

Attachment No. 7. IMPACT OF THE PROJECT ON NATURA 2000 AREA - PLH 180049 TARNOBZRZEG VISTULA RIVER VALLEY

A Natural Environment Survey of the Site, i.e. area between the embankments and section of the flood bank which will be raised as well as a strip of land with a width of several to dozens of meters in the area outside of the embankment was conducted (in total the area of 85 ha was surveyed). Mapping of the habitat which took place from August to September 2011 was included in the Environmental Impact Report, while the inventory of fauna was conducted during three site inspections on 21 June 2011, 31 July 2011 and 9 September 2011, when morning (6am – 11am) and evening (5pm – 10pm) inspections took place. The description of natural environment on the Site made use of the available literature and the information contained in Standard Data Form (SDF) characterizing NATURA 2000 area which is important for the Community of Tarnobrzaska Vistula River Valley PLH180049. Evaluation of the impact on protected species and on natural habitat was conducted for the species identified during the survey and for species identified in the above mentioned SDF.

The Site

During the Natural Environment Survey of the area allocated to development along Vistula River four protected natural habitats listed in Annex I to Council Directive 92/43/EWG were identified. These are:

- Oxbow lakes and natural eutrophic water reservoirs with *Nympheion*, *Potamion* gatherings (Code: 3150);
- The alluvial meadows *Cnidion dubii* (Code: 6440);
- Extensively used lowland and mountain meadows *Arrhenatherion elatioris* (Code: 6510);
- Willow, poplar, alder and ash flood meadows *Salicetum albo-fragilis*, *Populetum albae*, *Alnenion* (Code: 91E0).

Protected natural habitat found along the Vistula River flood bank proposed for raising are located between the river banks where oxbow lakes and remains of alder and poplar-willow flood meadows are often very large. The areas covered by alluvial meadows as well as extensively used lowland and mountain meadows are partly in direct vicinity of flood bank's slopes.

The land outside of the flood banks is a mosaic of fields, orchards, wastelands and urban areas. The agricultural activities conducted there caused anthropogenic transformation leading to the elimination of valuable natural habitat.

Vegetation which covers slopes of both sides of river banks comprises mainly of anthropogenic grasslands with *Arrhenatherion elatioris* lowland hay meadows characteristics and structure but extensively utilized because grass is regularly mowed. In particular one can identify in this area groups of blueweeds and sweet clovers, fragments of worn down vegetation and groups of ruderal species. Embankment slopes are also a habitat of foreign plants.

Impact of the Project

Destruction of habitat found on slopes and the crown of the embankment which will take place during the construction works will not cause significant loss to the environment as these habitats are highly expansive and will recover in a short time after completion of works.

However, significant negative impact of the Project was identified in the area between the embankments when in the basic option of the Project which was indicated for the implementation it was considered to obtain materials, i.e. earth from this area. Earth work related to obtaining earth was planned for Stands No. 2-14; 96 (Dzików Precinct) and on Stand No. 202 (Zakrzów Precinct) and covered the surface of approx. 24 ha almost entirely located in the area of protected habitat 91E0 Willow, poplar, alder and ash flood meadows (*Salicetum albo-fragilis*, *Populetum albae*, *Alnenion*) which is a habitat identified in the Regulation of the Minister of the Environment dated 13 April 2010 on natural habitat and species which are of the interest to the Community, as well as the criteria for selection of the area eligible for recognition or designation as Natura 2000 **priority habitat** (Journal of Law No. 77, Item 510).

The planned acquiring of earth from the terrace area would mean total destruction of this natural habitat. The Client indicated that due to the fact that the dominant tree species in this habitat are light seeded and pioneering such as willows, poplars and alders the habitat will recover in a way of ecological succession within few to dozen years, provided that measures to mitigate negative impact will be implemented, i.e. removing 30 cm thick top layer of soil, its storage and later reusing for reclamation of land on completion of earthwork.

