

Bosnia and Herzegovina
Federation of Bosnia and Herzegovina
FEDERAL MINISTRY OF ENVIRONMENT AND
TOURISM

Number: UPI 05/2-23-11-114/19
Sarajevo, 27 September 2019

PE AUTOCESTE FBIH
Hamdije Kreševljakovića 19
71 000 SARAJEVO

Federal administration for Inspection Issues
Fehima ef. Ćurčića 6
71 000 SARAJEVO

/Seal: Public enterprise Autoceste
Federacije Bosne i Hercegovine
Limited liability company
MOSTAR
Number 05-449-3/19
Date: 3 October, 2019 20.....

Subject: Decision on delivery of environmental permit, *-to be delivered-*

Dear Sir or Madam,

Please find attached the Decision on issuing of environmental permit for design "Motorway on Corridor Vc" section: LOT 2 - section Doboj Jug (Karuše) - Sarajevo (south) - Tarčin in total length of 145 km

Yours faithfully,

To be delivered to:

- *the abovementioned person*
- *file*
- *case file*

MINISTER
Edita Đapo, PhD
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Number: UPI 05/2-23-11-114/19
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Pursuant to Article 68 and 71 of the Law on Environmental Protection ("Official Gazette of Federation of BiH", No. 33/03), Article 18 paragraph 54 point a) of the Law on Amendments of the Law on Environmental Protection ("Official Gazette of Federation of BiH", No. 38/09) and Article 200 of the Law on General Administrative Procedure ("Official Gazette of Federation of BiH", No. 2/98 and 48/99) and deciding upon the request of operator PE Autoceste Federacije BiH of Ministry of Communications and Transport of Bosnia and Herzegovina for previous assessment of environmental impact referring to the design "Motorway on Corridor Vc" section LOT 2 - section Doboju jug (Karuše) - Sarajevo (south) - Tarčin, Federal Ministry of Environment and Tourism issues the following

DECISION

1. Environmental permit is being issued to PE Autoceste Federacije Bosne i Hercegovine referring to the design Motorway in Corridor Vc section: LOT 2 - section Doboju Jug (Karuše) - Sarajevo (south) - Tarčin in total length of 145 km.

2. The environmental permit is issued

Corridor Vc is divided into four LOTs:

- LOT 1: section Donji Svilaj - Doboju south (Karuše).
- LOT 2: Doboju south (Karuše) - Sarajevo south (Tarčin), excluding section Kakanj-Blažuj.
- LOT 3: section Sarajevo south - Mostar north
- LOT 4: section Mostar north - state boundary south

Subject of this request is LOT2: Doboju Jug (Karuše) - Sarajevo south (Tarčin) divided into 4 sections for which environmental permit has been obtained:

- Karuše-Donja Gračanica
- Donja Gračanica-Kakanj
- Kakanj-Vlakovo
- Vlakovo-Tarčin

Sections were divided into 8 sections according to the terms of reference referring to creation of this request:

- Section 1: Karuše-Medakovo
- Section 2: Medakovo - Ozimica
- Section 3: Ozimica - Poprikuše
- Section 4: Poprikuše - Nemila
- Section 5: Nemila - Donja Gračanica
- Section 6: Donja Gračanica - Drivuša
- Section 7: Drivuša - Kakanj
- Section 8: Kakanj - Tarčin

Planned alignment of motorway in Corridor Vc, LOT 2, passes through central part of BiH including the municipalities of Usora, Tešanj, Maglaj, Žepče, Zenica and Kakanj of Zenica-Doboju Canton. In Sarajevo Canton, alignment of LOT 2 passes through municipalities Ilidža (from Vlakovo) and Hadžići (to Tarčin). In Central Bosnia Canton the adopted alignment passes through the municipality Kiseljak. The following picture represents the location of the design (Motorway on the Corridor Vc) and sections of LOT 2 are specially highlighted.

Section 1 Karuše - Medakovo (chainage from km 62+500 to 67+000)

There are plans to build interchange Karuše where the alignment crosses road M4 Doboju-Teslić by which the town of Teslić and the surrounding settlements are connected with the motorway. Furthermore the alignment is built as a predominantly open road route towards south and it passes parallel to the river Usora and next to villages Makljenovac, Alibegovići, Tešanjka and Žabljak on the west and Matužići and Kraševo on the east. At the node Medakovo the alignment crosses the existing county road R474 where there are plans to build Traffic Control and Management Centre Medakovo.

Section 2 Medakovo - Ozimica (chainage from km 67+00 to 88+150)

Ul. Hamdije čemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747
e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

Furthermore the alignment continues to pass parallel to the river Usora to the south and it passes near villages Čifluk, Medakovo, Tugovići, Ripna, Jablanica and Kardaglija. South from Kardaglija the alignment overpasses the river Glava with the help of structure approximately 340 m long and continues to the tunnel Crni Vrh which is 1.8 km long. The motorway passes parallel to river Strupinska Rijeka as an open road route passing next to villages Novi Šeher, Grabovica and Ljubatovići to the interchange Ozimica. This section was changed in comparison to the 2007 Study at the location before the entrance into tunnel Crni Vrh where the alignment exits the said corridor in the length of approximately 750m by passing the local road in south, at the end of the village Kardaglije, via bridge 288 m long and then by entering the tunnel Crni Vrh 1.8 m long. Interchange Ozimica also partially exited the said corridor in 2007 Study.

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Section 3 Ozimica - Poprikuše (chainage from km 88+150 to 100+200)

After the interchange Ozimica, the alignment proceeds towards southwest containing several bridges and tunnels, passing next to village Tatarbudžak, on the northwest it bypasses Žepče. After the village Varošite west of Žepče, the alignment is changed in comparison to the one referred to in 2007 Study, it approaches river Bosna and it overpasses railway track via bridge 270 m long and it passes parallel to the railway road and next to the village Papratnica reaching the bridge Mo 7 (294 m long) that passes river Bosna. This is where the alignment continues to be the same as the alignment referred to in 2007 Study, it and after it passing over river Bosna for the second time it enters a tunnel in Brezovo Polje. Upon exiting the tunnel, at this location too, the said alignment differs from the alignment referred to in the Study, it runs to the west, overpasses a railway track, it passes parallel to the river Bosna in the form of spiral before the node Poprikuše located at the area of Golubnjak. This represents the end of location. There is an interregional node in the area south from Žepče, it is the location where the alignment meets motorway A3 Tuzla-Žepče.

Dionica 4 Poprikuše - Nemila (chainage from km 100+200 to 105+500)

Pursuant to 2017 project design, section Poprikuše - Nemila begins with the beginning of bridge overpassing the river Bosna, it runs parallel to the node Poprikuše and after that it enters tunnel Golubnjak 3659 m long. After it exits the tunnel, the alignment overpasses river Bosna with two small bridges and this represents the end of the section. At its southern part, tunnel axis differs from the alignment referred to in the 2007 Study. The greatest difference is somewhat less than 400m.

Section 5 Nemila - Donja Gračanica (chainage from km 105+500 to 123+500)

Section Nemila - Donja Gračanica is divided into five subsections via designs.

1. Nemila - Vranduk
2. Vranduk-Ponirak
3. Ponirak - southern exit from the tunnel Zenica
4. Southern exit from the tunnel Zenica - Zenica north (Donja Gračanica)
5. Donja Gračanica (Zenica north) - Tunnel Pečulj.

More detailed description of the route per subsections shall be provided in the remainder of the text. Alignment in this section passes parallel to the right river bank of the river Bosna to the village Nemila. After the village Nemila it passes to the left river bank for a short length and then it returns to the right river bank passing next to villages Koprivna and Ponirak. This is the part that underwent a major change in comparison to alignment referred to in 2007 Study. Then the alignment used to pass much nearer to the national monument construction unit - Stari grad Vranduk. After Ponirak the alignment reaches the interchange Zenica north via tunnel Zenica 2.4 m long and several bridges and tunnels Vraca and furthermore it proceeds to the entrance into tunnel Pečulj via tunnel and viaduct. After the tunnel Vrata the alignment passed closer to the river Bosna in comparison to the 2007 Study which went more along the hill slope.

Section 6. Donja Gračanica - Drivuša (chainage from km 123+500 to 131+500)

The section starts with entrance into tunnel Pečulj in Donja Gračanica. The position of the tunnel is somewhat changed in comparison to the 2007 Study. The alignment still passes near villages Ričice, Klopče and Perin Han. After the bridge near the interchange Drivuša the alignment enters the completed part of the motorway. Major part of this section is already built.

3. Mitigation measures and measures taken to avoid negative impacts on the environment

Mitigation measures and measures taken to avoid negative impacts on the environment can be generally classified into general, special and technical measures.

General mitigation measures refer to harmonization with all relevant legal provisions regarding the protection of water, air, plants and animals during all phases of realisation of certain intervention in the environment - from projecting to construction and use. These measures are a legal obligation and harmonization with them is proved by obtaining required permits i.e. in the process of planning and designing of structures, that is why the end result (environmental, water and road use permit) implies full harmonization with national legislation. General measures include the following:

Ul. Hamdije čemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747
e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

- obtaining necessary consents for arrangement of said location by competent office for spatial planning, civil engineering and environment;

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- ensuring fair fee for facilities and grounds found to be privately or socially owned and encompassed by the motorway alignment;
- define conditions in accordance which there would be constant monitoring of possible environmental impacts in accordance with consents issued by competent municipal office and/or competent ministries;
- it is necessary to define requirements by which all the necessary protective measures in the construction works phase need to be met within contractual documents signed between the investor and contractors. The investor is obligated to create construction site organisation plan (CSOP) and adhere to it;
- ensure that those subjects possessing experts for fulfilling defined tasks from the area of environment protection are engaged in performing tasks in the area of road construction and maintenance;

Pursuant to Decree on Construction Site Establishment, Mandatory Documents on the Construction Site and Participants in the Construction Process ("Official Gazette of FBiH", No. 49/09, 75/09 and 93/12) and in addition to abovementioned construction site organisation plan (CSOP) and technological scheme, the contractor is obligated to make an Elaborate on Occupational Safety and Fire Protection and Environmental Management Plan.

