

## Environmental Summary

The “Reconstruction of Přerov Crossing Station, 1<sup>st</sup> Construction“ is a linear construction work. The importance of the Přerov junction station within the network of the railway corridors is based mostly on its location. Přerov is an important crossing station of the Transit Railway Corridor II going through Břeclav – Přerov – Bohumín – Petrovice u Karviné, and is also crossed by the Transit Railway Corridor III that runs along the route of the Transit Railway Corridor II in the route segments Přerov – Česká Třebová. The Přerov junction is also entered by the railway line Brno - Přerov.

### ZONING AND PLANNING DECISION:

The whole construction work will be implemented within the region of Olomoucký Kraj at the cadastral areas of Horní Moštěnice, Lověšice u Přerova and Přerov. According to the Planning Study, the construction is classified as a publicly beneficial construction.

Zoning and planning decision for “Reconstruction of Přerov Railway Station“ was by the Municipal Authority in Přerov, Building Control Department, file no. 2005/8720/SÚ/KI, on the 21<sup>st</sup> September 2006.

### BUILDING PERMIT

The next stage is the building permit that is issued following the approved Planning Study, which was compiled in 01/2009. It unambiguously specifies both the technical solution and the observance of the environment protection requirements (monitoring, protective measures, etc.). The effective Building Permit was issued by the Rail Authority in January 2010.

### SUBJECT MATTER AND SCOPE OF THE CONSTRUCTION:

The reconstruction of the Přerov Railway Station within the 1<sup>st</sup> Construction consists of a double-track through-flow through the railway junction of Přerov including a solution of the passenger station periphery. After the reconstruction, the free-running speed in the front station section will be 160 km/h, the free-running speed in the passenger station outside the platform edges will be 80 km/h. The track superstructure will be reconstructed and the railway bed will be rehabilitated including new drainage. The bridge objects will be also reconstructed. The through-flow corridor tracks are led outside the platform edges between the existing first and second platform that will be removed and planned in a new position so that four running racks will be laid between the new second platform and the existing first platform. This new solution will also change the position of the existing platforms no. 3 and no. 4. The barrier-free grade-separated access of passengers to the platforms will be provided by a new – south subway equipped with elevators and renovated existing subway. The existing shelters of the platforms will be restored and mounted on the new platforms.

The heavy-current distribution networks will be reconstructed as well as the station lightning and traction mains. The newly established electronic safety system of level 3 will be controlled from one control point. The construction will include preparation works for implementation of ERTMS/ETCS in accordance with the national plan of ERTMS implementation. The installed safety system will enable extension of the equipment by implementation of the unified European railway safety system ERTMS/ETCS. New local cabling, communication equipment including the information system and dispatching control

system will be installed. The noise protection equipment will be installed to protect the residential development against the noise caused by the railway operation.

The 1<sup>st</sup> Construction begins at km 178.480 of the railway line Otrokovice – Přerov, goes through the from station area and passenger station up to the end of the construction being the interface between the 1<sup>st</sup> and 2<sup>nd</sup> constructions, i.e. up to km 185.615 of the railway line Přerov – Prosenice and at km 184.611 of the railway line Přerov - Dluhonice.

### Construction Concept:

#### Current State:

The Přerov Railway Station has important functions in both passenger and freight railway transport. At present, there are 170 tracks of various kinds in the station of a total construction length of about 70 km. All running tracks and a part of service tracks are electrified. The Přerov Railway Station daily “processes“ about 300 passenger and freight trains within 24 hours.

The free-running speed in the front station section is 100km/h, in the area of the passenger station it is 40-60 km/h and in track sections in question it is 110 km/h (Přerov – Prosenice) or 100 km/h (Přerov – Dluhonice). The technical condition of the track superstructure is at the end of its lifetime period. In the Přerov Railway Station, the minimum value for the centre-to-centre rail distance in the station (4.75m) is not ensured. Due to the unfavourable direction conditions, the trains can pass through the passenger station only at a speed of 40 km/h, which includes the approach speed to the platform edges.

The Přerov Railway Station is equipped with three island platforms and one level crossing platform near the passenger building. There are ten bridge objects in the area: 6 bridges, 3 culverts and 1 passenger foot-bridge. Passenger railway station is equipped with the station interlocking system of level 2, the station front area is equipped with the safety system of level 1 and 2. The adjacent track sections are equipped with the safety system of level 3.

The operational parameters of the station – speed, throughput capacity, train load standard, safety system an operation control system – do not comply with the current standards achieved by modernization of the corridor tracks entering the junction. Similarly, a part of other equipments and objects of the station that are used for railway traffic do not meet the common standards in operation and safety of transport as well as the comfort of the passengers and working conditions of employees.

#### Designed State:

The subject-matter of the Plan is the reconstruction of the railway yard of the Přerov Station (double-track through-flow through the railway junction of Přerov including a solution of the passenger station periphery). After the reconstruction, the free-running speed in the front station section will be 160 km/h, the free-running speed in the passenger station outside the platform edges will be 80 km/h.

The track superstructure will be reconstructed in total length of 24.571m including 100 rail switches. Following the results of geotechnical research, the substruction of the track will be rehabilitated including the new drainage. The existing 4 bridges objects, the platform subway and 2 culverts will be reconstructed; newly established objects will include a new platform subway, 6 signal bridges and brackets. The through-flow corridor tracks are led outside the platform edges between the existing first and second platforms that will be removed and planned in a new position so that four running racks will be laid between the new second platform and the existing first platform. This new solution will also change the position of the existing platforms no. 3 and no. 4. The barrier-free grade-separated access of

passengers to the platforms will be provided by a new – south platform subway equipped with elevators and renovated existing subway. The existing shelters of the platforms will be restored and mounted on the new platforms.

The heavy-current distribution networks will be reconstructed as well as the station lightning and traction mains. The newly established electronic safety system of level 3 will be controlled from one control point. The construction will include preparation works for implementation of ERTMS/ETCS in accordance with the national plan of ERTMS implementation. The installed safety system will enable extension of the equipment by implementation of the unified European railway safety system ERTMS/ETCS. New local cabling, communication equipment including the information system and dispatching control system will be installed. A new cable duct of a total length of 4907 m will be built. An anti-noise barrier of a total length of 1030.8 m will be erected and noise-protection equipment installed in 13 residential buildings to protect population against the noise caused by the railway operation.

## Description of the Concerned Area

Morphologically, the concerned area belongs to the Upper-Moravia Valley region.

### LOCATION

According to DEMEK and coll. (1987), the concerned territory belongs to the province of West Carpathian, system of Outer Carpathian Depression, subsystem of West Outer Carpathian Depression and lies at the border of the Moravian Gate (subarea Bečva Gate) and Upper Moravia Valley (subarea Central Moravian Plain).

Bečva Gate forms a south-west part of the Moravian Gate. It is a flat hilly ground with mean land level of 270 m above the sea level and mean gradient of 2°44' on the sediments of Baden and Pleistocene. It consists of a substantial tectonic fault-block valley with clear-cut slopes in the north-east part and with flat periglacial relief atilt mostly to the south and south-west with a broad alluvial plain of the Bečva River (DEMEK et Col., 1987).

The Central Moravia Plain is located in the middle of the Upper Moravia Valley along the Morava river and the lower part of the Bečva River. This accumulation plain has an area of about 415 km<sup>2</sup>, mean land level 206.1 above the sea level and mean gradient of 0°22'.

### ROCKS AND RELIEF

Geologically, the outer environment of the concerned area is formed of rocks of Tertiary and Quaternary periods. The deep lower beds are made of deep-sea calcareous clay and sands of lower torton (Miocene, Neogene, Tertiary) – marked as “pNt1” in the geological map. They are mostly greengrey, yellowgreen and bluish greengrey calcareous clays often brindled or with rust-coloured marbling, fine-grained micaceous and slightly fine-grained sandy in patches. They often contain interstratified beds of fine-grained calcareous or seldom coarsely micaceous silica sand, grey, yellowgrey and greenish gray. Thin layers of fine-grained sand occur in bedding planes. Clays are solid at hanging wall roofs, at lower places they are tough or hard.

Miocene sediments are covered with fluvial sediments of the Bečva River (Quaternary period). The upper part of the strata series, there are fine-grained clay-sandy soils that gradually pass into sandy soils and at the lower parts of the strata series they pass into gravelly soils. The maximum thickness of this strata series is about 10 m.

