

Route Survey

Kalajoki - Alavieska



Rev.	Date	Change	Responsible	Checked
00	30-03-2023	First issue.	TBS- Mammoet	BBM- Mammoet



Introduction

The route survey was carried out to determine the extend of required road modifications for safe transportation of Wind turbine components from Port of Kalajoki to Siivikon Metsätie, Alavieska.

Project Data

Date of route survey: Week 8 - 2022.

Responsible for route survey: Thomas Simonsen, Mammoet.

Project name: Port of Kalajoki - Alavieska

Poi / Pick up point of components: Kalajoki, Finland.

Site location/Point of discharge: Approx 20 km South west of Kalajoki

Distance POI to site entrance: Approx 35 km to Site entrance

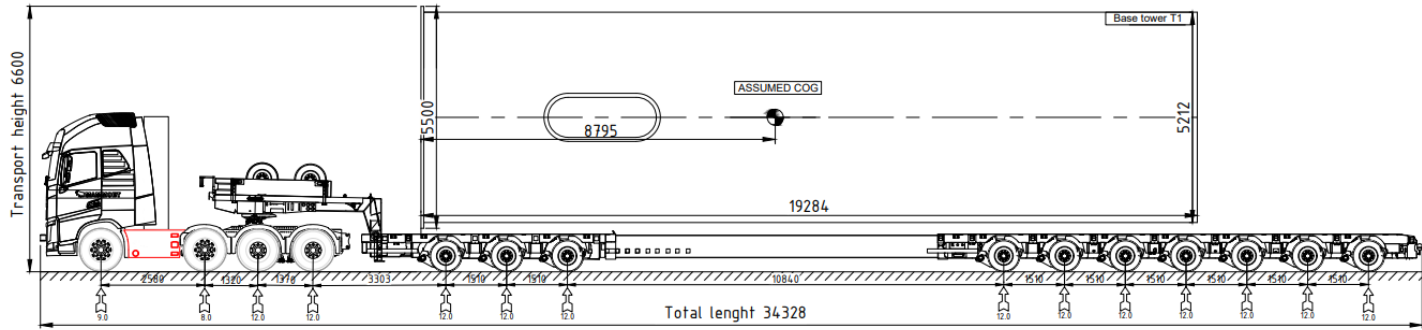
Turbine model: Not decided

Participants in the route survey: Thomas Simonsen, Brian Hansen, Mammoet.

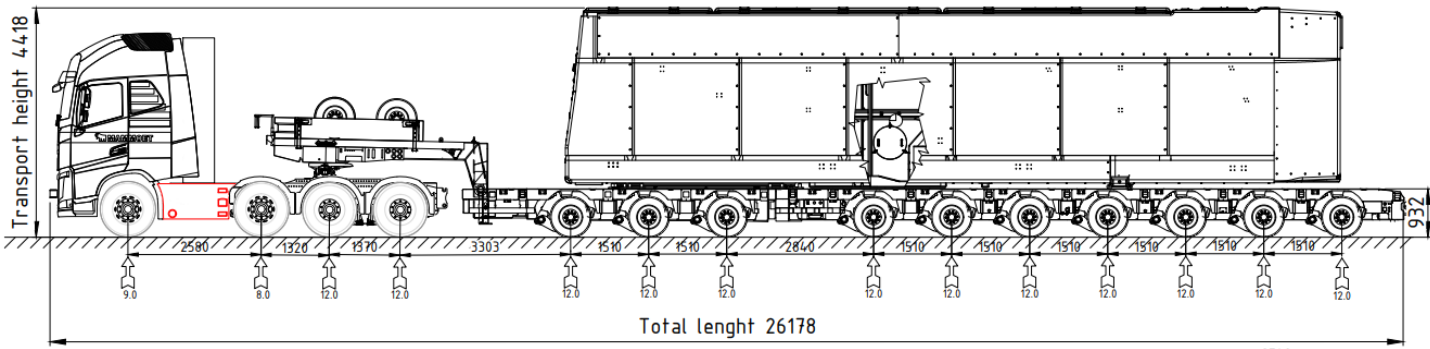
Route survey measurements is based on: Route survey config / as per next page