The authority conducting the proceeding on environmental impact assessment repeatedly called for supplementation of EIA Study to include assessment of the impact of the Project on the aims and subject of protection of the above mentioned Natura 200 area,

and also called for consideration of an option to abandon obtaining the earth from the terrace area. In justification of its suggestions the authority pointed out that all works undertaken in respect of Natura 2000 areas and related to sustainable transformation of natural habitat may be associated with significant negative impact on the area even if on a very small surface. This is also reflected in the jurisprudence of the Court of Justice of the European Communities. For example, in its judgement C-258/11 (Sweetman case, Galway bypass) of 11 April 2013 it was indicated that the project violates the integrity of the area if it may prevent permanent maintenance of the essential features of the area associated with the presence of type of natural habitat the protection of which justified placing it on the list of areas of significant importance to the Community. When implementation of the plan or the project leads to permanent and irreversible loss of the entire or part of a type of habitat the protection of which was a justification for identifying the area as an Area of Interest of the Community, then it must be considered that this plan or the project will have an adverse impact on the integrity of the area.

For this reason **this option was ultimately rejected** in accordance with a letter from the Client i.e. Podkarpacki Board of Amelioration and Hydraulic Structures in Rzeszów dated 6 June 2013, Ref. No. IM.403.43.5.2013. Obtaining earth from the terrace area was abandoned completely.

What was considered was **an option of occupation of the area for the implementation of the Project only**, that is limited to the area required directly for execution of alterations to section of the embankment and several meters wide area of works (on both sides of the embankment) as well as area for the site establishment provided on dry side of the embankment.

With reference to the impact of the Project on the surveyed natural habitat in Natura 2000 area it was found that after Client's reconsideration of obtaining earth from the terrace area the Project in no way will impact on inter-riverine habitat 91E0. Provision of barriers to protect the habitat was recommended for the sections where proposed works will be executed near flood meadows. The construction works in no way will interfere in oxbow lake and other water reservoir's habitat found in the terrace area. The impact assessment has also shown that the execution of proposed works will not interfere in alluvial meadows habitat either. Extensively used variable moisture meadows are running along water side of the embankments for a total length of approx. 5.3 km (i.e. sections of 1.4 km, 670 m, 875 m and 2.4 km). This habitat will be occupied only marginally in border section. Humus will be removed from the section of the refurbished embankment, secured and later reused for reclamation of the land. Damaged surface will be turfed and native plants will be sowed on

completion of the works. Thus, the implementation of the Project will not be associated with significantly negative impact on the above natural habitat.

The Natural Environment Survey allowed in the terrace area to identify species of plants protected under the Regulation of the Minister of the Environment of 5 January 2012, i.e. floating fern *Salvinia natans* (species under strict protection, found in two oxbow lakes) and yellow water lily *Nuphar lutea* (species under partial protection, found in reservoirs on the terrace area). It is not expected for the works to have an impact on the above species due to the fact that the reservoirs are located outside of the area of works. A moss species springy turf-moss *Rhytidiadelphus squarrosus* partially protected under the Regulation was also found but it is not expected for the Project to have an impact on the species. In addition, guelder rose *Viburnum opulus* was found – species under partial protection. But due to the necessity to cut down dozen of trees and shrubs there is no negative impact on the species. However, if during construction stage it will be determined that the area of works impacts on protected plant's habitat, then a relevant permit will have to be obtained to transfer the plants into habitat appropriate for the species, away from the construction work area and possibly in close proximity to the area where it was growing.

