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LOCAL PLANNING
TERRITORY PLANNING AMENDMENTS FOR WIND PARK "LODE,"
LODE PARISH, VALMIERA COUNTY

ENVIRONMENTAL OVERVIEW

Prepared as part of a strategic environmental impact assessment

Customer:	**SIA "Utilitas Wind"**, reg. no. 40203411869, address: Maldugunu Street 2, Marupe, Marupe County, LV-2167
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INTRODUCTION

An environmental report has been prepared for the "Local plan for a wind park for amendments to the territorial plan for the wind park "Lode", in Lode parish, Valmiera district (hereinafter - local plan).

The local plan includes the following sections: explanatory text, rules for the use and construction of the territory and maps of the graphic part. The local plan is a long-term planning document.

The environmental report has been prepared as part of the strategic environmental impact assessment (hereinafter - SEIA), because the State Office for Environmental Supervision on 04.12.2023. adopted decision no. 4-02/91/2023 on the application of the strategic environmental impact assessment procedure to the Local Plan for the wind park "Lode", in the territory of Lode parish, Valmiera county.

The environmental report was prepared by SIA "Metrum" based on the contract concluded with the wind farm developer SIA "Utilitas Wind".

SUMMARY

The environmental report has been prepared for the local plan for the wind park "Lode", which amends the territorial planning of Rūjiena district for 2012-2024 (hereinafter - local plan).

The development of the local plan has been started in accordance with the decision of the Valmiera County Council on 31.08.2023. of decision No. 430 (protocol No. 12, § 47) "On starting the development of a local plan for the wind park "Lode", Lode parish, Valmiera district, to amend the territorial planning of the Rūjiena district for 2012-2024" and the approved Terms of Reference for the development of the local plan.

The purpose of the development of the local plan is to amend the functional zoning defined in the current regional planning of the Rūjiena district by determining:

- the sub-zone of the functional zone "Agricultural Territories" (L), in which the construction of Energy Supply Companies (14006): wind power plants and wind parks and Engineering Infrastructure (14001) is permitted for land units where the valid zoning is defined as "Agricultural Territories" (L);
- the sub-zone of the functional zone "Forest territories" (M), in which the construction of energy supply companies (14006): wind power plants and wind parks and Engineering infrastructure (14001) is allowed for land units where the valid zoning is defined as "Forest territories" (M).

The purpose of the environmental overview is to assess the potential impact of planning on the environment and to determine measures to mitigate the potential impact.

The environmental report examines the international and national goals in the field of environmental protection, which are defined in international conventions and European Union directives, as well as in national environmental policy documents and refer to the content of the local plan.

The environmental report describes the natural conditions of the territory, natural territories and values, cultural heritage values, the state of the environment in the main aspects related to the operation of wind power plants: noise, flickering effect, air quality, vibrations.

In the planned wind farm, 19 high-capacity, latest generation WT could be installed, where the nominal production capacity of one WT could exceed 6 MW.

The proposal of the functional area of the local plan territory is determined in accordance with the task for the development of the local plan and 30.04.2013. The classification of functional zones determined by the regulations of the MK No. 240 "General regulations for planning, use and construction of the territory", foreseeing appropriate types of use of the territory.

Functional sub-zones are defined for the territory of the local plan:

- Agricultural territory (L1) – defined for land units or their parts, where the functional zone "Agricultural territories (L)" is defined in the effective territorial planning;
- Forest area (M1) – defined for land units or their parts, where the functional zone "Forest areas" (M) is defined in the effective territorial planning;
- Transport infrastructure territory (TR1) - defined for existing transport infrastructure objects in the territory of local planning;
- Water territory (Ū1) – defined for existing water objects in the territory of the local plan.

Uniform Territorial Use and Construction Regulations (TUCR) have been developed in the local plan.

The most detailed requirements of the local plan TUCR are determined in section 3.5. "Requirements for reducing environmental risks", which includes provisions for ensuring the requirements of environmental noise regulations, reducing the impact of low-frequency noise, preventing and controlling the flickering effect, reducing the impact on the landscape, preventing environmental risks and accidents to reduce the impact on protected habitats, plant species and potentially protected trees, bats, birds and cultural and historical values.

Section 3.5 of the local plan TUCR "Requirements for reducing environmental risks" includes point 11, which stipulates that measures to reduce environmental risks are implemented in accordance with the opinion of the State Office for Environmental Supervision on the environmental impact assessment report "Construction of wind power park "Lode" in Valmiera district Lodes and Ipiķu parishes" to the requirements regarding the place, scope and type of technology of implementation of the intended activity, as well as the prevention, reduction and monitoring of the impact.

It is planned to develop a wind park as part of the local plan, and an environmental impact assessment is being carried out for this project at the same time as the territory planning process. The environmental report differs from traditional environmental reports of planning documents in that the assessment of the significant impact on the environment is based on the opinions of certified experts and the results of calculations. In the local plan, only such use of the territory as is necessary for the development of the wind farm is planned. The environmental impact assessment examines the following environmental aspects: 1) noise, 2) flickering, 3) biological diversity (habitats, plants, bats, ornithofauna), 4) landscape and visual impact, 5) air quality, 6) underground water, 7) surface waters, 8) cultural and historical values, 9) environmental risks, as well as exposure to vibrations and electromagnetic fields.

No significant cross-border impact is predicted for the area use measures planned in the planning document. The local plan does not have to determine the compensatory measures in the sense of the Law "On Specially Protected Natural Areas" and related regulatory acts, as its solutions do not affect Natura 2000 areas.

The most significant negative impacts related to the construction and operation of the wind power park are mitigated during the environmental impact assessment procedure and development of the local plan. During the planning process, detailed information was available on the impact of all environmental aspects of the intended operation and the affected areas, as well as solutions to prevent negative impacts.

At the stage of implementation of the local plan, to prevent the formation of negative impacts, the requirements of regulatory acts, the territory and use regulations of the Local Plan, as well as the conditions contained in the opinion of the State Office of Environmental Supervision must be followed.

To obtain information about the state of the environment and trends, it is necessary to obtain information about the changes in the state of the environment caused by the planned activities for the area of the local plan and prepare a monitoring report within the terms set by the Office. The deadlines for submitting the monitoring report on the implementation of the local plan are compatible with the deadlines for submitting the territorial planning monitoring report.

1. LOCAL PLANNING GUIDELINES AND RELATIONSHIP WITH OTHER PLANNING DOCUMENTS

1.1. GROUNDS, PURPOSE AND MAIN TASKS OF THE DEVELOPMENT OF THE LOCAL PLAN

The development of the local plan has been started in accordance with the decision of the Valmiera County Council on 31.08.2023. of decision No. 430 (protocol No. 12, § 47) "On starting the development of a local plan for the wind park "Lode", Lode parish, Valmiera district, to amend the territorial planning of the Rūjiena district for 2012-2024" and the approved Terms of Reference for the development of the local plan.

According to the decision of the Valmiera County Council on 31.08.2023. the purpose of development of local plan, tasks approved by decision No. 430 (protocol No. 12, § 47) –

to amend the territorial planning of Rūjiena county for 2012-2024, by determining the functional zoning for the land units of Lode parish of Valmiera county:

- the sub-zone of the functional zone "Agricultural Territories" (L), in which the construction of Energy Supply Companies (14006): wind power plants and wind parks and Engineering Infrastructure (14001) is permitted for land units where the valid zoning is defined as "Agricultural Territories" (L);
- the sub-zone of the functional zone "Forest territories" (M), in which the construction of energy supply companies (14006): wind power plants and wind parks and Engineering infrastructure (14001) is allowed for land units where the valid zoning is defined as "Forest territories" (M).

Local plan development tasks:

- To carry out an analysis of the valid territorial planning of the Rūjiena district for the territory of the local plan.
- Determine a new indexed sub-zone in the functional zones "Forest areas" (M) and "Agricultural areas" (L) in which the construction of energy supply companies would be allowed (14006): wind power plants and wind parks and Engineering infrastructure (14001).
- To justify the need and solutions for changing the functional zoning, to develop in detail the rules of use and construction, as well as the parameters characterizing them.
- Determine the location of the main engineering supply networks and structures and the connections of engineering communications to the common engineering network.
- Prepare a landscape assessment and the potential impact of the wind park on landscape changes.
- Carry out access security solutions. Assessment of the existing and planned traffic flow for the roads through which access is planned for the installation and maintenance of the wind power plant, forecasting the possible number of road traffic attracted, as well as its possible impact. If necessary, offer solutions for mitigating or preventing possible negative impacts.
- To evaluate the impact of the functional areas, the included solutions and the planned use of the territory on the current use and development possibilities of the neighbouring real estates in the local plan.
- Clarify the difficult areas and objects for which protective zones are defined.
- Provide nature and environmental protection requirements to ensure the sustainable development of the territory, in accordance with the planned use.

- Ensure the implementation of the strategic environmental impact assessment (SEIA) in accordance with the requirements of regulatory acts, in the event that the State Office of Environmental Supervision decides to apply the SEA procedure to the local plan.

1.1. CONTENT OF THE LOCAL PLAN

The content of the local plan complies with 14.10.2014. in regulations no. 628 "Regulations on municipal territory development planning documents" and that specified in the Terms of Reference.

The local plan consists of three interrelated parts:

1) I "EXPLANATORY LETTER", which includes the justification for the development of the local plan, the description of the solution and its relationship with the neighbouring territories and the compliance of the solution with the sustainable development strategy of the municipality of Valmiera region.
2) II "GRAPHIC PART", where the functional zoning of the territory is determined, the transport infrastructure solution is determined and the encumbered territories and objects are depicted, for which protective zones are determined in accordance with the regulatory enactments on the encumbered territories.
3) III "RULES FOR USE AND CONSTRUCTION OF THE TERRITORY", where the requirements for the use of the territory and construction parameters in the functional area, as well as other requirements, limitations and conditions are determined.
4) The separate volume "REPORT ON THE DEVELOPMENT OF LOCAL PLANNING" contains documents on the process of developing a local plan - decisions of the county council, terms of reference, conditions and opinions of institutions on the drafting of the local plan, public consultation documents - announcements, publications, minutes of public consultation meetings, etc.

1.2. RELATIONSHIP WITH OTHER PLANNING DOCUMENTS

1.2.1. Development planning documents of Valmiera region municipality territory

The development of the local plan is related to the territorial development planning documents of the municipality of Valmiera region:

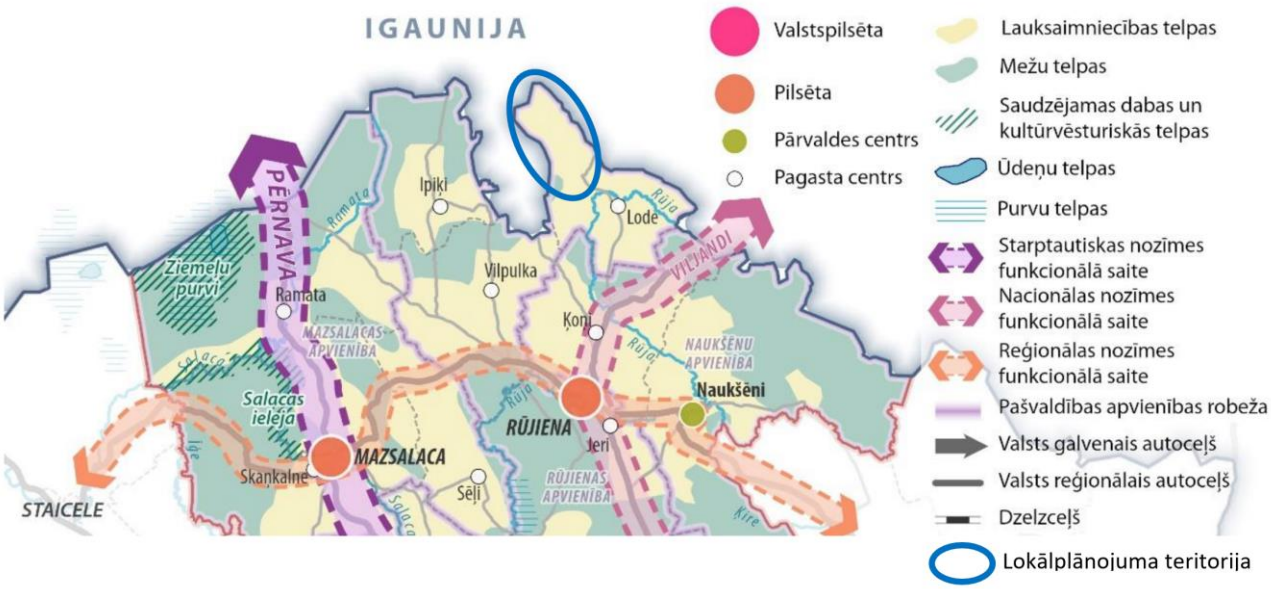
1) Sustainable development strategy of Valmiera region 2022-2038;
2) Rūjiena district territorial planning for 2012 - 2024.

27.10.2022 in the approved "Sustainable Development Strategy of Valmiera County 2022-2038" (hereinafter - the Strategy), one of the strategic goals of the municipality is "Entrepreneurship Development" (SM2), the implementation of which in the long term will ensure jobs, attracting investment to Valmiera County, qualified specialists, high productivity, gentle and sustainable approaches in the use of natural resources, repeated use of resources, export capacity of companies and farms.

In the economic specialization of the municipality, energy production and material processing are listed among the priority sectors.

In the perspective of the county's spatial development, the territory of the local plan is included in the Agricultural space (Figure 17). Among the guidelines for future planning of agricultural areas, it is determined that agricultural lands with high natural soil fertility should be preserved for intensive agricultural development as a priority. The rest of the agricultural space can be used, balancing the preservation of natural diversity and landscape and the social and economic development of the territory.

Figure 1. The territory of the local plan in the perspective of the spatial development of the Valmiera region (fragment)
[source: Sustainable Development Strategy of Valmiera County 2022-2038][1]



Territorial planning of Rūjiena district for 2012 - 2024

Functional zones "Agricultural territory" (L) and "Forest territories" (M) have been determined for the territory of the local plan in the effective territorial planning. The water objects in the territory of the local plan are included in the functional zone "Water territories" (U).

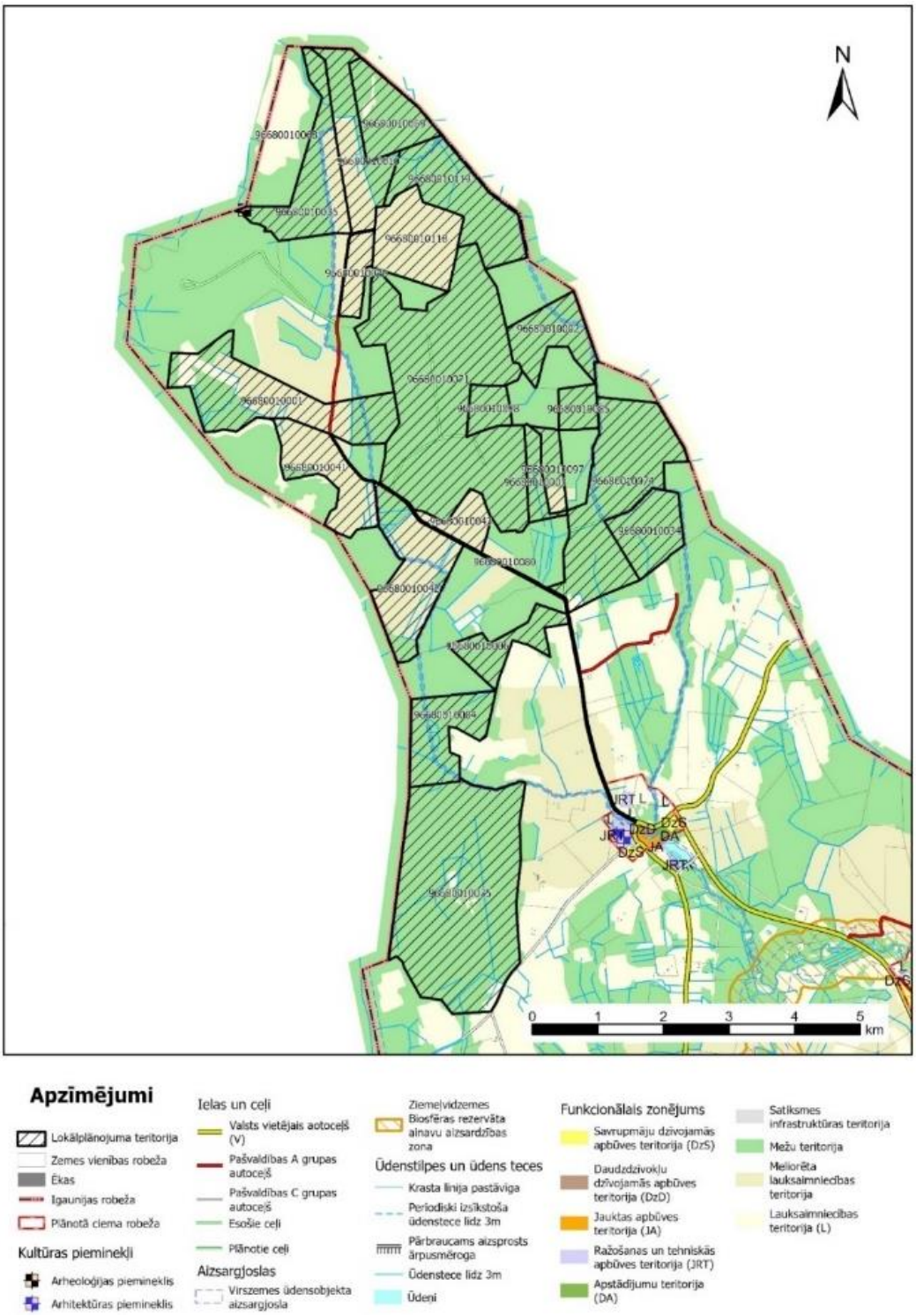
25.1.4 of the Territorial Use and Construction Regulations of the Rūjiena County Territory Planning. sub-paragraph stipulates that wind power plants with a capacity exceeding 20 kW are allowed to be located in "Production and technical facilities construction areas" (R), when developing a local plan - also in "Agricultural areas". The construction of wind power plants is not allowed in "Forest areas" (M).

[1] Valstspilsēta: National City
Pilsēta: Town
Pārvaldes centrs: Administrative Center
Pagasta centrs: Parish Center
Lauksaimniecības telpas: Agricultural Areas
Mežu telpas: Forest Areas
Saudzējamās dabas un kultūrvēsturiskās telpas: Protected Natural and Cultural Historical Areas
Ūdeņu telpas: Water Areas
Purvu telpas: Marsh Areas
Starptautiskas nozīmes funkcionālā saite: International Significance Functional Link
Nacionālas nozīmes funkcionālā saite: National Significance Functional Link
Reģionālas nozīmes funkcionālā saite: Regional Significance Functional Link
Pašvaldības apvienības robeža: Municipal Association Border
Valsts galvenais autoceļš: Main National Road
Valsts reģionālais autoceļš: Regional National Road
Dzelzceļš: Railway
Lokālplānojuma teritorija: Local Planning Area

Figure 2. Areas determined in the territorial planning of Rūjiena county for 2012-2024, where wind power plants are permitted without height restrictions (fragment)
[source – territorial planning of Rūjiena county 2012-2024]

25.3 of the territory use and construction regulations. subsection states that the area of Rūjiena county, where it is allowed to build wind power plants without height restrictions, is determined in Appendix 5 of the regulations. The territory of the local plan is fully included in the zone where it is allowed to build wind power plants without height restrictions (Figure 2)

Figure 3. Local planning territory in the territorial planning of Rūjiena county for 2012-2024
[source – appendix of the local planning assignment]



[2]

[2] **Apzīmējumi (Legend)**

1.2.2. TERRITORIAL CONTEXT OF LOCAL PLANNING IN THE PLANNED TERRITORIAL DEVELOPMENT OF THE REPUBLIC OF ESTONIA

The Estonian planning system is hierarchical. Spatial planning is carried out at four main levels with different tasks and scales:

1. national spatial planning (schemes)
2. regional planning (M 1:100,000 – 1:150,000),
3. general plan (M 1:5000 – 1:30 000)
4. detailed plan (M 1:500 – 1:1000).

After the territorial reform of 2017, the part of the Republic of Estonia bordering the area of the local plan belongs to Mulgi parish (Estonian: Mulgi vald) of Viljandi county (Estonian Viljandi maakond).

Territorial planning of Viljandi district[3](Viljandimaa maakonnaplaneering 2030+) is valid since 06.04.2018.

Spatial planning at the county level is based on the visions and development directions defined in the state plan "Eesti 2030+" in population development planning, energy and transport planning, as well as in determining and preserving the green network and landscape values. At the county level, spatial planning is primarily focused on determining the principles and trends of the county's spatial

- Lokālplānojuma teritorija - Local planning area
- Zemes vienības robeža - Land unit boundary
- Ēkas - Buildings
- Igaunijas robeža - Estonia border
- Plānotā ciema robeža - Planned village boundary
- Kultūras pieminekļi - Cultural monuments
    - Arheoloģijas piemineklis - Archaeological monument
    - Arhitektūras piemineklis - Architectural monument
- Ielas un ceļi - Streets and roads
    - Valsts vietējās autoceļš (V) - State local road (V)
    - Pašvaldības A grupas autoceļš - Municipal road A group
    - Pašvaldības C grupas autoceļš - Municipal road C group
    - Esošie ceļi - Existing roads
    - Plānotie ceļi - Planned roads
- Aizsargjoslas - Protection zones
    - Viszemes ūdensobjekta aizsargjosla - General water body protection zone
- Ziemeļvidzemes Biosfēras rezervāta ainavu aizsardzības zona - North Vidzeme Biosphere Reserve Landscape Protection Zone
- Ūdenstilpnes un ūdens teces - Water bodies and water flows
    - Krasta līnija - Shoreline
    - Periodiski izkaltušā upe - Periodically dried-up river
    - Upes aizsargjosla - River protection zone
    - Pārbaudes aizsargjosla 2m - 2m inspection protection zone
    - Ūdensceļš līdz 3m - Waterway up to 3m
    - Ūdeņi - Waters
- Funkcionālais zonējums - Functional zoning
    - Savrupmāju dzīvojamās apbūves teritorija (D5) - Detached house residential area (D5)
    - Daudzdzīvokļu dzīvojamās apbūves teritorija (DA) - Multi-apartment residential area (DA)
    - Mežsaimniecības teritorija (LA) - Forestry area (LA)
    - Jaukta apbūves teritorija (JA) - Mixed-use area (JA)
    - Ražošanas un tehniskās apbūves teritorija (R) - Production and technical construction area (R)
    - Apstādījumu teritorija (D5) - Greenery area (D5)
- Satiksmes infrastruktūras teritorija - Traffic infrastructure area
- Mežsaimniecības teritorija - Forestry area
- Meliorēta lauksaimniecības teritorija - Reclaimed agricultural area
- Lauksaimniecības teritorija (L) - Agricultural area (L)

[3] https://maakonnaplaneering.ee/maakonna-planeeringud/viljandimaa/viljandi-mp-2030/

development, while at the same time balancing the interests of the state and local government. Territorial planning of the county solves the tasks defined in the planning law[4].

