EXPERT ENVIRONMENTAL IMPACT ASSESSMENT

FOR ARRANGING RAILWAY/ROAD CROSSINGS AT THE PRAGERSKO–HODOŠ SECTION IN THE SCOPE OF ELECTRIFICATION AND RECONSTRUCTION OF THE PRAGERSKO–HODOŠ RAILWAY LINE

SUMMARY

Ljubljana, May 2012

Client:	LINEAL d.o.o. Jezdarska ulica 3 2000 Maribor
Contents:	EXPERT ENVIRONMENTAL IMPACT ASSESSMENT FOR ARRANGING RAILWAY/ROAD CROSSINGS AT THE PRAGERSKO–HODOŠ SECTION IN THE SCOPE OF ELECTRIFICATION AND RECONSTRUCTION OF THE PRAGERSKO–HODOŠ RAILWAY LINE Summary
Client agreement number:	054186
Date:	May 2012
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1. GENERAL

The modernisation of the Pragersko–Hodoš railway line is one of the priorities of the Republic of Slovenia in setting up a strong railway connection with Eastern Europe. It is classified among the thirty priority European projects.

The arrangements related to the electrification and reconstruction of the Pragersko–Hodoš railway line are planned in the Detailed Plan of National Importance for Electrification and Reconstruction of the Railway Section Pragersko-Hodoš (Official Gazette of the RS, no. 51/09). The Detailed Plan of National Importance discusses also the comprehensive traffic arrangement of railway crossings and of the accompanying road infrastructure, which are the subject of the expert environmental impact assessment.

The discussed procedures do not exceed the threshold defined in the Decree on the categories of activities for which an environmental impact assessment is mandatory (Official Gazette of the RS, nos. 78/06, 72/07, 95/11). The environmental impact assessment would be necessary in case of construction of a main road of class I and II and a regional road of class I, II and III, if the length of the new road exceeded 5 km or 1 km, should such road be routed over protected area. The exceptions are relocations and expansions of roads where the road axis is not moved by more than 200 metres and no lanes are added to a road. The environmental impact assessment would also be required if a main railway line of 5 km or 1 km were constructed, if such railway line were routed over protected area. Construction of a railway line also includes electrification, upgrade by a new track and relocation of the track axis or line, unless such is implemented in the scope of maintenance works or renovation and in transversal direction up to 1 m. Since the developments involved in the arrangement of crossings over the Pragersko–Hodoš railway line do not exceed these values, an environmental impact assessment is not required.

The expert environmental impact assessment adopts the methodology of the environmental impact report according to Article 3 of the Decree on the content of report on the effects of intended activity into the environment and its method of drawing up (Official Gazette of the RS, no. 36/09).

2. BASIC DATA ABOUT THE DEVELOPER AND EXPERT ENVIRONMENTAL IMPACT ASSESSMENT

***Name and purpose of the development*:** The purpose of the planned development is comprehensive traffic arrangement of the railway crossings from Pragersko to Hodoš, which comprises abolishment or installation of security elements on the existing unsecured crossings or the construction of off-grade crossings and the areas of relocation, reconstruction and construction of connecting roads.

***Developer and the person in charge of development implementation*:** Republic of Slovenia, Ministry of Infrastructure and Spatial Planning, Langusova 4, 1535 Ljubljana, the person in charge of development implementation is Boštjan Rigler – Acting Director General of the Infrastructure Directorate.

***Drafter of the expert environmental impact assessment*:** Aquarius d.o.o. Ljubljana, Cesta Andreja Bitenca 68, Ljubljana, with sub-contractors Urbis urbanizem, arhitektura,

projektiranje in storitve d.o.o., Jezdarska 3, Maribor, and Epi Spektrum d.o.o., Strossmayerjeva 11, Maribor.

***Persons in charge of drafting the entire expert environmental impact assessment*:** Lea Trnovšek, BSc. Biol., and Martin Žerdin, MSc., BSc. Biol.

Co-drafters of the expert environmental impact assessment:

- nature, waste: responsible drafters are Lea Trnovšek, BSc. Biol., and Martin Žerdin, MSc., BSc. Biol., Aquarius d.o.o. Ljubljana, Cesta Andreja Bitenca 68, Ljubljana. Katja Vrabič, BSc. Geol., who is also employed by the above company, participated in drafting.
- cultural heritage, landscape and its character, soil, surface and ground waters: responsible drafter is Mira Vizovišek Motaln, MSc., BSc. Land. Arch., Urbis d.o.o. Maribor, Jezdarska 3, Maribor. Rajko Sterguljc, BSc. Civ. Eng., Tina Sterguljc Krušič, BSc. Pol. and Mateja Pernek, Civ. Eng. Tech., also participated in drafting. All persons stated are employed by the above company.
- noise, air, vibrations: responsible drafter is Boštjan Peršak, BSc. Phys., Epi Spektrum d.o.o., Strossmayerjeva 11, Maribor. Janez Drev, BSc. Phys., and Rado Marhold, BSc. Phys., employees of the above company, also participated in drafting.

Spatial act serving as the basis for placing the development in physical space: The arrangement of railway/road crossings at the Pragersko–Hodoš railway section in the scope of electrification and reconstruction of the Pragersko–Hodoš railway line is projected in the Detailed Plan of National Importance for Electrification and Reconstruction of the Railway Section Pragersko-Hodoš (Official Gazette of the RS, no. 51/09) (hereinafter: the DPN).

The drafting of the DPN included a ***comprehensive environmental impact assessment.*** A decision of the Ministry of the Environment and Spatial Planning no. 35409-159/2005 of 31 March 2009 was obtained, indicating that the impacts of the plan on the environment as established by the comprehensive environmental impact assessment for the DPN were acceptable, taking into account the mitigation measures and monitoring which are a constituent part of the Decree on DPN.

3. INFORMATION ABOUT THE DEVELOPMENT

The road/railway crossings will provide safe and appropriate traffic conditions either by abolishment of a crossing and construction of new connecting roads or by providing security elements to an existing unsecured crossing or by construction of an off-grade road/railway crossing. All crossings that are being arranged are because of inter-connectedness classified into 4 development areas on **route no. 40 (E69) Pragersko-Središče-n.b**. or in 7 development areas on **route no. 41 (T69) Ormož-Murska Sobota-Hodoš-n.b**. The development description has been adopted from the Aggregate technical report produced by the company Lineal d.o.o. in April 2012.

3.1 Main railway line 40 (E69) Pragersko–Središče–n.b. (Pragersko–Ormož section)

There will be 34 road/railway crossings and 2 stops (Cirkovci and Osluševci) arranged. The route no. 40 (E69) Pragersko–Središče–n.b. is divided into 4 development areas (the areas of Kidričevo, Hajdina, Dornava and Ormož) and further into 2 sets:

- Set A: Kidričevo (arrangement of 13 crossings), Hajdina (arrangement of 4 crossings)
- Set B: Dornava (arrangement of 9 crossings), Ormož (arrangement of 7 crossings)

Set A

Set A comprises the area of Kidričevo and Hajdina, where 18 road/railway crossings are planned to be implemented. **In the area of Kidričevo,** the following crossings are planned to be arranged by subset:

- At subset A-1, the Stražgonjca 1 crossing will be abolished at km 1+852.00, while at Stražgonjca 1a at km 1+795.00 an off-grade crossing will be arranged by underpass construction;
- At subset A-2, the Šikole crossing at km 3+166 will be arranged into an at-grade crossing with safety barriers, while the Pongrce crossing at km 3+525 will be abolished;
- At subset A-3, the Jablane 1 crossing at km 4+220 will be abolished, while at Jablane 2 at 4+540 an off-grade crossing will be arranged with an underpass;
- At subset A-4, the Cirkovce stop will be arranged and the Cirkovce crossing at km 5+245.50 will be arranged into an at-grade crossing with safety barriers;
- At subset A-5, the Cirkovce-tr crossing at km 5+810 will be arranged into an off-grade crossing with an underpass;
- At subset A-6, the Pleterje crossing at km 7+405 will be secured by barriers;
- At subset A-7, the Strnišče crossings at km 8+507 and km 9+131 will be abolished, while the Strnišče 3 crossing at km 9+288 will be arranged into an off-grade crossing with an underpass;
- At subset A-8, the Njiverce crossing at km 11+975 will be secured by barriers.

The crossing no. 1 Stražgonjca will be abolished after the construction of the underpass for at-grade crossing 1a Stražgonjca and following the arrangement of all connecting roads. The crossing no. 1a Stražgonjca will be provided by an underpass on the local road Stražgonjca 1, 390 metres in length and with asphalt carriageway 5 metres wide. A connection to the existing road infrastructure will be established (construction of a new access road Stražgonjca 2, 200 metres in length and with asphalt carriageway 3.5 metres wide, construction of a new road Stražgonjca 3, 135 metres in length and with macadam carriageway 3.5 metres wide, new construction and reconstruction of the road Stražgonjca 4, 105 metres in length and with macadam carriageway 3.5 metres wide). A drainage ditch of 272 metres in length is projected next to the Stražgonjca 2 road.

The crossing no. 2 Šikole will remain secured by barriers. The crossing no. 3 Pongrce will be abolished once all new roads have been arranged, i.e. Pongerce 1 (595 metres in length, asphalt carriageway 5.5 metres wide) and Pongerce 2 (145 metres in length, asphalt carriageway 5.5 metres wide). The necessary water management arrangements will be carried out in the area (arrangement of the Črnec stream in the bridging area).

The crossing no. 4 Jablane 1 will be abolished. At the crossing no. 5 Jablane 2, an off-grade crossing will be implemented along with the underpass on the local road Jablane 2 (327

metres long, asphalt carriageway 5 metres wide) and the connection of the field path will be arranged.

