City of Kuopio
Urban environment
City planning

Job no. 909
Rec.No. 2119/2025

12 March 2026

SORSASALO INDUSTRIAL ZONE

LOCAL DETAILED PLAN DESCRIPTION

INITIATION ANNOUNCED ON: 4 JUNE 2025

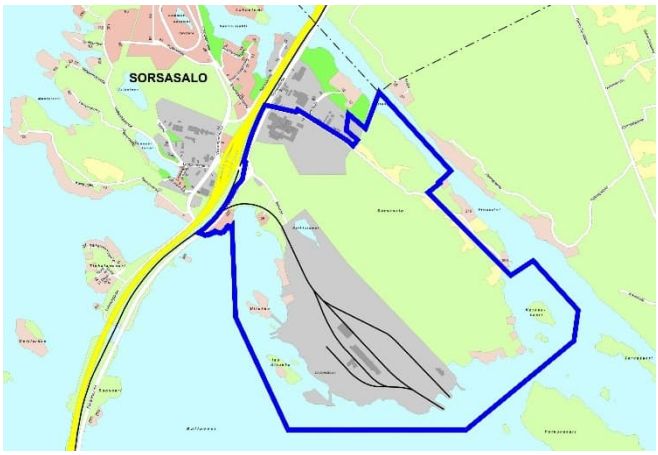
APPROVAL PROCEEDINGS: CITY COUNCIL

PLAN PREPARED BY: THE CITY OF KUOPIO,
URBAN PLANNING SERVICES,
CITY PLANNING

BASIC AND IDENTIFICATION DATA

The description of the local detailed plan and its change which concerns the local detailed plan map that was updated on 12 March 2026.

The local detailed plan applies to:	Some of the properties in the 22. district in Kuopio 297-430-1-28, 297-430-1-98, 297-430-1-282, and 297-430-876-1.
The local detailed plan will create:	Agricultural and forestry area and water area.
The change of the local detailed plan applies to:	Blocks 21 and 39 in the 22nd district of Kuopio and railway, street, protective green, and water areas.
The change of the local detailed plan will create:	Blocks 21 and 39–42 in the 22nd district of Kuopio and railway, street, protective green, and water areas.
The binding plot division creates:	Plots 15 and 16 in the block 21 of the 22nd district of Kuopio.
Location of area:	22nd city district of the City of Kuopio, Sorsasalo



Plan identifier:	909

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Appendices

1 Track sheet (prepared during the proposal phase)
2 Extract from the up-to-date local detailed plan / map to be decommissioned
3 Statements and opinions from the initial phase and responses

1 SUMMARY

1.1 Stages of the planning process

Initiation stage

- The participation and assessment scheme was discussed by the Urban Structure Board on 28 May 2025. (Section 115) The initiation of the plan was announced on the City website and on Viikkosavo.
- The participation and assessment scheme was available for public review between 4 June and 4 July 2025.
- A public event was organised regarding the initiation of the plan on 10 June 2025.

1.2 Summary of the local detailed plan

The local detailed plan and the change to the local detail plan were initiated by the City of Kuopio and Kuopion Energia Oy. The currently valid local detailed plan for the area was prepared mainly for the Finnpulp bio product factory, but the project was not realised. The objective of the local detailed plan and its change is to create an area that allows more diverse industrial functions as well as to consider the change needs of the operators in the area in relation to the local detailed plan where possible. In parallel to local detailed planning work, plans are also underway for a potential small modular reactor (SMR) for district heating for Kuopion Energia Oy and a renewable fuel plant for KIC InnoEnergy S.E. The construction of the latter would also be possible with the currently valid local detailed plan. New local detailed plans are being drafted for some of the properties at the end of the Lukkosalmentie road in order to determine the total area of the largest allowed exclusion zone for the small modular reactor in the local detailed plan.

1.3 Implementation of the local detailed plan

The local detailed plan and its change enable initiating the construction project immediately once the plan has come into force and the implementation of the plan implementation is possible in terms of technical and economic prerequisites.

2 STARTING POINTS AND OBJECTIVES

2.1 Report on the conditions of the plan area

2.1.1 General description of the area

The plan area is located approximately seven kilometres north of the Kuopio Market Square, east of Finnish national road 5 (Valtatie 5), and surrounded by the Kallavesi Lake. The Vuorela regional centre, located in the municipality of Siilinjärvi, is located approximately two kilometres north of the plan area.

The total plan area is approximately 401.4 hectares and delimited by the northern industrial plots in the northwestern end of Lukkosalmentie, by the property 297-430-1-98 in the southeast, and Finnish national road 5 in the west. Otherwise the plan area is surrounded by Lake Kallavesi.

The northern and southern parts of the plan area contain built industrial environments and there are old holiday houses along the shore, otherwise the area is forested. The area also has a lot of elevation differences. The delimitation of the plan area is depicted in the orthophotograph in yellow.

Image 1. Orthophotograph. The approximate delimitation of the plan area is marked with a yellow line.

2.1.2 Natural environment

A survey of natural values in the area has already been carried out as part of the preparation of the currently valid local detailed plan. In parallel to the planning work, two environmental impact assessments (EIA) are being carried out in the area, which also include a survey of the natural values of the area. Some of the field work included in the EIA process was carried out in 2025, and the assessments will be supplemented by observations from surveys carried out in 2026.

Four categories are used to classify noteworthy nature sites:

1. Sites safeguarded in legislation. Negatively affecting the sites is prohibited by law.
2. Sites of particular significance. Negatively affecting the sites must be avoided.
3. Sites safeguarding biodiversity. Preserving the sites is recommended if possible.
4. Sites supporting biodiversity. Preserving the sites is recommended if possible.

Landscape

The plan area is located on an island on the north side of Kelloselkä Lake, which is an important landscape area. The shore in the area is mostly forested. The most visible elements of the built environment in the plan area are Mondi Powerflute Oy's containerboard factory in the south and the industrial buildings in Lukkosalmentie in the north.

Fauna and flora

The forests in the plan area mostly consist of regular spruce and pine dominated commercial forests. Some species typical to herb-rich forests are also present around the Kuikkalampi Lake and its drainage ditch, which has been considered in the local detailed plan in the area section marked with luo-3: *"Area of particular importance to biodiversity which is kept in its natural state. The area contains moist herb-rich forests and thin-peated eutrophic spruce mire."* A nature survey conducted as part of the assessment of natural impacts carried out for a renewable fuel plant project in 2025 identified a smaller, spruce-dominated mesic mesotrophic herb-rich forest pattern (category 3) around the middle section of the plan change area, in a slope south of Lukkosalmentie. No observations of the flying squirrel were made but the pattern would be a suitable connection for the species. A nature survey carried out in the southern waterfront zone of Sorsasalo in 2025 identified herb-rich forests in categories 3 and 4 and a herb-rich heath forest in category 3 on the western and southeastern sides of the Mondi Powerflute Oy factory.

In 2025, aquatic flora was surveyed in the planned locations for the outlet areas of transfer pipes of district heating and in the shoals along the pipeline locations during the planning of the small modular reactor (SMR) project. The survey of the potential outlet sites in Sorsasalo did not reveal any aquatic flora that would need to be considered. However, the surveyed outlet sites in Sorsasalo have since been disqualified, therefore the new planned outlet sites will be surveyed during the snow-free season in 2026.

The Kuikkalampi lake and the unnamed pond on its eastern side are already known to be suitable habitats for the moor frog. In 2025, the moor frog was observed in the unnamed pond, and the inlet on the western side of Uitukanniemi was noted as a new, potential habitat. The otter has also been observed east of the inlet by Uitukanniemi. Both the moor frog and otter are least-concern species in Finland; however, they are species listed in the Annex IV (a) of the Habitats Directive, which states that the destruction or deterioration of the breeding or resting sites of such species is prohibited under the Nature Conservation Act.

Between 2007 and 2025, the flying squirrel was sighted multiple times in the eastern parts of Sorsasalo, most of which were in the forested sections on the island's shore. In the surveys conducted in 2025, some observations were also made in the southern and southwestern sides of the Kuikkalampi pond and north of the NG Nordic Finland Oy industrial waste recycling plant. In addition, the flying squirrel has been observed near the plan area on the western side of the

Finnish national road 5 and between Virtasalmi and Ranta-Toivalantie. The limited habitats of the flying squirrel fall into category 1 of noteworthy nature sites. The connections used by the flying squirrel are being surveyed during the proposal phase of the local detailed plan process, and they are considered to the extent necessary when deciding on the final plan.

In a nesting bird survey conducted as part of the assessment of natural impacts carried out for a renewable fuel plant project in 2025, a nest of the common kestrel (category 3) was identified in the southern corner of a rock cutting located south of Lukkosalmentie; in general, the environment around the entire cutting was identified as a site supporting biodiversity on the basis of observations of white wagtail, magpie, and northern wheatear (category 4). In addition, the area between Selluntie, Ruokolahdenkatu and Kuikkalampi pond was identified as a habitat of the common rosefinch (category 4). During the assessment, endangered barn swallow were observed hunting in the area, but no signs of nests were found.

