

## Appendix 1. Checking List - Plan of mitigation measures

NOTE:

- The Works Contract borders or slightly overlaps with the following Natura 2000 sites: the Natura 2000 site the Tarnobrzeg Valley of the Vistula River PLH180049 (it overlaps with Section III in the vicinity of Zalesie Gorzyckie with its area of approx. 0.063 ha) and the Natura 2000 site - the Valley of the Lower San River PLH180020 (Section II borders with it from km 0+000 up to km 2+180, Section San borders with it from km 0+180 up to km 2+192). The planned Works Contract borders with the Wisła pod Zawichostem [‘Vistula at Zawichost’] Nature Reserve (Section I borders with this area over a length of approx. 280 m, from approx. km 3+020 up to approx. km 3+300). The Works Contract is situated (slightly overlaps) within the Important Bird Area: the Valley of the Lower San River PL143.
- The Contractor shall provide the Contractor’s environmental team consisting of a group of specialists specified in the EMP and the environmental decision.
- The following specialists are required to implement EMP prepared for this Works Contract 3B.2: (i) a botanist, (ii) an entomologist, (iii) a chiropterologist, (iv) a herpetologist and (v) an ornithologist. They will be involved by the Contractor in the implementation of the mitigation measures (in accordance with guidelines in the Mitigation Measures' Table - Appendix 1 and environmental decisions - Appendix 4). In accordance with the environmental decision it is acceptable to combine mentioned above maximum 2 functions by one person. Combination of functions will be subject to acceptance by the Engineer, the condition for acceptance is to demonstrate the appropriate knowledge and experience of the specialist: supervision will be performed by specialists with higher education in the field of biology, forestry, environmental protection who has run at least two professional nature supervisions during investments in the field of ornithology / botany / herpetology, respectively etc. Members of the Contractor's environmental team will also be (vi) a sapper and (vii) an archaeologist.

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
<b>01- REQUIREMENTS CONCERNING ENVIRONMENTAL PROTECTION TO BE INCLUDED IN THE BUILDING DESIGN</b>				
1	III.1	<b>Agreements concerning environmental protection to application in the building design</b>	Building design and any other technical documentation elaborated by the Contractor shall consider recommendations resulting from the issued environmental decision.	Designer, Contractor – Contractor's design team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
2	III.2	<b>Recommended environmentally friendly technical solutions</b>	A vertical anti-filtration barrier will be made in embankment water-side foot. This barrier will be linked with a geomembrane screen. The barrier will reach max. 10 m below the terrain level. This screen in the embankment water-side slope will be made of geomembrane anchored at the top at the embankment crest and in the bottom in the vertical anti-filtration barrier.	Designer / Contractor (responsible for the execution of works in accordance with the Building Design)
3	III.3	<b>Recommended technical solutions</b>	<p>Parameters of the extended embankments:</p> <p>Section I:</p> <ul style="list-style-type: none"> <li>– width of the embankment = approx. 3 m and approx. 5 m at a road section going along it,</li> <li>– inclination of the embankment water-side slope = 1:2.5÷1:4.7 and the embankment water-side slope = 1:2.5÷1:2.7,</li> <li>– ordinate of the embankment crest = 143.91÷145.90 m above sea level (linked to the existing embankment ordinate).</li> </ul> <p>Section II:</p> <ul style="list-style-type: none"> <li>– width of the embankment crest = approx. 3 m and approx. 5 m at a road section going along it.</li> <li>– inclination of the embankment water-side slope = 1:2.2÷1:4.2 and the embankment water-side slope = 1:2.5;</li> <li>– ordinate of the embankment crest = 146.06÷147.79 m above sea level (linked to the existing embankment ordinate).</li> </ul> <p>Section III</p> <ul style="list-style-type: none"> <li>– width of the embankment crest = approx. 3 m and approx. 5 m at a road section going along it.</li> <li>– inclination of the embankment water-side slope = 1:2÷1:4 and the embankment water-side slope = 1:2÷1:3,</li> <li>– ordinate of the embankment crest = 147.79÷148.24 m above sea level (linked to the existing embankment ordinate).</li> </ul> <p>Section San</p> <ul style="list-style-type: none"> <li>– width of the embankment crest = 2.5÷4 m,</li> <li>– inclination of the embankment water-side slope = 1:2.5÷1:4.1 and the embankment water-side slope = 1:2.6÷1:2.8;</li> <li>– ordinate of the embankment crest = 145.90÷146.23 m (linked to the existing embankment ordinate).</li> </ul>	Designer / Contractor (responsible for the execution of works in accordance with the Building Design)

