Supporting documentation

For the Győr - Csorna section of the expressway M85

(Between the junction of main road 1 and 85–19+800 km section of expressway M85)

for the

Modification request of the environmental permit H-42115-3/2002

NON TECHNICAL SUMMARY

E.01.03.

Prepared by:

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Client:

Nemzeti Infrastruktúra Fejlesztő Zrt.

Budapest
-2012-

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1. BACKGROUND

Upon the assignment by the National Infrastructure Development Co. Ltd. the **ÚT-TESZT Mérnöki és Szolgáltató Kft**. is responsible for the preparation of the modification request for the environmental permit, ref. nr. H-42115-3/2002 related to the Győr - Csorna section of the expressway M85.
Preparation of chapter addressing wildlife protection and the Natura 2000 impact estimation were assigned by ÚT-TESZT Kft. to the Környezeti Projekt Kft.

Heritage protection impact studies prepared during the licensing design phase and used for the supporting documentation were prepared by the Field Service for Cultural Heritage.

The purpose of preparation of this supporting documentation is to obtain the final modified environmental permit for the technical content contained in the opinion given for the environmental permit H-42115-3/2002 and in the revision request 21598-3/2005 issued by the North-Dunántúl Environmental Inspectorate, updated for the technical content prepared during the year 2008.

Development tasks of expressways M85 and M86, including the development of Győr – Csorna east section of main road 85 and of the ring section around Csorna are part of the KözOp program.

From scheduling and preparedness point of view, the Győr – Csorna section of the expressway M85 can be divided into five subsections (see the overview map):

- ***Section between Győr (main road 1) and the highway M1 (documentation I)***
  implementation plan completed (08.2009)
- ***Section between highway M1 and Enese (documentation II)***
  implementation plan completed (08.2009)
- ***Enese ring section***
  construction completed, commissioned (12.2011)
- ***Section between Enese and Csorna (documentation III)***
  implementation plan completed (04.2010)
- ***Csorna ring section***
  road construction permit obtained, implementation plans are under preparation

During the year 2001 – upon the assignment by GY-M-S MÁK. Kht. – **the detailed environmental impact study for the Győr-Csorna section of expressway M85** (hereinafter RKHT), for which the **environmental permit was issued by the North-Dunántúl Environmental Inspectorate**. Since the expressway would have been implemented by developing/widening the existing main public road, construction of a new link road became necessary to ensure so-called "slow traffic". Following design study track analyses, the link road was designed on the Ikrény–Rábapordány–Mérges–Bágyogszovát route, using the existing roads along the individual sections.

Besides coordination with the representatives of the Mayor's Offices, multiple coordination took place with the residents of the concerned settlements initiated by the local governments. Following the coordination settlements Rábapatona and Ikrény rejected the idea of the link

road, despite the fact that in the beginning the representatives of the local governments did support the plan of the link road.

The next idea was to keep the current main public road 85 as a slow traffic road, and to construct the expressway M85 parallel to it as close as possible. With the cooperation of the Environmental Inspectorate, the Designer UTIBER Kft. prepared recommendations (versions 1, 2 and 3) for the implementation of the "slow traffic" road and the highway M85. In the course of designing the various versions, the smallest possible deviation from the track specified in the RKHT had to be aimed at. The completed **environmental revision plan of the section track of the expressway M85 between Győr and Csorna** was submitted to the North Dunántúl Environmental, Nature and Water Management Inspectorate.

After reviewing the route versions, the Inspectorate found (in the letter 21598-3/2005) **that the construction can be managed within the frames of the environmental permit issued earlier under reference number H-42115-3/2002.** From nature protection point of view, the Inspectorate considered "versions 2 and 2-3" to be more favourable.

Based on the dispositions of the Client and the Operator, and with the involvement of the concerned local governments, the route of the expressway M85 was finalised, and the licensing plan for the "interim" sections of the expressway M85 between Győr and Csorna prepared under working number 42.443 by UTIBER Kft. was submitted to the competent National Transport Authority in May 2008. The design sections were granted road construction permits in different stages (see below).

In the meantime, upon the commission of the National Infrastructure Development Co. Ltd., the paper titled "Impact estimation analysis of the areas of the M85 expressway section between Győr and Csorna concerned by the Natura 2000 network", the findings of which have been taken into consideration in the plan.

Implementation plans for the "interim" section of the expressway M85 between Győr and Csorna were prepared by ÚT-TESZT Kft. upon the assignment by the National Infrastructure Development Co. Ltd.

Pursuant to the Client's decision, the design phase shall be divided into three separate Documentations, in accordance with the licensing plans (see the Overview map), sectioned in the following way:

- Documentation I: transformation of main road 85 into a four-lane road (km sections 0+000-1+550).

The design phase is from the level junction of main road 1 (0+000 km s.) to the existing grade level junction of the M1 highway – main road 85 (1+550 km s.).

- Documentation II: section of the M85 expressway (km s. 0+000-6+800).

The design section includes the section between the junction of M1 highway – main road 85 and the Enese ring section, including the reconstruction section of main road 85 (between km sections 1+550-1+951) by reconstruction of the existing grade level junction of M1-main road 85.

- Documentation III: section of the expressway M85 (km sections 13+800-20+800).

Expressway M85 crosses a Natura 2000 area and a national ecological network in the region of the Babarcsi channel. Due to its geographical location, the Natura 2000 area involved during the design phase cannot be avoided; it is crossed or bordered by the current main public road 85. However, habitat analyses found that the zone of the main road 85 is

degraded, whereas valuable areas are situated outside this zone. The goal of the design was to implement the new track of M85 within this zone, without affecting more valuable habitats. With the impact reduction measures applied, efforts had to be made to minimum technical territory use and reduction of the separation effect. Pursuant to the coordination with the Environmental Authority and the Fertő-Hanság National Park, the implementation plans included the construction of ecological connections. In order to further reduce the separation effect, as well as impacts imposed on the Natura 2000 areas, the Client requested the preparation of a supplementary environmental coverage design documentation, which contains additional, densely designed ecological connections both under expressway M85 and main public road 85, thus reducing the separation impact even compared to the current situation.

The environmental coverage design documentation **"E1/F"** – submitted by the designer Utiber Kft. to the Client NIF Zrt in April 2012 – is prepared for the Documentation III section (13+800-20+800 km s.) of expressway M85 between Győr and Csorna, in the region of the Babarcsi channel.

In the meantime the ring section around Enese was built and commissioned in December 2011.In this supporting documentation ***we refer to the Enese ring section as an existing feature.***

The construction permit for the linking Csorna ring section was obtained (see table 1.1.), and the preparation of the implementation plans are in progress.

The current design phase starts with the junction of main public roads 1 and 85, and ends at the km section 19+800 of the expressway M85.

Environmental and relevant construction permits are summarised in the table below:

Description of the section	Licensing authority	Permit type	Permit number	Note
transformation of main road 85 into a four-lane road between km sections 0+000-1+550 (Documentation I)	NKH West-Dunántúl Regional Directorate	construction permit	**1444/6/2009.**	
section of the M85 expressway between km s. 0+000-6+800. (Documentation II)	NKH Priority Issues Directorate and NKH West-Dunántúl Regional Directorate	construction permit	**KU/KF/A/NS/133/3/2009.**	
Section between km sections 13+800-20+800 of the expressway M85. (Documentation III)	NKH Priority Issues Directorate and NKH West-Dunántúl Regional Directorate	construction permit	**KU/KF/133/8/2009.**	Sections between km sections 18+000 – 19+800 and km sections 19+800 – 20+800 are covered by the construction permit KU/KF/28/59/2010 issued by the NKH Priority Issues Directorate

Description of the section	Licensing authority	Permit type	Permit number	Note
expressway M86, section between the Győr-Moson-Sopron county border and Csorna	Chief National Environmental, Inspectorate of Environmental, Nature and Water Management Inspectorate	environmental permit and its modification	**14/1061-29/2009. és 14/1061-42/2009.**	The environmental impact study serving as basis for the environmental permit also covered the section between km sections 19+800 – 27+100 of expressway M85.
Section between Győr and Csorna	North-Dunántúl Environmental Inspectorate	environmental permit	**H-42115-3/2002.**	Due to the over, it ends at km section 19+800 of the expressway M85.

Table 1.1.

Permits and section borders related to the individual sections are indicated on the overview site plan E. 02.

2. REVIEW OF THE PLANNED FACILITY

The general design disposition related to ***expressway M85*** is the design of a 2x2-lane divided motorway with 3.50 m traffic lane width, where the design speed is vt.:110 km/h. Crown width is 25.60 m, the emergency lane is to be established with a 3.0 m wide stabilised roadside, with the implementation of parking bays in accordance with the related technical requirements. Above and below 3m, the steepness of the slopes is 1:1.5, no oblique ridge was planned in the super-elevation rollovers.

Main road 85 is a secondary main road where the design speed is vt.:90 km/h. The four-lane section of main road 85 in Documentation 1 is implemented with the expressway cross-section, whereas the crown width in the correction sections is 12.00m. Crown width of the crossing national public roads is 10.00m, whereas the crossing earth roads have to be built with 8.50 crown width. Parallel earth roads are to be designed with 7m wide crown, 5m wide stabilisation and 1.00-1.00m wide roadside.

2.1. Basic data of the facility

Site drawing alignment

Documentation I (transformation of main road 85 into a four-lane road between km sections 0+000-1+550)

The designed main road expansion section (Documentation I) is located in Győr-Moson-Sopron county, mainly in the area of Abda, and for a short length at the end of the design section in the administrative territory of Ikrény.

Site plan alignment of the main road is in accordance with the existing geometry.

At the beginning of the design section, level junction of main road 85 requires minor reconstruction. The planned intervention is rather of traffic technology nature.