Water areas

The plan area contains some of the Kallavesi Lake surrounding Sorsasalo as well as the Kuikkalampi pond and a small, unnamed pond around the middle section of the area.

Soil

The soil in the plan area alternates between rock and fine-grained til. There are narrow strips of earth fill on the western edge of the northern section and along the connecting rail turning southeast from the main railway line, and in places there are smaller areas of clay. In the southern section, there is a large, unsurveyed area in Mondi Powerflute Oy's factory area.

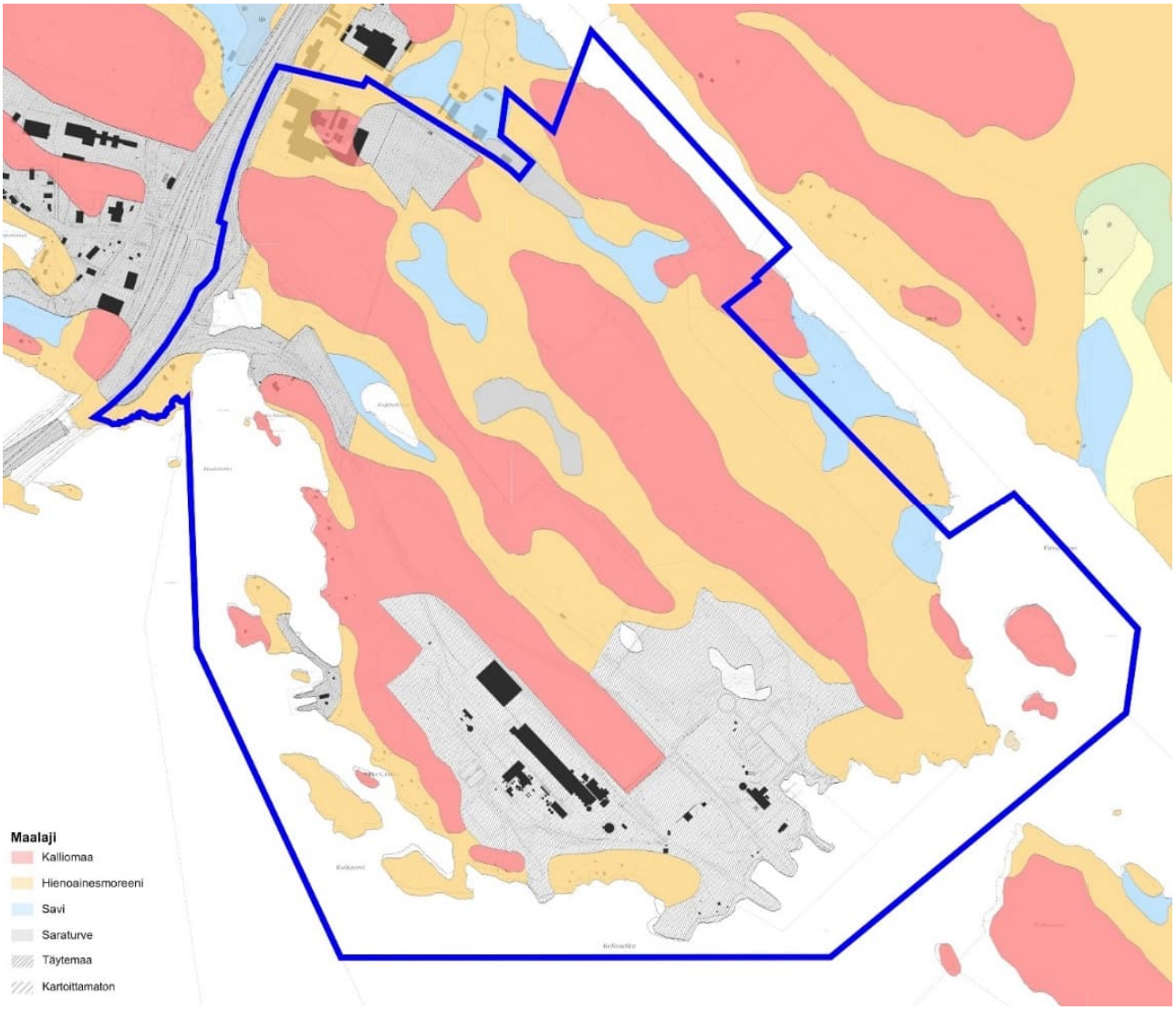

Image 2. Soil map. The approximate delimitation of the plan area is marked with a blue line.

Sorsasalo is located in an area with a lot of fractures in the soil, the main fracture running along Virtasalmi around the middle section of the inlet. Some smaller fractures are located southwest from the main fracture.

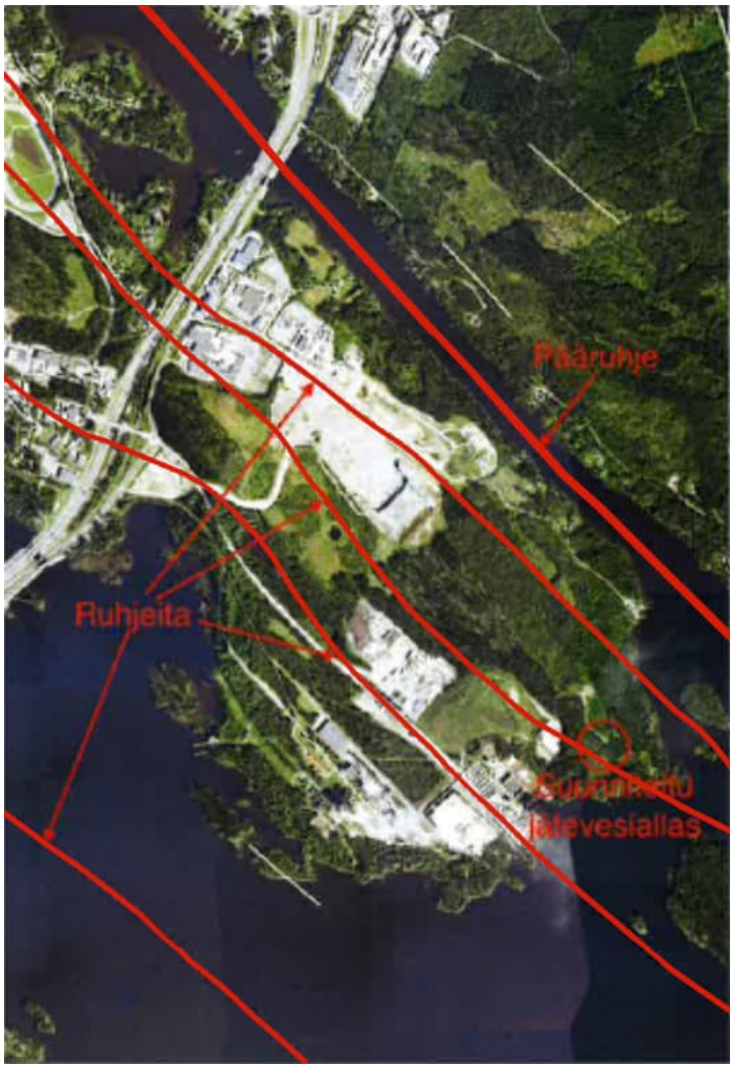

Image 3. Map of the soil fractures in Sorsasalo (source GTK). The locations of the fractures have been highlighted in red.

2.1.3 Built environment

Urban structure

The plan area is located along the eastern side of the Finnish national road 5 and it is a partly built industrial area. The area also has a dead-end siding branching south from the Savo railway line that ends at the Mondi Powerflute Oy containerboard factory. The waterfront areas have previously been used for holiday housing, and the northern section of the plan area still has some operating holiday houses both in Sorsasalo and on the opposite side of Virtasalmi. There are also holiday houses on the islands in the southeastern parts of the plan area.

Urban landscape and building stock

Northern end of the plan area at the top of the Lukkosalmentie road

Two plots in the north-west corner of the plan area contain industrial and warehouse buildings that have been built into a uniform cluster. An undeveloped warehouse area and a forested area are located along the Lukkosalmentie road.

In the southern part of the plan area lie the NG Nordic Finland Oy industrial waste treatment plant and Mondi Powerflute Oy containerboard factory, and the waterfront areas are mainly occupied by recreational dwellings and outbuildings dating back to the 1940s and 1950s.

South of the railway leading to the Mondi Powerflute Oy factory and between Päivärannantie and the Kallavesi Lake, there is a residential building from 1930 which will be protected jointly in the local detailed plan for as long as this is possible in terms of traffic arrangements.

Image 4. A residential building from 1930 along Päivärannantie (source City of Kuopio/Cyclomedia).

Cultural environment

No known fixed relics are located in the plan area. The closest known fixed relics are the Stone Age settlements in Halmejoki and Leppäkorvi as well as the Pökösenmäki artillery sites, and they are located approximately 600 m away, between Virtasalmi and Ranta-Toivalantie on the eastern side of Sorsasalo.