Valuable landscape spaces are defined in the district plan:

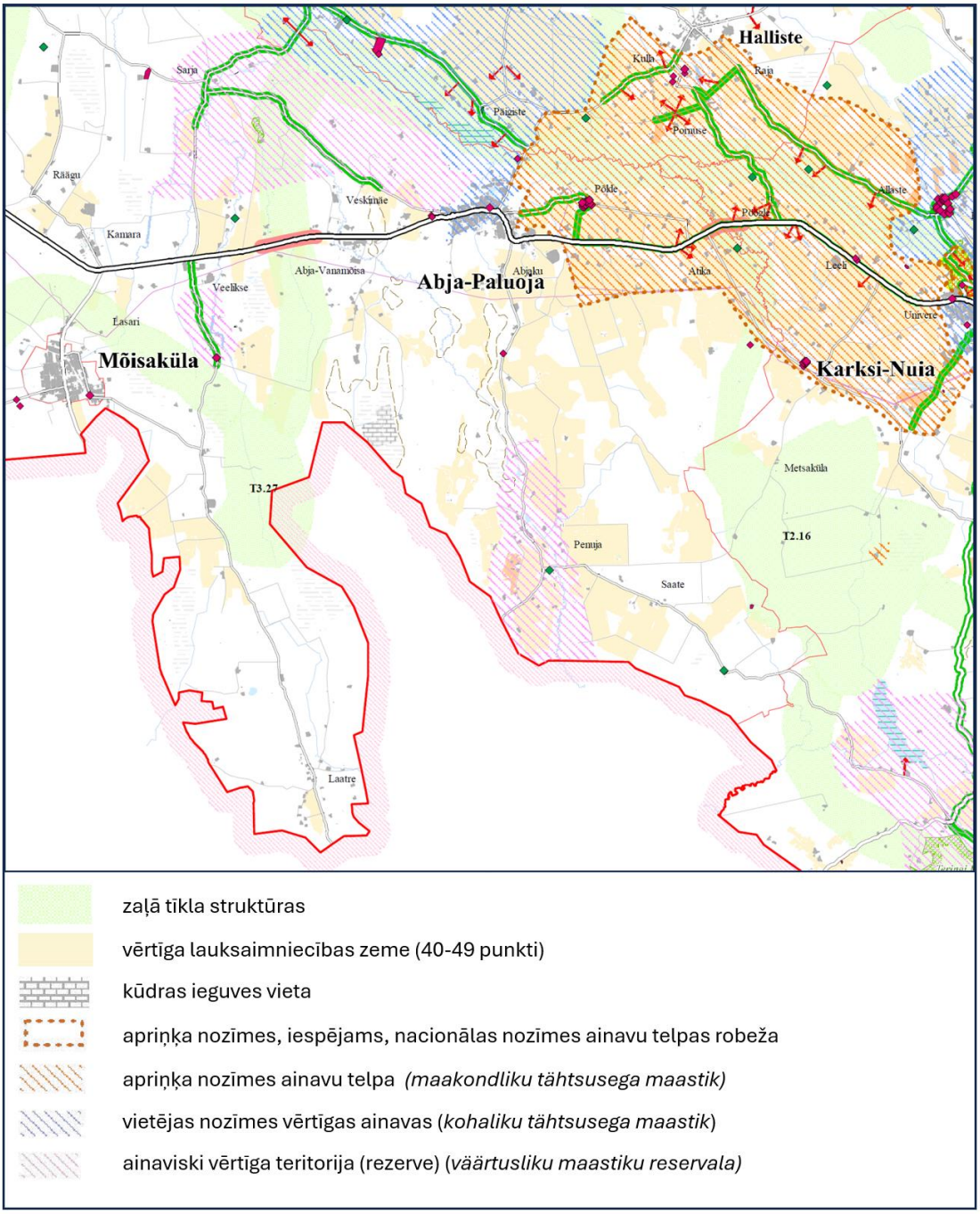
4. 6 county significances recommended as national significance, landscape spaces,
5. 13 landscape spaces of county significance.
6. 25 landscape spaces of local importance;
7. 20 reserve scenic areas.

*Halliste valley between Abyss and Karksi-Nuija*designated as a landscape space of county significance, possibly of national significance.

To the east of the local planning area, the vicinity of the village of Penuja and large areas around the towns of Meizakila (Estonian - Mõisaküla) and Abja-Palouj, which are located ~5 km in the north-east direction, are designated as a reserve of scenically valuable territory.

[4]Viljandi County Territorial Planning ("Viljandimaa maakonnaplaneering 2030+"), Viljandi Maavalitus, Viljandi, 2018

Figure 4. Territorial planning of Viljandi district. Spatial values. M 1: 100,000 (fragment)
[source – territorial planning of Viljandi district]



Guidelines for the use of valuable landscape spaces are defined in the county planning[5]:

- preserve traditional landscape elements and structures;
- preserves historic land use, agricultural landscape openness and views of valuable landscape features;
- avoid the construction of mobile communication masts and wind power plants in valuable landscape areas and in the perspectives of significant views;
- the boundaries and conditions of use of valuable landscapes are specified when developing general plans (municipal level) or landscape plans;

[5]Viljandi County Territorial Planning ("Viljandimaa maakonnaplaneering 2030+"), Viljandi Maavalitus, Viljandi, 2018

- in a valuable landscape area, the existing historical building should be preserved as much as possible, the structure and building traditions of the historical road and street network should be considered;
- to the extent possible, traditional landscape elements and land use are restored (stone and boulder fences, alleys, natural meadows, grazed forest areas, etc.);
- avoid the construction of buildings obstructing the view in perspectives of important views, pay attention to the architectural quality of new buildings in important viewpoints;

The county planning emphasizes that the determination of valuable landscapes at the county level should be followed by the determination of their maintenance and protection requirements at the local municipality level.

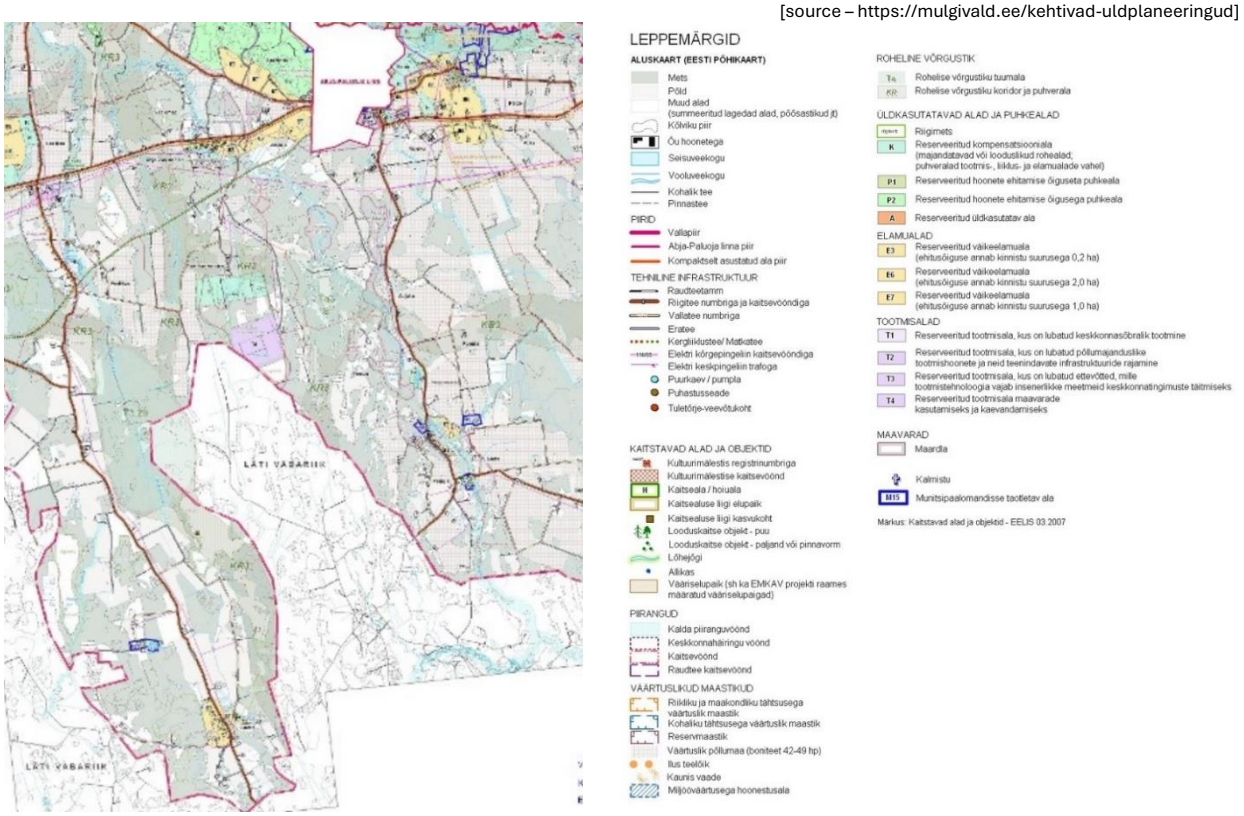
The northern part of the local plan territory is connected to the Green Network structures specified in the plan, which are divided into core territories (the closest to the local plan territory – local level territory T3.27. Penniküla) and corridors - transition zones or connecting elements between core territories.

At the national level, the main network of Estonian nuclear territories and corridors has been determined, which relates to the relevant structures of neighbouring countries. The green network is a system that ensures the preservation of various ecosystems and landscapes and balances the effects of population and economic activities, consisting of natural and semi-natural habitats, core territories and their connecting green corridors.

General planning of the municipality of Aby (Abja Valla üldplaneeringud) is valid since 14.08.2008.

Until the preparation of a new general plan of Mulgi Municipality, the plans of local municipalities, which have been approved until the administrative reform, are valid. In the territory adjacent to the local planning area on the side of the Republic of Estonia, the general planning of the municipality of Abja is valid[6].

Figure 5. General plan of Aby municipality (fragment)
[source – https://mulgivald.ee/kehtivad-uldplaneeringud]



[6] https://mulgivald.ee/kehtivad-uldplaneeringud

In the territorial planning of the municipality of Abja, the territories bordering the territory of the local plan are defined as Forests (Mets) and Agricultural territories (Põld). The existing peat extraction site is designated as a Reserved production area for the extraction and use of minerals (*Reserveeritu tootmisala maavarade for use if kaevandams*).

2. PREPARATION OF THE ENVIRONMENTAL REPORT: APPROACH, PUBLIC INFORMATION AND CONSULTATIONS WITH ENVIRONMENTAL INSTITUTIONS

2.1. METHODOLOGY AND STAGES OF PREPARATION OF THE ENVIRONMENTAL REPORT

Strategic environmental impact assessment (hereinafter - SEIA) is an environmental impact assessment of a planning document, the implementation of which may significantly affect the environment, including the preparation of an environmental report, discussion, public involvement in the environmental report discussion and consultation, consideration of the environmental report and the results of its discussion in planning in the preparation and use of the document for decision-making, as well as the provision of information about the adopted decision in accordance with the procedures specified in the regulatory acts.

The purpose of SEIA is to improve the quality of sector policies, policy plans, action programs and other national, regional and local strategic planning documents and regulatory acts. This is achieved by assessing the potential impact of these documents on the environment and timely preventing or mitigating their negative consequences. The process is aimed at identifying significant direct or indirect changes in the environment that could arise from the implementation of policy planning documents and includes the planning of measures to mitigate negative impacts, as well as the preparation of recommendations for monitoring the effectiveness of the implementation of planning documents.

The SEIA procedure of the local plan was carried out based on the law "On environmental impact assessment" and MK 23.03.2004. to regulations No. 157 "Procedure in which the strategic assessment of the impact on the environment is carried out".

An SEIA was carried out for the local plan and an Environmental report was developed in order to prevent or minimize as much as possible the solution provided for in the planning document in relation to the functional zoning of the territory determined and depicted in the Graphical Part and the general and separate conditions and requirements for the use and construction of the territory included in the Terms of Use and Construction of the Territory (hereinafter - TUCR) possible negative impact on the environment, incl. residents, nature, cultural and historical objects, etc. environmental aspects.

The SEIA Environmental overview of the local plan has been prepared in accordance with the following principles: integration, precaution, intergenerational justice, evaluation of alternatives and transparency.

The methods used in the SEAS process are:

1) *Information analysis*– the data and information of the environmental impact assessment report "Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera county" prepared by Local Plan and SIA "Estonian, Latvian & Lithuanian Environment" (hereinafter - EIA Report), provided by public databases and institutions were analysed data, information and cartographic materials;

2) *Comparative analysis* –an assessment of natural resources, natural values and the state of the environment was carried out in comparison with international and national environmental goals and environmental quality standards.

3) *Discussions and consultations*- consultations with the State Office for Environmental Supervision, the Nature Protection Administration, the State Environmental Service and the Health

Inspectorate on the information to be included in the environmental report, discussions during the public consultation process, both at the environmental overview public consultation meeting, and when receiving proposals and comments on the draft Environmental Report and consulting with the proposers.

The environmental report includes information that the developer can provide, considering the current level of knowledge and assessment methods, the content of the planning document, its place in the hierarchy of planning documents and the level of development and detail to which it is useful to assess the environmental impact at the relevant planning stage to prevent duplication of assessment.

The environmental report has been prepared for the 1st edition of the Local Plan and is submitted for public consultation together with the SEIA Environmental overview and the EIA report.

The following main stages can be distinguished in the SEAS process and the preparation of the Environmental Report:

1) **Determination of SEAS scope**: consultations with environmental institutions, review of Local Plan materials to identify the essential aspects of environmental impact, as well as to develop criteria for impact assessment.

   Taking into account that the Local Plan creates an opportunity to plan the development of a wind park in the territory, the impact of which on the environment is assessed simultaneously with the planning process, in the initial assessment it is checked whether, in addition to the planning of the wind park, other planning issues that could have an impact on the environment are also addressed, in accordance with the Local Plan development task and its materials. In the process of identifying the scope of SEIA, the environmental impact aspects of the Local Plan resulting from the EIA are summarized, considering the impact aspects determined in sub-section 8.7 of Cabinet of Ministers Regulation No. 157 of March 23, 2004 "Procedure in which the strategic assessment of environmental impact is carried out".

   The EIA assessed the following main aspects of the environmental impact of wind farm development: 1) noise, 2) flickering, 3) biological diversity (habitats, plants, bats, ornithofauna), 4) landscape and visual impact, 5) air quality, 6) climate, 7) underground waters, 8) surface waters, 9) cultural and historical values, 10) environmental risks, as well as exposure to vibrations and electromagnetic fields. As criteria in the EIA, the compliance assessment of the environmental aspects of the impact of the wind power park is used:

- *to the requirements of state regulations* (limit values, e.g. environmental noise) or requirements that limit the use of certain types of objects, e.g. protection and preservation of cultural heritage and specially protected natural objects, etc.), if such are stipulated in the national regulatory acts;
- *standards and/or guidelines, experience of other European countries*, determining or using specific limit values, permissible levels, etc. in impact assessments. (e.g. low frequency noise, flickering effect) that are not specified in national regulations.

  At the stage of determining the scope of the EIA, it was concluded that only the planned (permitted) use of the territory that is necessary for the development of the wind park is planned in the Local Plan, its significant impact on the environment is evaluated in the EIA process, and therefore, in addition to the EIA included in the EIA, no new environmental aspects and criteria have been identified in the EIA required. The most detailed requirements of the Local Plan TUCR are determined regarding the protection of the natural and cultural-historical fabric, limiting the effects of the flickering effect and mitigating environmental risks.

2) **Assessment of the existing situation and zero scenario**: the description of the existing situation and problems is presented according to the identified aspects of significant impact on the environment, i.e. describing the natural conditions of the Local Plan territory, natural values and environmental quality, the factors affecting them. Possible changes if the Local Plan is not implemented, i.e. the so-called zero scenario assessment is provided, taking into account the

current situation, assuming that the Local Plan solutions (wind park development) are not implemented.

3) **Evaluation of intended performance.** In the opinion of the developers of the environmental report, within the framework of the SEIA, when an assessment of the expected environmental impact of the operation has already been carried out and no other expected impacts have been identified in the Local Plan, the environmental impact assessment is based on the results of the EIA. In this context, SEIA evaluates the simultaneous impact of both the EIA process and the planning process, as well as analyses in detail the rules for the use and construction of the Local Plan territory. The impact assessment indicates direct, indirect, short-term, long-term, positive, negative and cumulative impacts.

   The direct impact assessment refers to the impacts that directly and without intermediaries affect the surrounding environment because of the implementation of the Local Plan. Indirect effects result in changes in the state of the environment, acting through the environment or other intermediaries. Positive impacts are those aimed at improving the quality of the environment, reducing the burden, improving the state of natural resources or using them more efficiently. Negative impacts can lead to the deterioration of environmental quality, increase the load on the environment or degrade natural resources.

   Short-term impacts are manifested in a short period of time, for example during construction work or shortly after the start of operations. Long-term impacts persist for a long time after the implementation of Local Plan solutions, including the impact of long-term changes in the state of the environment.

   The environmental report includes a comparison of planning alternatives (Chapter 7.3).

4) **Measures to reduce or prevent negative impacts and monitoring measures**. The necessary measures are identified in the EIA report, in the future EIA process, after receiving the opinion of the State Office of Environmental Supervision on the EIA report, they will be included in the opinion. The environmental report (Chapters 8 and 9) provides a summary of measures, their implementation in the EIA and local plan development process, as well as measures to be implemented during the implementation of the Local Plan.

5) **Public information and consultations**. Description of environmental report 2.2. section will be supplemented after the end of the public consultation)

2.2. PUBLIC INFORMATION

(the chapter will be supplemented after the end of the public consultation)

3. INTERNATIONAL AND NATIONAL ENVIRONMENTAL PROTECTION GOALS

The Local Plan and the solutions planned therein are subject to the international and national environmental protection goals adopted in the field of environmental quality, climate change and biological diversity, as the EIA process of the planned activities, on which this SEIA assessment is mainly based, concluded that the impact of the Local Plan solution is expected in these environmental aspects.

3.1. INTERNATIONAL ENVIRONMENTAL PROTECTION GOALS

International and national goals in the field of environmental protection, which are included in the concluded international Conventions, European Union policy documents, determined in national policy documents, must be considered both when preparing SEIA and the Environmental Report, and during the implementation period of the Local Plan.

1. **UN Sustainable Development Program 2030**, adopted on 12.08.2015, includes 17 sustainable development goals and 169 sub-goals, the achievement of which would help reduce poverty and ensure sustainable world development. These goals are evaluated in three dimensions: economy, social aspects and environment.

   The UN Sustainable Development Agenda 2030 includes several goals that may be important when developing wind farms and assessing their potential impact:

   - *Renewable energy sources*: The program promotes the use of renewable energy sources as one of the main ways to reduce carbon emissions and mitigate the effects of climate change.
   - *Environmental protection and biodiversity*: The program proposes measures that contribute to the protection of the environment and the preservation of biological diversity. In the development of wind farms, it is important to consider these environmental protection requirements in order to minimize the impact on habitats and biodiversity.
   - *Affordable and clean energy*: The program emphasizes providing affordable and clean energy for all. Wind farms can be an important element in this context, ensuring a sustainable energy supply and reducing dependence on fossil fuels.

2. **European environmental policy** is based on the principles of precaution, preventive action and "polluter pays", as well as the principle that the source of pollution must be eliminated.

3. The renewed sustainable development strategy of the European Union, accepted by the EU Council on 06.10.2006, sets the goal of maintaining the Earth's ability to support life in all its diversity, considering that the planet's natural resources are limited. The strategy adheres to a high level of environmental protection, aiming at improving the quality of the environment, reducing environmental pollution and sustainable consumption and production to reduce the link between economic growth and environmental degradation.

   The sustainable development strategy of the European Union includes various aspects applicable to the development of wind farms:

   - *Environmental protection and sustainable use of resources*: The strategy promotes environmental protection and sustainable use of resources; thus the development of wind farms should follow the principles that promote the efficient and sustainable use of natural resources.
   - *Climate change mitigation and a climate-neutral economy*: The strategy aims for a climate-neutral economy and climate change mitigation. Therefore, the development of wind farms could include measures that promote the use of renewable energy sources and reduce dependence on fossil fuels.
   - *Population welfare and promotion of social justice*: The strategy emphasizes citizen well-being and social justice. The development of wind parks should consider the involvement of citizens, the social impact on local communities and sustainable development that ensures social justice.

4. The EU's general political direction and priorities are determined in the EU Strategic Program for 2019-2024, adopted on 20.06.2019, which includes several important aspects related to the development of wind farms:

   - *Climate neutral economy*: Emphasized goal of creating a climate-neutral economy. Wind farms, as a type of renewable energy source, can significantly help reduce greenhouse gas emissions by promoting sustainable energy production.
   - *Green and sustainable development*: the program emphasizes that the European Union must build a green, sustainable and socially just economy.

- *Innovation and technological development*: The EU's strategic program emphasizes the development of innovation and technology to promote the use of new, more efficient energy production and storage technologies. Wind farms can be part of this innovative approach, offering modern technologies for renewable energy production.

The mentioned points indicate that the EU Strategic Program for 2019-2024 has a clear desire and priority to promote sustainable and green development, in which wind farms can play an important role in providing sustainable energy and reducing environmental impact.

3.1.1. Environmental protection objectives in the field of climate change

1. **The first global agreement to combat climate change (Paris Agreement)** (adopted at the 21st session of the Conference of the Parties (COP 21) of the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015). Purposes of the agreement:
   - keep the global average temperature increase significantly below the 20C limit (and try to limit it to 1.50C);
   - promote investment diversion in line with low-carbon and climate-resilient development;
   - improve adaptation to the negative impacts of climate change and promote climate change resilience;
   - to achieve a balance between anthropogenic greenhouse gas (GHG) emissions and capturing GHG emissions in the 21st century. on the II side.
2. **EU Strategy on Adaptation to Climate Change**, published in 2013, sets three main objectives for Member States:
   - Promote Member States' adaptation to the effects of climate change;
   - Contribute to climate neutrality at the EU level;
   - Consider more prudent decision-making that is consistent with adaptation goals.
3. **EU climate and energy policy framework for 2020-2030**, published in 2014, commits to several goals by 2030:
   - reduce greenhouse gas emissions by at least 40% compared to 1990 levels;
   - improve energy efficiency by 27%;
   - to increase the share of renewable energy resources to 27% of the total energy consumption.
4. **Europe's long-term strategic vision "Clean planet - for everyone!"**, published in 2018, promotes the path to a climate-neutral economy by 2050.
5. **European Green Deal**, adopted in 2019, is a new growth strategy that wants to transform Europe into a fair and prosperous society with a modern, resource-efficient and competitive economy. It includes the goal of reducing net greenhouse gas emissions to zero by 2050.
6. **European Council conclusions on climate change**, adopted in December 2019, confirm the commitment of the European Council to achieve a climate-neutral EU by 2050.
7. **Escalation of European 2030 climate policy ideas. Investments in a climate-neutral future for the benefit of citizens**. Published in 2020, this document proposes concrete measures to reduce greenhouse gas emissions in all sectors of the economy and increase the EU's contribution to the Paris Agreement.

