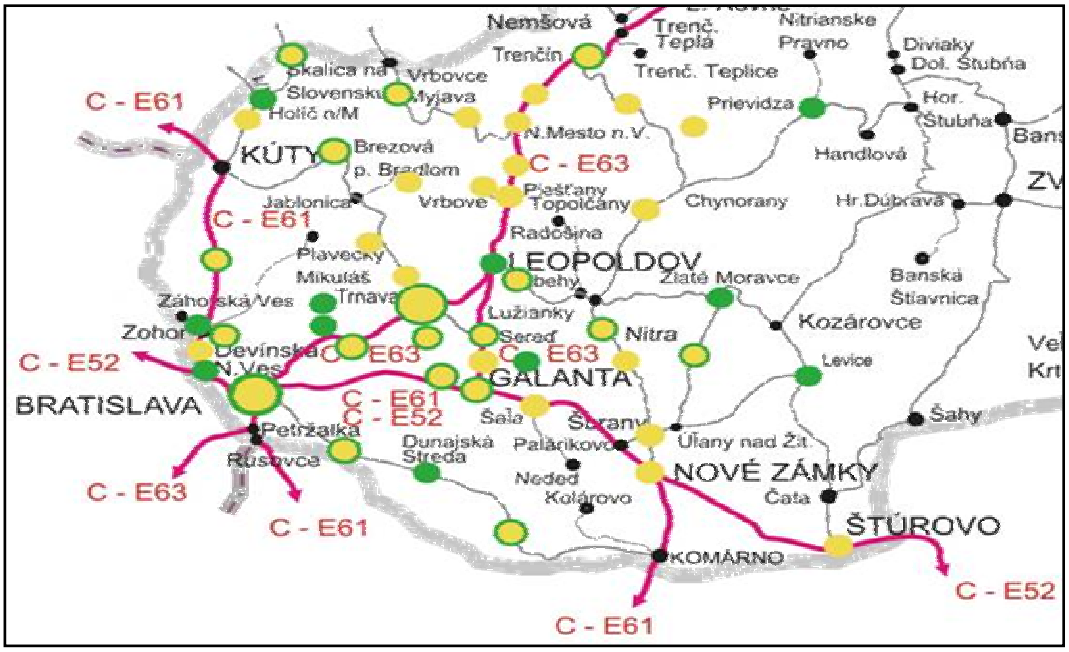
ENVIRONMENTAL IMPACT ASSESSMENT

Information about Designed Activity

Public Terminal of Intermodal Transportation Bratislava - Pálenisko



Proposer

The Ministry of Transport, Post and Telecommunications of the Slovak Republic

Elaborated by

Star EU, a. s.

January 2010

OBSAH

I. Basic data about proposer

1. Name:

The Ministry of Transport, Post and Telecommunications of the Slovak Republic

2. Identification number:

30416094

3. Headquarters:

Námestie Slobody no.6
810 05 Bratislava

4. Authorized representative

Ing. Michal Pikus

General Director of Project Managing Department

II. Basic data on the designed activity

1. Name:

Public Terminal of Intermodal Transportation Bratislava - Pálenisko

2. Purpose:

The purpose of the project is the realization of a public terminal of intermodal transportation designed for transhipment of intermodal units that will be connected to the inland shipping route, rail and road infrastructure. Basic infrastructure will be formed by this and other terminals (Zilina, Kosice, Leopoldov), necessary for development of intermodal transportation in Slovakia.

3. User:

Železnice Slovenskej republiky – Slovak Republic Railways
Klemensova 8
813 61 Bratislava

4. Location of the intended activity:

Region: Bratislavský kraj

District: Bratislava II

Locality: Bratislava - Ružinov

Cadastral area: Nivy

The tri-modal terminal will be situated in already existing Bratislava port, in Pálenisko locality so that the basic requirements for the tri-modal terminal will be accomplished – port

accessibility and also an easy access to the traffic infrastructure (see Annex – General layout of the designed activity).

5. The start and the deadline of construction and operation of planned activity.

According to the investment schedule the construction would be implemented in the following terms:

Construction start: 2011

Construction end: 2013

After the completion of construction the terminal will be put into operation without any time restrictions.

6. The basic description of technical and technological solution

The current state of usage – zero variant

The respective area is located at the outskirt of the building site of the capital city in the area of Pálenisko port on the Danube river, in its 6th section of port. The port is operated by Public Ports Company Inc. Bratislava; buildings and equipment assets to Slovak Shipping and Ports Company, Inc Bratislava (SSaP) are located in the concerned territory. The estimated location of the TIT is enclosed from the north-eastern and east side by Palenisko port pool and from the south-western side by existing motor oil transhipment station (MOTS) (Slovnaft Inc. Bratislava) which will be shortly moved to the entrance of the port pool Pálenisko so that its operations are in compliance with requirements of legislation of water protection.

Proposed variants

The public terminal of intermodal transportation Bratislava (TIT Bratislava) is composed from tri-modal and bimodal parts.

The already existing terminal, built at the port edge about 340 meters long, will form the basis of tri-modal core solution.