It is necessary to continuously take mitigation measures referring to negative impact on the environment in all phases of the project; from planning and preparation to construction and use.

The majority of mitigation measures referring to negative impacts on the environment can be applied in the designing phase because the said impacts can be avoided in this phase by moving alignment where possible in order to avoid exceptionally valuable and sensitive areas and by using architectural solutions „merging“ with the landscape, designing physical barriers used for noise protection etc. These measures include the following:

- planning and establishment of new communication structure of towns and villages where traditional manners of communication are disturbed by construction of motorway. It is possible to achieve this through passes, bridges, viaducts, overpasses. It needs to be examined if planned structures are necessary for repairing impaired communications and if additional structures are necessary;
- inform local population and interested public about the motorway alignment systematically and in detail in order for them to be able to consider all dimensions of potential impact and participate in decision making process in a quality manner. Also, if need be, forums should be organised in all areas through which the road will pass and all asked questions should be answered with the participation of chieftains and designers;
- preparing design documentation that will be basics for implementation of expropriation in accordance with applicable legislation and pay fees in timely manner in accordance with national law;
- fully plan construction site, places intended for disposing of building and waste material, parking spots, decanting spot etc. within construction site organisation plan (CSOP);
- finding solution that will enable locals to access sites and other areas near the place of construction during the construction of motorway and supporting facilities;
- when bridges are being designed, care must be taken about shaping the bridge with the goal of fitting into the landscape as naturally as possible. When designing bridge construction, solutions requiring high and massive elements should be avoided as much as possible, both on the bridge itself and the river banks and encroachment into the river bank itself or sides of canyon should also be avoided as much as possible. From the preliminary design phase onwards, both architect and landscape architect should be included as a part of team working on the designing;
- in addition to bridges, areas of nodes, motorway service areas, border checkpoints, toll passages and Traffic Control and Management Centre;
- tunnel portals should be designed in such a manner not to jump out of rock in any part but to be a part of rock regarding both construction and perception and to be of similar colour as the rock in the stone cladding;
- design solution of motorway service areas should pay attention to surrounding area both in the architecture of the motorway service area itself (minimal height of the motorway service area, type of building materials - natural stone, colours and texture should be used as much as possible) and in open space near the motorway service area (use plant types from local flora);
- wherever possible, on outer slopes of the hill cuts should be designed instead of notches and embankments. Slopes of notches and cuts should be designed to be as steep as possible in order to make the width of encroachment into the existing ground as small as possible;

- Determining zero state water and air quality in the area affected by the design prior to the beginning of construction in order to conduct monitoring in phases of realisation of design that come later;
 - plan physical barriers that will protect population from noise in parts where the motorway passes near dwellings and settlements;
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- prior to the construction, it is necessary to review and monitor possible plant and animal groups (this especially refers to areas near rivers) and ensure precautionary measures in accordance with guidance by experts in order to preserve such groups if they are registered;
 - detailed archaeological research should be conducted prior to the start of construction of motorway and an elaborate on prior survey of the field by which position of registered sites and possible new sites that were not registered before will be determined since the alignment partially passes through terrain which was unexplored and unapproachable and their relationship with planned motorway alignment should be determined;
 - project documentation should be made in accordance with legislation, environmental permit and taking into consideration all specific features of the area;
 - operation plans of urgent interventions in possible accidents should be made and necessary equipment should be procured;
 - separate documents predicting all conflict areas of motorway and existing infrastructure system: local roads and parts of water supply network and electrical grid should be made within main designs for individual sections.

4. Special mitigation measures taken to avoid negative impacts on the environment

4.1. Population

In the construction phase

- publicly announce everyday traffic conditions and provide information to public on scope and timetable referring to construction activities, expected difficulties and limitations of approach;
- all negative impacts such as approach that was made difficult, increased level of noise, vibrations and dust and presence of heavy equipment should be decreased to the smallest possible extent by respecting planned measures;
- limit movement of heavy equipment during the construction of the motorway in order to make the devastated area of agricultural ground as small as possible. The existing road network should be used as much as possible and it should be repaired after the end of the construction works;
- modern machines and vehicles that have isolated sources of noise should be used (engines; exhaust system) which means that new machines should be bought or measures of additional soundproofing should be implemented as well as constant maintenance of good functioning of soundproofing. In addition to that, it is recommended that machines should be working only in the period from 7 a.m. to 6 p.m. (in all parts of the alignment that is less than 60 meters far from the settlement).

In the exploitation phase

- Protective measures referring to population are conducted via measures of noise protection, measures of water protection, earth and air protection;
- measures of establishing new communication structures of settlements where traditional manners of communication are disturbed by the motorway will be achieved by construction of passages, bridges, viaducts, overpasses.

4.2 Microclimate

Taking into consideration of complex climate in Bosnia and Herzegovina and the lack of experience with this type of roads and absence of appropriate measures, it is recommended to introduce automatic monitoring of meteorological parameters and parameters referring to air pollution along the entire alignment of the motorway as soon as possible, in the preparatory phase, during the construction and use of motorway. Automatic weather stations should be installed on at least 20 locations of the alignment, on the stretch from Dobož to Tarčin and at least 5 of them should contain systems for measuring all relevant meteorological parameters. Said negative impacts on the microclimate should be mitigated by planting green belt in the narrow area of the motorway.

4.3 Water

- water treatment plant used for treatment of wastewaters from the motorway generally may be located within areas defined as sensitive but before the final choice of disposition of said plants detailed hydrogeological basis of narrow area around the motorway should be taken into consideration. Care should be taken not to position facilities in aquifer areas where high levels of groundwater were found in order not to disturb hydraulic regime of groundwater flow, disorder of recharge of aquifers etc.

- In the project referring to drainage, at least closed drainage system should be planned containing oil and grease separator and, if need be, with further water treatment which will enable the quality of water to be in accordance with regulations;
- construction of planned water treatment facilities from the motorway has to guarantee waterproofness i.e. filtering of waste waters into underground must not be allowed;
- approach to facilities of internal drainage i.e. to separators and lagoons should be resolved in more effective manner and the vehicles (such as tanks for driving away wastewater) should be enabled approach.

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In addition to the abovementioned, the following is necessary for all sections of the motorway:

- to make Design of Organisation of Construction Site and Technology and Dynamics of construction and Main Design of Drainage of urban wastewaters and surface run-off wastewaters for all supporting facilities on parts of motorway where their construction is planned;
- in all locations where the alignment crosses watercourses, in areas where the alignment is located near the riverbanks of watercourses, as well as where it passes through sanitary protection zone of hot springs or aquifers, it is mandatory to design ground rails or concrete barriers for physical prevention of vehicles to roll over from the motorway (Jersey barrier);
- during the phase of designing it is necessary to avoid all possible collisions with existing hydraulic facilities at the said area of corridor Vc and where this collision is impossible to avoid it is necessary to provide adequate technical decisions at places where this interface occurs;
- watercourse regulation design including environmentally acceptable constructions i.e. the criteria should be avoiding displacement of natural basin i.e. designing of culvert through road base wherever possible.
- Principles of environmentally acceptable practices should be applied when making designs of environmentally acceptable practices.

Administrative measures of water protection

Collection of administrative measures of water protection includes the following activities:

- to require permanent monitoring to be conducted in the form of elimination of possible impacts on water during the construction works, within consent issued by competent authorities (competent ministries of water management);
- explicitly require implementation of measures of water protection determined by the study of environmental impact within contractual documents made by the investor and contractors and require monitoring of water quality. In addition to that, contractors are obligated to adhere to regulations regulating issues related to issues of water protection when performing their activities;
- as a part of tender documentation for implementing construction works, require the tenderer to prove that there is an environmental protection service within their enterprise that will enable the requirement of environmental protection prescribed by environmental permit to be met

Special measures of water protection

Taking into consideration of all conclusions from the phase of impact analysis, primarily referring to implementation of adequate safety measures, it is necessary to also define certain procedures that have to be implemented in the phase of exploitation of facility. These measures include the following facilities:

- it is necessary to organise and dispatch appropriate emergency response service at the municipal or cantonal level and it should be adequately equipped to repair damages caused by accident as quickly as possible and to prevent major accidents;
- Organisation/enterprise/authority to whom management, use and maintenance of motorways are entrusted has to own an emergency intervention plan in case of accidents. The plans needs to contain at least following elements:
 - in case of crash with vehicles carrying dangerous good in powder or granular state a traffic break occurs and a request is sent to specialised service that needs to remove dangerous goods and sanitise the roadway. Scattered powder or granules have to be removed from the roadway in mechanical manner (by returning into new appropriate packaging, cleaning, vacuuming etc.) without rinsing with water.
 - in case of crash with vehicles carrying dangerous goods a traffic break occurs and specialised service for repairing damage. Spilt matter is removed from the roadway with special sorbents. If the liquid went out of profile and polluted ground, the damage is repaired by its removal. All matters collected in this manner shall be treated according to special procedures of regeneration or are deposited at landfills intended for such purposes.

- Planned motorway needs to be equipped with appropriate vertical and horizontal traffic signs including all kinds of necessary prohibitions and mandatory actions. Traffic signs should impact traffic participants driving dangerous goods by making them drive more slowly, forbidding overtaking, increasing the level of attention and forbidding stopping vehicles on the road.