In Latvia, implementing UN and EU goals in the field of climate change, the following have been prepared:

1. The Cabinet of Ministers approved the plan "Latvia's climate change adaptation plan for the period until 2030" (MK order No. 380 of 17.07.2019);

2. Latvian National Energy and Climate Plan for 2021 - 2030 (MK 04.02.2020 Order No. 46);
3. "Latvia's strategy for achieving climate neutrality by 2050" (MK 28.01.2020 meeting minutes No. 4).

3.1.2. Environmental protection quality objectives in the area of air quality

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Clean Air Europe Programme. The program defines the objectives of the air quality policy for 2030 compared to 2005:

- impact on public health (premature death due to particles and ozone) – reduction by 52%;
- the area of ecosystems where the limit values of eutrophication are exceeded - 35%.

3.1.3. Environmental protection goals in the field of biological diversity

1. ***Convention on Biological Diversity*** (Rio de Janeiro Convention, 1992) is an international agreement aimed at the protection and sustainable use of biological diversity. Regarding wind farm development projects, three main points can be highlighted from this convention:
   - *Conservation of biological diversity*: the document emphasizes the need to conserve biodiversity, which includes both wild flora and fauna, their habitats and their regenerative capacities.
   - *Sustainable use and management of resources*: The Convention calls for the sustainable use of resources, which also includes the use of land and water for the location of wind farms. It is important that such projects include extensive consultation with local communities and assess their impact on ecosystems and biodiversity.
   - *Local communities and traditional knowledge*: the document calls for promoting cooperation with local communities. This type of approach helps create a sustainable project solution that respects local culture and traditions, as well as benefits the local economy.
2. **EU Biodiversity Strategy for the period up to 2030**(20.05.2020). The strategy is a long-term plan aimed at protecting nature and limiting the destruction of ecosystems. It is the most important document of the European Green Deal.
   - *Goals for biodiversity conservation*: the document considers biodiversity as an important resource and commits to promoting its sustainable use. Specific goals are set to protect and restore ecosystems, ensuring their long-term preservation.
   - *Precautionary principle and ecosystem restoration*: The strategy includes the precautionary principle, which aims to prevent and reduce the loss of biological diversity. The need for ecosystem restoration to compensate for the destruction and degradation of natural habitats is also emphasized.
   - *Cooperation with local communities and other stakeholders*: The strategy encourages active collaboration with local communities, public and private sectors to achieve common goals in biodiversity conservation. It is this approach that ensures that the strategy is broadly integrated and considers the views and needs of different interest groups.

3.1.4. Objectives in the field of landscape protection

European Landscape Convention (Florence, 2000) mainly focused on landscape protection, management and planning in Europe. Regarding wind farm development projects, three main points can be highlighted from this document:

1. *Landscape protection and management*: The Convention promotes cooperation and coordination between Member States to protect and manage European landscapes. It believes that landscapes are an important cultural and ecological resource that must be preserved and developed according to sustainable planning.
2. *Landscape planning and development*: The Convention encourages Member States to establish sustainable landscape planning policies that consider the various landscape values, including natural and man-made landscapes. Thus, wind farm development projects should follow the principles of this policy to minimize the negative impact on scenic values.
3. *Ecological and social impact assessment*: The Convention recommends assessing the impact of the wind farm development project on scenic values, ecological condition and public welfare. This includes consultation with local communities, experts and stakeholders to arrive at the best solutions that take all aspects into account.

The objectives of the EU's environmental policy are determined in its regulatory acts (directives and regulations), they are adopted in the Latvian regulatory acts and must also be considered when implementing Local Planning.

In the context of the impact of Local Planning solutions, when operating wind power plants, the following directives and national regulations should be emphasized:

- Directive 008/50/EC of the European Parliament and of the Council of 21 May 2008 on air quality and cleaner air for Europe. The requirements of the Directive are included in the Law "On Pollution" (2001). in regulations No. 804 "Regulations on soil and soil quality standards".
- The field of environmental noise, which is related to the impact of the operation of wind power plants, is regulated by the Cabinet of Ministers 07.01.2014. regulations No. 16 "Noise assessment and management procedure".
- European Council Directive 92/43/EEC on the protection of natural habitats, wild flora and fauna was adopted in 1992 (Biotopes Directive), and European Council Directive 79/409/EEC on the protection of wild birds was adopted in 1979. The aim of these directives is to promote biodiversity by protecting natural habitats, wild flora and fauna in the territories of the Member States. The requirements of the Directives are incorporated into Latvian laws, including the Law on Species and Habitats and the Law "On Specially Protected Natural Areas", as well as in the related regulations of the Cabinet of Ministers.

3.2. NATIONAL ENVIRONMENTAL PROTECTION GOALS

Latvia's sustainable development strategy (Latvija2030)

The goal of Latvia2030 is to be a leading country in the preservation, increase and sustainable use of the EU's natural capital. The strategy defines the priority long-term directions of action, including the management of natural capital, the creation of market instruments for ecosystem services, the capitalization of natural resources and the promotion of sustainable lifestyles. In connection with local planning solutions, Latvia2030 aims to ensure the country's energy independence by increasing the supply of its own energy resources and integrating into the EU energy networks. The strategy sets specific goals for reducing GHG emissions, increasing the share of renewable energy resources and improving energy efficiency by 2030. The share of renewable energy resources in the final gross energy consumption for 2030 is set at 50%.

The National Development Plan of Latvia for 2021-2027

The slogan of the National Development Plan of Latvia is "Changing habits – the path to development!". NAP2027 defines four strategic objectives: 1) productivity and income, 2) equal opportunities, 3) social trust and 4) regional development. In connection with environmental policy and local planning solutions, the NAP2027 priority "Quality living environment and territorial development" and its direction of action "Nature and environment – 'Green course'" is particularly important. This course of action has three objectives:

- low-carbon, resource-efficient and climate-sustainable development in order to achieve national climate, energy, air pollution reduction, water quality improvement and waste management goals, ensure environmental quality improvement and promote sustainable use of natural resources.
- preservation of biological diversity, balancing ecological, economic and social interests, based on scientific research.
- environmental, sustainable natural resource management and energy policy based on justice, public support and cooperation between the state and citizens in decision-making.

NAP2027 also sets out tasks for reducing GHG emissions by using technologies to mitigate climate change and promoting the growth of carbon dioxide sequestration towards climate-resilient economic development. The plan stipulates that the intensity of GHG emissions should be reduced to 292 t CO2 eq. per million EUR until 2030.

National Energy and Climate Plan 2021-2030 for the year

The plan defines the basic principles, goals and directions of action of Latvia's long-term energy and climate policy for the next ten years. Its purpose is to promote the development of a climate-neutral economy by improving energy security and public welfare, based on market principles. The plan envisages reducing GHG emissions and increasing the production of renewable energy resources (RES). By 2030, the proportion of electricity produced from RES should reach at least 67%, mainly by promoting the increase in the production volumes of wind power plants, but also solar PV plants.

Environmental Policy Guidelines 2021-2027 for the year

The goals of the environmental policy guidelines are aligned with the Sustainable Development Strategy of Latvia until 2030 and the National Development Plan of Latvia 2021-2027. for the year. The implementation of these guidelines is ensured by several policy action documents in individual areas, which set detailed environmental objectives. In relation to the impact of local planning solutions, the following main objectives have been defined:

Field	*Sub-goal*
Climate change	- ensure Latvia's progress towards achieving climate neutrality.
	- promote climate resilience and adaptation to climate change
Air quality and environmental noise	- protecting and improving the quality of air resources to promote public health and well-being, as well as the quality of ecosystems;
	- assess the impact of environmental noise on the population by improving environmental noise mapping and developing action plans
Biological diversity	- preservation of biological diversity, including specially protected species and habitats, and valuable landscapes
	- preservation and management of natural capital – ecosystem services, degraded ecosystems, natural

Field	*Sub-goal*
	capital for production
Inland waters and the Baltic Sea	- reducing flood risk and erosion - safe use of water resources, wasteful consumption - reduction and increase in the beneficial use of sludge. - improvement of surface water and marine environment - reduction of pollution in surface water and marine environment

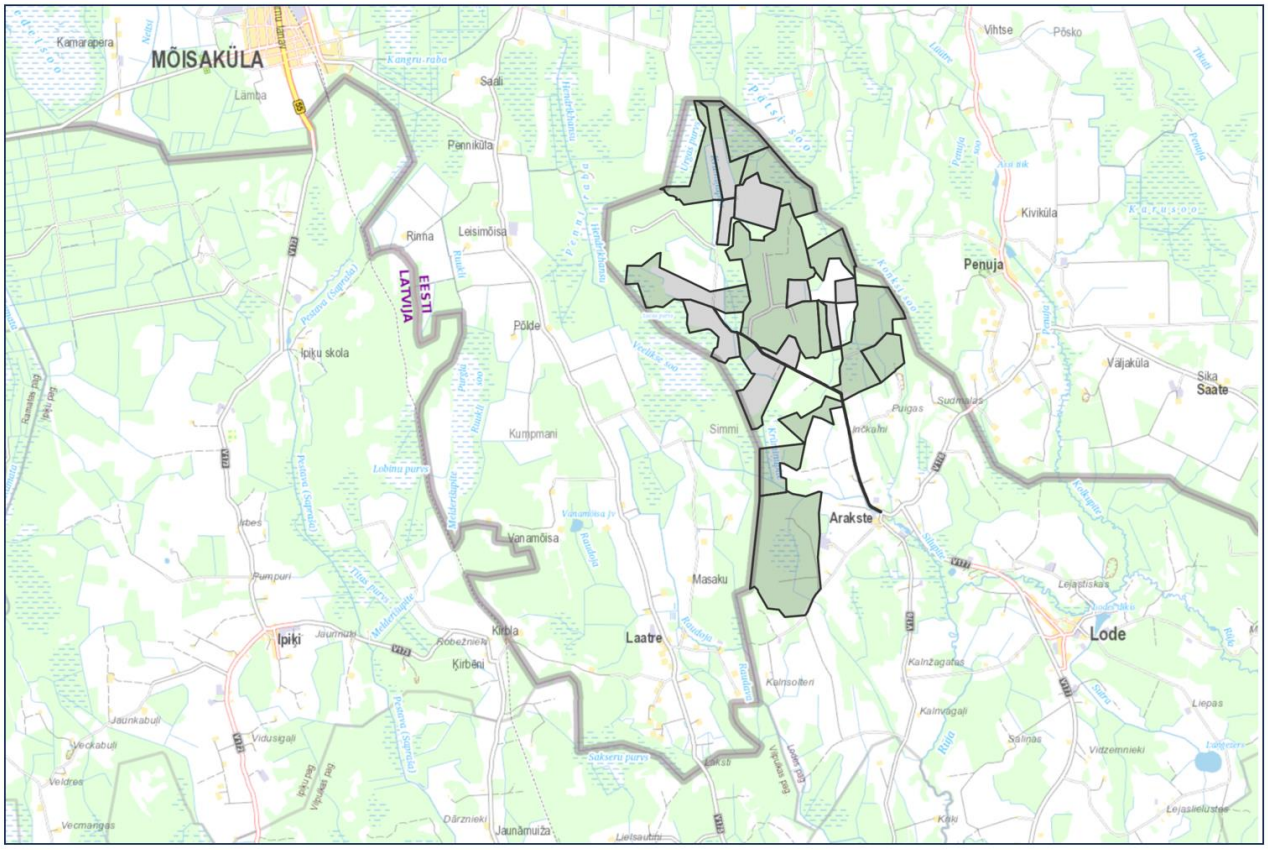
4. GENERAL DESCRIPTION OF THE LOCAL PLANNING TERRITORY

The local planning area is in the northern part of Lode Parish, Valmiera County, near the border of the Republic of Estonia, ~0.7 km northwest of the village of Arakste, ~3 km from Lode, ~7 km from Ipiki and Vilpulka. The nearest town is Rūjiena, which is ~11 km to the south.

The nearest settlements in the Republic of Estonia in the west direction are Laatre ~1.5 km, in the east direction - Penuja ~1.7 km and Saate ~4 km away. To the north – Veelikse, Abjaku and Abja-Vanamõisa ~4 km away.

The nearest town is Meizakila (Estonian - Mõisaküla) ~5 km to the northwest and Abja-Paluoja ~5 km to the northeast.

Figure 6. Location of the local planning area
[source: "Jāņa Sēta" SIA map, State Land Service cadastre data]



The territory of the local plan includes 22 land units (Table 1) with a total area of 997.2 ha.

Table 1. Land units included in the territory of the local plan

No. pk	*Property name*	*Cadastre no.*	*Land unit cadastral designation*	*Area of land unit (ha)*
1.	Kalnurgas	96680010035	96680010035	47.8
2.	Ķeizari	96680010010	96680010010	38.6
3.	Bērzu purvs	96680010069	96680010069	31.66
4.	Bērziņi	96680010120	96680010119	51.99
5.	Bērzi	96680010036	96680010118	42.88
6.	Vēveri	96680020011	96680010078	12.7
7.	Lapegļu mežs	96680010071	96680010071	186.38
8.	Rauķupes 2	96680010098	96680010098	10.8
9.	Mežāres	96680040021	96680010002	28.9
10.	Dūči	96680010085	96680010085	10.08
11.	Asētas	96680010003	96680010097	11.0
			96680010003	10.5
12.	Zīļi	96680010002	96680010043	14.0
13.	Pupuķi	96680020077	96680010042	52.9
14.	Lucas	96680030035	96680010041	36,
15.	Vanagi - 2	96680010037	96680010001	70.5
16.	Puigas - 1	96680010034	96680010034	27.5
17.	Robežnieki	96680010007	96680010006	19.1
18.	Palejas mežs	96680010074	96680010074	86.06
19.	Mežvidi	96680010004	96680010004	35.2
20.	Akmeņ-gravas mežs	96680010075	96680010075	166.25
21.	Arakste - Bērzi	96680010080	96680010080	6.2

The terrain of the area is relatively flat. Height marks in the southern part – 73-75 m asl, in the central part – 75-77 m, in the northern part – 73 m asl

The territory of the local plan consists mainly of forest lands used for forestry (~70% of the territory), four districts of agricultural lands (~25% of the total territory), small areas of swamps on the outskirts of the territory, roads for the management of forests and agricultural lands, and separate water bodies.

According to the data of the State Land Service, by types of land use, the largest part of the territory is occupied by:

1) forests - 615.87 ha, or 69.41%;
2) agricultural land - 298.33 ha, or 24.36%;
3) other lands make up 6.23% of the territory of the local plan - land of water objects 54.56 ha (4.27%), under roads -14.02 ha (1.13%), swamps - 13.35 ha (0.68%), under buildings - 0.4 ha (0.04%), scrub – 0.3 ha (0.01%), other lands occupy 1.09 ha (0.1%) of the territory.

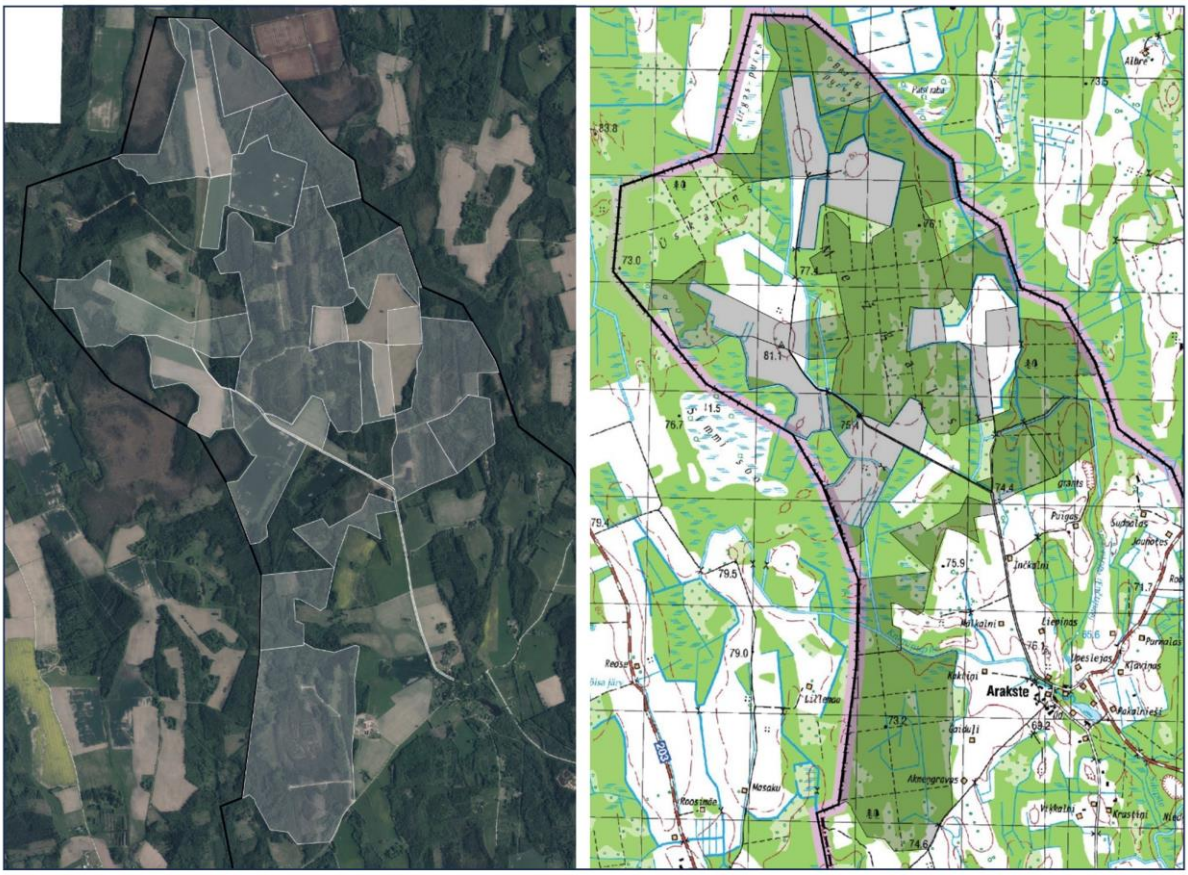
The area is mostly forest land with several areas of agricultural land. Forest lands are dominated by economic forests. The main types of growing conditions are heather (38.5% of the area), narrow-leaved peat (13.8%), wet heather (7.3%), damascus (6.5%) and reed (5.6%).

The dominant tree species are outdoor birch (39.1% of the area), common spruce (23.4%), pine (14% of the area), white alder (12%) and common aspen (4.52%).

Agricultural lands are strongly dominated by sown crops.

There are several small high marshes in the local plan and in its immediate vicinity. In the northern part - Urga marsh (~29 ha, located outside the area of local planning), Birzu marsh (~23 ha) on the Estonian side (called Pätsi) is being developed, but on the Latvian side it has been negatively affected because of drying and is overgrown. Lucas swamp (~13.5 ha, included in a small area in the local planning area) on the Latvian side is also negatively affected and overgrown.

Figure 7. Existing use of the local planning area
[base: LGIA topographic map and orthophoto map, https://kartes.lgia.gov.lv/karte, cadastral data of the State Land Service



Reclaimed agricultural land consists of four districts:

1) in the northern part - properties "Kalnurgas", "Ķeizari", "Vēveri" and "Bērzi";
2) on the western side of the central part – "Vanagi-2" and "Lucas";
3) on the eastern side of the central part – "Rauķupes 2", "Dūči" and "Asētas";
4) in the southern part - "Pupuķi" and "Zīli".

In terms of area, the largest forest areas are in the properties "Akmengravas mežs" (149.72 ha), "Lapegļu mežs" (169.47 ha), "Bērziņi" (48.44 ha) and "Vanagi-2" (40.5 ha).

The bog areas are located on the outskirts of the territory - in the northern part - Bērzu bog and Urga bog (outside the local planning area) and Lucas bog in the western part (partially included in the local planning area).

The territory is part of the Salaca catchment area. The largest watercourses that cross the territory are Krūmiņupīte (total length 8 km) and Veserupīte (total length 3.1 km).

There are no buildings in the area of the local plan, the nearest homesteads are located to the south - towards the village of Arakste: Puigas, Inckalni, Sudmalas, Jaunotes, Mālkalni, Liepiņas, Kaktiņi, Gaiduļi, Akmeņgravas, Kalnsolteri, etc.

Figure 8. Agricultural land on the west side of the central part of the local planning area, properties "Vanagi-2" and "Lucas"
[photo - METRUM SIA, 2023]

Figure 9. Forest land in the northern part of the local planning area, properties "Ķeizari", "Bērzu purvs"
[photo - METRUM SIA, 2023]

Arakste is connected to the state highway P17 Valmiera—Rūjiena—Estonian border (Unguriņi) of national regional significance, the state local highway V177 Ķoņi - Lode – Arakste and V176 Sīli - Estonian border and V175 Rūjiena - Estonian border.

The intensity of traffic on the national highways can be assessed as relatively low - on average 308 cars per day on highway V177, on average 106 cars per day on highway V175[7].

Access to the territory of the local plan from the village of Arakste is provided from the municipal road *Arakste - Bērzi*, which crosses the territory in the south-north direction.

The roads of JSC "Latvijas valsts meži" branch off from the municipal road: Palejas road (1.36 km long), Lapegļu stiga (1.49 km) with a branch (0.525 km) and continuation (1.334 km) and Ūskalnas road (1.74 km long).

Drainage systems, ditches and drains have been built on lands used for agriculture. Water drains have been installed in a large part of the forest lands. The territory is crossed by the national watercourses Krūmiņupīte (reclamation cadastre number 5452982:01) and Veserupīte (reclamation cadastre number 5452984:01).

Common water drains are installed in the eastern and western parts of the territory. A dense network of drains has been installed in the agricultural lands found in the territory, which are mostly located in the elevations of the terrain, while drainage ditches have been installed in the depressions of the terrain, where there are mostly forest areas. A denser network of ditches was installed in forest lands in the southern part of the territory.

There are no other engineering networks in the local plan. Electricity supply engineering networks have been built to the nearest homesteads (Palejas, Inckalni, Pulgas) to the south of the territory. The optical communication cable has been built up to the village of Arakste (it is not included in the territory of the local plan).