The tri-modal terminal (water / rail / road) will be located next to the port edge and its length is about 300m. The span length of gantry cranes will be 46.25 meters with handling extend over the pool 23.5 m. Cranes will manipulate three vessels of the "Danube Europe II b" type, enshrined in a row, loaded by containers in four rows. Bimodal terminal rail / road will be located in the tri-modal terminal continuation and will be 450 meters long. Mutual substitutability of cranes will be possible in the whole terminal extent, i.e. 750 meters, so both the cranes can move in tri-modal as well as in bimodal part of the terminal.

Manipulation space within the reach of rail cranes, except 4 rails and road communications (1 service and 1 driving lane), will have the storage areas for container storing of swap containers (SC) and swap superstructure (SwS) (totaly 6 rows of swapping superstructures and 4 rows for swapping containers, SC will be piled into the 3 – 4 layers, SwS may be piled in two rows using the superstructures allowing the stacking). Moreover, the proposed manipulating area for mobile manipulation device (MMD) with storage area for long term storage of empty SC (3 rows of SC, stacking maximally up to 5 layers) is out of the rail cranes reach.

The terminal connection to the Slovak Republic Railways (SRR) rail network has been designed from BRATISLAVA CENTRAL FREIGHT STATION (RWST BA CFS)[1] railway station (RWST), by using the already existing rail junction, which is planned to be reconstructed in the existing corridor within the TIT project.

In the Pálenisko port area, a new rail engine house RWST BRATISLAVA - Pálenisko TIT (RWST BA - Pálenisko TIT), consisting of entrance - departure group of the tracks (3 tracks), is designed for the processing of departing and arriving trains from terminal by reconstruction of the existing work-siding yard SSaP. The engine house will be used for processing of starting and ending trains from the terminal.

The new RWST has been designed in renovated area of the existing tracks of SSaP siding (group of 100 tracks), the proposed useful length of tracks in RWST is 750 m (a requirement of AGTC Agreement). The yard of the terminal (TIT handling track, the tracks needed for the disposal of environmental accidents and track for location of the wagon with alternative gripper crane device (spreader), which is located on the existing yard next to Pálenisko port pool, will be a part of RWST BA – PÁLENISKO TIT.

After the arrival (from RWST BA CFS direction) the train is technologically processed in the departure - entrance group RWST BA - Pálenisko TIT and then pushed to the handling terminal track (under cranes). The train is then unloaded and loaded by intermodal transport units (ITU), and then it is pulled into the entrance - exit RWST group where it is technologically processed before its departure.

The general situation of TIT BA in Pálenisko port and scheme of the terminal arrangement in crosscut are displayed in appendix.

Crane line

For ensuring the crane motion within the TIT area, it is proposed to build a crane track consisted of rail superstructure and substructure. The length of the crane line is designed according to portal crane so that servicing of train by cranes would be possible in length of 750m.

Road communications, manipulating and compacted areas

Basic handling area, on which all the necessary transhipment works are carried out, will be in span reach of portal rail cranes. The area concerned, is supposed to be about 750 m long and 34 m wide. It is intended to place 13 (10 + 3) lines of stocking areas for storage of vertically manipulated ITU and 3 driving lines for road set, so that one of them will be used for unloading and downloading of ITU and the second line will be used for directing sets to appointed position and leaving the position after managing the manipulation. Beside this communication, it is planned within TIT to construct a road communication for the return of road sets after managing the manipulation under the cranes.

Hard surface for the closure of waiting truck sets will have about 60 stands (they can be divided into 40 stands for entrance and 20 for exit from the TIT). Hard surface for parking of passenger cars will have about 20 stands.

Buildings, services and objects of the surface constructions

Within the TIT area, it is proposed to reconstruct the existing SRR dispatching building, respectively to establish a separate operational building, located in truck parking areas. Within the TIT is proposed another construction, in which CHECK-IN and CHECK-OUT of terminal will be built up. In addition to this building it is also proposed to establish a repair-house for damaged IPU.

[1] ZST BA UNS – RWST BA CFS – Bratislava railway station, the Central Freight Station

Reloading devices and other equipment

With regard to the required target performance and recommended work technology, it will be necessary to use track gantry cranes with a span length of approximately 46 meters and with downloading extent of 23 meters on to the Pálenisko pool site (ensuring the transhipment from a river boat). Crane should have rapid movement of the chassis and the „crane cat“ and should be able to operate approximately a 400 meters long and nearly a 70 meters wide handling area. Technical parameters of the crane should ensure a peak hour performance of 40-operations of the crane per hour.

Infrastructure and additional operational files

Beside the basic equipment of terminal, displayed above, will also be needed to establish an area of water pipelines, sewage and rainwater sewage system, telecommunications network and electricity supply.

All TIT BA energy requirements will be solved by electricity supply, including the heating.

There will also be a shared sewage system in terminal area. The sewage effluents from operating - administrative buildings, IPU repair house, CHECK-IN and CHECK- OUT objects will be taken away by sewage drainage. Furthermore, it will be done by run-off drainage to public sewers. Rainfall water from the roofs of objects, from the surface runoff from paved surfaces will be directed into storm sewers, which will be ended up by oil traps and directed into Palenisko pool. Seepage of water from yard drains will not be taken away by separate drainage due to permeable subsoil. Waste water from the canteen section will be first cleaned in grease separator.