An archaeological underwater survey, which was conducted in 2025 as part of the planning of a small modular reactor (SMR) for district heating, did not make any noteworthy observations in the planned route of the transfer pipes.

Traffic and parking

Incoming traffic to the area mostly uses the ramp rising from the Finnish national road 5 to Selluntie. The plan area also includes Päivärannantie from the southern direction and Sorsasalontie from the northern direction, which run parallel to the national road and connect in Selluntie.

The plan area contains two streets leading further into Sorsasalo. Selluntie, which is located in the southern part of the area, leads to Mondi Powerflute Oy's containerboard factory and NG Nordic Finland Oy's industrial waste treatment plant. In the northern section of the area, Lukkonsalmentie connects to businesses at the top and holiday housing at the bottom of the road.

A railway line runs from the south towards the Mondi Powerflute Oy factory and continues into the factory area as an industrial siding.

Parking in the area is arranged individually for each property.

Municipal infrastructure

The properties around the top of Lukkosalmentie and those along Päivärannantie and Sorsasalontie are located within the municipal infrastructure network. The properties at the bottom of Lukkosalmentie organise their water management through a water cooperative.

Environmental disturbances

Most of the noise in the area is caused by heavy freight traffic to the industrial premises and to some extent, operations carried out in the industrial plots. Some traffic noise also carries from the Finnish national road 5 which is located next to the plan area. Traffic is also the biggest source of fine particle emissions in the area.

The operations of the Mondi Powerflute Oy factory and the wastewater treatment plant occasionally cause minor smells in their environment.

2.1.4 Land ownership

Most of the northern section of the plan area is owned by the City of Kuopio. The railway area in the western section is owned by the state of Finland, and the approximately two-hectare property between the railway and the Kallavesi Lake is owned by Kuopion T&R Sijoitus Oy. Mondi Powerflute Oy owns the southern section of the plan area, excluding the NG Nordic Finland Oy recycling centre. In addition, Mondi Powerflute owns a part of the section delimited by Päivärannantie, Selluntie, and Ruokolahdenkatu in the northwestern part of the plan area.

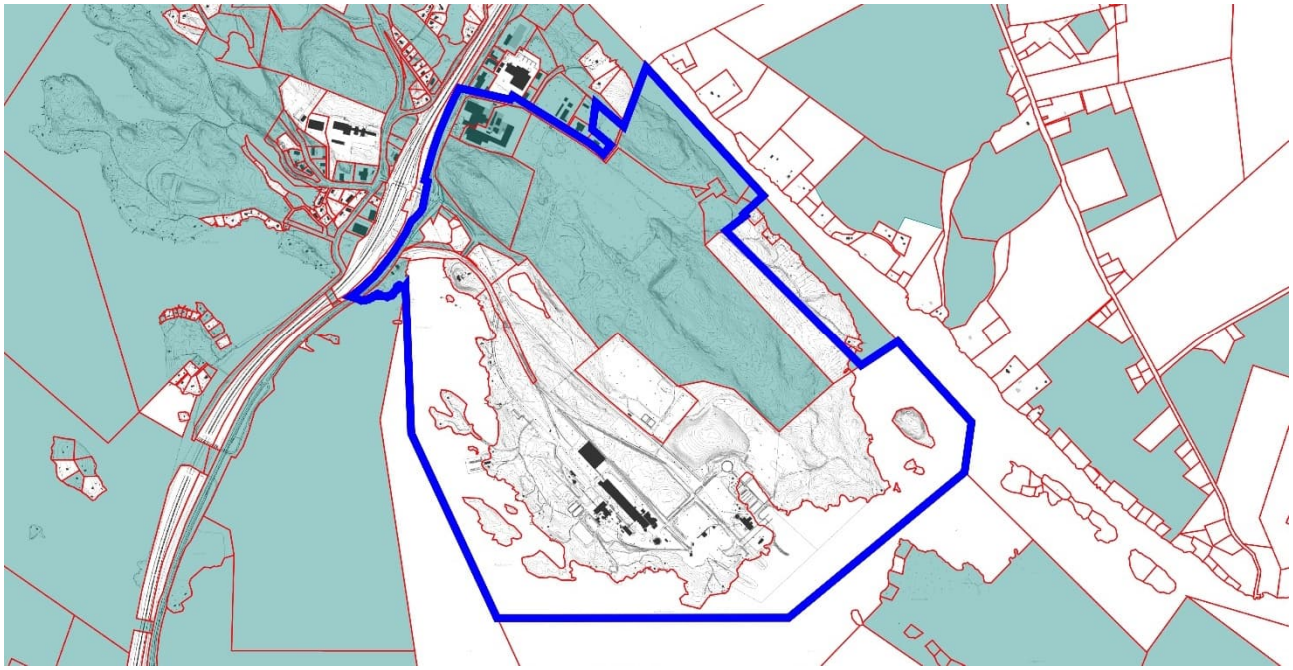

Image 5. Property map, areas owned by the City of Kuopio marked in blue-green.

2.2 Planning situation

2.2.1 National land use objectives

National land use objectives are part of the planning system of land use, and they must be taken into account and their realisation must be promoted in regional planning, municipal plan processes, and official activities of state authorities. The updated national land use objectives, which came into force on 1 April 2018, contain goals related to i.e. functional communities and sustainable mobility, efficient traffic systems, healthy and safe living environments, robust natural and cultural environments, and natural resources and energy supply capable of regeneration.

This plan project implements national land use objectives, particularly the objectives of a regenerating energy supply, managing accident risks, and the development and consolidation of a community structure that is supported by existing infrastructure.

2.2.2 Regional plan

In the 2nd phase of the regional plan for North Savo, the plan area is located in an area reserved for industrial and warehouse buildings (T). The entire plan area is also included in the development zone of the Viitoskäytävä, Ysikäytävä and 23-käytävä corridors (the brown dotted line) and the Kuopio–Siilinjärvi–Tahko tourism development corridor (yellow line).

An industrial and warehouse site has been marked in the southern part of the area where a plant manufacturing or storing hazardous chemicals may be placed (t/kem marked with a grey circle) and north of this site, there is a waste processing and circular economy area (ej marked with a pink circle). A port area has also been marked in the southern part of the plan area (lv marked with a blue circle) and a branch line to the Sorsasalo industrial area (black line with cross lines).

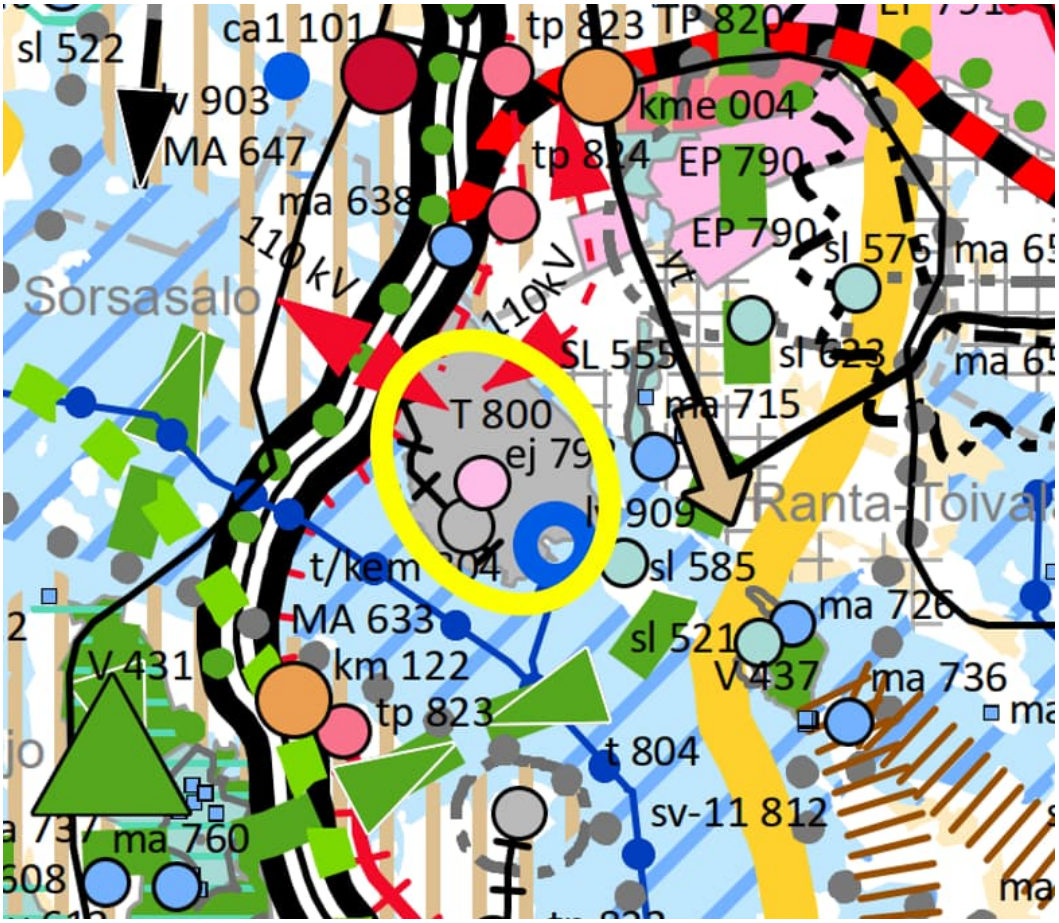

Image 6. Extract from an unofficial combination of regional plans for North Savo. The approximate delimitation of the plan area is marked with a yellow oval.