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In the construction phase

Measures in this phase include:

- Special manner of blasting in order not to disturb groundwater at stretches where the alignment passes near sensitive zones i.e. zones of unacceptable and high risk for groundwater;
- Tunnel boring shall be implemented to avoid impact on the direction of groundwater flow and to prevent inflow into surface water;
- all excavated material that will not be used in construction immediately has to be deposited on locations made for that in accordance with construction site organisation project (landfills for excess material) and protected from erosion and outside of defined sensitive zones i.e. zones of unacceptable and high risk for groundwater;
- preserve vegetation as much as possible i.e. keep buffer zones made of vegetation between the road and bodies of water;
- only pure material, such as gravel without added earth or other impurities, should be used for embankment near the watercourse;
- depositing shall not be conducted in the river basin and near the river banks or in sanitary protection zones and zones marked as aquifers. If these locations happen to be on water resource or public water resource, it is necessary to request water management approval;
- protect surfaces sensitive to erosion by means of stabilisation and plants preventing erosion;
- conduct frequent and controlled municipal and dangerous waste management in a prescribed manner i.e. forbid any temporary or permanent disposal of waste material on the surrounding ground except for locations provided for that by construction site organisation project and leak proof waste containers. At the same time, disciplinary penalty should be imposed on those who break stated rules of behaviour. One can expect that contractors will find registered or unregistered (wild) landfills containing various waste during the construction works. Depending on the type of waste, all such locations have to be sanitized according to individual projects;
- wastewaters from the construction site should be taken by safe sewerage systems, collected in appropriate tanks and purified in an appropriate manner (either on site or at distant location) and before releasing into watercourses. Composting toilets should be installed at construction sites for the purpose of construction workers.
- provide space with waterproof foundation for placing and maintenance of machinery outside of zones of unacceptable and high groundwater risk. Oily rainwaters from these areas should be collected and purified via sand separator and oil and grease separator before its released into recipient;
- forbid repair of machines and replacement of oil in zones of unacceptable and high groundwater risk;
- watercourse should be constantly maintained. If it is necessary to access river canal, measures have to be taken to redirect watercourse next to location where construction works occur;
- Contractors should be prepared for rapid floods and increase of water levels and stages and need to do all works (including making embankment, formwork, steel etc.) so the floods do not disturb construction works;
- all areas of construction site and other areas of temporary impact need to be restored in accordance of restoration plan i.e. depending on future use of space, return it into original state;
- separate water management requirements should be required for locations of building site bases, borrow pits and other facilities;
- if adverse impacts occur on springs used for water supply, alternative water supply for population in the endangered area should be enabled as quickly as possible.

In the exploitation phase

- all rainwater from the roadway near the watercourse and in zones of protection of springs has to be removed by closed drainage system and treated in the oil and grease separator prior to being released into recipient. The separator has to be designed according to proper quantity of precipitation and characteristics of residue being purified. Only purified water may be released into final recipient in accordance with the law;

- system and facilities for drainage of rainwaters from the road have to be regularly maintained. Frequency of removing and driving away residue and oil from grease and oil separators should be established during the exploitation. The process of emptying separators should be organised through enterprise for road maintenance;
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- protection from erosion should be conducted through means of stabilisation and plants preventing erosion;
 - means used for preventing freezing of road (salt, chemicals causing ice to thaw) should be selectively and optimally used, the weather forecast should be followed and any needless use of these substances should be avoided;
 - emergency intervention plan should be made in case of accidents as defined in *Special measures of water protection*;

Environmental protection service should be formed within organisation managing use and maintenance of motorways and the said service shall perform following task:

- monitoring and control of all actions within scope of environmental protection,
- monitoring how drainage system functions and conducting regular control of purified water released from water treatment plants,
- organising conduct of self-monitoring program,
- storing and analysing data obtained through measuring, taking all necessary actions in case of exceeding of emissions;
- sending reports about monitoring to authorities and inform public about the state of environment,
- educating employees on measures necessary for environmental protection,
- making environmental protection plan.

4.4 Air

In the construction phase

- Construction site, borrow pits, temporary roads and handling areas should be wetted during hot, dry and windy weather conditions in order to prevent raising dust;
- transport of gravel, asphalt, stony and ground material and similar materials should be conducted in lorries with tarpaulin;
- during blasting to make excavations in rocks, a type of explosive with least adverse impact on environment should be chosen. Drills collecting dust in plastic bags should be used whole using blast holes;
- filters for removing soot should be installed on exhaust pipes of all machines and vehicles with diesel engine;
- technically valid mechanisation should be used and heavy equipment should be regularly maintained and they should be off when they are not being used;
- maximum proper functioning and functionality of motor fuel combustion should be enabled by regular (planned periodical) and extraordinary machine and vehicle inspections, fuel with guaranteed quality standard should be used (and regularly inspected).

In the exploitation phase

- If permitted values of air quality are exceeded, actions should be taken in accordance with the law i.e. additional protective measures should be planned.

4.4 Ground

In the construction phase

During the construction of the corridor, direct, physical destroying of agricultural land occurs and it is permanently lost from use for agricultural purposes. Except for this, it is anticipated that erosion will occur, structure of soil will be destroyed and compacted as a result of process of degradation, which will be accompanied by temporary losses of soil, formation of waste material landfills, making construction sites, constructing access roads, contamination of ground by spilling oil, gas and fuel as well as blocking access to agricultural lots.

Permanent loss of agricultural land will occur though construction of road infrastructure and all supporting facilities. Preventive measures include all activities whose goal is to prevent adverse impacts on soil and crops. They are implemented by forbidding the use of fuel containing lead, mandatory used of vehicle with catalytic converter, regulating speed of movement in zones of intensive agricultural production (agrozone I), prohibition of growing crops within corridor which collect toxins in edible parts of plant. Growing plants near the corridor in controlled conditions of greenhouse and glasshouse is a measure that to a great extent can decrease negative impact on outer pollutants, however, growing crops for human food and animal feed near the corridor should be avoided even if it is done in the said manner.

In order to implement all preventive measures, it is necessary to regulate this area by introducing appropriate legal solutions and international standards. In all the above mentioned activities of inspections services which need

to strictly monitor adhering to appropriate measures are very important, especially when they are implemented according to recommendations that should be given by Food Safety Authority.

Mitigation measures are implemented in the phase of construction of road with the goal to mitigate adverse impact on soil and plants. They are implemented by removing, depositing, and preserving humus, maintaining road passability and access to agricultural lots, degraded soil remediation, decontamination of contaminated soils and growing protective layers of vegetation.

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Removing and depositing of fertile layer of soil is a measure that should be implemented bearing in mind that it is almost impossible to avoid destroying soil of first agrozone. This is a measure generally recommended in agricultural university textbooks. Practical aspects of this measure must be taken into consideration because this measure is useless if humus is only removed and deposited pro forma and not used soon after that because it requires additional costs of preserving and maintenance of such material and the humus is gradually lost because it becomes mineralised or eroded and it ends being useless.

Enabling access to and passability of agricultural lots is one of requirements that needs to be met during the phase of motorway construction and this is achieved by building bridges and appropriate passages.

During the road construction it will be necessary to remediate degraded soil by which erosions are sanitised, occurrence of water logging is prevented, and surfaces where temporary structures were built, landfills for depositing removed fertile layer of soil and open borrow pits of material for filling are sanitised.

Locations where leaking of gas, oil and fuel were occurred need to be decontaminated by covering them with sawdust or some other material and if this is done with sawdust, it should be collected after the decontamination and burned in controlled conditions and after that decontaminated layer of soil is removed and deposited at a located intended for such purpose.

Important measure that needs to be implemented during the construction of road is growing layers of vegetation which is especially important for protection of remaining agricultural land of second and third land capability class.

Layer of vegetation should be at least 2.5-3 meters high.

In the exploitation phase

In the period of exploitation of motorway, prolonged impact of contamination and degradation of soil will occur which is connected with appearance of products of fuel combustion, wearing of tyres, carriageway, accidents and maintenance of road during winter.

One of the most important measures which needs to be continuously implemented during the entire period of exploitation of road is monitoring of soil and plants which should be started by determining zero state and operating from the first day of exploitation of the road. Conduct of monitoring does not mean that in the period after the construction of the motorway there will not be need for measures stated for the period of its construction.

Monitoring shows indicator of concentration of heavy metals, organic pollutants and salts and based on that recovery measures system is developed. When needed, recovery measures are implemented in the zone from 0 to 200 m to the right and left from the motorway by conducting chemical, technical and phytomelioration works.

Long term use of motorway will surely lead to documented appearances of heavy metals in soil and plants. Pollutants collected near roads enter animal food chain and through their migration due to erosions they enter other ecosystems. Salt used for scattering also has a negative impact on the ground by primarily decreasing its fertility through change of reaction, concentration of salt, peptization of soil colloids and destroying of structure which in the end drastically decreases fertility of soil.

Impact of traffic and accompanying pollutants on the soil and living world is cumulative and because of that it is important to correctly and timely establish zero state and develop and implement monitoring of changes in space and time along the alignment of the motorway.

4.5 Flora

In the construction phase

Prior to the construction it is necessary to review and scan possible rare and endangered plant communities (especially near rivers) and enable precaution measures in accordance with expert leadership in order to prevent such communities if registered;

- Measures referring to preserving flora shall be implemented systematically with previously made work plan and plan of implementation of measures with monitoring of environment.