TIT operating

Double shift operating is expected, from Monday to Friday with working time from 6am to 10pm, on Saturday only one shift with extend working time will be implemented from 6am to 4pm. Total number of days/year is planned to be 300.

For such technically and technologically equipped centroidal tri-modal terminal, the assumed average outcomes were calculated, i.e. TIT inputs and outputs from TIT per day and year and from which the transhipping annual capacity has resulted. Calculation results are displayed in the following table.

Tab. 1 Outputs data for TIT BA (*Note: d = day = 16 h)

Outcomes data – input into TIT/output from TIT			
	ITU/day*	ITU/year	%
Railway transport	158	47 250	45
Road transport	158	47 250	45
Waterway transport	35	10 500	10
Total	**351**	**105 000**	**100**

The total number of ITU will be consisted of 50% SC and 50% SwC. Within the TIT, the unloading, the loading of ITU from and to the current types of vehicles (railway wagons, canal boats, road vehicles) from the vehicle to the position and vice versa, transhipment of ITU between the transportation vehicles (direct transhipment) and positioning (storage) of ITU on hard surfaces will be executed.

The description of variants

Variants for terminal building of inter-modal transportation Bratislava – Pálenisko consist of continuous or compacted TIT construction. As a determining factor the problem with property-settlement needed for TIT construction can be considered (long-term rents of land own by Public Ports Inc. to the third parties). Construction stages are:

1st Stage – construction of tri-modal part of terminal next to the port edge of the Pálenisko pool, the terminal length is supposed to be around 300 m. The portal rail cranes will service all groups placed next to each other. Cranes will control three boats of the „Dunaj Európa II b“ type, uploaded by containers in four rows. The manipulation area will have 10 rows of ITU.

Within this stage, out of the TIT, the whole infrastructure needed for operating of TIT stages will be built up – railway and road infrastructure, and also buildings and objects of constructional engineering, related equipment, engineering network and additional operational files. Furthermore, the railway and road infrastructure, necessary for the 1st Stage operating, will be built up.

2nd Stage - priority of this stage is to built up the bimodal part of terminal railway/road that will be located in tri-modal terminal continuation. This TIT section will be about 450 m long. Cranes will service 4 manipulation rails, 10 rows of ITU and one line for road vehicles. There will also be the TIT road infrastructure built up.

Variant I

TIT will be built up complexly, i.e. both Stages will be built simultaneously, in submitting period 2011-2013 and TIT will be put into operation.

Variant II

1st stage of the TIT will be build up and put into operation. The second stage of TIT will be implemented with time offset. The time offset will be determined according to the property settlement process – land needed for 2nd stage implementation.

7. Reasoning of the need of the proposed activity in relevant locality

Increase in international transport of heavy goods vehicles in recent years, along with the unfinished superior network infrastructure, rail transport and road transport and intermodal transport in the SR cause enormous road loading. In accordance with the principles of sustainable mobility, in addition to regulatory measures necessary for creating the conditions for the development of environmentally friendly transport systems, to which intermodal transport and hence the project "Intermodal Terminal Bratislava - Pálenisko" clearly belongs.

8. Authorizing bodies

Construction administration - Municipal Office Bratislava - Ružinov (Territorial Decision)
Office for railway control (building permit)
Environmental Regional Office in Bratislava (building permit for water objects)

9. Type of required permit of planned activity according to concerned regulations.

Issuing of the territorial decision and building permit, according to Act No. 50/1976 Coll. regarding the territorial planning and building order (Building Law).

III. Basic data on presumed effects of proposed activity on environment including health, and possible mitigating measures.

1. Input requirements

1.1 Land occupancy

TIT Bratislava will be situated in already existing Bratislava port, at Pálenisko locality. For TIT implementation it will be necessary to ensure about 68 800 m^2 large area.

The agricultural soil fund will not be affected, and neither permanent nor temporally occupation of land will be necessary.

1.2 Water consumption

The terminal will be supplied by water from the nearest ducting by separate water connector. The area will be equipped by water pipe system ensuring drinking and service water for operational-administrative building and ITU repair house, and also for the needs of fire-emergency water for these objects.

Requisite of drinking and service water:

The annual water consumption $Q_r = 2\ 468\ m^3$

1.3 Other materials and energy resources

Material resources

Material necessary for construction will be supplied to the place of implementation by road transport equipment, whereas the rail and waterway transport will be used simultaneously. As a concrete mixture source an existing concrete plant located in TIT building up area can be used.

Energy resources

All energy TIT requirements will be solved by supply of electric energy, including heating.

Alternative resource of electric energy (ARE)

The alternative resource of electric energy – diesel aggregate – will be ensuring the energy for emergency lighting in case of power cut. It will be placed in interior environment – in compact concrete cell together with unit substation (transformer sub-station). A fuel tank for 12 hours operating, will be integrated into the ARE combined with sump (the sump volume will be designed according to motor fillings).