The crossing no. 6 Cirkovce will remain secured by barriers.

At the crossing no. 7 Cirkovce- tr an off-grade crossing will be built with the underpass on the local road Cirkovce 3. A connection to the existing and projected road infrastructure will be arranged (new construction of the LR Cirkovce 3, 380 metres in length with asphalt carriageway 6 metres wide), Cirkovce 4 (new construction of the access road, 210 metres in length with asphalt carriageway 3.5 metres wide), Cirkovce 5 (new construction of the access road, 185 metres in length with macadam carriageway 3.5 metres wide), Cirkovce 6 (partial reconstruction and new construction in total length of 240 metres with asphalt carriageway 3.5 metres wide) and the C1 road (newly constructed connecting road, 150 metres in length with macadam carriageway). A new asphalt-coated parking lot for passenger vehicles will be constructed in the area of the Cirkovci stop. The abandoned sections of carriageways will be recultivated.

The crossing no. 10a Pleterje will remain secured by barriers, the rearrangement of security elements will be carried out in line with expert bases.

The crossing no. 12 Strnišče 2 will be abolished after the construction of the underpass no. 13a at the at-grade crossing Strnišče 3 and following the arrangement of the existing and planned road infrastructure (Strnišče 1, Strnišče 2 Strnišče 3, Strnišče 4, Strnišče 5-obv). The crossing no. 13 Strnišče 3 will be abolished after the construction of the underpass no. 13a at the at-grade crossing Strnišče 3 and following the arrangement of the existing and planned road infrastructure (Strnišče 1, Strnišče 2 Strnišče 3, Strnišče 4, Strnišče 5-obv). At the crossing 13a Strnišče 3, an off-grade crossing and underpass on the future regional road will be constructed. The connection to the existing and planned road infrastructure (Strnišče 1, Strnišče 2 Strnišče 3, Strnišče 4, Strnišče 5-obv) will be implemented. The reconstruction of the Strnišče 1 local road will be implemented over 470 metres with asphalt carriageway 3.5 metres wide. The new connecting road Strnišče 2, which runs parallel to the track on the north side, will cover 992 metres and it will have asphalt carriageway 3.5 metres wide. The new connecting road Strnišče 3 will cover 255 metres and it will have asphalt carriageway 6 metres wide. The deviation of the Strnišče 4 access road will cover 141 metres and it will have asphalt carriageway 6 metres wide. The newly constructed regional road Strnišče 5-obv will be 232 metres long with asphalt carriageway width of 3 metres + 6.5 metres, walkway on both sides 1.25 metres wide, and embankments.

The crossing no. 14 Njiverce will remain secured by barriers.

In the area of Hajdina, the following crossings are planned to be implemented in three subsets:

- At subset A-9, the Zgornja Hajdina crossing will be abolished at km 13+282, while the Zg. Hajdina crossing at 13+163 will be arranged as an off-grade crossing by an overpass;
- At subset A-10, the Draženci crossing at km 14+285 will be arranged as an at-grade crossing with barriers;
- At subset A-11, the Hajdina P crossing at km 15+326 will be secured by barriers.

The crossing no. 15 Zg. Hajdina will be abolished after the construction of the 15a Zg. Hajdina overpass. The construction of the overpass on the existing regional road R1/432 will

be accompanied by the arrangement of other road infrastructure (deviation 15 with the length of 618 metres with asphalt carriageway 6.5 metres wide, new connecting road Hajdina 1 with the length of 189 metres with macadam carriageway 4 metres wide and a new connecting road Hajdina 2 with the length of 129 metres with macadam carriageway 4 metres wide). The abandoned sections of the carriageway and the housing and pertaining facility demolition areas will be recultivated.

The crossing no. 16 Draženci will remain secured by barriers. A reconstruction will be carried out and a new local road Draženci will be constructed with the length of 90 metres with asphalt carriageway 6 metres wide. The abandoned sections of carriageway will be recultivated.

The crossing no. 17 Hajdina Stop will remain secured by barriers. A new road Ptuj will be constructed with 191 metres in length and with asphalt carriageway 4.5 metres wide. The reconstruction of the road Hajdina Stop will cover 45 metres with asphalt carriageway 6 metres wide. The abandoned sections of carriageway will be recultivated.

Set B

Set B comprises the area of **Dornava** and **Ormož**, where 17 road/railway crossings are planned to be arranged.

In the area of Dornava, the following crossings are planned to be implemented by subset:

- At subset B-1, the Ptuj crossing at km 17+650 will be implemented as an off-grade crossing by construction of an underpass for pedestrians and cyclists;
- At subset B-2, the Podvinci 1 crossing at km 20+773 will be abolished, and the Podvinci 2 crossing at km 21+689 will be arranged as an at-grade crossing with barriers;
- At subset B-3, the Dornava 1 crossing at km 22+222 will be arranged as an off-grade crossing with the construction of an overpass;
- At subset B-4, the Dornava 2 crossing at km 23+417 will be arranged as an off-grade crossing, while the Dornava 3 crossing at km 24+228 will be abolished;
- At subset B-5, the Mezgovci crossing at km 25+357 will be secured by barriers;
- At subset B-6, the Moškanjci 1 crossing at km 26+149 will be secured by barriers;
- At subset B-7, the Moškanjci 2 crossing at km 27+336 will be arranged as an off-grade crossing with an overpass.

The crossing no. 18 Ptuj will be provided by an off-grade crossing for pedestrians and cyclists, and the other road infrastructure will be arranged. The abandoned sections of carriageway will be recultivated.

The crossing no. 19 Podvinci 1 will be abolished after the construction of connecting roads Podvinci 1 and 2, and the connection to the crossing no. 20 Podvinci 2 will be abolished. The crossing no. 20 Podvinci 2 will be implemented as an automatically secured at-grade crossing. A new road connection Podvinci 1, Podvinci 2 will be implemented and the other road infrastructure that connects to the local road network will be arranged. The new connecting road Podvinci 1, which is parallel to the track on the north side, will be 800 metres long with asphalt carriageway 3.5 metres wide. The new connecting road Podvinci 2, which is parallel to the track on the south side, will be 990 metres long, with a connection to a field path and asphalt carriageway 3.5 metres wide. The local road in Podvinci will be reconstructed over 97 metres, and a 6-metre wide carriageway will be asphalt-paved. Road drainage will be provided by a connection to the existing system of drainage ditches. Water

management arrangements will be made in the area of a culvert on the connecting roads Podvinci 1 and 2. The abandoned sections of carriageway will be recultivated.

The crossing no. 21 Dornava will be implemented by an overpass on the existing regional road R3/713. The deviation and reconstruction of the regional road R 3/713 will be 465 metres long and a 6.5-metre wide carriageway will be asphalt-paved. The field path 1 upgrade will be 336 metres long with macadam carriageway 5 metres wide. The field path 2 upgrade will be 234 metres long with macadam carriageway 5 metres wide. The road drainage arrangement is connected to the existing system of drainage ditches. The carriageways of existing roads and crossroads that will no longer serve their purpose are planned to be demolished and the area recultivated.

The crossing no. 22 Dornava 2 will be implemented as an off-grade crossing, while on the local road Dornava 1 an underpass will be constructed. A connection will be arranged to the road infrastructure (deviation Dornava 1 with the length of 405 metres and asphalt carriageway 6 metres wide, deviation Dornava 2 with the length of 215 metres and macadam carriageway 3.5 metres wide, arrangement of the LR Dornava 3 with the length of 925 metres and asphalt carriageway 4 metres wide, arrangement of the LR Dornava 4 with the length of 1160 metres and asphalt carriageway 4 metres wide, arrangement of the LR Dornava 5 with the length of 925 metres and asphalt carriageway 4 metres wide, and arrangement of the LR Dornava 6 with the length of 1135 metres and asphalt carriageway 4 metres wide). A RC underpass will be constructed on the LR Dornava 1. Along the Dornava 2 road, a ditch of 195 metres in length is planned to be arranged. Water management arrangements will be made in the culvert area. The abandoned sections of carriageway will be recultivated.

The crossing no. 23 Dornava 3 will be abolished after the construction of the underpass and arrangement of all connecting roads (Dornava 1, Dornava 2, Dornava 3, Dornava 4, Dornava 5, Dornava 6).

The crossing no. 25 Mezgovci will be implemented as an automatically secured at-grade crossing. A new road connection Dornava 7 will be set up, 870 metres long with asphalt carriageway 5 metres wide, and the local road Mezgovci will be arranged over 120 metres (partial reconstruction) with asphalt carriageway 6 metres wide. The abandoned sections of access roads and carriageways that will no longer serve their purpose will be recultivated.

The crossing no. 26 Moškanjci 1 will remain secured for pedestrians and cyclists; the crossing will be closed for motor vehicles.

At the crossing no. 27 Moškanjci 2, an off-grade crossing will be implemented. The connection of the overpass will involve partial reconstruction and connection to the Moškanjci 2 road with the length of 300 metres and asphalt carriageway 6 metres wide. The newly constructed section of the Moškanjci 1 road will be about 393 metres long with asphalt carriageway 6 metres wide.

In the area of Ormož, the following crossings are planned to be arranged in five subsets:

- At subset B-8, the Zamušani crossing at km 30+405 will be secured by barriers;
- At subset B-9, the Osluševci crossing at km 31+447 will be abolished, the Osluševci stop will be set up, and the Osluševci crossing at km 31+605 will be arranged as an off-grade crossing with an overpass;

- At subset B-10, the Cvetkovci 1 crossing at km 32+584 will be arranged as an at-grade crossing with barriers;
- At subset B-11, the Trgovišče 2 crossing at km 35+021 will be abolished and the Velika Nedelja 1 crossing at km 35+883 will be secured by barriers;
- At subset B-12, the Velika Nedelja 2 crossing at km 36+770 will be secured by barriers.