5. ENVIRONMENTAL ASPECTS RELATED TO THE PLANNING DOCUMENT

The development of a wind farm is planned in the local plan, for which an environmental impact assessment is conducted simultaneously with the planning process. The local plan envisages only such use of the territory as is necessary to ensure the development of the wind park. The significant impact on the environment is evaluated in the EIA process, and in this context the environmental aspects to be determined in the EIA are distinguished based on the aspects evaluated within the EIA.

- the noise,
- the effect of the flickering effect,
- specially protected natural areas,
- biological diversity (specially protected species and habitats, bats, ornithofauna),
- landscape and visual impact.
- air quality,
- climate,
- underground waters,
- surface water,
- cultural and historical values,
- vibration,
- electromagnetic field exposure.

The most detailed requirements of the local plan TUCR regarding the use of the territory are determined for the following aspects: protection of natural and cultural-historical heritage, mitigation of the flickering effect and reduction of environmental risks.

[7]VSIA "Latvijas Valsts ceļi" traffic intensity data for 2022,https://lvceli.lv/celu-tikls/statistikas-dati/satiksmes-intensitate/

6. TERRITORIES THAT MAY BE AFFECTED BY THE IMPLEMENTATION OF PLANNING DOCUMENTS AND THEIR ENVIRONMENTAL CONDITION

The local planning solutions for the development of the wind power park will directly affect the territory of the Local Plan, from the aspect of the impact on the landscape - also the wider surroundings. This chapter describes the natural conditions of the territory, natural territories, values and the state of the environment both in the territory of the local plan and in its surroundings.

The chapter was prepared using data from the environmental impact assessment report prepared by SIA "Estonian, Latvian & Lithuanian Environment" in 2024, "Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera county".

6.1. NATURAL CONDITIONS AND NATURAL VALUES

6.1.1. Geological, engineering geological and hydrogeological conditions.

The territory is in the northern part of the Burtnieka plain of the North Vidzeme lowlands, west of the Òrgeme hills of the Sakala highlands. The plain is characterized by a thin Quaternary cover. According to its structure, it belongs to the undulating plains with the relief form of drumlin formation. Drumlins are elongated hills and ramparts oriented in the direction of glacial flow. Divergent drumlins are formed by folded glaciogenic or glacioaquatic sediments (older moraine – sandy gravel or clayey sediments). Convergent drumlins are formed by glaciofluvial sediments folded in diapir folds or pre-Quaternary sedimentary rocks – siltstone, sandstone, clay.

Below the Quaternary sediments lie the sedimentary rocks of the Middle Devonian Burtnieku suite D2br, which consist of red-brown or yellow-brown mica sandstones, variegated and red-brown, in places greenish-gray siltstones, silty clays and clays, and in the very northern part of the area also the sedimentary rocks of the Middle Devonian Arukila suite D2ar, which consists of fine-grained, light red-brown sandstones, red-brown, in places greenish-grey, variegated, silty clays, clays, and siltstones. The thickness of the Quaternary sediment cover in the surrounding area is mostly within 10-20 m, near the village of Arakste - up to 10 m.

According to the mapping data of the "Depth-to-water" project, the groundwater level in most of the territory is up to 5 m deep, in some potential WT construction sites, the groundwater level is up to one meter deep[8].

CONCLUSIONS

- After collecting the available geological materials within the framework of the EIA, it was concluded that the territory of the local plan is suitable for construction, and no engineering geological conditions have been found in the territory that would prevent the construction of a wind park there. According to the Quaternary sediment map, the upper part of the geotechnical section consists of naturally stable soils that can serve as the natural foundation of buildings - clay sand and loam of the glaciogenic moraine. In places, there are also soils unsuitable for construction - peat sediments. It is expected that in such places it will be necessary to replace the peat with a suitable soil, build foundations on piles or change the planned location of the WT to one where the geological conditions are more suitable and soils with adequate bearing capacity are found.
- The construction or operation of the WPP is not expected to have an impact on the geological and engineering conditions of the area[9].

[8]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera region", Environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.
[9]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera region", Environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.

According to the data of the Earth's depths information system of the Latvian Centre for Environment, Geology and Meteorology, there are no underground resource mining deposits or predicted areas of underground resources in the local planning area.

According to the data of the Earth Depth Information System of the Latvian Environment, Geology and Meteorology Centre (hereinafter - LVĘMC) and the Earth Depth Information System of the Estonian Land Service, there are several peat deposits and deposits near the local planning area.

1. In the SE direction from the territory, there is a sand, sand-gravel deposit "Arakste" (deposit registration number B1864), which does not have a valid deposit passport, issue limits and permits for extracting minerals. The geological survey of the deposit was carried out in 1982. Sand and sand-gravel resources of different coarseness are available. Mining of minerals has historically taken place here, as well as available information on the issuance of a mining license on 05.06.2009, which was cancelled on 01.11.2013. Currently, mineral extraction is not taking place in the deposit. The assessed stocks (category N) for 2015 amount to 7.8 thousand. m3 sand-gravel and 51.1 thousand. m3 of sand.
2. To the northwest, at a distance of 0.6 km from the territory of the local plan, there is an area of predicted sand resources "Úskalns" (deposit registration number B17132)[10]. In 2019, mineral exploration works were carried out. Two potential areas of sand deposits have been marked with predicted reserves (category P) of 147.4 m3 and 7.8 m3. As a result of the research, the stock is characterized as a mineral with low quality characteristics, and it is concluded that this is not a prospective mineral deposit.
3. The peat mining deposit "Pätsi" (VILM-037) on the territory of Estonia is in the Pätsi bog, ~420 m in the NE direction from the local planning area. Poorly to well decomposed peat is available in the deposit. The mining license was issued on 06.09.2007, active peat mining is underway.

The local planning area is in the eastern part of the Baltic artesian basin and is part of the Arukila-Amata (D2-3ar – am) underground water horizons complex. According to the data of the Unified Environmental Information System of LVĜMC, there are no registered water supply wells in the territory of the local plan. The nearest wells are located south of the local planning area:

- No. 18496 Sudmalas (former farm "Vecātes"), year of drilling - 1967, water horizon - D2ar, depth - 70 m, status - unknown;
- No. 21881 Gaiduli, drilling year - 2007, water horizon - D2ar, depth - 88 m, status - unknown.

CONCLUSIONS

- Considering the location of the proposed wind farm in relation to the nearby mineral deposits, it is not predicted that the construction and operation of the WPP will have a negative impact on the mineral deposits or the predicted resource areas[11].
- It is not expected that the construction of WT will have a negative impact on the water intake site (well), groundwater wells and groundwater quality and water levels[12].

According to the Register of Contaminated and Potentially Contaminated Sites maintained by VSIA "Latvijas Vides, Geologia und Meteorologia Centrs", no contaminated or potentially contaminated sites are included in the territory of the local plan. Nearest potentially contaminated places:

[10]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera region", Environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.
[11]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera region", Environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.
[12]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera region", Environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.

- former municipal waste dump (registration number 96688/2143);
- former mineral fertilizer warehouse "Arakste" (registration number 96688/2146)
- "Ezermalas" (registration number 96688/2145).

There is no object in the local plan or in its vicinity, which, according to the provisions of the Cabinet of Ministers dated 21.01.2021 No. 46 "List of objects of increased danger" is classified as an object of increased danger. The nearest such objects are located approximately 50 km away in the territory of the city of Valmiera.

The area is in the Salaca catchment area. The largest watercourses that cross the territory are the national watercourses Krūmiņupīte (reclamation cadastre number 5452982:01) and Veserupīte (reclamation cadastre number 5452984:01), most of which are regulated. A 10 m wide protective zone is defined for both watercourses in the valid municipal territory planning.

6.1.2. Specially protected natural areas

According to the information available in the Natural Data System "Ozols" (hereinafter - "Ozols") of the Nature Protection Board, the entire area of the local plan is located in the neutral zone of the specially protected natural area Zielmevidzeme Biosphere Reserve and belongs to the territory where the construction of wind power plants is allowed without height restrictions, but specified the restriction that wind power plants can be placed in groups where the number of wind power plants does not exceed 20, reducing the distance between adjacent wind power plants as much as possible[13].

The **Northern Vidzeme Biosphere Reserve** covers a wide area in Northern Vidzeme, including Limbažu, Valmiera and Valka counties. The total area of the biosphere reserve is 475,514 ha, it was founded in 1997. Its purpose in the national and international sense is to achieve a balance in the protection of natural diversity, promotion of economic development and preservation of cultural values. The biosphere reserve represents internationally recognized terrestrial and Baltic Sea coastal ecosystems typical of the temperate forest zone. To ensure the preservation of the landscape, ecosystems, species and genetic diversity of the territory and to promote sustainable economic development, the territory of the biosphere reserve is divided into functional zones (landscape protection and neutral zone). Neutral zone - the outer zone of the biosphere reserve, where sustainable nature is ensured as a prerequisite for local development. It was established to promote the balanced and sustainable development of settlements located in the territory of the biosphere reserve. The neutral zone includes all towns and villages located in the territory of the biosphere reserve.

According to the information published in "Ozols", there are no other specially protected natural areas, micro-reserves and their buffer zones, as well as specially protected trees, in the territory of the local plan.

6.1.3. Specially protected habitats and species

In addition to the information contained in "Ozols", as part of the environmental impact assessment process, surveys of the local planning territory were carried out to identify specially protected habitats and to prepare opinions of habitat experts on the habitat groups of forests and heaths, bogs, grasslands and vascular plants in the planned operation.

From the protected bog habitats of EU significance, 7110 Active high bogs, 7120 Degraded high bogs, where natural regeneration is possible or in progress, and 7140 Transitional bogs are found in the territory.

Forest habitats are more common in wetland growth condition types – 9080* Stepping forests and 91D0* Swampy forests. In dry forests, the most common protected habitats of EU importance are 9010* Old or

[13]MK 19.04.2011. regulations no. 303 "Individual protection and use regulations of the Northern Mediterranean Biosphere Reserve", paragraph 6

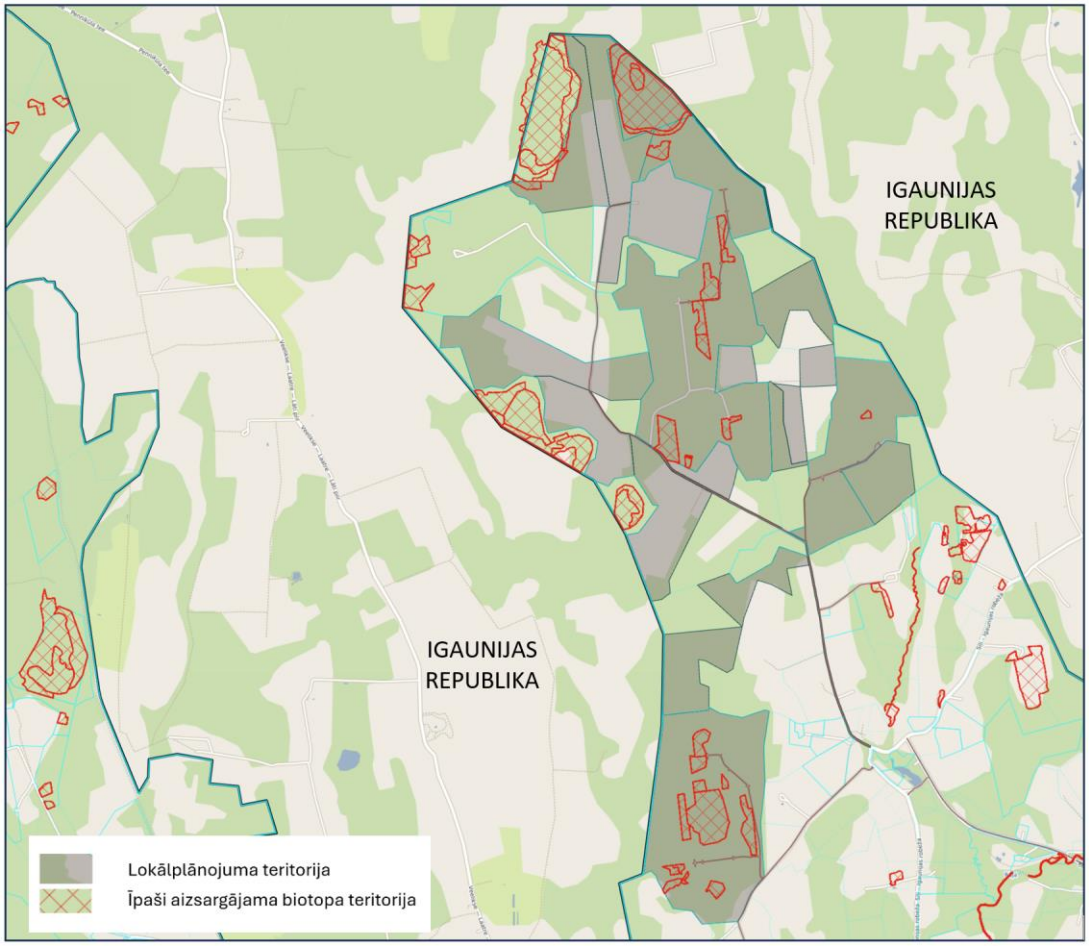
natural boreal forests and 9050 Spruce forests rich in evergreens. During the survey, no protected grassland habitats were found in the planned wind park.

A detailed overview of the types of habitats located in the territory of the local plan and a graphic representation of habitat polygons is provided in Appendix 1 of the Explanatory Article of the Local Plan.

Table 2. Specially protected biotopes in the local plan or in its immediate vicinity

Habitat code and name	*Occurrence*
9010* Old growth or natural boreal forests	Found in the southern (Akmengravu forest) and northern parts of the territory and relatively smaller areas in the central part.
91D0* Swampy forests	In several places on the outskirts of the high marshes - in the southern part (Akmengravu forest), on the western edge outside the local planning area (Lucas marsh) and in the northern part - in Birzu marsh and Urga marsh (adjacent to the local planning area, but not included in it)
7110 Active high marshes	On the western edge outside the local planning area (Lucas marsh), in the northern part – Urgas marsh (not included in the territory).
7120 Degraded high bogs where natural regeneration is possible or underway	In the northeastern clay - Birch swamp.
9080* Strolling forests	In the northwestern part outside the local planning area

Figure 10. Specially protected biotopes in the area of local planning
[base - OpenStreetMap, data - natural data system "Ozols"]



In the natural data management system "Ozols", until the start of the environmental impact assessment process and the territory surveys, few deposits of specially protected or rarely occurring plants, mushrooms, lichens and mosses were recorded (several deposits of nightshades, copra and annual creeper were noted).

The rare and protected species found in the construction areas and access roads of the planned wind turbine (WT) storage facilities, as well as in the area of potential impact (up to 50 m from the mentioned objects) are indicated in Table 3 and graphically represented in the expert's opinion in Appendix 1 of the Explanatory Article of the Local Plan[14].

As part of the environmental impact assessment, experts have assessed the potential impact of the construction of the wind farm on specially protected natural areas, trees, plants and habitats. The experts' opinion states that no negative impact is expected on the territory of the Northern Vidzeme Biosphere Reserve.

During the EIA procedure, actions have already been taken to reduce the impact of the wind power plant park on specially protected species and habitats, because the locations of the wind power plant, and access roads were chosen based on the natural values found in the surveys and accordingly adjusting the location of the wind power plant and access roads to avoid impact on the natural values.

The protected biotopes of EU importance in the planned WT storage areas and access roads, as well as in potential impact (up to 50 m from the mentioned objects) are indicated in Table 4.

Table 3. Protected biotopes of EU significance in the planned WTs storage areas and access roads, as well as in potential impact (up to 50 m from the mentioned objects)[15]

Habitat code and name	*Location*
7120 Degraded high bogs where natural regeneration is possible or underway	The biotope landfill is in the northern part of the territory, near the planned WT No. 1 and No. 2 storage facilities and access road, and near the construction site of WT No. 9.
9010*_3, Old growth or natural boreal forests	WT No. 3 near the construction site.
91D0* Swampy forests	WT No. 19, where the planned location affects part of the habitat. Near the location of WT No. 1 and access road. The biotope landfill is crossed by a cable track in Lode parish.

The experts' opinion indicates that the effects on the protected biotopes of EU importance, which will be caused by the changes in the hydrological regime caused by the intended activity, are insignificant adverse effects on a regional and national scale, but locally within the forest massif a significant adverse effect[16]:

- As a result of the construction of WPP No. 1, the protected biotopes would be negatively affected: 7120 Degraded high bogs in which natural regeneration is possible or occurring in an area of 0.33 ha and 91D0* Swampy forests in an area of 1.37 ha;
- In case of the construction of WPP No. 3, habitat 9010* Old or natural forests in an area of 0.44 ha would be negatively affected. The experts' opinion states that at the same time it should be

[14]the species found in the other surveyed territories and in the construction sites of WTs and infrastructure, which were rejected or their location changed during the initial survey and evaluation, are reflected in Appendix 5 of the expert's opinion included in Appendix 1 of the Explanatory Article.

[15]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera" environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.

[16]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera" environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.

considered that the habitat is already exposed to the risk of forestry activity and may be cut down regardless of the implementation of the intended activity;

- In the case of the construction of WT No. 19, habitat 91D0* Swamp forests in an area of 1 ha would be negatively affected.
- A potential threat to biotopes 7110* (Urga marsh) and 7120 (Berzu marsh) is related to the construction of WT No. 1 and WT No. 3 and the installation of the construction areas and the associated draining of adjacent areas.
- It is expected that the construction of the cable route in Lode parish between WT No. 6 and the Estonian border, by carrying out excavation work and cutting down trees, will have a temporary negative impact on the habitat 9080*_1. In the long term, the creation of a trail up to 10 m wide will have a small negative impact on the landfill 24AP116_3 of the habitat 9080*.

The experts' opinion indicates that, in general, the intended activity will directly negatively affect insignificant areas of protected biotopes of EU significance, as well as the potential impact from changes in the hydrological regime or the edge effect will be only in individual cases and not greater than the already occurring forestry activity in the area and the renovation of drainage systems. In general, it was concluded that the planned activity will not have a negative impact on the state of protection of protected biotopes of EU significance on a regional or national scale.

Table 4 shows the rare and protected species found in the planned WT storage areas and access roads, as well as in potential impact (up to 50 m from the mentioned objects).

Table 4. Rare and protected species found in the planned WT storage areas and access roads, as well as in potential impact (up to 50 m from the mentioned objects)[17]

Title	*Occurrence in the area of local planning*
Dactylorhiza fuchsia	WT No. 15 in the area of location and in its vicinity.
Prune Huperzia selago	WT No. 1 near access road
Annual creeper Lycopodium annotinum	WT No. 1 in the vicinity of the access road, in the location of WT No. 15, in the vicinity of the location of WT No. 16
The glabrous roundleaf Odontoschisma denudatum	WT No. 15 in the area of location
Orobanche pallidiflora (reticulata)	Near the location of WT No. 1 and access road WT No. 3 near access road
Fragrant nightshade Platanthera bifolia, nightshade Platanthera sp.	WT No. 1, WT No. 3 in the vicinity of the location, WT No. 15 in the location, WT No. 16 on the route of the access road

The experts' opinion indicates that, when implementing the intended activity in accordance with the planned design, the construction of WT No. 1 creates an unavoidable and significant adverse effect on the habitat of the pale-flowered brown-stem Orobanche pallidiflora (O.reticulata) in an area of 0.5 ha, destroying it completely.

Deposits of specially protected species have been found in the zone of direct influence of the planned activity, which will be destroyed because of the planned activity - annual creeper, nightshade, Fuchs's cuckoo. The habitats of these species are quite characteristic of the area; therefore, it is likely that the species are found not only in the surveyed area, but also in a wider area. It can be concluded that the

[17]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera" environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.

proposed activity will not affect the potential habitats of protected vascular plant species, which would be found only in a small area and thus threatened on a local scale.

Detailed information on the possible impacts identified by the experts and their mitigating measures are summarized in the experts' opinion, which is attached to Appendix 1 of the Explanatory Article.

CONCLUSIONS

In accordance with the mandatory measures to reduce the impact on the environment included in the environmental impact assessment report, the Territory Use and Construction Regulations include the following requirements:

- To reduce the impact on the protected forest habitat 9010*:
  - the construction of the planned wind power plant No. 3 is envisaged without draining the construction site;
  - in the construction project of the planned wind power station No. 8, road widening is not allowed, touching the habitat 9010* landfill.
- To reduce the impact on the protected forest habitat 91D0*, the location of the planned wind power station No. 19, the construction area and access roads are created with embankments, without the construction of new ditches and drainage of the territory, and dams are created at the ends of the ditches near the habitat 91D0*.
- To reduce impacts on the Orobanche pallidiflora site:
  - the construction of the planned wind power station No. 1 is planned without affecting the found deposit at least 100 m south of the originally planned site, the embankment of the construction site is made without drainage ditches. and soil obtained on site is used to strengthen the edges of the construction site;
  - during the construction of the planned wind power station No. 3, the movement of equipment and other types of activity to the south of the drainage ditch, which is located along the planned access road in the 4th area of block 708, are not allowed.
- To minimize impact on potentially protected trees:
  - during the construction of the planned wind power plant No. 4, damage to potentially protected tree crowns or root systems is not permitted;
  - for the access solution of the planned wind power plant No. 16 and for the expansion of the existing road at the intersection with the newly constructed access road, a solution is chosen that preserves the roadside oak trees.
- It is not permissible to move equipment, place materials and other construction-related activities in the protected species deposits, which are indicated in the cartographic material of the report of the environmental impact assessment "Construction of the wind power park "Lode" in the Lode and Ipiķu parishes of Valmiera county".

6.1.4. Ornithofauna

Ornithologist Andras Dekantas was used in the preparation of the chapter[18] the opinion prepared as part of the environmental impact assessment process on the impact of the planned wind farm "Lode" on the bird fauna. The opinion is attached in full in Appendix 3 of the Explanatory Article of the Local Plan. Assessing the impact of the expected activity on the ornithofauna, the ornithologist performed the analysis of the collected data and the study of the territory to determine the current situation in nature.

[18]expert certificate No. 183, valid until 10.07.2026.

31 specially protected and micro-sanctuary bird species have been found in the local plan and its immediate surroundings. All specially protected bird species observation sites are depicted in the expert's opinion in Appendix 3 of the Local Plan Explanation.

The expert's opinion summarizes and evaluates the specially protected, endangered and potentially most affected species found in the territory or its periphery.

The opinion states that, in general, the territory is outside the main narrow migration routes, and there is no reason to believe that the number, flow or composition of migratory birds would be significantly different from equivalent forests in the vicinity. Following the requirements and actions specified in the opinion, it is not expected that the negative impact on migratory birds would be significant.

According to the expert's conclusions, the priority species in the territory of the wind power plant park and its surroundings, which require special attention, are the little eagle, grouse, wood grouse, woodpecker, three-toed woodpecker, white-backed woodpecker.