1.4 Road Transport and other infrastructures

In terms of road freight transport, the proposed intermodal terminal will be part of the Pálenisko port, and will use the existing entrance and exit and will be connected to the communication system Bratislava, concrete highway bypass of the city (D1) at Prístavný most. In terms of rail transport it will be necessary to reconstruct the rail connection from the station RWST BA UNS and build a new transport depo RWST BA Pálenisko – TIT. In terms

of water transport in the TIT there will be rolling gantry cranes, which will serve three boats of the "Danube Europe II b" type.

2. Output data

2.1. Sources of pollution

Sources of pollution during the TIT building up

During the implementation of works, mainly at earth-works, dustiness of environment will be temporally increased. Construction equipments are considered main - spot sources of dustiness. The respective building site itself will be the sources of dustiness.

Freight vehicles in limited period at earth-works will take serve as mobile sources of pollution at motor fuel combustion.

To decrease dustiness at building area, mitigation measures are proposed, such as watering of dusted surfaces during the dry period.

Sources of pollution during the operating

During the Bratislava TIT operating, the freight vehicles transferring goods from and to terminal are considered the mobile source of pollution.

Another mobile source of pollution will be the mobile manipulation device (MMD) that will be used for storing of empty containers out of the cranes reach. For fluent operating of terminal the need of one MMD is assumed.

Tap line operating can also be a source of increased emission production, because the trains of intermodal transportation after their technological processing are going to be rearranged by train driving rail vehicle (DRV) of electric or motor traction by pushing into the TIT.

The only stationary source of pollution will be the alternative source of electric energy – diesel aggregate that will ensure operating of ensuring devices and emergency lighting of terminal in case of power cut (with power input up to 0,3 MW)

The heating of operational – administrative building and ITU repair house will be ensured by electric water warming up (not by gas boilers), by which another possible source of pollution is eliminated.

2.2. Waste water

During the TIT implementation, in case of intensive precipitation, there is a possibility of storm water occurrence by which water taken away could also be polluted by eluviations. These waters could pollute the Danube river flow for a short term. This problem needs to be taken into consideration when the process of construction organization is going to be designed.

From the terminal, during its operating the following slurry waters will be taken away:

- Waste water
- Rainfall water from surface runoff
- Drainage water from yard

In the terminal area the shared drainage system will also be resolving. By waste water drainage all slurry water will be taken away from operational – administrative building, ITU repair house and CHECK – IN and CHECK-OUT objects. Precipitation water from the roofs of objects and from a hard surface will be taken away into rain drainage, that at its end the oil trap will be placed and will lead into Pálenisko pool. The catering waste water will be cleansed in an oil separator.

Seepage water from yard drains will not be taken away by separate drainage, with regard to permeable subsoil.

The balance of amount of waste-water pollution

The annual amount of waste-water:

Rainfall water from surface runoff	Q_r = 147 112 m^3
Waste water	Q_r = 2 468 m^3

The amount of slurry water for design of sewer system:

Rainfall water from surface runoff	Q = 2 198 $l.s^{-1}$
Drainage water from yard	Q = 30 $l.s^{-1}$
Waste water	Q = 1, 63 $l.s^{-1}$

2.3. Wastes

It will be possible to determine the amount of individual types of wastes in further levels of project documentation.

Wastes such as hydraulic oils, synthetic oils and cloths for cleaning containing dangerous substances will occur in the normal maintenance of mobile handling equipment. Sludge will occur in three ways: in the oil separators, grease separators, and the treatment plant.

Municipal wastes will occur during normal operation of an administrative building, kitchen and canteen biological waste will be generated by the catering operation. Biodegradable waste will arise during the maintenance of green in the terminal area.

Method of disposal of wastes

During the TIT BA implementation building activities, individual work suppliers from whom the wastes are expected have to be taken into consideration. Before starting the work, these suppliers - waste producers will need to ask the competent authority guidelines to give consent to treatment with wastes. The application and a valid contract with the disposer wastes must also be prepared "in case of emergency measures"

In further stages of project documentation, the project of handling with waste generated will be processed, where the waste will be sorted out and places for its storage will be described in detail. This project will be submitted for approval by the competent national authorities.

2.4. Noise and vibration sources

Sources of noise and vibration during the construction

During the construction of terminal, heavy machines doing the earth-work have been considered the main source of noise; machines are needed for construction of communications, train trailers and other building objects; and further passing of freight vehicles with materials etc...

Sources of noise and vibration during the operating

During the terminal operating as the sources of noise these activities are considered:

- trains passages (max 4 per day)
- trucks passages (158 per day are assumed)
- mobile handling device, used for transferring of empty containers
- motion of portal cranes

- departures and arrivals of freight boat (1 boat per day, type Dunaj Europe II b is assumed)

2.5 Radiation and other physical fields

According to the fact that electrified rail trailer will be a part of terminal, in its vicinity (mainly at trains` passages) there is a possibility of occurrence of electromagnetic interfering of television and radio signal, it can incur due to the effect of high voltage in the traction lines.

The occurrence of other physical fields is not expected.

2.6. Heat, odour and other outputs

No significant source of heat or odour is expected, the goods will be transported exclusively in closed transferring units.