2.2.3 Master plan

The plan area is covered by the local master plan for the central urban area of Kuopio (approved on 11 December 2000).

The plan area is mainly reserved for industrial and warehouse building areas (T), two of which have an alternative intended use: private services and administration (PK) in the northwestern corner and traffic area (L) in the southwest. The middle of the plan area consists of agricultural and forestry area (M), and around the middle part, there is a recreation area (V) in its western section, north of Selluntie and on the northern edge. An indicative railway area (marked with LR and black crosscut lines) and two water traffic areas (LV) have been allocated to the southern

section of the plan change area. Kallavesi has been marked as a water area (W). Three borrow areas (eo) have been allocated to the northern part of the plan area south of Lukkosalmentie, and a spoil deposit and treatment site (eo-2) has been allocated around the middle of the area.

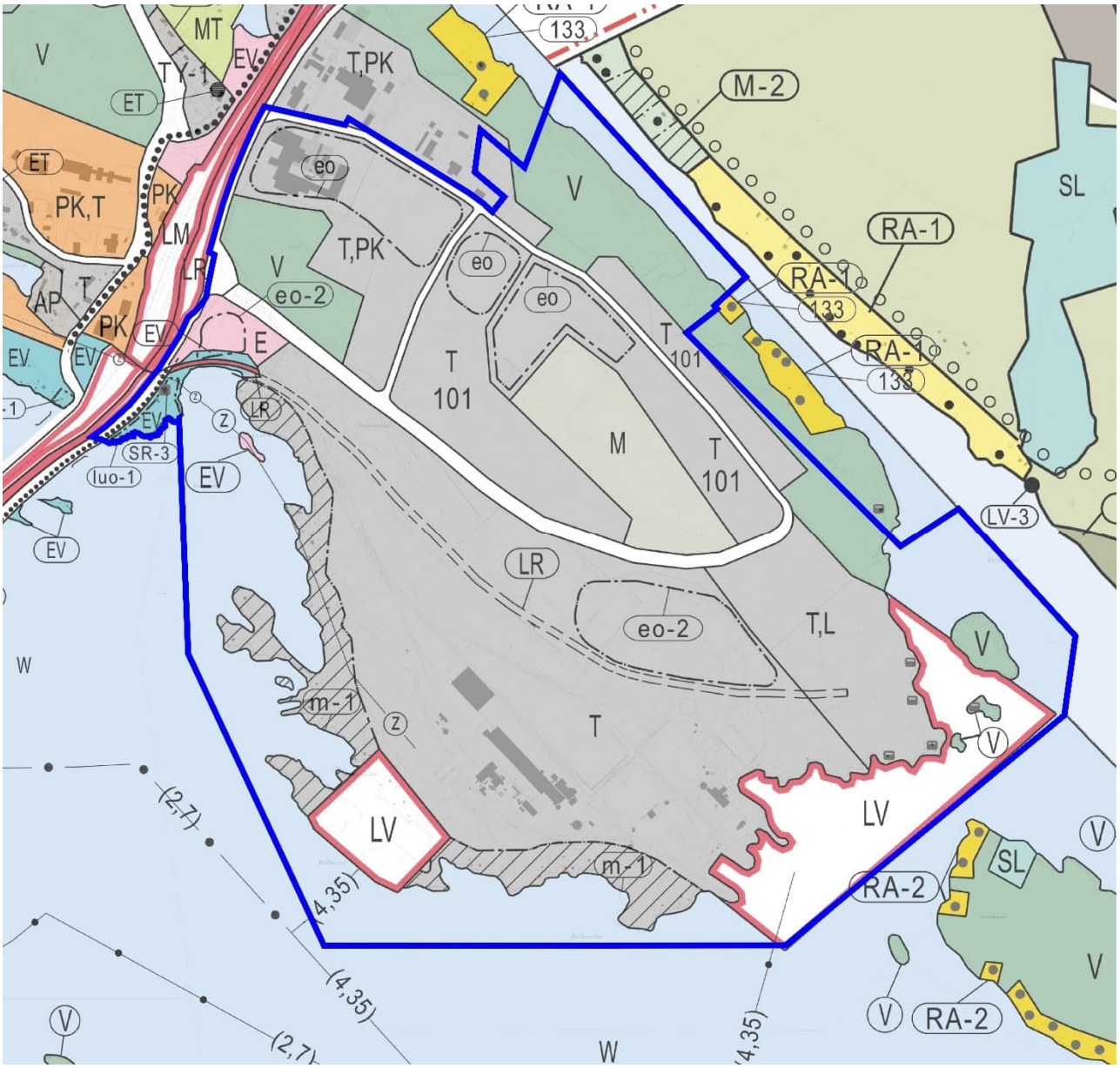

Image 7. Extract from the master plan. The approximate delimitation of the plan area is marked with a blue line.

2.2.4 Local detailed plan

The plan area is covered by local detailed plans 595 (approved on 28 February 2000) and 787 (approved on 5 September 2016). Properties 297-430-1-98 and 297-430-1-28 in the southeastern side of Lukkosalmentie, which are part of the plan area, and property 297-430-1-282 in Kallavesi do not have a valid local detailed city plan.

Most of the plan area has been reserved for industrial and warehouse buildings "*where a major facility manufacturing or storing hazardous chemicals may be placed. The facility must be placed in a specifically designated footprint.*" (T/kem-2). Indicative footprints have been allocated to the area which allow the construction of a plant manufacturing or storing hazardous chemicals in compliance with the Seveso directive (kem-1), an industrial waste processing and recycling plant with an adjoining dumping area and other fields, equipment, constructions, and buildings required for the operations (tkk-1) as well as a wastewater treatment plant (jv-p).

The northwestern part of the plan area contains a block area occupied by industrial, warehouse, business, and office buildings where the retail sale of food products is not allowed. In addition, the area may not be used for storage in a manner that negatively affects the beauty of the environment unless a screen is installed around the storage area (TK-16).

The southwestern part of the plan area contains a block area with industrial and warehouse buildings (T). The southwestern section also contains a block area which allows the construction of a weighbridge, fuel distribution point and service station, and in connection with it the construction of restaurant and shop premises and a grocery store with a maximum shop floor area of 400 m² (TK-18) as well as a protective green area where the existing buildings may be preserved and renovated but new construction is prohibited and where minor extensions to the existing building stock and the construction of a small, connected yard or sauna building with a maximum floor area of 30 m² is allowed (EV-5).

A protective green area (EV) has been allocated to the corner between Sorsasalontie and Selluntie. The northern part of the plan area contains buildings and plants used for municipal infrastructure services (ET) and a protective green area where it is permitted to place, to the extent necessary, an embankment, noise wall, noise barrier, or a combination of these as a protective measure against noise in a manner that preserves the trees by the waterfront, and the tree stock in the infill area must be renewed in a manner that provides a protective effect (EV-11). The islands in front of Sorsasalo are marked as protective green areas that act as a buffer zone between the water and industrial areas where particular attention must be paid to the protective effect of the trees (EV-12).