Necessary measures referring to flora per section will refer to the following:

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Ul. Hamdije čemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747
e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

Section 1 KARUŠE - MEDAKOVO

| | |
|-----------------|---|
| SECTION 1 | KARUŠE - MEDAKOVO |
| Location 1 | Penavino brdo and Matanovićevo brdo |
| plant community | Community of hop-hornbeam and downy oak |
| measure | All trees need to be cut to the standard length and all branches should be removed. Trees suitable for sale are all trees from which log or timber can be made. It is necessary to obtain permit for lighting fire in accordance with applicable legislation. All trees that are cut, branches and roots need to be removed in accordance with applicable legislation, rules and regulations. Prevention of uncontrolled collapse of material or intentional pushing downhill. Greening using domestic species such as downy oak and hop-hornbeam within arrangement of belt near the road (slopes of embankments, canals) |
| Location 2 | Riverside of river Tešanjika along the entire section of the alignment. |
| plant community | Communities of ecosystem of white willow forest |
| measure | Greening using domestic species such as white willow, poplar and alder. |
| SECTION 2 | MEDAKOVO - OZIMICA |
| Location 1 | Penavino brdo and Matanovićevo brdo |
| plant community | Community of ecosystems of xerothermal forests of hop-hornbeam and downy oak |
| measure | All trees need to be cut to the standard length and all branches should be removed. Trees suitable for sale are all trees from which log or timber can be made. It is necessary to obtain permit for lighting fire in accordance with applicable legislation. All trees that are cut, branches and roots need to be removed in accordance with applicable legislation, rules and regulations. Prevention of uncontrolled collapse of material or intentional pushing downhill. Greening using domestic species such as downy oak and hop-hornbeam within arrangement of belt near the road (slopes of embankments, canals) |
| Location 2 | Spiky top on the left side of the alignment and immediately near it |
| plant community | Basophilic pine forests on serpentine soil |
| measure | Excessive felling is strictly forbidden. It is necessary to carefully plan, manage and implement observing tourist activities in protected areas in order to ensure their long-term sustainability. |
| Location 3 | Riverside of river Trebačka rijeka River banks of Strupinska rijeka between villages Čakrama and Ljubatovići. |
| plant community | Communities of ecosystem of white willow forest |
| measure | Greening using domestic species such as white willow, poplar and alder. |
| SECTION 3 | OZIMICA - POPRIKUŠE |
| Location 1 | serpentine complex around Žepče |
| plant community | Xerophile oak forests on serpentine soil of sessile oak with heather; heaths; rocks and rocky ground vegetation |
| measure | Identification, destroying protected flora is strictly forbidden, excessive felling is forbidden |
| Location 2 | Riverside of river Bosna and its tributaries in the zone stretching from Brezovo polje to Golubinje Along the river Bosna and its tributaries in the zone stretching from Brezovo polje to Golubinje |
| plant community | Xerophile oak forests on serpentine soil of sessile oak with heather; heaths; rocks and rocky ground vegetation |
| measure | Greening using domestic species such as white willow, poplar and alder. |
| SECTION 4 | POPRIKUŠE - NEMILA |
| Location 1 | Budakovac, Ravno brdo and Golubijska šuma |
| plant community | Communities of ecosystem of oak and common hornbeam forests |
| measure | Greening using domestic species such as wild cherry, European crab apple, European wild pear, wild service tree and field maple |
| Location 2 | Riverside of river Bosna, between Topčić and Hrašće at location Ada, location near river Bosna, from Topčić polje to Hrašće |
| plant community | Communities of ecosystem of white willow forest, communities of ecosystem of hygrophile forests and alder thicket |

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e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

| | |
|-----------------|---|
| measure | Greening using domestic species such as white willow, poplar and alder. |
| SECTION 5 | NEMILA - DONJA GRAČANICA |
| Location 1 | Along the whole length of this section, on both sides of proposed alignment |
| plant community | Communities of ecosystem of oak and common hornbeam forests |
| measure | Greening using domestic species such as oak and common hornbeam (wild cherry, European crab apple, European wild pear, wild service tree and field maple). Trees suitable for sale are all trees from which log or timber can be made. It is necessary to obtain permit for lighting fire in accordance with applicable legislation. All trees that are cut, branches and roots need to be removed in accordance with applicable legislation, rules and regulations. |
| Location 2 | Along the whole length of this section near watercourses, on both sides of proposed alignment |
| plant community | Ecosystem of white willow forest <i>Salicetum albae</i> ; ecosystem of fragile white willow <i>Salicetum albae-fragilis</i> ; ecosystem of willow and poplar forests <i>Salici-Populetum</i> ; ecosystem of white and black poplar <i>Populetum nigro-albae</i> ; ecosystem of almond willow <i>Salicetum triandrae</i> ; thickets with purple willow <i>Salicetum purpureae</i> ; common alder and alder buckthorn forests <i>Frangulo alni - Alnetum glutinosae</i> ; common alder forests of continental area <i>Alnetum glutinosae montanum</i> ; common alder and carex forests <i>Carici elongatae - Alnetum glutinosae</i> |
| measure | Greening using domestic species such as white willow, poplar and alder. |
| SECTION 6 | DONJA GRAČANICA - DRIVUŠA |
| Location 1 | From village Donja Gračanica across Ričići, Kopile, Klopče to Perin han |
| plant community | Community of ecosystems of xerothermal forests of hop-hornbeam and downy oak |
| measure | Greening using domestic species such as oak and common hornbeam (wild cherry, European crab apple, European wild pear, wild service tree and field maple). Trees suitable for sale are all trees from which log or timber can be made. It is necessary to obtain permit for lighting fire in accordance with applicable legislation. All trees that are cut, branches and roots need to be removed in accordance with applicable legislation, rules and regulations. |
| Location 2 | Riverside of river Bosna and its tributaries |
| plant community | Ecosystem of white willow forest |
| measure | Greening using domestic species such as white willow, poplar and alder. |

- Determine zero state of vegetation layer and presence of individual floristic elements.
- Plan monitoring of state and impact on the surrounding vegetation along with special protective measures within Construction plan (CSOP).
- Adhere to plans and dynamics of reparation and reclamation of degraded areas (working surfaces where machines are located as well as personnel, supporting facilities, access roads, cuts, viaducts, stream beds etc.)
- While conducting construction works and the organisation of the construction site itself facilities should fit into surrounding space at the same time respecting and using indigenous species.
- Shape construction site and space that will not impact construction works or organisation of works, preserve floral characteristics (individual or groups trees)
- Design cuts instead of notches and embankments on outer slopes of hill wherever possible. Slopes of notches and cuts should be designed to be as gentle as possible in order to make the width of encroachment into the existing ground as small as possible;
- When conducting construction works, keep existing vegetation along the river wherever possible and keep trees with nests.

In the exploitation phase

- Adhere to plan of reclamation of degraded areas that were created during the conduct of works on alignment of corridor Vc (construction site, borrow pit, areas for depositing materials and other areas that underwent major changes in comparison to previous state).
- Follow dynamics of increase/succession of vegetation layer on relativized areas

4.6 Fauna

In the construction phase

Planned activities in the phase of construction of motorway alignment on the corridor VC-Lot 2 should be conducted by implementing following measures:

- Felling river bank vegetation should be done in winter in order to decrease negative impact on soil and water fauna
- Protective measures referring to game on many sections with well-developed game (Medakovo-Ozimice, Poprikuše-Nemila, Nemila-D. Gračanica, D. Gračanica -Drivuša) are disabled because of solutions of investors containing many tunnels, viaducts and bridges. Sections 2 and 3 i.e. Medakovo-Ozimica and Ozimica-Poprikuše contain passages for animals enabling their undisturbed movement and migration of game from both prior alignments:
 - Section 2 Medakovo -Ozimica (km 4+000 to 24+901,587)
 - At 6+072.546 - 7+166.544 construction of passage for animals, underpass or “green bridge”;
 - At 17+465.017 - 18+304.836 km construction of passage for animals
 - Section 3 Ozimica-Poprikuše (km 24+901.587 to 38+617,434)
 - At 25+240.114-26+000 km fence for preventing small game to enter alignment.
- Introduce video surveillance of locations where animals cross the alignment
- It is necessary to build houses for nesting birds in floodplain forest zone and monitor daily, monthly and annual migration of birds and their distribution in space.
- Part of river bank of river Bosna – inlets – should be arranged to be suitable for retaining of birds, amphibians and reptiles.
- While conducting construction works on river basins and rivers paths for migration of fish should be kept.
- Keep local population and interested public continuously informed (hunting sportsmen and fishermen clubs and environmental NGOs) about the alignment in order for them to be able to perceive all dimensions of potential impact on fauna along with quality participation in the of decision-making process.
- Establish cooperation with hunting sportsmen and fishermen clubs and environmental NGOs in all areas where the alignment will be passing in order to timely indicate and take measures for protection of migration corridors, overpasses and passages for animals and places where fish spawn and game reproduces.
- Hunting sportsmen and fishermen clubs should review and get insight into ten-year and annual plans of using game and fish stocks and in accordance with them they should take and plan protective measures, measures of improvement and mitigation measures (establishing prohibition of hunting and fishing of some species, building feeding grounds for endangered bird and game species, bays and fishing spots for sports fishermen).
- During conducting construction works on rivers or near them, take maximum care to decrease possibility of polluting watercourse with solid waste, oily water, suspended particles from soil erosion which can make a negative impact on state of fish population.
- Introduce monitoring of river ecosystem and aquatic organisms.
- Introduce monitoring of amphibians, reptiles and insects along sensitive ecosystems (forest ecosystems, cultivated areas, fields, meadows, river banks and river beds). Monitoring would refer to watercourses on the alignment of planned motorway
- Create appropriate operating monitoring plans and plans referring to urgent interventions in possible accidents and obtaining necessary equipment (cameras for following movement of game) and locate it on predicted and planned chainages.

In the exploitation phase

- Conduct video monitoring during the exploitation of chainages intended to be passages for animals
- Monitor presence, return and retention of game in space – adjustment of game affected by the alignment/corridor to noise
- Introduce permanent monitoring of game (spring counting for hunting sportsmen clubs, autumns and winter migration of birds along the alignment of corridor Vc) in accordance with annual obligations of sportsmen and fishermen clubs and environmental NGOs.
- Ensure building feeding grounds that will keep or direct games to natural passages.
- Determine potential nesting locations and feeding grounds that charadriiformes visit and where they stay.
- Monitor dying of birds during the exploitation of alignment and take adequate mitigation measures in accordance with results and in cooperation with administration of Autoceste.
- Visual marking of glass wind protection
- Monitor water quality and state of fish populations along with securing of corridor.

- Do fish stocking of river Bosna and other rivers on which an impact on species of fish is registered in accordance with fisheries management plan.

4.7 Landscape

In the phase of planning and designing of motorway, great and important impacts on environment can be avoided, thus this phase requires maximum care to be taken about shaping alignment and supporting facilities.

Basic protective measure for protecting landscape characteristics while conducting construction works is to conduct construction works only in areas planned for that according to design documents and to fully restore the terrain after the end of construction work in accordance with designs referring to reclamation and horticultural arrangement.