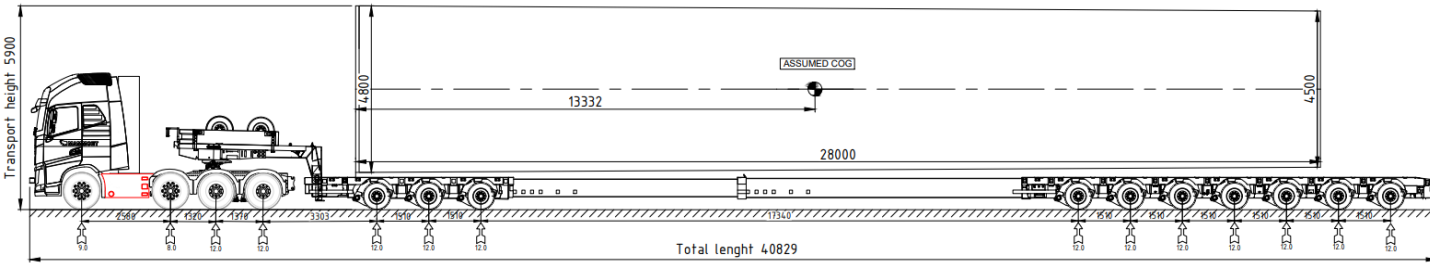
Total weight: 161,000 kg



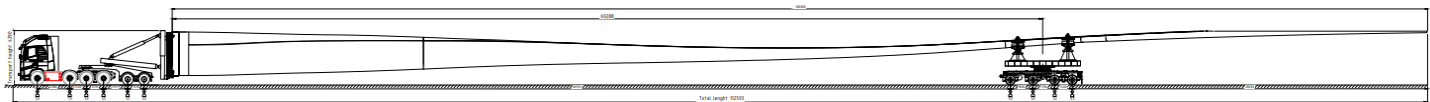
Total weight: 161,000 kg















Total weight: 161,000 kg



Total weight: 79,000 kg

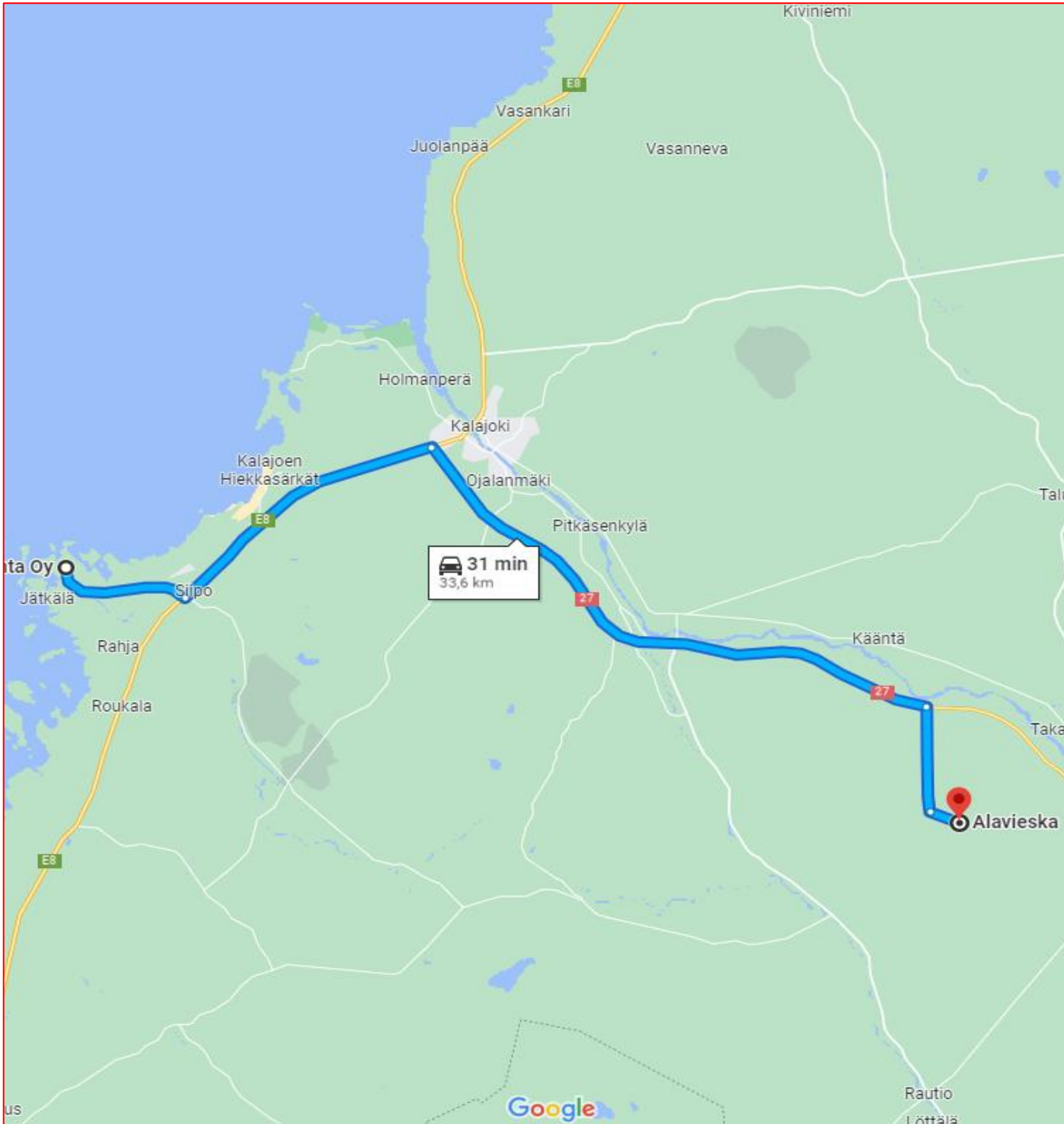


Report layout

	Yellow arrow:	Indication of forward driving.
	Red arrow:	Indication of reverse driving.
	Red box:	Indication of street furniture, sign etc. that must be removed.
	Dotted red box:	Removable signs or street furniture.
	Blue area:	Indication of area that must be made suitable to drive on.
	Dotted blue line:	Over sail line, removal of embankment, rocks, mountain wall etc.
	Green box/line:	Indication of tree cutting/trimming.
	Dotted black arrow:	Measurements, meters.
	Dotted black line:	Measurements from/to.
	Dotted red line:	Indication of over head utility/power line.
	Dotted purple line:	Parking curfew.
	Red arrow:	Bridge height.