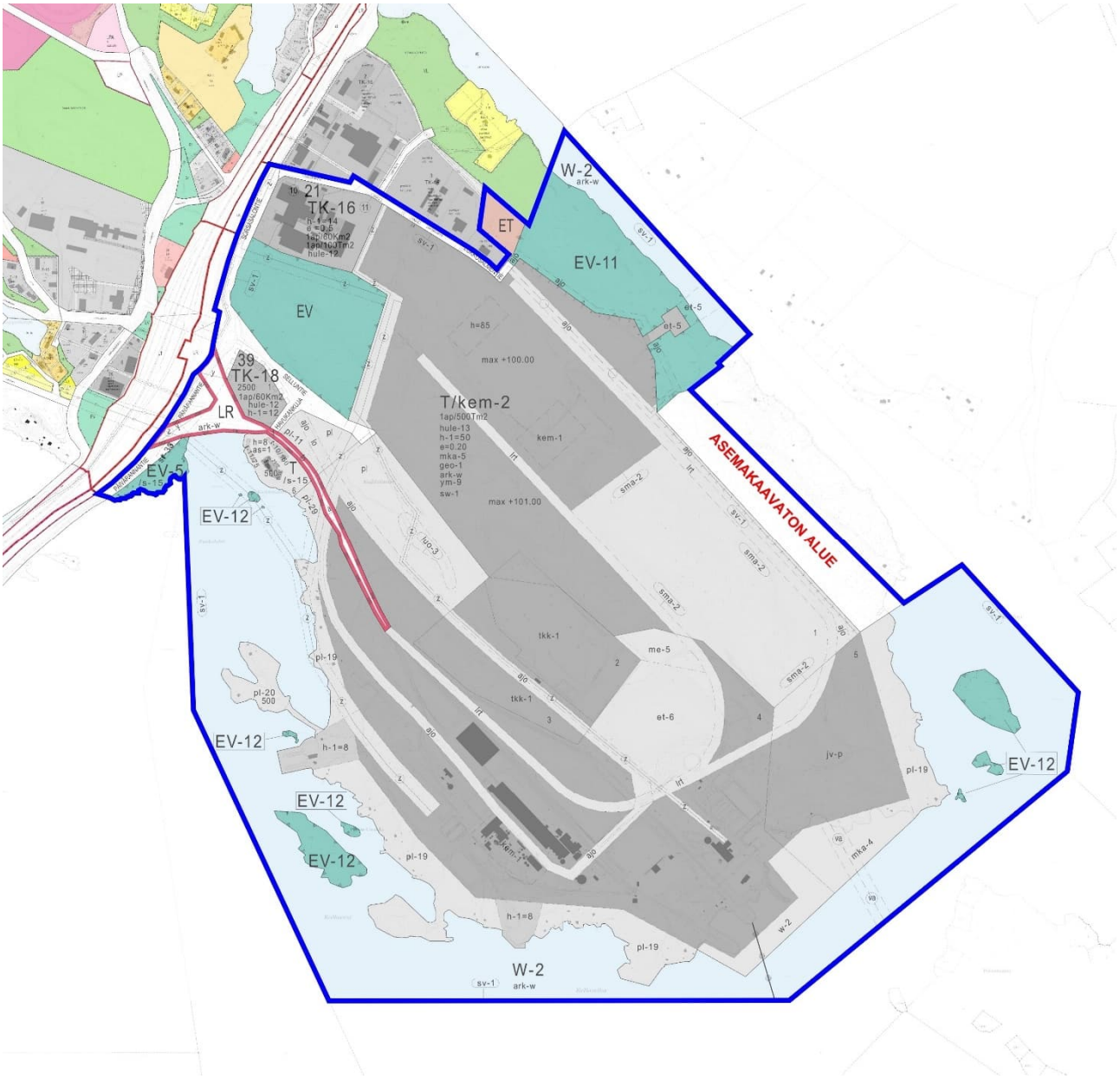

Image 8. An extract from the up-to-date local detailed plan. The approximate delimitation of the plan area is marked with a blue line.

2.2.5 City strategy

The Kuopio City Strategy until 2035 was prepared in 2025. The vision of the strategy is "The capital of good life – Health, vitality and the richness of everyday life". Three strategic goals have been determined on the basis of the strategy: sustainable growth, vitality, and dynamic work force. In addition to the city strategy, the following programmes implementing the strategy guide the planning work.

- Kuopio Urban Area Plan 2030+
- Urban Structure Plan until 2040
- Kuopio region transport system plan 2040
- Kuopio region walking and cycling development programme
- Kuopio traffic safety plan 2030
- Viksu Kuopio programme 2024–2035 (Climate and resource wise Kuopio 2035)
- Land Policy Programme
- Happy and Healthy Kuopio 2030 programme
- The Kuopio Growth Programme

The Kuopio City Strategy 2035 was approved in the City Council on 17 November 2025. The vision of Kuopio is "The capital of good life – Health, vitality and the richness of everyday life". Quality of life comes from sustainability, growth, and vitality. The main objectives of the strategy are sustainable growth, vitality, and regenerating work community. The sub-goals included in these are:

1. growing, international, and diverse business life
2. education and competent work force
3. sustainable urban structure and infill development
4. impact and recognition
5. high-quality education
6. participating and healthy residents
7. living environment supporting a healthy and safe life
8. competent and healthy personnel
9. services and structures meeting future needs
10. sustainable economy

The City strategy and its programmes guide the planning. The strategic perspectives emphasised in the preparation of the local detailed plan and its change for the Sorsasalo industrial area are business life, climate, and resource-wise operations. Other programmes, commitments, and plans related to the strategic goals and planning work are listed below:

The areas included in the Kuopio Urban Area Plan 2030+ and parties to the land use, housing and transport agreements are Kuopio, Siilinjärvi, Lapinlahti, Suonenjoki, Leppävirta, and Tuusniemi. The Kuopio Urban Area Plan 2030+ reconciles the principles and objectives of significant urban infrastructure developments.

The Urban Structure Plan until 2040 is a strategic land use plan that implements the city and municipal strategies of Kuopio and Siilinjärvi. It examines and presents a vision of the land use and traffic of the inner city area formed by Kuopio and southern Siilinjärvi until the 2040s. As a tool for future land use planning, the Urban Structure Plan supports the growth and vitality of the inner city area, and its purpose is to present options for housing and employment growth areas. The Urban Structure Plan guides the planning work, land acquisitions, and housing production in Kuopio and Siilinjärvi. Unlike the area plans, the structure plan has no legal effect, although it follows national land use objectives.

Kuopio region transport system plan 2040 determines the strategic direction until the year 2040. In addition, the goal is to reconcile the development of the traffic system in Kuopio as a part of regional and national traffic system work, the Kuopio Urban Area Plan which is being prepared at the same time, and land use, housing and transport agreements.

Kuopio has accepted the goals and concrete measures laid down in the land use, housing and transport agreement 2024–2035 to develop land use, housing, and traffic in the area. The general objectives of the land use, housing and transport agreement include sustainable and low-carbon urban structure and traffic system, sustainable housing and environment that support the well-being of residents, and a vital Kuopio city region.

The Kuopio region walking and cycling development programme sets objectives in the area of six different municipalities to carry out measures promoting walking and cycling by 2030–2035. A clear step-by-step model was prepared for each municipality which helps create concrete measures to extensively promote walking and cycling and to monitor the progress of the programme.

The Kuopio traffic safety plan 2030 examines issues related to the traffic environment. In the preparation of the plan, emphasis was placed on the preparation of an action plan and determining general principles for measures that could be utilised to improve the traffic environment. One of the key objectives of the preparation of the plan was to survey the most accident-prone sites in the area and decide on the measures to correct this issue. The planning process highlighted measures that were as feasible and realistic as possible in order to improve traffic safety.

The Climate and resource wise Kuopio programme 2035, i.e. Viksu Kuopio programme, was approved by the City Council on 10 June 2024. The programme implements the main objective of Kuopio's strategy, i.e. to be a climate and resource-wise city. The Viksu programme updates the city's previous climate and resource-wise policy programmes and provides direction to promoting carbon-neutrality and climate security in the city and sustainable wellbeing on three principal levels: emission-free, waste-free, and sustainable consumption levels.

The Land Policy Programme acts as a guideline to the City's land acquisitions and sales, the management of the City's land assets and plan processes on private land, and the promotion of the development of buildable plots under private ownership. The key objective of land policy is to enable an offering of plots that supports the city's attractiveness and sustainable urban structure. Other objectives include the realisation of goals related to housing, industrial policy and urban structure, keeping land prices at reasonable levels, offloading any increase in costs from the city's activities to the city as part of the infrastructure budget, sufficient recreation and protection areas, and a transparent and equal process that follows the city's approved values.

The Happy and Healthy Kuopio 2030 programme is the city's strategic programme that acts as a framework for the management and development of the wellbeing work in the City of Kuopio. The programme defines five health-related, research-backed Elements of a Good Life: routines for a good everyday life, supporters of a good life, livelihood in a good life, inspirations for a good life, and living environment in a good life. These elements allow increasing an individual's quality of life and together building Kuopio into a city on good life and good mood.

The Kuopio Growth Programme 2025-2030 clarifies the strategic objectives and indicators of the strategy and contains measures to be implemented in the upcoming years. The programme is constantly being updated, particularly in terms of measures and projects. The objectives of the programme can be divided into four thematic categories:

1. attractive competence cluster
2. growth leap for companies
3. attracting residents and visitors
4. influential Kuopio

2.2.6 Building ordinance

The building ordinance for the whole urban area of Kuopio was approved by the City Council on 22 October 2018 and it came into force on 1 January 2019.

2.2.7 Base map

The base map of the plan area meets the requirements of section 54 a of the Land Use and Building Act.

2.2.8 Other plans and decisions

On 10 August 2016, the North Savo ELY Centre granted a special permit on the prohibition of the destruction or deterioration of a breeding or resting site of the flying squirrel in the industrial area in the southwestern part of Sorsasalo, in particular to enable the construction of a wastewater treatment plant for the planned Finnpulp biomill.

2.3 Objectives

2.3.1 Objectives arising from the base materials

The local detailed plan and its change implement the objectives of the valid city master plan but in a slightly smaller scale than the currently valid local detailed plan which was drafted mainly for the Finnpulp biomill. Instead of one large operator, the area could house the premises of a more diverse set of different industrial operators.

<u>Objectives set by the city</u>

With the local detailed plan and its change, the City is aiming to attract new companies in the area and thus create new jobs. At the same time, efforts will be made to take into account the needs of the companies that are already located in the area. The street network is supposed to become as efficient and well-functioning as possible.

