

ROUTE SURVEY TIELAMPI

1. Implementation

Date	3.11.2023	
Revision nr - modified by	1.0 -SK	
Time	08:00-16:00	
Weather	+2 - -5 C	
Conditions	Dry, sunny, snow	
Participants	Function	Company
Sami Kivelä	Site Manager	Silvasti

1.1 Start and end points of the route

Start point(s)	Coordinates	End point	Coordinates
Port of Raahe Route 1	64.642384, 24.433365	Site entrance Tielampi A	63.460963, 27.351294
Port of Raahe Route 2	64.664972, 24.416467	Site entrance Tielampi B	63.453679, 27.377126

1.2 WTG type

Number of WEA	Type WTG	Type tower	Type blade
?	?	?	?

1.3. Total dimensions checked

Component	Length	Width	Height	Weight	Overhang
Blade	112,0m	4,50m	4,50m		? m
Tower	50m	6,50m	6,80m		



2. Result

Purpose of this survey was to define feasible route for transports with total dimensions stated in the report from port of Raahe to site area Tielampi, in Lapinlahti municipality, Finland.
Location of the site entrance is known.

Survey is based on use of dollytrailer for blade transports and clamp trailer for tower transports.

Some of the modifications along the routes were already built at the time of the survey. Final dimensions of all drivable and oversail areas to be defined after transport dimensions of blades and heavy components are confirmed.

All modifications mentioned in the report are needed to enable the transports.
Modifications inside of port area and factory area are excluded from this report.

On the basis of the executed survey, route from POL until to the site entrance is feasible when modifications shown in this document are made.

2.1 Disclaimer of liability

This survey is valid only on the day it is compiled.
The given route is subject to final approval by the local authorities.
A test permit needs to be applied in order to define if heavy transport is possible on the defined route.
A second feasibility check of the proposed route must be done at least 10 weeks before start of deliveries.



3. Route and maps

3.1 Overall route

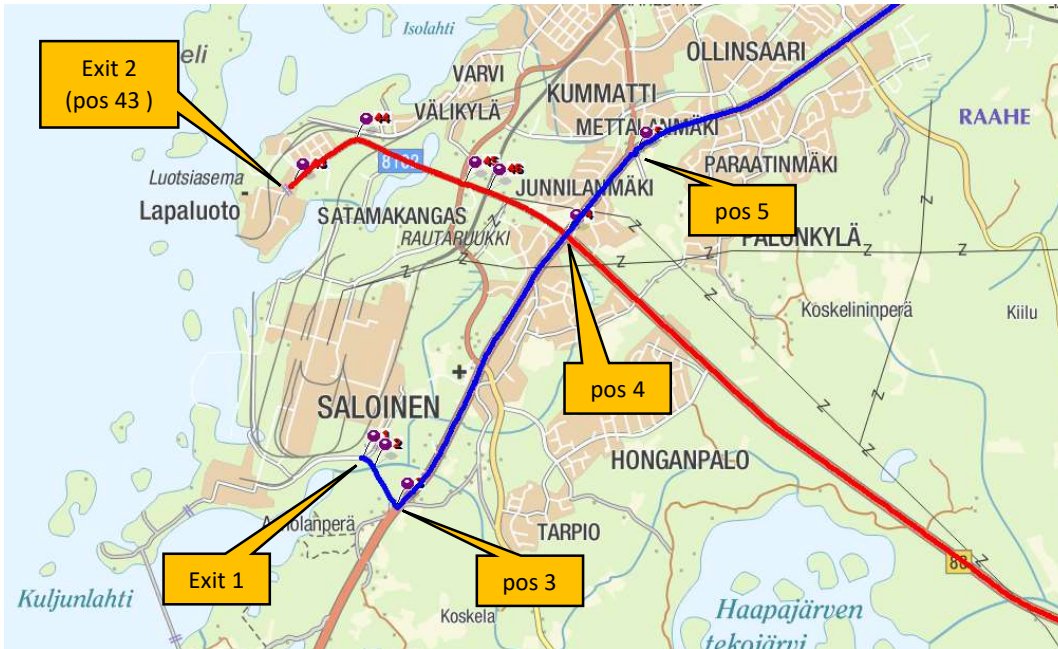
<p>Total length of the route(s) from the port: Route 1 -253 km. Route 2 -218 km.</p>
<p>Route 1 (Towers) in google maps: https://maps.app.goo.gl/2om7hL9GNEH8Gaht9 Route 2 (Blades) in google maps: https://maps.app.goo.gl/yYowH53fTygDUMhh8</p>
<p>Route description:</p> <p>Route 1 via exit 1: Port of Raahе – (via SSAB factory area) Koksaamontie – road 8 – road 4 – road 88 – road 27 – road 87 – road 16229 (Koukkujoentie) – road 16222 (Tervakankaantie) – Counter ramp down to road 5 – road 5 – bridge detour via ramps – road 5 – bridge detour via ramps – road 5 – road 16235 (Keskimmäisentie) – Site entrance.</p> <p>Route 2 via exit 2: Port of Raahе – Lapaluodontie – road 88 – road 27 - road 5 – road 16235 (Keskimmäisentie) – Site entrance.</p>



Map 1. Route overview. Route for blades marked as red.



3.2 Maps 2-13 – Positions noted



Map 2. First part of the routes. Positions 1-3 exit from port via KoksaaMontie (route 1). Exit route suitable for towers and main components marked as blue. Positions 43 - 4 exit via Lapaluodontie (route 2). Exit route suitable for Blades and main components (subject to weight and height) marked as red.



Map 3. Second part of the route 1.





Map 4. Third part of the route 1.



Map 5. Fourth part of the route 1.



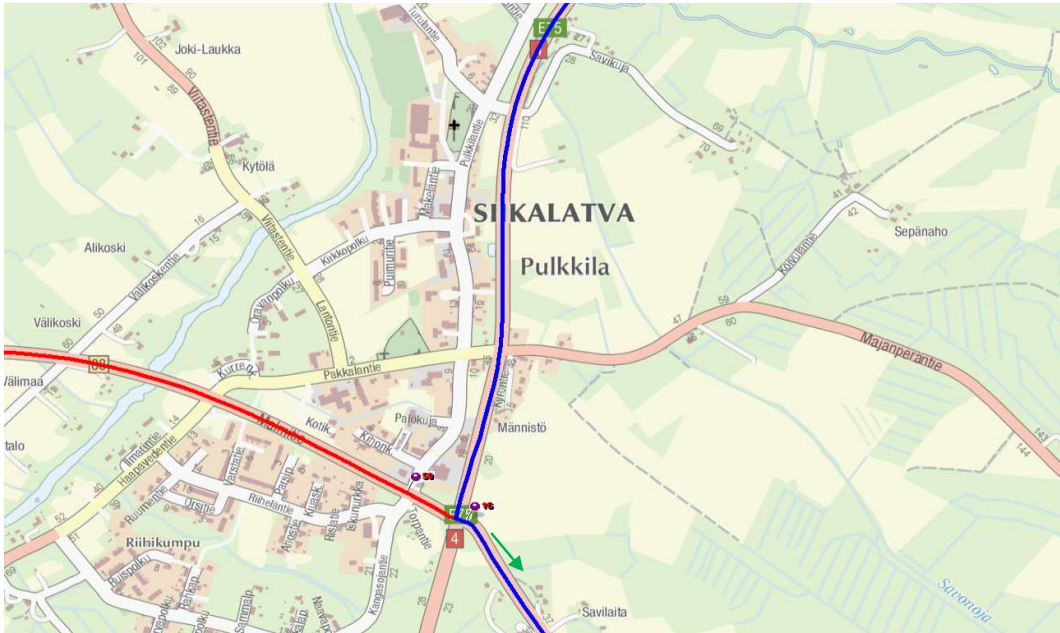


Map 6. Fifth part of the route 1.



Map 7. Sixth part of the route 1.



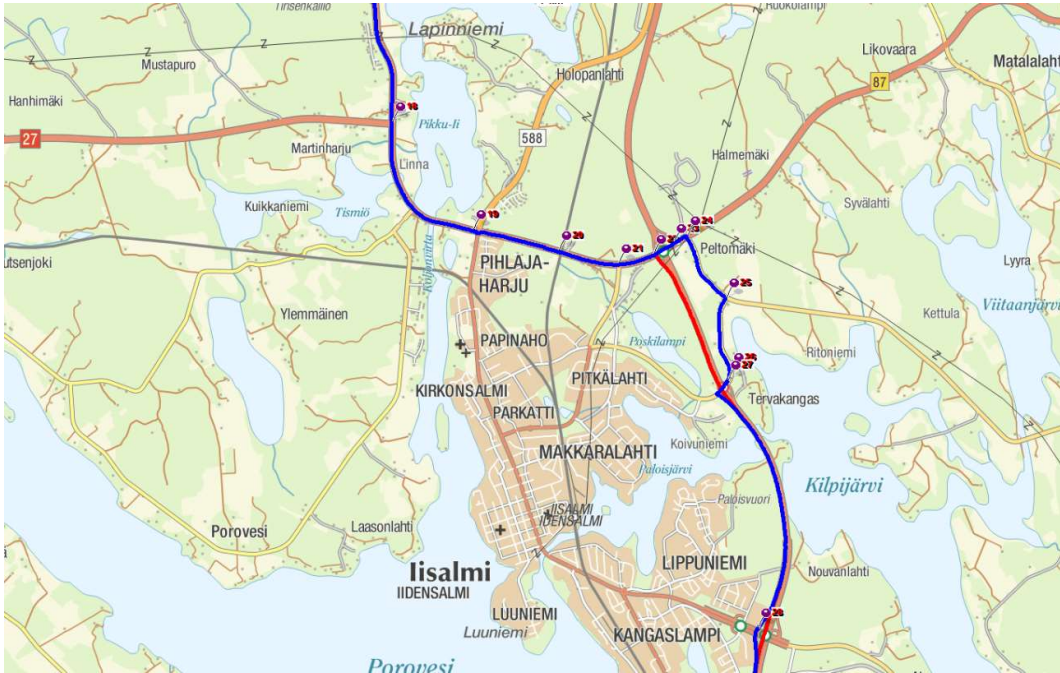


Map 8. Seventh part of the routes. Route 2 for blades marked as red.



Map 9. Eighth part of the routes.