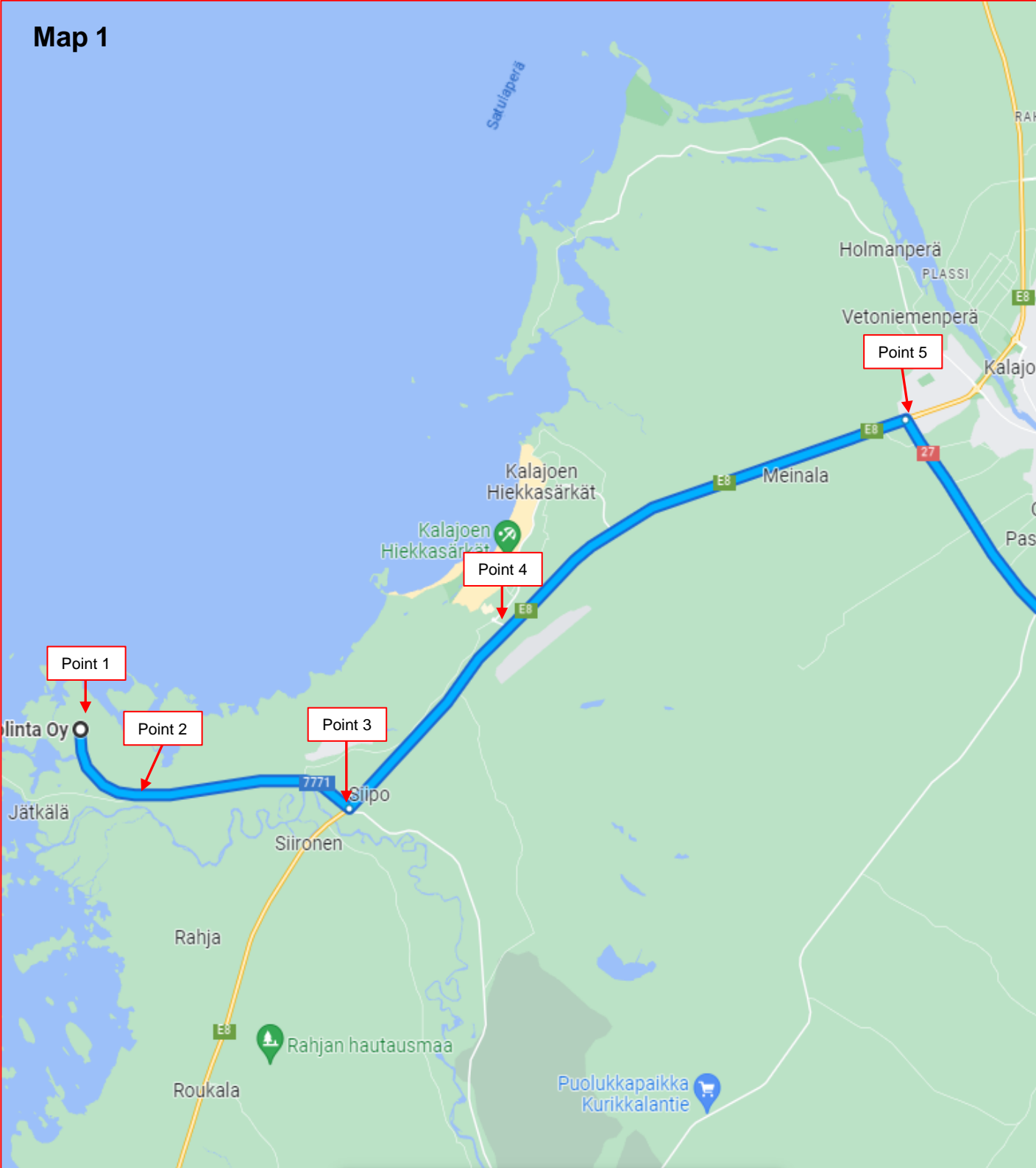


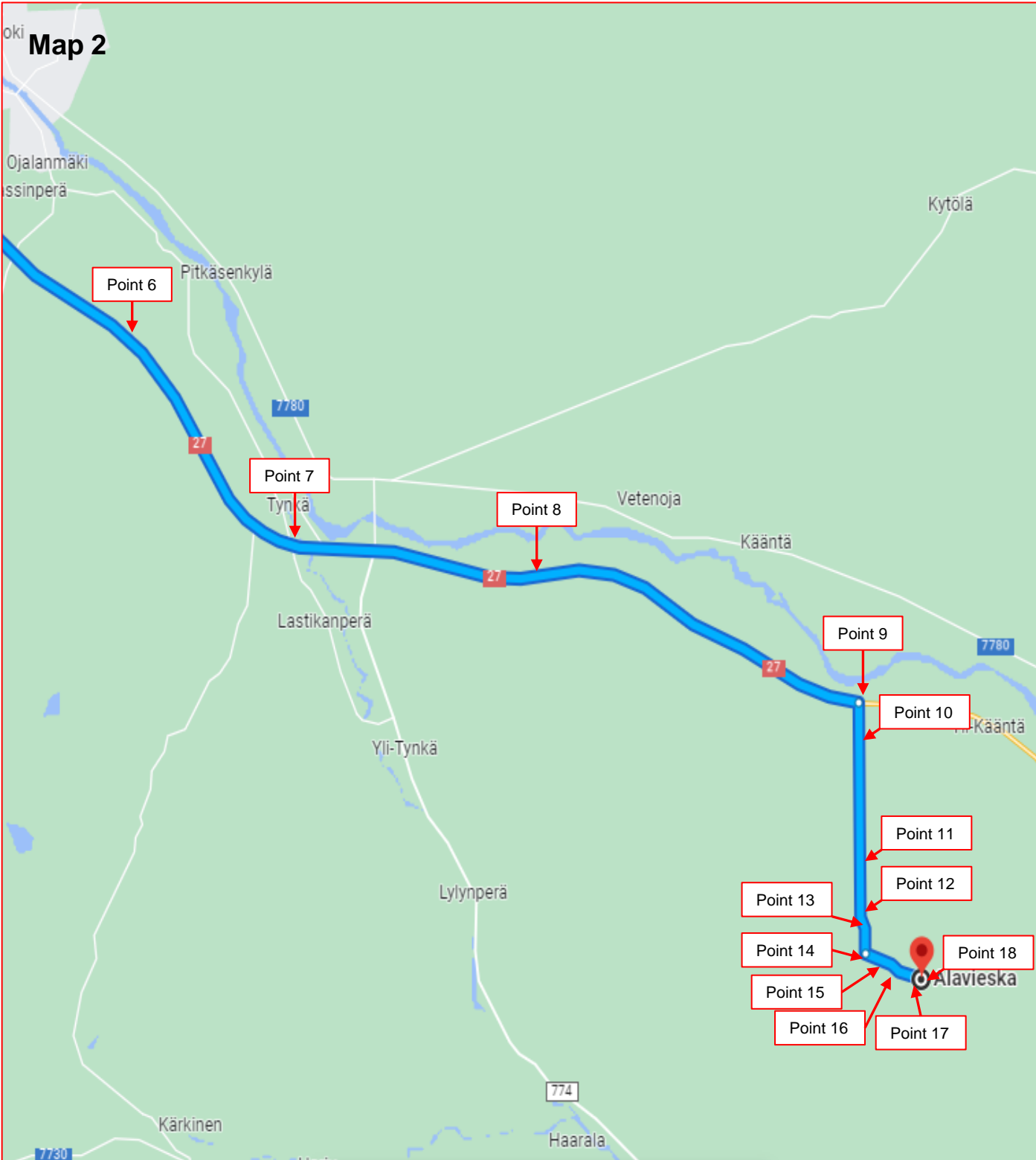
Route map from Port of Kalajoki to Alavieska