Hydrogeologically, the circulation of the underground water in the pre-quaternary lower beds is connected with the Pliocene sediments of the Upper Moravia Valley (gravels and sands) with interstitial permeability. The most important collectors of Quaternary water are sandy and gravel beds in fluvial sediments of the Bečva River.

In terms of hydrogeological classification, the examined area is a part of the hydrogeological region 162 - Plio-pleistocene sediments of the Upper-Moravia Valley (Michlíček et al. 1990).

Regarding water supplies, 162 - the Plio-pleistocene sediments of the Upper-Moravia Valley is a very important hydrogeological region. The water collectors are lower depressions of Pliocene gravels and lower fluvial terraces. The hanging wall roof insulators are flood loams. The collector permeability  $k = 10\text{-}5 \text{ m.s-1}$ .

Within the section between km 179.880 and km 184.277 of the Přerov - Olomouc railway line, the railway trackbed constitutes a border of the protected area of natural accumulation of water (CHOPAV) Morava River Quaternary.

Within the section between km 179.880 and km 81.600, the trackbed constitutes a border of the protective zone (of level 2) of natural mineral waters Horní Moštěnice. Within the section between km 181.000 and km 84.277 of the Přerov - Olomouc railway line, the trackbed constitutes a border of the registered inundation area that lies to the left from the track.

### CLIMATE

According to the Map of the Climatic Zones in Czechoslovakia (Quitt 1971), the locality in question lies in the T2 warm zone. The T2 warm zone may be characterized as an area with a long, warm and summer. The transition periods are very short with warm or mild warm spring and autumn. Winter is short, mild warm, dry or even very dry, with a very short period of snow cover. More detailed characteristics of the T2 warm zone are in the following table. According to the data from the Czech Hydrometeorological Institute from the period 1961 – 1990 (www.chmi.cz) the area is located in a zone with average annual temperature of 8.1 – 9 °C and the average annual precipitation amount is 601 – 700 mm. The average annual temperature in Přerov is 8.6 °C, the warmest month is July with the average 18.0 °C and the coldest is January with the average -2,4 °C (Šafář et al. 2003).

### SOILS

According to Šafář et al. (2003), two soil types appear within the concerned area: fluvial gley and loess sierozem.

Following the characteristics of soils around the railway line based on the system of land valuation ecological units (BPEJ), the area is located in warm, mildly humid region, with predominant fluvial gley on alluvial sediments. Other types of fluvial soil or modal sierozem including slightly gleyed sierozem and luvic sierozem on loess are less frequent, other land units occur within the area only in small patches.

The soil is deep (over 60 cm), or – exceptionally – medium deep (30 – 60cm), mostly rockless or with total volume of rocks up to 10 %. The content of rocks is expressed by the  $j_e$  total volume of gravel (solid rock particles of 4 to 30 mm) and stones (solid particles larger than 30 mm).

The area around the railway line is mostly flat land or plain with gradient up to 30, a small part of the area has slight gradient (3 – 70). The aspect ratio is confining.

### HYDROLOGICAL SITUATION

The concerned area belongs to the Bečva and Morava river basins and the Black Sea drainage area. It lies in the following hydrological orders: 4-11-02-070 and 4-12-02-099. The most important water course in this area is the Bečva River, flowing through the area of the plan. Bečva is formed by the confluence of Vsetínská Bečva and Rožnovská the Bečva Rivers near Valašské Meziříčí 288 m above the sea level, being a left tributary of Morava River flowing into it near Troubky in the Upper Moravia Valley. the Bečva River flows through the concerned area in the northeast – southwest direction. Pursuant to the Decree of the Czech Department of Agriculture no. 470/2001 Coll. as amended, the Bečva River is an important water course.

In the neighbourhood of the concerned area, there are several smaller tributaries of the Bečva River. The most important of them is Strhanec that flows through Lýsky, Žebračka forest and northern part of Přerov. At the beginning of its flow, the river bed is relatively well-preserved considering the natural viewpoints and therefore it is a part of the Site of European Importance Bečva – Žebračka.

The southern part of the area in question is intersected by Svodnice river that flows into Malá the Bečva River (which flows into Moštěnka and Moštěnka flows into Morava river near Kroměříž).

Considering the hydrological conditions, it is important to mention also the occurrence of mineral water resources in Horní Moštěnice (south-east neighbourhood of the town), the protection of which must be observed during the construction works (refer to B.II.1 for more detail information).

### INUNDATION AREAS

A substantial part of the area along the Bečva River with the exception of the majority of the city of Přerov was declared the inundation area (decision of the District People Committee in Přerov on the 22nd June 1989 on the delineation of inundation areas).

From the south-west the inundation area reaches the neighbourhoods of Přerov (smaller part of Přerov I – město and Přerov III – Lověšice); the inundation area is from the north, east and south delineated by the railway lines Olomouc – Přerov (line no. 270) and Přerov – Kojetín (no. 300). The sections Přerov Railway Station, Přerov – Dluhonice, exchange station Dluhonice and Dluhonice – Rokytice the railway line establishes the border of the inundation area that spreads to the left in the direction of stationing. Similarly, the concerned part of the line Přerov – Brno establishes a border with the inundation area to the north-west and to the north from the railway line.

The inundation area then continues to the north-east from the centre of Přerov along the Bečva River reaching with its narrow strip the areas near the Michalov park. This part of the inundation area does not reach the railway line. However it is important to emphasize that during the extreme floods in 1997, the whole area of Přerov with exceptions of some elevated places was flooded (information from the City Authority of Přerov, department of agriculture).

### FLORA

Character of the existing vegetation in the area in question is significantly influenced by the fact that the concerned section of the railway line goes through the urban area of Přerov, where it includes large areas of station yard and shunting yard, or its suburban areas. The

railway line passes mostly through developed areas and it leaves them only in a short part in direction to Horní Moštěnice.

This fact is decisive for the nature of vegetation: continuous forest stand is very rare, most often we can find sporadically occurred woody plants or groups of woody plants. In the developed areas, gardens and groups of allotments with common fruit trees and decorative plants represent another type of important vegetative elements.

Within the existing range of species, the most frequent wood plants are those that naturally occur in this territory. Most frequent species include willow trees and osiers (*Salix* sp.), poplar (*Populus* sp., possibly black poplar but more likely the non-indigenous hybrid poplars and mutual cross-breeds), European ash (*Fraxinus excelsior*), common maple (*Acer campestre*), sowthistle (*Acer platanoides*), black alder (*Alnus glutinosa*), mazzard cherry (*Cerasus avium*), bird cherry (*Padus avium*), birch tree (*Betula pendula*), frequent species are European walnut (*Juglans regia*) and apple tree (*Malus domestica*). The shrubs include black elder (*Sambucus nigra*), privet (*Ligustrum vulgare*), spindle tree (*Euonymus europaea*), bloody dogwood (*Swida sanguinea*), dog rose (*Rosa canina*), prune tree (*Prunus* sp.), hawthorn (*Crataegus monogyna*), filbert (*Corylus avellana*). There is a relatively frequent occurrence of non-indigenous wood plants that appear in the landscape as invasive species and often spread along the railway lines. In this case, it is very frequent acer negundo (*Negundo aceroides*), or less frequent false acacia (*Robinia pseudoacacia*). Both these species were formerly planted as decorative and not demanding wood species both in towns and in countryside. They rapidly spread using the railway embankments and their surroundings. Both these species have a wide ecological valence and we rank them among so called invasive species.

Within our filed research, we met with another hardly invasive species: Japanese knotweed (*Reynoutria japonica*). The knotweed is a perennial herb that forms over-dense stands from which practically all other plants are displaced. It spreads mostly along the water courses but it also colonizes any disturbed, ruderalized stands in towns and their surroundings. At present, the authorities dealing with the nature protection prepare programmes leading to gradual elimination of knotweed in the Czech Republic. The modernization of the railway lines brings higher risk of its further development especially due to transfers of large volumes of earth, disturbance of soil surface and travels of heavy vehicles. In the course of the construction works, we suppose to liquidate the knotweed along the railway line and on earth-deposits using suitable herbicide (e.g. RoundUp).