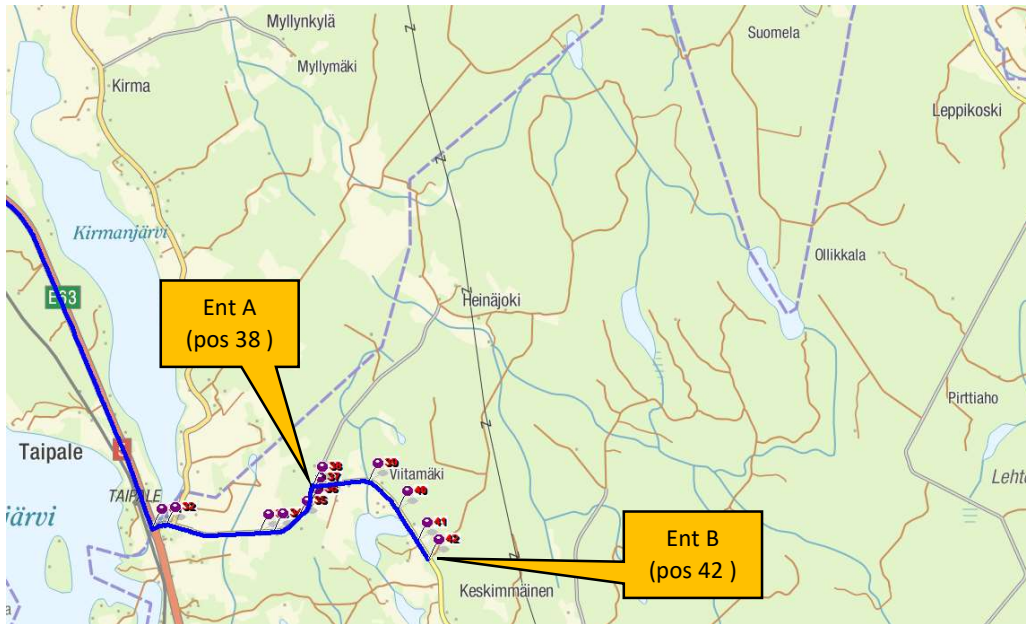


Map 10. Ninth part of the routes. Route 2 marked as red.



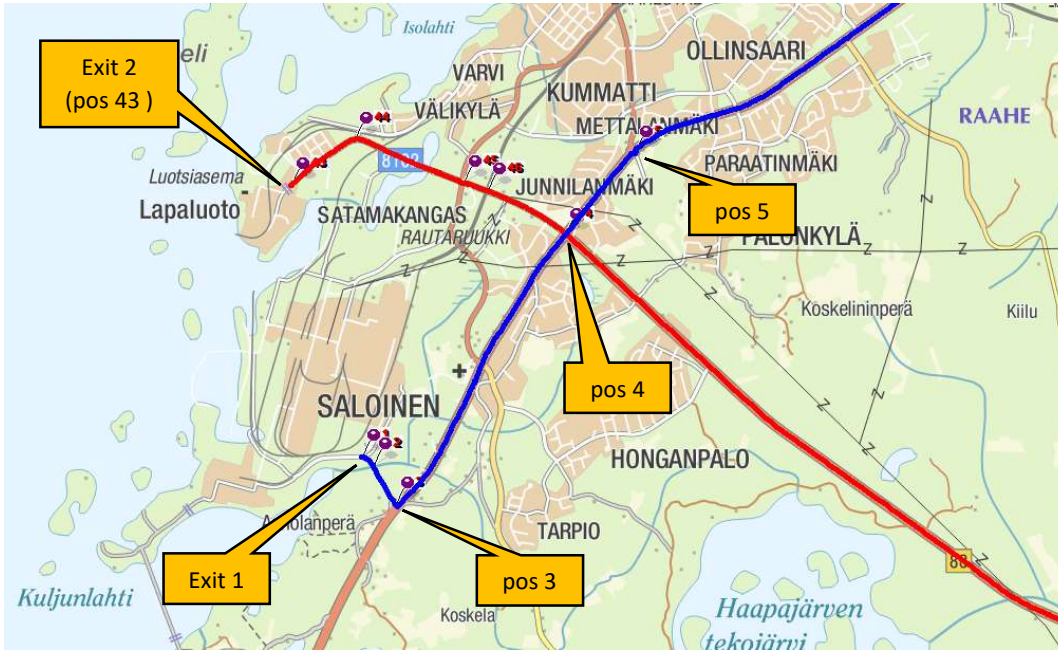
Map 11. Tenth part of the routes. Route 2 marked as red.





Map 12. Last part of the routes.



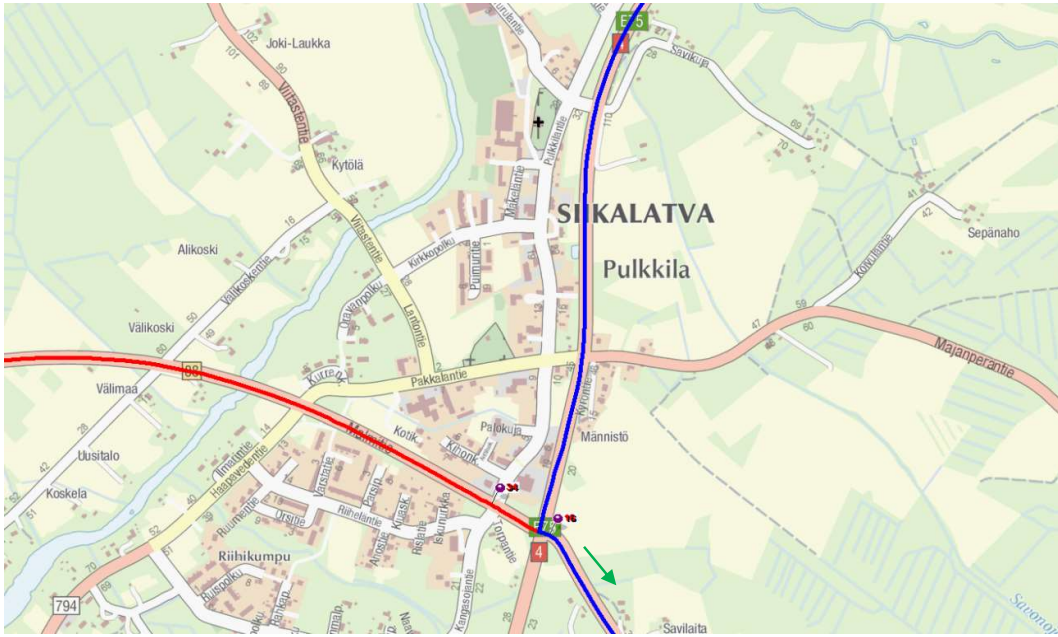


Map 13. Positions 43 - 4 exit via Lapaluodontie (route 2). Exit route suitable for Blades and main components (subject to weight and height) marked as red.



Map 14. Route 2 in Vihanti.





Map 15. Route 2 for blades marked as red.



4. Individual route sections

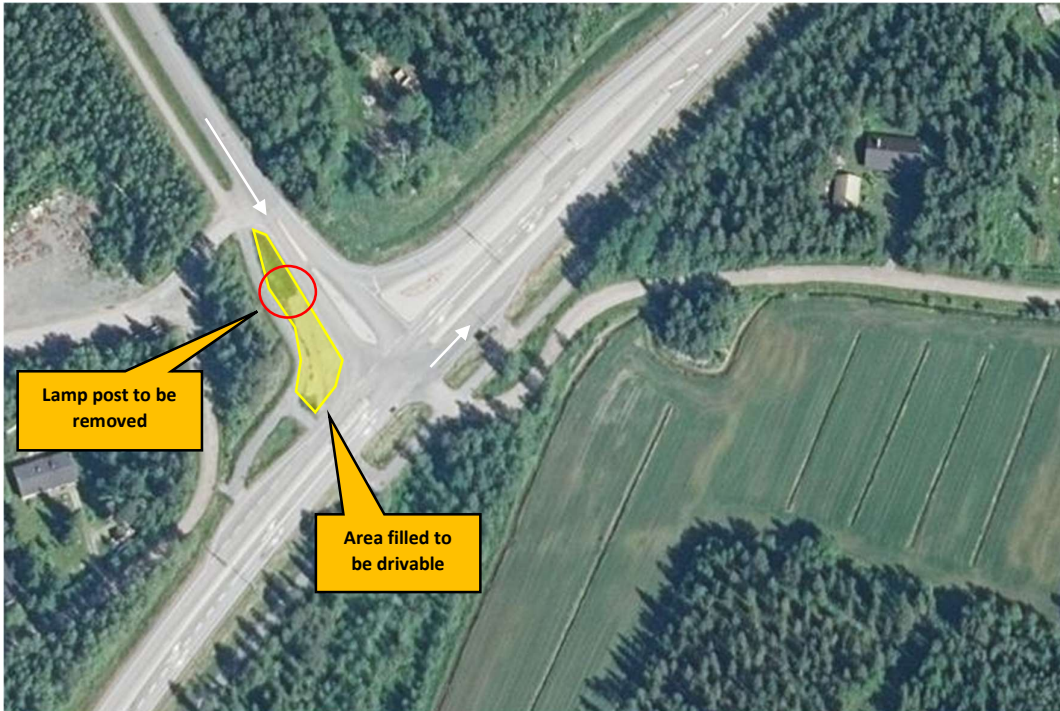


Pos 1/Pic 1. Exit via KoksaaMontie. (route 1). <https://goo.gl/maps/fuXC4nDZ4k1cLSV89>.
Modifications: N/A



Pos 2/Pic 2. KoksaaMontie. Continue straight. <https://goo.gl/maps/cbCiVDtjACptdCDj6>.
Marked lamp post height to be rechecked before transports.





Pos 3/Pic 3. Turning from Koksaamontie toward road 8. <https://goo.gl/maps/KRvRVDs4VtXoCE8e6>.

Modifications:

- Area between Hiientie/sidewalk/E8 to be filled and drivable (currently done).
- Lamp post to be removed (currently removed)



Pos 3/Pic 4. Turning from Koksaamontie toward road 8. <https://goo.gl/maps/KRvRVDs4VtXoCE8e6>.

Marked area needs to be filled and drivable. Marked sign need to be removed. Lamp post removed from marked area.



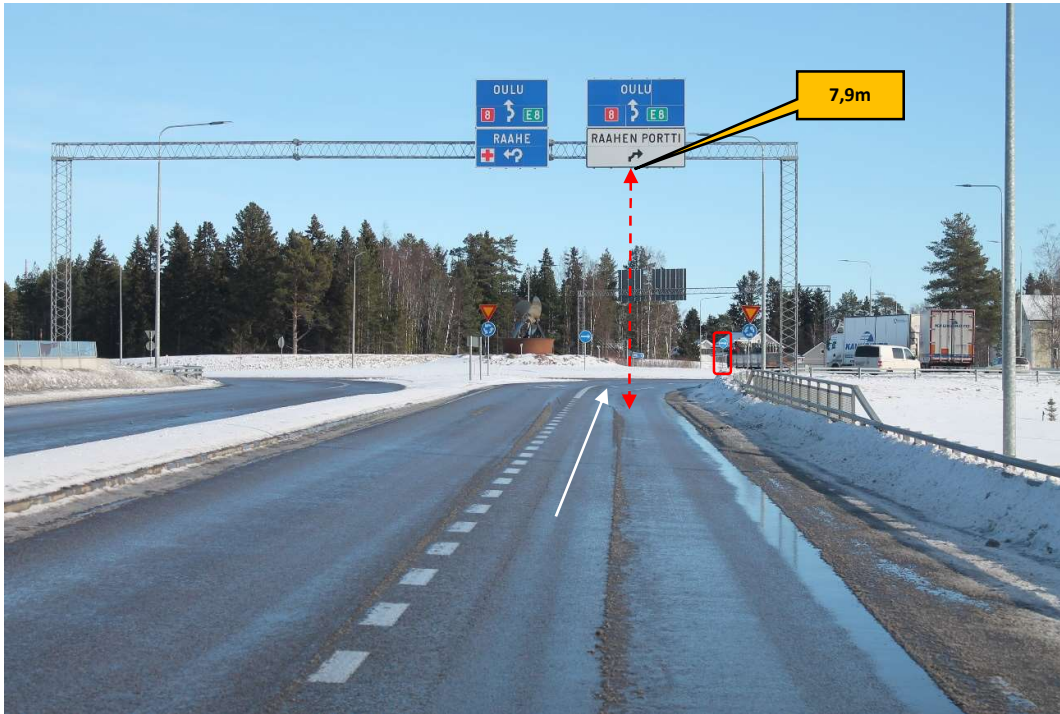


Pos 3/Pic 5. Turning from Koksaamontie toward road 8. <https://goo.gl/maps/KRvRVDs4VtXoCE8e6>.
Marked signs to be removed.