Radius of the right curve after the junction has to be expanded in order to avoid road track widening necessary in case of low-radius curve.

From the junction, the divided main road has 2x2 lanes with 3.50 m traffic lane width, the expansion is on the left side according to the direction of travel. In the region of km section 0+270, the existing bus bays have to be reconstructed on both sides. Starting from the level junction of main roads 1 and 85, 1.50 m wide sidewalk will be constructed in the place of the emergency lane.

The section planned to be transformed into four-lane track crosses the Győr-Hegyeshalom railway line in km section 0+954.47 (structure B.010). (the existing structure has to be built, and a new overpass constructed.)

Construction of the planned overpass over the planned parallel earth road 1 in km section 1+199.79 (structure B.012) is necessary with the demolition of the existing road embankment.

End of the design section is in km section 1+550, joined by Documentation II: section between km sections 0+000-6+800 of the expressway M85.

Documentation II: section of the M85 expressway km s. 0+000-6+800 between Győr and Csorna

Section of the planned expressway M85 between km s. 0+000-6+800 (Documentation II) is in Győr-Moson-Sopron County, in the administrative territory of Ikrény and Rábapatona.

According to the Client's disposition, Documentation II consists of two parts: the first is the nearly 400 km long section of main road 85 (1+550-1+951 km s.) to be renewed, and the section of expressway M85 between km sections 0+000-6+800.

Along the section of main road 85 to be renewed, the existing traffic junction of highway M1 and main road 85 and its level crossings will be reconstructed to a roundabout junction. Site plan alignment of the main road is in accordance with the existing geometry.

Expressway M85 starts from level roundabout junction 2 of the existing level graded junction of M1-85, then for a section of 1500 length it progresses parallel to main road 85 to west, in the least possible distance from the existing main road, thus impacting the southern development areas in Ikrény to the least possible extent.

After leaving the development areas, the design track moves away from the main road and evades the forest areas with a left and a right curve, then in km section 3+151 it crosses the existing remaining Ikrény access road with an overpass (structure B.031).

After leaving the access road, the expressway continues in the administrative territory of Rábapatona, between the plant areas located in the regions of km section 3+400.

After this, the design track leads west again in a close parallel to the main road, then it crosses in a left curve the Kepés-Lesvári channel with an overpass in km section 4+928.45 (structure B.049), then the correction 3 of main road 85 in km section 5+577.67 with an underpass (structure B.056). After crossing – passing along the north side of main road 85 – makes a right curve and then – following a short straight section – it joins to the construction plan of the Enese ring section of expressway M85 (job number 42.642) in km section 6+800.

Documentation III: Section of the expressway M85 between km sections 13+800-20+800 (Győr-Csorna)

Section of expressway M85 between km sections 13+800-19+800 (Documentation III) is in Győr-Moson-Sopron County, within the administrative territory of villages Kóny, Barbacs and Dőr, and Csorna town.

In the beginning of the design section, expressway M85 joins to the construction plan of the Enese ring section of expressway M85 (job number 42.642) in km section 13+800.

Along the first nearly 2 km long section, the design track goes west, almost parallel to and north of the existing main road 85. In km section14+602.26 (structure B.146) it crosses an earth road planned to be crossed with an underpass.

In the Kóny inner territory of km section 16+211.89, the traffic junction M85-8509 will be implemented (structure B.162). Main road 85 will be directed through the junction (correction 4, main road 85). The main track takes a left curve in the junction to south-east – still parallel to the existing main road -, and reaches the area south of main road 85.

In the region of km section 17+820, existing buildings (3) impacted by the expressway and the planned correction 5, main road 85 have to be demolished.

In the section between km sections 18+000 and 18+950 the track crosses Natura-2000 areas. Based on the findings of the environmental documentation "Impact estimation for the areas of the expressway impacted by the Natura 2000 network" have prepared in 2007 by the client NIF Zrt., and the implementation plan documentation of the environmental cover **"E1/F"** prepared in 2012, on this section under the expressway and the correction of main road 85 small mammal crossings have to be built every 100 m, and an overpass in the km section 18+175.40 over the Babarcsi channel and wildlife crossing (structure B.182).

After this, the planned route leads with right curves nearly parallel to main road 85 towards Csorna town. In the km section 19+022.11, the expressway crosses road correction 8511 with an overpass (structure B.190).

In the region of km section 19+220, the expressway impacts two buildings that have to be demolished.

End of the section analysed in this supporting documentation is located in the km section 19+800 (see Table 1.2.1., permits issued).

(From the km section 19+800, the planned express highway was designed in accordance with the Phase I of the licensing documentation of the express highways M85-86 Csorna ring section, with job number 572 of the ÚT-TESZT Kft.)

Vertical alignment

Documentation I (transformation of main road 85 into a four-lane road between km sections 0+000-1+550)

Vertical alignment of the four-lane track is aligned with the existing main road.

Documentation II: section of the M85 expressway km s. 0+000-6+800 between Győr and Csorna; and Documentation III: Section of the expressway M85 between km sections 13+800-20+800 (Győr-Csorna)

Vertical alignment of the expressway was prepared in compliance with the parameters determined in the licensing documentation and design class, taking into consideration the recommendations formulated in the geo-technological professional opinion. The entire design section of the designed expressway leads through plain area, the track is on embankment.

Junctions

Documentation I (transformation of main road 85 into a four-lane road between km sections 0+000-1+550)

- Within the design section, minor reconstruction of the existing level junction of main roads 1 and 85 is required.

Documentation II: section of the M85 expressway km s. 0+000-6+800 between Győr and Csorna

- Reconstruction of the existing level traffic junction of highway M1 and main road 85

Documentation III: Section of the expressway M85 between km sections 13+800-20+800 (Győr-Csorna)

- M85 – road 8509 (correction 4, main road 85) traffic junction
- M85 – main road 85 (correction 6, main road 85) traffic junction

Structures

Documentation I (transformation of main road 85 into a four-lane road between km sections 0+000-1+550)

Number	Bridge label	Km section	Description
1.,	B.010	0+954.47	Overpass over the railway Győr-Hegyeshalom, transformation of main road 85 into a four-lane road
2.,	B.012	1+199.79	Overpass over earth road 1 (0+598.42 km s.), transformation of main road 85 into a four-lane road

Documentation II: section of the M85 expressway km s. 0+000-6+800 between Győr and Csorna

Number	Bridge label	Km section	Description
1.,	B.031	3+151.09	Overpass over the existing access road at Ikrény (0+063.51 km s.)
2.,	B.049	4+928.45	Overpass over the Kepés-Lesvári channel (3+160.00 lkm s.)
3.,	B.049-1	0+619.43	Overpass over the Kepés-Lesvári channel with parallel earth road 3 (3+199.71 lkm s.)
4.,	B.056	5+577.63	Underpass under correction 3 of main road 85 (0+820.44 km s.)

Documentation III: Section of the expressway M85 between km sections 13+800-20+800 (Győr-Csorna)

Number	Bridge label	Km section	Description
1.,	B.146	14+602.26	Underpass under crossing earth road 7 (0+265.00 km s.)
2.,	B.162	16+211.89	Overpass over correction 4 of main road 85 (0+495.11 km s.), grade level junction
3.,	B.182	18+175.40	Overpass over Barbacsi channel (4+120.03 lkm s.) and wildlife crossing
4.,	B.182-1	1+060.63	Overpass over Barbacsi channel (4+168.00 lkm s.) and wildlife crossing with correction 5 of main road 85
5	B.190	19+022.11	Overpass above road correction 8511 (0+053.41 km s.)

Environmental structures

Documentation I (transformation of main road 85 into a four-lane road between km sections 0+000-1+550)

No environmental facilities are designed.

Documentation II: section of the M85 expressway km s. 0+000-6+800 between Győr and Csorna

Protecting fence on both sides along the entire length of the expressway will be installed; along the existing and correction sections of the parallel main road 85 – in the necessary places – protecting fence and wildlife alert prisms will be installed.

Documentation III: Section of the expressway M85 between km sections 13+800-20+800 (Győr-Csorna)

In order to meet noise protection requirements, we designed noise protecting wall on main road 85 in the region of Kóny, between roundabout 1 and the Kóny access road. Height of the full noise absorbent noise protecting wall is 3 m.
Wildlife protecting fence has to be installed along the entire length of the expressway in 2.40 m height above ground level.

Wildlife crossings

km section	Description	Size
18+175.40	(4+120.03 lkm s.) wildlife crossing and bridge over the Barbacsi-channel	Width: 27.23 m Length: 15.32 m

2.2. Occupied space

Full length of the planned track: **14.35 km**
Direct use of territory of the expressway is equal to the expropriated land zone.
Results in the following table were calculated on the basis of land office files, a well as planned expressway, the crossing public roads and road corrections and the expropriation borders of the, crossing and parallel earth roads.

The following values of the occupied territory do not include the track of the existing main road 85, only its planned corrections.

Expressway M85 between Győr and Csorna - Supporting documentation				
For the modification request of Environmental permit H-42115-3/2002				
Cultivation type	**Quality class(es)**	**Occupied area (m^2)**	**Occupied area (ha)**	**Occupied area (%)**
field	1-6	722133.8901	72.21	74.06
pasture	3-4	2942.392311	0.29	0.30
marsh	-	6312.61877	0.63	0.65
reeds	4	329.868491	0.03	0.03
meadow	3-7	78983.43791	7.90	8.10
forest	3; 6-7	33922.92926	3.39	3.48
removed from cultivation	yard, road area, ditch, canal, garden, wooded area, industrial area, side roads and other roads, railway area	130502.7433	13.05	13.38
Total occupied territory		**975127.88**	**97.51**	**100.00**
Note: The calculated territory does not include the areas of the existing main road 85.				