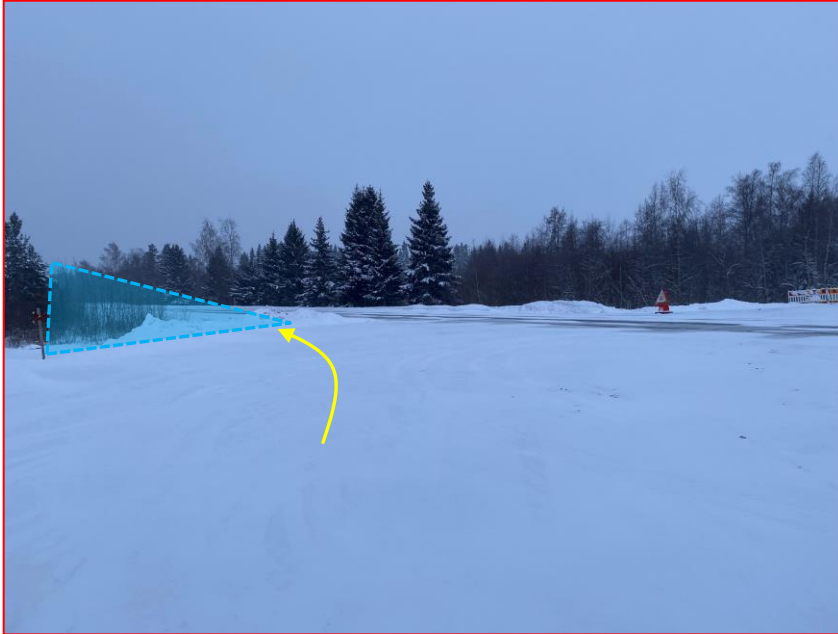
- **Google link.**
- <https://goo.gl/maps/bGtBaVhpRcEUGy7BA>

Map 1





Point 1 – Port exit. Kalajoki.



Actions / Info.

- Start of Route survey.
- Oversail area must not be higher than 0,5m above road level.



Google maps link: <https://goo.gl/maps/JFPnsyjQPHDtuKLn6>

Point 2 – Route 7771. Jätkälä.



Actions / Info.

- **A: 9.23m**

Google maps link: <https://goo.gl/maps/snVvWEv6DWE34xh36>

Point 3 – Route 7771 onto E8. Siipo.



Google maps link: <https://goo.gl/maps/gd74u7jQ3KkYqFS26>

Actions / Info.

- It seems like there is established a drivable area under the snow.
- 2 signs must be removable.
- Drivable area must be in road level and be suitable to drive on.
- Oversail area must not be higher than 0,5m above road level.
- See attached PDF file: Point 3

Point 4 – E8 . Hiekkasärkät..

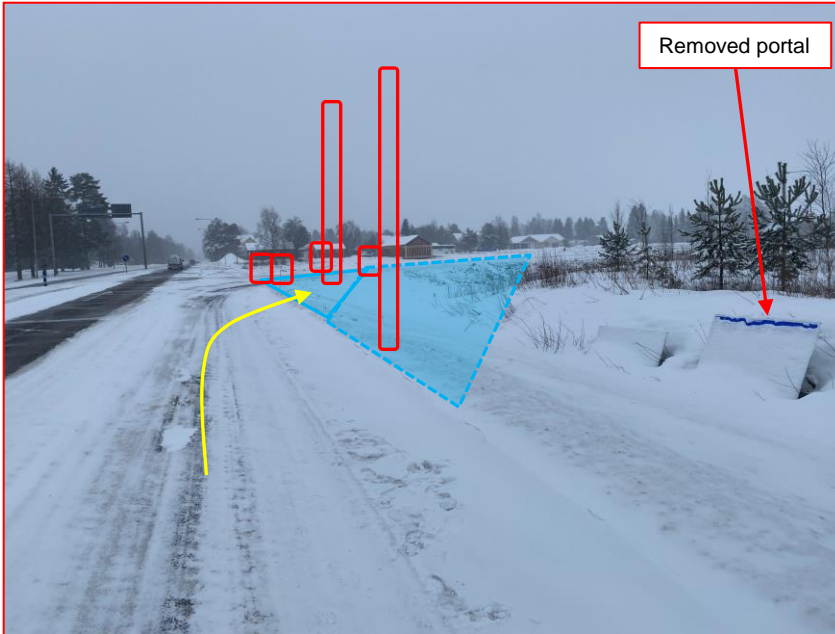


Google maps link: <https://goo.gl/maps/YW9jmoqhM6QEe7QK9>

Actions / Info.

- **A: 7.97m**

Point 5 – E8 onto Route 27. Kalajoki.



Google maps link: <https://goo.gl/maps/vz5DDcZk2WtVgFgx7>

Actions / Info.