The crossing no. 28 Zamušani will remain secured by barriers.

The crossing no. 29 Osluševci will be abolished after the construction of an overpass on substitute off-grade crossing, at crossing no. 29a, Osluševci, and following the arrangement of connecting roads. The newly constructed connecting road Zamušani – Osluševci will be 1025 metres long with macadam carriageway 3.5 metres wide. The reconstruction of the Osluševci 2 road will cover 282 metres, and a 5-metre wide carriageway will be asphalt-paved. The reconstruction of the Osluševci 3 road will cover 257 metres (elevation of the existing road), and a 5-metre wide carriageway will be asphalt-paved. In the area of the Osluševci stop a new asphalt-paved parking lot will be constructed for passenger vehicles. The abandoned sections of carriageway will be recultivated.

The crossing no. 30 Cvetkovci 1 will remain secured by barriers. The at-grade crossing no. 33 Trgovišče will be abolished after the arrangement of the connecting roads Trgovišče 11, Trgovišče 21, Cvetkovci 12. The crossing no. 34 Velika Nedelja 1 will remain secured by barriers. The following new road connections will be implemented: Trgovišče 11 (1002 metres long with macadam carriageway 4 metres wide), Trgovišče 21 (882 metres long with macadam carriageway 4 metres wide) and Deviation 34 a (282 metres long with asphalt carriageway 4 metres wide). The Mihovci road will be reconstructed over 50 metres, and in the stop area a new parking lot for passenger vehicles will be built. The abandoned sections of carriageway will be recultivated.

The crossing no. 35 Velika Nedelja 2 will remain secured by barriers. Asphalt-paved road Velika Nedelja 21 will be constructed over 63 metres with the carriageway 6 metres wide and the macadam road Velika Nedelja 22 will be built over 86 metres with a 4-metre wide carriageway.

3.2 Main railway line 41 (T69) Ormož–Murska Sobota–Hodoš–n.b. (Ormož–Hodoš section)

There will be 45 road/railway crossings arranged and one stop – Grlava. The line no. 41 (T69) Ormož–Murska Sobota–Hodoš–n.b. is divided into 7 development areas (the areas of Pušenci, Libanja, Kamenščak, Ljutomer, Grlava, Lipovci and Murska Sobota), and further into 4 sets:

- Set C: Pušenci (arrangement of 3 crossings) (it is not discussed in this study)
- Set D: Libanja (arrangement of 7 crossings), Kamenščak (arrangement of 6 crossings)
- Set E: Ljutomer (arrangement of 9 crossings), Grlava (arrangement of 6 crossings)
- Set F: Lipovci (arrangement of 8 crossings), Murska Sobota (arrangement of 6 crossings)

Set C

Set C covers the area of **Pušenci**. There are three road/railway crossings projected in the area of Pušenci:

- crossing no. 38 Pušenci 1 at km 1+908.00 will be abolished;

- crossing no. 38a Pušenci 1 at km ca. 1+615.00 – underpass construction;
- crossing no. 39 Pušenci 2 at km 2+564.00 will be abolished.

The crossing 38 Pušenci 1 will be abolished after the construction of the roads Pušenci 13 and 11 and following the connection to the crossing 38a. The crossing 38a Pušenci 1 will be constructed as an off-grade crossing, the underpass on uncategorised public road will be provided by deviation and partial reconstruction of the Pušenci 11 road and with the connection to the existing industrial road. The deviation will be 685 metres long with asphalt carriageway 4 metres wide. Along the line the new connecting road Pušenci 12 will be constructed with 345 metres in length and with macadam carriageway 4 metres wide. The newly constructed connecting road Pušenci 13 will be 28 metres long with macadam carriageway 3 metres wide. The underpass will be 160 metres long, 6 metres wide and will have a 1.55-metre pedestrian walkway. Water management arrangements are planned in the bridging area and the abandoned sections of carriageway will be recultivated.

The crossing no. 39 Pušenci 2 will be abolished after the construction of an off-grade crossing.

Set D

Set D covers the area of Libanja and Kamenščak.

There are seven road/railway crossings projected in the area of **Libanj** in three subsets:

- At subset D-1, the crossings Libanja 1 at km 5+301 and Libanja 4 at km 6+786 will be abolished, while Libanja 2 at km 5+776 will be secured by barriers;
- At subset D-2, the crossings Žalarjev 2 at km 11+382 and Kosejeva at km 12+145 will be abolished, and the crossing Kosejeva at km 11+470 will be secured by barriers;
- At subset D-3, the existing crossing Mekotnjak that is secured by barriers at km 13+280 will be rearranged according to the expert bases. In addition, road infrastructure will be arranged.

The crossing no. 45 Libanja 1 will be abolished after the construction of the Libanija 11 road and the arrangement of connection to the crossing no. 46 Libanija 2. The crossing no. 46 Libanja 2 will be implemented as an automatically secured at-grade crossing, and the road infrastructure and new connecting roads Libanja 11 and Libanja 22 will be arranged. The newly constructed connecting road Libanija 11 will be 476 metres long with macadam carriageway 3.5 metres wide, the newly constructed connecting road Libanja 22 will be 1019 metres long with macadam carriageway 4 metres wide, and the reconstruction of the road Libanja 21 will be 58 metres long with asphalt carriageway 6 metres wide. Water management arrangements are planned in the bridging area (over the Pavlovski potok stream) and in the area of culverts. Recultivation is planned in the area of demolition of the transformer station and of the road sections that will no longer serve their purpose. The crossing no. 48 Libanja 4 will be abolished after the construction of the Libanija 22 road and the arrangement of connection to the crossing no. 46 Libanija 2.

The crossing no. 51 Žalarjev prehod 2 will be abolished after the construction of the Kosejeva 11 road and the arrangement of connection to the crossing no. 53a Kosejeva.

The crossing no. 53 Kosejeva will be abolished after arrangement of connection to the crossing no. 53a Kosejeva and following the construction of roads Žalarjeva 21, Žalarjeva 22, Kosejeva 11.

The crossing no. 53a Kosejeva will be implemented as an automatically secured (substitute) at-grade crossing. The following new road connections will be set up: Žalarjeva 21 (newly constructed connecting road and 3.5-metre wide macadam carriageway), Žalarjeva 22 (deviation of 70 metres in length with asphalt carriageway 6 metres wide), Kosejeva 11 (connecting road with the length of 697 metres with macadam carriageway 4 metres wide). The water management arrangements envisage a relocation of the stream over the length of 130 metres and the arrangement of inflow to and outflow from the culvert below the Žalarjeva 21 road, the arrangement of the outflow next to Žalarjeva 22 over 50 metres, the arrangement of bridging and culverts, the local levelling of bottom level and the arrangement of the basin of the Pavlovski potok stream in the culvert area at km 12+161.00. The demolition area of the housing facility and carriageways that will no longer serve their purpose will be recultivated.

The crossing 55 Mekotnjak will remain secured by barriers. The reconstruction of the road Mekotnjak 1 will cover 54 metres with asphalt carriageway 6 metres wide. Water management arrangement will be provided in the culvert area.

There are six road/railway crossings projected in the **development area of Kamenščak** in two subsets:

- At subset D-4, the crossings Kamenščak at km 14+819 and Grutova at km 15+245 will be abolished, while the crossing Kamenščak at km 14+725 will be implemented by construction of an underpass;
- At subset D-5, the Trajčeva crossing at km 16+020 will be provided as an off-grade crossing with an underpass, while the crossings Trajčeva at km 16+115 and Mešna at km 16+505 will be abolished.

The crossing no. 56 Kamenščak will be abolished after the construction of the underpass Kamenščak no. 56a and the connecting road Kamenščak 2. The crossing no. 57 Grutova will be abolished after the construction of the underpass Kamenščak no. 56a and the connecting road Kamenščak 2. An off-grade crossing will be set up at the crossing no. 56a Kamenščak with an underpass on uncategorised public road. The existing road infrastructure will be arranged and a new connecting road Kamenščak 1 constructed with the length of 96 metres and with asphalt carriageway 4 metres wide. Partial reconstruction and new construction of the connecting road Kamenščak 2 will be carried out with a total length of 560 metres with macadam carriageway 3 metres wide.

The crossings no. 58 Tačarjeva and no. 59 Mešna will be abolished after the construction of the underpass no. 58a Tajčarjeva. The arrangement of an off-grade crossing will involve an underpass on uncategorised public road. The existing road infrastructure will be arranged and a new connecting road Tajčarjeva 2 constructed with the length of 468 metres and with macadam carriageway 3 metres wide. The reconstruction and deviation of the Trajčeva 1 road will be 162 metres long with a 4-metre wide macadam carriageway.

Set E

Set E comprises the area of Ljutomer and Grlava.

There are nine road/railway crossings projected in the area of **Ljutomer** in six subsets:

- At subset E-1, the Semeničeva crossing at km 17+331 will be secured by barriers;
- At subset E-2, the Ljutomer v.k. crossing at km 18+181 will be arranged as an off-grade crossing with an underpass;

- At subset E-3, the Ljutomer-Razkrižje crossing at km 18+668 will be secured by barriers;
- At subset E-4, the Ljutomer Station crossing at km 20+543 will be arranged as an off-grade crossing;
- At subset E-5, the crossings Noršinci 2 at km 22+162 and Noršinci 4 at km 23+219 will be abolished. The crossings Noršinci 1 at km 21+892 and Noršinci 3 at km 22+858 will be secured by barriers;
- At subset E-6, the Noršinci 5 crossing at km 23+644 will be secured by barriers.