Table 2.2.1.
Territory occupied by the planned highway M85 and its related facilities

3. REVIEW OF THE EXPECTED CHANGE OF THE ENVIRONMENTAL CONDITIONS

3.1. Soil, underground water

Regarding soil

In the course of preparing the supporting documentation we reviewed the following:

- Physical geographical features of the design area
- Geological and hydrogeological formation of the impacted area
- Current geological condition and structure of the design area
- Soil types and typical land uses along the track
- Watered areas in the territory impacted by the design
- Required space in the direct and indirect territory
- Necessity of monitoring

Carbon monoxide:

- Available literature, data and maps of the design area
- agro-topographical map of the design area
- Genetic soil maps
- Preceding plans: environmental impact study prepared in 2001, licensing and implementation plans, geo-technological analysis
- Other available literature related to the topic
- Sampling and analysis protocols of the exploration analysis of the upper soil layer conducted as part of the environmental impact study of 2001

Summary of our analyses:

Section of expressway M85 between Győr and Csorna is located in the territory of Győr-Moson-Sopron County.

Based on the book *Register of Hungary's micro-regions*, the design area and the impacted areas can be classified in the following geographical units:

- Macro-region: Kisalföld,
- Middle-region: Győri basin,

Results of geo-technological explorations

Documentation I (transformation of main road 85 into a four-lane road between km sections 0+000-1+550))

According to the soil layers explored in the section, the surface is covered with clayey layers with mostly sand or sandy mud underneath.

Documentation II (between km sections 0+000 – 6+800)

Based on the detailed geo-technological professional opinion, upper soil layers of the design area until km section 5+460 consist of middle and think clays.

Under the tied layers usually there are muddy or grainy (sand, pebbly sand) layers.
Between km sections 5+460 and 5+840, there are grainy layers down to 25.0 m depth.
After this, thin clays characterise the upper layers of the soil until km section 6+800.

Documentation III (between km sections 13+800 and 20+700)

According to the soil layers explored in the section the surface is covered by the alternation of thin (fat in small spots) hummus and sandy mud layers.
Under the covering layer there is usually sandy mud or muddy sand, or in some places just sand.

Mineral reserves

The planned route crosses the following mining site:

Mining site		
Description	**Raw material**	**Holder**
Barbacs-Csorna-Dör	clay, sand, pebble	SZMB Bányászati Kft.

Occupied area, soils

The design area is mainly characterised by floodplains and marsh soils.

Most of the design route (77.6 percent) uses plow lands.
Territory occupied by the planned main road M85 and its supplementary facilities is contained in *Table 2.2.1.*.

Watering, melioration

The track does not impact drainage territories.

Regarding underground water

In the course of preparing the impact study we analysed the following:

- Water geology features along the track
- Environmental conditions of the underground water along the track
- Sensibility of the design area
- Location of water basis and waterworks wells within the design area
- Necessity of monitoring

Carbon monoxide:

- Available literature, data and maps of the design area,
- Preceding plans: environmental impact study prepared in 2001, licensing and implementation plans, geo-technological analysis
- Sensibility map of the design area
- Other available literature related to the topic
- Analyses related to the depth and chemical characteristics of the groundwater prepared by the environmental impact study in 2001

Summary of our analyses:

Ground water level

Based on the drills performed for the geo-technological professional opinion, the estimated groundwater levels along the track are the following:

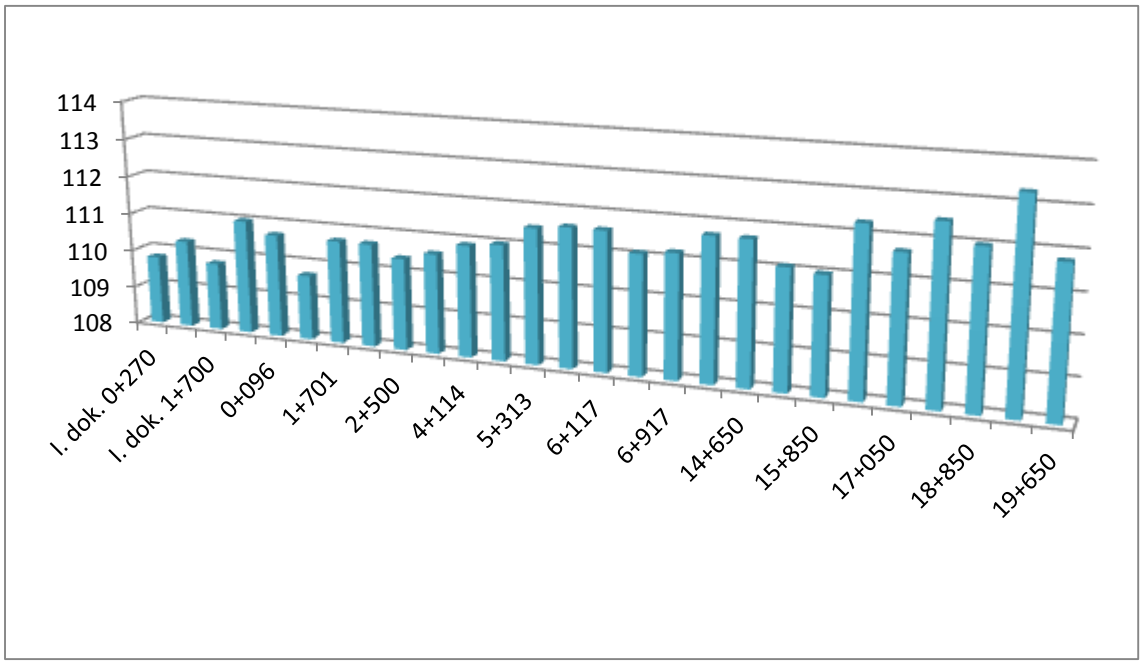

Figure 3.1.1.
Trends of estimated max. groundwater level of the design area

Sensitiveness of the design area

According to the annex to KvVM Decree 27/2004 (XII.25.) on the classification of settlements located in sensitive areas from the aspect of the condition of the underground water, individual settlements fall into the following sensibility categories from the aspect of sensibility to contamination of the route impacted by the design and its surrounding:

Abda - sensitive

Ikrény - highly sensitive

Rábapatona – highly sensitive

Kóny – sensitive

Barbacs – sensitive

Dör – sensitive

Csorna – sensitive

Based on Annex 2 to the Government Decree 219/2004. (VII. 21.), the design area belongs to sub-category "2c – main aquifer within 100 m depth". (Sensibility map with the track is presented by the annexes.)

Groundwater quality

In the most part of the region, groundwater contains magnesium – hydrogen carbonate, but sodium is dominant in the valley of rivers Rába and Marcal. Its hardness is 15 nk° in the south and 25 nk° in the north. This difference can also be observed in the sulfate contents, because 60 mg/1 was measured in the south and up the 300 mg/l in the north. Their use is limited by the nitrate contents.

For the survey of the basic condition to be determined, the impact study analysed the water in the wells along the track, and determined the general chemical parameters, oil content and toxic metallic concentration of the groundwater.

Except for certain parameters, water quality of the wells does not meet the requirements set against drinkable water.

Protection of the water resources

The route concerned by the design does not cross any appointed water resource and its protective area.

3.2. Surface water

In the course of preparing the impact study we analysed the following

- Water geology features along the track
- Environmental condition of the surface waters along the track (e.g. water quality)
- Sensitiveness of the design area to flood and internal waters
- Expected quantity of precipitation
- Possibilities of draining and disposing precipitation water flowing off the track
- Necessity of monitoring

Carbon monoxide:

- Data provided by the competent KTVF
- Data provided by the competent VIZIG
- Data provided by the competent Waterworks
- Other available literature related t the topic, data and maps of the design area

Summary of our analyses:

The micro-region belongs to the water system of Rába-Rábca and Marcal. 41.5 km long lower section of Rába, 32 km of Rábca, and 29 km of Marcal belong here. From among the channels enmeshing the area, the relevant section of the Keszeg stream is 24 km, of the Kepés-Lesvári channel is 27 km, and of the Megág-channels is 17 km. It's a moderate drainage area.

Floods are typical for the early summer, whereas low waters may appear in any season.

The total surface of the 14 natural lakes of the micro-region is 80.5 ha. The largest one is the Fehér lake located north of Fehértó (40 ha). In addition, there are two by-waters on Rába and one on Marcal. Their total area is 17 ha.

Surface water quality in the design area

Water quality of the rivers is class II.

The environmental impact study prepared in 2001 determined the water quality typical for the design area by sampling and laboratory analysis of the samples taken.
The following table summarises the results:

Parameter	**FV1**	**FV2**	**FV3**	**FV4**	**FV5**
pH	excellent	excellent	excellent	excellent	excellent
spec. cond.	excellent	good	tolerable	excellent	excellent
KOI_k	contaminated	highly contaminated	highly contaminated	tolerable	tolerable
Nitrate	excellent	excellent	tolerable	excellent	good
Lead	excellent	excellent	excellent	excellent	excellent
Zinc	excellent	excellent	excellent	excellent	excellent
Cadmium	contaminated	tolerable	tolerable	contaminated	tolerable

Sampling sites within the current design area: *FV1*: Kepés-Lesvári channel, *FV3*: Keszeg stream, close to the Barbacsi lake.

As it can be seen in the above table, in case of three of the analysed surface water samples, the measured value of chemical oxygen need, and for two of them the measured value of cadmium was above the limit value. Quality of the waters meets the requirement from the aspect of pH value, specific conductivity, nitrate content, as well as lead and zinc contents from among heavy metals. Based on our measurement experiences it can be stated that the high level of chemical lack of oxygen ***is due to the still water nature and "pooling" of the water flows crossing the highway, besides that the impact of traffic is negligible.*** (Water samples were taken during the biggest summer drought). Cadmium contamination is probably related to earlier industrial activities.