3. Assumed direct and indirect impact data on environment

The impact on surface and underground water

The possibility of mechanisms accidents, where water pollutants have leaked appears to be the greatest risk of pollution of surface and underground water during construction. To eliminate this risk it is necessary to develop a plan of emergency measures and to observe the work discipline.

During the implementation of TIT, intense rainfall may cause flooding of water which will lead to pollution of water by soil drainage. This water may for short time contaminate the river Danube. The above problems have to be counted, when establishing the organisation of the construction process.

During the operation, in the case of damage of the container, carrying the liquid substance, there is danger of leakage of pollutants into groundwater and surface water. To eliminate this risk a plan of emergency measures will need to be developed and the terminal will be equipped with double security:

1) On the side track a wagon with a steel tub will be placed. At the time of failure the wagon with steel tub will be pulled as close as possible to a damaged container. The container will be placed into a steel tub and the wagon will be re-pulled to the side track.
2) At the end of this side track a reinforced concrete catch bath of about 25 m long will be built. The wagon with steel tub with a damaged container will be placed over the concrete troughs and so will ensure the capturing of substations, even in the case of leakage of fluid under pressure.

The oil separators could be considered another mitigation measure to protect groundwater; it will cleanse slurry waters from hard surfaces. The slurry water from catering part will be cleansed in grease separator.

Water pollution from waterway transport can occur only in case of accident and if than limited, because the vessel is equipped with a double bottom to capture any leakage of substances. During a normal waterway operation, applicable laws and regulations have to be complied with, so the water is not affected. Refuelling and sewage transferring is done in ports, in service places, which are equipped to minimalize the escape of pollutants into the water.

In the case of dangerous substances leaking into the pool, the opportunities of its own separating from the Danube by the bubble screen and by underwater wall which will be operated within the construction transfer station of oil products Slovnaft, lnc. can be used.

Impact on atmosphere and local climate

While the construction of the terminal will be being carried out, the dustiness of environment during the earthworks will increase, and temporary negative effects on environment may occur.

To decrease the dustiness of environment, some mitigation measures, such spattering of dusty surfaces during the dry season will be carried out.

The alternative source of electric energy – diesel aggregate with power output up to 0,3 MW can be considered as the only stationary source of air pollution during the TIT operating; however, it will be used rarely and only in necessary situations.

The operating of tap lines can also be considered as a source of increased emission production, because the trains of intermodal transport will be, after their technological processing, rearranged by train's HDV of electric or motor traction by pushing into the TIT.

In terms of road transport, emissions produced by mobile manipulation device (MMD) that will serve for storage of empty containers to areas beyond the reach of the crane will also a source of air pollution. For a smooth operation of the terminal the need of 1 MMD is expected. Another source of pollution is trucks carrying goods to and from the terminal. About 158 v/d and 205 v/d passages in peak times are expected.

An increased number of passages of freight and passenger cars in the local area will cause a slight increase in emissions, but compared to existing traffic volume at the Prístavný most and follow-up communications it will be a negligible contributor to pollution in respective area.

When using TIT BA by suppliers, the share of railway and waterway transport will increase to the detriment of road transport, and thereby will meet the requirements for environmental type of transport. Operation of the terminal reduces demand for road freight transport in the Bratislava city, and thereby reduces the environment burden. This positive impact will outweigh the negative impact on the local emission situation.

The impact on local climate during the implementation and operation of TIT is not expected.

Impact on noisiness

Earth-works done by heavy mechanisms can be considered a main source of noise during construction of the terminal; these devices are needed for building of roads, railway, tap lines and other building structures; passages of trucks with materials are another source of noise.

Impacts associated with construction of the terminal will be limited and temporary.

The traffic of freight and passenger transport as well as operation of MMD, portal cranes and waterway transport will have the main impact on noisiness during the TIT operation.

The noise from Palenisko terminal area as well as the noise from Feroservis, located on the other side of Palenisko pool, and also an operation of MOTS on the opposite side of the port peninsula may be considered an existing source of nosiness.

The source of excessive noise in the wider area is mainly the noise of traffic at the Prístavný most. The railway No. 113 Bratislava – Komárno located at the Slovnaft, Inc. complex is another source of noise that has a partial impact on general nosiness.

It can be assumed that the operation of TIT will achieve noise levels that do not exceed the acceptable levels. It can also be assumed that the noise produced by operating of terminal will have insignificant noise burden in respective area due to the fact that railway and waterway transport will be used mainly.

Impact on soil

During construction of the TIT accident of mechanisms, including those which may lead to leakage of pollutants appears the greatest risk for the possibility of soil pollution. To eliminate this risk, an emergency accident plan needs to be developed.

The impact on soil during the TIT operation is not expected.

Impact on fauna and flora

The whole area of respective locality and its surrounding vicinity is strongly anthropologically influenced that is also reflected in the current state of the vegetation cover, with a dominant presence of synanthropic phytocoenosis; especially by typical ruderal and weed communities in landfills, rubble, degraded areas, in moister areas, in ditches and diminishing surface.

From the trees and shrubs, Poluli nigra and Populus alba of different ages, representing seeding species, range at respective area.