In the construction phase

- Working surfaces and facilities should be designed and built so as to disturb existing landscape characteristics as little as possible so the obligation of preserving existing values of landscape needs to be taken into consideration when designing landfills, borrow pits, temporary parking etc.
- After the end of construction works existing landscape needs to be returned in previous state as quickly as possible.
- During the construction process, access roads need to be designed so pass through areas not requiring excavations and embankments in order to be restored more easily. If possible, access roads that cannot be restored need to remain functional for locals after the construction takes place.
- When conducting construction works on riverbanks and river beds, care should be taken to keep paths for migration of fish and part of working surfaces near the riverbank should be arranged and reduce to temporary separator/settling tank in order not to pollute watercourse.

In the exploitation phase

- In the exploitation phase it will be necessary to review efficacy of process of self-greening and conduct planned planting, if necessary.
- Introduce program of monitoring of areas that underwent reclamation and in accordance with that, mitigations measures and measures of replacement of seedlings should be taken, nourishment, mowing etc.

4.8 Protected areas

In the construction phase

Measures that should be taken in the construction phase refer to systematic conduct of prescribed measures and monitoring of all environment components.

In addition to that, it is necessary to preserve the existing vegetation characterised by high degree of biological diversity as much as possible. Organisation of construction site and construction activities should be adjusted to this fact.

In the exploitation phase

Previously described mitigation measures referring to negative impact on water, soil, air, landscape, flora and fauna are being implemented. It is also necessary to monitor changes in comparison to zero state as well as natural processes referring to self-greening.

It is necessary to monitor visits in protected areas and to carefully plan, manage and implement observing tourist activities in protected areas as a part of protection in order to ensure their long-term sustainability. Tourism in protected area depends on preservation of ecosystem quality. Otherwise, negative impacts will occur so the tourism will damage quality of protected area instead of contributing to quality of protected area. Permanent monitoring of environment should be introduced.

4.9 Cultural and historical heritage

In the construction phase

- Write a study on previous survey of the field and train staff to recognise possible archaeological sites and how to act if archaeological remains are found;
- Mandatory and continuous monitoring of archaeologists and conservator in areas where previous research determined there is a possibility that cultural heritage objects exist and their constant consultative participation during the construction of the section;
- If archaeological sites are found during the construction, it is necessary to stop construction work immediately and inform competent authorities i.e. authority for preservation of cultural and historical heritage depending on the municipality of the archaeological site.
- Organisation of construction site (access roads, borrow pit and storage of material, storage of machines, landfill of materials) should take care to avoid locations of cultural and historical heritage;

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Ul. Hamdije čemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747
e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

- Crossing access roads, waste disposal and placing heavy equipment in zones near famous locations containing cultural and historical heritage objects and zones where there is a possibility of physical damages or harm to archaeological finds should be forbidden;
- Implementation of measures referring to protection from noise and vibrations and environment protection.

In the exploitation phase

- Implementation of measures referring to protection from noise and vibrations and environment protection.

4.10 Noise and vibrations

In the construction phase

- In the further phase of designing it is necessary to plan locations and length of physical barriers protecting the population from noise in parts where the alignment passes through settlements or near them;
- Activities referring to construction should be planned in such manner as to avoid simultaneous activities of multiple machines near receivers;
- It should be mandatory to install soundproofing of engine and other compositions making or contributing to making noise on all construction machines and vehicles used in the construction process;
- During the construction works machines (heavy equipment and vehicles) should be maintained in running order and used only when necessary. Equipment not used in the given moment should be off;
- Limit activities that potentially make great noise (e.g. knocking through piles, blasting and other activities) should be conducted only during daily working hours (from 7 a.m. to 7 p.m. from Monday to Friday and from 7 a.m. to 1 p.m. on Saturday) and this should be avoided on Sundays. Exceptions may include some objects e.g. tunnels;
- In case of applying blasting in excavating in rocks, type of explosion having the least adverse impact on the environment should be chosen, technique of millisecond activation of mine filling with directed operation of explosion in order to decrease effect of superposition of dynamic impact (vibration), noise and dust emission. Alternatively, excavation technique applying hydraulic hammers or mechanical excavation using milling machines or "moles" etc. may be used;
- in case of exceeding permitted amounts, construction workers should be provided protective equipment when working and regulations referring to occupational safety should be applied.

In the exploitation phase

The purpose of noise protection is to decrease the level of noise to acceptable level prescribed by the law or to the level suitable for the use in a room and it is not to fully remove noise. So it necessary to continuously measure noise during the use of road in accordance with control measurements planned in the monitoring program or according to complaints of local population. Such monitoring will determine are the taken measures adequate (in case of built barriers) and if the level of noise is exceeded, additional measures of noise protection should be planned in the form of additional barriers for noise protection, road surface absorbing noise etc.

4.11 Infrastructure

In the construction phase

- Transmission lines should be displaced through previous construction works on locations of collision with existing electrical installations (overhead power lines), i.e. transmission lines should be separated / protected / isolated by technical measures;
- Necessary temporary protective constructions separating road from the zone of construction works should be made at locations of collision with existing roads of higher rank: trunk roads and railway track (double track railway, electrified railway system), all prescribed traffic signs should be applied and if need be traffic police patrols should be organised;
- In the phase of preparation and construction of road, measures of protection of infrastructure facilities at locations where the alignment of the road is crossing, parallel or partially approaching should be implemented in accordance with special regulations and conditions;
- Create design of temporary regulation of traffic during the construction of planned intervention. It should be used to regulate points of access to existing transport system and secure from all possible points of collision during the construction of planned intervention and existing transport system;
- Construction of denivelised crossing of existing roads should be planned at locations where construction area is being crossed;
- At locations where field and forest roads are cut a network of alternate roads should be designed ensuring access to all lots that had access before the construction of planned intervention and whose
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- locations will be defined in the phase of designing. All passages of field and forest roads across the alignment of planned intervention have to be denivelated;

- Restore into original state all existing roads and routes that were damaged due to use of mechanisation and vehicles in the construction of planned road;
- In the following phase of the design, exact position of facilities for providing water should be determined (pipelines, tunnels, reservoirs etc.) colliding with adopted alignment of motorway and resolve conflicts with this infrastructure within technical documentation;
- In the phase of making main design manner of providing water to locals need to be analysed in periods when construction works on bridging this infrastructure with obligatory cooperation with utility companies managing this infrastructure;
- Protective measures referring to existing electrical networks are part of special regulations referring to construction of electrical networks and they contain protective measures referring to cable lines at locations of crossing with motorway and its junctions.
- In the phase of construction work all prescribed/conditional construction action should be conducted with the goal to protect utility poles.

In the exploitation phase

- Protective measures of infrastructure facilities during the exploitation of motorway come down to regular control of good working order and regular maintenance so that possible malfunction would not have negative impact on the environment, health of people and property.

4.12 Technical mitigation measures of negative impact on the environment

Technical measures refer to, in case motorways, to design referring to ventilation of tunnel, designs referring to overpasses and underpasses, designs referring to protection works (protection of motorway from snow or wind or protection of facilities outside of motorway from occurrences on the motorway (noise, light of headlights, air pollution).

Designing of group of measures of environmental integration into landscape referring to realisation of design related to motorways is considered to be fundamental phase for continuance of reconstructing environmental characteristics of landscape within the context of assessment of interventions and improvement of unusual elements. Environmental arrangement is based on closer defining of works referring to restoration enabling renewal of areas encompassed by realisation of the design and improvement of elements caused by restoration works. The purpose is to re-establish continuity of existing symbols and views within realisation of works and giving landscape values to elements of project.

The purpose of use of greenery is not only to offer aesthetic improvement but it also should achieve reconstruction of natural elements, which, as previously observed, represent sporadic phenomena. This type of intervention belongs to system of environmental renewal encompassing all interventions done for the purpose of spontaneous renewal of indigenous vegetation. The purpose of this is to help the start of developmental process in order to improve capability of natural system through interventions with existing vegetation. The goal of this is to reassemble landscape and perceived units and especially structure of natural system. In fact, vegetation has a fundamental role in the area of intervention.

The first phase of planning of environmental and landscape interventions includes preliminary analysis for the purpose of studying existing characteristics of natural elements unlike those which were created by humans and general potentials of transformation and development of examined territory. In order to achieve this goal, bioclimatic and geomorphological characteristics of the area need to be analysed.

Technical mitigation measures were resolved through main designs for sections for which main design was created and everything was done according to technical specifications for designing motorways representing legal document.

5. Description of measures referring to monitoring of emissions

In addition to detailed analysis and often budget, too, individual assessments of impact on environment based on which design solutions were requested can be insufficiently reliable. Furthermore, environmental conditions are changed over time and environmental regulations, too. So it is possible to establish after the construction of motorway that some anticipated measures for mitigation of environmental impacts are not enough or even that planned activities are not fully conducted. Thus the task of competent state organisations is to establish environmental monitoring. In the strict sense, task of the monitoring is monitoring of emissions (in air, in water) and changes of environmental parameters (air quality, level of noise, river water quality, and change of quality of soil). In the broad sense it is monitoring of social and economic parameters too. Monitoring system's goal is also to check all systems on which quality of environment depends (purification of wastewaters collected on the motorway, maintenance of those devices, regularity of actions in case of accidents such as leakage of chemicals on the motorway etc.) Additional organisational or investment measures are implemented based on the results of monitoring.

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Monitoring is conducted by environmental team and Federal Ministry of Environment and Tourism.

5.1. Measures for environmental implementation

Ul. Hamdije Ćemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747
e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

Monitoring measures for environmental protection in the period of construction mostly refer to mitigation and improvement of impact of construction activities expected to be conducted by constructor. This includes restoration or protection of material borrow-pit, reclamation of bare areas, removing shrubbery as to make as little as possible damage to landscape, proper waste management and other obligations. The goal of environmental team is to help contractors to keep sensitivity referring to the problem of environmental protection, fulfil contractual obligations and be flexible when resolving issues related to environment.