Ornithological survey allowed in the vicinity of the embankment to identify 44 species of birds, such as: Whitethroat *Sylvia communis*, great tit *Parus major*, yellowhammer *Emberiza citronella*, skylark *Alauda arvensis*, blackbird *Turdus merula*, chiffchaff *Phylloscopus collybita*. The bird species are among average numbered (blackbird abundant locally), numerous (great tit, chiffchaff, yellowhammer) and large quantities (great tit, skylark) in Poland (source: „Avifauna of Poland – distribution, numbers and changes”; L. Tomiałojć, T. Stawarczyk, Wrocław 2003). Referring to the impact on birds the Study indicates that disturbing effect may take place due to the work of construction equipment – but it will be short-term, limited to the duration of works only. Another element which impacts ornitho-fauna is felling of trees and shrubs – but because of its limited nature it will not be significant. In addition, cutting down trees and shrubs will take place outside of the main bird breeding season, which according to the letter from General Director for the Environment Protection of 10 August 2012, Ref. No. DOP-OR.075.03.5.2012.ep.3 is between 1 March and 15 October for majority of species. Negative impact of the project on birds refers also to removal of humus which affects birds breeding on the ground. For this reason topsoil will be removed outside of a period between 1 March to 31 July (if it will be necessary to remove topsoil during restricted period it will have to be consulted with environmental team). Taking into account scope of works and proposed mitigation measures substantial negative impact of the Project on ornitho-fauna is not anticipated.

Permanent breeding areas of amphibians, i.e. European toad *Bufo bufo*, common frog *Rana temporaria*, as well as European fire-bellied toad *Bombina bombina*, common water frog *Rana lessonae*, pool frog were identified in oxbow pools and ponds found in terrace area – all species are covered by a strict protection under the Regulation of the Minister of the Environment of 12 October 2011 (Journal of Laws No. 237, Item 1419). The scope of the proposed works does not include reservoirs and therefore the Project will not adversely impact on the above species. In addition, project's conditions indicate that removal of a layer of humus in wetlands which could be a potential habitat for amphibians should take place in autumn (source: „Handbook for protection of amphibians” R. T. Kurek, M. Rybacki, M. Sołtysiak: Bystra 2011). The same conditions also indicate that in the event when the environmental team identifies spring amphibian migration routes through the area of construction works, the works in the vicinity of migration passage will be suspended in a period between 1 March – 30 June, to prevent any killing of the animals by construction vehicles. It is also allowed to provide temporary barriers to protect migration passage (it is necessary to maintain environmental control and supervision of these activities, for the inspector to determine type of barrier and its dimensions based on relevant literature).

The Natural Environment Survey presented in the Report did not identify two species of butterflies listed in Annex II of the Habitat Directive, i.e. large copper *Lycaena dispar* or dusky large blue *Phengaris nausithous*, which are subject to protection in the area of Tarnobrzeg Vistula River Valley PLH180049 Community. Nevertheless, it was stated in the Report that execution of works on the embankments and including removing vegetation may have a negative impact on the above species of butterflies. However, it should be noted that due to the proposed nature of land reclamation (sodding, sowing, continuous mowing of embankments) this impact will be short term only.

Two species of partially protected mammal species and species listed in Annex II of the Habitat Directive which are protected under Natura 2000 were identified, i.e. otter *Lutra lutra* and European beaver *Castor fiber*. The presence of otters is associated with watercourses in the terrace area and with Vistula River channel, therefore, due to lack of construction activities in the river bank areas and limiting works to the area of embankment's renovations only, negative impact of the works on the species in the way of limited migration or reduced feeding area is not foreseen. With reference to the impact of the works on beaver, the Report states that the negative impact of works on this species is possible due to reduction of feeding areas. It should be noted that this conclusion refers to the option which allowed for felling of trees and shrubs to create supply of earth in the terrace area. Due to the reduction of the scope of work to the renovations of the embankment only (omitting obtaining earth

from terrace area) and due to the limited scope of tree and shrub felling, reduced interference in watercourses along which the animals may migrate to the works near flood gates and staged execution of works, it may be stated that the proposed works will not significantly affect the above species.

The impact on the integrity of Natura 2000 areas and assessment of occurrence and the threats to the animal species and natural habitats listed in Annex I and Annex II to the Directive 92/43/EEC in the vicinity and on the site of the Project

Due to the nature of the Project involving solely renovation of the existing embankments it will not impact on the integrity of Natura 2000 area PLH 180049 Tarnobrzeg Vistula River Valley. However, the Project may potentially impact on specific elements of the environments for which particular Natura 2000 areas were created.