- Street furnitures was removed during survey due to ongoing wind transportation.
- Drivable area must be in road level and be suitable to drive on.
- Oversail area must not be higher than 0,5m above road level.
- 1 Portal must be removed.
- 3 light poles must be removed.
- 5 signs must be removed.
- See attached PDF file: Point 5

Point 6 – Route 27. Nuoraperä.

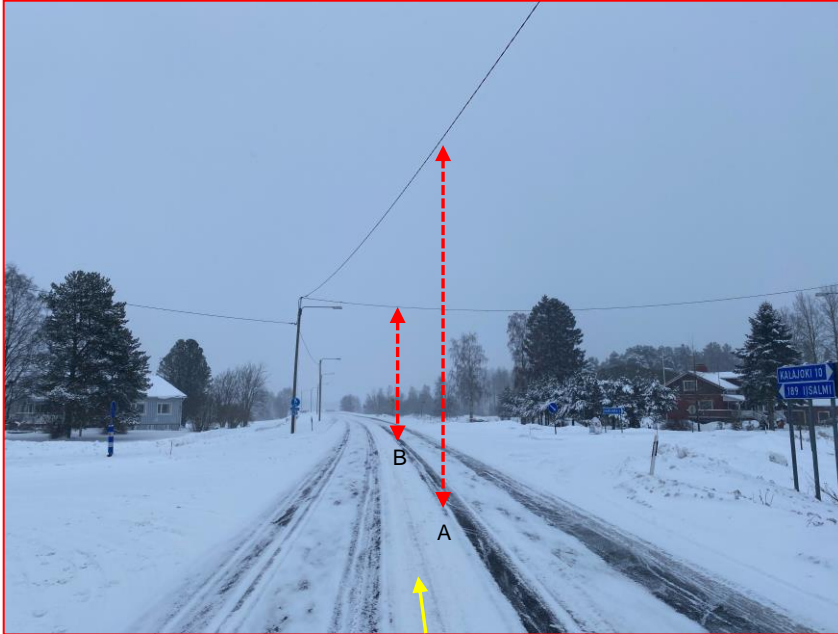


Google maps link: <https://goo.gl/maps/BPSbeqktUPjidJVE6>

Actions / Info.

- **A: 10.48m.**

Point 7 – Route 27. Tynkä.



Actions / Info.

- A: 9.09m
- B: 9.73m

Google maps link: <https://goo.gl/maps/in8LKw24AeFwL29K7>

Point 8 – Route 27. Alavieska.

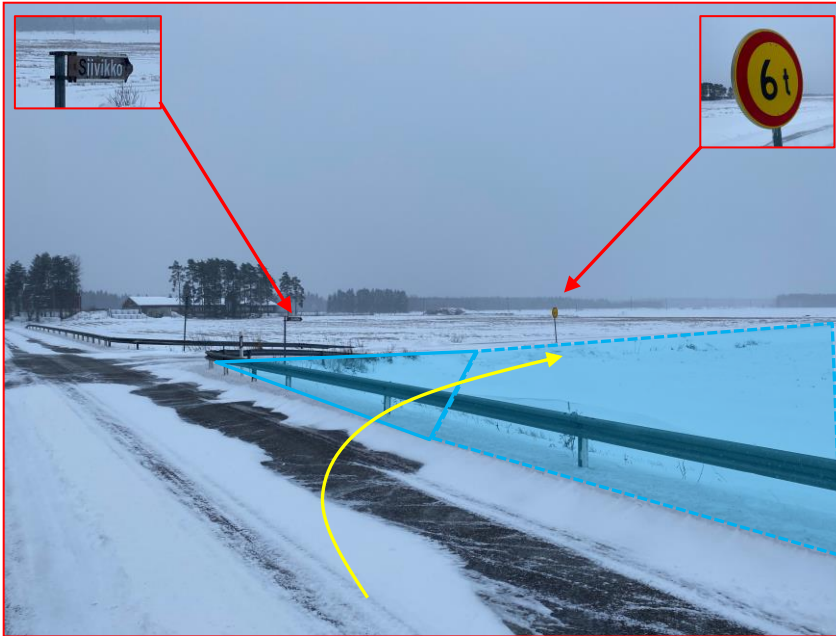


Actions / Info.

- A: 11.87m

Google maps link: <https://goo.gl/maps/XDZb1mZexy35R9F7A>

Point 9 – Route 27 onto Siivikko. Alavieska.

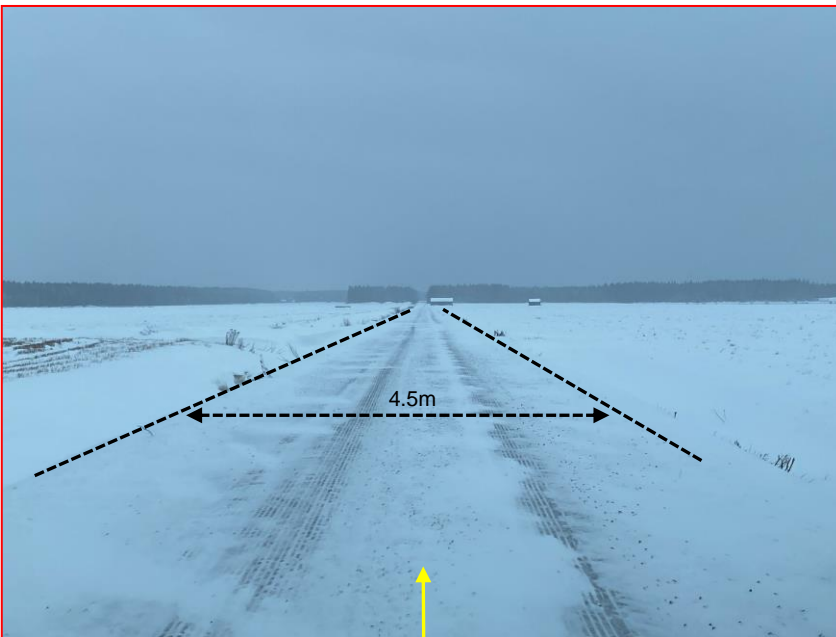


Google maps link: <https://goo.gl/maps/7qSBdJeSsieowFK28>

Actions / Info.