Objectives derived from the planning conditions

The change to the plan would implement the national green transition goals by making it possible to replace combustion-based district heating with an emission-free small modular reactor (SMR) and to construct a renewable fuel plant.

On the basis of the currently valid local detailed plan, the southern part of Sorsasalo would form a uniform industrial area in accordance with the goals of the regional and master plans.

Objectives arising from the conditions and features of the area

The planning process must ensure that the local detailed plan and its change will not cause unreasonable drawbacks to the permanent residences and holiday housing located near the area. In addition, tree stock sufficient for the flying squirrel should be preserved in the waterfront areas.

2.3.2 Goals arising during the process, defining the goals

Stakeholder goals

The primary goal of Mondi Powerflute Oy is to remove from the valid local detailed plan the symbols for industrial sidings that were never realised where they are considered unnecessary in order to consolidate the footprint allocated to the property as much as possible and make the planning and implementation of possible infill development and arranging operations easier than currently.

The goal of NG Nordic Finland Oy is to enable the expansion of their premises in the area.

The goal of KIC InnoEnergy S.E is to enable the construction of a renewable fuel plant in the area. The project is already possible with the currently valid local detailed plan.

The goal of Kuopion Energia Oy is to make it possible to construct a small modular reactor (SMR) and transfer pipes in the plan change area.

3 PARTICIPATION AND INTERACTION

3.1 Interested parties

The parties are:

- The North Savo Regional Council
- Finnish Supervisory Agency
- Economic Development Centre of Eastern Finland
- Rescue Department of North Savo
- Kuopio Cultural History Museum
- Interested official parties and bodies of the City of Kuopio
- Residents of the area, property owners, businesses operating in the area
- Residents whose housing, employment or other circumstances may be affected by the plan
- Telecommunications and network operators
- Savon Voima Oyj
- Finnish Safety and Chemicals Agency (TUKES)
- Radiation and Nuclear Safety Authority (STUK)
- The municipality of Siilinjärvi
- Finnish Defence Forces
- Kuopion Energia Oy
- Mondi Powerflute Oy
- NG Nordic Finland Oy
- KIC InnoEnergy S.E

3.2 Initiation stage

On 28 May 2025, the Urban Structure Board (section 115) decided to make the initial materials, i.e. the participation and assessment scheme, available for public review in accordance with section 63 of the Land Use and Building Act and section 30 of the Land Use and Building Decree. The initiation of changes to the local detailed plan was announced on the City website and on Viikkosavo. Landowners in the plan change area, tenants in the city's rental housing, and owners of neighbouring properties were informed of the initiated change to the local detailed plan by letter. The participation and assessment scheme was available for public review between 4 June and 4 July 2025.

The starting points and objectives of the change to the local detailed plan were introduced in a public event at the Council Office building on 10 June 2025. The kick-off meeting for stakeholders regarding the change to the local detailed plan was held on 10 June 2025. The Radiation and Nuclear Safety Authority provided a statement on the participation and assessment scheme. In addition, three opinions were given on the participation and assessment scheme. The statements and opinions as well as their responses are compiled in attachment 3 of this plan description ("Vireilletulovaiheen lausunnot ja mielipiteet vastineineen").

In addition to participating in planning work, Kuopion Energia Oy has organised public events related to the small modular reactor for district heating on 16 September 2025 and 21 January 2026.

Opinions

The opinions highlight concerns over the safety of the residents in the nearby areas and the decrease in property values, as well as wishes that the plan would not cause issues with the permanent or holiday residences or disturb their residents. In addition, the opinions state that a plan that would enable the construction of a reactor and a renewable fuel plant would cause harm not only to the nearby residents but also to the image of Kuopio and put natural values at an unreasonable risk.

Statements

The Radiation and Nuclear Safety Authority stated the following:

> 'Nuclear safety regulations are currently undergoing a general reform in Finland. The basis of the reform is to maintain the required level of safety. The reform will account for small modular reactors and other new technologies. The reform aims at creating technology-neutral and less detailed safety regulations that will not set unnecessary limitations to different solutions. Placing a small modular reactor (SMR) in the urban area could be possible, granted that all safety requirements are met. The term "small modular reactor" is rather broad, including a large range of plants of different types and sizes.
>
> The suitability of a location depends on the safety features of the planned reactor. The suitability of a location for the small modular reactor is partly dependent on possible external events which could put the reactor's safety at risk. Such events may include rare weather conditions, seismic phenomena, effects of accidents that take place near the reactor site, and other factors arising from the environment or human activity. The suitability of the site for the small modular reactor, which will be potentially constructed in the area, will be evaluated as part of the reactor's permit process in accordance with the legislation that is valid at the time of the evaluation.
>
> The reactor must have an exclusion zone to account for potential accidents. The exclusion zone is determined in such a way that in case of an accident, it is highly likely that the residents outside of the exclusion zone do not need to be evacuated. Inside the exclusion zone,
>
> it must be possible for evacuation to take place efficiently, therefore the exclusion zone is subject to land use restrictions. The size of the required exclusion zone depends on the properties of the planned reactor: the larger the potential emissions of radioactive substances are in case of an accident, the larger the required exclusion zone. The size of the exclusion zone for the small modular reactor planned for the site will be evaluated as a part of the reactor's permit process.
>
> At this point, The Radiation and Nuclear Safety Authority does not comment on the suitability of the Sorsasalo industrial area as a location for a small modular reactor for district heating.'

Public event 10 June 2025

During the public event, most of the discussions revolved around the technology and safety of the small modular reactor. In addition, there were concerns about the safety distances of operations permitted under the local detailed plan, which currently allows the change of purpose of the holiday housing into permanent residences inside the Seveso consultation zone specified for the Finnpulp biomill and in places even further.

Kick-off meeting for stakeholders 10 June 2025

The stakeholder groups represented in the kick-off meeting were strategic land use, regional environmental protection, traffic planning, street planning, rainwater management, green and recreation area management, business services, Kuopion Vesi Oy, North Savo ELY Centre's Environment and natural resources area of responsibility, Rescue Department of North Savo, municipality of Siilinjärvi, DNA Oyj, and Digita Towers Oy.

During the meeting, it was noted that the previously conducted nature surveys and the flying squirrel survey, which was carried out due to the plan change, are sufficient in terms of taking natural values into account. In addition, the meeting raised questions abut electricity transfer pipelines, green areas, rainwater management, water management, and the reconciliation of the planning process with the environmental impact assessment carried out for Kuopion Energia Oy's small modular reactor project for district heating.

3.3 Draft phase

Negotiations with authorities in the draft phase 7 October 2025

Negotiations with authorities under section 66 of the Land Use and Building Act were held in the manner referred to in section 26 of the Act during the preparation phase of the local detailed plan and its change before the draft materials were put out for public review. The negotiations raised questions about the need for supplementary surveys, considering fractures in the soil in the planning, distances to the areas of the Finnish Defence Forces, and taking into account fire extinguishing water and rescue routes.

4 ALTERNATIVE PLANS

No alternative plans were prepared for the local detailed plan or its change since two large projects defined by an outline plan are underway for the undeveloped sections in the plan area which, together with the shape of the terrain, will determine the base solution for the area to a large extent, especially in terms of the street network. The impacts of the change to the local detailed plan are compared to the situation of the valid local detailed plan.

4.1 Possible locations for the small modular reactor (MR)

The City of Kuopio and Kuopion Energia Oy have cooperated in surveying potential locations for small modular reactors before the initiation of local detailed planning for Sorsasalo and Hepomäki. In 2023, they surveyed seven potential locations, which are: Haapaniemi / Kumpusaari, the old petrol warehouse in Niirala, Kelloniemi industrial area, Kolmisoppi, Pieni Neulamäki, Sorsasalo industrial area, and Hepomäki. The locations are shown in image 9.