The related annex to KvVM Decree 28/2004. (XII.25.) classifies the surface waters in the territory of the country into 4 territorial categories. Based on this classification, the design area falls in category 2, general protection category receivers, where the limit values for direct introduction to surface water are the following:

pH	6 – 9.5
total floating substance	200 mg/l
organic solvent extract	10 mg/l
KOI_k	150 mg/l

From the aspect of contaminants, the planned road may mainly pollute surface waters with oily contaminants. The extent of this is regulated in the decree, the following table shows the limit values accordingly. (the decree specified limit values for several different contaminants, however here the contaminants classified to the category of "organic solvent extract (oils, fats)" – that may load the surface water table in case of emergency during the operation of the road – are relevant.)

Compliance with the limit values determined by the law has to be granted, when designing drainage.

3.3. Air protection

During the preparation of the impact study, we analysed the following:

- air purity protection requirements related to the area,
- air purity impact area, and the basic condition of the design area from air quality point of view

During the examination of the impacts of the planned activities, we studied the following:

- air pollution during the construction,
- air pollution during the operation,
- air pollution during emergency,
- impacts of maintenance and abandonment,
- design of the monitoring system.

Description of the basic air quality status

During the environmental impact study prepared in 2001, air purity protection measures were performed to determine the basic condition; the results are introduced below.

Analysed components
Analysis of the air quality was based on the quantitative determination of the following characteristics:

- carbon monoxide (CO)
- nitrogen-oxides (NO_x)
- sulfur-dioxide (SO_2)
- floating dust and lead content (Pb)
- formaldehyde (HCHO).

Measurement sites

From the measurements performed during the environmental impact study of 2001, this document includes the relevant measurement points for the subject matter section. we draw the attention that in case of Enese, the presented measurement data are for information purposes only, because with the Enese ring section constructed, the inner traffic of the settlement has significantly reduced.

Air measurement point 1: Enese, Győri út

Air measurement point 2: Newly built outside houses in Kóny, Mátyás király street, close to main road 85

Assessment of the current air quality, based on the measurements
Based on the comparison of the requirements and the results of the analysis it can be stated that the environmental air pollution at the measurement point does not exceed the tolerated levels, and is well below the limit value.
With the change of the legal provisions since the measurements of the environmental impact study of 2001, also the limit values were modified.
We can find that the medial limit values of air pollution are also in compliance with the VM Decree 4/2011 (I.14) at the time of the measurement.

Air pollution calculations

When demarcating the impacted area, with respect to the relevant contaminant, the distance of meeting the hourly limit value of 100 μg/m^3 with the consideration of MOF and the critical meteorological condition was taken into account.

Since the calculation applies to the critical condition, it can be stated that load caused by the planned facility exceeding the limit values outside the calculated distance is not possible.

Identification of the impacted area

Track	track section	border of the impacted area[m]
M85	0+000 - M1 junction	28
M85	M1 junction - 6+800	24
M85	13+800 - Kónyi street	25
M85	Kónyi street – 19+800	26

Long-term air load in the impacted area

There are no real estates to be protected within the impacted area, so the load will not exceed the limit values; still, in case of the nearest dwelling houses (relevant points of analysis) we carried out the calculations for the relevant contaminants in accordance with the method introduced in the chapter introduction of the analysis method.

Expected load on the facilities to be protected in the vicinity of the impacted area

Number	Distance	Impacted facility		NO2 immi (μg/m3)
HOURLY LIMIT VALUE				100
1.	99	Kóny	Top.n.: 952/54	48
2.	101	Kóny	Top.n.: 952/57	47
3.	133	Kóny	Mátyás Király út 1. Top.n.: 952/60	41

As a result of the calculations performed it can be seen that the load does not come close to the hourly limit values also at the relevant measurement points, even in case of critical atmospheric conditions.

Air pollution during the construction

Air emission load – mainly nitrogen oxides and floating dust – related to public road transportation of construction materials and the operation of the construction machinery – can be concentrated in space and time, and so it can cause problems in the direct vicinity of the road construction.

Dust generation is expected in connection with the vehicle transport, loading/unloading of the transported materials, the construction technology earth excavation and landscaping.

Surface air pollution

Occupation of the territory, landscaping, foundation works may be accompanied with dusting and air pollution.

Removal of the humus layers is done in sections, synchronously with the road construction, air pollution of the humus management is insignificant. The extent of dusting depends on the moisture content of the humus, and the existing vegetation.

Sand mined at the material retrieval sites is loaded and transported without deposition, in mine-wet condition.

Transportation traffic

Air emission load – mainly nitrogen oxides, grime and floating dust – related to public road transportation of construction materials varies in space and time, but it does not cause significant air contamination outside the construction area.

The contractor will finally decide, which material retrieval site will be used, and how the work will be scheduled, and the contractor has to take environmental requirements into consideration.

Some load on the environment cannot be avoided during the construction; its magnitude can be reduced by complying with the above standards and the construction technical requirements, and the expected level of contamination will not exceed the limit values in the inhabited areas.

Designed monitoring

The route of the designed track approaches inhabited areas only in the region of Kóny, it can be stated however, that according to the calculations performed, the limit values are not expected to be exceeded in case of the real estates.

Nevertheless, basic condition measurement was conducted to record the current status, so it is recommended to establish an onsite monitoring point to follow up the changes of the air quality.

Establishment of monitoring points is not necessary in other locations, because no load approaching the medical limit values is expected with respect to either of the contaminants.

The air purity monitoring point also serves as a noise protection monitoring point.

Air purity protection monitoring has to be carried out once, one year after the commissioning of the road.

Air pollutants to be examined:

Examined pollutants: CO, NOx, SO_2, CH, floating dust, lead content of the floating dust (Pb), cadmium content of the floating dust (Cd), formaldehyde (HCHO)

Duration of the examination: 24 hours

Time of the measurements: After commissioning

Measurement point L1 (same as measurement points Z1 and R1)
north façade of the dwelling house in Kóny, top.n: 952/54
in the region of km section 16+000
Source: main roads M85 and 85

3.4. Wildlife

Conditions of the analysis

We regarded the 40 m wide area along the axle as directly impacted area of the construction, and the 240 m wide area along the axle (40+100+100) as indirectly impacted area (a detailed habitat map was prepared also for this territory), however, in case of certain animal species we examined their appearance in a 600 m (300+300 m) wide band.

Survey of the various wildlife groups and their habitats was basically done according to the NBMR methodology, specifically for each wildlife habitat. Appearances of protected plant and animal species were recorded with a 2m accuracy, using GPS.

Directly impacted area of the planned route (its 40 m wide band) impacts the territory of the Fertő-Hanság National Park between km sections 18+160 and 18+960. Between km sections 17+300 and 19+000, north of the planned route, also the territory of the National Park is located (Barbacsi lake), which is a highly protected natural area. The expressway does not crosses this area, the existing main road 85 (located north of the expressway) neighbours the territory of the National Park, but does not cross it. Its direct impact area crosses highly protected natural preservation areas in the section between km sections 17+300 and 18+500 (Hanság SCI and SPA, HUFN). Between km sections 4+900 and 5+400, in the region of the Poszogó hill, the track of M85 crosses an ecological corridor, furthermore, the adjusted route of the existing main road 85 also crosses an ecological corridor at the same location. Between km sections 18+000 and 19+000, south of the Barbacsi lake, it crosses a buffer area in and near a Natura 2000 area, as well as a core area in a shorter section.

Wildlife in the design area

The surveyed area is dominated by large fields of intensive plow lands, the ratio of natural spots is low. Among the valuable habitat spots, those in the region of the Babarcsi lake have to be mentioned, medium value is attributed to certain crossed water flows and their vegetation, as well as mosaic-like secondary featureless forest spots.

In the east region, along the rivers Rába and Marcal, mainly the latter was characterised by extensive marsh life. Between Győr and Koroncó spots of sand forest steppe vegetation was present as well. In the Tóköz region (Fehértó, Barbacs, Kóny) marsh lakes reminding the Hanság were located. The current landscape is dominated by plow land cultivation. The ratio of forests is low, they have been significantly transformed and lost their features, there are many poplar and acacia forests. Field cultivation has been terminated, lawn areas are being broken up and forested, the existing stocks represent high value mainly in the Tóköz region and near the river Rábca. Along the river Marcal, the once coherent marsh habitats have fragmented, and the river itself has been transformed into a channel.

The impacted area contains 1 habitat type of community significance, 1 plant species and 9 animal species of community significance.

A Natura 2000 impact examination including a detailed survey was prepared for the examination of the Natura 2000 area, which is attached to this documentation under design number E.01.04.

Natura 2000

The impact estimation documentation related to the impacted Natura 2000 areas is also submitted together with the supporting documentation.

Based on the data collected and analysed during the impact estimation it can be stated that the planned investment will not significantly impact the natural state of the impacted Natura 2000 area, provided that the adequate measures to reduce the impact are in place. There is no significantly different alternative solution for the investment, however the unfavorable impacts can be reduced with the adequate measures, so no compensation actions will become necessary.

Wildlife management

Wildlife crossing can be ensured most efficiently by combined wildlife crossings that have to be implemented in combination with larger channels and river bridging.