Monitoring includes monitoring of emissions (in air, in water) and changes of environmental parameters - air quality, level of noise, river water quality, and change of quality of soil. Monitoring system's goal is also to check all systems on which quality of environment depends (purification of wastewaters collected on the motorway, maintenance of those devices, regularity of actions in case of accidents such as leakage of chemicals on the motorway etc.)

Based on monitoring results additional organisation or investment (technical) measures are conducted. Furthermore, monitoring is used to check efficiency of prescribed protective measures and design solutions. Namely, environmental conditions are changed over time and environmental regulations, too so it is possible to establish after the construction of bypass that some anticipated measures for mitigation of environmental impacts are not enough or even that planned activities are not fully conducted. Thus the task of competent environmental organisations is to establish environmental monitoring.

Monitoring should be conducted in all phases of the design:

- prior to the beginning of construction - zero state of environment
- during the construction of the facility
- during the exploitation of facility
- after the removal of facility.

Since the motorway is built for a long time period and its removal or cessation of use is not planned, it is necessary to establish monitoring for the first three phases.

Monitoring of zero state is necessary to do prior to the beginning of construction works in order to define starting data serving as reference for the future phases of project implementation.

Main components of monitoring plan are the following:

- parameters to be adhered to,
- location of parameters of tracking,
- manner of conduct o monitoring,
- when the monitoring will occur,
- expenses of activities referring to monitoring
- responsibilities for monitoring

Contractor is obligated to create programs of monitoring of environment in accordance with request of this document which is at least going to integrate requests of monitoring described in table below but will not be limited to these requests. PE Autoceste FBiH will be responsible for reviewing plans of monitoring environment prepared by the contractor, that these monitoring programs are in accordance with this document, and for insurance. PE Autoceste FBiH will be responsible for monitoring and reporting on compliance.

The following chapter provides a plan of monitoring for all construction of sections being subject of this request.

5.2 Monitoring plan of physical and biological environment

Water resources

Monitoring of waters represents one of components of total monitoring of environment. For predicted motorway facility, taking into consideration complexity of construction and dynamics of performance of construction works, it is necessary to define monitoring of waters within construction site management plan for every subsection of alignment. In that manner locations of manner of monitoring will be determined in more detail through programs of following state of environment made by the contractor prior to the beginning of works. Specific monitoring plan for tracking and estimation of quality of surface and groundwater will be introduced for every section, including zero state of water quality of surface and existing springs on which construction of motorway may have impact.

In addition to said measurements, for the exploitation period it is necessary to conduct monitoring of wastewaters from surface areas i.e. their impact on quality of surface waters. Control of quality of wastewaters from roads is necessary to be conducted on locations where water is released from grease trap and on locations of additional purification of wastewaters. Conditions for releasing wastewaters in natural recipients and border values of adverse matters in wastewaters are defined by Decree on Conditions for Releasing Wastewaters into Natural Recipients and Public Sewer System ("Official Gazette of Federation of BiH", No. 101/15, 1/16 and 101/18).
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5.3 Biodiversity monitoring plan

Monitoring system enables monitoring of all components of environment: emission (in air, in water) and changes of environmental parameters (air quality, level of noise, river water quality, and change of quality of soil,

changes of structure of landscape and biological diversity). Monitoring has multiple purpose: (i) to manage phenomena, (ii) for information, including the needs for planning and (iii) for scientific purposes. Monitoring can be conducted in real time when information need to be sent and used promptly (accident) or reports are presented for the previous year. The system itself can be divided into three phases: monitoring of zero state, monitoring during the construction and monitoring in the phase of exploitation. Monitoring of so called zero state should be conducted prior to the beginning of construction. Based on the zero state of environment/biodiversity appropriate measures of mitigation for each of the components of biodiversity are being introduced (flora, fauna, landscape, game, hunting, protected areas). Monitoring in the construction phase includes period from planning and preparation of construction site to the end of construction. This phase includes monitoring of implementation of measures for each component. Monitoring in the exploitation period includes period of two years during which defined parameters related to environment/biodiversity are monitored connecting them with changes emerging during the exploitation.

It is possible to plan and conduct mitigation measures or measures of compensation based on relevant data obtained by monitoring.

In parts where permanent loss of biodiversity will occur, it is necessary to ensure appropriate mitigation measures referring to correct integration of vegetation into environment and to make restoration and reclamation plan of devastated and degraded areas.

During the felling/removal of forest cover, useful and useless part of wooden mass should be separated (trunks can be used as firewood and part resembling brushwood can be used as compost or sent for further processing to make briquettes).

During the establishment of organisation of construction site, borrow-pit, location for depositing of excavated material zero state of biodiversity shall be obtained and through measures during the construction (restoration, reclamation with indigenous plants) the area will be brought to primary state adhering to natural process of succession of area. In the segment of protection and preserving of favourable status of game in area under impact of alignment it is necessary to enable tracking of movement of game, its number and speed of return in reclaimed areas.

Monitoring fauna will enable insight into state of game in space, its number and presence with timely and spatial distribution of species on certain ranges or along said alignment of corridor Vc.

Biodiversity monitoring system enables long-term recovery of favourable status of species and recovery of favourable status of species and recovery of habitat types that are disturbed during the construction and exploitation of facility.

With the goal to obtain qualitative and quantitative data about state of biodiversity, contractor will make biodiversity monitoring plan which will contain all three phases: phase of planning, phase of construction and phase of exploitation:

- location of observing monitoring - precisely established location with defined coordinates for each section
- time of monitoring
- parameters that will be monitored - presence of species, its abundance and its representation in space, time and space distribution of species;
- choice of methodology of work: manner of monitoring - methodology based on which trustworthy data would be obtained and based on them comparison will be later done:
- Phytosociological records for elements of flora;
- transects, ranges, observing from one spot/location for bird species,
- sampling via aggregate and fishing nets for species of fish,
- technical equipment - binoculars, photo cameras, keys for determination, detection devices and other relevant tools for monitoring;
- expenses of monitoring activities - expenses of expert associates for each individual area;
- responsibility for conducted monitoring - investor and client.

State authorities will be responsible for reviewing environment monitoring plans prepared by contractor. Competent state authorities will be responsible to ensure that those programs are valid and in accordance with international criteria.

Agriculture

In 2014 Decision on issuing environmental permit to Investor all important details concerning monitoring of soil in the phase of construction and exploitation of motorway are stated. Everything that is stated there should be stated in the new document entirely. The content of 2014 Decision is not stated here because of unnecessary repetition, one needs to bear in mind only several elements that are very important for efficient conduct of monitoring of soil and plants growing on it.

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Monitoring which is usually conducted is often not enough for obtaining operational information for quick reaction. This implies raising this activity to a greater level meaning that participants are connected in this process and information are quickly exchanged in real time. It means that information about conducted monitoring need

to be available to inspection authorities immediately after their processing as well as to experts from Food Safety Authority. In this manner in this very important activity important participants that can contribute to much more efficient risk management and accident management are included and it is all for the purpose of protection of people and animals as well as timely reaction in case of damaging other elements of ecosystem.

It is necessary to conduct occasional review of number of samples and period of sampling as stated in 2014 Decision. Review of limit values of analysed parameters in accordance with changes in this area is also important. It is important to state in the new decision that competent authorities are obligated to provide binding recommendation for adopting in this sense to person conducting monitoring as well as to inspection authorities to be updated regarding changes of these activities and react in appropriate manner, taking into consideration recommendations of Agency for Food Safety which should expand their activities to more detailed inclusion in this area, considering its exceptional importance. Inclusion of this institution in such manner is important because there are some soils of the highest quality near the road and which people probably will not stop using in the food production and which will, if not hygienic and healthy due to constant pollution by traffic on the road, very quickly end up in food chain and will have very bad consequences for health of people and animals.

6. Limit values of emissions for pollutants

6.1 Limit values of adverse matters in wastewaters

Limit values of adverse matter in technological wastewaters released into public sewer system or other receptor - surface waters, according to Decree on releasing wastewaters in natural recipients and public sewer system ("Official Gazette of Federation of BiH", No. 101/15, 1/16 and 101/18).

6.2 Limit values of air quality in environment should adhere to Rulebook monitoring of air quality and defining type of pollutants, limit values and other standards referring to air quality ("Official Gazette of Federation of BiH", No. 1/12 and 50/19).

6.3 Limit values of noise

Allowed levels of noise in open space/exterior noise - near first apartment buildings/houses pursuant to Law on Noise Protection ("Official Gazette of Federation of BiH", No. 110/12).

Table 7. Allowed levels of noise

| Area (zone) | PURPOSE OF THE AREA | Highest allowed level (dBA) | | |
|-------------|--|-----------------------------|------------------------------------|-------|
| | | Equivalent levels of Leq | Industrial noise measurement level | |
| | | | day | night |
| I | Hospital - health resort | 45 | 40 | 60 |
| II | Tourism, recreation, rehabilitation | 50 | 40 | 65 |
| III | Solely residential, educational institutions and health care facilities, public green areas and recreation areas | 55 | 45 | 70 |
| IV | Trade, business, residential and residential near transport corridors, warehouses excluding heavy transport | 60 | 50 | 75 |
| V | Business, administration, trade and craft business, service providing (utility company) | 65 | 60 | 80 |
| VI | Industry, warehouses, service proving and traffic area without residential facilities | 70 | 70 | 85 |

Leq the equivalent continuous sound level - sound level at medium sound energy of noise of changeable level and is equivalent to continuous noise measured in the time period of least 15 minutes.

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7. Planned monitoring measures

7.1 Monitoring of water quality

Measures during designing and construction: during the construction care needs to be taken to construct enough systems for collecting wastewaters and their treatment. In addition to that, care needs to be taken about existing sewage system located near the alignment. Care needs to be taken not to fill watercourses and where necessary watercourses should be regulated by constructing appropriate closed canals.