Pos 4/Pic 6. Junction road 8/road 88. Continue straight on road 8.
<https://goo.gl/maps/2mtmM73RSJQEixnS8>.
Yellow arrow points driving direction for blades.





Pos 5/Pic 7. Roundabout on road 8. Continue straight on road 8. <https://goo.gl/maps/QUW3nz9bApAtpjiRA>. Marked signs need to be removed.



Pos 5/Pic 8. Roundabout on road 8. Continue straight. <https://goo.gl/maps/QUW3nz9bApAtpjiRA>. Marked signs to be removed.





Pos 5/Pic 9. Road 8. <https://goo.gl/maps/2EvF65GnD5QaHKdn8>.
Marked sign to be removed.



Pos 6/Pic 10. Road 8. Continue straight on counter lane. <https://goo.gl/maps/zBqM1gULQySmSoFh6>.
Marked sign need to be removed.





Pos 6/Pic 11. Road 8. Continue straight on counter lane. <https://goo.gl/maps/zBqM1gULQySmSoFh6>.
Marked sign to be removed.



Pos 7/Pic 12. Road 8. <https://goo.gl/maps/pPpDXCU26rpkJyuu5>.
Marked sign need to be removed.





Pos 8/Pic 13. Road 8. Continue straight. <https://goo.gl/maps/fLBjdYMtXjLyqj1Z9> .
Need to use counter lane. Marked sign need to be removed.



Pos 8/Pic 14. Road 8. <https://goo.gl/maps/fLBjdYMtXjLyqj1Z9> .
Need to use counter lane. Marked sign need to be removed.





Pos 9/Pic 15. Road 8. <https://goo.gl/maps/F989ccuuYAbFZHvi9>
Modifications: N/A



Pos 9/Pic 16. Road 8. <https://goo.gl/maps/F989ccuuYAbFZHvi9>
Modifications: N/A





Pos 10/Pic 17. Road 8. <https://goo.gl/maps/DyBmT3nTtqF4cuYq9> <https://goo.gl/maps/F989ccuuYAbFZHvi9>
Modifications: N/A



Pos 11/Pic 18. Road 8. <https://goo.gl/maps/HCo5ugHTXVumZoa06>
Modifications: N/A





Pos 12/Pic 19. Road 8. <https://goo.gl/maps/Mg36qefhwnvMgzZ57>

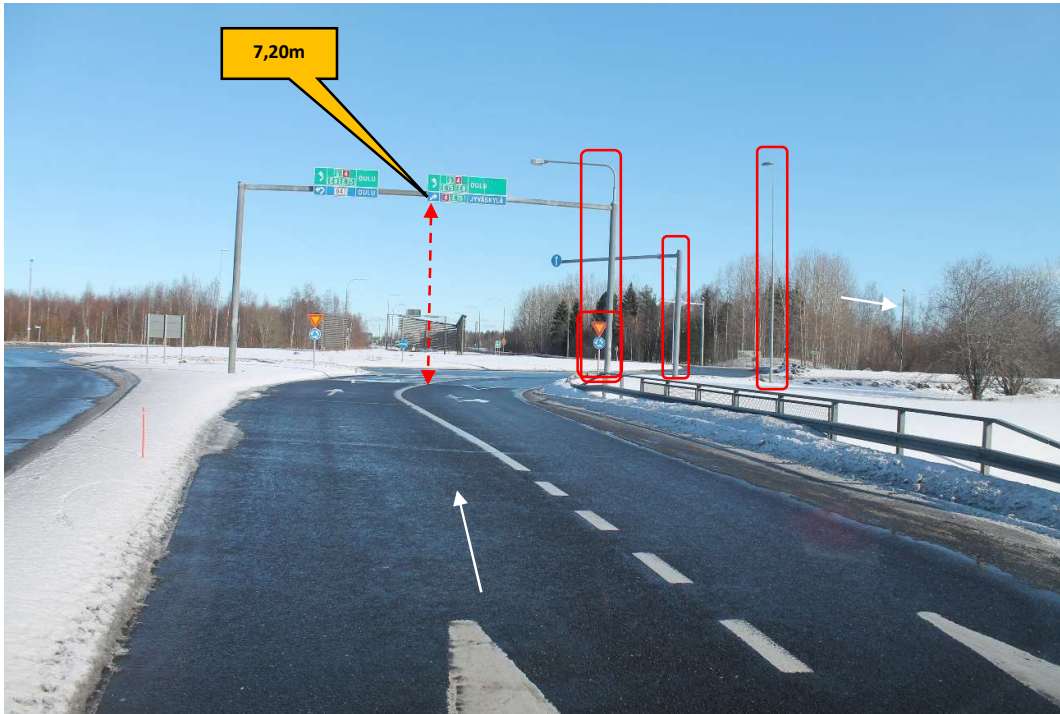
Modifications: N/A



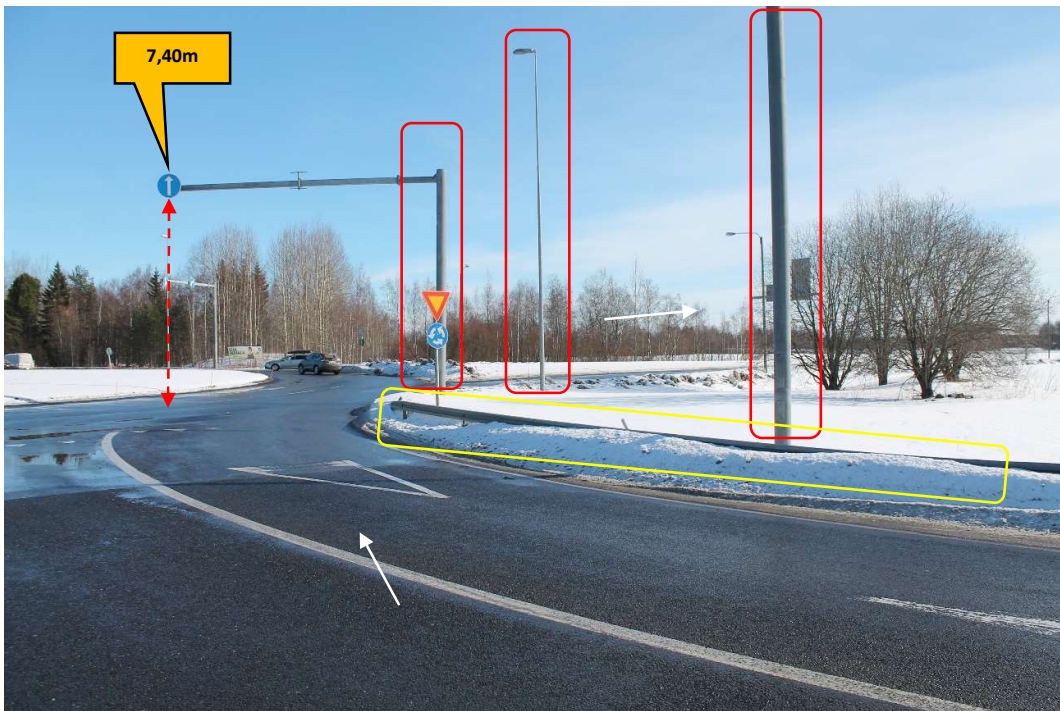
Pos 13/Pic 20. Road 8. <https://goo.gl/maps/Bb46EiQ9Faf774qBA>

Need to use counter lane.





Pos 14/Pic 21. Turning from road 8 toward road 4. <https://goo.gl/maps/8KuKRnihE8ttFnnz9>
Marked portal poles, lamp post and sign need to be removed.

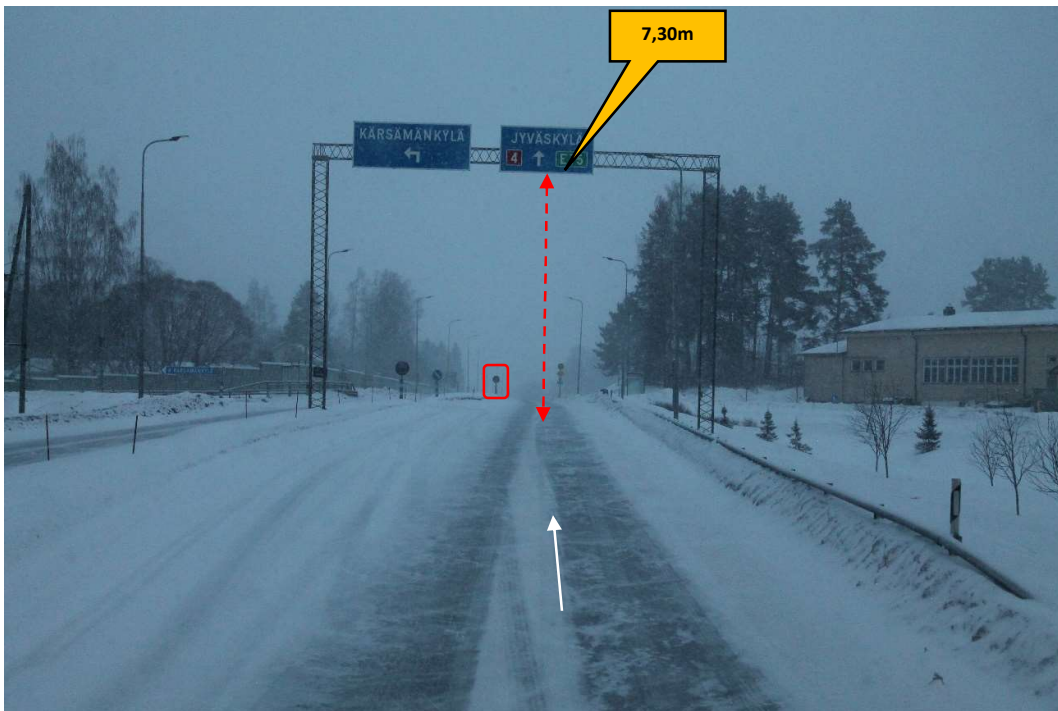


Pos 14/Pic 22. Turning from road 8 toward road 4.
Marked portal poles, lamp post and sign need to be removed. Tower need to be able to oversail rails in inner curve or part of rails need to be removed.





Pos 14/Pic 23. Turning from road 8 toward road 4.
Marked lamp posts need to be removed.



Pos 15/Pic 24. Road 4. <https://goo.gl/maps/oRgk2HLY8Jno2AdV6>
Marked sign need to be removed.





Pos 16/Pic 25. Turning from road 4 toward road 88. <https://goo.gl/maps/qqsMmTAftgPnDaHi7>
Marked signs need to be removed. Marked area need to be filled. Yellow arrow points driving direction for route 2.