3.5. Landscape protection

In the course of preparing the impact study we analysed the following

- Physical geography characteristics
- Main features of the water network
- Landscape use, landscape structure
- Main data of settlements
- Green surface system of the design area
- Correlations with national, county-level landscaping and settlement planning concepts
- Determination of the landscape potential
- Landscape compatibility of the designed track with the existing landscape features

Summary of our analyses:

Sections I, II and III of the M85 highway cross the administrative territory of Abda, Ikrény, Rábapatona, Kóny, Barbacs and Dör in the territory of Győr-Moson-Sopron County. The impacted settlements are located in the micro-region of the Csornai plain. Based on the micro-region register of Hungary (MTA Research Institute of Geographical Sciences, 1999), the area impacted by the track can be classified into the following geographical units:

- macro-region: Kisalföld
- middle region: Győri basin
- micro-region: Csornai plain

Water network of the micro-region is part of the Rába-Rábca and Marcal water systems. Surface of the region gradually elevates from NE toward SW. It is characterised by a well-developed river and still water network.

These are from E to W: Rábca spillway
Keszeg stream
Barbacsi lake
Rába
Marcal

The region is rich in waters. Water flows crossing the track from E to W are the Keszeg stream joining to Rábca, the Kepés-Lesvári-channel, a Szapud stream and finally the river Rábca.

- The following water flows are managed by the North Dunántúl Environmental and Water Management Directorate:

  Répce spillway
  Keszeg stream

Along its route, the subject matter track crosses several minor unnamed channels, ditches, marshes and low lines in addition to the above. These locations are characterised by seasonable water flows, or abandoned internal water channels.

Land use of the region is characterised by the dominance of agricultural areas, most of the territories are cultivated as plow lands. In the past decades – as a result of intense agricultural cultivation – the ratio of gardens, orchards, as well as lawns (meadows and pastures) has significantly reduced. The extent of abandoned areas has in turn significantly increased during

the recent period. There are no large and coherent reeds in the region, smaller spots can be found in the vicinity of water flows and fishing lakes (Barbacs lake).
The agricultural landscape is characterised by the lack, unfavorable species composition or health condition of forest belts, tree and bush rows protecting the fields. Taking this into consideration, water management and climate conditions of the region – especially wind conditions – can be regarded as unfavorable.
The surveyed area is dominated by large fields of intensive plow lands, the ratio of natural spots is low. Tree habitats in the region are field protecting forest belts of insignificant size.
No forest area is located in the path of the planned road. The territory occupied by the road, the impacted cultivation types and their distribution is illustrated in the following table:

Occupied space	Impacted (ha)	%
plow field, meadow, pasture	80.39	82.59
garden	0.04	0.04
marsh, reeds	0.66	0.68
side roads, local collective roads, railway	6.7	6.88
industrial area	0.91	0.94
forest	4.2	4.32
channel, ditch	3.59	3.69
yard	0.84	0.86
Σ	**97.33**	**100**

Base on the table it can be stated that the planned route of M85 mostly passes agricultural plow land areas, and it does not cross major forest or wooded areas or water surfaces of significant value.

European ecological network (Natura 2000 areas)

The planned M85 highway impacts a Natura 2000 area only on a short section between main road 1 and the Csorna ring section. Between km sections 17+300 and 19+000 it **crosses** the region called Hanság HUFH30005 (which is also a SCI and Spa region).

Protected natural areas of national significance

Between km sections 18+160 and 18+960, the planned route **crosses** the territory of the Fertő-Hanság National Park.
Between km sections 17+300 and 19+000, north of the planned route, also the territory of the National Park is located (Barbacsi lake), which is a highly protected natural area. The expressway does not crosses this area, the existing main road 85 (located north of the expressway) neighbours the territory of the National Park, but does not cross it.

National ecological network

The planned track **crosses** the territory of the national ecological network.

The ratio of the impacted areas belonging to the ecological network is not significant.
Spots within the impacted area:

- Between km sections 4+900 and 5+400, in the region of the Poszogó hill, the track of M85 crosses an ecological corridor, furthermore, the adjusted route of the existing main road 85 also crosses an ecological corridor at the same location.

- Between km sections 18+000 and 19+000, south of the Barbacsi lake, it crosses a buffer area in and near a Natura 2000 area, as well as a core area in a shorter section.

Landscape protection area

The track **does not cross** any landscape protection area.

Protected natural areas and monuments

The track **does not cross** protected natural areas or monuments of local significance.

Unique landscape value

The track **does not cross** any individual landscape value.

Landscape wounds

- Damaged, degraded areas

The route impacts the following mining site:

Mining site		
Description	**Raw material**	**Holder of the rights**
Barbacs-Csorna-Dör	clay, sand, pebble	SZMB Bányászati Kft.

The only mining site directly near the planned track is the Rábapatona I operating pebble mine.
Material retrieval sites in the catchment area of the settlements impacted by the planned track:

- Abda I., II. sand, pebble
- Öttevény I., II. sand, pebble
- Győrzámoly I. sandy pebble mine
- Győrújfalu I. pebble mine

Correlations with national, county-level landscaping and settlement planning concepts

The effective Act XXVI/2003 (amended in 2008) on the *National Spatial Plan* determines the spatial order of transportation infrastructural networks of national significance.

Annex 1/1 to the Act includes
expressway M85

Győr region (M1) – Csorna – Nagycenk – Sopron – (Austria)

County spatial plan

Spatial Plan of Győr-Moson-Sopron County – in accordance with the relevant provisions of the National Spatial Plan – defines the conditions of using lands in the county, the coordinated spatial order of the technical infrastructural networks, keeping in mind the principle of sustainable development, in order to preserve territorial, landscape, natural, ecological, cultural and human characteristics and values and to protect resources.
The track indicated in the Regional Structural Plan of the currently effective county spatial plan **matches** both the track in the National Structural Plan and the one currently examined.

Spatial plan

The track included in the approved and valid spatial plans of the settlements Abda, Ikrény, Kóny, Barbacs and Dör matches the track of the examined track of the M85 expressway, whereas the planned implementation is not in conflict with the settlement plan of Rábapatona.

In summary it can be found that the higher level national and county plans contain the track of the planned expressway M85, which is the same as the track examined in this documentation.

3.6. Constructed environment

Pursuant to Section d), Paragraph 1 of the NEFMI Decree 5/2010 (VIII.18.), the planned investment is classified as a major investment. In the course of preparation of the road construction and implementation plans related to the project, the Heritage Protection Impact Studies for the individual sections *(Section 1 – 0+000-1+900 km s. July 17th 2008, 0+000 – 6+800 and 13+800 – 20+700 km s., December 12th 2007).*

The A Heritage Protection Impact Studies were ordered by NIF Zrt.

We skip the presentation of the study related to the ready built Enese ring section.

Purpose of an heritage protection impact study is to localise archeological sites and to formulate necessary heritage protection recommendations including the related groundwork and road construction in the area .

Summary of the findings in the heritage protection impact study:

It can be generally stated that cultural (and historic) monuments were typically never present along the planned 85 expressway, the planned investment does not endanger no monuments or heritage of the kind, furthermore, the ethnographic or local history monuments of the cultural heritage are not at risk either.

The subject matter track is feasible from the aspect of the constructed environment.

3.7. Noise and vibration protection

In the course of the impact analysis, we examined:

- noise and vibration protection requirements related to the facility
- areas impacted by noise protection

In the course of analysing the impacts of the planned activities, we examined the following:

- the current noise situation in the direct and indirect impact areas
- possibilities of noise protection during the construction
- expected noise load in the directly impacted area after the completion of the expressway

Assessment of the current noise situation

In the course of the KHT prepared in 2001, noise level measurements took place in several points ion the region of main road 85.

Analysed noise features

- daytime noise level
- nighttime noise level.

In the examined section, the track of main road 85 is located mainly in area neutral from noise protection point of view, except for the region of Kóny, where the impact area of the planed route extends to the northern perimeter of the inhabited area. Along the main road, as well as in the vicinity of the connecting main and secondary roads, the noise levels are determined by the given sources of traffic.

Results of measurement point 1 are presented fro information purposes only, since with the construction of the Enese ring section, the current situation is much more favourable on the site. Accordingly, no further detailed analysis was conducted for Enese, since the investment is considered to be finished, and so the constructed ring section is regarded as a feature of this section.

Compared to the limit values set forth for the newly designed areas in KvVM-EüM joint decree 27/2008 (XII. 3.) it can be found that the noise level measured along the planned road currently does not exceed the daytime and nighttime limit values tat measurement point 2 stipulated by the law.

Demarcation and characterisation of the impacted area

Noise load analysis of the direct impact area and its facilities to be protected was carried out in compliance with the provisions set forth in Paragraphs 5 and 6 of the Government Decree 284/2007 (X.29.) on the rules of protection against environmental noise and vibration.

Impacted area

Demarcation of the impacted area was based on the night noise load value for the year 2025. So the impact area relevant from the aspect of Section a), Paragraph 6 of Government Decree 284/2007. (X. 29.) is the area bordered by 45 dB isophonic curves.

For the calculation of the impacted area we considered open-air propagation free of obstacles. In the road kerfs, the above values are lower. We consider these values as the least favourable ones, which can be accepted as an appropriate approach.

Design speed (considered maximum): 110 km/h

Based on the traffic sections (see the traffic chapter), we determined the following impact areas for the individual areas:

Demarcation of the impacted area

Track	track section	border of the impacted area [m]
		number of residents
M85	0+000 - M1 junction	340
M85	M1 junction - 6+800	310
M85	13+800 - Kónyi street	325
M85	Kónyi street – 19+800	328

Protecting distance

Protecting distance means the distance within which detailed noise load analysis for the facilities to be protected is necessary. In the following table, the protecting distance for inhabited areas is identified along the 55 dB noise curve. Outside the protecting distance no noise load exceeding the limit values is expected.

Noise protection protecting distance along the track is illustrated in the overview site plan.

On the overview site plan, the noise curves indicating the direct impact area run parallel to the planned track, which we set for nighttime at 55 dB, pursuant to Government decree 284/2007. (X. 29.). Taking into consideration the building zone classification of the given areas, the noise load of the facilities to be protected has to be analyzed in detail within the territory bordered by these curves.