In respective locality no rare and endangered species of plants and animals have been identified; and also there is not any endangered biotope in its vicinity.

The most significant impact on flora during TIT BA operation arises from the liquidation of existing vegetation within the area preparation; and further from the dustiness of environment incurred by implementation of earthworks and emissions produced by heavy machines.

The biotopes suitable for small animals such as insect or other small animals will be destroyed by building up of TIT BA and hard surfaces; the animal will move out from the TIT area.

The impact on flora and fauna during TIT operating is not expected.

Impact on Territorial system of ecological stability

In respective territory, there are no elements of the territorial system of ecological stability of any level. The nearest elements of TSES are located within the river Danube and the Small Danube. Influencing the TSES elements either during construction or during operation is not expected.

Impact on landscape

In terms of impact on the scenery of the country, the terminal will not create a visual barrier, its location is bounded by existing physical barriers (gantry cranes of existing operating companies, Prístavný most, etc.).. Impacts on the country scenery can be viewed as insignificant.

Impact on transport

In terms of road freight transport the proposal terminal of intermodal transport will be connected to the motorway bypass (D1) in Prístavný most location.

In the moment of putting TIT BA into operation it is assumed that the traffic volume from and to terminal will be 158 v/d, and during peak hours traffic of 205 v/d is expected.

Based on data from motorway automatic census counter, for section No. 87022 on D1 (Bratislava II, Prístavný most – Dolnozemská) in year 2005 the daily traffic volume (passenger and freight) was set for 18 223 vehicles per day (v/d).

It is possible to assume that in the first year of TIT BA operation the traffic volume in respective section (mentioned above) will be higher. From comparison of traffic volumes and expected daily traffic volumes of TIT operation imply that TIT BA operation will not have a significant impact on D1 traffic volume.

No impact on railway transport is expected.

In terms of waterway transport, next to the port edge the portal rail crane that will can handle three boats of „Dunaj Europa II b“type will be located. At the time of putting TIT BA into operation passage of one boat per day is assumed. Based on these data significant increase of waterway transport is not expected and therefore the impact on waterway transport is not expected.

Impact on cultural and historical monuments

In the respective territory of the planned construction of TIT BA there is no monument or archaeological site identified, the negative impacts are not foreseen.

The impact on industry, commerce, services and socio-economic activities

The implementation of the respective project improves and streamlines transportation conditions in the region; by connecting to the rail corridor and also by accelerating the transport of goods its transmission capacity will increase and than shortens the duration of carriage of goods. A positive impact on industry is expected. Regional logistics demand represents the third market segment TIT Bratislava - Pálenisko. Exporters and importers (production, consumption, wholesale, etc.) operating in the TIT area will use a logistics centre. This concerns new subjects, arising in close vicinity to TIT, the existing industrial / business parks located in Bratislava surroundings or entities that are located in planned industrial parks. Increased employment opportunities created by a suitable business environment in and around the town will reduce unemployment in the region and not only directly in the terminal.

Benefits for business are particularly reflected in tender conditions for business and investment in the terminal of transport and logistics services. Due to reliable supply chains and fast shipping a business climate in the respective region will generally improve.

4. Evaluation of health risks

The noise has the decisive impact of the construction and terminal operation on the population. According to experiences from other terminals, the operation of proposed activity itself does not overreach the levels of noise which would exceed the permitted levels. After putting terminal into operation the significant increase in noise levels in its vicinity are not expected, it is due to the following factors:

- Railway transport will have significant traffic rate on transportation in terminal; cca 45%;
- The waterway transport that is considered another convenient type of transport according to noise burden will be used;
- Terminal will be operated in daytime hours, on weekdays and shorter working hours on Saturdays
- The terminal is designed ca 600 m away from the residential area (Malé Pálenisko, Prístavná ulica), from which it is separated by road and other building objects.

Increased noise and dust, in particular the implementation of earthwork will be considered temporary negative impacts during construction of the terminal. Wellbeing of the population around the building site will not be significantly impaired because the nearest houses are located in sufficient distance.

5. Data concerning assumed impacts of designed activity on protected areas

The project is located sufficiently away from the city building and the protected areas, Natura sites and protected water areas. The nearest protected areas - the birth area SKCHVU007 Dunajské luhy is located about 500 meters by aerial line from the middle of the river flow, on the opposite bank of the Danube. The direct contact between the respective project and protected area is hampered by the strip of port land about 300 m long and green on the port dike. Mainly the green and sufficient distance could avoid the adverse affecting of protected areas from the building activity.

Impacts during construction

Earthworks associated with the preparation of area, concrete works and construction work will be mainly building works during the TIT construction. Earthworks will have the biggest impact on the surrounding environment. Negative impacts will result mainly from the construction noise and dust, however, it will be territorially limited and their impact according to the growing distance will shrink.

The leaking of hazardous substances into the Pálenisko pool and thence into the Danube can be another possible negative impact of the construction. Further, along the Danube flow, there are valuable protected areas and at the estuary of the Little Danube there is a protected water area boundary, and therefore the risk should be limited to a minimum. The appropriate measure is the processing and compliance with emergency plans and discipline in the workplace. In the case of hazardous substances leaking into the pool, it is possible to exploit the opportunities of its own separation from the Danube and an underwater bubble screen wall which will be operated by Slovnaft, Inc.