The crossing. 61 Semeničeva pot will be implemented as an automatically secured at-grade crossing, the Semeničeva 1 road will be reconstructed (length of 140 metres, macadam carriageway 6 metres wide) and the connection to the road Sevrovo 1 will be established. The abolished traffic areas will be recultivated.

The crossing no. 62 Ljutomer v.k. will be provided by off-grade crossing – underpass on the regional road R 1/230. Road infrastructure will be arranged and new connecting roads to the existing local road system will be constructed. The deviation of the regional road 26 (R 1/230) covers 496 metres, with a 6.5-metre wide asphalt carriageway. The reconstruction and partial new construction of the connecting road with a 6-metre wide asphalt carriageway will in the case of 26 A cover 140 metres, in the case of 26 B it will extend over 182 metres, and in the case of 26 C it will be 148 metres long. The newly constructed field paths 1 and 2 with 4-metre wide asphalt carriageway will cover a total of 186 m.

The crossing no. 63 Ljutomer-Razkrižje will remain secured by barriers. The reconstruction of the regional road Deviation 27 (R 1/231) will cover 190 metres, with a 6.5-metre wide asphalt carriageway.

The crossing no. 68 Ljutomer Station will be arranged as an off-grade crossing, with an overpass on the regional road R1-230/1309. Road infrastructure will be arranged and new connecting roads to the existing local road system will be constructed. The deviation of the Ljutomer Station road (regional road R 1/230/1309), which will cover 390 metres, will have asphalt carriageway 6.5 metres wide and pedestrian walkways on both sides. The reconstruction and partial new construction of the Access Road 1 will cover 159 metres, with asphalt carriageway 6.5 metres wide. The newly constructed access road 2 will have the length of 293 metres and 6.5-metre wide asphalt carriageway. The area of building demolition and abandoned carriageways will be recultivated.

The crossing no. 69 Noršinci 1 will be provided as an automatically secured at-grade crossing. The local road Noršinci 11 (51 metres in length with a 6-metre wide macadam carriageway), and the new connecting road Noršinci 12 (293 metres in length with a 4-metre wide macadam carriageway) will be arranged. The crossing no. 70 Noršinci 2 will be abolished after the construction of the connecting road Noršinci 12.

The crossing no. 71 Noršinci 3 will remain secured by barriers. The connecting road Noršinci 32 (354 metres in length with a 3-metre wide macadam carriageway), and the reconstruction of the road Noršinci 31 (93 metres in length with a 6-metre wide macadam carriageway) will be arranged. The crossing no. 72 Noršinci 4 will be abolished after the construction of the connecting road Noršinci 32.

The existing crossing no. 73 Noršinci 5 will remain secured by barriers. A new road connection will be implemented, 47 metres long with 4-metre wide macadam carriageway.

There are six road/railway crossings projected in the **development area of Grlava** in two subsets:

- At subset E-7, the crossings Krištanci at km 24+377, Grlava 1 at km 24+967 and Grlava 2 at km 25+708 will be abolished, while the crossing Grlava 1 at km 24+975 will be arranged by an off-grade crossing with an underpass;
- At subset E-8, the crossing Veržej 1 at km 26+806 will be secured by barriers, while the crossing Veržej 2 at km 27+363 will be abolished.

The crossing no. 74 Krištanci will be abolished after the construction of the connecting road Krištanci 1. The crossing no. 75 Grlava 1 will be abolished after the construction of the underpass no. 75a Grlava 1 and the connecting road Krištanci 1, Grlava 11. At the crossing no. 75a Grlava 1 an off-grade crossing will be constructed with an underpass on the local road. The following new connecting roads will be constructed: Krištanci 1 (newly constructed road 601 metres in length with a 3.5-metre macadam carriageway), Grlava 12 (upgrade and partial reconstruction of the local road over 748 metres with a 3.5-metre macadam carriageway) and Grlava 11 (deviation with 193 metres in length and 5-metre wide asphalt carriageway). A new asphalt-paved parking lot for passenger vehicles will be constructed in the area of the Grlava stop. The crossing no. 76 Grlava 2 be abolished after the construction of the underpass no. 75a Grlava 1 and the connecting road Grlava 12.

The existing crossing no. 77 Veržej 1 will remain secured by barriers. The Veržej road will be reconstructed with 61 metres in length and with asphalt carriageway 6 metres wide.

The crossing no. 78 Veržej 2 will be abolished.

Set F

Set F comprises the area of Lipovci and Murska Sobota.

There are eight road/railway crossings projected in the area of **Lipovci** in four subsets:

- At subset F-1, the Dokležovje 1 crossing at km 29+772 will be secured by barriers;
- At subset F-2, the crossings Dokležovje 2 at km 30+903, Dokležovje 3 at km 31+197, Bratonci 1 at km 31+492 and Bratonci 3 at km 32+228 will be abolished. The crossing Bratonci 2 at km 31+835 will be secured by barriers;
- At subset F-3, the Beltinci 1 crossing at km 32+814 will be arranged as an off-grade crossing with the construction of an overpass;
- At subset F-4, the Beltinci 2 crossing at km 33+833 will be arranged as an at-grade crossing.

The crossing no. 80 Dokležovje 1 will remain secured by barriers. The reconstruction of the road Dokležovje will cover 76 metres with asphalt carriageway 6 metres wide.

The existing at-grade crossing no. 81 Dokležovje 2, the crossing no. 82 Dokležovje 3 and the crossing no. 83 Bratonci 1 will be abolished after the arrangement of connecting roads Bratonci 1 and Bratonci 2. The existing crossing no. 84 Bratonci 2 will remain secured by barriers. New connecting roads with 3.5-wide macadam carriageway will be constructed, i.e. Bratonci 1 (795 metres long), Bratonci 2 (1000 metres long) and Bratonci 3 (765 metres long). In the area of the at-grade crossing, the reconstruction and deviation of the existing road Bratonci will be carried out over 90 metres with asphalt carriageway 6 metres wide. Water management arrangements will be provided in the area of the bridge and culvert.

The crossing no. 85 Bratonci 3 will be abolished after the arrangement of the connecting road Bratonci 3.

The crossing no. 86 Beltinci 1 will be provided by off-grade crossing – overpass of the regional road R2/439 and the connecting roads Beltinci 1, Beltinci 2, Beltinci 3. The deviation of the regional road is 600 metres long with asphalt carriageway. The new constructions and deviations of local roads will be implemented by a 4-metre asphalt carriageway – the road Beltinci 1 is 234 metres long, Beltinci 2 is 100 metres long and Beltinci 3 is 130 metres long. The demolition area of the housing facility and commercial building as well as the abolished carriageways will be recultivated.

The crossing no. 87 Beltinci 2 will remain secured by barriers. The reconstruction of the Beltinci local road in the area of the at-grade crossing will be 65 metres long with asphalt carriageway 6 metres wide.

There are six road/railway crossings projected in the **development area of Murska Sobota** in five subsets:

- At subset F-5, the Rakičan crossing at km 35+808 will be secured by barriers;
- At subset F-6, the Murska Sobota 1 crossing at km 37+900 will be arranged as an off-grade crossing with a pedestrian underpass;
- At subset F-7, the Panonska cesta–Murska Sobota crossing at km 35+808 will be arranged by an off-grade crossing with an underpass;
- At subset F-8, the Murska Sobota 3 crossing at km 39+720 will be abolished, while the Murska Sobota 4 crossing at km 40+694 will be secured by barriers;
- At subset F-9, the Markišavci crossing at km 41+662 will be secured by barriers.

The existing crossing no. 88 Rakičan will remain secured by barriers. The local road is planned to be extended in the area of the at-grade crossing, over 67 metres with a 6-metre wide asphalt carriageway.

A pedestrian underpass will be constructed at the crossing no. 90 Murska Sobota 1.

At the crossing no. 91 Panonska cesta–Murska Sobota, an off-grade crossing will be constructed – underpass on the main road G1-3/318 and other road infrastructure that connects to the local road network will be arranged. The reconstruction and new construction of the Panonska road (G1-3) will be 500 metres long with a 6.5-metre wide asphalt carriageway. The area of facility demolition and abandoned carriageway sections will be recultivated.

The crossing no. 94 Murska Sobota 3 will be abolished after the construction of the connecting road Murska Sobota 1. The crossing no. 95 Murska Sobota 4 will be implemented as an upgrade of the existing automatically secured at-grade crossing. The road infrastructure connecting to the local road network will be arranged and the connecting road Murska Sobota 1 constructed. The reconstruction of the local road Murska Sobota 2 will be 55 metres long with a 6-metre wide asphalt carriageway. The newly constructed section of the connecting road Murska Sobota 1 on the left side of the track will be 975 metres long with a 3.5-metre wide macadam carriageway.

The crossing no. 96 Markišavci will be provided as an automatically secured at-grade crossing. The reconstructed local road Markišavci will have the length of 103 metres and 6-metre wide asphalt carriageway.

4. METHODOLOGY FOR PREPARING THE EXPERT ASSESSMENT

The evaluation of impacts considered the existing burden on the environment and the impacts that are expected to arise from the planned development.

The criteria for assessing impacts according to the applied five-grade scale are presented in the table below, while a more detailed presentation of the evaluation of major impacts on individual environment segments is given in a section that refers to the respective environment segment.