Demarcation of protecting distance

Track	track section	border of the impacted area [m]
		number of residents
M85	0+000 - M1 junction	75
M85	M1 junction - 6+800	67
M85	13+800 - Kónyi street	71
M85	Kónyi street – 19+800	73

The protecting distance is illustrated in the overview site plan.

Vicinity of the impacted areas and facilities to be protected

Since the planned track crosses different areas from noise protection point of view, below we introduce in detail the environment populated with residential and other buildings near the track route.

The only residential buildings near the protecting distance are the dwelling houses in the northern section of Kóny, so we set the closest relevant analysis points here, similarly to the examinations of the earlier plan phases.

Elsewhere in the vicinity of the track only agricultural areas and neutral territories from noise protection point of view are located.

We emphasize that the limit values beyond the noise protection distance illustrated on the overview site plan will not be exceeded during long-term operation, neither during the day, nor at night.

The relevant points of analysis appointed in the region of the planned section of the examined facility and their distance from the source of noise are illustrated in the following table.

Appointed relevant points of analysis in the impacted area

Track	Side	Impacted facility		Distance from the planned main track and the adjusted main road (m)	Current source of noise
M85	left	Kóny	Top.n.: 952/54	99/40	main road 85
M85	left	Kóny	Top.n.: 952/57	101/41	main road 85
M85	left	Kóny	Mátyás Király street 1. Top.n.: 952/60	133/92	main road 85

We emphasize that except for Kóny, there are no facilities to be protected within the 55 dB protecting distance of the planned track, so it can be stated that except for Kóny, the noise protection limit values are not expected to be exceeded for any of the facilities to be protected along the designed track.

Further calculations to be made

In the following, we will carry out noise level calculations for the relevant points of analysis introduced in the table.

In the course of calculating the noise level we will consider also the noise load impact of main road 85 appearing on the adjusted route.

Calculation on the relevant analysis points

We made our calculations for the characterisation of the long-term status and for the introduced points of analysis. Where there are no facilities to be protected along the design area, we did not appoint points of analysis. Results of the calculation are included in the following table.

In the course of the analysis, the long-term noise load was determined for the immission points from the pre-estimated traffic data, in the case without the noise protection facilities.

Expected noise load on the facilities to be protected in the impacted area

	Analysis point	Noise load in the vicinity of the relevant points of analysis						
			noise load of main public road 85		noise load of M85		Initial noise load	
		levels	L_{Aeq} daytime	L_{Aeq} nighttime	L_{Aeq} daytime	L_{Aeq} nighttime	L_{Aeq} daytime	L_{Aeq} nighttime
			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
	Kóny							
1	Top.n.: 952/54	ground-floor	61.5	54.6	59.2	52.3	**63.5**	**56.6**
2	Top.n.: 952/57	ground-floor	61.7	54.8	59.1	52.2	**63.6**	**56.7**
3	Mátyás Király street 1. Top.n.: 952/60	ground-floor	56.5	49.2	57.3	50.4	59.9	52.9

With respect to the calculation results presented in the table above it can be stated that the difference between the noise load without noise protection calculated for long term and the limit value is 1.6-1.7 dB at night.

We emphasize that for the relevant points of analysis we also considered the adjusted track of main road 85 and the main track of the planned expressway M85.

As a consequence, technical noise protection facilities have to be designed for the section in order to meet the applicable limit values.

It can be seen from the calculations that the noise load originating from main road 85 and expressway M85 exceeds the limit values at the first two analysis points, which means that a noise shielding wall has to be built.

As summary, below we specify the location and layout of the noise shielding wall.

Layout of the noise shielding wall

Layout of the planned walls:

368 m of length on the left side along correction 4 of main road 85.
Geometric and acoustic parameters of the required noise shielding walls:

Start	End	Side	Height (m)	Length (m)	Columns (pcs)
0+011	0+362	Left	3.00	368	94

Noise protection during construction

With the appropriate noise protection measures the noise of the construction is considered tolerable, and the expected noise load – provided the recommended measures are taken – meets the requirements indicated by the law.

Monitoring

We determined the time and locations of the monitoring in accordance with the provisions set forth in the earlier permits and plans, pursuant to the changed coverage conditions.
Accordingly, we recommend installing monitoring points to continuously record and monitor the status of the environment in the following locations:

Recommended monitoring

Before construction (for the sake of clarified basic condition)

Z1. measurement point
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of noise: main road 85

Z2. measurement point
North façade of dwelling house under Kóny, top.n: 952/57
in the region of km section 16+000
Source of noise: main road 85

Z3. measurement point
Northwest façade of dwelling house under Kóny, Mátyás Király út 1. (top.n. 952/60)
in the region of km section 49+000
Source of noise: main road 85

Under construction

Z1. measurement point
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of noise: Construction activity

Z2. measurement point
North façade of dwelling house under Kóny, top.n: 952/57
in the region of km section 16+000
Source of noise: Construction activity

Z3. measurement point
Northwest façade of dwelling house under Kóny, Mátyás Király út 1. (top.n. 952/60)
in the region of km section 49+000
Source of noise: Construction activity

Construction activity only applies for daytime period, so daytime sampling is sufficient..

The noise protection plan for the construction has to be prepared in the basis of the organisation plan, in order to ensure minimum level of unfavorable impact and to comply with the limit values.

After commissioning

Z1. measurement point
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of noise: main roads M85 and 85

Z2. measurement point
North façade of dwelling house under Kóny, top.n: 952/57
in the region of km section 16+000
Source of noise: main roads M85 and 85

Z3. measurement point
Northwest façade of dwelling house under Kóny, Mátyás Király út 1. (top.n. 952/60)
in the region of km section 49+000
Source of noise: main roads M85 and 85

Noise measurement has to be carried out at least 6 months after commissioning.

Values to be measured: Relevant equivalent A-noise pressure level for day and night.

Traffic data have to be recorded in each case.

Vibration load during construction

During construction works damages due to vibration are frequently experienced. These damages are usually related to the use as transport routes of traffic and link roads not designed for high level of traffic.

Based on this experience we recommend to establish transport routes to avoid inhabited territories, if possible, and to use earth roads outside the inhabited areas for this purpose.

During the construction, the vibration load has to be taken into consideration. This issue has to be further addressed.

The new track structure will be implemented considering the long-term traffic conditions, so the vibration load on the buildings within the direct impact area is expected to reduce.

With the appropriate vibration control measures, the vibration caused by the construction is regarded as tolerable.

Recommendation for the establishment of a monitoring system

The vibration monitoring points recommended below will be finalised in the organisation plan, once the building contractor is known.

Recommended measurement site – the closest dwelling house to the construction site:

R1. measurement point (same as noise measurement point Z1)

North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of vibration: highway construction

Measurement frequency:

The measurement has to be carried out in the course of the construction in the section of km. section 16+000, during the most intense earthworks. The most intensive period has to be determined on the basis of the organisation plan to be prepared at a later time.

3.8. Waste management

In the course of preparing the impact study we analysed the following

- Waste materials generated during the construction
- Estimated quantity of the construction waste materials
- Waste materials generated during the operation
- Elimination of hazardous waste materials
- Waste management requirements

Summary of our analyses:

Reasonable waste management pursuant to the applicable legal provisions is required during both the construction and the operation of the facility.

Collection and removal of the generated waste materials, as well as handover to the utilisation or disposal organisation has to be carried out without endangering the environment.

Non-hazardous waste materials that cannot be reused must be managed similarly to and together with the solid communal waste Selective collection of hazardous waste materials, their reuse or disposal have to be carried out depending on the quality of the waste materials in question.

In summary, it can be stated that based on the examinations carried out, if the collection, management and temporary storage system is implemented as recommended, the waste materials will not cause any problem from environmental point of view.

4. SUMMARY OF MEASURES TAKEN TO PROTECT THE ENVIRONMENT

4.1. Soil, underground water

Necessary measures

Storage and management of waste materials (communal and hazardous) generated during the construction has to be carried out in accordance with the applicable legal provisions.

With respect to the general rules of, collection, storage, removal and utilisation of waste materials, paragraphs and annexes of act XLIII/2000 on waste management shall be applied.

Measures to determine the hazardous nature of hazardous waste materials, the general rules of their management, collection, storage, transportation, utilisation or disposal shall be taken pursuant to Government Decree 98/2001 (VI.15.) and its annexes.

After the construction, soil loosening has to be carried out in the impacted agricultural areas to counteract the effects of compaction.

Transportation and storage of the removed humus must be resolved in a manner that minimises dusting and secondary air contamination.

In the areas impacted by the construction and in the territory of the future material retrieval sites, the soil has to be removed on the basis of the humus management plan in a selected manner (by soil type) and to be stored in temporary landfill, then the soil will have to be used for the grassing of the road embankment slopes. After the completion of the construction works, reclamation of the agricultural areas along the impacted roads will be necessary.

Detailed (Emergency) Action plans have to be prepared for the events of emergency, and the provisions set forth therein will have to be adhered to.

During the construction, preparations for emergency situations have to be made. Failures of machines resulting in high level hydrogen leakage may cause unexpected and extensive soil contamination requiring immediate intervention to prevent further damaging effects of the contamination. Such contamination can be eliminated by immediate mop-up of the contaminant and quick removal and deposition in containers of the contaminated soil. It is important to ensure that sufficient quantity of absorbent material is immediately available to the contractor. Soil contaminated with hydrocarbons has to be removed for elimination as hazardous waste material by a certified supplier.

Control analyses, recommendations

No sources of contamination are located near the track.

Based on the exploration drills and the analysis of the samples taken in 2001, we considered the determination of the soil basic condition to be sufficient.