Birds

Implementation of the Project may potentially impact on several species of birds indicated in Annex I to Council Directive 79/409/EEG as well as species not indicated there by limiting area for breeding and feeding. However, these are short term reversible changes. Impact of proposed works on species of birds listed in Annex I to Council Directive 79/409/EEG present in the area of Natura 2000 PLH180049 Tarnobrzeg Vistula River Valley is shown in Table No. . Presence of lesser spotted eagle *Aquila pomarina* was established during Natural Environment Survey. The eagle is not indicated in SDF for the area of Natura 2000 PLH180049 Tarnobrzeg Vistula River Valley, but is indicated in Annex I to Council Directive 79/409/EEG.

Table No. 1 Potential impact of proposed works on bird species present in Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley

No.	Species Code	Common Name	Latin Name	Habitat	Potential Impact of Works on Species
1	A030	Black stork	<i>Ciconia nigra</i>	Preference of this species is large forests	None
2	A031	White stork	<i>Ciconia ciconia</i>	White storks nests on buildings or near to them, while feeding area is located away from human settlements. Feeding areas can be divided into five categories: meadows, pastures, flowing or stagnant water and arable land.	None
3	A193	Common tern	<i>Sterna hirundo</i>	Common tern has a wide range of habitats. It nests both in littoral areas (bays, lagoons, deltas, sandbars) as well as inland areas (lakes, ponds, river valleys – especially on islands and peninsulas, various types of dams and gravel pits).	None

4	A229	Common kingfisher	<i>Alcedo atthis</i>	Inhabits mainly forested sections of clean rivers' shoreline, streams, lakes and fish lakes rich in small fish. It requires steep cliffs to build a nest, with sand or sandy-clay bed.	None
5	A089	Lesser spotted eagle	<i>Aquila pomarina</i>	Lesser spotted eagle nests on deciduous trees and in mixed forests, near wetlands, wet meadows and marshes. The nests are built in in large forests as well as in semi-pen areas	Reduction of flood area outside of embankments may partially reduce feeding area

Mammals

During the Natural Environment Survey of the area only traces of the presence of European beaver *Castor fiber* were found in the terrace. Table No. 2 shows in detail impact of the Project on mammal species protected under Natura 2000.

Table No. 2 Potential impact of proposed works on mammal species present in Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley

No.	Species Code	Common Name	Latin Name	Habitat	Potential Impact of Works on Species
3	1337	European beaver	<i>Castor fiber</i>	Beavers are common in large rivers, estuaries and large lakes with relatively stable water level, in streams, tributaries and small water courses with a flow allowing for water damming	Possibility of reducing habitat and feeding area
4	1355	Lutra	<i>Lutra lutra</i>	Common in rivers, lakes and breeding ponds in all main catchment areas of our country.	None

Amphibians and Reptiles

All amphibian and reptile species in Poland are protected. The Project will not have substantial impact on amphibian and reptile species, subject to compliance with recommendations regarding steps to take to limit negative impact on the environment. Local destruction of breeding and feeding areas may occur but the changes are short-term and reversible and the areas will be quickly inhabited by amphibians and reptiles after completion of works. Table No. 3 shows in detail impact of the Project on amphibian species protected under Natura 2000.

Table No. 3 Potential impact of proposed works on amphibian and reptile species present in Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley

No.	Species Code	Common Name	Latin Name	Habitat	Potential Impact of Works on Species
1	1166	Great crested newt	<i>Triturus cristatus</i>	Great crested newt is present in moist habitat, as long as there are stagnant water reservoirs where it can reproduce. It requires larger and	No vital impact

				deeper reservoirs than common newt	
2	1188	European fire-bellied toad	<i>Bombina bombina</i>	This species prefers warm and shallow reservoirs with rich vegetation: oxbow lakes, flooded meadows, fish lakes, small lakes and ponds, aggregate mines, drainage ditches. They avoid flowing water and cold deep lakes	No vital impact

Fish

The Project will not impact on fish species occurring in surveyed section of Vistula River as there will be no work involving river bed. Table No. 2 shows in detail impact of the Project on fish species protected under Natura 2000.