Table 1: Expected environmental impact evaluation scale

Evaluation of impact	Assessment	Criterion description
no impact	0/+	the change in the element of the environment does not exist or is insignificant or positive (if the effect is positive, the impact is indicated by +)
impact is small	1	the quantity and/or quality change in the element of the environment is insignificant and/or of little importance
impact is moderate	2	the quantity and/or quality change in the element of the environment is significant, but does not exceed the limits prescribed by law
impact is great	3	the quantity and/or quality change in the element of the environment exceeds the limits prescribed by law, but the impact can be mitigated by appropriate mitigation measures and values below the permissible levels can be ensured
impact is very great	4	the quantity and/or quality change in the element of the environment exceeds the limits prescribed by law and results in inadmissible quality change in the element of the environment; it is not possible to mitigate the impact by mitigation measures, values below the permissible levels cannot be ensured and loss cannot be compensated

5. ALTERNATIVE SOLUTIONS AND REASONS FOR SELECTING THE PROPOSED SOLUTION

The Concept for the arrangement of railway/road crossings at the Pragersko–Hodoš railway section refers to the developments of the existing road network as well as the arrangement and reconstruction of the existing crossings over the railway track. The selection of variant solutions is restricted by the existing route of the railway and the spatial characteristics. In terms of construction developments, the latest technology that complies with all applicable regulations has been considered for arrangement of all crossings and road connections. Only thus maximum traffic safety can be provided. Furthermore, the document takes into account all provisions of the Railway Traffic safety Act, the Roads Act and all relevant implementing regulations regarding this issue. All environment protection legislation has also been considered. The best possible alternative solutions for development were selected based on the legislation and spatial restrictions.

6. EXISTING CONDITION OF THE ENVIRONMENT

Noise

The area where the road and the Pragersko–Hodoš railway line crossings are envisaged is mainly agricultural; through more densely built-up areas the railway line runs through the area of Hajdina, Ptuj, Moškanjci, Ljutomer and Murska Sobota, while it only approaches other settlements or crosses them over a small area. Practically all built-up areas are designated for mixed commercial and housing facilities and are classified into class III of areas protected from noise. In the existing condition, the prevailing source of noise is railway transport, and in the areas where major national roads are crossed also road transport.

During the implementation of road/railway crossings, the noise pollution of the environment will increase in the area of construction sites owing to construction works and additional transport of construction machinery in the vicinity of construction developments as well as in the area next to transport routes. Noise pollution during construction will mainly increase in the areas of major construction developments during the construction of underpasses and overpasses in the area of crossings Pr-1a Stražgonjca, Pr-27 Moškanjci, Pr-68 Ljutomer Station, Pr-75 Grlava and Pr-91 MS, Panonska cesta. The impact on noise pollution during construction will be of limited duration. During intensive earth and construction works, the exposed residential areas in the approximate vicinity of construction sites are expected to be occasionally subject to excessive noise pollution. Mitigation measures have to be carried out in the area of all construction sites (reducing emissions to a minimum, time-limited construction, setting up of temporary protective barriers, if necessary), while during construction it is projected that the condition will be monitored in the area of all major developments.

During the operation of road crossings, the noise pollution will not significantly increase compared to the existing condition, since most developments are planned in the areas of existing roads. In all areas of crossings the prevailing source of noise, in addition to road transport, is railway transport, while the noise pollution resulting from railway transport will be remediated over the entire area along the railway line according to the DPN. In the vicinity of major roads, the noise pollution resulting from road transport will exceed critical noise levels at the most exposed buildings. Owing to new road developments, additional protection will be needed for 25 overburdened buildings with protected premises in the area of Ljutomer and Murska Sobota, whereas for five buildings that will also be subject to excessive noise in the area of crossings, passive protection has already been introduced or is projected in the implementation project for the electrification and reconstruction of the railway line.

The impact of construction of the road and the Pragersko–Hodoš railway line crossings is estimated as moderate, taking into account mitigation measures (grade 2), whereas the impact during operation of the crossings of major national roads in the area of Ljutomer and Murska Sobota is assessed as high (grade 3), and in other areas as moderate (grade 2). In terms of noise protection, the construction of the road and the Pragersko–Hodoš railway line crossings is an acceptable development as regards environment, if the projected mitigation measures are taken into account.

Air

The area where the road and the Pragersko–Hodoš railway line crossings are envisaged is mainly agricultural; through more densely built-up areas the railway line runs through the

area of Hajdina, Ptuj, Moškanjci, Ljutomer and Murska Sobota, while it only approaches other settlements or crosses them over a small area (Šikole, Cirkovce, Velika Nedelja, Ormož, Puconci, Mačkovci, Šalovci).

The municipalities through which the Pragersko–Hodoš railway line runs and where all discussed road/railway crossings are envisaged, is classified into SI1 air pollution area, belonging to class II of air pollution, where the level of pollution by one or more pollutants (PM_{10} particles or ozone) is higher than the prescribed limit and lower than the sum of limit value and acceptable exceedance. The only exception is the area of the Municipality of Murska Sobota, which is classified into the SI11 sub-area and which is owing to excessive pollution of air by PM_{10} particles classified into class I of air pollution areas.

During the construction developments, air pollution by dust particles will mainly increase in the area of major developments: Pr-1a Stražgonjca, Pr-7 Cirkovce, Pr-16a Zg. Hajdina, Pr-21 Dornava, Pr-27 Moškanjci 2, Pr-29a Osluševci, Pr-62 Ljutomer, Pr-68 Ljutomer Station, Pr-75 Grlava 1, Pr-86 Bratonci and Pr-91 MS, Panonska cesta. More densely built-up commercial and housing facilities in these areas exist in the area of the crossings Pr-1a Stražgonjca, Pr-75 Grlava and Pr-91 MS, Panonska cesta. The air quality will somewhat deteriorate also along transport routes. An increase in air pollution is expected mainly due to PM_{10} particles, which could in the dry and windy weather cause increased environmental pollution at the nearest residential buildings. The impact during construction will be short-term and chiefly restricted to the day period.

During the construction, the emissions of dust particles and other pollutants are planned to be reduced by measures preventing dusting on exposed development sites, traffic and handling areas, by regular cleaning of traffic areas on the development site and on public transport areas, by setting up of temporary barriers next to the construction sites of major developments, where the site will be adjacent to residential buildings (Murska Sobota - Panonska cesta, Ljutomer, Stražgonjca, Grlava), and by taking into account emission norms according to the regulations governing emissions for temporary construction works, used construction machinery and means of transport.

During the developments, supervision is planned to be conducted regarding the adequacy of construction machinery and the implementation of measures to restrict dusting on access transport roads and on the development site, while in the area where the underpass will be constructed on the Panonska cesta in Murska Sobota, the air pollution by PM_{10} particles will be monitored as well.

During the operation of the road network, the impact on air quality will be moderate but within legal limits, so no additional mitigation measures and air quality monitoring are projected.

The impact during the construction of the road and the Pragersko–Hodoš railway line crossings on air quality is assessed as moderate (grade 2), taking into account the mitigation measures, and the impact during operation is also assessed as moderate (grade 1). In terms of air quality, the impact during construction is acceptable, provided that the mitigation measures are consistently and efficiently implemented.

Vibrations

During the construction of the road and the Pragersko–Hodoš railway line crossings, the vibration pollution of the environment will increase in the area of construction sites due to construction works and additional transport of construction machinery, and vibrations will be greater also during the construction of major bridging structures and retaining walls, and during the driving of piles for overpasses.

Major construction developments will be carried out predominantly in the areas where off-grade crossings will be arranged (construction of underpasses or overpasses): Pr-1a Stražgonjca, Pr-7 Cirkovce, Pr-16a Zg. Hajdina, Pr-27 Moškanjci 2, Pr-68 Ljutomer Station, Pr-75 Grlava 1, Pr-86 Bratonci and Pr-91 MS, Panonska cesta. More densely built-up commercial and housing facilities predominantly exist in the area of the crossings Pr-1a Stražgonjca, Pr-68 Ljutomer Station and Pr-91 MS, Panonska cesta. During the development arrangements, these areas are expected to be most influenced by vibrations, which will be moderate, or great during intensive construction works, however, the expected increased vibration pollution will not have any permanent consequences. Increased potential impacts are expected mainly at three cultural heritage buildings that are located close to the projected developments. Therefore, construction supervision is planned for these buildings and, if necessary, vibration measurements. The impact of vibration pollution on buildings during the development is expected to be moderate (grade 2), taking into account the mitigation measures.

No additional impact of vibration pollution on exposed buildings and inhabitants is expected during the operation of the road network, since the freight transport on the roads in the area of crossings will not be heavy. The expected impact of vibration pollution on the environment during the operation of the road network is assessed to be small (grade 1).

Nature

The subsection between Ormož and Puconci is interesting in terms of fauna both at the national and international levels because of diverse biotopes. This predominantly applies to the section between Križevci and Dokležovje, which is also classified among Natura sites (SCI and SPA Mura).

Similarly as for SCI Drava, the protected area of Mura is one of the most important areas in terms of biodiversity. The ecosystem of this lowland river with affluents and dead river branches boasts the richest ichthyofauna of all Slovenian rivers. As a result, it provides excellent living conditions to otter.

In the main bed of the Drava River in this area there are fish species (asp, Balon's ruffe) which are rare in Slovenia and endangered mainly by pollution and alteration of water regime in major watercourses. The dead river branches, river canals and flood areas represent an important habitat for some rare species of dragonflies, bugs and very specialised butterflies that are directly or indirectly connected to such areas. The area is also important for many species of amphibians and reptiles.

In a broader influence area of the railway line, at the Pragersko–Ormož subsection, there are at least 245 bird species, of which 97 are present during the winter and 111 in nesting season. Other species occur randomly.

In a wider area of the Ormož–Puconci section, at least 152 bird species are estimated to be present – 78 during the winter and 108 in nesting season.