Another non-indigenous species which is not much common, but relatively frequent along the railway line in Přerov, is silkweed (*Asclepias syriaca* L.). This species was formerly experimentally planted for its fibre or oil from seeds, but at present it spreads as a weed especially in warmer areas at railway and road embankments. In the concerned area, this species was noticed in the section along the line between bridge over the Bečva River and the Malý Strhanec water course. It is a potentially invasive species, but as for the Plan no special arrangements are necessary.

### FAUNA

The field research of the area was focused on the general evaluation of the territory and detection of the range of species. High attention was paid to the research of birds' biodiversity, as the birds represent easily found and evaluated group of animals. Some other groups were evaluated following the literature resources that were supplemented with data found during in-field observations. The research data were updated in summer 2008.

The only particularly protected species that was found at the concerned area and whose biotope will be partially affected by the Plan is sand lizard (*Lacerta agilis*) – in the category “heavily endangered species” that inhabits forestless sunny biotopes and often colonizes the biotopes of the railway lines. Sand lizard was found at the railway embankment between Horní Moštěnice and Přerov – near Lovčšice. The offer of suitable biotopes in the surroundings is sufficiently large and therefore the (spatially narrow) reconstruction of the track will not bring any remarkable endangering to the local population.

#### **PARTICULARLY PROTECTED AREAS NATURAL PARKS, NATURA 2000**

Pursuant to the Act no. 114/1992 Coll., on the nature and landscape protection as amended, we can informally divide the particularly protected areas to “large-area” and “small-area”. The group of large-area protected areas will include National Parks and Protected Landscape Areas. The “small-area” protected areas include National Nature Reserve, National Conservation Areas, Nature Reserves and Natural Monuments.

There is no large-area particularly protected area within the area along the railway line or in its surroundings. The construction works will not affect any small-area particularly protected area. The nearest National Nature Reserve Žebračka is in a sufficient distance from the construction site (1.8 km to the northeast).

Similarly, the Site of European Importance “Bečva – Žebračka” would not be affected with the reconstruction of the railway. This site is located near the Bečva River between Hranice and Přerov, Strhanec water-gang between Osek nad Bečvou and Přerov and Žebračka plot of woods. The nearest point of this Site of European Importance is at the confluence of the Bečva River and Strhanec in the centre of Přerov. This place is about 1 km away from the construction site.

#### **Natura 2000**

Natura 2000 is a network of protected areas established within the territories of all EU member states in accordance with unified principles. To establish the Natura 2000 network is imposed by two most important EU legal regulations concerning nature protection: 92/43/EEC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (“Habitats Directive”) and 79/409/EEC Directive on the Conservation of Wild Birds (“Birds Directive”). Both Directives in its schedules enumerate the species of plants and animals and types of natural habitats for which the Natura 2000 sites should be established. The requirements of both Directives were incorporated into the Czech Nature and Landscape Protection Act no. 114/1992 Coll., as amended.

The “Reconstruction of Přerov Crossing Station, 1<sup>st</sup> Construction” does not interfere with any locality of Natura 2000. The nearest Site of European Importance is Bečva – Žebračka (CZ0714082). The confluence of the Bečva River and Strhanec is the point where this Site of European Importance is in the shortest distance from the concerned Plan. However, this distance is about 1 km and the construction will not have any impacts on this locality. This Site of European Importance includes the territory of Žebračka National Nature Reservation.

## **Impacts on the Environment**

### **IMPACTS ON THE ENVIRONMENT DURING THE CONSTRUCTION WORKS**

#### **IMPACTS ON THE PROTECTED AREAS**

There is no large-area particularly protected area within the area along the railway line or in its surroundings. The construction works will not affect any small-area particularly protected area. The nearest National Nature Reserve Žebračka is in a sufficient distance from the construction site (1.8 km to the northeast).

Similarly, the Site of European Importance “Bečva – Žebračka” would not be affected with the reconstruction of the railway. This site is located near the Bečva River between Hranice and Přerov, Strhanec water-gang between Osek nad Bečvou and Přerov and Žebračka plot of woods. The nearest point of this Site of European Importance is at the confluence of the Bečva River and Strhanec in the centre of Přerov. This place is about 1 km away from the construction site.

#### **IMPACTS ON SIGNIFICANT LANDSCAPE ELEMENTS**

The term significant landscape element is stated in the Nature and Landscape Protection Act no. 114/1992 Coll. In this Act, it is defined as ecologically, geomorphologically or aesthetically valuable part of landscape that forms its typical appearance or helps to sustain its stability. Significant landscape elements are enumeratively defined by the law – forests, moorlands, water courses, lakes, ponds and alluvial plains; or other landscape segments that are in accordance with the law registered with the competent state administrative authority.

The significant landscape elements are protected against damage or destruction. They are used only in that way so that their renewal is not violated or their stabilization function is not endangered or diminished.

To be allowed to perform activities that could lead to damage or destruction of a significant landscape element or endangerment or attenuation of its ecological-stabilization function, the person who aims to carry out such activities must obtain a binding opinion from the environment protection authority. Such activities especially include allocation of construction works, territory development, modifications of cultures of the territory, drainage of territories, adjustments of water courses and reservoirs and mining of minerals.

Around the railway line, there are 3 types of important landscape elements. The first are water courses. The most important water course is the Bečva River, other important water courses are Strhanec (including the by-channel) and Svodnice (more river arms).

The other type of important landscape elements are the alluvial plains of the above-mentioned water courses. The large part of these plains is adjusted and developed. The term “alluvial plain” has been defined for the purposes of the environment protection by the legislative division of the Czech Department of Environment and issued in the official gazette 8/2007 as follows: flat land area adjacent to a stream, composed of unconsolidated sedimentary deposits (alluvium) and subject to periodic inundation by the stream. Floodplains are made of gravel, sandy, soil or clay alluvium sediments the deposit relations of which show irregularities caused by the water course branching, creation of islands, meanders, alluvial cones and deltaic deposits, debris, landslides etc. The adjustments of terrain, housing development or other technical interferences make the area to lose its natural character and

they are then not evaluated as alluvial plain (although their physical and hydrological characteristics is kept) in the sense of provisions of §3 letter b) of the Act no. 114/92 Coll.

The third type of important landscape elements is forest. As for the environment protection, there are significant fragments of meadow forests on earth-filled artificially separated meanders of the Bečva River to the south west from Přerov and the forest plot Žebračka on the northeast. These forest ecosystems are in sufficient distance from the construction site.

Ponds are also in large distance from the construction site and will not be affected.

During the reconstruction of the railway line, it is possible to expect impacts on some water courses at the points of their crossing or touching with the railway line. The negative impact, that should be limited only to the period of construction works, will consist of higher noise, emissions or light pollution in the course of the construction works.

According to the information from the City Council in Přerov, there are no registered important landscape elements in the concerned area.

#### **IMPACTS ON THE TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY**

Territorial system of ecological stability is defined by the Nature and Landscape Protection Act no. 114/1992 Coll. It can be characterized as mutually interconnected complex of ecosystems, both natural and adjusted, but close to the nature. Territorial system of ecological stability enables maintenance and reproduction of natural wealth, has positive effects on the surrounding, less stable parts of the landscape and so that establishes the basis for its versatile using.

There are three levels of territorial system of ecological stability:

- local
- regional
- supraregional

The elements of the territorial system of ecological stability of the supraregional level are v concerned area represented by the supraregional biocorridor of the Bečva River (NRBK 2/45), which crosses the railway line in Přerov at km 183.97.

The category of regional elements of the territorial system of ecological stability includes the Žebračka plot (with a statute of National Natural Reserve) which is in a sufficient distance from the construction site.

In addition, the reconstructed railway line touches or crosses a number of local elements of the territorial system of ecological stability and interactive elements (see the list of interactions with elements of the territorial system of ecological stability in the following table).