In addition, it is recommended to pay more attention to the vole, which is currently not a particularly protected species, but the most common species of predatory bird in the planned park area. Primarily, it is these species that must mitigate potential negative impacts by preventing habitat loss through abandonment or destruction.

The construction of a wind farm in an area can affect birds in three main ways:

- causing constant noise pollution,
- posing a direct risk of collision and death to species that hunt from the air or migrate at night when the towers are not visible,
- significantly reducing available habitats.

The ornithologists involved in the environmental impact assessment have not indicated that specific protection measures should be implemented for the protection of birds that pass through or use the studied area during migration seasons.

The priority species in the area of the wind power plant park and its surroundings, which require special attention in the context of the impact, are the little eagle, the grouse, the wood grouse, the woodpecker, the three-toed woodpecker and the white-backed woodpecker, as well as the mouse buzzard, which is currently not a particularly protected species, but the most common species of birds of prey in the territory of the planned wind park.

CONCLUSIONS

- During the implementation of the planned wind power plant park, the main negative impact factor for birds is the loss of habitats of certain species and the deterioration of habitat quality over several decades. Habitat loss can take the form of both habitat destruction and abandonment and avoidance (due to noise, light, flickering, anthropogenic stress, and other reasons).
- The location of the WT and assembly areas will most determine the magnitude of this negative impact. Therefore, the most important action for risk mitigation is the selection of station locations that will cumulatively have the least negative impact on surrounding habitats and bird populations.
- In the context of bird species nesting in the territory or in its periphery, the expert has recommended several measures to reduce the impact, which were evaluated and considered during the environmental impact assessment procedure, when preparing the WTs and the location of the necessary engineering structures. Due to the protection of specially protected bird species, corrections were made to the initial layout plan of the WTs .
- In accordance with the mandatory measures to reduce the impact on the environment included in the environmental impact assessment report, the requirements for the use and construction of the Local Plan Territory are included:
  - Deforestation is carried out outside the bird nesting season (from August 1 to March 1).
  - To reduce the risk of bird strikes:

- installs and uses equipment for the automatic detection of bird flights (at least the little eagle, hen hawk, kestrel, sea eagle, golden eagle, osprey, black stork, white stork, mouse buzzard), recognition of flying birds and automatic stopping of the station, covering the entire wind farm area or no less than 1.5 km radius around each wind power plant;
- the first section of the wind power plant mast at a height of 20 m is painted in a dark color in the colours of the surroundings (green or brown) with a gradual transition from dark to light.

- In order to reduce the risk of endangering species of the owl family, the planned wind power plants No. 11 and No. 18 are equipped with a technological solution that ensures the suspension of the operation of the wind power plants or non-starting of the operation if the wind speed is less than 5 m/s.

6.1.5. Bats

The chapter was prepared by Viesturs Vintulis, an expert on mammals - bats (Chiroptera)[19] the opinion, which was prepared as part of the environmental impact assessment process and is attached in its entirety in Appendix 2 of the Local Plan Explanatory Article.

The expert initially evaluated the information available in the natural data management system "Ozols" about the bat species found in the area and its surroundings. Historical information on bat deposits in and near the study area has been assessed as incomplete, therefore research has been carried out in the area. According to the previously approved methodology in Latvia, the territory was surveyed seven times a season, making records. The recording times are chosen according to the biological cycle of bats.

A total of 1,054 bat call recordings were obtained during the season, in which 1,119 bat flyovers were identified. From these records, it was possible to determine which bat species are present in the potential wind farm area, as well as the frequency of occurrence of each species relative to the other species.

During the season, 5 species or genera of bats were found in the wind park area. The most common species was the northern bat, *Eptesicus nilssonii*, with a frequency (after applying the capture factor) of 64%. The ruddy night bat *Nyctalus noctula* was observed rarely in the park, the occurrence of which is estimated as 2%. The northern bat and the ruddy bat represent a group of so-called grassland species that are particularly sensitive to the effects of wind turbines.

The second most frequent group of bats in the territory are bats of the genus Myotis, whose relative occurrence in the territory is 32%. Current information indicates that the impact of wind farms on bats of the genus Myotis is low[20]. Considering these factors, the expert did not conduct an in-depth analysis of the bats of this genus.

During the season, the brown long-eared bat *Plecotus auritus* and the tow-colored bat *Vespertilio murinus* were also observed in the area. For these species, only a few flyovers were recorded during the season and none of them had an occurrence rate of 1%.

The expert has concluded that the activity of bats in the planned wind park "Lode" can be assessed as low. The registered activity of the species is lower than in other areas where the research was carried out according to the identical methodology, which is most probably related to the degradation of forest habitats and the deliberate selection of a place with few buildings - habitats suitable for bats.

The opinion of Chiroptera expert Viesturs Vintulis provides information on the potential impact of the planned construction and operation of wind farms on the populations of the identified bat species, as well as on the adjacent territory and conditions, as well as recommendations for mitigating the potential impact and further monitoring.

[19]expert certificate no. 070, valid until 30.09.2025.
[20]"Guidelines for assessing the impact of wind power plants on bats" of the Latvian Bat Research Society

CONCLUSIONS

- The greatest risk of death of bats in the planned wind park is in July-September, i.e. during the dispersion and migration of bats. In the first half of summer, bat activity can be assessed as low.
- The greatest risk of bat death near turbines is 2-6. in the hours after sunset.
- There is a potentially higher risk of collisions/death for bats at WT that are planned to be located close to the forest and other tree structures, and a lower risk of death - at WT that are placed in the open field.
- **The requirements are included in the regulations for the use and construction of the territory of the local plan**, to reduce the risk of bat deaths:
  - wind power plants are equipped with a technological solution that ensures wind power plants are suspended or not started during the time periods and conditions indicated in the report of the environmental impact assessment "Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera province".
  - ensures monitoring of bats in the first and second year after the start of operation of the wind park and, if necessary, revises the restrictions on the operation of wind power plants according to the results of the monitoring.

6.1.6. Landscapes

The description of the chapter uses information from the environmental impact assessment report "Construction of wind power park "Lode" in Valmiera county Lode and Ipiķu parishes" prepared by SIA "Estonian, Latvian & Lithuanian Environment". The expert's opinion is attached in full in Appendix 5 of the Explanatory Article of the Local Plan.

According to the landscape map[21], which is based on the geomorphological features of the area and the nature of the landscape cover, the local planning area is in the hilly landscape of forest moraines, the southwestern part of which is occupied by a heavily cultivated landscape of drumlins. The area is part of the Ergeme hills (called the Sakala highlands in the Estonian part).

The area can be characterized as mosaic, where areas of agricultural land alternate with larger and smaller forest massifs, which complement the places with groups of trees, clumps, rows or alleys. The relief is locally characterized as flat, but when viewed on a larger scale, for example, in cartographic materials with an active relief model layer, longitudinal hilly elevations, which are characteristic of the drumlin landscape, are well read. In the further surroundings, in some places, there are larger fluctuations in the relief with larger gully depressions that have formed, for example, along rivers.

The hilly area as a whole is also characterized by a great biological and, therefore, landscape diversity, as the alternation of small depressions and hills ensures varied hydrological conditions. In lower places, wetter areas are formed, which in the specific situation have developed as swamps. On the other hand, since slopes and changing conditions are a burdensome factor for the development of agriculture, forests have spread over a large part of this area. In general, the transition between forests and rural lands also provides a variety of views, where open views pass into close and sometimes even completely closed areas.

The ratio of forest areas and rural lands can be well estimated in the cartographic materials, which display information on both the geomorphology and vegetation of the surrounding area, as well as the overall landscape structure. The relief can be described as mostly homogeneous in a wider area with small structural features, which extends all the way to the Halliste river in Estonia, where distinct relief fluctuations can be observed. In the vegetation, it can be observed that in the territory of Estonia, the

[21]Industry report for development of district planning "Landscape protection", Ministry of Environmental Protection and Regional Development, 2000, landscape map compiled by Olģerts Nikodemuss

alternation of forest massifs and rural lands is more homogeneous, while in the territory of the planned activity and in the adjacent territory of Latvia, the vegetation is distinctly more fragmented - the areas of the fields and forests are smaller, their alternation is more intense.

In general, the landscape of the surrounding area can be described as simple, the characteristic features of the area are well read in it, both in relief and vegetation, as well as in other landscape-forming elements. For the most part, there are wide and open views, which are limited in some places by forest patches that approach the existing roads, or clusters of trees and rows of trees arranged in a fun way, which ensure the change of the view.

When surveying the area, no views that can be described as particularly valuable in terms of scenery were found, but quality features can be observed in places where the starting point of the view is higher in relation to the surroundings, more such views are found directly on the Estonian side

The area of the local plan can be characterized more as a forest area with separate larger and smaller rural land plots and swamp areas. Both intensive agriculture and forestry can be observed here. The alternation of farmland and forest areas also at the local level in the area of the local plan ensures a change of view – as the forest areas recede, a wide-open landscape opens up to the surroundings, while as they approach the road, the view is restricted or completely blocked. In some places, you can see solitary trees or small clusters of trees in rural clearings, which are both biologically and scenically important natural elements.

The expert's opinion states that when implementing the wind park project, wind power plants will become one of the most important features of the landscape in a relatively long period of time. Especially large wind farms with more than 15 wind power plants radically transform the characteristic features of the landscape space and significantly affect the nature of the landscape.

Evaluating the perceptibility of the WT park and its visual impact on the landscape, the opinion focuses on two visual aspects - visibility and visibility.

Visibility is determined by the geomorphology of the landscape, the nature of the landscape, which also determines the areas of visual impact. They can be divided into very high, high, medium, low and low.

Visibility, on the other hand, is primarily determined by the physiology of human vision - how well an object can be seen and perceived - as well as specific atmospheric conditions, such as the brightness of solar radiation, also meteorological conditions, which directly affect visual perception, in which specific objects are integrated. In both cases, the context and structure of the landscape is also important.

Based on the survey of wind farms in nature, four hypothetical visibility zones are distinguished in the opinion.

1. *Visibility area present*– WT can be viewed very close, allowing you to see the details as well, and they have a dominant or even oppressive character. The approximate width of the zone is up to 1 km from the WT.
2. *Very good visibility area*– about 2–3 km from WT . They are still considered to be dominant but are gradually beginning to be perceived as part of the overall view, allowing to assess both their proportion and scale, as well as their visual interaction with other landscape elements. Regarding WT, it should be taken into account that areas with very good visibility during the development of the construction project must be evaluated locally in the context of nearby homesteads, more densely populated areas, and culturally significant objects.
3. *Area of good visibility* is 3-7 km away, and WT visually becomes an element of landscaping, "embedding" in the overall landscape, because as the length of the line of sight increases, the amount of visual information of the scenic space also increases, so it is less likely that the view will focus on something for a long time one particular one.

4. *Area of poor visibility* is approximately 7-12 km from the WT. At the maximum distance, the stations can only be seen by looking longer, and this is largely influenced by meteorological conditions and the overall transparency of the landscape.

Taking into account the possible dimensions of the WT, it is not excluded that the visual visibility in some areas may also exceed the mentioned 12 km, but in this case, it will be very small.

Evaluating the visual impact zones for the planned wind power plant park "Lode", it was concluded that the greater impact is in the east and west direction, maintaining a high visual impact at a distance of 5-6 km from the WT park, while in the north and south direction, a low visual impact is already provided at a radius of 5 km .

Regarding the visibility of WT, it should be noted that in the specific case, when the territory itself or its edge is not crossed by roads of public importance, the importance of visual visibility becomes secondary. On the other hand, the set of different elements present in the landscape makes it much easier to incorporate new elements, because the diversity of the terrain and vegetation structure ensures a continuous change of view.

In the expert's opinion, several points of view and modelled photomontages have been selected (see the expert's opinion in Appendix 5 of the Explanatory Article) for evaluating the significance of the planned activity. The most important viewpoints are defined as those whose starting point is in areas of high and medium visual impact and provides a clear view from visually scenic areas and nearby settlements. The expert's opinion indicates the visual influence zones of the wind power park "Lode" and the selected viewpoints of the photomontage.

CONCLUSIONS

- Evaluating the overall visual impact of the photomontage and the planned operation, it was concluded that the diverse vegetation structure acts as a visually limiting factor and often even completely obscures the view of the WT . On the other hand, in places where the starting point of the view is higher in relation to the territory of the planned activity and opens wide panoramic views, the distance to them is large enough so that they are not perceived as a dominant element.
- The sparse network of publicly important roads in the territory of Latvia also reduces visual accessibility, which is an essential criterion for evaluating the quality of the landscape. Also, relatively rare rural construction (detached houses) reduces conflict situations for visual impact assessment regarding residential buildings and nearby villages. It is different on the Estonian side, where the density of buildings in the surrounding area is higher.
- Evaluating the planned activity, it can be concluded that its implementation will clearly have a visual impact on the landscape of the area.
- **The Local Plan Territory Use and Construction Regulations include requirements to reduce the visual impact of wind power plants on the landscape**:
  - provides for the painting of the wings of wind power stations in light (white) colour;
  - single colour lighting is used for signal lighting of wind power plants;
  - ensures the protection of valuable trees during construction and during the preparation of the route of delivery roads, consulting with a certified arborist on the protection measures to be taken during the construction process;
  - provides wind farm transport delivery routes that eliminate the need for extensive roadside clearing.

6.2. CULTURAL HERITAGE

According to the database of the National Cultural Heritage Administration[22]there are no cultural monuments protected by the state in the territory of the local plan, but there are three cultural monuments in the immediate vicinity.

[22] https://karte.mantojums.lv/

In the northern part, there is an archaeological cultural monument of regional significance, the Urgu Zviedru stone with inscriptions and signs (protection No. 2458). The Urgu Zviedru stone is located on the Latvian-Estonian border, but a few meters in Latvian territory. Stone length - 3.9 m, width - 2.5 m, height - 1.3 m. Numerals '301' and '1800', cross and triangle sign carved in stone. Based on the different minting technique, it can be concluded that they were minted at different times. Tales and stories are related to the times of the Swedish war[23].

To the south of the local planning area is the building of the Arakste manor. The Arakste manor complex was formed in the 19th century. in the first half, when the master's house, servants' house, stables, barns, barns, and forge were built there. In 1881, a cellar and other outbuildings were also built.

The house of the lords of the manor was built as a one-story brick building with a gable roof and a high plinth. 19th century in the second half, a two-story building was added to the house. The main facade had a porch with a portico of four columns. After the expropriation of the manors in 1922, a school was built in the building, after the Second World War there was a club with 200 seats and a stage[24].

In the complex of manor buildings, there are two buildings under state protection as architectural cultural monuments of regional importance - the barn of Arakstes manor (protection No. 6904) and the stables of Arakstes manor (protection No. 6905). Both buildings were built in the 19th century. in the first half. Today, the manor complex is in a bad state.

As part of the environmental impact assessment, the expert has assessed information on other objects with possible cultural and historical significance in the planned wind park area and in the immediate vicinity (see Appendix 6 of the Explanatory Article)

In the Monuments Documentation Center of the National Cultural Heritage Administration, there is a report from 1985 about the Swedish road that led in the NE direction between the houses of Urga and Birzu. The place of the road is marked as an elevation of the land relief. The place is not precisely localized in nature.

At the northwestern part of the local planning area, ~0.8 km southwest of the Urgi Zviedru Stone, there is a group of hills called Ūskalna.

Expert Ritvars Ritums[25]points out that it is possible that Úskalna, which rose above the generally low and swampy surrounding territory, had some historically important role (settlement, burial place).

CONCLUSIONS

- According to the expert's opinion, the implementation of the planned activity does not pose a threat to the state-protected cultural monument Urgu Zviedru stone or the construction of Arakste manor.
- The protection zone of Urgi Swedish stone is 500 m. The planned WT No. 3 will be located in the protection zone of the monument at a distance of about 400 m from the stone. Since the wind power station cable communications are planned to be built to the southeast, that is, on the opposite side of the stone, the construction and operation of this WT will not pose a threat to the Urgu Zviedri stone.
- **The requirement is included in the Local Plan Territory Use and Construction Regulations**- during construction design, the construction sites of the wind power plant are surveyed by an archaeologist. During the construction of wind power plants and the infrastructure necessary to ensure their operation, an archaeologist is invited during the construction work.

[23]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera" environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.
[24]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera" environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.
[25]See the opinion of the cultural history expert in Appendix 6

6.3. ENVIRONMENTAL QUALITY

6.3.1. Noise

According to available information, there are no sources of industrial noise in the vicinity of the local planning area. The most significant sources of noise in the vicinity of the planned wind park are national highways, for which, in accordance with the laws and regulations of the Republic of Latvia and the Republic of Estonia, environmental noise limit values applicable to traffic noise are determined.

As part of the environmental impact assessment process, the potential impact of the "Lode" wind park on the noise level in the vicinity of the local planning area was assessed. The operation of wind power plants creates noise not only in the human-hearable frequency range, but also very low-frequency sound, infrasound, and high-frequency sound or ultrasound.

The results of the environmental noise calculations carried out as part of the environmental impact assessment process show that it is possible to build the wind farm in the planned locations in compliance with the requirements of both Latvian and Estonian regulatory acts in the field of noise management, however, it is expected that when the noisiest of the assessed power plants are built, in the four closest to the planned wind farm in the areas of residential construction, the noise level will be higher than the limit values recommended by the World Health Organization for the noise caused by WT .

Although there is currently no reason to set requirements for mandatory measures to prevent or reduce the impact, in order to reduce the impact caused by the operation of the planned wind farm, it is recommended to pay attention to the level of noise generated by the WT in the process of choosing a wind farm model, and if there are no other valid reasons for choosing a louder station, choose and to install WT in the wind farm with the lowest possible noise emission level. The choice of quieter stations will allow to approximate or achieve such a level of influence in the nearest residential areas that corresponds to the noise limit values recommended by the World Health Organization for the noise caused by WT.

Evaluating the results of the calculations, within the scope of the environmental impact assessment, it was concluded that the low frequency noise level is a limiting factor for the construction of the "Lode" wind farm. Five of the six evaluated WT models can exceed the limit value of 20 dB(A) in nearby residential buildings. Although Latvian regulations do not specify low-frequency noise limit values, measures are necessary to protect public health.

The environmental impact assessment report presents several proposals for measures to reduce the impact of low-frequency noise. Considering that during the development stage of the local plan it is not possible to predict which of the measures will be implemented, it is expected that during the construction design stage the developer must certify the compliance of the wind park with the recommended limit values of the low frequency noise level. A relevant requirement is included in the Territorial use and construction regulations of the local plan.

CONCLUSIONS

The requirements included in the Local Plan Territory Use and Construction Regulations:

- to build wind power plants, the level of impact of which does not exceed the level of noise specified in the regulatory acts in the nearby residential areas.
- during the development of the construction project of the wind power plant, low-frequency noise calculations are repeated to confirm that the planned wind park will not cause low-frequency noise pollution exceeding the 20 dB(A) mark in residential buildings.

6.3.2. Flickering effect

The flickering effect is caused by the movement of the rotor wings, as they periodically cover the sun and create moving shadows on the ground and the surface of various objects. The flickering effect is observed only in sunny weather.

The impact of the flickering effect on the nearby residential buildings has been evaluated in detail as part of the environmental impact assessment. Although there are no studies whose results prove the long-term negative impact of the flickering effect on public health, it is considered one of the disturbances caused to the residents living in the vicinity of the WT. It is possible to accurately predict the effect of the flickering effect caused by WT by using a special program (WindPro) for calculating the time of the flickering effect, which makes calculations considering working hours, wind directions and the probability of monthly sunlight

In Latvia and Estonia, there are no regulatory acts that would determine the procedure for evaluating the flickering effect and limit the permissible level of this effect. A similar situation can be observed in other countries of the European Union, where the limit values of the effect of flickering are basically determined in guidelines, not in regulatory acts.

Analysing the regulation of flicker effect impact assessment and impact time limitation in other countries, more frequently applied flicker effect time limit values were identified[26]:

1) no more than 30 flashing hours per year if calculated using the worst-case scenario method;
2) no more than 10 flashing hours per year, if they are calculated according to the real scenario (in Germany, Belgium and Sweden, the recommended value of this indicator is no more than 8 h/year);
3) no more than 30 minutes per day in case of using both scoring scenarios.

According to the results of calculations carried out as part of the environmental impact according to the worst-case scenario method (assuming that the sun shines constantly during daylight hours and is always perpendicular to the rotor blades, which are constantly moving) in residential areas located approximately up to 1.5-2 km from the edges for wind power plants, the limits set by the above guidelines may be exceeded (30 flashing hours per year). At a distance greater than 1.5 - 2 km, exceeding the limit values of the influence of the flickering effect cannot be predicted.

CONCLUSIONS

- During calculations, it was found that the flickering effect caused by WT can cause disturbances that exceed the recommended limit values in the residential areas near the intended place of operation, regardless of the selected WT model.
- The only technical solution that allows to reduce the duration of the effect of the flickering effect is to stop the operation of the flickering stations during periods of time when the station in question can cause flickering in residential areas.
- The manufacturers of all WT evaluated as part of the environmental impact assessment process provide their stations with operating modes that automatically stop the WT operation during certain periods of time. The mentioned operating modes can be set using information about both theoretical and actual sunshine hours.
- Relevant requirements are included in the Territorial Use and Construction Regulations of the Local Plan, the requirement also being applied to newly constructed residential buildings after the start of operation of the wind farm:
  - During the construction process of the wind park, calculations of the effect time of the flickering effect are carried out, determining the affected construction areas, and wind power plant shutdown modes are developed to ensure that during the operation of the wind farm, the effect time of the flickering effect in residential buildings does not exceed 8 hours of flickering per year and 30 minutes in one day.
  - The wind farm operator shall submit to the municipality a report on the implemented measures to limit the time of the flickering effect no later than three months after the commissioning of the wind farm, confirming the fulfilment of the established requirements.

[26]"Guidelines for environmental impact assessment of wind power plants and recommendation requirements for the construction of wind power plants", 2011.

- When issuing a building permit for the construction of a new residential building in an area less than 3 km away from the constructed wind power plants in the local plan, the building board informs the wind park operator of the decision made, who, by making calculations, determines the time of the flickering effect for the newly constructed building.
- If the calculated time of influence of the flickering effect in residential buildings exceeds 8 hours of flickering per year or 30 minutes in one day, the wind farm operator shall change the settings of the wind power plants causing the effect, ensuring that the time of influence of the flickering effect in residential buildings does not exceed 8 hours of flickering in a year and 30 minutes in one day.
- The implementation of measures that reduce the effect of the flickering effect must be started from the day when the newly built residential building is put into operation, about which the building board informs the wind farm operator.