The entire region of Goričko is included in the European list of important ornithological localities – IBA (Important Bird Areas). On the basis of an expert proposal for national classification of the areas that are important for maintaining the population of the species referred to in Article 1 of the Birds Directive at a satisfactory level, two classification species have been identified for the Goričko area, i.e. scops owl and wood lark. The field areas and dry grasslands are an important habitat of the wood lark, while the scops owl mainly lives in the treetops of high-trunk orchards.

Soil and its use

The entire section of the Pragersko–Hodoš railway line mostly runs over the soil that was created on alluvial deposits. In the first section, small watercourses such as Polskava, Mlinski potok and Trojšnica deposited heavier, more clayey sediments which resulted in poorly aerated soil. It is typical of this soil that water stagnates in the soil profile which leads to airless conditions. Given the depth and scope of water stagnation, this soil is classified as hypogley or amphigley soil. In the vicinity of Ptuj there is predominantly dystric brown soil that has developed on sandy gravel alluvia of the Drava River. The soil has good production potential, which is proved by the fact that it is intensively used for fields. In the area of Moškanjci, the soil becomes shallow and skeletal as there prevail the gravel and sandy deposits of the Drava River. Further on, in the area of Cvetkovci and Velika Nedelja, there are predominantly eutric brown soils or brown fluvisols that have developed on clayey alluvial deposits. When the railway route after Ormož heads north (towards Ljutomer), it runs through relatively narrow valleys where brown fluvisols prevail and water stagnation in soil profile is a common phenomenon. On the outskirts of the Slovenske gorice and Jeruzalemske gorice hills, the predominating soil is the dystric brown soil which has developed on Pliocene deposits. At the foot of the hills there is also some pseudogley soil. At Ljutomer, the railway line descends to the plain, where small watercourses deposited heavy alluvia in the proximity of Ljutomer (to the settlement of Grlava). The main type of soil found there is hypogley soil that is characterised by exceptional stagnation of water in soil profile. From there on, the soil has developed on sandy gravel deposits of the Mura River. Deep brown fluvisol is predominating, while in the approximate vicinity of the Mura River this soil is shallow and in some locations raw fluvisol can be found. As the railway line passes Lipovci and all the way to Murska Sobota, the dystric brown soil, developed on alluvial deposits of the Mura river, is more common.

Ground water

The condition of ground water in the area of the Pragersko–Hodoš railway line was assessed based on the data from the ground water monitoring programme, which is implemented in the scope of the programmes of MOP-ARSO (Ministry of Environment and Spatial Planning – Environment Agency of the Republic of Slovenia). The following was established on the basis of monitoring results:

- The Dravsko polje is a highly vulnerable aquifer. The ground water in the area of Brunšvik, Rače, Šikole and Kidričevo is characterised by pesticide and nitrate pollution. The trends indicating a reduction in the ground water pollution by pesticides are for the most part favourable. The chemical status of the ground water is assessed as "poor chemical status", also owing to unfavourable upward trends in nitrate pollution.

- Like the Dravsko polje, the Ptujsko polje is also an aquifer characterised by high general vulnerability. The ground water of the Ptujsko polje is polluted by pesticides and nitrates, with the Sobetinci measurement point standing out. Given the ground water pollution by pesticides and nitrates, the chemical status of ground water is assessed as "poor chemical status".
- The Prekmursko polje is a shallow alluvial aquifer characterised by high general vulnerability. The ground water is polluted by nitrates and pesticide residue (predominantly herbicides), atrazine and its breakdown product atrazine-desethyl, metolachlor and its breakdown products and occasionally by other active substances. In the area of Murska Sobota there occurs pollution by volatile halogenated hydrocarbons. The ground water is most polluted at both measuring points in Rakičan. There is a notable gradual downward trend in nitrates, atrazine, atrazine-desethyl and pesticide sum, however, the concentrations have not yet dropped to limit values, which is why the chemical status of ground water is assessed as "poor chemical status".
- The Mursko polje is a shallow alluvial aquifer characterised by high general vulnerability. In Vučja vas, the ground water is of good quality compared to the other two measuring points. The ground water is most polluted by pesticides and nitrates, while the atrazine and atrazine-desethyl pollution is decreasing. There are occasional increases in metolachlor and its metabolites as well as other pesticides from the herbicide group. The chemical status of the ground water is therefore assessed as "poor chemical status", also owing to unfavourable upward trends in nitrate pollution.

Surface waters

The hydromorphological status of surface watercourses in the influence area of the Pragersko–Hodoš railway line is adopted from the data of MOP-ARSO. The route crosses the following watercourses:

- near-natural watercourses (class 1-2): Pavlovski potok
- near-natural watercourses to sustainably managed watercourses (class 1-2 to 2): the Kostanjevica stream
- sustainably managed watercourses (class 2): the streams Lešnica, Lahonščica, Kozarica, Mačkovski potok
- sustainably managed to semi-sustainably managed watercourses (class 2 to 2-3): Mačkovski potok, V. Krka
- technically managed watercourses (class 3): the Reka stream, the Pesnica river, Pušenski potok, the Libanja stream, the Trnava stream, the Ščavnica river, Puconski potok, Dolenski potok
- heavily managed watercourses (class 3 - 4); the Drava river and its left affluent, the Grajena stream, Bresniški potok
- heavily managed watercourses (class 4): the Sejanca stream

The surface watercourses in the influence area of the reconstruction and upgrade of the Pragersko–Hodoš railway line are characterised by the Pannonian or continental rain-snow water regime. The basic feature of the water regime (with the exception of the Mura and Drava rivers) is the dependency of the hydrological status on the local precipitation. The assessment of the status of watercourses has been made based on the examinations of the Pavlovski potok and field inspection. The basic characteristic of surface watercourses in the relevant area is that the oxygen situation depends on the hydrological conditions and on the pollution by waste from municipal infrastructure and agricultural holdings. Therefore, the situation is usually worse when air temperatures are high and at some sections watercourses become anaerobic. It is estimated that the ecological status of watercourses is variable and

usually does not reach the "very good" level. This is also reflected in higher pollution of surface watercourses by organic substances, expressed as total organic carbon (TOC) and chemical oxygen demand (COD). At the same time, there is ammonium in surface watercourses, occasionally leading to unacceptable fishery conditions. In the said surface watercourses, the content of heavy metals is not a problem according to statistical estimate. From time to time, there is an increase in the content of adsorbable organic halogen substances (AOX), phenolic substances and mineral oils. A significant feature of surface watercourses in the entire area of the Pragersko–Hodoš railway route is the pesticide pollution. This pollution can be very high. Determining and monitoring of surface watercourse pollution by pesticides is important in terms of the Pragersko–Hodoš railway line because the treatment of the railway line involves some herbicide preparations for removal of weed so as to maintain adequate load-bearing capacity of the railway ballast and buffer. The saprobic index of the sample from the Pavlovski potok is 1.62, based on which this stream is classified as oligo- to mesosaprobic (class I – II), which means that its pollution by organic substances is relatively low.

Cultural heritage

According to the data from the Registry of Immovable Cultural Heritage, there are several cultural heritage units in the area next to the railway line – archaeological heritage, settlement heritage, secular architectural heritage and architectural/garden heritage.

Landscape and its character

In terms of appearance and spatial structure, the relevant area can be divided into the flatland section, composed of the Dravsko polje, Ptujsko polje and the Murska ravan plain and the hilly area of Slovenske gorice and Goričko. Typical of the entire area is the predominating agricultural land use which creates a characteristic landscape with large areas of intensive cultures and meadows that are in irregular patterns divided by patches of lowland forests, individual tree clusters and some large prominent trees, and in some locations by tree-lined main roads or smaller groups of trees and bushes. The gardens next to residential houses are planted by decorative alien species of trees and orchards. The hilly areas of the landscape are characterised by vineyards on sunny slopes.

Two major watercourses are notable, the Drava and the Mura rivers, while a number of watercourses on the plains of the landscape are characterised predominantly by waterside vegetation. Besides the four major towns – Ptuj, Ormož, Ljutomer and Murska Sobota, the area is characterised by typical rural settlements with many hamlets that reach as far as to the edge of the railway line. The settlements comprise a church and service buildings (store, cooperative, fire station and similar) as well as one- to two-storey residential buildings with gardens. They involve a mixture of older, poorly-kept houses and new buildings with facades and roofs of vivid colours. In the vicinity of the towns, there are some industrial and service areas along the railway line (the facilities of Perutnina Ptuj, the Ptuj shopping centre). Marked spatial elements include the pillars of line infrastructural elements (transmission lines), which are noticeable mainly in the area of the Dravsko polje.
There are no distinct spatial dominant features (other than Ptuj and Velika Nedelja), most orientation is provided by the hilly hinterland. The entire railway line runs over a largely low embankment that is no more than one or two metres above the surrounding terrain, except in some locations, for instance before Ptuj and in the area around Ljutomer. The embankment is for the most part grassed, so that the railway line does not stand out and is not noticeable in space.

7. IMPACTS, MITIGATION MEASURES AND MONITORING OF THE CONDITION

Noise

The area where the road and Pragersko–Hodoš railway line crossings are envisaged is mainly agricultural; through more densely built-up areas the railway line runs through the area of Hajdina, Ptuj, Moškanjci, Ljutomer and Murska Sobota, while it only approaches other settlements or crosses them over a small area. Practically all built-up areas are designated for mixed commercial and housing facilities and are classified into class III of areas protected from noise. In the existing condition, the prevailing source of noise is railway transport, and in the areas where major national roads are crossed also road transport.