**Tab. 1: Interactions between railway line and territorial system of ecological stability v concerned area (the elements of the territorial system of ecological stability are classified pursuant to ÚPN Přerov and Horní Moštěnice).**

Railway Line Section	Element of the territorial system of ecological stability	Current State	Description
180.100 – 180.250	LBC 3/54 Noviny	partially functional	400–550 m to the west from the railway line; gallery forest along Svodnice and adjacent arable land
180.050 – 182.100	LBK 6/45 - 54	suggested	parallel with the railway line, to the west from the line in the direction 150 – 500 m; the water course of Svodnice with grassy banks and irregular flora, country road
180.310	IP 8/54	suggested	road fringed with shrubs approaching the line from the west
180.800 - 181.300	IP 6/54	suggested	north-west embankment of the track bed branch line to Kojetín
181.660 – 182.200	IP 2/45 - 54	partially functional	crossing the line and passing along the line 100 m to the east; Svodnice water course
181.650 – 182.150	IP 11/45 - 54	suggested	along the line in about 150 – 300 m to the west; country road
182.150 – 182.300	LBC 6/45 Markrabina	partially functional	about 150 m to the west from the station front area, leafy forest gallery and arable land
183.970	NBK 2/45	suggested	crossing with the line; the Bečva River and its banks in the city and adjacent industrial zone

During the reconstruction works on the railway line it is possible to expect impact on some elements of the territorial system of ecological stability in points where they cross or touch the railway line. The negative impact that would be limited only to the period of the reconstruction will consist of higher noise, emissions or light pollution in the course of the construction works.

#### **OTHER COMPONENTS OF THE ENVIRONMENT**

##### **IMPACTS ON ATMOSPHERE AND CLIMATE**

In the period of the construction works, there will be short-term changes of the atmosphere quality especially along the access communications and around the construction site facilities. In this period, it is possible to expect a short-term increase of freight traffic that will result in increasing motor transport emissions and temporary change in immission situation along the communications. Similarly, it is possible to presume an increase of dustiness especially around the exits points of the construction site and at the surface of the construction site facilities. Also the surfaces of the construction sites equipment and the construction itself will be a source of airborne dust. However, this impact will be limited in

time and all processes connected with the impairment of the atmosphere quality will be fully reversible.

In this chapter we have to warn about the persistent malpractice of burning waste by some construction companies. Although it is forbidden by the law to burn the waste at the construction site (Air Protection Act) it often happens that the municipal type of waste (including PET bottles) wood is often burnt. It is necessary for the Contractor to observe with the effective waste legislation consistently.

Within the period of operation, no new small, medium or large source of air-pollution will be installed. Considering the fact that the assessed railway line is already fully electrified, we do not suppose any negative impacts on the air after putting the construction in operation.

#### **IMPACTS ON MINERALS AND GEOLOGICAL ENVIRONMENT**

In the outer environment of the concerned territory, there are some defined extracted areas, working districts and deposits of exclusive status. We do not suppose any impacts of the construction works or of the operation of the construction on defined extracted areas, working districts or deposits of exclusive status.

#### **IMPACTS ON HYDROLOGICAL CHARACTERISTICS, QUANTITY OF WATER AND WATER COURSES**

During the construction works, the Bečva River will be affected because of the reconstruction of the bridge that carries the railway line over the water course. This impact will be only temporal and will be minimized if all construction-work regulations and preventive environmental measures are observed.

Considering the hydrological conditions of the area, it is important to mention also the occurrence of mineral water resources in Horní Moštěnice (south-east neighbourhood of the town), the protection of which must be observed during the construction works. The section of the concerned construction at km 179.880 through to km 182,5 interferes into the II.B protective zone of natural mineral waters Horní Moštěnice. From km 182,5 to km 184,0, the border of the II.B protective zone of natural mineral waters Horní Moštěnice approaches on the left from the railway line in the direction Přerov – Olomouc. During the construction works, it is necessary to eliminate any possible leakage of pollutants (e.g. dripping of oil from construction machinery) and prevent contamination of underground waters by these pollutants. Pursuant to §23 of the Spa Act no. 164/2001 Coll., it is prohibited in the protective zone of level II to carry out any activities that may have negative impact on chemical, physical and microbiological qualities of water sources and its unexceptionable nature as or on the water yield. In addition, the provisions of § 37 of the Act no. 164/2001 Coll. will be observed.

For linear construction works in the protective zone of natural mineral waters and within the area of spa resort, the agreement of the Czech Department Health is necessary, to issue the planning decision on the construction work location, planning decision on land use, planning and building permission, subsequent agreement of building application or decision on removal of a building for construction works inside the outer area of the spa resort or in the protective zone of level II, if they reach more than 1,5 meters under the level of the relief.

This agreement is not required for construction works that do not affect the outer ground plan or the vertical size of the building. In the protective zones, unless otherwise provided by the law as explained hereunder, the agreement from the Department is necessary for any geological works connected with the interference into the concerned territory.

#### **INUNDATION AREA**

A substantial part of the area along the Bečva River with the exception of the majority of the city of Přerov was declared the inundation area (decision of the District People Committee in Přerov on the 22nd June 1989 on the delineation of inundation areas).

From the south-west the inundation area reaches the neighbourhoods of Přerov (smaller part of Přerov I – město and Přerov III – Lověšice); the inundation area is from the north, east and south delineated by the railway lines Olomouc – Přerov (line no. 270) and Přerov – Kojetín (no. 300). The sections Přerov Railway Station, Přerov – Dluhonice, exchange station Dluhonice and Dluhonice – Rokytice the railway line establishes the border of the inundation area that spreads to the left in the direction of stationing. Similarly, the concerned part of the line Přerov – Brno establishes a border with the inundation area to the north-west and to the west from the line.

The inundation area then continues to the north-west from the centre of Přerov along the Bečva River reaching with its narrow strip the areas near the Michalov park. This part of the inundation area does not reach the railway line.

However it is important to emphasize that during the extreme floods in 1997, the whole area of Přerov with exceptions of some elevated places was flooded (information from the City Authority of Přerov, department of agriculture).

For the purposes of the construction works, the areas for storing of the construction equipment. To eliminate any accidents, it is necessary to observe all measures stated in Article D.III. For further details, please refer to Article F.6 Emergency and Flood Control Plan.

#### **IMPACTS ON HYDROLOGICAL CHARACTERISTICS AND QUANTITY OF WATER**

As far as possible drawing of underground water is concerned (e.g. for the purpose water lowering in foundation pits) it is necessary to observe provisions of § 8, subsection 1, letter b) number 3 of the Water Act no. 254/2001 Coll. as amended, and obtain permission to dispose of underground water.

#### **IMPACT ON THE WATER QUALITY**

Considering the fact that the concerned Plan is in contact with the protected area of natural accumulation of water Morava River Quaternary, with protective zone of natural mineral waters Horní Moštěnice, it is necessary to take this into account during the course of the construction and construction works are carried out so that any possible leakage of pollutants is excluded (e.g. dripping of oil from building machinery) and the underground water is not contaminated by these materials.

As for water protection during the reconstruction of Přerov railway junction, the following measures shall be observed:

- *the construction site will be established on hard surface;*
- *Employer will prepare the Emergency and Flood Control Plan for possible leakage of petroleum derivatives that will be approved by competent water protection authority;*
- *any protection measures against possible pollution of surface or underground water by transport or mining operations will be consistently observed (e.g. drip trays under parked machines);*
- *fuelling and maintenance of trucks and lorries will be carried out only in specified areas that will be protected against leakage of fuel into surface or underground water;*
- *in case of leakage of oil, the measures and procedures stated in the Emergency Plan will be observed (protection against further spread of oil, decontamination of affected area, storing of collected oil in suitable containers);*
- *the stock of fuel stored at the construction site cannot extend the amount for one-day consumption;*
- *when refilling fuel or carrying out repairs or maintenance the parked building machines will be equipped with drip trays (of metal sheet) against drippings;*
- *sufficient amount of decontamination materials will be prepared to counter the consequences of an accident;*
- *during the construction works, the construction site will be drained off so that any sewage water drained to sewer system are not unduly polluted with insoluble materials and the sewer system is not clogged;*
- *any parts of the construction site will be after termination of construction works restore to former condition (or to a condition agreed by the construction supervisor and the Employer);*
- *in case of drawing underground water, it is necessary to obtain permission from relevant water protection authority (including drawing of underground water from foundation pits).*

### IMPACTS ON SOIL

During the construction works, there will be often temporary appropriations of land belonging to the agricultural land resource, because of laying of the cable track and for establishment of the construction site and access communication leading to this site.

Permanent appropriations of land belonging to the agricultural land resource will be minimal. Permanent appropriations will be necessary for reconstruction of the bridge at Mádřův podjezd and for some realignment of underground services.

The soil at other lots affected with the construction will be exposed to a number of adverse impacts, as erosion of soil structure due to the movement of heavy building machinery, temporary change of the surface run-off conditions, ruderalization and increased risk of contamination as a consequence of accident.