6.3.3. Air quality

According to the data of the Centre of Environment, Geology and Meteorology of Latvia, the concentration of air pollution in the vicinity of the local planning area is low and does not exceed the limit values specified in the regulatory acts. The indicated pollution concentrations for all polluting substances are lower than the lower pollution assessment threshold, which means that the existing air quality in the territory is good and there is no need to plan measures to improve air quality. As shown by the spatial distribution of pollution, the highest concentration of pollution sources can be observed in the vicinity of two national highways of local importance, V176 Sīli-Estonian border and V177 Ķoņi–Lode–Arakste, which are associated with road traffic[27].

6.3.4. Vibrations

Vibrations are caused by imbalance and friction of rotating parts, especially generator, gearbox and bearing systems. Vibrations can be amplified at high wind speeds when there is an imbalance from wind-induced pressure and turbulence flows. The main sources of vibration in a WT are the generator, gearbox and bearing systems, which can also cause the nacelle and tower to vibrate.

Vibration measurements have been carried out in different countries. in Latvia until 30.06.2010. the regulations of the Cabinet of Ministers No. 341, which determined the limit values of vibration, were in force. Currently, such regulations are not in force, therefore the level of vibration caused by WT is not officially limited.

Comparing the vibrations caused by the WPP with the former regulatory limit values, the vibration level in the immediate vicinity of the WPP is higher than the former limit values, but already at 300 m it is significantly lower. Thus, there is no reason to believe that the level of vibration caused by the planned wind farm will pose a significant threat to public health[28].

CONCLUSIONS

- The vibrations generated by the WT are controlled using modern engineering solutions to reduce the imbalance and friction of the rotating parts.
- Although the level of vibration in the immediate vicinity of the WT may be high, it decreases rapidly with distance from the WT. Therefore, the vibration caused by the planned wind farm cannot be considered a significant threat to public health. It is not necessary to include the requirements in the Territory Use and Construction Regulations.

[27]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera" environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.
[28]"Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera" environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2024.

6.3.5. Exposure to electromagnetic fields

As part of the environmental impact assessment process, the potential impact of the electromagnetic field has been analysed in detail. Electromagnetic fields are generally not detectable by the human senses and have not been shown to cause direct adverse effects on human health. The sources of electromagnetic radiation are widespread, ranging from natural sources (the Earth's magnetic field, the effects of cosmic rays) to man-made sources (power lines, wireless communication devices, the use of medical equipment).

It has been in force in Latvia since 01.11.2028. Rules of the MK No. 637 "Rules for assessing and limiting electromagnetic field exposure to the population". The operation of wind farms and the construction of related infrastructure, such as underground cable systems, generate electromagnetic fields. WT nacelles (at least 150 meters above the ground) have built-in generators, transformers and other mechanisms. The intensity of the electromagnetic field at this height is negligible at ground level.

CONCLUSIONS

- The regulations set clear limits and procedures used to assess the effects of electromagnetic field sources on the population.
- The intensity of the electromagnetic field caused by wind farms and their infrastructure is low and harmless.
- The expected electromagnetic field is much lower than the specified target values, especially due to distance and shielding.
- Underground cable systems are effectively shielded to reduce magnetic field intensity.
- The flux density of the magnetic field decreases significantly with distance from the cable, making it harmless to the surrounding environment and residents.
- In compliance with regulatory acts and technical solutions, the impact of electromagnetic fields from wind power plants and their infrastructure is minimal and harmless to human health. It is not necessary to include the requirements in the Territory Use and Construction Regulations.

7. ASSESSMENT OF THE SIGNIFICANT IMPACT ON THE ENVIRONMENT OF THE IMPLEMENTATION OF THE PLANNING DOCUMENT

7.1. THE PLANNING DOCUMENT AND THE SOLUTIONS INCLUDED IN IT

With the Local Plan, preconditions are created for the development of the wind park "Lode". In the planned wind farm, 19 high-capacity, latest generation WT could be installed, where the nominal production capacity of one WT could exceed 6 MW.

Considering the rapid development of the wind power plant industry in recent years and the time lag between the planning process and the construction of the wind farm, one specific model of the plant has not been chosen within the framework of the EIA process and the development of the local plan. It is expected that the final decision on the choice of a specific model will be made shortly before the start of the construction project development process.

Information about the land units in which the construction of WT is planned is summarized in the table.

Table 3. Land units where the construction of wind power plants is planned[29]

WT no.	*Property name*	*Land unit cadastral designation*
1 and 2	Ķeizari	96680010010
3	Kalnurgas	96680010035
4	Bērzi	96680010118
5	Vēveri	96680010078
6 and 7	Rapas	96680010001
8	Lucas	96680010041
9	Zīļi	96680010043
10	Pupuķi	96680010042
11	Mežāres	96680010002
12	Dūči	96680010085
13	Rauķupes 2	96680010098
14	Ansētas	96680010097
15	Puigas - 1	96680010034
16	Robežnieki	96680010006
17	Mežvidi	96680010004
18	Lapegļu mežs	96680010071
19	Akmeņgravas mežs	96680010075

In the graphic part of the local plan, the solutions do not accurately depict the location of wind stations, because the potential construction sites of wind power stations are evaluated within the framework of the impact on the environment and are indicated indicatively at the time of development of the local plan, considering the criteria limiting the selection of sites.

In the local plan, prerequisites are created for the placement of wind power plants, by providing the functional sub-zone and territory usage and construction rules accordingly. Local planning solutions can be clarified at the construction design stage.

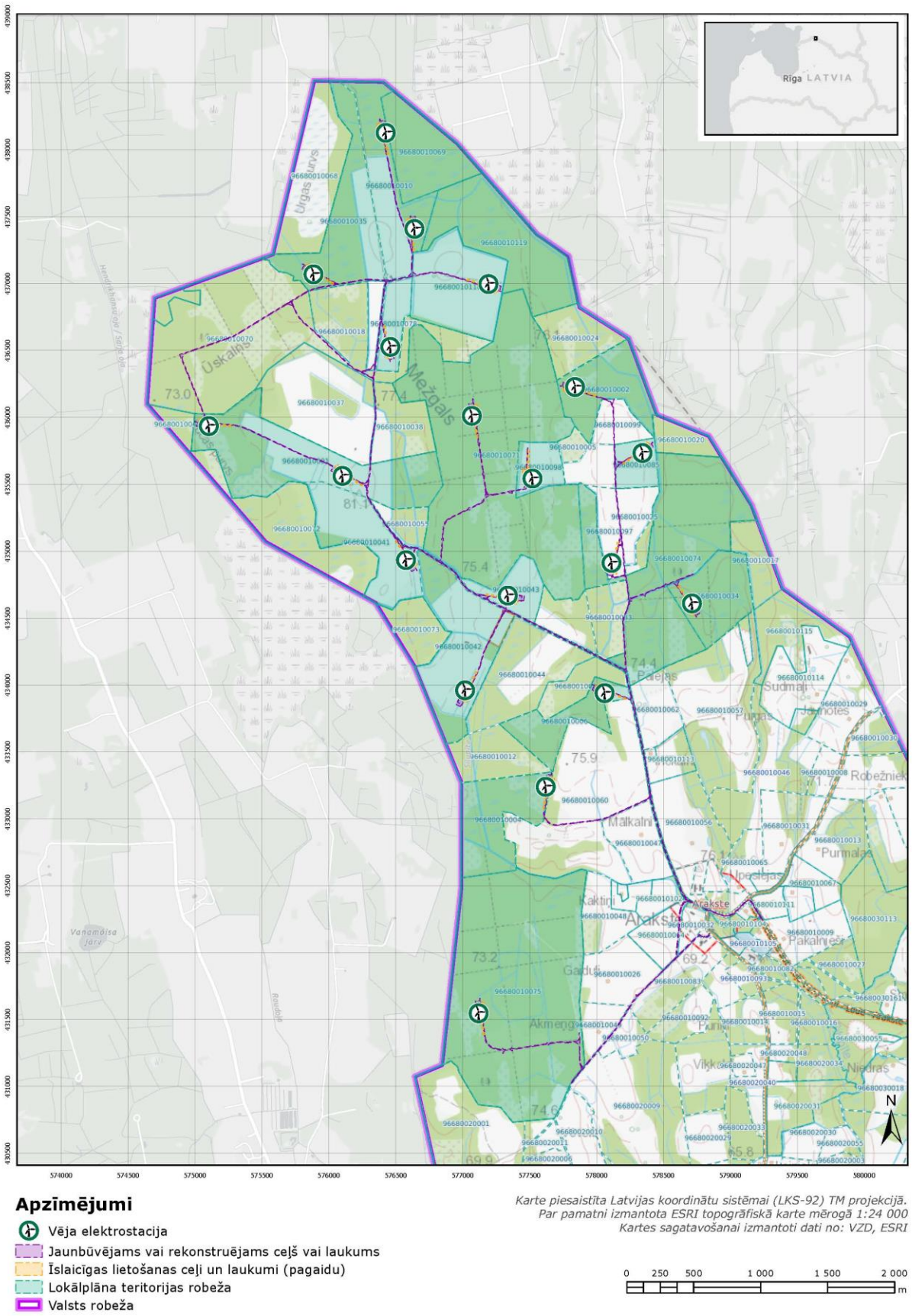
The location of wind power plants can be specified within the boundaries of the real estate land unit indicated in Table 3, therefore, the graphic part of the local plan does not specify the exact locations of the construction of wind power plants.

Places where possibilities to place wind power plants have been evaluated as part of the environmental impact assessment process are indicated in Figure 11 and included in Appendix 1 of the Territory Use and Construction Regulations.

During the environmental impact assessment process, the WT location alternatives for stations No. 16 and No. 16A and No. 17 and No. 17A were evaluated. In the EIA Report, when evaluating location alternatives, two location alternatives have been preserved, because alternatives No. 16A and No. 17A can only be implemented under the condition that the building board's acts regarding the absence of the building in nature are received for the residential building registered in the property "Inčkalni" in accordance with the procedures specified in the regulatory acts and deleted entries in the State Land Service Real Estate State Cadastre Information System and Land Register.

[29]data source - "Construction of wind power plant park "Lode" in Lode and Ipiķu parishes of Valmiera region" Environmental impact assessment report, SIA "Estonian, Latvian & Lithuanian Environment", 2004.

Figure 11. Places where the possibilities to place wind power plants have been evaluated as part of the environmental impact assessment process



Apzīmējumi

- Vēja elektrostacija
- Jaunbūvējams vai rekonstruējams ceļš vai laukums
- Īslaicīgas lietošanas ceļi un laukumi (pagaidu)
- Lokālplāna teritorijas robeža
- Valsts robeža

Karte piesaistīta Latvijas koordinātu sistēmai (LKS-92) TM projekcijā.
Par pamatni izmantota ESRI topogrāfiskā karte mērogā 1:24 000
Kartes sagatavošanai izmantoti dati no: VZD, ESRI

0 250 500 1 000 1 500 2 000 m

The proposal of the functional area of the local plan territory is determined in accordance with the task for the development of the local plan and 30.04.2013. The classification of functional zones determined by the regulations of the MK No. 240 "General regulations for planning, use and construction of the territory", foreseeing appropriate types of use of the territory.

Functional sub-zones are defined for the territory of the local plan:

1. **Agricultural area**(L1) – defined for land units or their parts, where the functional zone "Agricultural territories (L) is defined in the valid territorial planning and includes the type of use Energy supply company construction (14006): wind power plants and wind parks.
2. **Forest area**(M1) – defined for land units or their parts, where the functional zone "Forest areas" (M) is defined in the valid territorial planning and includes the type of use Energy supply company construction (14006): wind power plants and wind parks.
3. **Transport infrastructure area** (TR1) - determined for existing transport infrastructure objects in the local planning area;
4. **Water area**(Ū1) – determined for existing water objects in the territory of the local plan.

Determination of functional sub-areas and development of TUCR was carried out based on:

- the consent of real estate owners to the development of a wind farm in their real estates;
- For the territory studies and assessment results carried out as part of the preparation of the EIA Report, considering the criteria limiting the choice of places (natural conditions, species and habitat evaluation results, recommendations of ornithofauna and bat experts, distances to residential buildings, access possibilities, etc. factors).

Access to the wind farm "Lode" during construction and operation is planned to be provided using the state local roads V176 Sīli - Estonian border and V177 Ķoņi - Lode - Arakste, the municipal road Arakste - Bērzi and VAS "Latvijas valsts meži" roads Akmengravas road and Ūskalnas road. It is expected that roads owned by other persons, which are used for access to agricultural land blocks and forest areas, could also be used for access, by separate agreement with each real estate owner.

Newly constructed roads are planned to be built near the boundaries of rural blocks or land units, as far as possible, thus reducing the fragmentation of agricultural land. The total length of the roads to be built reaches approximately 12 km.

During the development of the construction project of the wind park, the suitability of state and municipal roads for the transportation of building materials and WT components will be evaluated, if necessary, the reconstruction of the entire necessary road section or its part will be planned to improve the carrying capacity conditions. The need for reconstruction of municipal or state highways and the procedure for implementing the reconstruction will be coordinated with the owner of the respective highway. The total length of potentially municipal roads under access roads is 8.11 km.

In order to transfer the produced electricity to the common network, it is planned to build a new cable line from the wind power park "Lode", which will move west from the border of the wind park territory, crossing the territory of the Republic of Estonia for about 4 km, will continue within the borders of the Republic of Latvia to the newly built transformer station, which is planned for west of Ipikės. With connection to the third Estonian-Latvian 330 kV interconnection.

It is planned to build only cable lines, thus reducing both the impact of the planned operation on the environment and on the possibilities of land use along the lines of the transmission lines. As far as possible, the cable lines will be built in the road separation lane. It is expected that the area required for the construction of the substation will be up to 1 ha. During the construction process, it is also planned to build communication networks, which are necessary for the management and monitoring of WT . It is expected that optical fibre and low-current cable lines will be built in parallel with power transmission

networks, and the construction process of engineering networks will be carried out in parallel with the construction of access roads.

7.2. ASSESSMENT OF THE SIGNIFICANT ENVIRONMENTAL IMPACT OF THE IMPLEMENTATION OF THE PLANNING DOCUMENT

The local plan amends the territorial planning of Rūjiena county for the years 2012 - 2024, which was developed before the introduction of the territorial development planning system (TAPIS), including before the Cabinet of Ministers Regulation No. 240 of April 30, 2013 "General territorial planning, use and building regulations" coming into force.

27.10.2022 in the approved "Sustainable Development Strategy of Valmiera County 2022-2038" (hereinafter - the Strategy), one of the strategic goals of the municipality is "Entrepreneurship Development" (SM2), the implementation of which in the long term will ensure jobs, attracting investment to Valmiera County, qualified specialists, high productivity, gentle and sustainable approaches in the use of natural resources, repeated use of resources, export capacity of companies and farms.

In the economic specialization of the municipality, energy production and material processing are listed among the priority sectors.

In the perspective of the county's spatial development, the territory of the local plan is included in the Agricultural space. Among the guidelines for future planning of agricultural areas, it is determined that agricultural lands with high natural soil fertility should be preserved for intensive agricultural development as a priority. The rest of the agricultural space can be used, balancing the preservation of natural diversity and landscape and the social and economic development of the territory.

Local planning solutions do not contradict the municipality's long-term development strategy.

Rating: The development of the local plan ensures uniform determination of the planned (permitted) use of the territory in the territory of the local plan, while creating prerequisites for the implementation of the goals and priorities set in the sustainable development strategy of Valmiera region 2022-2038.

The development of the local plan takes place simultaneously with the assessment of the environmental impact of the development of the wind farm park of the intended operation planned in it. In the EIA process, in accordance with the EIA development program issued for the "Lode" wind farm, an assessment of the significant environmental impact of the planned operation has been carried out for the following main environmental impact aspects:

- Environmental noise
- Low frequency noise
- Blinking
- Biological diversity - plants and habitats
- Biodiversity - bats
- Biological diversity – ornithofauna
- Landscape and visual impact
- Cultural and historical values
- Air quality
- Climate
- Geology
- Hydrology
- Waste management
- Environmental risks and emergency situations
- Vibrations
- Exposure to electromagnetic fields

Based on the study of the territory and the assessment of the impact, in the EIA process, solutions for mitigating the impact on the environment and conditions for monitoring the future planned activity in the context of the impact on the environment have been developed, which include the planned environmental monitoring measures for monitoring the territory.

Taking into account that the EIA process takes place at the same time as the territory development planning process (Development of the Local Plan), compared to the case if the development of the Local Plan took place first and the EIA was carried out after the approval of the planning document in the municipality, before construction, it can be concluded that in this situation, already the development of the Local Plan within - data-based information obtained from certified experts or methods recognized both in Latvia and Estonia is available in the planning process. These assessments provide a detailed understanding of the impact of the intended activity, its scale, predicted environmental quality indicators and allowable exceedances, as well as adversely affected areas and objects. In the wind farm planning process, this information is used to select station locations that minimize negative impacts on biologically important natural values, scenic areas and environmental noise levels, including low-frequency noise exceedances in homesteads, as well as flicker exceedances in residential buildings and other environmental aspects.

Rating: positive, direct and indirect, long-term impact on the territory development planning process, ensuring from the point of view of environmental protection and nature protection, as well as informing the public about the impact of Local Planning solutions, the development of justified functional zoning and territory use and construction rules.

Section 3.5 of the local plan TUCR "Requirements for reducing environmental risks" includes point 11, which stipulates that measures to reduce environmental risks are implemented in accordance with the opinion of the State Office for Environmental Supervision on the environmental impact assessment report "Construction of wind power park "Lode" in Valmiera district Lodes and Ipiķu parishes" to the requirements regarding the place, scope and type of technology of implementation of the intended activity, as well as the prevention, reduction and monitoring of the impact.

During the preparation of the environmental report, an EIA Report has been developed, which is currently at the stage of public consultation. After the public consultation, the State Office of Environmental Supervision will issue an opinion on the EIA Report. This opinion will be based on the measures for mitigating negative impacts identified in the EIA Report and the office's assessment of the report.

During the development of the environmental report (June - July 2024), impact mitigation measures can be evaluated based on the solutions included in the EIA Report. The EIA Report includes measures that ensure the fulfilment of requirements specified in regulatory acts, guidelines or institutions, as well as public safety measures and measures to prevent, mitigate or compensate for significant impacts.

By including such requirements in the TUCR of the Local Plan, in addition to the solutions and measures developed by the EIA, which the office will include in the opinion, the municipality in its binding regulations (TUCR of the Local Plan) reinforces the requirement to take the measures specified in the opinion to reduce the impact on the environment. This can be evaluated positively, because the municipality has the right to demand the implementation of these measures during the construction and operation of the wind farm.

At the stage of preparation of the local plan exhibition and the Environmental report, indicatively, based on 6.2 of the EIA Report. chapter 6.1.2. in the table "Measures for mitigating or preventing environmental impact and assessment of residual impacts", it is expected that in order to reduce the negative environmental impact of the wind farm operation, a number of action-limiting measures will be determined (included in the opinion of the Office) that will comply with TUCR 3.5. for the requirements included in the chapter "Requirements for reducing environmental risks":

- Clause 12 of the TUCR includes requirements for ensuring the requirements of environmental noise regulations - to build wind power plants, the level of impact of which on the nearby residential areas does not exceed the noise level specified in the regulations.
- Clause 13 of the TUCR includes a requirement for reducing the impact of low-frequency noise - during the development of the wind power plant construction project, low-frequency noise calculations are repeatedly performed to confirm that the planned wind park will not cause low-frequency noise pollution exceeding 20 dB (A)grade in residential buildings. Clause 14 of TUCR includes the requirement that, when issuing a building permit for the construction of a new residential or public building in an area located less than 1 km from the constructed wind power plants in the local planning area, the low-frequency noise level in the interior of the building is predicted and, if necessary, building materials with a higher sound level are used insulation level.

  Rating: positive, direct and indirect long-term effects on the reduction of environmental noise in the surrounding areas. In the EIA Report (Chapter 6.2), the residual impact (after the implementation of the measure) is assessed as a minor adverse impact.

- TUCR clauses 15 to 20 include requirements for preventing and controlling the flickering effect:
  - During the construction process of the wind park, calculations of the effect time of the flickering effect are carried out, determining the affected construction areas, and wind power plant shutdown modes are developed to ensure that during the operation of the wind park, the effect time of the flickering effect in residential buildings does not exceed:
    - 30 hours per year, if equipment for determining the actual sunshine time is not used to monitor the effects of the flickering effect;
    - 8 hours per year if devices for determining the actual sunshine time are used to monitor the effects of the flickering effect;
    - 30 minutes a day.
  - If the flickering effect can be caused by several wind power plants, the total effect time of the flickering effect caused by all wind power plants is calculated and its compliance with the indicators specified in point 15 of TUCR is evaluated.
  - The wind farm operator shall submit to the municipality a report on the implemented measures to limit the time of the flickering effect no later than three months after the commissioning of the wind farm, confirming the fulfilment of the established requirements.
  - When issuing a building permit for the construction of a new residential building in an area less than 3 km away from the constructed wind power plants in the area of the local plan, the building board informs the wind park operator of the decision made, who, by making calculations, determines the time of the flickering effect for the newly constructed building.
  - If the calculated time of influence of the flickering effect in residential buildings exceeds 8 hours of flickering per year or 30 minutes in one day, the wind farm operator shall change the settings of the wind power plants causing the effect, ensuring that the time of influence of the flickering effect in residential buildings does not exceed 8 hours of flickering in a year and 30 minutes in one day.
  - The implementation of measures that reduce the effect of the flickering effect must be started from the day when the newly built residential building is put into operation, about which the building board informs the wind farm operator.

Rating: positive, direct and indirect long-term effects on reducing the flicker effect in nearby residential buildings and new-build buildings. In the EIA Report (Chapter 6.2), the residual impact (after the implementation of the measure) is assessed as a minor adverse impact.

- Clause 30 of TUCR includes requirements for mitigating the impact on the landscape - to reduce the visual impact of wind power plants on the landscape:
  - provides for the painting of the wings of wind power stations in light (white) color;
  - single color lighting is used for signal lighting of wind power plants.
  - ensures the protection of valuable trees during construction and during the preparation of the route of delivery roads, consulting with a certified arborist on the protection measures to be taken during the construction process.
  - provides wind farm transport delivery routes that eliminate the need for extensive roadside clearing.

Rating: a positive, direct long-term impact on mitigating the impact on the landscape. In the EIA Report (chapter 6.2), the remaining impact (after the implementation of the measures) is assessed as slightly unfavourable or insignificant.

- Clauses 32 and 33 of TUCR include requirements for preventing environmental risks and accidents:
  - Clause 32 of TUCR - If the wind power plant will be located closer than 300 m from the municipal road axis, it will be equipped with anti-icing systems and ice detection systems, which ensure that the operation of the power plant is stopped in cases where icing is detected.
  - TUCR clause 33 - A Civil Défense Plan is developed, which is coordinated with the State Fire and Rescue Service and Valmiera County Municipality. After the plan is approved, it is submitted to the municipality of Valmiera region.