During the implementation of level crossings, the noise pollution of the environment will increase in the area of construction sites owing to construction works and additional transport of construction machinery in the vicinity of construction developments as well as in the area next to transport routes. Noise pollution during construction will mainly increase in the areas of major construction developments during the construction of underpasses and overpasses in the area of crossings Pr-1a Stražgonjca, Pr-27 Moškanjci, Pr-68 Ljutomer Station, Pr-75 Grlava and Pr-91 MS, Panonska cesta. The impact on noise pollution during construction will be of limited duration. During intensive earth and construction works, the exposed residential areas in the approximate vicinity of construction sites are expected to be occasionally subject to excessive noise pollution. Mitigation measures have to be carried out in the area of all construction sites (reducing emissions to a minimum, time-limited construction, setting up of temporary protective barriers, if necessary), while during construction it is projected that the condition will be monitored in the area of all major developments.

During the operation of road crossings, the noise pollution will not significantly increase compared to the existing condition, since most developments are planned in the areas of existing roads. In all areas of crossings the prevailing source of noise, in addition to road transport, is railway transport, while the noise pollution resulting from railway transport will be remediated over the entire area along the railway line according to the DPN. In the vicinity of major roads, the noise pollution resulting from road transport will exceed critical noise levels at the most exposed buildings. Owing to new road developments, additional protection will be needed for 25 overburdened buildings with protected premises in the area of Ljutomer and Murska Sobota, whereas for five buildings that will also be subject to excessive noise in the area of crossings, passive protection has already been introduced or is projected in the implementation project for the electrification and reconstruction of the railway line.

The impact of construction of the road and Pragersko–Hodoš railway line crossings is estimated as moderate, taking into account mitigation measures (grade 2), whereas the impact during operation of the crossings of major national roads in the area of Ljutomer and Murska Sobota is assessed as high (grade 3), and in other areas as moderate (grade 2). In terms of noise protection, the construction of the road and Pragersko–Hodoš railway line crossings is an acceptable development as regards environment, if the projected mitigation measures are taken into account.

Noise measurements during developments are envisaged only for the areas of major developments in the areas of Stražgonja, Cirkovci, Zg. Hajdina, Moškanjci, Ljutomer, Grlava and Murska Sobota.

It is reasonable to carry out measurements of the entire noise pollution within the first assessment of noise during operation only in the area of the most important roads within the built-up area of Hajdina, Moškanjci and Murska Sobota settlements. The implementation of long-term measurements on three locations is proposed.

Air

The area where level crossings at the Pragersko–Hodoš railway line section are envisaged is mainly agricultural; through more densely built-up areas the railway line runs through the area of Hajdina, Ptuj, Moškanjci, Ljutomer and Murska Sobota, while it only approaches other settlements or crosses them over a small area (Šikole, Cirkovce, Velika Nedelja, Ormož, Puconci, Mačkovci, Šalovci).

The municipalities through which the Pragersko–Hodoš railway line runs and where all discussed level crossings are envisaged, is classified into SI1 air pollution area, belonging to class II of air pollution, where the level of pollution by one or more pollutants (PM_{10} particles or ozone) is higher than the prescribed limit and lower than the sum of limit value and acceptable exceedance. The only exception is the area of the Municipality of Murska Sobota, which is classified into the SI11 sub-area and which is owing to excessive pollution of air by PM_{10} particles classified into class I of air pollution areas.

During the construction developments, air pollution by dust particles will mainly increase in the area of major developments: Pr-1a Stražgonjca, Pr-7 Cirkovce, Pr-16a Zg. Hajdina, Pr-21 Dornava, Pr-27 Moškanjci 2, Pr-29a Osluševci, Pr-62 Ljutomer, Pr-68 Ljutomer Station, Pr-75 Grlava 1, Pr-86 Bratonci and Pr-91 MS, Panonska cesta. More densely built-up commercial and housing facilities in these areas exist in the area of the crossings Pr-1a Stražgonjca, Pr-75 Grlava and Pr-91 MS, Panonska cesta. The air quality will somewhat deteriorate also along transport routes. An increase in air pollution is expected mainly due to PM_{10} particles, which could in the dry and windy weather bring about increased environmental pollution at the nearest residential buildings. The impact during construction will be short-term and chiefly restricted to the day period.

During the construction, the emissions of dust particles and other pollutants are planned to be reduced by measures preventing dusting on exposed development sites, traffic and handling areas, by regular cleaning of traffic areas on the development site and on public transport areas, by setting up of temporary barriers next to the construction sites of major developments, where the site will be adjacent to residential buildings (Murska Sobota - Panonska cesta, Ljutomer, Stražgonjca, Grlava), and by taking into account emission norms according to the regulations governing emissions for temporary construction works, used construction machinery and means of transport.

During the developments, supervision is planned to be conducted regarding the adequacy of construction machinery and the implementation of measures to restrict dusting on access transport roads and on the development site, while in the area where the underpass will be constructed on the Panonska cesta in Murska Sobota, the air pollution by PM_{10} particles will be monitored as well.

During the operation of the road network, the impact on air quality will be moderate but within legal limits, so no additional mitigation measures and air quality monitoring are projected.

The impact during the construction of the road and Pragersko–Hodoš railway line crossings on air quality is assessed as moderate (grade 2), taking into account the mitigation measures, and the impact during operation is also assessed as moderate (grade 1). In terms of air quality, the impact during construction is acceptable, provided that the mitigation measures are consistently and efficiently implemented.

Excessive impact on air quality in the nearest residential areas during implementation of construction in the crossing areas is not expected. Monitoring impacts during construction is mainly aimed at ensuring supervision regarding measures for prevention of emission of substances (mainly solid particles) into the air from construction sites and transport routes. During construction, measurements of PM_{10} particles in the air in the area of the railway underpass on the Panonska cesta in Murska Sobota, where construction developments will be taking place in the immediate vicinity of residential buildings, are envisaged.

Vibrations

During the construction of the road and Pragersko–Hodoš railway line crossings, the vibration pollution of the environment will increase in the area of construction sites due to construction works and additional transport of construction machinery, and vibrations will be greater also during the construction of major bridging structures and retaining walls, and during the driving of piles for overpasses.
Major construction developments will be carried out predominantly in the areas where off-grade crossings will be arranged (construction of underpasses or overpasses): Pr-1a Stražgonjca, Pr-7 Cirkovce, Pr-16a Zg. Hajdina, Pr-27 Moškanjci 2, Pr-68 Ljutomer Station, Pr-75 Grlava 1, Pr-86 Bratonci and Pr-91 MS, Panonska cesta. More densely built-up commercial and housing facilities predominantly exist in the area of the crossings Pr-1a Stražgonjca, Pr-68 Ljutomer Station and Pr-91 MS, Panonska cesta. During the development arrangements, these areas are expected to be most influenced by vibrations, which will be moderate, or great during intensive construction works, however, the expected increased vibration pollution will not have any permanent consequences. Increased potential impacts are expected mainly at three cultural heritage buildings that are located close to the projected developments. Therefore, construction supervision is planned for these buildings and, if necessary, vibration measurements. The impact of vibration pollution on buildings during the development is expected to be moderate (grade 2), taking into account the mitigation measures.

No additional impact of vibration pollution on exposed buildings and inhabitants is expected during the operation of the road network, since the freight transport on the roads in the area of crossings will not be heavy. The expected impact of vibration pollution on the environment during the operation of the road network is assessed to be small (grade 1).

Due to the possibility of excessive pollution of the nearest buildings during arrangement, monitoring of construction condition of buildings in a ten-meter area upon major developments and, if necessary, implementation of measurements to determine pollution of housings and protected cultural heritage buildings, located in the immediate vicinity of the projected developments, is proposed.

Nature

Regardless of the fact that numerous protected areas are located in the wider area, intensive agricultural land and heavily degraded land having little value concerning nature protection represent a big section of the wider treated area. The planned developments of the road and Pragersko–Hodoš railway line crossings will encroach upon the following nature conservation areas or will run in their immediate vicinity: SCI Pavlovski potok (Libanja), SCI Mura, Jeruzalemsko - Ormoške gorice nature park, Ljutomerski ribniki and Jeruzalemske gorice nature park, valuable natural feature Veržej – daffodil site 3, Mura – loka 1, ecologically important area Dravsko polje, ecologically important area Libanja and ecologically important area Mura – Radmožanci.

Developments during construction will trigger destruction of plant species and parts of their sites in the area of construction sites. Impact on wild fauna will mainly be expressed as a disruption of animals' everyday rhythm and rituals, such as mating, reproduction, parturition, nutrition and the like. Developments in watercourses or riparian vegetation can cause negative impact on aquatic organisms. Non-compliance with the Decree on limit values due to light pollution of the environment will cause lighting of the environment to increase, which will have a negative impact on nocturnal animal species and their predators. Mitigation measures to reduce the impact on nature mostly include measures to prevent developments in the areas with nature protection status due to negligence, measures to carry out cutting trees outside the nesting season, restrictions regarding developments in watercourses, and measures to decrease the occurrence of invasive plant species. Compliance with the proposed mitigation measures will cause the impact on nature to reduce – the impact is assessed as weak (grade 1).

During operation, major impacts on nature are not expected, except a possible impact due to unsuitable lighting. If using suitable lighting, the impact will be weak (grade 1).
Monitoring of the condition is not envisaged.

Soil and its use

We have assessed the basic impact of the road and railway crossings through the impact on agricultural activity by loss of soil as a natural resource. The possible negative impact, which could permanently damage the production potential of the land, is damage of agricultural land due to deterioration of soil structure and inappropriate handling of fertile soil. In addition to the measures preventing soil pollution, special attention needs to be paid to correct handling of fertile soil and to limitation of the construction sites in the area of agricultural land. The impact of the lost natural resources and indirect impact of the lost surfaces for agricultural cultivation in the entire area of the Pragersko–Hodoš railway line crossing upgrade is assessed as moderate – grade 2.
To preserve agricultural production if so wished by the operators of agricultural production, it is necessary to solve the loss of the best land in the entire area of developments by substitution of land or payment of real compensation that will enable the operators of agricultural production to continue their activity.