The change of outlet conditions is often caused by unsuitable location of waste land disposal areas or stockpiles that prevent water to outlet. Due to soil compaction in the area of access communications or around the construction sites, the land is often wetted and water even stays at the surface. The land surface is also degraded by traffic of trucks and other construction machinery.

In case of insufficient hardening of the access communications, their surface is rapidly damaged, the ruts left by trucks are too deep and the roads become impassable even for trucks during wet year periods (spring or autumn after heavy rains). Then new parallel roads are

drawn outside the area of the construction site, which has negative effects of agricultural products and accessibility of some areas by their users.

The construction site and its surroundings will suffer from ruderalization: when the existing vegetation is removed the land surface is rapidly colonized with weed. Ruderalization also affects the waste land disposal areas. These areas then function as source locations for further spread of weed species to adjacent areas.

Some loss or damage of land may also be caused by a fail to carry out surface stripping of the cultural-land layer especially in case of permanent appropriation of land.

The accidents also have negative impact on the land. The accidents at construction works can involve leakage of fuel or petroleum products used in building machines. If such accident occurs, it is necessary to decontaminate the affected area and proceed in conformity with the Construction Emergency Plan. During the construction works, the surface and soil are often polluted by debris and remains of building materials. Typical example is washing of transit-mixer vehicles with water that is then spilt on the land at the construction site. This practice is still very frequent although it is at variance with principles of soil protection as well water pollution control. It will be necessary for the Contractor to enforce duly observance of technological construction procedures as well as measures of protection of all elements of environment.

### IMPACTS ON FLORA AND FAUNA

#### Impact on Current Vegetation

During the in-field research, the current state of vegetation in the affected area was assessed. As the construction work is limited to optimization of the existing railway line, the impact on flora would not be as substantial as in new constructions. However, the reconstruction constitute interferences into the existing state – along the railway line and on the embankment itself, there are various kinds of biotopes (from plant communities to arboreous stands) either indigenous or gradually developed.

The activities caused by the modernization of the railway line regarding their impact on vegetation have mostly direct impacts connected with the period of construction. Such direct impacts include especially removal of vegetation occurring on the railway embankment and its nearest surroundings as well as on surface used for construction site equipment, recycling bases etc. These impacts include liquidation of self-seeded tree species on the embankment of the rail bed, near construction objects and in their surrounding and on the surface of construction sites. These areas will most probably suffer from violation of total elimination of the continuous vegetation cover.

Following the detail in-field research, we can state that we do not expect any substantially negative impacts on the existing plant communities due to the modernization of the railway line. This is caused mostly by the existing condition in the area in question. A large part of the modernized line is situated directly in the developed area of the city, where any natural elements occur only sporadically. Similarly in the open countryside, the natural vegetation is substantially reduced due intensive use of the area and the self-seeded woody plants are regularly removed from the nearest surroundings of the line to secure safety railway operation. The urgency to cut trees is therefore substantially minimized.

Substantial impact could be caused by the construction site equipments and access communications planned along the railway line. To minimize this negative impacts of the construction works as much as possible, we recommend to restrict cutting of trees only to well-founded cases and sensitively plan the access communications and locations of the construction site equipments not to needlessly degrade any natural biotopes. Valuable,

especially solitary, trees would be preserved and protected against damage e.g. with sheathing boards.

Substitutive planting will be located in suggested sections of territorial system of ecological stability to support their function in highly developed area and landscape with intensive agriculture use.

In relationship with the occurrence of non-indigenous invasive species of plants, we especially recommend sowing of suitable grass-herb mixture on treated surfaces and monitoring of the occurrence of invasive species (namely knotweed and cow parsnip) along the railway line and their subsequent liquidation. This approach has been approved for other construction works of similar kind and constitutes effective prevention to further spread of these non-indigenous species through the landscape.

#### Impact on Fauna

The negative impact of the construction work that would include direct physical liquidation of animals during ground works or construction works will not be as important as in the case of the plants. It will affect only a limited number of species that are able to settle biotopes of the railway line and its nearest surroundings. Therefore it could include some groups of the invertebrates (e.g. some beetles, locusts, mollusks), as for the vertebrates, it is e.g. sand lizard. The careful planning of the construction works and minimization of the affected areas could substantially decrease the extent of this impact and affect only the animal species that occur directly on the railway line embankment of at places that will be used as construction site for equipment. These animals are mostly common species that will be able to re-settle these biotypes from the surrounding landscape.

More important negative impact than direct liquidation of some species of animals will be caused by the liquidation of the existing vegetation growth on the railway embankment and in the nearest surroundings of the railway line. In general, the loss of a biotope can cause vanishing or exodus of animals to another place. This impact will be long-term – restoration of biotopes can last tens of years. For biotopes existing at the railway line embankment and in its surroundings, we presume their re-settlement from the surroundings, but the interferences should be minimized and the loss of tree species should be compensated by substitutional planting of trees and shrubs with natural species composition corresponding with the potential vegetation of the area.

Under certain conditions, the reconstruction can have positive impact on the migration permeability of the track bed. If the constructions of renovated or newly established bridges and culverts take into account the needs of ranging species, it could renew or improve migration interconnection of individual parts of the landscape around the railway line.

The construction work will have temporary negative impact on fauna in the railway line surroundings by the increased level of noise, emissions and light pollution during the construction works. However, this will be only a short-term impact limited to the period of the reconstruction.

#### IMPACTS ON IMMOVABLE CULTURAL MONUMENTS, ARCHEOLOGICAL AND PALEONTOLOGICAL SITES

The historical heart of Přerov is a part of urban architectural reserve. The border of the protective zone of the urban architectural reserve is about 600 m away from the concerned Plan.

The passenger building is listed in the Central Register of Monuments in the Czech Republic. The original shelters and balustrades on platform no. I (a part of the passenger

building), no. II and no. III are also historically valuable. In the course of the reconstruction of the railway station these shelters will be dismantled, renovated and re-mounted on the new platforms of the Přerov Railway Station. The colour finish will, after agreement with the National Heritage Institute, preserve the original historical look of the construction. Platform no. IV will have completely new shelters that will correspond with the historical nature of other platforms.

The City of Přerov is an area of archeological focus, with archeological findings according to § 22 subsection 2 of the Act no. 20/1987 Coll. as amended. Therefore it is necessary to expect possible archeological finds in this area. If any archeological discoveries are made, it is necessary to observe the Act no. 20/1987 Coll. on the state care for monuments and the Act no. 242/1992 Coll.

Considering the above-mentioned facts, it is necessary to settle an agreement between the Employer and the Archeological Centre of Museum of Nature in Olomouc before construction are commenced to secure the archeological supervision, establish conditions for proper documentation or performance of rescue archaeological research.

Paleontological finds (pursuant to the Act no. 114/1992 Coll. on Nature and Landscape Protection) are not expected in the concerned area.

- In case of archeological find, it is necessary to report it to the competent Heritage Institute and secure the performance of rescue archaeological research.
- Before the construction works are started, it is necessary to settle a written agreement between the Employer and the organization of archeological supervision (Archeological Centre of Museum of Nature in Olomouc).
- The Archeological Centre of Museum of Nature in Olomouc shall be informed at least 10 days before the planned start of ground works about the exact date of beginning of the excavation works and possible examination of the excavation.
- If any disturbances of terrain archeological situation are found, the Employer will enable to carry out documentation or the rescue archaeological research; in addition, any accidental discoveries during the course of construction works will have to be reported.
- The costs of the rescue archaeological research as defined by the above-mentioned legal regulations shall be borne by the Employer.

#### IMPACTS ON PUBLIC HEALTH

The course of the construction will affect, to a certain extent, the inhabitants of the housing objects lying in the proximity of the construction site. The negative impacts on residents will be caused by the transport of material to the construction site and by the works at the construction site. The impacts will include particularly the negative noise effects caused by the transport and construction works as well as possible air pollution, particularly by airborne dust.

The extent of this negative impact will be limited to minimum possible level. For this purpose the project documentation includes the working schedule. Negative impacts will be also prevented by strict observance of the construction procedures so that these negative impacts are minimized.

As already mentioned in previous articles of this documentation, construction works can be and will be a source of dustiness, which may be assessed as a kind of negative impact on the population. In the course of the construction works, we can expect a short-term increase of emissions from freight transportation and also a temporal change of immission situation along the access communications.