Pos 16/Pic 26. Turning from road 4 toward road 88.
Marked signs need to be removed. Marked area need to be filled.





Pos 17/Pic 27. Road 88. <https://goo.gl/maps/UnHpVqDEzfYUMwou7>
Marked lamp posts and signs need to be removed.

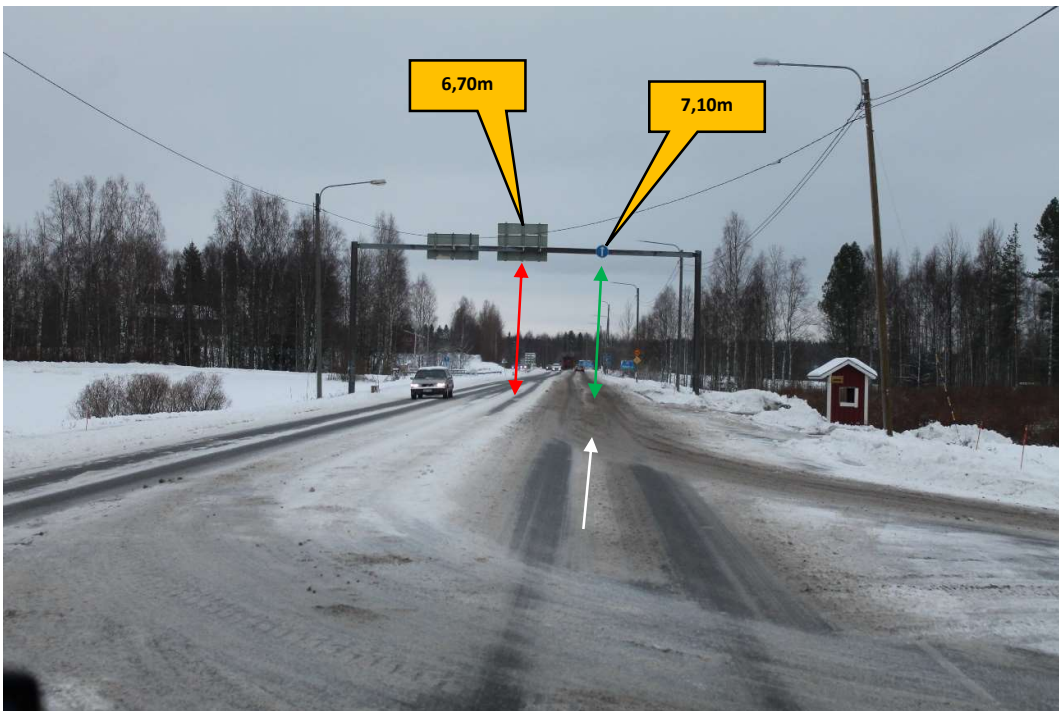


Pos 17/Pic 28. Road 88.
Marked signs need to be removed. Marked area need to be filled and drivable.





Pos 17/Pic 29. Road 88.
Marked signs need to be removed. Marked area need to be filled and drivable.

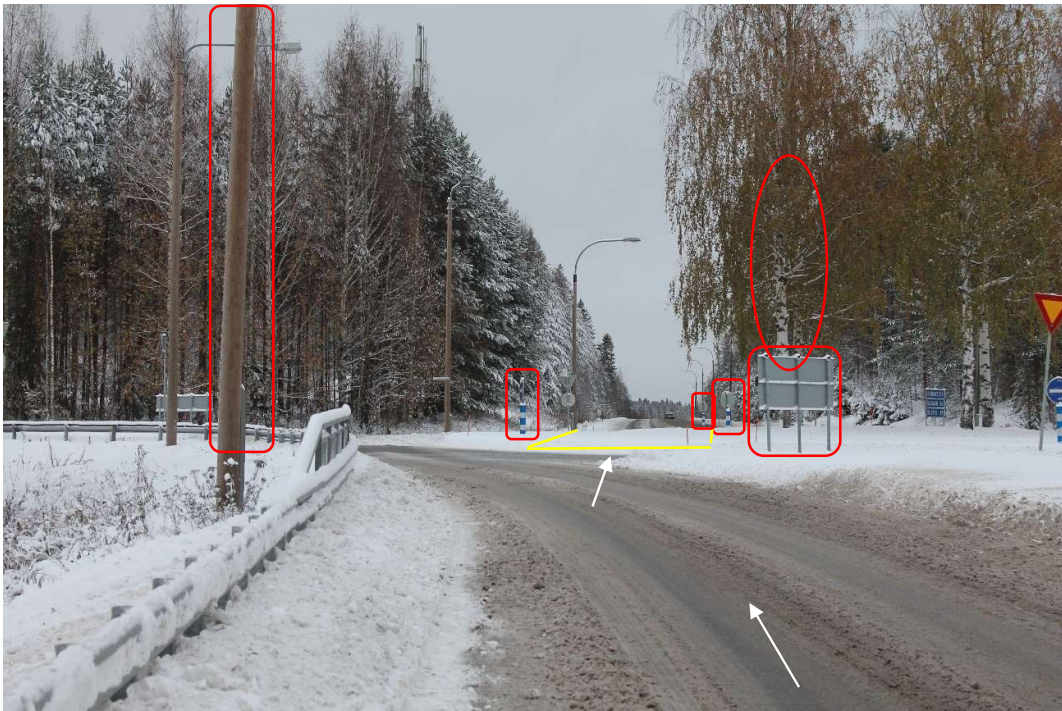


Pos 18/Pic 30. Junction road 88/road 27. <https://maps.app.goo.gl/DNJoMEMuPFKiKRZc7>
Need to use right lane. Cable need to be lifted.



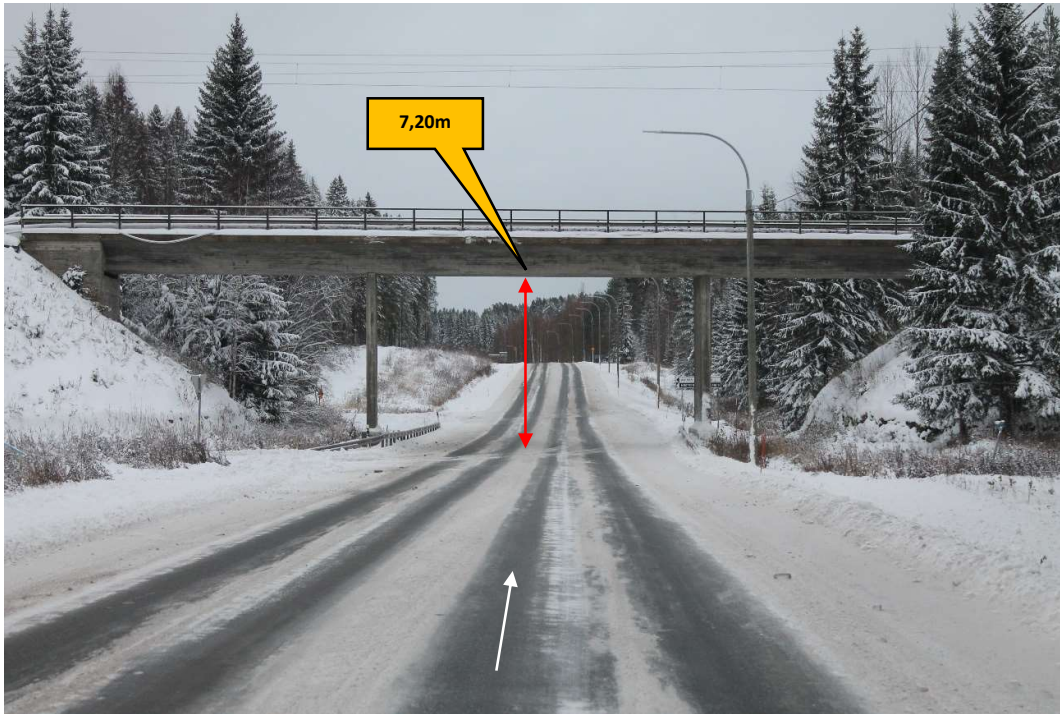


Pos 19/Pic 31. Roundabout road 27. <https://maps.app.goo.gl/BE7ZVfhP9CcpUvRd9>
Marked sign need to be removed. Marked trees and tree branches above of the road need to cut.



Pos 19/Pic 32. Roundabout road 27. <https://maps.app.goo.gl/BE7ZVfhP9CcpUvRd9>
Marked signs and lamp post need to be removed. Marked trees need to cut. Marked area need to be flat and drivable.





Pos 20/Pic 33. Road 27. <https://maps.app.goo.gl/KyvfX6xy791MxnA48>
Info : Bridge height 7,2m



Pos 21/Pic 34. Road 27. <https://maps.app.goo.gl/vm4ZiPHRZGkrWaVY9>
Marked signs and portal pole need to be removed.



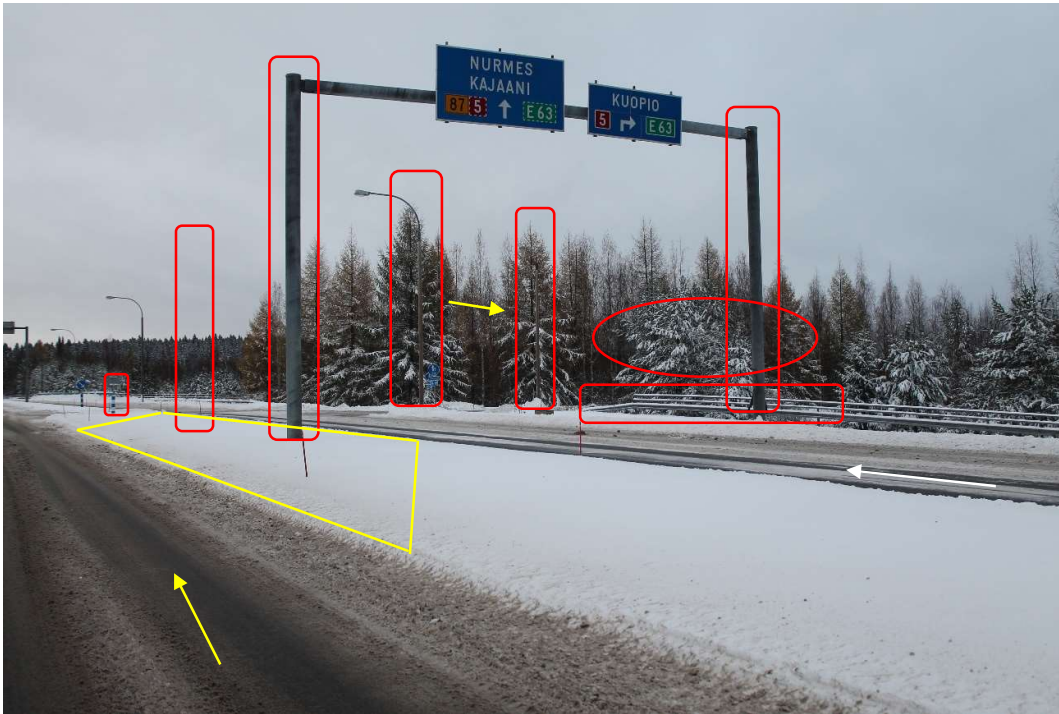


Pos 21/Pic 35. Road 27. <https://maps.app.goo.gl/vm4ZiPHRZGkrWaVY9>
Marked sign need to be removed.