During the construction the leaking of hazardous substances into the soil and thence into the groundwater, for example eaves of the building mechanism may also occur. This can be prevented by ensuring good technical condition of the present machines and by keeping regulations of relevant standards and safety guidelines.

It should be noted that the above effects relating to leaking of hazardous substances into water, respectively land can occur only in case of an accident on building site and not during a normal operation on the building site, and therefore all risks during construction are limited to the duration of the project construction.

Impacts during project operating

During the project operation the negative impacts on protected areas could arise, e.g. air pollution, noise from waterway transport, in case of accidents it could be the leakage of hazardous substances from vehicles, respectively from goods transferred.

The containers will be closed and it cannot be excluded that they may contain substances damaging waters. In case of damage of container carrying the liquid material the capturing of leaking substance will be ensured by a double protection:

1) On the siding, a wagon with steel tub will be placed. At the time of failure, the wagon with steel tub will be pulled closer to damaged container. The container will be placed into a steel tub and re-pulled by wagon on to the siding.

2) At the end of this side track a reinforced concrete catch bath of about 25 m long will be built. The wagon with steel tub with a damaged container will be placed over the concrete troughs and so will ensure the capturing of substations, even in the case of leakage of fluid under pressure.

Water pollution from waterway transport can occur only in case of accident and if than limited, because the vessel is equipped with a double bottom to capture any leakage of substances. During a normal waterway operation, applicable laws and regulations have to be complied with, so the water is not affected. Refuelling and sewage transferring is done in ports, in service places, which are equipped to minimalize the leakage of pollutants into the water.

In the case of dangerous substances leaking into the pool, the opportunities of its own separating from the Danube by the bubble screen and by underwater wall which will be operated within the construction transfer station of oil products Slovnaft, lnc. can be used.

No significant increase of waterway transport according to terminal operating is expected; therefore the protected areas in the project vicinity will not be affected.

The negative impacts, mentioned above can occur only in case of accident and not during the routine terminal operating.

6. Assumed impact exceeding frontier borders

The TIT BA project is situated at Pálenisko Port that is located at Danube River. Danube further becomes frontier river between the Slovak Republic a Hungary.

No impacts exceeding frontier borders during routine terminal operating are expected. The affecting of environment can occur only in case of accident and consequently dangerous substances leaking into Danube. There are proposed measures to eliminate these impacts.

In case of damage of container carrying the liquid material the capturing of leaking substance will be ensured by a double protection:

1) On the siding, a wagon with steel tub will be placed. At the time of failure, the wagon with steel tub will be pulled closer to damaged container. The container will be placed into a steel tub and re-pulled by wagon on to the siding.

2) At the end of this side track a reinforced concrete catch bath of about 25 m long will be built. The wagon with steel tub with a damaged container will be placed over the concrete troughs and so will ensure the capturing of substations, even in the case of leakage of fluid under pressure.

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Water pollution from waterway transport can occur only in case of accident and if than limited, because the vessel is equipped with a double bottom to capture any leakage of substances.

In the case of dangerous substances leaking into the pool, the opportunities of its own separating from the Danube by the bubble screen and by underwater wall which will be operated within the construction transfer station of oil products Slovnaft, lnc. can be used.

7. Other possible risks associated with project implementation

Other possible risks associated with carrying out the proposed project are related to unpredictable events caused by human or natural factors. Risks can be divided into the risks during constructing and during operating.

Risks during constructing

a) the risk of building workers accidents;

b) fire - see below;

c) oil leaking on the building site - these risks can be eliminated by work discipline and by complying the emergency measures plans during construction, and ensuring good technical vehicles condition

Risk during operating

- Pollution of water - if using the terminal for the transport of substances harmful to waters (poisons, chemicals, explosives), respectively other hazardous substances, or with hazardous nature, or leakage of oil from transportation equipment (crane, TNA, MMP) - these risks can be eliminated by technical and organizational measures (work discipline and compliance with emergency plans and ensuring the good condition of vehicles). It is recommended to use environmentally degradable lubricants. There is ensured a double protection in case of damage to the container carrying the liquid material, and the leaked substance will have to be captured:
    - On the siding, a wagon with steel tub will be placed. At the time of failure, the wagon with steel tub will be pulled closer to damaged container. The container will be placed into a steel tub and re-pulled by wagon on to the siding.
    - At the end of this side track a reinforced concrete catch bath of about 25 m long will be built. The wagon with steel tub with a damaged container will be placed over the concrete troughs and so will ensure the capturing of substations, even in the case of leakage of fluid under pressure.
    - In the case of dangerous substances leaking into the pool, the opportunities of its own separating from the Danube by the bubble screen and by underwater wall which will be operated within the construction transfer station of oil products Slovnaft, lnc. can be used.
- Vessel Accidents - technical condition of the vessels will not be affected by terminal and therefore it has no direct impact on potential accidents due to the insufficient technical condition of vessels. Vessels are normally equipped with a double bottom to capture any leakage of substances. Refuelling and sewage evacuation is carried out at ports, service locations, which are secured against the leakage of pollutants into the water. All the regulations in waterway transport, which set the conditions for the operation of ports and waterways to avoid pollution of surface water, will be complied with.
- Fire – requirements of fire safety and their further compliance will be controlled by the state fire control authority during a final building approval in accordance with regulations valid in field of fire safety and fire protection.
- Flood - flood risks can be minimized by keeping of flood control measures proposed in subsequent stages of project documentation.
- Earthquake of intensity that is capable to damage construction of the rail-mounted objects or gantry cranes – to minimalize these risks is necessary to keep measures proposed for emergency situations.
- Failures of the human factor - these risks are minimized by increased automation of reporting and security device.