Extent of the demonstrated impact does not necessitate monitoring, however, with respect to the vicinity of the Barbacsi channel, we comply with the provision of the environmental permit issued in 2012, i.e. continuous monitoring of the changes taking place in the environment is necessary in the Natura 2000 area (region of the km section 18+500).

Sampling site:

Region of the km section 18+500 in the Natura 2000 area (Barbacsi lake)

Parameters:

Examination of the soil quality has to be based on the following features: total petroleum hydrocarbons (TPH), heavy metals

Examination of the groundwater quality has to be based on the following features: general water chemistry parameters, total petroleum hydrocarbons (TPH)

Summary

Based on the layer orders typical for the design area introduced in the soil protection chapter, the following conclusions can be made:

- In a part of the design section, typically in the upper layers thin or medium clay and mud with bad water-bearing ability appears.
- Where the upper layers have good water-bearing ability, the clay layers appear in greater depth and the protection of the groundwater is ensured.
- in the sections designed with desiccation, calculation must support that contamination of the underground water can be excluded.

Due to the presence of hard soils typical for the design area (mud, clay), contamination of the groundwater is improbable.

From soil protection point of view – ignoring the use of the territory – we consider the impact of road construction to be neutral.

Soil structure damages generated during the implementation can be restored using agro-technological methods, so they do not qualify as actual impacts.

It is true for both the construction and the operational phases that the contamination of the environmental element – with the proper technological discipline – can be excluded or minimised.

In the course of the operation of the expressway, the load on the underground water is limited to the contaminants washed down with the precipitation water; however, according to the latest research and analysis results, these contaminants – provided that the appropriate soil features and ditch implementation are in place – decay quickly and do not reach the underground water.

4.2. Surface water

Protecting measures

The design section crosses water flows in multiple locations.
During the construction of the track structure attention must be paid to avoid the contamination of these water flows.
From the contamination limit values determined by KvVM decree 28/2004. (XII.25), the oil contamination is critical. Drainage of the precipitation water of the trench feet to the receiver has to be designed to exclude the possibility of contamination above the limit value.

From water protection point of view, attention must be paid to continuous drainage of water also during the construction, the existing water drainage lines must not be blocked and the sections of the water flows must not be restricted. Usually salts lowering the freezing point – mainly sodium-chloride – mixed with sand are used to deice roads.

Control inspections

In the year 2006 a thorough water quality inspection was carried out upon the assignment by the National Infrastructure Development Zrt., with respect to the cleanness of the precipitation water drained from the highways, with special request to the oil contamination.

Based on the experiences gained during the examination, the study introduced a calculation method depending on the traffic volume to determine the expected contamination.

According to the calculations, also the water coming from the coated ditch meets the requirements of the standard, its value is below the tolerated value of 5 mgTPH/l, which means that **no specific cleaning equipment is required.** No cleaning structures have to be installed for the live water connections, either.

So, from the aspect of protecting the surface water, the investment can be implemented.

We don't think monitoring of the surface waters is necessary.

4.3. Air protection

Measures related to the impacts of construction

From air purity protection point of view, the following measures can be applied to reduce the impacts during the construction:

- minimisation the duration of earthworks,
- selection of transport routes,
- selection of low-emission machines,
- traffic organisation,
- dust removal, watering,
- covering transport vehicles,
- temporary cover for dusting materials,
- right selection of the asphalt mixing sites,
- use of mudguards,
- minimisation of the necessary vehicle rounds
- working only in fenced expropriated sites in the vicinity of Natura 2000 areas.

Measures related to the impacts of operation

Monitoring planning

The route of the design track approaches inhabited areas only on case of Kóny, it can be stated however, that according to the performed calculations limit values are not expected to be exceeded.

Nevertheless, basic condition measurement was conducted to record the current status, so it is recommended to establish an onsite monitoring point to follow up the changes of the air quality.

Establishment of monitoring points is not necessary in other locations, because no load approaching the medical limit values is expected with respect to either of the contaminants.

The air purity monitoring point also serves as a noise protection monitoring point.

Air purity protection monitoring has to be carried out once, one year after the commissioning of the road.

Air pollutants to be analysed:
Examined pollutants: CO, NOx, SO_2, CH, floating dust, lead content of the floating dust (Pb), cadmium content of the floating dust (Cd), formaldehyde (HCHO)

Duration of the analysis: 24 hours

Time of measurements: After commissioning

L1. measurement point (same as measurement points Z1 and R1)
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source: main roads M85 and 85

4.4. Wildlife

Recommended measures to reduce the impact

- In the course of the implementation, works can only be performed in expropriated areas to avoid disturbance and damages to the neighbouring habitats. To this end, for the entire duration of the works 1.5 high temporary protecting fences have to be installed on the expropriation borders on both sides of all sections, where the road crosses Natura 2000 areas or passes along the border of them.
- In the Natura 2000 areas located in the region of the planned track (except for the expropriation area necessary for the expressway M85) it is not allowed to establish depots or landfills to store debris, construction materials and equipment, even on temporary basis, and it is not allowed to establish a material retrieval site or march route.
- It is required to install temporary protecting fence also for the new earth road designed south from km sections 17+300 – 18+000 of the planned expressway M85, on the edge of the Natura 2000 area, in order to exclude the possibility of entering or driving in to the Natura 2000 territory from this point.
- In order to protect the animal life in the Natura 2000 areas impacted by the planned track, shrub and tree cutting or sod-cutting is allowed only between the 1st of September and the 1st of February.
- In the course of works carried out in Natura 2000 areas impacted by the planned track, working restrictions are necessary in the potential inland waters during the breeding seasons to protect amphibians. To this end, no earth work can be done in the inland water areas between the 1st of March and 15th of June (if the landscape has been settled, the started work can be continued in this period). If no inland waters are formed due to the dry weather

conditions, then the works can be continued following preliminary coordination with the environmental supervisor of the territory, and the time restriction can be abolished.

- Steep-walled hollows (e.g. working ditches) created during the construction activities must not left uncovered for days, because it may cause death of small mammals and amphibians. In the course of filling and earth works related to these hollows, one must make sure that no protected animals have fallen into them, and the work can only be continued after such animals were rescued.
- In order to reduce fragmentation of amphibian and small mammal populations, frog crossings must be established in certain sections. The crossings must be established in accordance with the road construction regulation ÚT 2-1.304:
    - The crossing and guiding system must be continuous, neither the guide, nor the neither crossing of the guide and the crossing may have sections, where the animals can get though. Crossing must be ensured for both the planned high road M85 and the existing main public road 85.
    - It must be ensured that the crossings are not permanently under water during the spring movements, especially in years of inland waters.
    - Their diameter – with a view to their length exceeding 30 m – must be at least 1.2 – 1.4 m.
    - At the bottom of the culvert, at least 5 to 10 cm thick bedding must be built from the mix of earth and litter to prevent dehydration or freezing of amphibians and reptiles during the migration.
    - A guiding system has to be implemented for the crossings, which guiding system must be independent from the system draining contaminated water from the road. The height of the guiding system must be at least 50 cm above the ground, and its section in the ground must exclude the possibility of getting through.
    - Distance of the crossings must be the given minimum of 100 m, but between the more valuable habitat spots – if possible – should not exceed 50 m.
    - Safe movement of small mammals guided must be ensured along the section between the expressway and the main road, so in order to prevent access to the expressway protecting fence or guiding mesh has to be installed between the heads of the two crossings. In order to provide access to culverts and closed areas, personal entrances have to be implemented on the fences.
- Recommended road section for the implementation of frog crossings:
    - every 100 m between km sections 17+500 and 18+600 of the planned expressway M85, and every 50 m between km sections 18+600 and 18+950.
    - On the existing and adjusted section of main road 85 (not on the Natura 2000 area), in form of new crossings installed synchronously with the M85 expressway crossing.
- A wildlife crossing to be implemented for the existing main road 85 and the planned expressway M85 along the Barbacsi channel must be suitable for crossing by the otter.
- In the course of grassing the slopes created during the investment only native plants typical for the region can be used For the wet areas it is recommended to plant talk fescue (*Festuca pratensis*) and creeping bent (*Agrostis stolonifera*), whereas on drier slopes tall brome (*Bromus erectus*) is recommended. Sections enclosed between the fences between the road tracks (inclusions) must be mowed at least twice a year, and the spreading of invading plants must be prevented (e.g. *Solidago gigantea*).
- For forestation in Natura 2000 and neighbouring areas and only native tree and shrub species compatible with the landscape can be planted. Invasive species currently located in

the zone between km sections 17+500 and 19+000 of the expressway M85, as well as in the parallel zone of main road 85 (acacia green maple) must be removed, and care must be taken to prevent their future reappearance in the zone.

- In the course of the implementation continuous consultation is required with the specialists of the Fertő-Hanság National Park Directorate and the National Protection Guard Service. Before the start of certain partial works near the Natura 2000 areas and protected natural reserved, onsite coordination has to be conducted with the specialists of the Directorate in order to minimise the damage to the nature.

4.5. Landscape protection

Upon the construction of the expressway, the location of the individual land uses is taken by category "*highways, expressways and main roads"* in case of *"the accompanying green belt is narrower than 1/3 of the covered surfaces"*, the value indicator of which is 0.5.

With the construction of the expressway, less favourable activity values are expected.

Used territory (ha)	Value indicator	Value of biological activity	Extent of biological activity value reduction
97.33	0.5	48.665	318.57

Activity values of the individual areas can be clarified with the help of the value indicators included in Annex 2 of the decree assigned to the different surface qualities within the given territorial use.
Restoration of the biological activity value can be implemented with protecting afforestation or the implementation of other types of green areas along the road.