Rating: positive, direct long-term impact on human safety. In the EIA Report (chapter 6.2), the remaining impact (after the implementation of the measures) is assessed as insignificant.

- TUCR paragraph 21 states that in order to reduce the impact on the protected forest habitat 9010*:
  - the construction of the planned wind power plant No. 3 is envisaged without draining the construction site;
  - in the construction project of the planned wind power station No. 8, road widening is not allowed, touching the habitat 9010* landfill.
- Paragraph 22 of the TUCR stipulates that, in order to reduce the impact on the protected forest habitat 91D0*, the location of the planned wind power plant No. 19, the construction area and access roads will be created with embankments, without the construction of new ditches and drainage of the territory, and dams will be created at the ends of the ditches near the habitat 91D0* .

Rating: positive, direct, long-term impact on biotopes of European Union importance - protected forest biotopes 9010* and 91D0* Swamp forests, preserving/ensuring the optimal hydrological regime for their existence. In the EIA Report (Chapter 6.2), the residual impact (after the implementation of the

measure) is assessed as a minor adverse impact. Applies to the construction phase of WT No. 3 and WT No. 8.

- Paragraph 21 of the TUCR stipulates that to reduce the impact on the site of *Orobanche pallidiflora*:
  - the construction of the planned wind power station No. 1 is planned without affecting the found deposit at least 100 m south of the originally planned site, the embankment of the construction site is made without drainage ditches. and soil obtained on site is used to strengthen the edges of the construction site;
  - during the construction of the planned wind power station No. 3, the movement of equipment and other types of activity to the south of the drainage ditch, which is located along the planned access road in the 4th area of block 708, are not allowed.
- Paragraph 25 of the TUCR states that it is not permissible to move equipment, place materials and other construction-related activities in the protected species deposits, which are indicated in the cartographic material of the report of the environmental impact assessment "Construction of wind power park "Lode" in Valmiera county's Lode and Ipiķu parishes".

Rating: negative, direct, long-term impact on a site of specially protected species. In the EIA Report (chapter 6.2), the remaining impact (after the implementation of the measure) is assessed as a significant adverse impact regarding the construction of WT No. 1 and a minor adverse impact regarding the construction phase of WT No. 3.

- Clause 24 of the TUCR includes requirements aimed at reducing the impact on potentially protected trees:
  - during the construction of the planned wind power plant No. 4, damage to potentially protected tree crowns or root systems is not permitted;
  - for the access solution of the planned wind power plant No. 16 and for the expansion of the existing road at the intersection with the newly constructed access road, a solution is chosen that preserves the roadside oak trees.

Rating: positive, direct, long-term impact on potentially protected trees. In the EIA Report (Chapter 6.2), the residual impact (after the implementation of the measure) is assessed as a minor adverse impact. Applies to the construction phase of WT No. 4 and WT No. 16.

- Clause 26 of TUCR includes requirements with the aim of reducing the risk of death of bats:
  - wind power plants are equipped with a technological solution that ensures wind power plants are suspended or not started during the time periods and conditions specified in the environmental impact assessment report "Construction of Wind Power Park "Lode" in Lode and Ipiķu Parishes of Valmiera County";
  - bat monitoring in the first and second year after the start of the wind farm operation and, if necessary, revises the wind power plant operation restrictions according to the monitoring results.

Rating: positive, direct, long-term effects on bat populations. In the EIA Report (Chapter 6.2), the residual impact (after the implementation of the measure) is assessed as a minor adverse impact.

- Clauses 26, 27 and 28 of the TUCR include requirements for the protection of birds:

- deforestation is carried out outside the bird nesting season (from August 1 to March 1);
- to reduce the risk of bird strikes:
  - installs and uses equipment for the automatic detection of bird flights (at least the little eagle, hen hawk, kestrel, sea eagle, golden eagle, osprey, black stork, white stork, mouse buzzard), recognition of flying birds and automatic stopping of the station, covering the entire wind farm area or no less than 1.5 km radius around each wind power plant;
  - the first section of the wind power plant mast at a height of 20 m is painted in a dark color in the colours of the surroundings (green or brown) with a gradual transition from dark to light.

- to reduce the risk of endangering species of the owl family, the planned wind power plants No. 11 and No. 18 are equipped with a technological solution that ensures the suspension of the operation of the wind power plants or non-starting of the operation if the wind speed is less than 5 m/s.

Rating: positive, direct, long-term impact on the bird population. In the EIA Report (Chapter 6.2), the residual impact (after the implementation of the measure) is assessed as a minor adverse impact.

- Clause 31 of the TUCR includes requirements for the protection of potential cultural and historical values in the local plan - During the construction design, the construction sites of the wind power plant are surveyed by an archaeologist. During the construction of wind power plants and the infrastructure necessary to ensure their operation, an archaeologist is invited during the construction work.

Rating: positive, direct, long-term impact on the protection of potential cultural and historical objects and territories in the territory of the local plan. In the EIA Report (Chapter 6.2), the residual impact (after the implementation of the measure) is assessed as an insignificant impact.

Sum and Cumulative Effects

Evaluating the impact of the wind park, the summative and cumulative impacts in relation to several environmental aspects are evaluated within the framework of the development of the EIA Report.

Within the EIA Report, the cumulative impact on the landscape is assessed. The "Saarde" wind farm is located approximately 10 km to the northwest (in Estonia) from the area of the local plan, and another wind farm "Saarde II" is planned, where a total of 18 wind turbines with a total height of 230 m are planned to be installed. On the other hand, on the eastern side, possible areas for the development of two new WT parks have been determined.

In the territory of Latvia, the wind power park "Aloja" is planned approximately 25 km to the south-west from the planned WT parks, for which the EIA has been started. It is planned to install up to 31 stations with a maximum height of 250 m. Nearby, the EIA process has been started for another wind power park "Matīši", where 8 wind turbines are planned to be installed, as originally planned, with a height of 261 m. The distance of the planned park to the territory of the intended activity is approximately 30 km.

Evaluating the current situation and being guided by the distances of the visibility zones, as a result of the cumulative effect, the visual load could be between the "Lode" park and the two "Saarde" parks located in Estonia, as the overlap of the good visibility zone was found. However, since, according to the visual impact map, WT park "Lode" already has a low visual impact on the surroundings at a distance of 6 km, the overlap of visibility zones is not considered significant.

Cumulative effects can also occur in the context of bird protection, especially when several wind farms are built in a certain region. In the opinion of the developers of the EIA report, it is currently not possible

to carry out a full-fledged cumulative impact assessment in the context of bird protection. It is unequivocally possible to state that such effects will be formed, taking into account the number of wind farms planned in Valmiera and Limbaži counties, as well as in the border part of Mulgi county in Estonia.

Considering the above, it is expected that the construction of wind parks planned in the region will have a cumulative negative impact on bird populations, which may also be significant. Unfortunately, it is practically impossible to quantitatively assess the extent of the impact at the moment. In the opinion of the developer of the EIA Report, the precautionary principle used in the environmental impact assessment process forces conclusions to be drawn based on the worst possible scenario, namely that all planned wind farms are built. Taking into account the fact that it is not possible to plan joint impact mitigation measures on a regional or national scale, in the opinion of the developers of the EIA Report, all possible measures for impact mitigation should be implemented in each specific wind farm, which can potentially create a situation where the scope of the overall impact does not pose a significant threat to certain bird species for the preservation of populations. This approach is also considered when determining and recommending measures for impact mitigation in the EIA Report[30].

If another wind power plant park develops in the vicinity of the Local Plan territory in the future, the total and cumulative effects must be evaluated in further assessments that meet the requirements of regulatory acts, incl. in environmental impact assessments.

7.3. ALTERNATIVES

In the EIA process evaluated both the location of the intended operation - WT construction sites, and the alternatives of technical solutions - WT models. Alternatives for the location of the WT include different location solutions for the power plant, which have been evaluated in the EIA process, arriving at an optimal solution that balances the various interests of nature and environmental protection.

Considering the previous experience in the planning of wind farms in Latvia, where it has been established that the initial definition of different alternatives for the location of wind turbines, by evaluating each alternative as the only possible solution, is not a rational solution. In the EIA process, circumstances may be identified that require changes to be made to the originally intended alternative or alternatives, resulting in derivative solutions. By comparing two or more alternatives, one can often conclude that the best solution in the context of nature and environmental protection is not any of the alternatives in full, but the selection of certain stations or solutions from more than one evaluated alternative, combining them in the final solution.

During the environmental impact assessment of the "Lode" wind park, the developer defined the initial possible location of the stations, which was primarily submitted to the assessment of natural experts. Preference was given to the assessment of natural experts, because, based on previous experience, it is the assessment of these experts that can have the most significant impact on the solution for the location of power stations, while physical effects - noise, flickering, environmental risk - are basically reduced not by moving the stations, but by implementing technological measures to reduce the impact mitigation or prevention. Until the time of preparation of the environmental impact assessment report, various basic variants of individual WT and infrastructure placement related to avoiding specially protected habitats, habitats, sites of protected species and other natural values have been analysed.

The evaluation process was started with a larger number of WT as assessed and analysed in detail in Chapter 4 of the Report, already at the initial stage rejecting those WT whose implementation is impossible, based on experts' conclusions about significant negative effects that cannot be mitigated by appropriate measures or compensated.

[30]information - "Evaluation report of the construction of wind park "Lode" on the environment", SIA "Estonian, Latvian & Lithuanian Environment", 2024.

The solution evaluated in the EIA report and other considered alternatives for WT placement are shown in section 3.3 of the report. in the department.

Although apparently this approach allowed to avoid several potential conflicts in the context of conservation of nature values, even the chosen basic solution is not ideal (see more, for example, in the EIA Report's impact on ornithofauna chapter). The selected basic alternative includes a solution for the construction of up to 19 WT in the local plan.

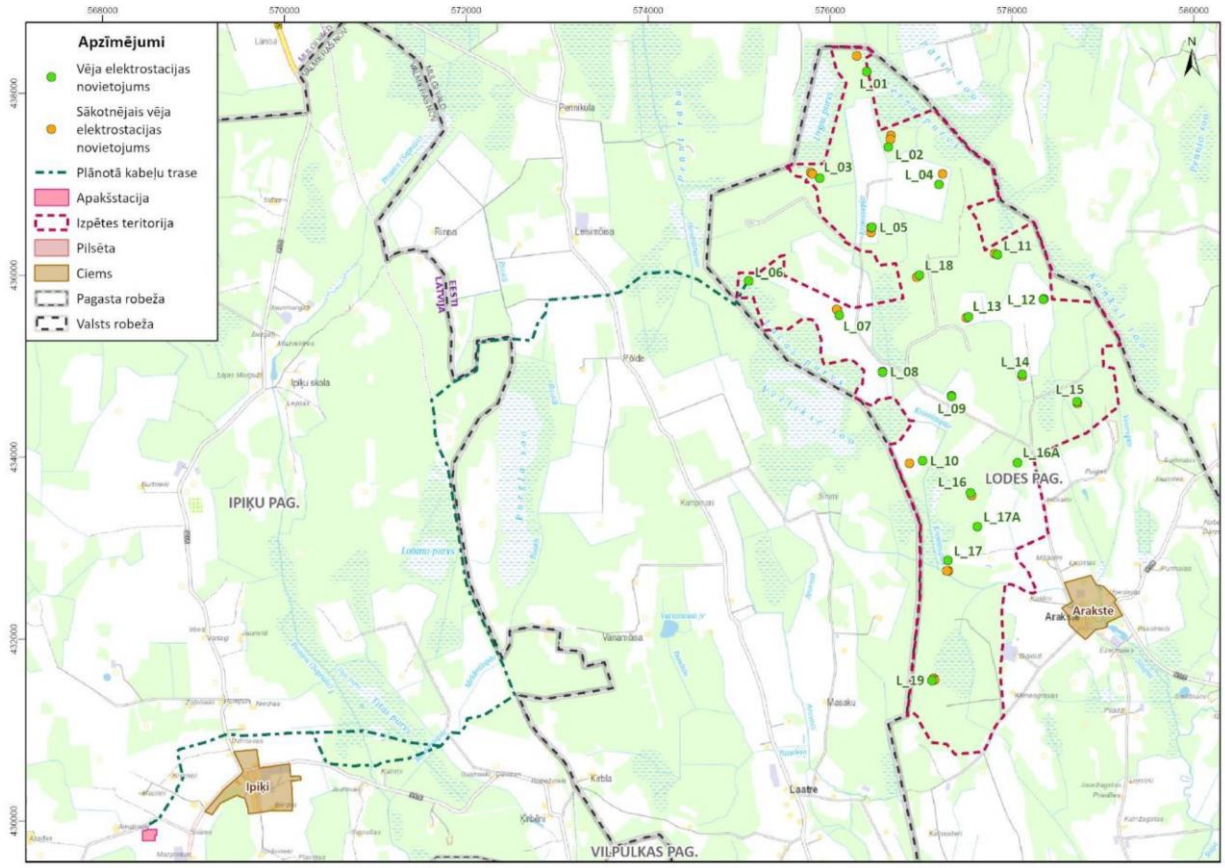
The WT location alternatives evaluated in the EIA process are shown in Figure 22. For power stations No. 16 and No. 16A, No. 17 and No. 17A, in the EIA Report, when evaluating the location alternatives, two location alternatives have been retained, because alternatives No. 16A and No. 17A can only be implemented under the condition that an agreement is reached with the residential the owner of the house "Inčukalni" for demolishing the building.

Alternatives of technical solutions evaluated in the EIA report are described in Section 3.2 of the Report. in the department. Within the scope of each impact aspect, the location and/or technical solution alternative is evaluated, providing relevant information, evaluation and conclusions in the specific section of the EIA Report.

It should be emphasized that measures to prevent and reduce the possible impact on natural values have already been taken during the development of the EIA Report, by evaluating the initial placement of the WPP and infrastructure and providing planners with information about the identified natural values, possible alternative locations of the WPP and related infrastructure, as well as explaining the basic principles for planning the placement of WPP, to avoid impact on natural values.

Compared to the initial location, the configuration of the WT park contained in the EIA Report has significantly reduced the length of newly built access roads, the locations of WT are planned as far away from the habitats that must ensure an undisturbed hydrological regime, the number of planned WT has been reduced, etc. significant impact mitigation measures.

Figure 12. Alternatives for the location of the intended activity evaluated in the EIA process[31]



In the process of developing a local plan from the point of view of territory development planning, two alternatives were considered:

1st alternative- functional sub-zones in which the construction of wind power plants is allowed, to be determined only in parts of land units where the construction of wind power plants is planned within the framework of the EIA Report.

As part of the development of the local plan, the possibility of determining the functional sub-zones only in parts of land units where the construction of wind power plants is planned as part of the EIA Report has been evaluated. Such an approach was not implemented and included in the local plan, because the EIA Report states that the location of wind power plants can be changed, is power plants are allowed to be located not only at the indicated points, but anywhere within the boundaries of the relevant land unit. The specific location of the wind power plants will be specified during the construction design stage, taking into account additional research that will follow during the construction design.

[31]image - "Evaluation report of the construction of wind park "Lode" on the environment", author - SIA "Estonian, Latvian & Lithuanian Environment", 2024.

Apzīmējumi (Legend)
Vēja elektrostacijas novietojums: Wind power station location
Sākotnējais vēja elektrostacijas novietojums: Initial wind power station location
Piekļuves ceļš: Access road
Plānotā kabelu trase: Planned cable route
Apakšstacija: Substation
Izpētes teritorija: Research territory
Pilsētas: Cities
Ciema: Villages
Pagasta robeža: Parish border
Valsts robeža: State border

This alternative was abandoned, also because it does not allow flexible response to possible changes in the building design process, which might be necessary to optimize the use of wind resources and reduce the negative impact on the surrounding environment and residents. This means that determining the functional sub-zones only in specific parts of the land units could limit the possibilities of successfully implementing the wind park construction project, if the need to change the location of the wind power plants is revealed at the construction design stage.

Alternative 1 is inflexible and lacks the ability to adapt to a changing situation. Wind farm development projects are time-consuming and dynamic, they need to adapt to changing conditions. Therefore, flexibility in the choice of location is essential to make the most efficient use of available resources and ensure the viability of the project.

In the construction design stage, more detailed research and determination of the most suitable place for the construction of the wind power plant are carried out. This allows to optimize the placement of power plants in such a way as to minimize the negative impact. Moreover, clarifying the location of wind power plants at the construction design stage allows choosing optimal construction sites that make maximum use of wind resources to ensure maximum energy production and reduce energy losses.

Considering the above, it can be concluded that flexibility should be maintained in the development of local planning regarding the location of wind power plants. This will ensure that the project can adapt to changing conditions, optimize the use of resources and reduce potential negative impacts on the environment and society.

2nd alternative- functional sub-zones "Agricultural territory" (L1) and "Forest territory" (M1), where the construction of wind power plants and wind parks is allowed, to be determined for all land units where the functional zones "Agricultural territories" (L) and " Forest areas" (M).

The 2nd alternative is flexible and able to adapt to a changing situation. At the construction design stage, more detailed studies and determination of the most suitable place for the construction of the wind power plant are carried out within the boundaries of the specific land unit. If impacts are predicted that have not been evaluated during the preparation of the EIA Report, the potential impacts will be evaluated as part of the initial environmental impact assessment regarding the extent of changes and the different location of the wind power plant or related engineering structures.

Determining functional sub-zones in the entire territory of the land unit where wind power plants are planned, and not only in certain parts of them, is a pragmatic and reasonable solution that increases the possibilities and efficiency of project implementation.

8. SOLUTIONS FOR REDUCING THE POTENTIAL IMPACT ON THE ENVIRONMENT

With the local plan, amendments have been prepared for its territory in the effective territorial planning of Rūjiena district for 2012-2024. The development of the local plan considers the requirements specified in the local plan development task and the requirements set by the state environmental institutions. The development of the local plan takes place at the same time as the assessment of the environmental impact of the activity envisaged in the development plan - the wind power park "Lode", basing both the development of the Local Plan and this SEIA Environmental overview on the results of the assessment of the significant environmental impact of the wind park carried out in the EIA process.

Since the planning and EIA processes took place simultaneously, detailed research information was obtained for the development of the Local Plan on the effects of all environmental aspects of the intended operation and the affected areas, solutions for preventing negative effects. Local planning solutions have been developed considering the following main area studies, the results of which are summarized in the EIA Report:

- Ambient and low frequency noise
- Biological diversity - plants and habitats
- Biological diversity - ornithofauna
- Cultural and historical values
- Climate
- Waste management
- Communication systems
- Vibrations
- Blinking effect
- Biodiversity - bats
- Landscape and visual impact
- Air quality
- Geology and hydrology
- Environmental risks and emergency situations
- Socio-economic aspects
- Exposure to electromagnetic fields

Considering the above, in the local plan:

- based on the results of the EIA, the planned placement of wind power plants and related engineering structures was prepared in such a way as to minimize the impact on protected natural values. In the EIA process, considering the location of habitats of European Union importance and deposits of specially protected species, environmental noise and low-frequency noise forecasts, the originally planned location of wind power plants and related engineering structures was corrected. Locations and configurations were changed to minimize impacts on protected natural values or homesteads. Several wind power plant construction sites where construction would negatively affect or even destroy natural values were abandoned.
- Clause 11 of the TUCR includes the requirement that measures to reduce environmental risks are implemented in accordance with the requirements contained in the opinion of the State Office of Environmental Supervision on the environmental impact assessment report "Construction of wind power park "Lode" in Lode and Ipiķu parishes of Valmiera province" regarding the place and scope of the intended activity and types of technologies, as well as prevention, mitigation and monitoring of impacts.
- Clause 12 of TUCR includes requirements for ensuring the requirements of environmental noise regulations.
- Clauses 13 and 14 of TUCR include a requirement for reducing the impact of low frequency noise;
- Clause 33 of the TUCR includes requirements for the need to develop a civil defence plan.
- TUCR clauses 32 and 33 include requirements for the prevention of environmental risks and accidents.
- TUCR from points 15 to 20 includes requirements for mitigating the effect of the flickering effect and monitoring the implemented measures, in existing and potentially future built residential and public buildings, if they are built in the local plan or in the immediate vicinity;
- Clause 30 of TUCR includes requirements for mitigating the impact on the landscape;
- Clause 31 of the TUCR includes requirements for the protection and preservation of cultural and historical heritage;
- TUCR points 21 and 22 set requirements to reduce the impact on specially protected habitats;
- Clause 21 of the TUCR sets requirements to reduce the impact on the pale-flowered brown-stem deposit;
- Clause 24 of the TUCR includes requirements to reduce the impact on potentially protected trees:
- Clause 26 of TUCR includes requirements to reduce the risk of death of bats;

- TUCR clauses 26, 27 and 28 include requirements for the protection of birds;

9. POSSIBLE COMPENSATORY MEASURES

According to the provisions of Article 43 of the Law "On Specially Protected Natural Areas", compensation measures must be determined if the planning document affects the ecological functions and integrity of the protected natural area of European importance (NATURA 2000) and contradicts the goals of its creation and protection.

The entire area of the local plan is located in the neutral zone of the specially protected nature area, the North Vidzeme Biosphere Reserve, and is part of the territory where the construction of wind power plants is allowed without height restrictions, but there is a restriction that wind power plants can be placed in groups in which the number of wind power plants does not exceed 20, minimizing the distance between adjacent for existing wind power plants.

To ensure the preservation of the landscape, ecosystems, species and genetic diversity of the territory and to promote sustainable economic development, the territory of the biosphere reserve is divided into functional zones (landscape protection and neutral zone). Neutral zone - the outer zone of the biosphere reserve, where sustainable nature is ensured as a prerequisite for local development. It was established to promote the balanced and sustainable development of settlements located in the territory of the biosphere reserve. The neutral zone includes all towns and villages located in the territory of the biosphere reserve.

According to the information published in "Ozols", there are no other specially protected natural areas, micro-reserves and their buffer zones, as well as specially protected trees, in the territory of the local plan.

Within the framework of the EIA report, no effects were found that would affect the ecological functions and integrity of the protected natural area of European importance (NATURA 2000) or would conflict with the goals of its creation and protection, therefore the Environmental Report does not provide compensatory measures.

10. ASSESSMENT OF THE POTENTIAL SIGNIFICANT CROSS-BORDER IMPACT OF THE PLANNING DOCUMENT

Wind power plant park "Lode" is geographically located in the northern part of Valmiera county, at the border of the Republic of Estonia, in a place where the contour of the administrative territory of Latvia forms a protrusion. Impacts on the environment in the report and within the framework of the preparation of the Environmental report, the most significant possible cross-border impacts on the territory of the Republic of Estonia - residential construction, protected natural values, ornitofauna, landscape quality, noise and flickering effects are assessed.

10.1.1. Residential construction

In Estonia, the minimum distance requirements between wind power plants and residential areas are not determined at the national level. Instead, these distances are determined by local governments in their building regulations. The binding regulations of Mulgi County do not set restrictions, such as minimum distances to residential houses.

