

Inventory of fish. Can be carried out, for example, through the study of catch data and/or test fishing adapted to relevant species.

Marine mammals. Seals are considered to be common in the area and the impact is considered to be able to be evaluated without an inventory in the field.

Seabed environment. Marine conservation value inventory to map benthic flora and benthic fauna**.**

Impact on Natura 2000 sites. Habitats, natural habitat types and impacts on species, especially birds and seals**.**

Landscape image analysis. Investigation of the impact of the planned wind farm on the landscape and cultural environment.

Archaeological investigation. If there are suspected cultural-historical remains within the project area and export cable corridors.

Flight. Continued investigation together with the airport and the Swedish Civil Aviation Administration.

Shipping. Nautical risk analysis with investigation of how fairways are affected.

Commercial fishing. Investigation of how the area is used and potential impact.

Geophysical and geotechnical surveys. Mapping of bathymetry and objects on the seabed. Mapping of bedrock and sediment layer sequence and sampling of surface sediments.

Weapons left behind. Investigation of the presence of it on the seabed

Sediment dispersion modelling. Modelling of sediment dispersion during the construction phase.

7.2 Contents upcoming EIA

The forthcoming EIA is proposed to contain the following chapters:

Summary

Introduction

- Background
- Administrative information
- Words and concept
- The permit process

Environmental assessment

- Purpose
- Demarcation
- Assessment criteria
- Uncertainties

Consultation

Overall conditions (current situation)

- Description of the area
- Plans
- National interests
- Protected areas (Natura 2000)

Zero alternative

Planned activities

- Localisation
- Wind farm (scope and design)
- The construction phase
- Alternatives

Environmental impact

- Visibility and Landscape
- Cultural environment (land-based values, maritime archaeology)
- Natural values
- Birds
- Bats
- Fish
- Marine mammals
- Bentic flora and fauna
- Natura 2000 habitat types
- Recreation and outdoor life
- Human health (sounds, shadows)
- Marine geology
- Oceanography, wind and currents
- Shipping and aviation
- Fishing industry
- Conservation of natural resources
- Risk and safety (including climate adaptation)
- Carbon footprint

Overall assessment

- Environmental impact
- National interests and protected areas
- Environmental quality standards
- Environmental objectives
- Natura 2000

Monitoring programme and follow-up

Expertise

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