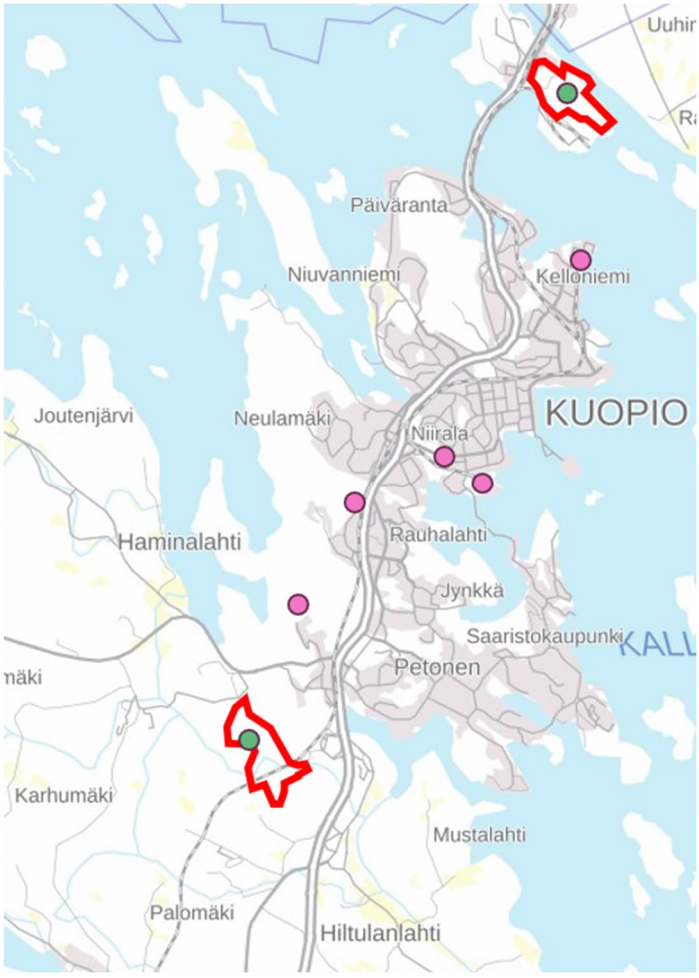

Image 9. The surveyed locations in 2023

The initial surveys were carried out assuming that the exclusion zone for the small modular reactor would be 500 m and that the reactor would be placed overground. The Radiation and Nuclear Safety Authority's provisions on the emergency planning of nuclear power plants

changed on 1 January 2024, and now the exclusion zone is determined on the basis of the plant's features. Kuopion Energia has also specified their objective of building a small modular reactor (SMR) for district heating.

In local detailed planning, the assessment of suitable locations was targeted at Sorsasalo and Hepomäki. In preliminary assessments, the challenges with other potential locations included insufficient space, natural values, and soil properties. Stakeholder in areas that are not in the immediate vicinity of the city centre seem to generally approve of the plan more. In terms of the indicative effect of the local detailed plan, Sorsasalo and Hepomäki are suitable locations, as the reactor's location would be a single point in the plan and the local detailed plan enables industrial construction in both areas. Both locations require the construction of a long trunk distribution frame for district heating. In the case of Sorsasalo, the district heating pipeline would also enable the utilisation of waste heat of other industrial operations. Southern Kuopio, for its part, is the main direction of the business expansion, which means that the district heating pipeline would serve potential future users better.

Potential locations for the small modular reactor are being surveyed separately for each plan area in Sorsasalo and Hepomäki. In addition, Kuopion Energia has initiated an environmental impact assessment (EIA) in regard to the small modular reactor, and the data from the assessment will be used to support local detailed planning.

The local detailed plan draft does not propose alternative options for the location of the small modular reactor due to the conditions of the plan areas. However, the assessment of preliminary sites is only indicative, and a public event on participation was arranged before the initiation of the planning process on 5 September 2024.

The goal is to prepare such local detailed plans for Hepomäki and Sorsasalo that both plans would enable the construction of a small modular reactor. Kuopion Energia only needs one location, but the potential decision on the project will be made after the local detailed plans have been finalised. The local detailed plan is exploring solutions that would enable the operations of other energy suppliers if the small modular reactor cannot be realised. However, the final plan must be prepared with consideration to the possibility that another nuclear power solution could be constructed in the area after several years in the framework of the local detailed plan.

4.2 Plan solution in the draft phase

The plan area was slightly expanded from the initiation phase so that the largest permitted exclusion zone for the small modular reactor, which is being planned for the area, could be fully marked onto the plan map.

In the draft plan, the symbols of block areas will mostly remain the same. New street areas have been allocated for the area, which would divide the large Finnpulp industrial plot in the valid local detailed plan into blocks 21 and 40–42. In its current alignment, the western part of Lukkosalmentie has been marked as a street area in places where it is located close to the privately owned residences at the end of the road, which continues through protective green zone and agricultural and forest areas as an indicative car access (ajo). If implemented as such, the southern part of the Ruokolahdenkatu street would extend up until lay-by close to the Kuikkalampi Lake, then turn southwest and run through the southwestern end of the Lukkosalmentie street area. A new street area, which was named Uitukankatu in the draft plan, branches out towards north on the eastern side of the aforementioned Ruokolahdenkatu lay-by in its implemented location in the northern section of Ruokolahdenkatu and continues until the vicinity of the levelled area next to Lukkosalmentie. On the western side of the property of the planned renewable fuel plant, the street continues until Lukkosalmentie. The street areas of Sorsasalontie, Päivärannantie, Selluntie, and Havukankuja would correspond to those in the current local detailed plan.

Block 21 is located between Sorsasalontie and Ruokolahdenkatu, which is a block area containing industrial, storage, business, and office buildings where the retail sale of food products is not allowed and where the area may not be used for storage in a manner that negatively affects the beauty of the environment, or a screen must be installed in front of the storage area (TK-16).

This block would expand towards the neighbouring protective green area (EV) for 3.5 hectares, enabling the expansion of the plots of Leval Oy and POK Group Oy and a maximum of two smallish plots. If the plan is implemented as such, around 9 ha of the aforementioned EV area would remain.

Block 41, which is delimited by Lukkosalmentie, Ruokolahdenkatu and the new Uitukankatu, would be kept as an industrial and warehouse block area that would allow the construction of a major facility manufacturing or storing hazardous chemicals if the facility is located on a separately allocated footprint (T/kem-2). Most of the block is part of KIC InnoEnergy S.E:'s renewable fuel plan project area, which also includes the only footprint in the block where the placement of a facility manufacturing or storing hazardous chemicals in compliance with the Seveso Directive would be allowed (kem-1).

Block 42 in the southern part of Sorsasalo would be formed by properties owned by Mondi Powerflute Oy and NG Nordic Finland Oy. The area is also home to the Kuikkalampi Lake whose southwestern corner and part of the ditch letting into the lake which, as in the soon-to-be decommissioned local detailed plan, have been marked as luo-3: "Area of particular importance to biodiversity which is kept in its natural state. The area contains moist herb-rich forests and thin-peated eutrophic spruce mire." NG Nordic Finland Oy's property would be slightly expanded to enable the expansion of the industrial waste treatment plant located in the area. The expansion would be partly located in an area marked as luo-3 in the old local detailed plan. Based on a field visit to the area by Fortum Waste Solutions Oy (now NG Nordic Finland Oy), the environmental services of the City of Kuopio, and the North Savo ELY centre on 14 June 2022, it was stated that changes would be possible in the upstream part of the Kuikkalampi drainage ditch up to the smooth rock located in the southern section of the above-mentioned luo-3 area. The distance to this rock from the border of the luo-3 area is approx. 50 m and from the border of the NG Nordic Finland Oy industrial waste treatment plant approx. 100 m.

The project area where Kuopion Energia Oy is planning the construction of a small modular reactor (SMR) along the new alignment of Ruokolahdenkatu and north of the Mondi Powerflute Oy factory has been marked as an EN-3 area in the local detailed plan: ”*Area containing energy supply structures with a nuclear plant allowance for a plant whose exclusion zone may not exceed the range indicated in the local detailed plan. Other functions related to the purpose of use may be placed in the area."* This symbol also allows other forms of energy production, such as producing district heat using biomass, and electricity production. A 250-metre exclusion zone is allocated around the EN-3 area where office premises or other difficult-to-evacuate functions may not be placed (sv-4). The size of the exclusion zone may change during the planning process. The size of the exclusion zone will eventually be determined during the permit process of the small modular reactor (SMR) if the reactor is built; however, the exclusion zone may not extend past the boundaries of the exclusion zone marked in the plan. In the EN-3 area, the permitted maximum average height is 40 m where only necessary technical equipment on the plot may exceed the height restriction (h-1=40). This symbol is used as preparation for the possibility that instead of a small modular reactor (SMR) for district heating, another energy production plant would be constructed in the area, as it allows buildings whose average maximum height is 10 m less than the symbol in the valid local detailed plan indicates.

North of Lukkosalmentie, the allocated community infrastructure maintenance area (ET) is slightly larger than in the current local detailed plan due to Kuopion Energia Oy's plans for a potential heating centre. This is also the location of block 40, which contains industrial buildings causing no environmental disturbances (TY). A protective green area has been marked between the TY area and Virtasalmi where it is permitted to place, to the extent necessary, an embankment, noise wall, noise barrier, or a combination of these as a protective measure against noise in a manner that preserves the trees by the waterfront, and the tree stock in the infill area must be renewed in a manner that provides a protective effect (EV-11). The protective green area would be slightly narrower than in the current plan while still containing the highest points of the hill. A new protective green area has been allocated to the area delimited by Lukkosalmentie, block 40, and the ET area, which may be used to manage rainwater and flood water (EV-10). An area section where equipment and structures related to municipal infrastructure and water pumps (et-5) can be placed has been allocated in the TY, EV-11 and Virtasalmi areas in accordance with the valid local detailed plan.

The areas around Kallavesi have been marked as areas where the construction of boat moors and swimming piers is allowed (W-2).