Table No. 4 Potential impact of proposed works on fish species present in Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley

No.	Species Code	Common Name	Latin Name	Habitat	Potential Impact of Works on Species
1	2511	Kessler's gudgeon	<i>Gobio kessleri</i>	Species poorly recognized in terms of ecology	None
2	1134	Amur bitterling	<i>Rhodeus sericeus amarus</i>	Amur is recognized as one of the most specialized species with a small tolerance for changes to habitat. Known as limnetic fish, prefers stagnant or slow flowing water, inhabiting lakes, ponds, oxbow lakes and canals	None
3	1145	European weatherfish	<i>Misgurnus fossilis</i>	Inhabits stagnant and slow flowing shallow waters, oxbow lakes, small, muddy reservoirs, oxbow lakes, canals and even drainage ditches	None
4	1130	Asp	<i>Aspius aspius</i>	Typical biotype of asp is lowland running water	None

Invertebrate

The works related to raising of the flood banks will not have substantial impact on protected invertebrate species. Table No. 5 shows potential impact of the proposed maintenance works on invertebrate species protected within Natura 2000 area.

Table No. 5 Potential impact of proposed works on invertebrate species present in Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley

No.	Species Code	Common Name	Latin Name	Habitat	Potential Impact of Works on Species
1	1060	Large copper	<i>Lycaena dispar</i>	Species associated with wet meadows and fens as well as various types of border line environments in river valleys	Possible periodic damage to the habitat and feeding area
2	1061	Dusky large blue	<i>Maculinea</i>	Species associated with wet meadows and fens as well as various types of	Possible periodic damage to the habitat

			<i>nausithous</i>	border line environments in river valleys, but prefers areas with more shrubs and avoids fully open areas	and feeding area
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Plants

There are no plant species listed in Annex II to Council Directive 92/43/EWG present in Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley.

Natural Habitat

Occurrence of natural habitat indicated in SDF for Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley was verified during the site inspection. Four off natural habitats listed in Annex I to Council Directive 92/43/EW were identified in surveyed section of Vistula River. Potential indirect impact on the natural habitat due to lowering ground water level was also considered in assessing impact on the natural habitat.

The works comprising of alterations to the embankment will not cause lowering of the ground water level in the terrace area to the extent which could impact on stability and condition of natural habitat.

Impact of the Project on natural habitat is shown in a table below.

Table No. 6 Potential impact of proposed works on natural habitat present in Natura 2000 area PLH180049 Tarnobrzeg Vistula River Valley

No.	Habitat Code	Habitat Name	Potential Impact of Works on Natural Habitat
1	3150	Oxbow lakes and natural water reservoirs with gathering of Nympeion, Potamion	Proposed works related to raising of the embankments do not make provisions for damage to this environment due to the fact that they are located in the area between the embankments outside of the direct impact of the Project. There will be no impact on the habitat caused by lowering of the ground water level, because the Project will have no impact on ground water level.
2	6510	Extensively used lowland and mountain fresh meadows (Arrhenatherion elatioris)	Possible periodic damage to the habitat in the immediate vicinity and on slopes of the flood banks. However, removal of shrubs and undergrowth and moving of the grass on embankments' slopes will improve condition of the habitat.
3	6540	Alluvial meadows Cnidion dubii	Possible periodic damage to the habitat in the immediate vicinity and on slopes of the flood banks. However, removal of shrubs and undergrowth and moving of the grass on embankments' slopes will improve condition of the habitat.
4	91E0	Willow, poplar, alder and ash flood meadows (Salicetum albobfragilis, Populetum albae, Alnenion)	Proposed works related to raising of the embankments do not make provisions for damage to this environment due to the fact that they are located in the area between the embankments outside of the direct impact of the Project. There will be no impact on the habitat caused by lowering of the ground water level, because the Project will have no impact on ground water level.