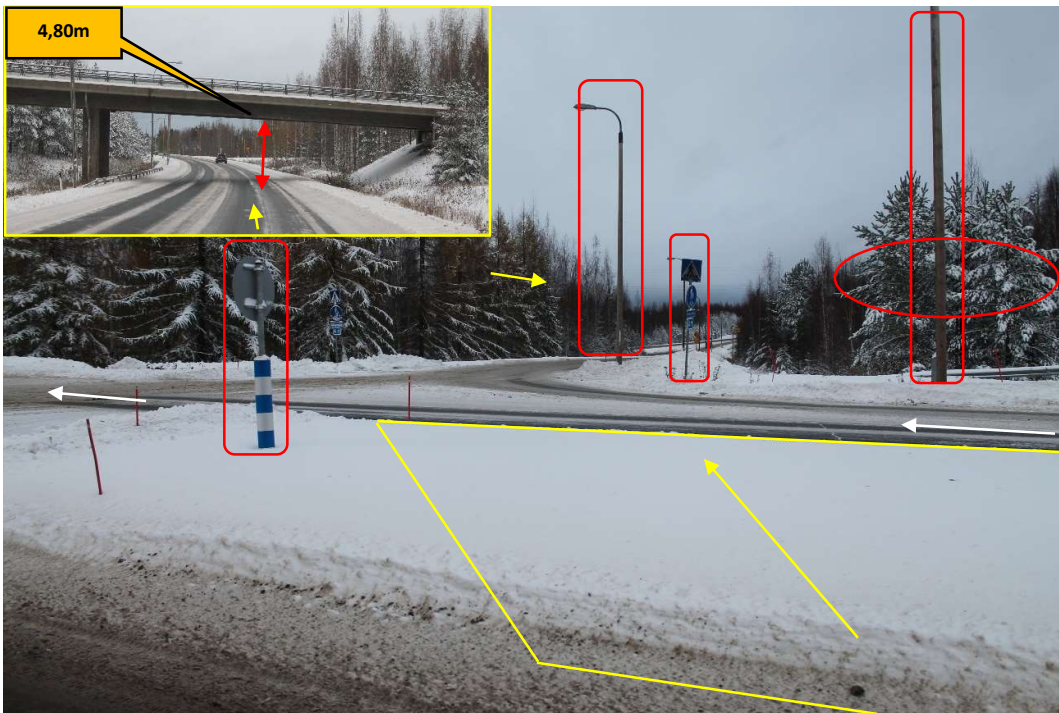


Pos 22/Pic 36. Road 27/ road 87. <https://maps.app.goo.gl/z7jdHKeBPhhYG2E58>
Blades turning from road 27 toward road 5. Yellow arrow points driving direction for route 2
Oversail area need to be flat and free on right side. Marked signs and pole need to be removed.
White arrow points driving direction for route 1.





Pos 22/Pic 37. Road 27/ road 87. White arrow points driving direction for route 1. Blades turning from road 27 toward road 5. Yellow arrow points driving direction for route 2. Oversail area need to be flat and free on right side, marked trees need to cut. Marked signs, poles, lamp posts and rails need to be removed. Yellow marked area need to be flat and drivable.



Pos 22/Pic 38. Road 27/ road 87. White arrow points driving direction for route 1. Blades turning from road 27 toward road 5. Yellow arrow points driving direction for route 2. Oversail area need to be flat and free on right side. Marked signs and lamp posts need to be removed. Yellow marked area need to be flat and drivable. Height of the next bridge 4,80m on route 2.





Pos 23/Pic 39. Road 87. <https://maps.app.goo.gl/mWwnyg2zKfSqKZdJ9>
Info : Portal height 7,3m.



Pos 24/Pic 40. Turning from road 87 toward road 16229 (Koukkujoentie).
<https://maps.app.goo.gl/rxGogvUx6jWCNRHe9>
Marked lamp post need to be removed.





Pos 24/Pic 41. Turning from road 87 toward road 16229 (Koukkujoentie).
Note : sign and mail box close to long towers.



Pos 25/Pic 42. Turning from road 16229 (Koukkujoentie) toward road 16222 (Tervakankaantie).
<https://maps.app.goo.gl/vT9h5FcDtytrXpPW6>
Markes area need to be filled and drivable. Privat land in inner curve.





Pos 25/Pic 43. Turning from road 16229 (Koukkujoentie) toward road 16222 (Tervakankaantie). Privat land in inner curve. Marked box need to be removed.



Pos 25/Pic 44. Turning from road 16229 (Koukkujoentie) toward road 16222 (Tervakankaantie). Marked area need to be filled and drivable.





Pos 26/Pic 45. Road 16222 (Tervakankaantie). <https://maps.app.goo.gl/gRJBRCQuPe153AN8>
Marked tree branches need to cut. Marked sign need to be removed.



Pos 27/Pic 46. Turning from road 16222 (Tervakankaantie) toward road 5.
<https://maps.app.goo.gl/qX2bfEkjKnxyS7i56>
Need to use counter lane ramp down to road 5. Marked lamp post and sign need to be removed.





Pos 27/Pic 47. Turning from road 16222 (Tervakankaantie) toward road 5.
Need to use counter lane ramp down to road 5. Marked lamp post and sign need to be removed.

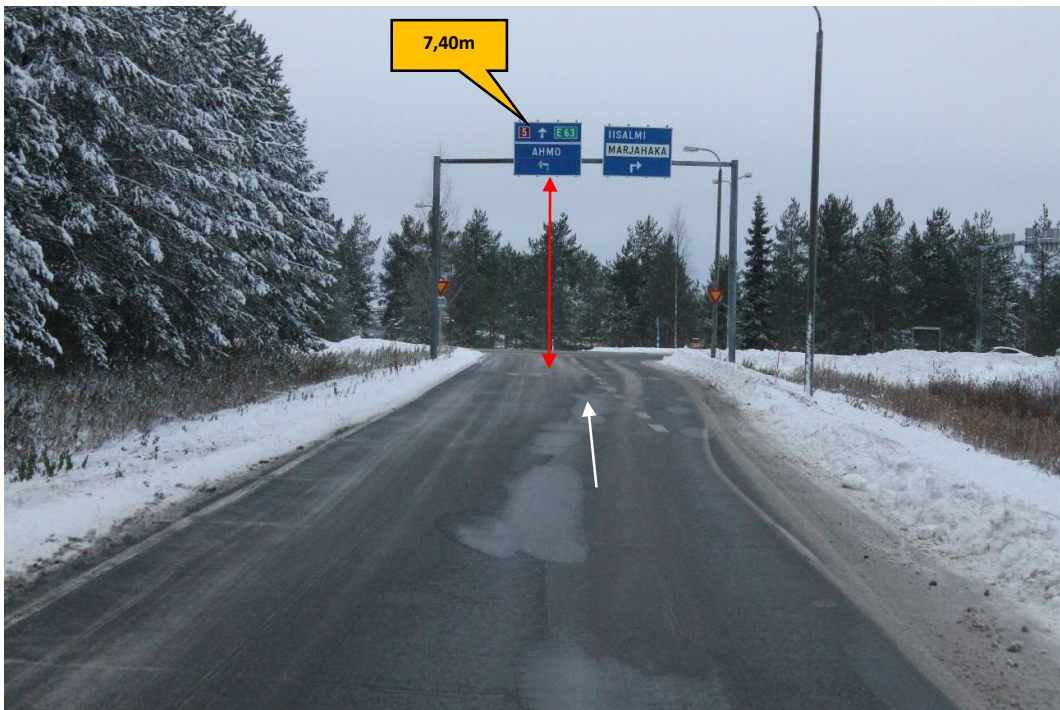


Pos 27/Pic 48. Turning from road 16222 (Tervakankaantie) toward road 5.
Need to use counter lane ramp down to road 5.
Yellow arrow points driving direction for route 2.





Pos 28/Pic 49. Road 5, bridge detour via ramps. <https://maps.app.goo.gl/Xud8aA7Gono3JAHx6>
White arrow points driving direction for route 1. Yellow arrow points driving direction for route 2.



Pos 28/Pic 50. Road 5, bridge detour via ramps. <https://maps.app.goo.gl/7RsH4aKqgBX9E8yf7>
White arrow points driving direction for route 1.





Pos 28/Pic 51. Road 5, bridge detour via ramps. <https://maps.app.goo.gl/7RsH4aKqgBX9E8yf7>
White arrow points driving direction for route 1.



Pos 28/Pic 52. Road 5, bridge detour via ramps. <https://maps.app.goo.gl/7RsH4aKqgBX9E8yf7>
Note : Crest between the ramps. White arrow points driving direction for route 1.





Pos 29/Pic 53. Road 5, bridge detour via ramps. <https://maps.app.goo.gl/Y73Bwh48rdaHRGvC6>
White arrow points driving direction for route 1. Yellow arrow points driving direction for route 2.
After bridge routes are same to site entrance.



Pos 29/Pic 54. Road 5, bridge detour via ramps. <https://maps.app.goo.gl/dJXuEfTR1Na8av3n9>
Note : Crest between the ramps. White arrow points driving direction for route 1.



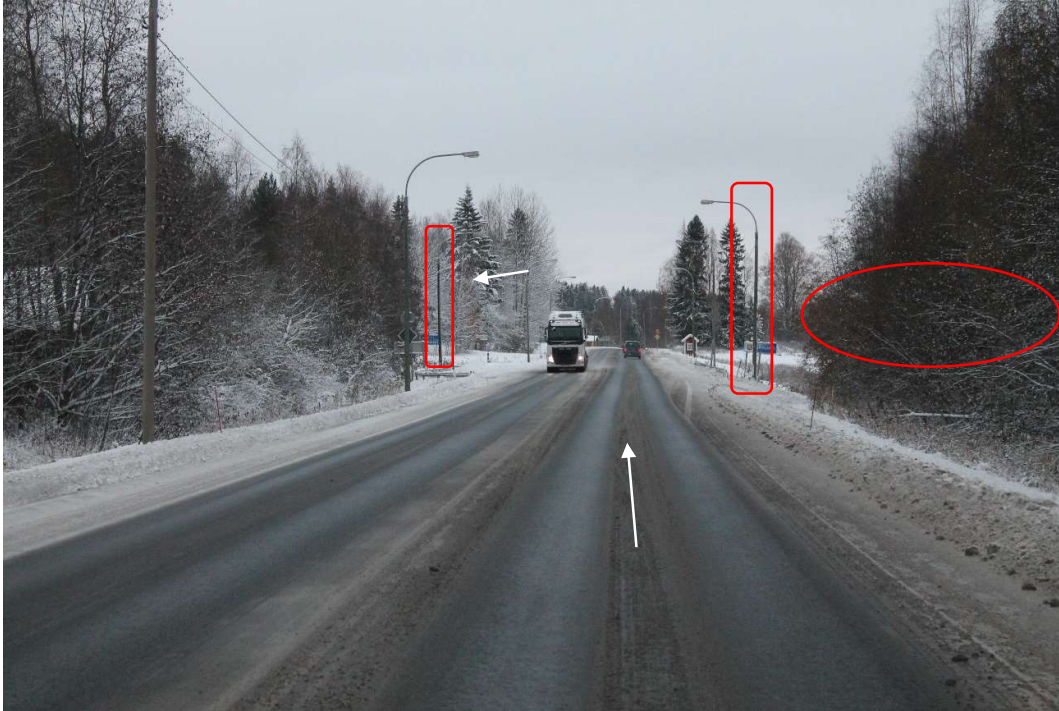


Pos 29/Pic 55. Road 5, bridge detour via ramps. <https://maps.app.goo.gl/dJXuEfTR1Na8av3n9>
Note : Crest between the ramps. White arrow points driving direction for route 1.