10.1.2. Natural values

Information about specially protected nature areas, micro-reserves, species and habitat deposits in Estonia near the local planning area was obtained from the EELIS database (Estonian Nature Information System) as part of the preparation of the environmental impact assessment report.

There are three protected biotopes of European importance - forests and grasslands - in the vicinity of the planned activity in Estonia. The closest is the Veelikse swamp, which corresponds to habitat 9080*

Staignāi forests. Part of the swamp extends into the territory of Latvia, where it is called Lucas swamp. Veelikse bog and biotope 9080* are located approximately:

- 700 m south of WT no. 6;
- 700 m southwest of WT no. 7;
- 400 m southwest of WT no. 8;
- 800 m west of WT no. 9;
- 400 m west of WT no. 10.

Approximately 2.5 km east of the planned WT no. 15 On the banks of the Penuja River there is a protected biotope of European importance 6450 Floodplain grasslands.

No deposits of specially protected or rare plants, as well as large trees, have been found in the vicinity of the local plan on the territory of Estonia.

Veelikse marsh, corresponding to the habitat 9080* Staignāi forests, is separated from the planned wind power plants and related infrastructure by a strip of agricultural land. A direct impact on the swamp is not possible because it is located far enough from the construction sites. Indirect effects, such as changes in the hydrological regime, are also not expected, since the construction sites are separated from the marsh by drainage ditches, and the marsh is in a relief depression.

The protected biotope of European importance 6430 stands of Eutrophic tall herbaceous plants, marked as Purgla marsh, is located far from the planned WT construction sites and will not be affected. Also, the habitats 6450 Floodplain grasslands and pine and mixed pine forests are far enough away from construction sites that direct or indirect impacts are excluded.

10.1.3. Ornithofauna

Impact on the environment as part of the preparation of the report, an expert ornithologist, looking for small eagles and inventorying adjacent forest areas, additionally surveyed the territory of the Republic of Estonia, approximately 3 km away from the planned wind power plants.

On the Estonian side, several protected areas have been established for the protection of the little eagle. Two of them KLO3001938 and KLO3002473 are located 300 - 850 m from the local planning territory of the Republic of Latvia in the west. Another territory KLO3001586 is located approximately 1.3 km from the border, in the north of the territory.

From the nest of the little eagle found in the Republic of Estonia (ID 680341820), WT No. 6 is located 1200 m away, WT No. 7 - 2145 m, WT No. 3 - 2490 m, WT No. 8 - 2680 m and WT No. 5 - 2700 m. From the nest of the little eagle found in the Republic of Estonia (ID 1115379091), WT No. 1 is located 1850 m away, WT No. 3 - 2450 m and WT No. 2 - 2670 m away.

During the survey, one gecko's nest was found in the territory of the Republic of Estonia, in the protection area of the little eagle (ID 680341820). The distance from the nest to WT No. 6 is approximately 740 m, WT No. 7 approximately 1730 m, and WT No. 3 approximately 1970 m. The area of the planned wind power plant park, especially its periphery, can be characterized as inhabited by the hawk and well suited for the long term, where it stays approximately from the second decade of May to the middle of September. Foraging flights are mostly low, but roost flights and territory guarding are at the height of the rotors, so the WT should be built as far as possible from all known nests of the grebe.

The nearest known territory of the sea eagle is in the Republic of Estonia, approximately 8 km north of WT No. 1 at Lake Karistes. During the survey of the territory by an ornithologist expert, the flyover of the sea eagle was detected twice - in spring and autumn. The risk of collisions is assessed as low.

Sparrowhawk can be observed around all stations throughout the year. One inhabited nest was found in the Republic of Estonia approximately 310 m from WT No. 10.

The expert concluded, that although WT No. 6 will be located 1200 m from the nest of the little eagle on the territory of Estonia, it has been established that the potentially most important hunting (feeding) habitats are right near the nests, and not in the central part of the planned wind farm. One of the factors

why the central area of the planned park is not important for food production is the relatively small amount of agricultural land on which sown crops grow, while long-term grasslands have not been found there. The second obstacle is an approximately 1.5 km wide forest strip between the eagle nests in the Republic of Estonia and the agricultural areas in the park. These factors generally contribute to the fact that the little eagle preferentially chooses to feed in the wide areas around the nest, and the planned park area is not a priority feeding area for it, although it is possible.

Therefore, the expected significant negative impact caused by the small distance from the WT to the nest should be evaluated in the context of the area's insignificance as a feeding area. Consequently, the impact will be significantly reduced by providing appropriate mitigation measures (see Chapters 8 and 9).

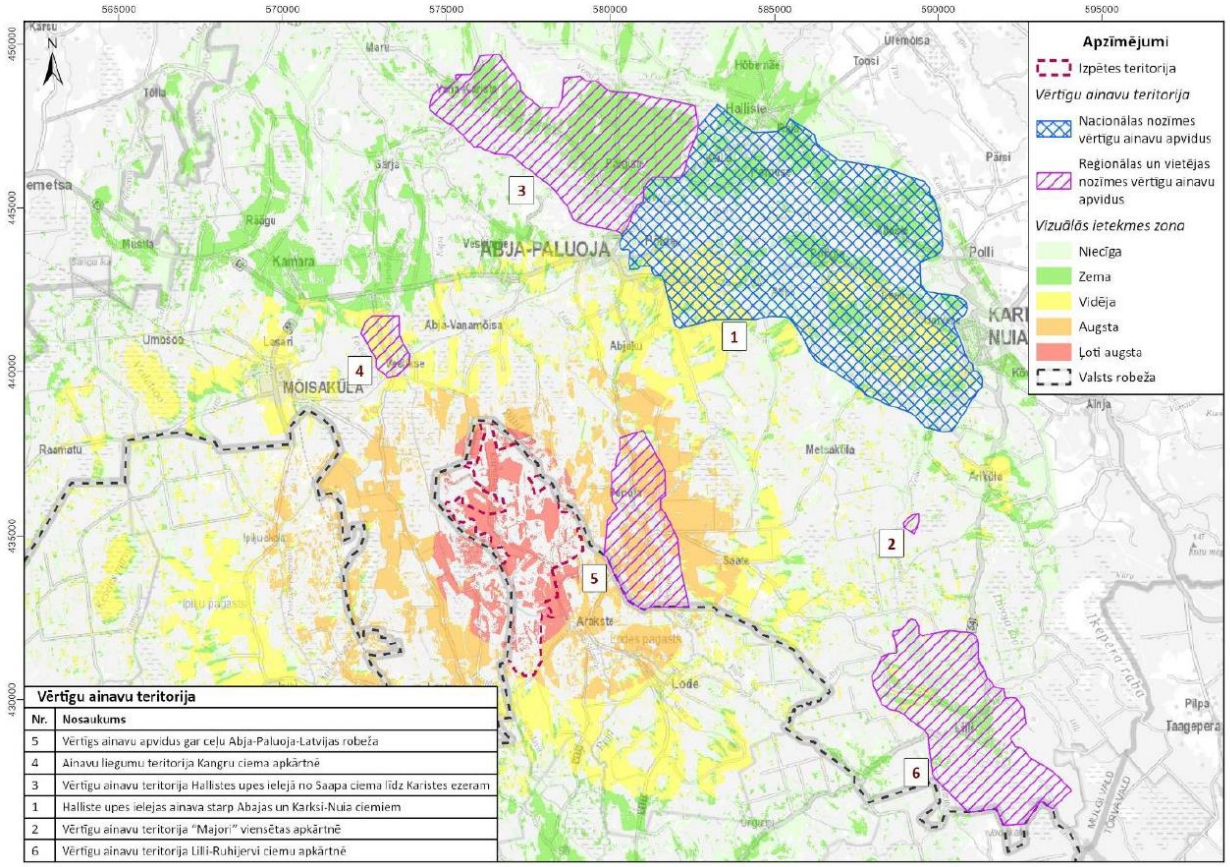
10.1.4. Landscapes

In the preparation of the chapter, information was used from the opinion of landscape architect-expert Heiki Kalberg "Impact of wind park "Lode" on the landscape in the territory of Mulgi municipality (Estonia)", which was prepared as part of the environmental impact assessment and is available in full in the appendix of the EIA report.

The study area includes the valley of the Halliste River with a relatively flat and undulating agricultural landscape bordering this valley from Abja to Karksi-Nui. Historically, this area was characterized by large agricultural areas, where the natural landscape was mainly represented by the valley of the Halliste river. The slopes of this valley were mostly overgrown or covered with forests, but open floodplain meadows were also found on the Abja side. There are also older forest areas and strips in the Halliste river valley and its slopes. Historically, many estates were located here, such as Abja, Pornuse, Pöogle and Kaubi. The area was dominated by scattered homesteads and individual villages such as Allaste, Leeli, Univere and Mäkiste.

Today, the rural character of the territory has been preserved. Agricultural lands are still in use, although on a smaller scale, and some of them are overgrown. In the 60s and 70s of the 20th centuries, agricultural areas were extensively meliorated, losing their structure and groves, as well as some homesteads. A well-preserved road network north of the Halliste river valley, while the Karksi-Nuia - Abja road was straightened and restored in the early 2000s. Spruce hedges and groups of trees are still preserved on the sides of the road.

Figure 13. Valuable landscapes in the vicinity of the planned wind park in the Republic of Estonia[32]



- ***Halliste river valley between Abaya and Karksi-Nuia villages***, which is a landscape of regional significance (with potential national significance) (marked with No. 1 in the picture)

In the landscape, the territories of the former manors have a high cultural and historical value, where the contours of the manor buildings and partly also the buildings themselves, as well as homesteads, have been preserved. The wide views of the valley of the Halliste river and the immediate surroundings from the roads are highly valued aesthetically. Natural values are made up of various landscape elements, such as the valley of the Halliste river with floodplain meadows, some of which are overgrown, forest massifs and small clumps of trees. The recreational value of the area is average, mainly provided by the views from the roads when passing through. However, the poor condition of historic manors does not make them attractive recreational facilities.

The planned wind farm will have little or no impact on the northern part of the Halliste river valley. Significant changes in the landscape are expected south of Valga-Uulu Road No. 3, where wind power plants will be clearly visible from the road. However, this impact cannot be evaluated as significantly negative, because the landscape has already changed and cannot be evaluated as historically significant.

- ***Landscape of homesteads (Majori homestead).***is a landscape of local (municipal) significance, located approximately 10 km east of the planned wind power plant area (marked with No. 2 in Figure 13). The "Majori" homestead is located about 5-6 km southwest of Karksi-Nuia, on the western edge of the Saaretse marsh, at the highest point of the area. The farm has been renovated and its area is around 20 ha, which is cultivated

[32]image - "Environmental impact assessment report of the construction of wind park "Lode", SIA Estonian, Latvian & Lithuanian Environment

in a traditional way. The farm is surrounded by diverse, mostly swampy forests, where in some swamps in the 20th century Peat extraction has been carried out in the 1950s.

The high cultural and historical value of this landscape is determined by its preservation in good condition, as some buildings are 200 years old or more. The old military road built on logs runs through the Saaretse marshes. The high aesthetic value is determined by the beautiful, well-maintained, traditional farm located in a picturesque natural area with a changing terrain.

The identity value of the homestead is medium, as it is also recognizable outside Mulgi County. The recreational value of the area is average, which is mainly provided by the hiking trail and the offer of ecotourism, which is not particularly extensive. The impact of the planned wind power plant on this area is low or insignificant, as the homestead is located in the middle of the forest, where the wind power plants will practically not be visible.

- ***A valuable landscape of local importance in the valley of the Halliste river from the village of Saapa (Saapaküla) to Lake Kariste*** (marked with No. 3 in Figure 13). The area is approximately 5.5 km from the wind farm to the north and northeast)

The study area includes the Halliste river valley and the homesteads and settlements to the north of it, such as the villages of Päigiste küla, Saapaküla and Vana-Kariste. The Vana-Karistes manor and the Karistes lake dam are also located in this area. The north of the area is dominated by vast agricultural landscapes with undulating relief, while the south is the valley of the Halliste River with a lower relief. Lake Karistes is mostly surrounded by forest.

Only one side building has survived from the Vana-Karistes manor complex. The territory of the manor offers a view of Lake Vana-Karistes, but the view is spoiled by the granary of the kolkhoz built during the Soviet era, which is located next to the manor. The former Liplapi home economics school (1910-27) is located on the side of the Uue-Kariste road. The school territory is park-like with leafy tree plantations.

The average cultural and historical value of the territory is determined by the well-preserved rural structure and maintenance, as well as a well-established road network. The landscape has a medium aesthetic value, as it offers wide views, including from the Vana-Karistes manor to the lake. The recreational value of the territory is average, which is mainly made up of recreation opportunities in the guest houses located in the northern part of Lake Karistes.

The visual impact of the planned wind farm is low or negligible. In places with a beautiful view, wind farms will be visible in the background, but their effect will not be dominant. The planned wind farm does not affect the scenic values, as they are specific to a specific location and are not related to the historically preserved panoramic view. See the visualizations in Appendix 9 of the Explanatory Article.

- ***Kangru village,***which is located about 3.3 km northwest of the planned wind farm (marked with No. 4 in Figure 13)

The village of Kangru is a valuable landscape reserve area, which is located along the Veelikse - Laatre - Latvian border road and is part of the Veelikse village. Here, farms are clustered along the sides of the road with a variety of roadside plantings, and the agricultural land is carefully managed. The main scenic values in this area are a small water body with a small dam and the Lātres railway station building, which is also an architectural monument.

From the Valga - Uulu road in the direction of the border with Latvia, you can see scenic views, which are made up of a diverse landscape, long and open viewing areas, large individual trees, as well as stands of trees and decorative bushes along the road. Homesteads of different ages form accents in the landscape. However, a 330 kV high-voltage power line also crosses this viewing area.

The visual impact of the planned wind farm is low due to wide open views in the landscape. Wind power plants will be clearly visible and stand out in the landscape, especially closer to the border of Latvia. At the same time, the distance between wind power plants is more than three kilometres, so they do not have a dominant effect. The planned wind farm will not affect the valuable landscapes, and their value will not decrease.

- ***Penuja, Abja - Paluoja - Latvian border road,*** which is located to the east of the intended area of operation at a distance of about 2 km (marked with No. 5 in Figure 13).

Penuja is a valuable landscape area along the Abja - Paluoja - Latvian border road. Although this road is not officially recognized as a scenic road, according to an expert, the views from the road are very valuable. These views include a village with church ruins and former school buildings, diverse roadside plantings near homesteads, and managed and abandoned farmland. According to the general plan of Abjas parish (2008), the area is partially designated as a valuable building area.

Various farms can be seen in the landscape of the road: both very tidy (Kaidiaia, Känsi), old and poorly maintained, newly built households and partially collapsed buildings. These buildings are from different eras. Power lines, a substation and small solar parks are also visible from the road.

The wind farm "Lode" is located to the west of the road, where the terrain is more wooded. Open views are more on the east side of the road. Around the village of Penuja, there are more views of the wind park, and the wind power plants will be clearly visible. The nearest wind farm is located about 1.3 km from the residential area.

The visual impact of the planned wind farm in the village of Penuja and the western part of the village of Sate is significant due to the short distance. As a result of the construction of the wind farm, the natural aesthetic value of the landscape will decrease. Although the stretch of road and the village of Penuja are not of cultural and historical value, the area contains buildings from different eras and is a well-maintained landscape with future potential. The village of Penuja, its surroundings and buildings have changed over time and, most likely, the changes will continue in the future, regardless of the implementation of the wind power park "Lode". From the point of view of landscape architecture, the construction of a wind farm is permissible.

Figure 14. Photomontage of the view from the Penuja village territory on the Luigas road to the wind turbines. Wind turbines are visible, and the closer ones dominate the view.

- ***Lilli-Ruhijervi (Lilli- Ruhijärve) landscape,*** which is located about 10 km southeast of the wind farm (marked with No. 6 in Figure 13).

During the 2015 inventory, the landscape of Lilli-Ruhijervi was included in the list of category II landscape protected areas. This area includes the villages of Lilli and Peraküla, Ruhijärvi and Teringi Landscape Nature Park. The terrain is hilly and variable, with the valley of the Lilli Stream crossing it. The elevations are dominated by both agricultural land and forested areas, while the lower areas, including around Ruhijervi, are mostly forested.

The road that goes through Lilli (Viljandi – Karksi – Ruhja) is probably very old. In the 13th century it was used by the knights of the order as a war road and in the 19th century for transporting goods to the Riga market. In the last assessment, the scenic value of the area has decreased, mainly due to the newly built road to the village of Lilli.

The visual impact of the proposed activity on this area is medium to low. The planned wind farm does not affect the scenic values, as they are site-specific and not related to a historically preserved panoramic view.

Evaluating the impact of the intended action, it is insignificant in the opinion of the expert, although the surrounding landscape will undeniably change, especially in areas closer to the planned wind farm.

10.1.5. The Noise

Environmental noise indicators, their application procedure and evaluation methods are determined by the Cabinet of Ministers of the Republic of Estonia on 21.12.2016. regulations no. 71 "Ambient noise limits, methods of noise level measurement, determination and evaluation" (Välisöhus leviva müra normtasemed ja müratasem mezuri, säremise ja västäts metodsd). In Estonia, like Latvia, different noise limit values are applied to noise caused by traffic and industrial sources. However, according to the current regulatory enactments regarding environmental noise, the following are applied:

- environmental noise limits - the maximum permissible sound level, exceeding which causes significant damage to the environment, and if it is exceeded, appropriate noise reduction measures must be taken - is applied to existing residential areas;

- environmental noise target values - the maximum permissible noise level in areas with new buildings - is applied to planned areas of residential construction.

According to the regulations, environmental noise limit values are applicable according to the main types of territory use determined in the municipal territory planning, taking into account also those territories that include residential buildings. Evaluating the available information, it can be concluded that there are homesteads built on rural lands in the vicinity of the intended activity, and there are no separate planned residential areas in the territorial planning of the municipality.

In accordance with the mentioned regulations, the noise limits of industrial sources applicable to the built-up areas of category II shall be applied to the residential construction areas in the vicinity of the planned activities. This category includes educational institutions, health care and social welfare institutions, residential areas and green areas. The areas of the residential construction area are determined according to the topographical information available on the geoportal of the Estonian Land Service (Maa-Amet).

As part of the environmental impact assessment, environmental noise dispersion maps have also been prepared in accordance with the regulatory framework of the Republic of Estonia.

The results of the environmental noise calculations show that it is possible to implement the planned activity in compliance with the requirements of both Latvian and Estonian regulatory acts in the field of noise management, however, it is expected that when the loudest permitted stations are built, the noise level in the four residential areas closest to the planned wind farm will be higher than the World For the limit values recommended by the Health Organization for the noise generated by WT .

10.1.6. Flickering effect

The EIA Report also assesses the potential impact of the flickering effect created during the operation of wind power plants on residential areas in the part of Estonia located near the Lode wind farm.

Currently, neither Latvia nor Estonia has any regulatory acts that would determine the procedure for evaluating the flickering effect and limit the permissible level of this effect. A similar situation can be observed in other countries of the European Union, where the limit values of the effect of flickering are mainly determined in guidelines, not in regulatory acts. This is because the effects of flickering are considered a nuisance, but their effects on public health have not been scientifically proven. Most countries base these limit values on German guidelines.

When analysing the regulation of the flickering effect in other countries, the most frequently applied time limit values are:

- no more than 30 flashing hours per year using the worst-case scenario method.
- no more than 10 flashing hours per year in a real scenario (in Germany, Belgium and Sweden the recommended value is no more than 8 hours per year).
- no more than 30 minutes per day in both scenarios.

According to the results of calculations carried out as part of the environmental impact according to the worst-case scenario method (assuming that the sun shines constantly during daylight hours and is always perpendicular to the rotor blades, which are constantly moving) in residential areas located approximately up to 1.5-2 km from the edges for wind power plants, the limits set by the above guidelines may be exceeded (30 flashing hours per year). At a distance greater than 1.5 - 2 km, exceeding the limit values of the influence of the flickering effect cannot be predicted.

The regulations for the use and construction of the territory of the local plan include requirements for excluding the influence of the flickering effect in the nearest residential areas (see Chapters 8 and 9).

11. ENVIRONMENTAL MONITORING AND PLANNED MEASURES FOR MONITORING THE IMPLEMENTATION OF THE PLANNING DOCUMENT

The need for monitoring the implementation of territorial planning documents is determined by the MK on 23.03.2004. regulations No. 157 "Procedure in which the strategic assessment of the impact on the environment is carried out", with the aim of establishing the direct or indirect impact of the implementation of the territory development planning document on the environment, in order to respond in time and prevent the negative consequences of the implementation of some measures, and, if necessary, to make amendments to the territory in the development planning document.

Article 1 of the Environmental Protection Law defines that environmental monitoring is systematic, regular and targeted observation, measurement and analysis of the state of the environment, species and habitats, as well as pollution emissions. The purpose of environmental monitoring is to obtain information about the state of the environment.

For monitoring the implementation of the planning document, state statistical data, information obtained during environmental monitoring, as well as other available information are used.

The monitoring report must be drawn up and submitted to the State Office of Environmental Supervision within the deadline specified in the opinion of the State Office of Environmental Supervision. The monitoring report summarizes the available information and includes at least a description of changes in the state of the environment and their trends related to the implementation of the planning document.

The tasks of the municipality of Valmiera region include monitoring the execution of the measures specified in the planning documents, making corrections and setting new tasks in accordance with the set development goals. When developing a local plan, the municipality performs these tasks.

Taking into account that the area of the local plan is relatively small, and the local plan amends the territorial planning of Rūjiena district, in the opinion of the developers of the Environmental Report, the evaluation of the implementation of the local plan should be combined with the monitoring report of the territorial plan.

Recommended indicators for monitoring and/or monitoring of wind park development and/or actual impact of wind turbine operation planned in local planning solutions. The EIA report recommends monitoring and/or observations for the following indicators or their groups:

1) bat population monitoring (in the first and second year after the start of operation of wind power plants);
2) complex ornithofauna monitoring program. The detailed monitoring program must be developed before the start of the construction works, but after the final location of the stations and the selection of the model. The monitoring program is coordinated with the Nature Protection Administration.
3) monitoring of anti-foaming measures;
4) groundwater level and quality monitoring;
5) measures to reduce the negative impact of the flashing effect and their effectiveness;
6) changes in forest areas (in connection with the construction of the wind farm and reforestation during the operation of the park), restored forest areas;
7) implementation of wind farm park civil protection plan measures, results of implemented measures.

In the creation of the monitoring program, it is recommended to consult and cooperate with the State Environmental Service, the Nature Protection Board, involving certified experts, as well as to use the informational material of the State Office for Environmental Supervision on the assessment (monitoring) of the impact of the implementation of planning documents, which is available on the website of the State Office for Environmental Supervision http://www.vpvb.gov.lv/lv/strategiskais- ivn/monitoring.

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