- From this point it's maximum 6T total weight.
- Drivable area must be in road level and be suitable to drive on.
- Oversail area must not be higher than 0,5m above road level.
- 2 signs must be removed.
- Guardrail must be removed.
- See attached PDF file: Point 9.
- From this point it's a gravel road which needs to be upgraded to accommodate chosen transport equipment.

Point 10 – Siivikon Metsätie. Alavieska.

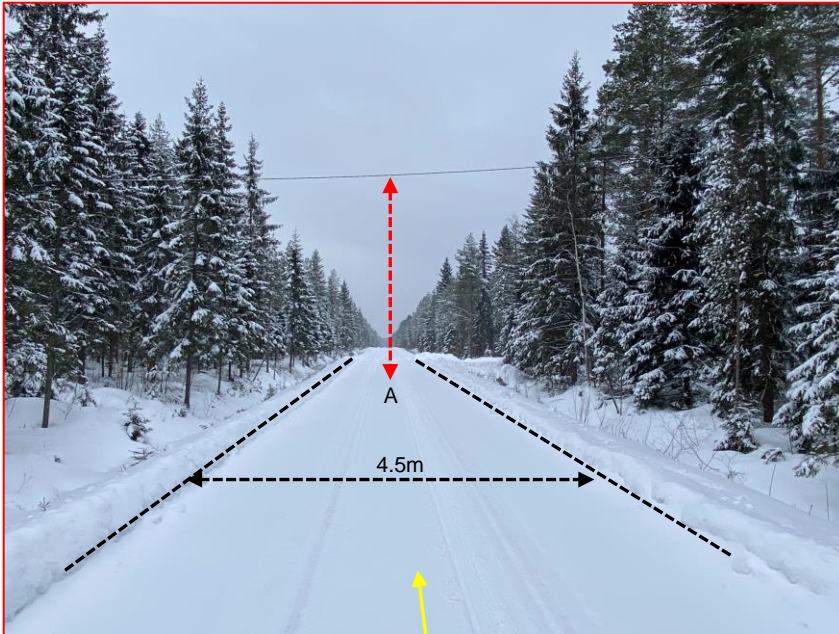


Google maps link: <https://goo.gl/maps/iph3SK6dB86yScBCA>

Actions / Info.

- Road must be upgraded to accommodate chosen transport equipment.
- Road is measured to 4.5m from edge to edge.

Point 11 – Siivikon Metsätie. Alavieska.



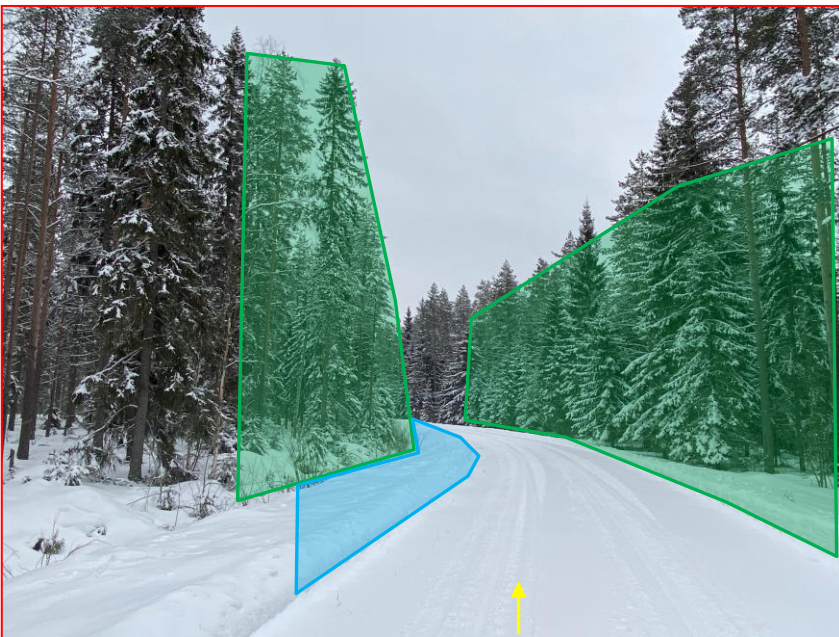
Actions / Info.

Road must be upgraded to accommodate chosen transport equipment.

- A: 7.44m
- Road is measured to 4.5m from edge to edge.

Google maps link: <https://goo.gl/maps/Ft734N4ne3hJLte47>

Point 12 – Siivikon Metsätie. Alavieska.



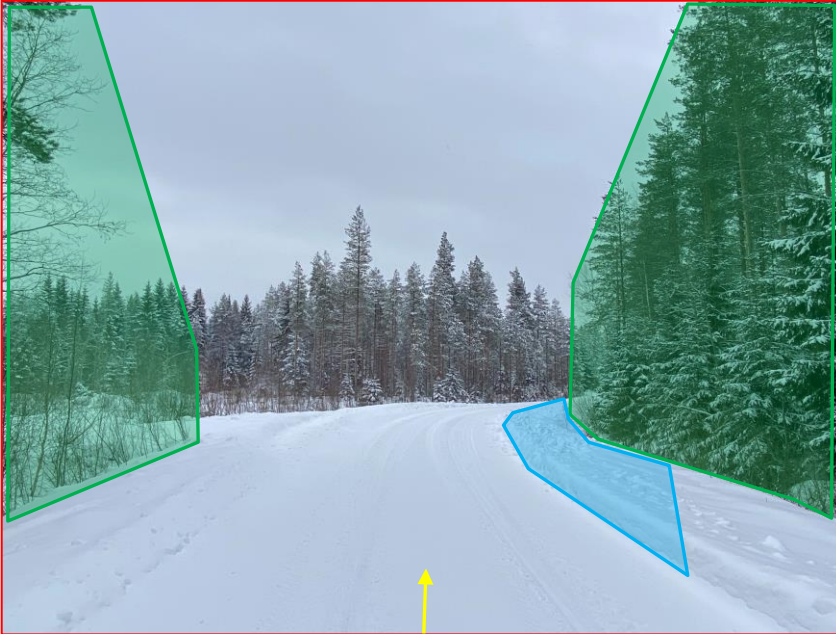
Actions / Info.