Landscape compatibility recommendations

On plain areas, endless straights of artificial elements are always emphatic elements of the landscape.

Incorporation of linear facilities into the landscape means the track alignment on the design level, landscape transformation on the implementation level, and settlement or plantation of the environment using horticultural or forestry methods after the completion of the construction.

Plantation is a very efficient way of incorporation into the landscape. In the areas along public roads, plants, trees and clumps are the means of incorporation into the landscape, which – besides helping the driver maintaining attention – may also correct the coordination errors of the track alignment.

The view of the roads and the related structures is different on plains and hills, in embankments and kerfs. In a kerf or spatial corridor (protecting wall, protecting embankment, protecting forest) nothing can be seem, whereas "everything" is seen from the embankment.

The track leads in plain area, so the 2 m high embankment can be incorporated into the landscape by planting tree belts and shrubs on both sides.

On the slopes incorporation into the landscape is recommended by planting shrubs, considering traffic safety aspects. Junction crossings elevated 7 to 8 meters from the

landscape can be hidden with covering plantation, taking into consideration that planted woods needs several years before they can fulfil the adequate function.

In the region of the design area, the prevailing wind direction is NW, W. Since the ratio of afforested areas and forests is rather low, south parts of the towns in the region are exposed to the vicissitudes of the prevailing wind.

During winter, snow barriers may form on the road leading on the plain area in case of snow of specific condition, sufficient snow and barriers crossing the wind direction.

The simplest, most economic and proven means of protecting highways, expressways, railways and other main roads against drifting snow is the snow catching railing, while the other method to protect roads against drifting snow can be the snow catching forest belts: their positive effect presents itself after already 1 to 2 years following the plantation.

Planting protecting forest along the road requires considerable land use, and their plantation may introduce a foreign element into the plain landscape, so woody plants have to be planted to tie slopes and in close vicinity of structures and facilities.

The track does not impact or cross forest areas, but it does cross natural habitat spots. When planting in these areas, attention must be paid to accommodation to the existing vegetation and their habitats, and the use of typical species for the area must be planted along the track.

In the design area it is recommended to plant domestic and native exots and other native species to tie the slopes and for decoration purposes.

4.6. Protection of the constructed environment

The planned track located in the appropriate distance from the internal areas of settlements does not impact historic monuments, buildings of that kind, or buildings with individual landscape value.

Access to the properties is ensured by grade level junctions for crossing roads and earth roads, as well as by the construction of parallel service roads.

The Heritage Protection Impact Study foresees preliminary or test exploration in case of several concerned sites.

Since the investment is regarded as a major investment, KÖH (National Centre for Cultural Heritage Management) is expected to order archeological supervision for the entire length of the track.

4.7. Noise and vibration protection

In order to reduce the noise originating from the planned facility, we recommend the construction of noise shielding wall for the building of Kóny impacted by the excessive noise load.

The noise shielding wall can well be used to reduce noise, if the noise comes from a specific direction toward the immission site. The extent of noise reduction achievable with noise shielding facilities is strongly influenced by the location and the height conditions. Under ideal circumstances (e.g. a single-story dwelling house) max. 12 dB noise reduction can be achieved.

Below we summarise the location and layout of the noise shielding wall.

Layout

Layout of the planned walls:

On the left side of correction 4 of main road 85 along the length of 368 meters.

Geometric and acoustic parameters of the required noise shielding walls:

Start	End	Side	Height (m)	Length (m)	Columns (pcs)
0+011	0+362	Left	3.00	368	94

Control inspections

Recommended monitoring

Before construction (for the sake of clarified basic condition)

Z1. measurement point
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of noise: main road 85

Z2. measurement point
North façade of dwelling house under Kóny, top.n: 952/57
in the region of km section 16+000
Source of noise: main road 85

Z3. measurement point
Northwest façade of dwelling house under Kóny, Mátyás Király út 1. (top.n. 952/60)
in the region of km section 49+000
Source of noise: main road 85

Under construction

Z1. measurement point
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of noise: Construction activity

Z2. measurement point
North façade of dwelling house under Kóny, top.n: 952/57
in the region of km section 16+000
Source of noise: Construction activity

Z3. measurement point
Northwest façade of dwelling house under Kóny, Mátyás Király út 1. (top.n. 952/60)
in the region of km section 49+000
Source of noise: Construction activity

Construction activity only applies for daytime period, so daytime sampling is sufficient..

The noise protection plan for the construction has to be prepared on the basis of the organisation plan in order to ensure minimum level of unfavorable impacts and to meet the respective limit values.

After commissioning

Z1. measurement point
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of noise: main roads M85 and 85

Z2. measurement point
North façade of dwelling house under Kóny, top.n: 952/57
in the region of km section 16+000
Source of noise: main roads M85 and 85

Z3. measurement point
Northwest façade of dwelling house under Kóny, Mátyás Király út 1. (top.n. 952/60)
in the region of km section 49+000
Source of noise: main roads M85 and 85

Noise measurement has to be carried out at least 6 months after commissioning.

Values to be measured: Relevant equal A-sound pressure for day and night.

Traffic data have to be recorded in each case.

R1. measurement point (same as noise measurement point Z1)
North façade of dwelling house under Kóny, top.n: 952/54
in the region of km section 16+000
Source of vibration: highway construction

Measurement frequency:

The measurement has to be carried out in the course of the construction in the section of km. section 16+000, during the most intense earthworks. The most intensive period has to be determined on the basis of the organisation plan to be prepared at a later time.

4.8. Waste management

Construction wastes generated during the implementation must be handled selectively, pursuant to the provisions of the joint BM-KvVM Decree 45/2004. (VII. 26.). Waste materials can only be handed over to certified professional companies entitled to pursue waste management activities.

For the construction licensing plan, a construction waste plan form, and during the occupation licensing a construction waste registration form according to annex 2 of the decree have to be submitted.

For the design and operation periods, waste management plans have to be prepared.

Management of potentially generated hazardous waste materials must be carried out in accordance with the requirements detailed in Government Decree 98/2001 (VI.15.).

Waste materials to be collected selectively have to be handed over to a utilisation or management organisation, or in case of biologically decaying wood wastes, utilisation on the site by the population can also be supported.

Hazardous materials can only be handed over for management or elimination to authorised organisations.

Depending on the quantity of the generated hazardous wastes, a storage container for hazardous waste materials has to be installed with the parameters meeting the applicable legal provisions.

Public transport is allowed only in vehicles specified in the referred decree, and the accompanying documentation must contain the type, hazard class and composition, etc. of the waste.

Handover of the waste materials must be documented in detail, which data and information may be requested for submittal in connection with the occupation licensing by the competent Environmental Nature and Water Management Inspectorate.

Wastes generated during the operation have to be registered in accordance with the related legal provision, on the basis of which the mandatory quarterly and annual data provisioning has to be prepared.

Remediation of the hazardous waste materials shall be preceded by environmental exploration works, which are the following:

- Collection and systematisation of general information.
- Analysis of geological and water geology conditions of the area.
- Determination of the contamination limit values for the contaminants.
- Determination of the status prior to the contamination and the certified values of background concentration.
- Exact determination of the contamination source, the damaged area, as well as the location and extent of the technical intervention.

5. SUMMARY OF THE RECOMMENDED PROTECTING MEASURES AND MONITORING RECOMMENDATIONS

Recommended measures and facilities to protect nature and environment

Environmental element	Recommended measure	Site, km and section number of the measure
Noise protection	- Construction of a 3 meter high noise shielding wall	For Kóny: left side of correction 4 of main road 85 - 368 m long between km sections 0+011 and 0+362.
Wildlife	- 1.5 m high temporary protecting fence during the construction	- for al sections, where the road crosses Natura 2000 areas or their borders, - for new earth road located south of the section between km sections 17+300 – 18+000 of the expressway M85, in the periphery of the Natura 2000 area
	- storage prohibition of debris, construction materials and equipment, depositing	- in Natura 2000 areas
	- wildlife crossing combined with water flow	- along the Barbacsi channel for the existing main road 85 and the designed expressway M85
	- crossings for amphibians and small mammals every 50 and 100 meters with guiding net system	- every 100 meters between km sections 17+500 and 18+600, - every 50 meters between km sections 18+600 and 18+950, - on the existing section and section concerned by road correction of main road 85 (non-Natura 2000 areas), in form of new crossings implemented synchronously with the M85 expressway crossing.

Summary of monitoring recommendations

Environmental element	Analysed parameter	Site	Frequency
Soil, underground water	- Examination of the soil quality: total petroleum hydrocarbons (TPH), heavy metals - Examination of groundwater quality: general water chemistry parameters, total petroleum hydrocarbons (TPH)	Region of km section 18+500 of the track, in Natura 2000 area (Barbacsi lake)	Frequency of the analysis: - once in 5 years of the operation
Air protection	- Performing air measurement at the specified point during the operation.	**L1. measurement point** North façade of dwelling house under Kóny, top.n: 952/54 in the region of km section 16+000	Frequency of the analysis: Once after commissioning
Noise protection	- Performing noise measurement with traffic counting at the specified points in basic condition, during construction and during operation.	**Z1. measurement point** North façade of dwelling house under Kóny, top.n: 952/54 in the region of km section 16+000 **Z2. measurement point** North façade of dwelling house under Kóny, top.n: 952/57 in the region of km section 16+000 **Z3. measurement point** Northwest façade of dwelling house under Kóny, Mátyás Király út 1. (top.n. 952/60) in the region of km section 49+000	Frequency of the analysis: In the basic condition, during the construction and once during the operation
Vibration protection	- Vibration measurement in the most intensive phase of the construction.	**R1. measurement point** North façade of dwelling house under Kóny, top.n: 952/54 in the region of km section 16+000	Frequency of the analysis: Once during the most intense period of the construction