4.3 Impacts of the plan draft if implemented

The assessments of the key positive and negative impacts of the local detailed plan and its changes are marked using the following symbols:

+++ significant positive impact and/or large area of impact
++ moderate positive impact and/or moderate area of impact
+ small positive impact and/or small area of impact
0 no impact
- small negative impact and/or small area of impact
- - moderate negative impact and/or moderate area of impact
- - - significant negative impact and/or large area of impact

Impact target	+/0/-	Description
URBAN STRUCTURE		
- connection to the urban structure	+	the change to the local detailed plan enables more flexible placements for infill development in built industrial plots as well as the utilisation of their unbuilt sections more diversely than before.
- utilising existing structures	--	the implementation of the local detailed plan requires a lot of new construction
- urban structures (energy, water, waste)	-	parts of the area already has structures but the network must also be expanded
- recreation areas	0	the area is currently an industrial area that contains no recreation areas
- plan economics	-	new construction, urban infrastructure must be built inside and potentially outside the plan area
ENVIRONMENT		
- built environment	+	blending construction with the environment
- disturbance factors	-	traffic volumes will increase; however, likely less than with the currently valid local detailed plan
- special features	++	placement of functions requiring an exclusion zone by expanding the existing industrial area
TRAFFIC		
- traffic network	--	some of the area is located along existing traffic network but new streets must also be built
- vehicle traffic	-	the traffic volume is growing in moderation
- pedestrians and cyclists	0	
- service traffic	-	the need will slightly grow
- traffic safety	-	when traffic volume grows, traffic safety also weakens

- parking	0	parking will be arranged within plots
SOCIAL IMPACTS		
- living conditions and comfort	-	The cityscape of Sorsasalo may change
MUNICIPAL ECONOMY		
- appropriation / project cost estimate	--	building infrastructure requires excavation and infills
- business life	+++	supports business
BUSINESS BENEFITS	+++	supports the vitality of the city and creates new jobs

Impacts on different demographics, impact on children

The impacts of the local detailed plan and its change on children are minor and potentially concern only a small number of children who may be nearby. The traffic volume in the plan area would likely increase, which will increase the noise level and have a minor negative impact on traffic safety. However, traffic volumes would likely increase less than with the implementation of the currently valid local detailed plan.

The baseline for the assessment of the impact on children is the current situation, on the basis of which the future land use solution is assessed and compared. Key positive or negative impacts on children arising from the project have been assessed using the following symbols:

+++ significant positive impact and/or large area of impact
++ moderate positive impact and/or moderate area of impact
+ small positive impact and/or small area of impact
0 no impact
- small negative impact and/or small area of impact
- - moderate negative impact and/or moderate area of impact
- - - significant negative impact and/or large area of impact

Impact target	+/0/-	Description
LIVING CONDITIONS		
change of environment	0	
recreation areas	0	
ENVIRONMENT		
built environment	0	
disturbance factors	-	traffic volume in the area will slightly increase
special features	0	
environmental hazards	-	when traffic volume grows, traffic safety weakens
housing	0	
services	0	
SAFETY		
pedestrians and cyclists	0	
emissions	-	slightly increase as traffic increases
special risks	0	
damages	0	
health	0	

use of intoxicants	0	
SOCIAL IMPACTS		
equality	0	
friendships	0	
becoming independent and growing up to be responsible	0	
linguistic impacts	0	
rights	0	
participation and opportunities to exert influence	0	
multiculturalism	0	
PSYCHOLOGICAL DEVELOPMENT		
well-being	0	
mental health	0	
bodily and psychological integrity	0	
gender and sex	0	
realisation of children's rights	0	
familial relationships	0	
considering religious backgrounds	0	
considering individual features	0	
people with disabilities	0	
ECONOMY		
family finances	+ +	new jobs will be created in the area

5 DESCRIPTION OF THE PLAN SOLUTION AND IMPACT ASSESSMENT

The plan description will be supplemented in the proposal phase. In regard to the small modular reactor, its impacts are also discussed in the ongoing assessment of environmental impacts. The plan solution and impact assessment are developed in parallel with the assessment of environmental impacts.

5.1 Structure of the plan change

5.1.1 Dimensioning

5.1.2 Services

5.2 Realisation of objectives related to the quality of the environment

5.3 Area reservations, plan symbols, and provisions

5.3.1 Block areas

5.3.2 Other areas

5.3.3 Local detailed plan symbols and provisions

The local detailed plan symbols and provisions have been presented in the format required by the Land Use and Building Act while applying the transition regulation laid down in section 3 of the Ministry of the Environment Decree on the plan provisions and presentation of symbols of regional, master, and local detailed plans.

The local detailed plan includes an energy supply area that allows the construction of a nuclear power plant (EN-3). The goal of the final plan is to make it possible to place a small modular reactor and all of its necessary auxiliary functions in the area. In case the area is not required for this purpose anymore, the plan solution enables the construction of other energy supply operations, which has been taken into account in the maximum permitted height of buildings.

The size of the exclusion zone of the modular reactor will be determined during the permit process as referred to in the Nuclear Energy Act in accordance with the provisions of the Radiation and Nuclear Safety Authority on the reactor's emergency planning. The exclusion zone allocated in the local detailed plan shows the largest possible exclusion zone permitted by the provisions of the Radiation and Nuclear Safety. In addition, regulations will be issued on the exclusion zone marked in the local detailed plan which ensure that no sensitive or hard-to-evacuate functions are placed in the area. Thus, the local detailed plan provides sufficient regulations to steer construction, and the affected zone of the small modular reactor will be known since it is determined in the local detailed plan.

5.4 Impacts of the local detailed plan

5.4.1 Impacts on the built environment

The implementation of the local detailed plan and its change would expand the surface area of the industrial area approximately as much as it would have expanded had the Finnpulp project been realised, but now more diverse functions are being planned for the area. For this reason, more streets and municipal infrastructure need to be built than if the area only housed one large plot.

The local detailed plan and its change will not affect the preservation of the current building stock.

5.4.2 Traffic impacts

The implementation of the local detailed plan and its change would increase traffic volumes in the plan area and its surroundings. However, the increase in traffic volumes is likely less than it would have been, had the Finnpulp or a similar project been realised.

The draft of the local detailed plan proposes two street connections to the energy maintenance area. This option enables creating an alternative route for rescue department vehicles if, exceptionally, one of the streets is out of order. Both streets lead through the industrial area into the national road 5 and the streets mainly act as access for industrial operations and their workers. Thus, any transportation of nuclear fuel could be organised through the lower street network in areas with fewer other users.

5.4.3 Impacts on nature and the natural environment

5.4.4 Impacts on climate

If constructed, the small modular reactor (SMR) would decrease emissions caused by Kuopion Energia Oy's production of district heat, and in broader view, the construction of a renewable fuel plant would also cut emissions. However, as trees and other vegetation are removed from the area, there will be fewer carbon sinks. Overall, the implementation of the local detailed plan and its change have a positive impact on climate.

5.4.5 Social impacts and impacts on children

When the local detailed plan and its change are implemented, new jobs will be created in the area, which improves employment rates in Kuopio and thus the average earnings.

The exclusion zone of the small modular reactor (SMR) which will potentially be constructed in the plan area is designed in accordance with the Nuclear Energy Act so that no permanent residences or large numbers of employees of other operations are located in the area. The provisions of the local detailed plan set the preconditions for the impacts of the small modular reactor. However, the social impacts of the reactor include the general approval of nuclear power. Although a plan that enables the construction of a small modular reactor does not have direct effects on residents, the existence of the reactor may be considered to be a disturbance which may decrease the interest in the holiday housing and residential buildings outside of the Sorsasalo area.

The plan does not have any special impacts on children.

5.4.6 Cultural impacts

The local detailed plan and its change may change the panoramic views in Sorsasalo towards the north, east, and south.

5.4.7 Impacts on safety and land use restrictions

Both the small modular reactor and the renewable fuel production plant carry an accident risk affecting the area and the neighbouring areas.

The impacts of a potential small modular reactor or another energy production plant have been limited in the selected plan by allocating a 250 m wide exclusion zone around the area where difficult-to-evacuate operations are prohibited. No permanent or holiday housing will be located within the exclusion zone. In case a combustion-based energy production plan is constructed in addition to or instead of the small modular reactor, the emissions in the area will slightly increase depending on the size and production method of the plant.

The size of the exclusion zone will be determined during the permit process for the renewable fuel plant. The size if the exclusion zone depends on, e.g., the reactor's production volumes and the amount of chemicals stored in the reactor area. At maximum, the width of the exclusion

zone may be 2 km. It must be possible to evacuate the exclusion zone area fast in case of an accident.

5.4.8 Economic impacts

Bringing new companies and jobs to the area produces more tax income to the City of Kuopio. Implementing the local detailed plan and its change require building streets in occasionally difficult terrain, which increases the costs of the project.

5.5 Environmental disturbance factors

5.6 Nomenclature

6 IMPLEMENTATION OF THE LOCAL DETAILED PLAN

The implementation of the local detailed plan and its change may begin once the plan, the street plan that shall be drafted later, and required building permits have entered into force.

Kuopio, 12 March 2026

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