- Third party intervention (terrorist attack, aircraft crash) - third party intervention is unlikely, but it is not possible to rule out in advance. Terror attack does not make sense - killing as many people as possible; in the terminal and its surroundings are not many people reside. The fall of the aircraft would affect the property and water pollution, but it is possible to minimize by proposed measures.

8. Measures to mitigate adverse impacts of the various options proposed activity on the environment

The measures are reasonable state accepted and incorporated into decision-making process and become part of the further proceedings on the authorization activity.

Measures during construction:

- measures to reduce dust during dry and windy period – spattering of site and traffic routes, to clean vehicles, to overlay dusty materials;
- measures to prevent the escape of contaminants into environment - to keep building mechanisms and vehicles in a satisfactory state of repair, to handle oil pollution and oil only at places designated for these purposes;
- to ensure the disposal of waste arisen during the TIT construction according to the type of waste within existing valid legislation;
- to elaborate the plan of emergency measures for the time of the project construction, within a further project preparation
- during construction complied with all relevant legislative rules and regulations, work safety and measures resulting from emergency action plan.

Measures during operating:

- measures for water protection:
    - to provide a double protection measures; to prevent leakage of substances harmful to the waters (see above - a wagon with steel tub for sidings serves to store the damaged container, which is located above the reinforced concrete bathtub);
    - vehicle fuelling will not be carried out in TIT area,
    - vessels servicing (refuelling, sewage and waste lead of) will not be carried out in the area of TIT;
    - the rainfall waters from surface runoff will be first cleansed in oil traps,
    - the waste water from the canteen section will be first cleansed in grease separator;
- to elaborate emergency action plan for the period of TIT operation within the project preparation process and to negotiate the cooperation and coordination with Slovnaft, Inc. company in dealing with emergency situations;
- measures to minimize light smog – to place TIT lighting , so that the light cones will cover the required area and lampshades will be set up to prevent from excessive emissions into the ambient .

Compensatory measures

Within the preparation of area the current self-seeding vegetation will be eliminated, it occurs primarily in 2nd stage of project construction. Dendrological survey and proposed compensation measures are necessary for a felling trees permitting.

9. Evaluation of assumed territory development, if the proposed activity will not be implemented.

If the TIT BA project is not implemented, the state of respective territory will not change, thus the situation would be identical to the current state. (zero option)

In case of no project realization, the development of services and increase employment in the region cannot be expected.

In case of project realization is an improvement of environment by transferring the road freight transport to the railway expected.

IV. Comparison of variants of the proposed activity and the optimal variant

1. Selection of the optimal variant or stipulation of suitability order for the variants considered

Comparison of Variant I and Variant II

The proposed variants of the respective activity lies in the realization of the respective activity in two stages, with the fact that within the variant I will be built both stages as a whole and in the variant II will be built 1st stage, which will be put into operation, and 2nd stage will be further built up with certain time delay. Time interval is caused by property-legal settlement.

Impacts on inhabitants

The difference between levels of noise of particular variants, according to the distance of residential area will not affect the inhabitants of respective locality.

Impacts on environment and protected territory

We note that from the perspective of the individual environment components, the difference between influence of Variant I and Variant II is not expected.

Impact on traffic

According to the impact on traffic the difference between Variant I and Variant II is not significant.

Accordance with international treaties

Terminals of intermodal transportation, by their own organizational and process layout, must meet the requirements of AGTC Agreement (European Agreement on Important International Combined Transport Lines and Related Installations). In case of only the 1st TIT BA stage implementation, these requirements will not be fulfilled; therefore, TIT BA in its entirety will need to complete as soon as possible.

Impacts on economic development of city and job opportunities

TIT BA construction and operation will have positive impact on economic development of city and further of respective region. In case of Variant I implementation, the positive economic revitalization incurs in shorter time horizon.

Based on impact comparison of both variants is possible to note that both variants will have similar impacts.

2. **Substantiation of optimal variant proposal**

Based on the foregoing, we conclude that the impacts of Variant I and Variant II are not fundamentally different, therefore it is possible the implementation of both variants of the proposed activity on condition that proposed measures, ensuring mitigation of negative impact on environment, caused by respective activity, will be fulfilled.

V. Map appendix

General layout of the designed activity location (ratio scale 1:50 000)

VI. Data verification

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2. Data verification

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Signature