Pos 30/Pic 56. Road 5. <https://maps.app.goo.gl/T6fZLTpE7Ej9am6i9>
Info : Portal height 7,50m. White arrow points driving direction for route 1. Yellow arrow points driving direction for route 2.

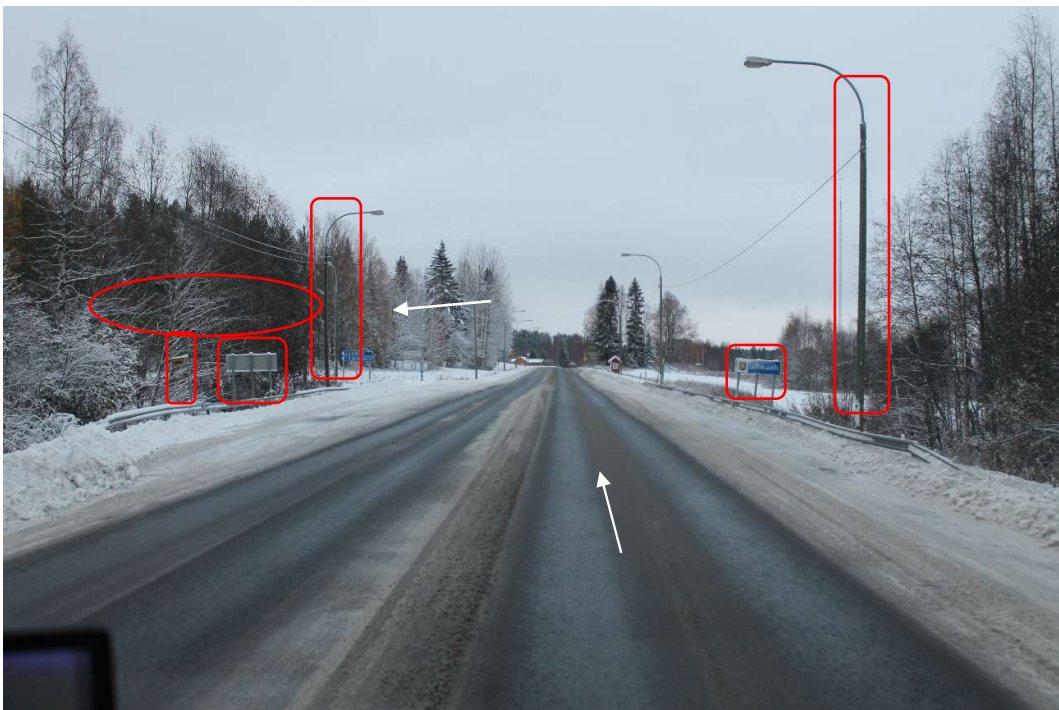




Pos 31/Pic 57. Turning from road 5 toward road 16235 (Keskimmäisentie).

<https://maps.app.goo.gl/rdcQGm2FsVapQWWU6>

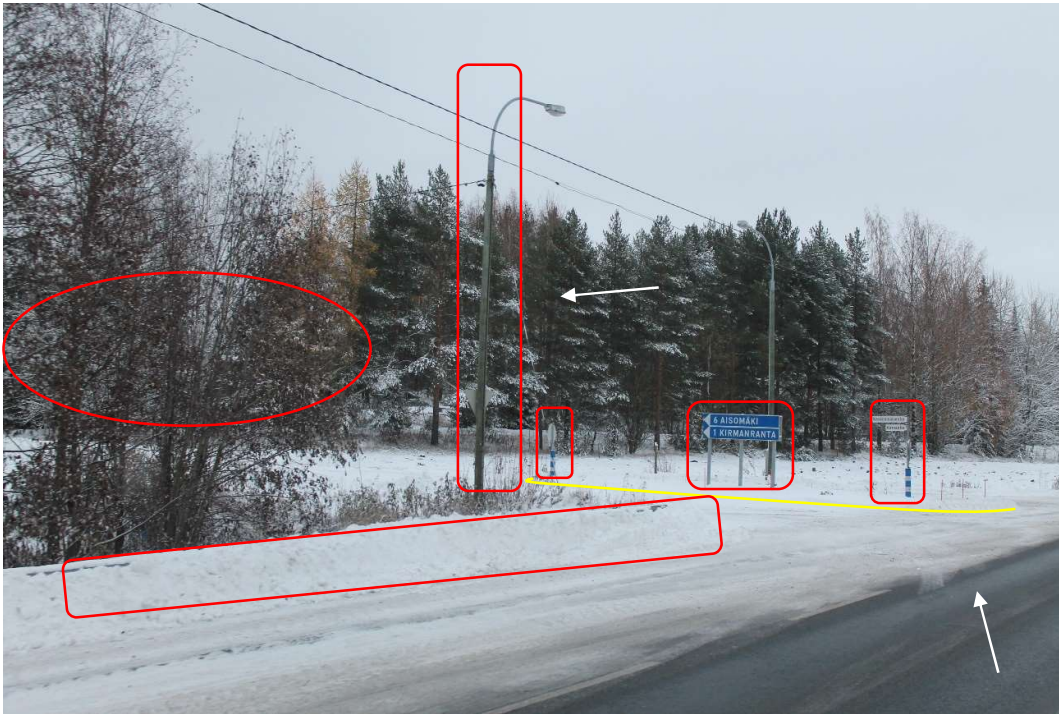
Marked lamp posts need to be removed. Marked trees need to cut.



Pos 31/Pic 58. Turning from road 5 toward road 16235 (Keskimmäisentie).

Oversail area need to be free on left side, marked trees need to cut. Marked signs and lamp posts need to be removed.



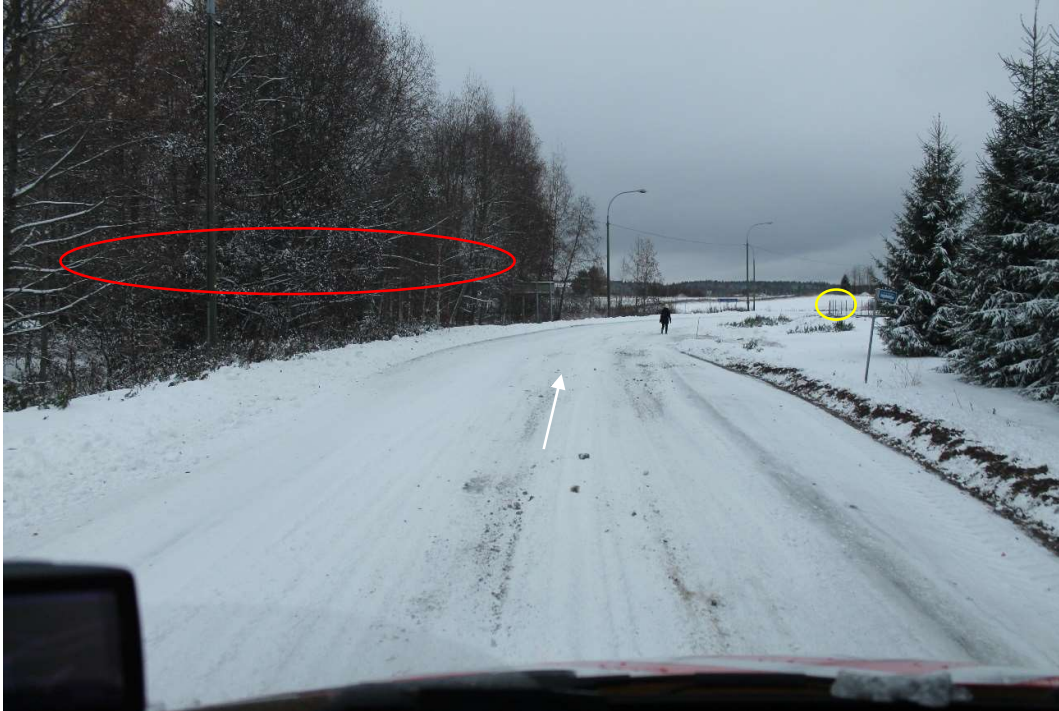


Pos 31/Pic 59. Turning from road 5 toward road 16235 (Keskimmäisentie).
Oversail area need to be free on left side, marked trees need to cut. Marked signs and lamp post need to be removed. Marked traffic island need to be flat and drivable.



Pos 31/Pic 60. Turning from road 5 toward road 16235 (Keskimmäisentie).
Marked signs, bus shelter and lamp post need to be removed. Marked traffic island need to be flat and drivable.



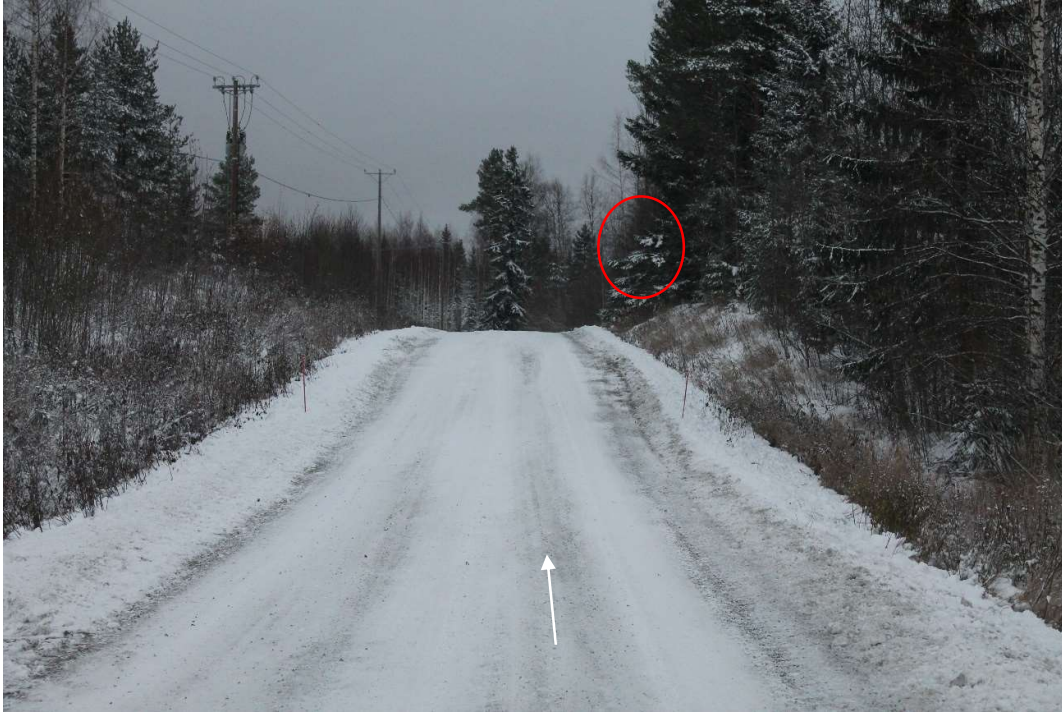


Pos 32/Pic 61. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/c3Qs88DFLQDKP1PGA>
Marked tree branches need to cut. Fence in inner curve close to blade.