### Health Risks

The health condition of the population will be influenced mostly during the course of the reconstruction of the rail yard, both by noise load and airborne pollutants caused by the transport or by stationary resources. This impact will be important, but it will last only during the period of the construction.

If all existing legislative standards and recommendations stated in this document are observed, the impact on the health conditions of the population caused by the concerned Plan will be minimized. As soon as the construction works finish, the health impacts will be minimum and the noise load conditions will improve in selected localities.

### Social and Economic Impacts

The performance of the construction work will not have any negative impacts regarding social or economic conditions. On the contrary, the resulting state will substantially improve the travelling standards of passengers. The aesthetic quality of the concerned area will increase and the suggested modifications will also significantly improve the safety of transport. The most important factors of contentment will be affected only in a limited period of the construction works due to travelling of vehicles to the construction site and by the construction works themselves.

### Number of Inhabitants Affected by the Construction Work Impacts

It is not possible to specify the number of inhabitants affected by the construction work impacts. If we take in consideration only people living in the proximity of the construction work, the data available to us indicate that the estimated number of affected inhabitants is about 500.

Provided all existing legal regulations and above-mentioned recommendations are observed, it is possible to minimize the impacts of the construction work and the operation on the population. Some of these precautions are stated in the chapter dealing with air impacts.

- *The Contractor is responsible for proper maintenance and serviceability of all access communications leading to the construction site for the whole period of construction works.*
- *The ground works will be carried out in stages always to the minimum necessary extent. if necessary, the contractor will eliminate secondary dustiness by regular dust spraying of the construction site, waste soil disposal area and access communications.*
- *Any machines emitting noise (e.g. air compressors) used in the course of the construction works in a proximity of developed area, will be screened with mobile sound-baffles.*
- *Any deliveries of construction materials or technologies to the construction site located near the developed areas will be, if possible, carried out on week days during common working hours.*
- *No temporal waste soil disposal areas will be established in proximity of developed areas.*
- *The plan of the construction site access communications used during the period of construction works will be agreed by the Municipal Council in Přerov.*

### IMPACTS ON THE STRUCTURE AND UTILIZATION OF THE TERRITORY

With respect to the fact that the reconstructed railway line is stabilized in this territory since the half of the 19th century, the negative impacts on the structure and the utilization of the territory are not presumed. Neither the construction nor the operation of the railway line will establish new relationships of damage existing relationships between particular elements of the structure of the concerned territory. The only exception is the period of the construction

works, when in some sections temporal changes of the structure of the concerned territory may occur especially in connection with the construction site and new access communications to the construction site. This change is limited only to the period of the construction work. Being a reconstruction, the concerned Plan would not cause any changes in utilization of the territory.

### OTHER IMPACTS

Other impacts can involve e.g. biological impacts connected with unwanted spread of non-indigenous plant or animal species either directly at the track bed or in its close proximity. To avoid this, we recommend to observe the following preventive measures:

- No long-term waste soil disposal areas shall be established at the construction sites.
- Any short-term waste soil disposal areas shall be kept weedless and their structure will eliminate the risk of erosion.
- The occurrence of neoindigenophytes at the construction site will be monitored and any neoindigenophytes will be liquidated.
- The new plantings will be properly kept including performance of additional planting if necessary.

### **Plan Impacts on Natura 2000 Network Localities**

#### RELATION OF THE PLAN TO NATURA 2000 NETWORK LOCALITIES

Natura 2000 is a network of protected areas established within the territories of all EU member states in accordance with unified principles. To establish the Natura 2000 network is imposed by two most important EU legal regulations concerning nature protection: 92/43/EEC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora ("Habitats Directive") and 79/409/EEC Directive on the Conservation of Wild Birds ("Birds Directive"). Both Directives in its schedules enumerate the species of plants and animals and types of natural habitats for which the Natura 2000 sites should be established. The requirements of both Directives were incorporated into the Czech Nature and Landscape Protection Act no. 114/1992 Coll., as amended.

The "Reconstruction of Přerov Crossing Station, 1st Construction" does not interfere with any locality of Natura 2000. The nearest Site of European Importance is Bečva – Žebračka (CZ0714082). The confluence of the Bečva River and Strhanec is the point where this Site of European Importance is in the shortest distance from the concerned Plan. However, this distance is about 1 km and the construction will not have any impacts on this locality. This Site of European Importance includes the territory of Žebračka National Nature Reservation.

#### Bečva - Žebračka Site of European Importance

Site Code: CZ0714082  
Site Area: 288.6730 ha  
Category of Protection: National Nature Reservation, PP  
Region: Olomoucký kraj

Cadastral Areas: Drahotuše, Hranice, Jezernice, Kozlovice u Přerov, Lipník nad Bečvou, Lýsky, Osek nad Bečvou, Popovice u Přerov, Přerov, Prosenice, Proseničky, Slavič, Týn nad Bečvou

Biogeographical Area: Continental

The Site of European Importance includes the watercourse of the Bečva River from Hranice na Moravě up to north-east border of the City of Přerov with well-preserved complexes of mostly meadow forests in the alluvial plain of the Bečva River, several kilometers long Strhanec flume between Osek nad Bečvou and Přerov and Žebračka National Nature Reservation. The basement in the locality consists of quaternary fluvial sediments. The locality belongs to a depression of Bečva alluvial plain (a part of Moravian Gate). The prevailing soils are fluvic gleys.

Lying along the flood-plain terrace of the Bečva River, it is formed by gravel sand of diluvial or recent age that are covered with diluvium, in patches loessial soils. The relief is flat with average elevation of 212 m above the sea level, here and there formed with a system of dry river beds formerly with continuous water flow. Strhanec is a muddy slowly flowing artificial water-gang.

Considering the environment protection, the regulation of the Bečva River has the essential impact on the whole locality. Dewatering results in the absence of natural regular floods and the decrease of the level of the groundwater. The overall violation of the hydrologic regime including water pollution has a key impact on the aggravated condition of the meadow forests.

The objects of protection in the Bečva – Žebračka Site of European Importance is **Kessler's Gudgeon** (*Gobio kessleri*), **European Fire-bellied Toad** (*Bombina bombina*) and **thick shelled river mussel** (*Unio crassus*), which occurs frequently especially in the Strhanec water-gang.

#### Bird Sites

In the near surroundings of the concerned Plan, there are no bird sites that could be possibly affected. The nearest bird site is Libavá (about 12 km to the north-east).

#### Libavá Bird Site

Site Code: CZ0711019

Site Area: 32723.8217 ha

Region: Olomoucký kraj

Cadastral Areas: Čermná u Města Libavá, Město Libavá, Rudoltovice, Slavkov u Města Libavá, Velká Střelná

Biogeographical Area: Continental

The area is located in Central Moravia, among the villages Luboměř, Bohuslávky, Hlubočky and Domašov nad Bystřicí. This large area is simultaneously a military zone 24 km long and 17 wide, of the same name.

The Bird Site Libavá significantly differs from the surrounding environment, being a distinctive and unique region in the whole Moravia for its special character and total area. Primarily, it is a vast and with some exceptions almost uninhabited area. The only town here is Město Libavá, a administration centre of the military domain. Other larger groups of

housing developments in the military zone are only in Kozlov and Luboměř pod Strážnou. At many places, it is possible to find traces of habitation of already non-existing villages that were evacuated in 1947, when the military zone was established. These places form interesting biotopes with remains of buildings and vegetation that often significantly differs from the surrounding environment. The whole area of the military zone is typical by variations of more or less continuous forests with vast deforested areas with gramineous or herbaceous vegetation, with patches of shrubs or self-seeding tree species. The hydrological regime is well preserved in comparison with the surroundings with a high number of wetlands of various types. The existing watercourse network is unique for the absence of buildings in river valleys typical for any cultural landscape, and also for numerous pools continuously originating in the area as a result of gunfire. There are several impoundments including a vagabond reservoir and numerous small ponds. In the forests, the stands of old trees do not frequently occur, which is caused by intensive logging at all accessible places. There are also slate quarries and several easily accessible rock groups.