When materials such as gravel and sand are being obtained, causing indirect impact on watercourses that are not located in the area of alignment, they should be excavated from the area where such practice already exists and in locations for which there are appropriate permits and in accordance with the law in order not to disturb water ecosystems.

All solid waste created in the construction phase will be recycled, used for other construction works or appropriately deposited on municipal landfill or alternative surfaces approved by competent municipal department, depending on the section where construction works are conducted. Conditioned by technical requirements, it is expected that new preliminary design on the whole area of part of alignment will to be covered will specify stone aggregate on broad area of location of construction works. Excavated material will be partially used for creating pedestrian paths or for levelling green areas and location where the remainder of material will be deposited in the future should be discussed with municipal department (if need be with cantonal authorities too, depending on the section where construction works are conducted) and maximum measures of precaution should be taken to prevent water regime disorder.

During the construction phase, existing road network will be used for movement of machines to the maximum and parking spots too need to be planned.

Negative impacts during construction are the most important on following local springs:

- spring of local water supply Tešanjka (the municipality of Tešanj)
- spring Kilavi Dolovi, Šume and Grab (the municipality of Dobož - jug)
- spring at the area of local community Novi Šeher (the municipality of Maglaj)
- springs Jezera, Studenac, Trnčić, Orašje, Sojtovača, Ivićeva voda, Hasanbegova voda, Skakavac, Grab, Markova voda, Matina voda, Maline, Krmare, Torovi, Vučijak, Jurjevac, Brezik, Dolina, Šuma (the municipality of Žepče)
- spring Klopče (the municipality of Zenica)
- group of springs of thermal, mineral and thermo-mineral springs in the area of Tičići, group of springs of the local community Hrasnice, group of springs of the local community Slivnice, group of springs of the local community Dumanac, group of springs of drinkable water the local community Tičići, spring Lokvač, spring Dumanovac, Crvena voda (the municipality of Kakanj)
- spring Laze, Gaj, Vukaše (the municipality of Kiseljak, local community Lepenica)

Measures during the exploitation: in addition to installation of oil separators along the entire alignment¹, in order to prevent uncontrolled horizontal transport of possible major amounts of harmful liquids spilled during accidents, drainage system will be connected to additional two-chamber catchments of large enough capacity to accept possible contents that where spilled at the same time from several standard cisterns in conditions of strong rain, with possibility to separate oily matters in case the capacity of oil separators is overflowed. Proposed (preliminary discussed) capacity of such retention waterproof pools or lagoon is 100³ and their necessary number and distance would be determined subsequently (proposal: at every 500m). Both in normal and extraordinary conditions and after appropriate process of maturation and sedimentation, depending on characteristics, the wastewater and mud from these catchers or pools will be released in sewer or additionally treated with neutralizing or absorbing substances (in case of accident and leakage of aggressive matters). Entire drainage system will have to be regularly maintained² along with weekly inspection and cleaning of canals as well as keeping records of determined state and implemented maintenance measures and in case of bad weather conditions, this should be done more frequently.

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Expected values of pollutants in waters from the roadways:

| Matter | Unit | Section Karuše-Medakovo-Blažuj-Tarčin |
|--------|------|---------------------------------------|
|--------|------|---------------------------------------|

¹ Number and distance of drains as well as capacity of pipeline system will be determined by calculation based on data on average amount of precipitation and size of catches as well as in accordance with topography i.e. slope of the road on individual parts of the alignment.

² by party/company maintaining roads

Ul. Hamdije čemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747

e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

| | | |
|-------------------|------|-------------|
| Suspended matters | mg/l | 100-150 |
| Chlorides | mg/l | 50-80 |
| Sulphates | mg/l | 0.04-0.07 |
| Total phosphorus | mg/l | 0.4-0.8 |
| Motor fuel | mg/l | 0.005-0.008 |
| Mineral oils | mg/l | 0.004-0.007 |
| Cadmium | mg/l | 0.002-0.005 |
| Chromium | mg/l | 0.004-0.008 |
| Copper | mg/l | 0.03-0.007 |
| Iron | mg/l | 0.1-0.3 |
| Lead | mg/l | 0.07-0.1 |
| Zinc | mg/l | 0.1-0.2 |

Wastewaters are tested in the following manner:

1. minimal number of samplings taken annually depends on afflux (amount) of wastewaters and is the following:

| Afflux of wastewaters (m ³ /day) | Number of test taken annually |
|---|-------------------------------|
| 0-50 | 4 |
| 50-100 | 6 |
| 100-500 | 8 |
| > 500 | 12 |

2. sampling is done automatically, if possible, proportionate to the flow and samples are composite samples taking during 8, 16 or 24 hours (depending on how long the technological process lasts), if that is not possible, current samples taken during 15 minutes should be taken, composite samples should be made and afflux should be recorded,
3. the following is tested in all samples: temperature, pH, alkalinity, electrical conductivity, evaporation residue, annealing residue, total amount of suspended matters, HPK-Cr, BPK5, NH₄-N, NO₂-N, NO₃-N, total N, total P, toxicity test and specific indicators for the given subject whose technological wastewaters are being examined.

7.2 Monitoring of air quality

When it comes to settlements along the road alignment, it is necessary to conduct one-time measurement of air quality after releasing the entire alignment of the road. Further measurements should be conducted every 2 years. Measurements should include the following characteristic parameters: SO₂, black smoke, NO₂, sediment (Pb). Measurements should be conducted by authorised organisation. If measurements show that abovementioned parameters are above limit values according to Rulebook on manner of conduct of monitoring of air quality and defining types of pollutants, limit values and other standards of air quality ("Official Gazette of Federation of BiH", No. 1/12 and 50/19), it will be necessary to subsequently introduce additional measures of air quality protection in order to bring the air quality on allowed level. Effect of protective measures referring to air quality should be checked by repeated measures after their implementation.

7.3 Monitoring noise level

When it comes to groups of houses along the alignment of the road, it will be necessary to conduct one-time measurement of noise level after the construction and release of full said section of the road. Further measurements should be conducted every 5 years. Characteristic facility should be chosen in order to conduct measuring and it should be conducted on the side of facility that is mostly exposed to noise from the new road in the period of heaviest expected traffic. If the measurements show that the noise level is above the allowed daily and night level being 60 dB(A) during the day i.e. 50 dB (A) during the night, measures of noise protection should be subsequently introduced in order to decrease the noise level to acceptable level. Effect of protective measures referring to noise protection should be checked by repeated measures after their implementation.

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7.4 Monitoring of land (soil) quality

It is necessary to organize monitoring of trend of presence of pollutants in soil near the alignment of the road in order to notice indicators of possible impact related to the road in all phases of activities on time. Final organisation

of monitoring and defining of network of locations where measurement is taken need to be defined according to directions and in cooperation with specialised institutions for monitoring the quality of soil.

Also, once a year it is necessary to conduct monitoring of state of heavy metals in overground parts of agricultural crops at same distance from the curb of bypass road.

Full monitoring of soil sourcing:

| | |
|---------------------------|-----------------------------|
| Zero state | 32 samples of soil |
| In the construction phase | 27 samples of soil annually |
| In the exploitation phase | 20 samples of soil annually |

In the construction phase problems referring to degradation and contamination of soil with organic pollutants and heavy metals will occur. Monitoring of degradation, in the motorway construction phase it is necessary to introduce monitoring, i.e. tracking of state through:

- appearance of erosion due to removing vegetation and cutting soil,
- appearance of waterlogging due to collection of drain waters,
- construction of facilities for the need of construction sites (settlements, parking spots, warehouse and storage area etc.)
- making landfills for storing removed fertile layer of soil;
- use of material borrow-pit for filling etc.
- during designing construction of motorway, the investor has to plan all activities and measures regarding waste material coming from soil,
- within the design, designer has to **take care of treatment of excess of soil** meaning that the said material should be deposited in accordance with Waste Management Plan i.e. Articles 19 and 20 of Law on Waste Management ("Official Gazette of Federation of BiH", No. 33/03 and 72/09 and 97/17).
- "landfills" for storing of excess of soil made during the construction of motorway in this particular case cannot be treated as landfills within the meaning of Law on Waste Management ("Official Gazette of Federation of BiH", No. 33/03 and 72/09 and 97/17), the do not meet minimal requirements prescribed in Attachment 1 of Rulebook on content of plan of adopting waste management for existing waste treatment or removal facilities, activities taken by competent authority ("Official Gazette of Federation of BiH", No. 9/05) and are related to infrastructure (existence of fence and gate that is being locked, use of office, machines), staff (manager, at least one bulldozer operator).
- in accordance with Waste Management Plan, the investor is obligated to precise conditions of storing soil material defined in in the environmental permit. Article 19 of the Law on Waste Management ("Official Gazette of Federation of BiH", No. 33/03 and 72/09 and 97/17) prescribes obligation of updating Waste management plan if there are any changes regarding waste generation.

Monitoring contamination due to use of heavy equipment and devices for transport of construction material and its installation, the soil will be contaminated due to leakage of oil, fuel and gas which is reflected through pollution of organic pollutants (light and heavy fraction of hydrocarbon).

In the **exploitation phase**, process of contamination of soil will be more prominent. This process will be prominent near road, at distance of 0-200m left and right from the road. Metals such as lead, zinc, cadmium and chromium remain in the soil for many years. Pollutants enter into plant and animal food chains and by erosion they enter other ecosystems and it is necessary to analyse 20 samples of soil annually.

8. Reporting

Federal Ministry of Environment and Tourism should receive reports about collected data in a manner as prescribed by provisions of Chapter IV of the Rulebook on registers of facilities and pollution ("Official Gazette of Federation of BiH", No. 82/07).

Reports should be sent at latest by 30 June of the current year for the previous reporting year.

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Investor is obligated to report every extraordinary situation that has a significant impact on the environment immediately.

9. Period of validity of environmental permit

Ul. Hamdije čemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747
e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

This environmental permit is valid five years from the day the decision was handed to the party.