Road must be upgraded to accommodate chosen transport equipment.

- Trees must be removed to allow oversail.
- Drivable area must be in road level and be suitable to drive on.
- The exact amount of road modifications can be determined when transport equipment is chosen.

Google maps link: <https://goo.gl/maps/uUtsayDfqVkXMkd17>

Point 13 – Siivikon Metsätie. Alavieska.



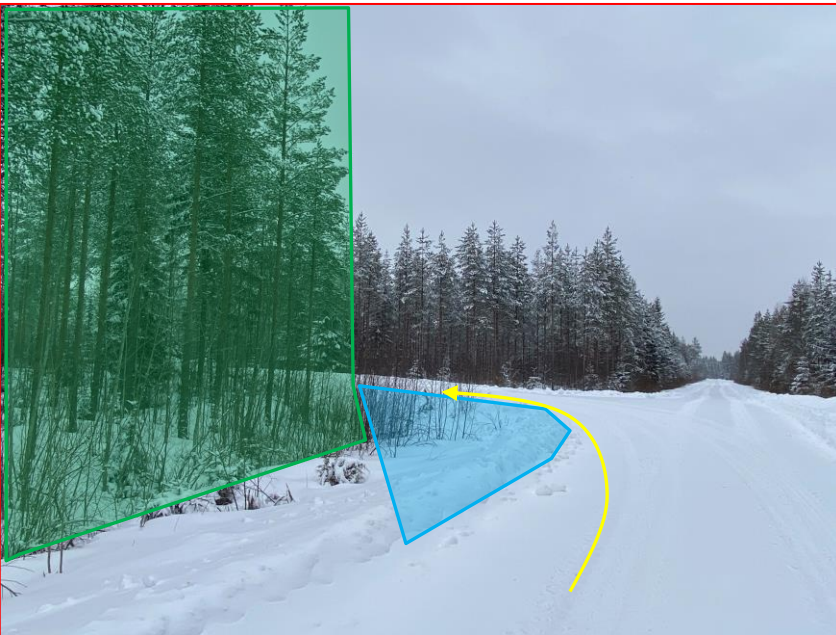
Google maps link: <https://goo.gl/maps/tFCUTZPUSzgyH6h8>

Actions / Info.

Road must be upgraded to accommodate chosen transport equipment.

- Trees must be removed to allow oversail.
- Drivable area must be in road level and be suitable to drive on.
- The exact amount of road modifications can be determined when transport equipment is chosen.

Point 14 – Siivikon Metsätie. Alavieska.



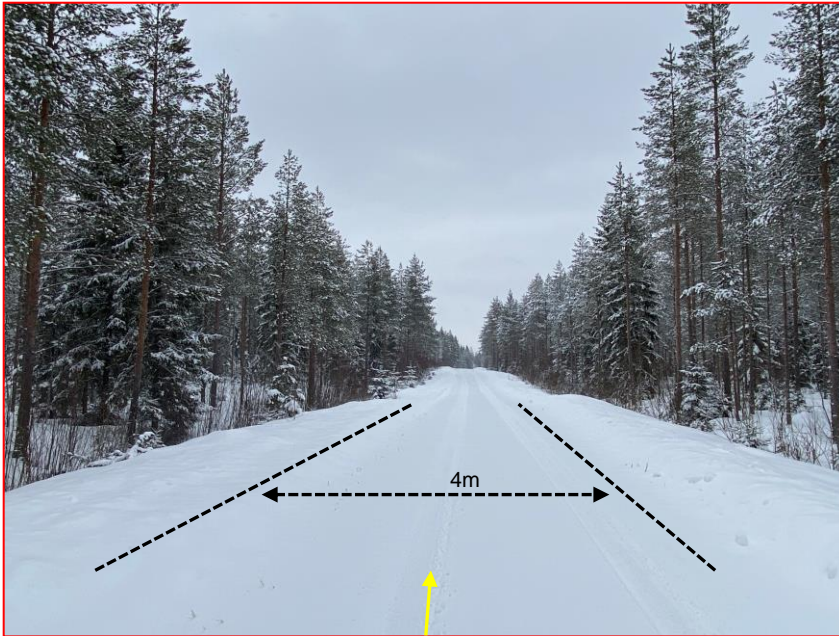
Google maps link: <https://goo.gl/maps/RmB1ePF3oNbtSJjaA>

Actions / Info.

Road must be upgraded to accommodate chosen transport equipment.

- Trees must be removed to allow oversail.
- Drivable area must be in road level and be suitable to drive on.
- The exact amount of road modifications can be determined when transport equipment is chosen.

Point 15 – Siivikon Metsätie. Alavieska.