The only priority bird species pursuant to Annex I of the Bird Directive is corncrake (*Crex crex*) frequently populated at deforested areas (61 calling male birds found in 2005). It also appears in localities with tree stands at the places of former dwellings. Even today, it is possible to find several male birds of the black grouse (*Tetrao tetrix*) at display places, being the last known population in Moravia. Among the larger species, a typical resident of this area is the black stork (*Ciconia nigra*), with supposed nesting of a higher number of couples. As for the nestling birds of preys, honey buzzard (*Pernis apivorus*) occurs frequently and even some rare species have been observed recently, as Lesser Spotted Eagle (*Aquila pomarina*) or sea eagle (*Haliaeetus albicilla*) whose nestling is supposed from 1994, while for the North Moravia it was proved as late as in 2002. Besides common owl species, it is possible to find the Eagle Owl (*Bubo bubo*), Eurasian Pygmy Owl (*Glaucidium passerinum*) and Boreal Owl (*Aegolius funereus*), for which high occurrence can be supposed. Other nestling birds include kingfisher (*Alcedo atthis*), green-headed woodpecker (*Picus canus*) or black woodpecker (*Dryocopus martius*). Higher numbers are expected for Barred Warbler (*Sylvia nisoria*) and Red-backed Shrike (*Lanius collurio*), or for Red-breasted Flycatcher (*Ficedula parva*). Other important species include Common Snipe (*Gallinago gallinago*) that inhabits wetlands at the target areas of the firing ranges and is more frequent here in comparison with other regions of Moravia and Silesia, which can be also suspected for Eurasian Hobby (*Falco subbuteo*), Meadow Pipit (*Anthus pratensis*), Whinchat (*Saxicola rubetra*), Common Rosefinch (*Carpodacus erythrinus*) and Corn Bunting (*Miliaria calandra*).

#### DESCRIPTION OF POTENTIAL IMPACTS ON NATURA 2000 NETWORK LOCALITIES AND ASSESSMENT OF THEIR SIGNIFICANCE

The Act no. 114/1992 Coll., as amended, in its fourth part deals with the assessment of consequences of plans and conceptions on the Sites of European Importance and Bird Sites. In accordance with § 45h, any plan or conception that may independently or in connection with others significantly influence any Site of European Importance or Bird Site is subject to assessment of its impacts on the area in question and the state of its protection as for the presented aspects.

Pursuant to § 45i of this Act, anybody who intends to establish a conception or carry out a Plan stated in § 45h, is obliged to submit the Plan proposal to the competent authority of environment protection to provide its opinion, whether this Plan can independently or in

connection with other plans, have significant impact on any Site of European Importance or Bird Site.

In this case, the competent authority of the state administration is the Environmental Department of the Regional Authority of the Olomouc Region. In accordance with the opinion of the Olomouc Region Authority issued on the 1st November 2005 (file no. KUOK 84295/2009), the assessed Plan cannot have any significant impacts on any Site of European Importance or Bird Site (see Annex 1). If the competent state administration authority declares that it does not suppose any significant impacts on the sites of Natura 2000 network, then in accordance with the effective legislation, the impact on these sites is not assessed.

Following our previous experience with the assessment of impacts on Natura 2000 sites, we can agree with the attitude of the Regional Authority of Olomouc Region, that excludes any possible impacts of the above Plan on these sites. Our opinion is based on the following facts:

#### Construction Location

Around the Přerov railway station, or as a matter of fact around the Plan itself, there are industrial and logistic zones, garden plots and intensively used fields. There is also some residential development and commercial zone near the passenger station and a housing development near Lověšice. The environment of the Plan is under substantial urban and agricultural influence. The area is flat. The only important water course is the Bečva River. The Plan is located within the cadastral areas of Přerov, Lověšice u Přerova and Horní Moštěnice.

The nearest Site of European Importance is Bečva – Žebračka (CZ0714082). The confluence of the Bečva River and Strhanec is the nearest point of this Site of European Importance towards the Plan. The distance is about 1 km and the construction works will not have any impact on this site.

There is no Bird Site in the nearest surroundings of the concerned Plan, which could be potentially affected. The nearest Bird Site is Libavá (about 12 km to the north-east).

Following the above-mentioned facts we do not expect do not expect any negative impacts of the Plan location on any Natura 2000 sites.

#### Construction Character

The Plan character does not constitute any negative impacts on the Natura 2000 sites. The reconstruction of the existing railway track does not change its current position in the urban area of the City of Přerov. All access communications are mostly situated in place of existing communications and all the construction site facilities are designed so that any impacts on the environment (appropriation of farm land or forest land, logging of trees etc.) are minimized.

#### Biological Research

The in-field research was carried out in the concerned area in the period December 2004 to early April 2005 with a focus on the total evaluation of the area and assessment of the generic abundance of fauna and flora. This in-field research was updated in summer 2008. Any protected plant species have been found. As for the particularly protected animal species, a weak population of sand lizard (*Lacerta agilis*) was found in the gravel bed near Lověšice. The probability of any negative impact on the vitality of this population is marginal. The construction works will affect only a small and least attractive part of its artificial biotope originated on the gravel track bed in through tracks (intensive noise pollution caused by the railway line operation, absence of food and suitable shelters). Construction works will last only several months and 100 % of the affected part of this secondary biotope will be restored

after their completion. The Administration of the Litovelské Pomoraví Nature Reserve granted a dispensation for the interference to biotope of a particularly protected species on the 16th July 2009 pursuant to § 56 Of the Act no. 114/1992 Coll., as amended.

## ENVIRONMENTAL IMPACT DURING OPERATION

### **Impacts on Population**

An acoustic study meeting the requirements of Act No. 148/2006 on public health protection was prepared for the optimized railway line. On the basis of the noise study the erection of an anti-noise barrier and installation of individual anti-noise equipment (new windows) are proposed. The efficacy of the anti-noise measures will be verified after the completion of the construction.

To reduce the negative impacts of noise in the locality of Lověšice, the proposed anti-noise barrier will be 1030.8 m long and at least 3.5 m over the level of the nearest track centre line. The anti-noise barrier is suggested as a one-side absorption wall with the acoustic absorptivity of A3 level (8-11 dB).

### **Individual Anti-Noise Measures**

Individual anti-noise measures (e.g. replacement of windows) are suggested for places, where the acoustical limits for outer spaces cannot be kept or the acoustical load decreased with reasonable costs. The window replacement is suggested for residential buildings and hospitals in accordance with the night outer level of noise. In buildings used only in day-time (schools, medical centres, offices, etc.) the anti-noise measures are proposed according to the daily level of noise, while the holiday houses are not included in the anti-noise protection programmes.

### **Water Impacts**

The operation of the optimized railway track does not establish any risk factors affecting the quality of underground water. The underground water could be potentially polluted only in case of a railway accident, especially if freight cars with hazardous substances are involved.

The possibility of impact on the hydrogeological relationships is minimal. The only theoretically possible impact is the influence of vibrations on the rock structure in the collector. This impact is very small and further decreased by the railway track construction and the layer of quaternary relatively porous sediments.

### **Soil Impacts**

In the course of operation of the corridor, there is a risk of train accident or damage of transported freight that could potentially result in a leakage of fuel or oils or transported materials in the surroundings of the corridor. However, the optimization of the track section and using of new trains will increase the safety and fluency of the operation and therefore the risk of soil impact will be lesser than it is at present. Provided all suggested protective measures are observed, it is possible to minimize the risk of negative impacts of the construction work and its operation on the soil.

### NATURA 2000 impacts

The operation of the suggested Plan will not have any impacts on any Site of European Importance.

### Flora and Fauna Impacts

No substantial biological impacts are supposed during the operation of the corridor.

### Description of measures proposed for the prevention, elimination, minimizing and compensation of environmental impacts:

#### *Demands on the Developer*

- In the course of the tender for the Contractor of the construction, one of the comparative gauges will also be specifying a guarantee to minimize negative impacts of the construction on the environment and on the entire length of the construction; during the tender it will be necessary to take into account requirements for the use of modern and progressive construction processes (using less noisy and environmentally friendly technologies);
- Before starting the construction the Developer will secure all necessary exceptions from protection conditions for the above mentioned specially protected animal species from the applicable nature protection authority (Administration of the Litovelské Pomoraví Protected Landscape Area and Regional Authority of the Olomouc Region) in accordance with Section 56 of Act No. 114/1992 Coll.
- In later stage of the project documentation, a complete examination of asbestos occurrence will be secured and the risk of the burden will be assessed and the process for removal of equipment containing asbestos will be established.