Pos 33/Pic 62. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/TpruVuuPDgdp6VWZA>
Road need to be levelled. Marked tree branches need to cut. Road need to be fixed according to specifications for site roads.





Pos 34/Pic 63. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/8JqrSY6wY2naVubT8>
Crest, road need to be levelled. Marked tree branches need to cut. Road need to be fixed according to specifications for site roads.

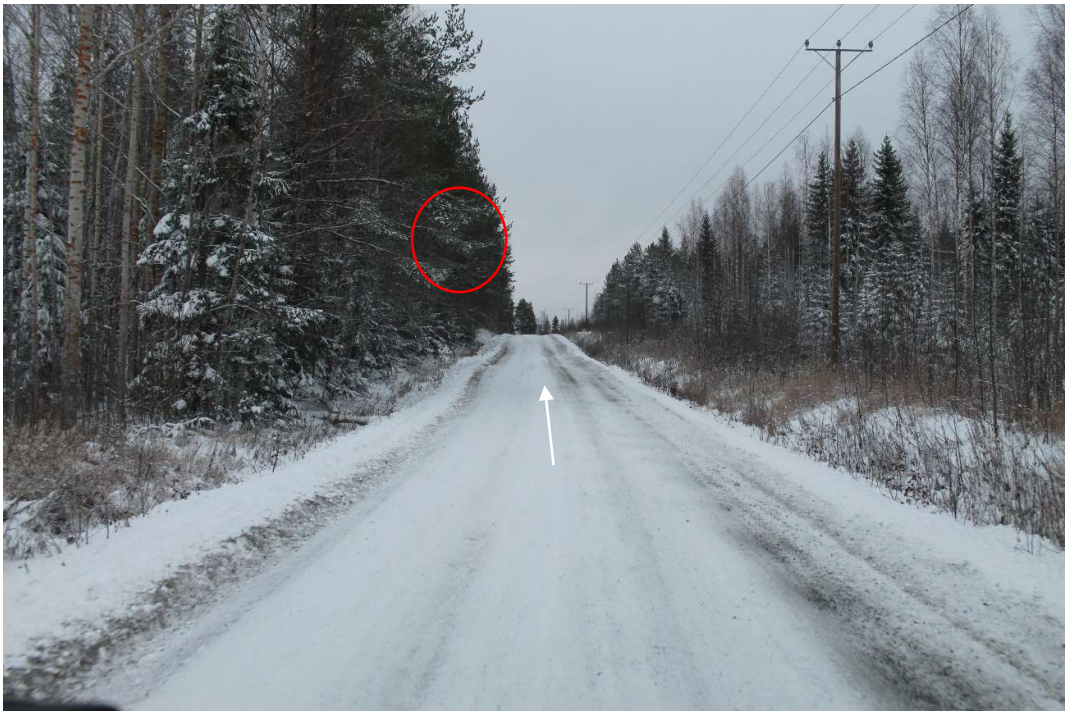


Pos 34/Pic 64. Road 16235 (Keskimmäisentie).
Crest, road need to be levelled. Marked pole need to be removed. Marked trees need to cut. Oversail area need to be free in inner curve. Road need to be fixed according to specifications for site roads.





Pos 34/Pic 65. Road 16235 (Keskimmäisentie).
Road need to be levelled. Marked trees need to cut. Oversail area need to be free in inner curve. Road need to be fixed according to specifications for site roads.



Pos 35/Pic 66. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/SRsSVNQSiambojW96>
Marked tree branches need to cut. Crest, road need to be levelled. Road need to be fixed according to specifications for site roads.





Pos 35/Pic 67. Road 16235 (Keskimmäisentie).
Crest, road need to be levelled. Road need to be fixed according to specifications for site roads.



Pos 36/Pic 68. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/5d8XuhNKt1G3e9q68>
Marked trees need to cut. Oversail area need to be free in inner curve. Road need to be levelled. Road need to be fixed according to specifications for site roads.





Pos 37/Pic 69. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/abNpDz9job1UJYQ69>
Marked trees need to cut. Oversail area need to be free in inner curve. Road need to be levelled. Road need to be fixed according to specifications for site roads.



Pos 38/Pic 70. Turning from road 16235 (Keskimmäisentie) toward site area.
<https://maps.app.goo.gl/SwhhPjhhk6GjWmU89>
This is plan A for site entrance. Marked trees need to cut. Oversail area need to be free in inner curve. Site entrance to be build according to specifications for site roads. Green arrow points driving direction for Entrance B.





Pos 38/Pic 71. Turning from road 16235 (Keskimmäisentie) toward site area.

<https://maps.app.goo.gl/SwhhPjhhk6GjWmU89>

This is plan A for site entrance. Oversail area need to be free in inner curve. Site entrance to be build according to specifications for site roads. Green arrow points driving direction for Entrance B.



Pos 38/Pic 72. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/SwhhPjhhk6GjWmU89>

Green arrow points driving direction for Entrance B. Oversail area need to be free in inner curve.





Pos 39/Pic 73. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/6cFueGLmQTr5ZbLE9>
Road need to be levelled. Road need to be fixed according to specifications for site roads. Marked mail box need to be removed. Green arrow points driving direction for Entrance B.



Pos 39/Pic 74. Road 16235 (Keskimmäisentie). Road need to be levelled. Road need to be fixed according to specifications for site roads. Marked mail box need to be removed. Green arrow points driving direction for Entrance B.





Pos 40/Pic 75. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/iUVkNZ8KkWbBB0779>
Marked tree branches need to cut. Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Green arrow points driving direction for Entrance B.



Pos 40/Pic 76. Road 16235 (Keskimmäisentie).
Marked tree branches need to cut. Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Green arrow points driving direction for Entrance B.





Pos 40/Pic 77. Road 16235 (Keskimmäisentie).
Marked tree branches need to cut. Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Green arrow points driving direction for Entrance B.



Pos 41/Pic 78. Road 16235 (Keskimmäisentie). <https://maps.app.goo.gl/vq2kaHPwBVwbMojE8>
Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Green arrow points driving direction for Entrance B.





Pos 42/Pic 79. Turning from road 16235 (Keskimmäisentie) toward site area.

<https://maps.app.goo.gl/1WFvyXG4dzq4MqjGA>

Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Green arrow points driving direction for Entrance B.



Pos 42/Pic 80. Turning from road 16235 (Keskimmäisentie) toward site area.

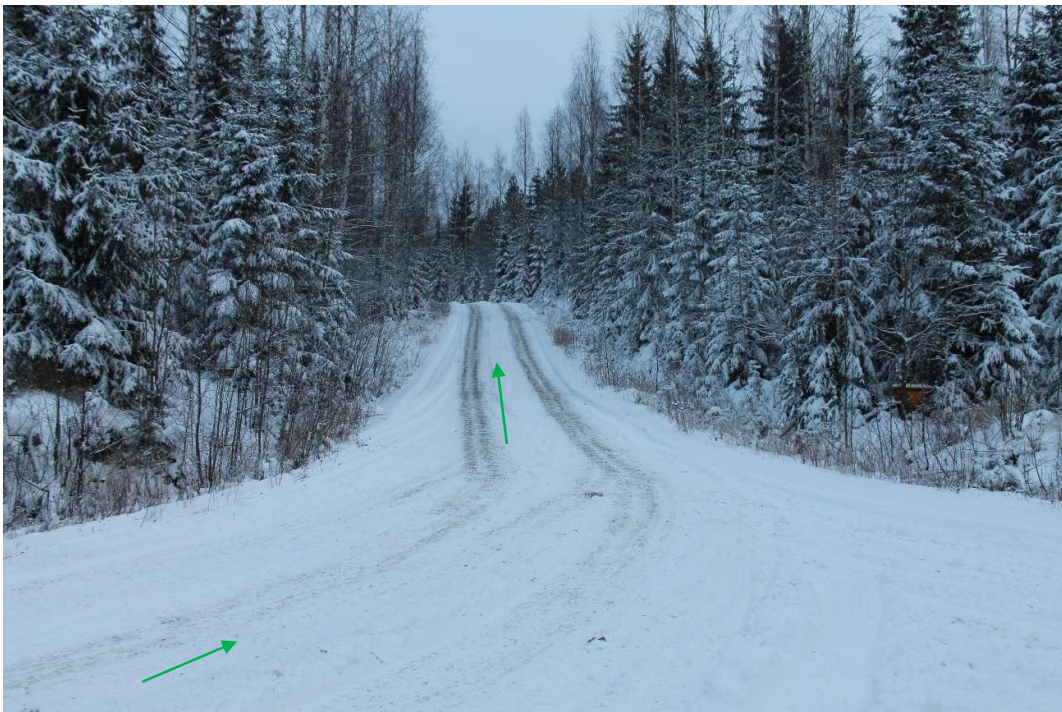
<https://maps.app.goo.gl/1WFvyXG4dzq4MqjGA>

Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Site entrance to be build according to specifications for site roads. Green arrow points driving direction for Entrance B.





Pos 42/Pic 81. Turning from road 16235 (Keskimmäisentie) toward site area. Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Site entrance to be build according to specifications for site roads. Green arrow points driving direction for Entrance B.



Pos 42/Pic 82. Turning from road 16235 (Keskimmäisentie) toward site area. Crest, road need to be levelled. Road need to be fixed according to specifications for site roads. Site entrance to be build according to specifications for site roads. Green arrow points driving direction for Entrance B.



Route 2 for blades



Pos 43/Pic 83. Exit via Lapaluodontie (route 2). <https://goo.gl/maps/coCb664KhB726gww9>
Modifications: N/A



Pos 44/Pic 84. Lapaluodontie. <https://goo.gl/maps/SZSvDUusUGcyWNCj8>.
Marked lamp post and sign to be removed. Marked bush/trees need to cut.



Pos 44/Pic 85. Lapaluodontie.
Marked signs to be removed. Marked bush/trees need to cut.



Pos 45/Pic 86. Roundabout Lapaluodontie. <https://goo.gl/maps/fNoSyewtX85WBptj7>.
Marked lamp post and signs to be removed. Marked area need to be filled and drivable.





Pos 45/Pic 87. Roundabout Lapaluodontie. <https://goo.gl/maps/fNoSyewtX85WBptj7>.
Marked lamp post and signs need to be removed. Marked area need to be filled and drivable.



Pos 45/Pic 88. Roundabout Lapaluodontie. Marked sign need to be removed. Marked area need to be filled.