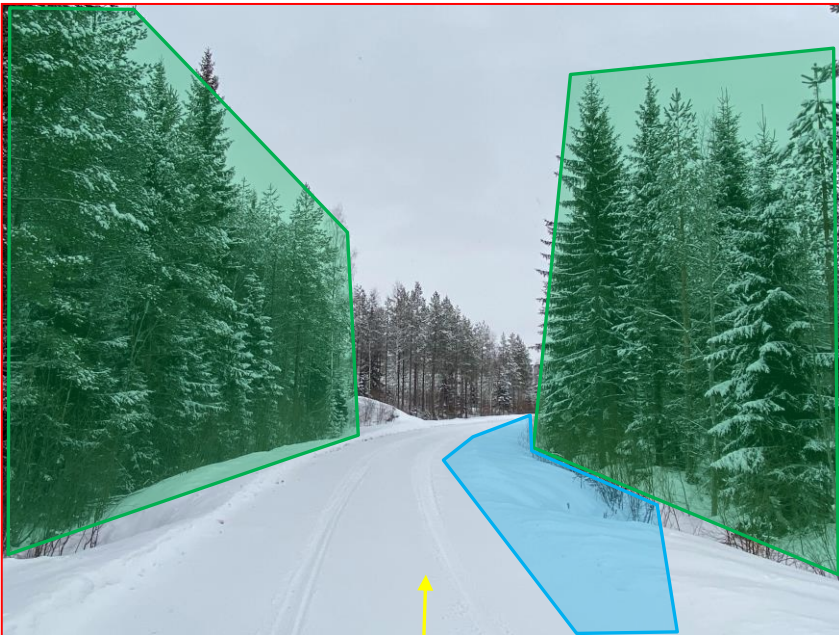
Google maps link: <https://goo.gl/maps/gL4RZ3uvGrLLo2rz6>

Actions / Info.

Road must be upgraded to accommodate chosen transport equipment.

- Road is measured to 4m from edge to edge.

Point 16 – Siivikon Metsätie. Alavieska.



Google maps link: <https://goo.gl/maps/jXmskniBxwajhCwq8>

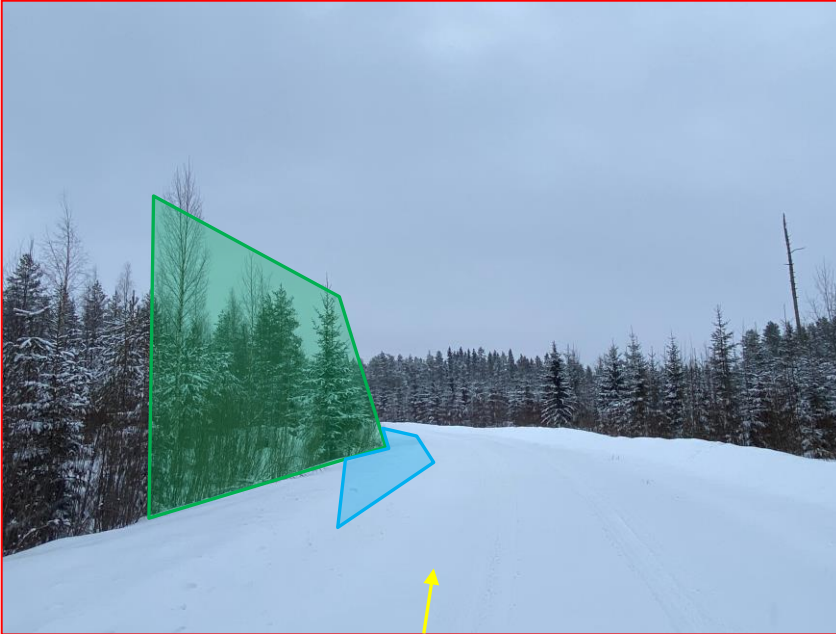
Actions / Info.

• Road must be upgraded to accommodate chosen transport equipment.

- Trees must be removed to allow oversail.
- Drivable area must be in road level and be suitable to drive on.

- The exact amount of road modifications can be determined when transport equipment is chosen.

Point 17 – Siivikon Metsätie. Alavieska.



Google maps link: <https://goo.gl/maps/8xWLEZjG9SjbTj9t7>

Actions / Info.

- Road must be upgraded to accommodate chosen transport equipment.
- Trees must be removed to allow oversail.
- Drivable area must be in road level and be suitable to drive on.
- The exact amount of road modifications can be determined when transport equipment is chosen.

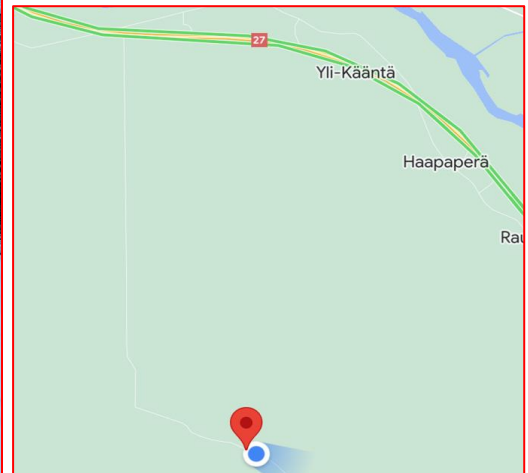
Point 18 – Siivikon Metsätie. Alavieska.



Google maps link: <https://goo.gl/maps/JyPUQgy1LL1JJaPZ6>

Actions / Info.

- Relevant route point



Conclusion

The route is suitable for transport of wind turbine components as per agreed transport configuration from Port of Kalajoki to Alavieska if the road modifications described in the document are carried out.

- Cables are measured in -6 so expect the cables to drop up to 30cm during summertime.
- Some street furniture's was removed during the survey due to ongoing Wind turbine transportation so some street furniture's can be missed and not stated in this report.
- Due to winter conditions during survey with risk of missing any small bridges on the route a dummy permit is applied and attached. Dummy permit is valid from Port of Kalajoki up to and including point 9.
- No stop on any bridges with agreed transport configuration but 1 bridge needs surveillance during every heavy transport.
- From point 9 up to Relevant route point road must be upgraded to accommodate chosen transport configuration.

The route survey report is only valid if transport permits can be issued.

Attached to survey:

Dummy permit:

Nacelle, Tower and blade configuration

Point 3:

SPA – RM

Point 5:

SPA – RM

Point 9:

SPA - RM