#### *Construction Site Facilities*

- At all construction sites no operation or handling of oil products or their storage shall be allowed, nor shall any equipment (construction machines, or vehicles) be repaired here and they shall not be allowed to park in such areas.
- For parking and repairs of these mechanisms a construction yard shall be built as part of this construction work.
- No substances harmful to water, including fuel stores for construction machinery, shall be stored at construction site facilities in alluvial areas;
- All water-dispersible substances and construction debris shall be removed immediately from construction site spaces in alluvial areas;
- At construction site facilities in alluvial areas a minimum number of construction machinery shall be parked; sheet metal trays shall be installed under standing construction machinery;
- At all construction site facilities construction machinery shall be equipped with a sufficient quantity of decontamination devices for the possible clearing of leakage of oil products, when machinery is parked short-term, tubs shall be placed under it to catch any leaked products; if the leakage of oil products or other hazardous substances occurs the contaminated soil shall be promptly removed, transported away and stored at a site intended for such purposes;
- Material shall be stored in secured stockpiles within the area of the construction site facilities;
- Only uncontaminated gravel (proven by analysis by an accredited laboratory) shall be taken to a recycling line.

#### *Soil Protection*

- It is necessary to prevent any pollution to the soil by storing hazardous substances in spaces set aside for this purpose. This condition relates primarily to issues connected with handling of waste, fuels etc.
- Hidden cultivated soil layers shall be used according to the instructions of soil protection authorities.
- Soil piles shall be maintained in a weed-free condition and protected against theft and erosion.
- After completion of the temporary appropriation the areas shall be returned to their original condition.
- Only paved surfaces, stipulated by the project as access roads, shall be used as access roads.

#### *Protection of Watercourses, Bodies of Water and Water Sources*

- All equipment entering significant water management territories, namely protected area of natural accumulation of water (CHOPAV), and construction site facilities in close proximity to streams must be in perfect working order; it shall be necessary to inspect all equipment for oil product leakage regularly and to do so always before starting work in such areas;
- For parking and repairs of this machinery a construction yard shall be built as part of this construction work;
- In significant water management territories - CHOPAV (the entire construction zone) - no operation or handling of oil products or their storage shall be allowed, and no equipment (construction machines, or vehicles) shall be repaired here nor shall they be allowed to park long-term in such areas;
- At construction site facilities in CHOPAV construction machinery shall be equipped with a sufficient quantity of clean-up equipment for the possible clearing of leakage of oil products, when machinery is parked short-term, tubs shall be placed under it to catch any leaked products; if the leakage of oil products or other hazardous substances occurs the contaminated soil shall be promptly removed, transported away and stored at a site intended for such purposes.

#### *Nature Protection*

- Trees shall be felled during the period of plant dormancy.
- Protective transfers, which it will be necessary to undertake for preventive reasons or in the event of an emergency etc., shall always be handled together with the applicable nature preservation authority. Work activity must be ceased until the protective transfer has been carried out from the site threatened by the emergency condition at the construction site.
- All areas affected by construction activity shall be recultivated (replanted) after the completion of construction work.
- During the construction period introduction of neo-indigenous species shall be monitored and if their presence is determined steps shall be taken for their removal.

#### *The biological research conclusions call for the following measures:*

- Any modification of watercourse banks shall be made in a form that is close to nature.
- Interventions in the bottom of courses shall be minimal. During modifications it shall be necessary to remember good aeration of water running (such as by placing larger stones on the bottom of the course and to bank lines).

- If it is not possible to preserve the bottom without paving, the bottom of the bed shall be designed with sufficient tile surface roughness, such as by setting stones of various sizes into the concrete so that they protrude beyond the level of the tile at various heights (river bottom profile).
- If necessary the building of transverse objects (waste weirs) shall be solved as boulder chutes from material of an appropriate size (from quarry stone) to enable the creation of pools securing a water column even during the period of minimal flows at an average distance of approximately 10 m. The boulder chutes shall be created with a slight lengthwise slope of 1:15 and less and with a maximum surface roughness. Stones of the chute shall be fixed to the bottom and placed so that they do not create a migration barrier in the stream.
- It shall be necessary to limit the barrier effect of the railway bed by technical measures:
- The structure of bridges and culverts should enable animals to pass by such objects – it is necessary to secure as much as possible the largest diameter (size) of passages possible – this relates in particular to culverts
  - Simultaneously, contiguous dry bank benches should be provided along watercourses enabling the migration of animals on dry land; for these reasons for culverts a frame type with an unreinforced bottom should always be preferred (pipe culverts are not suitable) and both culvert openings should be barrier-free (without barriers higher than 10 cm);
  - Before the entry to the culvert no settling basins with vertical walls should be proposed – these basins would become traps for smaller animals;
  - Preserve the natural character of the beds of watercourses and wetlands; any regulatory modification of streams has a negative impact on the diversity of the environment and species;
  - The bottom of watercourses should be, if possible, preserved in its natural form (without paving using stones or concreting); if it is absolutely necessary to reinforce the bottom under bridges, this should be done using stones of various sizes, which increases the roughness and diversity of the bottom and this intervention should be limited only to the most necessary short section of the stream;
  - Any necessary interventions in watercourses and wetlands must be carried out outside of the reproductive period of fish and amphibians, i.e. best of all in the autumn or winter months.
- Bank growths should not be interfered with beyond the level absolutely necessary for the proper carrying out of the construction.
- During the construction works, an attention shall be paid to adherence to all the principles of protecting water from pollutants.
- It is necessary to carry out removal of trees outside of the nesting period of birds and the vegetation period (i.e. outside of the months of March - November).
- It is necessary to restore areas of construction structures besides the rail yard itself to their original condition or to sow minimally changed areas using mixtures of original types of herbs, so that growth of non-original or invasive species does not occur.
- The site condition shall be regularly checked and if non-original or invasive plant species are found, their removal shall be secured.

#### *Protection of the Public Health*

- The construction itself shall be organizationally secured in a manner which limits the disturbance of comfort factors to the maximum extent possible.

- The construction works shall not be carried out in residential developments on non-working days, on state holidays and during night hours.
- Any construction works connected with the delivery of construction material and technology shall be carried out during the day in residential developments.
- In the course of the construction works, the movement of machinery and heavy-duty equipment near residential developments shall be minimized by its administrative organization, and noisy stationary equipment (such as compressors) shall be shielded by mobile noise barriers.
- If mobile crushers and sorters are used, these shall be placed on construction site equipment as far as possible from the residential development;
- Any ground works shall be carried out in stages in the scope which is absolutely necessary; the building contractor shall eliminate secondary dust if necessary by regular spraying of the construction site space, piles of soil and construction site roadways;
- Contractor shall be responsible for ensuring that all access roads used by it to the construction site are properly maintained and can be driven on for the entire period that work is underway.

#### *Conditions for the Implementation Phase*

- In the course of waste disposal, if the waste's qualities allow, recycling or reuse will be preferred.
- Waste shall be separated and stored separately at places designated for this,
- In the course of the construction works, a record of waste shall be kept,
- At the construction site no waste or wood matter shall be burned after logging,
- Before the commencement of ground work, any neo-indigenous species (such as Knotweed, Giant Hogweed) on the railway land and land affected by the optimization, will be removed,
- Around the construction site, no permanent landscaping using material fill from the construction shall be carried out
- Construction roadways shall be always reinforced; reinforcement shall be secured also in the course of use of existing non-reinforced paths. Only construction roadways designed by the project may be used for construction transport.
- In the course of reconstruction of bridges and culverts; it shall be necessary to prevent the sliding of demolition and construction materials into the river bed. In addition, it shall be necessary that the contractor does not add material to the banks of water courses with excavation material.

#### *Conditions for the Operation Phase*

- After the commencement of operation, it shall be necessary to secure the evaluation of the day and night noise situation on individual sections of the optimized railway line by measuring at selected control points equal to the points monitored within the updated acoustic study, professional evaluation shall be performed of the effectiveness of anti-noise measures implemented and the implementation of additional anti-noise measures shall be secured if needed.
- Regular maintenance of culverts below the track bed and anti-noise barriers shall be included in the railway operating code.
- The overall condition of the area should be regularly monitored and if any neo-indigenous or invasive species (namely Knotweed and Giant Hogweed) are found, they shall be removed.
- Any arising waste shall be disposed in conformity with the Waste Disposal Act and corresponding implementing regulations.