Pos 46/Pic 89. Bridge Lapaluodontie. <https://goo.gl/maps/cZSekQgSr8Riw3VU9>

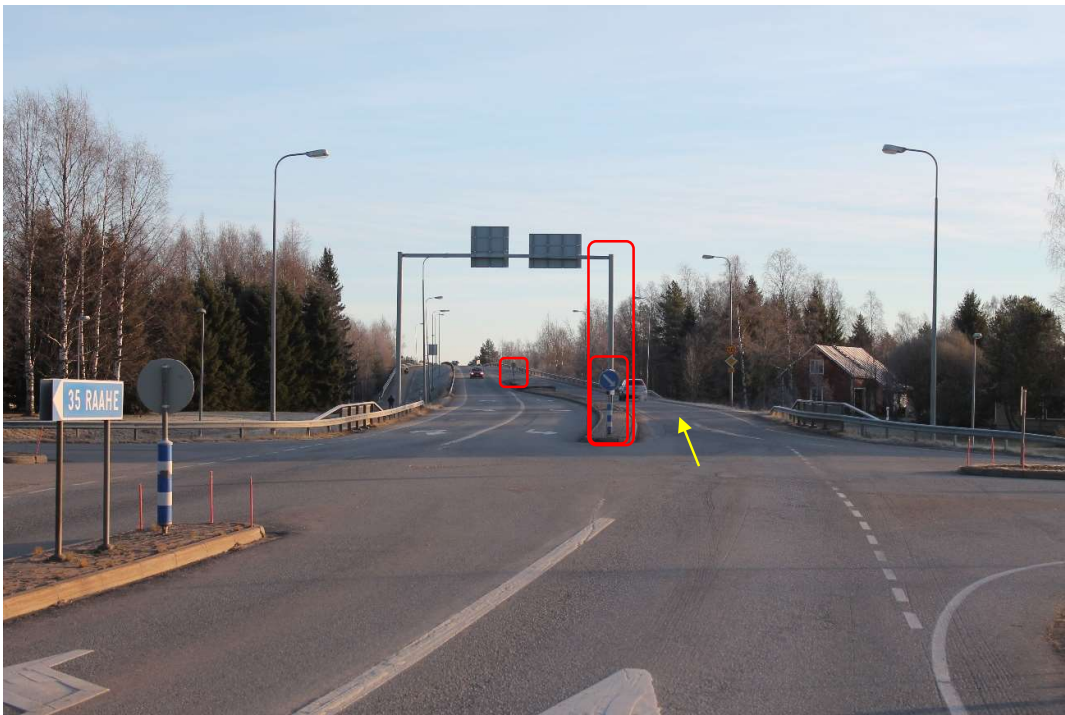


Pos 4/Pic 90. Continue from Lapaluodontie toward road 88. <https://goo.gl/maps/xrdRsg8ttCenzBKD8>.
White arrows points driving direction for heavy components.
Modifications : N/A





Pos 47/Pic 91. Road 88. <https://goo.gl/maps/9j58sMbdbnfWDuyP9>
Marked sign need to be removed.

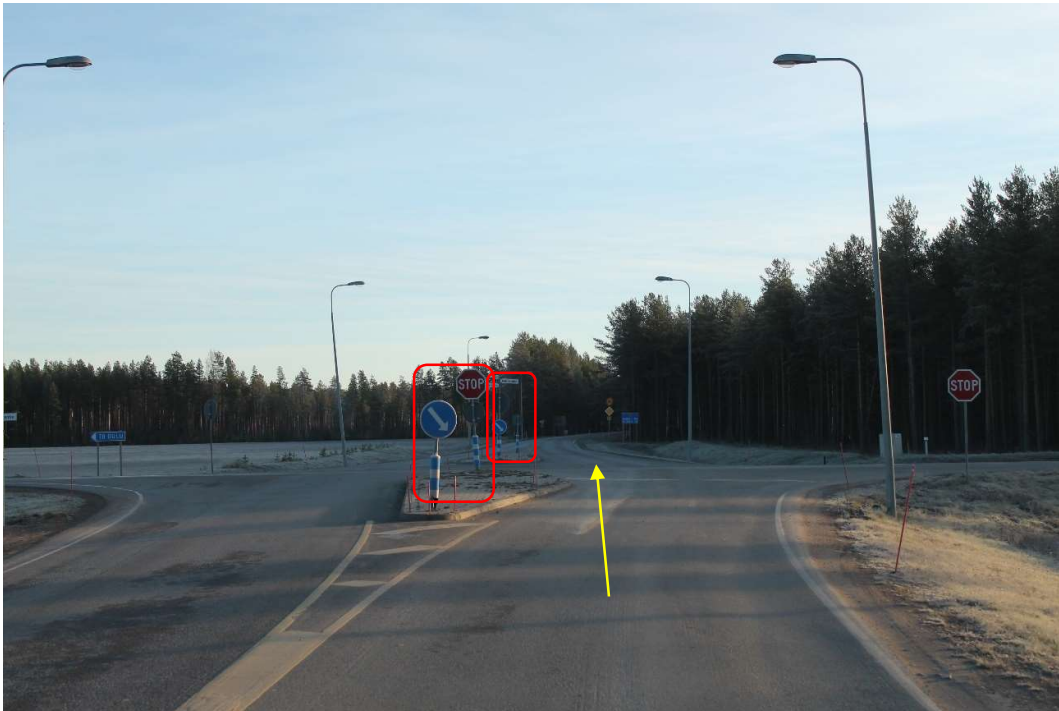


Pos 47/Pic 92. Road 88.
Marked signs and portal need to be removed.





Pos 48/Pic 93. Road 88. <https://goo.gl/maps/MLvHSc3NuM756165A>
Marked signs (4 pcs) need to be removed.

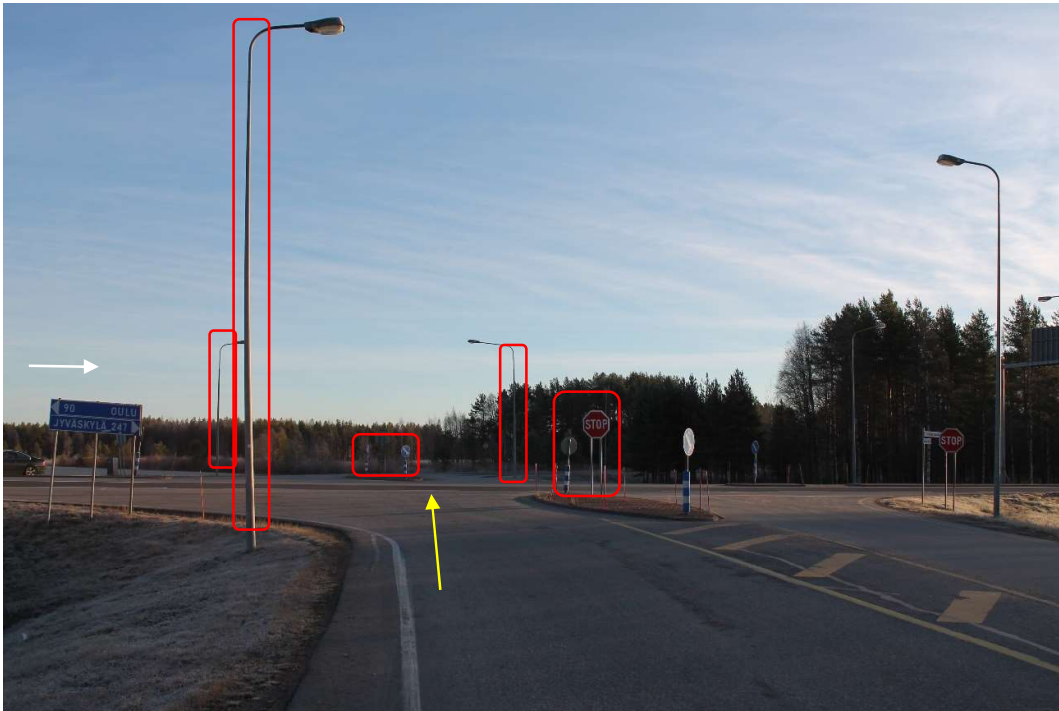


Pos 49/Pic 94. Continue straight on road 88. <https://goo.gl/maps/V7tLt1S2bxMhANBh7>
Marked signs (4 pcs) need to be removed.



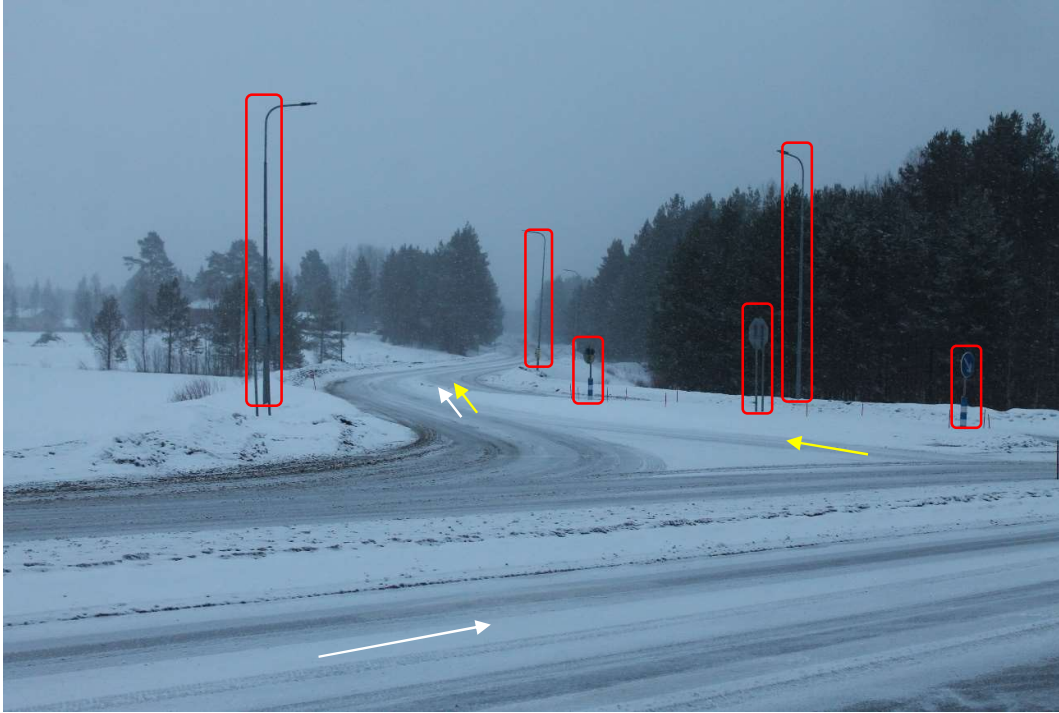


Pos 50/Pic 95.Road 88. <https://goo.gl/maps/onbSxwFLoXGyWgSN7>
Need to use counter lane. Marked signs(2pcs) need to be removed.



Pos 16/Pic 96. Continue straight on road 88. <https://goo.gl/maps/gqsMmTAFtgPnDaHi7>
Need to use counter lane. Marked signs and lamp posts need to be removed. White arrows points driving direction for route1.





Pos 16/Pic 97. Continue straight on road 88.
Marked signs and lamp posts need to be removed. Rest of the route 2 modifications are described together with route 1.



5. General notes regarding overhead lines

Based on the survey 3.11.2023 there are following amount of overhead lines between port of Raahe and site Entrance Tielampi :

Low voltage protected height under 6,80m 4 pcs.

Phone cable protected height under 6,80m 0 pcs.

High voltage height under 7,80 m (transport height + safety margin 1,0 m) 0 pcs.

Traffic portal height under 6,80 m 0 pcs.