Considering the proposed mitigation measures, we assess the impact of the entire scope of works to agricultural land or activity is weak – grade 1.

Monitoring of the condition is not envisaged.

Groundwater

The arrangement of railway line crossings during construction includes works that can impact addition soil pollution. Due to the inseparable interconnection of the environment, soil and groundwater elements, the changes in soil can also be manifested in changed conditions of groundwater (considering the fact that the route of the Pragersko–Hodoš railway line runs over areas of alluvial aquifers, the characteristic of which is great permeability due to their sandy and silt structure, impacts are expected). It needs to be emphasised that direct impacts of road construction during construction itself on groundwater conditions are not to be expected, because works that would directly interfere with groundwater are not envisaged. However, indirect impacts as a consequence of additional soil pollution and consequently washing soil out with rainwater are to be expected.
During construction and operation, spillage or shattering of dangerous fluids or other materials can impact additional soil pollution and also changed groundwater conditions. Also possible are impacts on groundwater conditions due to displacement of soil, which is in the existing condition already polluted with dangerous substances, which are in stable and metastable condition. According to expectations, the greatest direct impacts on additional soil pollution and indirect on groundwater will be on locations where implementation of underpasses is envisaged. The most important measures to reduce negative impacts are: reduction of developments in soil, priority usage of the existing infrastructure and other manipulative surfaces, appropriate handling of building material, surplus of materials and waste, prevention of dust emissions for construction areas and transport routes. Impacts of the implementation of the planned works on the chemical condition of groundwater are assessed as weak – grade 1.

After the implementation of the works, negative impacts on groundwater conditions are not to be expected (no impact – grade 0). Spillage of a dangerous fluid or shattering of another dangerous material represent special cases, for which the road operator must have an emergency plan.

Groundwater and hydrological condition is performed by groundwater quality monitoring programme carried out by SEA and potable water monitoring programme carried out by the Ministry of Health.

Surface waters

Arrangement of railway line crossings during construction includes works that can impact addition surface watercourse pollution. In sections where the Pragersko–Hodoš railway line crosses a water protection zone of water reservoirs of drinking water supply systems, developments in surface watercourses also represent indirect impacts on groundwater conditions (regardless of the hydrological condition of the surface watercourse). From the perspective of the possible negative impacts on chemical and biological watercourse condition and consequently on ecological condition, all construction works which in the influence area of the surface watercourse include the use of concrete, asphalt and other materials (for example artificial resins), damp proofing materials and other surface active substances (for example dyes and protective paints) are important. The impacts of construction works in the sections of the route where it encroaches upon the surface watercourse system are generally temporary. During direct developments in the watercourse beds, for example during watercourse regulation, the watercourse conditions are such that they cannot be assessed on the basis of criteria of chemical and ecological condition. The surface watercourse chemical and ecological condition usually restores itself during a

medium-term period, but usually not to the condition from before the construction. Construction works in the sections of the route where it encroaches upon the surface watercourse system also impacts the morphological characteristics of watercourses. The impacts of works on the surface watercourse chemical and ecological condition are assessed as moderate – grade 2. Compliance with the proposed mitigation measures (reduction of developments in watercourse beds and shores, and preservation of trees and bushes along the watercourses, prevention of water pollution with dangerous compounds) will cause the impacts to be weak – grade 1.

During operation, impacts of traffic on surface watercourse conditions in the sections of indirect crossings and in the areas of individual surface watercourses contributing water are possible. The impacts of operation of the Pragersko–Hodoš railway line crossings are assessed as negligible – grade 0.

According to the established existing surface watercourse condition and scope of the envisaged construction works, it is sensible to monitor surface watercourse conditions, which are, in the existing condition, in the 1st to 2nd morphological class, and watercourse conditions where regulation works are envisaged.

Cultural heritage

Construction can bring about permanent or temporary damage to the cultural heritage areas and buildings. Considering the character and type of impact, we assess that the implementation of the envisaged developments will cause mainly temporary and indirect impacts on cultural heritage, predominantly as a consequence of the presence of construction plant and equipment, and of construction works. The conditions of developments in the recorded cultural heritage units were harmonised during the preparation of the national spatial plan.

Permanent impact is mainly possible on the following cultural heritage units:

Section A
- HRN 690169 – Zgornje Jablane – Praponce archaeological site: Upon the archaeological exploration before electrification and reconstruction of the railway line, a cultural layer with fragments of prehistoric and Roman pottery was found.
- HRN 13356 – Cirkovce – prehistoric settlement: Settlement remains from the late Bronze Age, monument of local importance (municipal ordinance of the Municipality of Kidričevo)
- HRN 27932 – Zgornja Hajdina – Štuki archaeological site; Prehistoric and Roman cultural layers, and settlement structures.
- HRN 21028 – Ptuj – archaeological site by the railway track: Roman settlement remains expressing the life of a former economic unit on the southern edge of Poetovione.

Section B
- HRN 29505 – Podvinci – Klinci archaeological area: Considering the discovered layers with fragments of prehistoric and Roman pottery, this is an area of increased archaeological potential.
- HRN 29504 – Mezgovci ob Pesnici – prehistoric settlement: Traces of prehistoric settlement; a layer with a lot of pottery fragments and numerous pieces of house glue.
- HRN 29514 – Cvetkovci – Dobrava archaeological area: Considering the discovered layer with two fragments of Roman pottery, this is an area of increased archaeological potential.

Section E
- HRN 29513 – Grlava – Dolge njive archaeological area: Considering the discovered layer with three fragments of prehistoric pottery, this is an area of increased archaeological potential.
- HRN 29515 – Noršinci pri Ljutomeru – archaeological area: Considering the discovered layer with a fragment of Roman pottery, this is an area of increased archaeological potential.

Section F
- HRN 6774 – Murska Sobota – town core: The town is situated on a plain surrounding the castle and church centre north of Lendava. The Roman period; the settlement has been intensively developing since the 11th century; the prevailing scheme belongs to the 19th century.
- HRN 16807 – Murska Sobota – petrol station: The petrol station represents a quality example of creation suitable for specific use. The fly roof rests on two pillars and a rectangular ground floor building. Designed by F. Korent in 1958, reconstructed in 2005.

Direct developments in the protected areas of archaeological heritage could bring about discoveries of new archaeological sites.
We assess that impacts during developments in individual areas may be strong (grade 3), while no impacts are expected during operation.

To reduce the negative impacts of construction, it is necessary to restrict and supervise developments in the recorded cultural heritage areas, and, in the case of the possible new sites, enable the implementation of protected excavations, including all procedures after excavations.

Monitoring of the condition is not envisaged.

Landscape and its character

Major changes in the landscape are not expected. Locally, changes of visual characteristics of the area connected mainly with the construction site organisation, additional traffic, and temporary material disposal facilities are possible. These impacts will be somewhat stronger in the reconstruction areas because they also signify intake of new components, thus changing the characteristic appearance of the area, removal of vegetation, excavations, planning, construction of new traffic arrangements, presence of material disposal facilities, temporary buildings, mobile machinery, transport vehicles and workers at construction sites,... We assess that impacts during the implementation of the planned developments will be moderate to locally strong – grade 2-3.
During developments, it is necessary to assure that the area is as limited as possible and that only the existing transport routes are used. Preservation of the existing vegetation to the greatest extent possible, assurance of conditions to carry out agricultural activity and recultivation of the temporarily used surfaces during construction are necessary. Upon major developments in dense vegetation and along the new buildings, new plants taking into account the characteristics of the surrounding landscape and the indigenous vegetation are to be planted.

Considering the fact that the planned arrangements supplement the already existing infrastructure building in the area, changes of the landscape are minor or expected, thus

there will be no impacts if the immediate vicinity of the railway line is suitably arranged and maintained (grade 1).

Monitoring of the condition is not envisaged.

8. FINAL ASSESSMENT

The table includes the gathered assessments of impact for individual treated segments during preparation and construction:

	during preparation and construction	
Segment	**Assessment without mitigation measures**	**Assessment with mitigation measures**
AIR	Moderate to strong (1–3)	Moderate when taking mitigation measures into account (2)
SURFACE WATERS	Moderate (2)	Weak (1)
GROUNDWATER	Weak (1)	Weak (1)
SOIL	Moderate (2)	Moderate (2)
NOISE POLLUTION	Moderate to strong (1–3)	Moderate when taking mitigation measures into account (2)
VIBRATION POLLUTION	Moderate to strong (2–3)	Moderate (2)
CULTURAL HERITAGE	No impact (0)	Moderate (2)
LANDSCAPE AND ITS CHARACTER	Moderate to strong (2–3)	Moderate (2)
NATURE (cumulative impact)	Moderate (2)	Weak (1)

The table includes the gathered assessments of impact for individual treated segments during operation:

	during operation	
Segment	**Assessment without mitigation measures**	**Assessment with mitigation measures**
AIR	Moderate (2)	Moderate (1)
SURFACE WATERS	No impact (0)	No impact (0)
GROUNDWATER	No impact (0)	No impact (0)
SOIL	Moderate (2)	Weak (2)
NOISE POLLUTION	Moderate to very strong (1-4)	Moderate to strong (2–3)
VIBRATION POLLUTION	Weak (1)	Weak (1)
CULTURAL HERITAGE	No impact (0)	No impact (0)
LANDSCAPE AND ITS CHARACTER	Weak (1)	Weak (1)
NATURE (cumulative impact)	Moderate (2)	Weak (1)

The development – implementation of level crossings at the Pragersko–Hodoš railway line section is acceptable if mitigation measures are taken into account.