Explanation

On 8 February 2019, Public Enterprise Autoceste Federacije Bosne i Hercegovine d.o.o. Mostar (PE Autoceste FBiH) submitted a request for issuing environmental permit for Autoceste in corridor Vc section LOT 2 – section Doboj jug (Karuše) – Sarajevo (south) - Tarčin whose total length is 145 km.

Prior to that Federal Ministry of Environment and Tourism issued Decision on Environmental Permit number: UP I 05/2-23-11-4/14 dated 18 February 2014 and whose validity period was 5 years. The Decision was issued for LOT 2 – section Doboj jug (Karuše) – Sarajevo (south) Tarčin divided into four sections:

- Karuše-Donja Gračanica
- Donja Gračanica-Kakanj
- Kakanj-Vlakovo
- Vlakovo-Tarčin

Sections are divided into 8 sections according to the terms of reference referring to creation of this request:

- Section 1: Karuše-Medakovo
- Section 2: Medakovo - Ozimica
- Section 3: Ozimica - Poprikuše
- Section 4: Poprikuše - Nemila
- Section 5: Nemila - Donja Gračanica
- Section 6: Donja Gračanica - Drivuša
- Section 7: Drivuša - Kakanj
- Section 8: Kakanj - Tarčin

On 12 February 2019, Federal Ministry of Environment and Tourism responded to PE Autoceste FBiH and requested the request to be amended pursuant to Article 54a(18) of the Law on Protection Environment (“Official Gazette of Federation of BiH”, No. 33/03 and 38/09).

On 11 September 2019, PE Autoceste FBiH amended the request and delivered the complete documentation necessary for issuing environmental permit.

The following documentation was submitted along with request:

1. Decision on environmental permit number: UPI 05/2-23-11-4 SS dated 18 February 2014.
2. Excerpt from Spatial plan of special characteristics of importance for Federation of Bosnia and Herzegovina – motorway on the corridor Vc.
3. Water approval of Sava River Basin Agency UP/25-2-40-225-2/13 dated 10 May 2013 (section Drvuša-Donja Gračanica, the municipality of Zenica) prescribes conditions of protection of water during the construction of said section of motorway.
4. Decision on water permit of Sava River Basin Agency UP/25-3-40-629-6/14 dated 30 January 2015 (Section Lepenica – Tarčin) prescribes conditions of protection of water during the construction of said section of motorway.
5. Decision on water permit of Sava River Basin Agency UP/25-3-40-626-6/14 dated 20 January 2015 (Section Vlakovo - Lepenica) prescribes conditions of protection of water during the construction of said section of motorway.
6. Decision on water permit of Sava River Basin Agency UP/25-3-40-226-7/14 dated 16 July 2014 (section Butila – Vlakovo – Mostar crossroads) prescribes conditions of protection of water during the construction of said section of motorway.
7. Decision on water permit of Sava River Basin Agency UP/25-3-40-719-6/13 dated 16 July 2014 (section Jošanica – Butila) prescribes conditions of protection of water during the construction of said section of motorway.
8. Decision on water permit of Sava River Basin Agency UP/25-3-40-498-4/10 dated 12 October 2010 (section bridge 6 – bridge 5) prescribes conditions of protection of water during the construction of said section of motorway.

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9. Decision on water permit of Sava River Basin Agency UP/25-3-40-568-4/10 dated 30 November 2010 (section Kakanj – Dobrinje 5) prescribes conditions of protection of water during the construction of said section of motorway.

10. Decision on water permit of Sava River Basin Agency UP/25-3-40-489-4/13 dated 20 August 2013 (section Drivuša – lateral toll booth Kakanj) prescribes conditions of protection of water during the construction of said section of motorway.
11. Decision on water permit of Sava River Basin Agency UP/25-3-40-517-4/12 dated 30 December 2012 (Bilješevo (Lučani) – Drivuša) prescribes conditions of protection of water during the construction of said section of motorway.
12. Decision on water permit of Sava River Basin Agency UP/25-3-40-480-5/14 dated 20 August 2013 (section Drivuša – lateral toll booth Kakanj) prescribes conditions of protection of water during the construction of said section of motorway.
13. Water management approval issued by Federal Ministry of Agriculture, Water-Management and Forestry number UPI-05-2-25-2/06 dated 17 July 2006 for section Visoko – Dobrinje
14. Water management approval issued by Federal Ministry of Agriculture, Water-Management and Forestry number UPI-05-2-25-9/04 dated 17 June 2004 for section Visoko – Podlugovi
15. Water management approval issued by Federal Ministry of Agriculture, Water-Management and Forestry number UPI-05-2-25-963/01 dated 7 May 2001 for section Podlugovi – Jošanica
16. Decision on fulfilment of requirements for issuance of license for construction number UPI/03-23-2-385/18 dated 18 February 2019 issued by Federal Ministry of Spatial Planning section Ponirak – southern exit from tunnel Zenica
17. Decision on fulfilment of requirements for issuance of license for construction number UPI/03-23-2-385/18 dated 18 February 2019 issued by Federal Ministry of Spatial Planning section Ponirak – southern exit from tunnel Zenica
18. Decision on approval of exploitation number UPI/03-23-2-385/18 dated 18 February 2019 issued by Federal Ministry of Spatial Planning section Kakanj – Dobrinje
19. Decision on fulfilment of requirements for issuance of license for construction of structures number UPI/03-23-2-385/18 dated 18 February 2019 issued by Federal Ministry of Spatial Planning section Ponirak – southern exit from tunnel Zenica
20. Decision on approval of exploitation number UPI/03-23-2-391/12 SK dated 19 June 2013 issued by Federal Ministry of Spatial Planning section Bilješevo – Kakanj
21. Decision on approval of exploitation number UPI/03-23-2-218/14 dated 25 August 2014 issued by Federal Ministry of Spatial Planning section Bilješevo – Kakanj
22. Decision on approval of exploitation number UPI/03-23-2-261/14 and UPI/03-23-2-262/14 dated 7 October 2014 issued by Federal Ministry of Spatial Planning section Vlakovo – Lepenica and Lepenica – Tarčin
23. Decision on approval of exploitation number UPI/03-23-2-216/10-1 dated 9 May 2011 issued by Federal Ministry of Spatial Planning section Kakanj – Visoko and subsection Kakanj – Dobrinje
24. Decision on approval of exploitation number UPI/03-23-2-391/12 from 19 June 2013 to 7 October 2014 issued by Federal Ministry of Spatial Planning section Drivuša – Kakanj, subsection Bilješevo – Kakanj
25. Decision on approval of exploitation number UPI/03-23-2-95/07 -314 dated 17 April 2008 by Federal Ministry of Spatial Planning section interchange Visoko – interchange Podlugovi
26. Decision on approval of exploitation number UPI/03-23-2-81/02-2 dated 7 November 2018 issued by Federal Ministry of Spatial Planning section interchange Podlugovi – interchange Jošanica
27. Approval of license for construction number UPI/03-23-2-216/10-1 dated 9 May 2011 issued by Federal Ministry of Spatial Planning
28. Approval of exploitation (subsection II Dobrinja – interchange Visoko) number UPI/03-23-2-325/10 dated 20 December 2010 issued by Federal Ministry of Spatial Planning
29. Waste management plans per sections

Upon insight into record on inspection monitoring dated 5 September 2019, Federal Administration for Inspection Affairs found that there were misdemeanour because the operator/investor did not obtain environmental permit and because waste is not disposed and treated in prescribed manner.

In order to dispose waste created by excavation, the investor is obligated to obtain special permits / approvals for disposing material crated by excavation on said locations by competent authorities.

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“Landfills” for disposing excess of ground material created during the construction of road in this particular case cannot be treated as landfills within the meaning of Law on Waste Management (“Official Gazette of Federation of BiH”, No. 33/03, 72/09 and 92/17).

Ul. Hamdije čemerlića br. 2, 71 000 Sarajevo, Phone number 00 387 33 726 700, Fax 00 387 33 726 747
e-mail: fmoits@bih.net.ba, www.fmoit.gov.ba

Acting in abovementioned administrative procedure and bearing in mind that the design is being constructed and on the basis of content of Request for issuing environmental permit with accompanying documents, Federal Ministry estimated that prescribed measures and conditions will achieve appropriate degree of environmental protection prescribed by law pursuant to Article 17 of Law on Amendment of Law on Environmental Protection ("Official Gazette of Federation of BiH", No. 33/03). By this request mitigation measures referring to negative effects on environment and monitoring measures. Since the subject is issuing environmental permit after the expiry of the old one, the investor obtained necessary permits for construction and for exploitation and they are proceeding with realisation of design of Corridor Vc – LOT 2, Federal Ministry estimated that conditions within meaning of Article 86 of the Law on Protection of Environment and it was decided as in the enacting terms of this Decision.

Acting in abovementioned administrative procedure and on the basis of provisions on basic obligations of operator prescribed in Article of the Law on Environmental Protection and taking into consideration Environmental Impact Studies, amendments and proposals of interested parties, Federal Ministry estimated that prescribed measures and conditions will achieve appropriate degree of environmental protection prescribed by law and pursuant to Article 71 of Law on Environmental Protection it was decided as in the enacting terms of this Decision.

This decision is final in administrative procedure and an appeal may not be filed against this decision but an administrative procedure may be initiated by submitting complaint at Cantonal Court in Sarajevo within 30 days from the day of reception of this decision. The complaint shall be submitted in two identical copies and this decision shall be attached to it (original document or verified copy).

In accordance with the Law on Amendments of Law on Federal Administrative Fees and Tariffs of Federal Administrative Fees ("Official Gazette of Federation of BiH", No. 43/13) tariff no. 57, point 4 the applicant transferred BAM 250,00 to budgetary account of UNION BANKA d.d. Sarajevo.

To be delivered to:

- *the abovementioned person*
- *file*
- *case file*

MINISTER
Edita Đapo, PhD
/Handwritten signature: illegible/

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FEDERATION OF BOSNIA AND HERZEGOVINA
FEDERAL MINISTRY OF ENVIRONMENT AND
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