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
4	III.4	<b>Recommended environmentally friendly technical solutions / Section I (the land plot no. 2 precinct Witkowice)</b>	There will be no "green route" at the section running through the "Wisła pod Zawichostem" Nature Reserve i.e. at the section with a length of approx. 300 m (at the land plot no. 2, within the precinct of Witkowice, in the Radomyśl nad Sanem Commune).	Designer/ Contractor (responsible for the execution of works in accordance with the Building Design)
5	III.5	<b>Recommended environmentally friendly technical solutions / Section I</b>	At the modernized embankment ramps in Section I, apart from ramps at km 0+530 and 6+410, it is required to set up barriers aimed to limit free entry into the inter-embankment by unauthorized persons / entities but letting land owners to enter (drive into) it.	Designer/ Contractor (responsible for the execution of works in accordance with the Building Design)
6	III.6	<b>Recommended environmentally friendly technical solutions</b>	<p>In order to secure the flood-protection embankments against digging and burrowing animals, there will be a galvanised steel mesh placed from the base of the flood-protection embankment to the height of control water at the embankment water-side slope, at a depth of min. 0.2 m below the ground. This mesh will have the following parameters:</p> <ul style="list-style-type: none"> <li>– thickness of its wire: min. 2.5 mm,</li> <li>– maximum dimensions of its eyelet: 8 x 8 cm,</li> <li>– anchoring by means of steel bars in an amount of min. 1 pc. per 1m<sup>2</sup>.</li> </ul> <p>This mesh will be mounted along the entire length of the embankments covered by the Works Contract.</p>	Designer/ Contractor (responsible for the execution of works in accordance with the Building Design)

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
7	III.7	<p><b>Recommended environmentally friendly technical solutions</b></p>	<p>Any interference with watercourses/ditches is permitted only to a limited extent, i.e.:</p> <p>1) watercourses are permitted to be reinforced only within the redeveloped embankments water-locks / their inlets / outlets, respectively,</p> <p>Section I:</p> <p>a) the embankment water-lock 1.1 at km 2+735 at the drainage ditch:</p> <ul style="list-style-type: none"> <li>– the inlet: reinforcement of the bottom with a stone cover and the slopes with mesh-stone mattresses at a length of up to 5 m and a bank-wall (river-bank band) made of fascine bunch at a length of up to 27 m,</li> <li>– the outlet: reinforcement of the bottom with a stone cover and of the slopes with a mesh-stone mattress at a length of up to 5 m and a bank-wall (river-bank band) made of fascine bunch at a length of up to 25 m, moreover, at its estuary into the reservoir, a stone cover is permitted at a length of approx. 3 m in order to protect the place of water discharge.</li> </ul> <p>b) the embankment water-lock 1.2 at km 4+093 at the drainage ditch:</p> <ul style="list-style-type: none"> <li>– the inlet: reinforcement of the slopes with mesh-stone mattresses at a length of up to 27 m and a stone cover at the bottom,</li> <li>– the outlet: reinforcement of the bottom with a stone cover and of the slopes with a mesh-stone mattress at a length of up to 28 m; moreover a bank-wall (river-bank band) made of fascine bunch at a length of up to 35 m,</li> </ul> <p>c) the embankment water-lock 1.3 at km 6+206 at the Strachocka river:</p> <ul style="list-style-type: none"> <li>– the inlet: reinforcement of the bottom with a stone cover and of the slopes with a mesh-stone mattress at a length of up to 11 m; moreover a bank-wall (river-bank band) made of fascine bunch at a length of up to 66 m, locally at the river meander (the left bank) reinforcement of the slope with mesh-stone mattress at a length of up to 20 m,</li> <li>– the outlet: reinforcement of the bottom with a mesh-stone mattress at a length of up to 4 m, then with a stone cover – at a length of up to 6 m and of the slopes with a mesh-stone mattress; moreover a bank-wall (river-bank band) made of fascine bunch at a length of up to 25 m.</li> </ul> <p>Section II:</p> <p>a) the embankment water-lock 2.1 at km 0+055 at the drainage ditch:</p> <ul style="list-style-type: none"> <li>– the inlet: reinforcement of the bottom with a stone cover at a length of up to 14 m and of the slopes with mesh-stone mattresses; moreover a bank-wall (river-bank band) made of fascine bunch at a length of up to 26 m,</li> <li>– the outlet: reinforcement of the bottom with a stone cover and of the slopes with a mesh-stone mattress at a length of up to 16 m; moreover a bank-wall (river-bank band) made of fascine bunch at a length of up to 23 m,</li> </ul> <p>b) the embankment water-lock 2.2 at km 2+178 at the drainage ditch:</p> <ul style="list-style-type: none"> <li>– the inlet: reinforcement of the bottom with a stone cover and of the slopes with a mesh-stone mattress at a length of up to 17 m,</li> <li>– the outlet: reinforcement of the bottom with a stone cover and of the slopes with mesh-stone mattresses at a length of up to 9 m; moreover a bank-wall (river-bank band) made of fascine bunch at a length of up to 28 m,</li> </ul> <p>c) the embankment water-lock 2.3 at km 4+887 at the Sanna river:</p> <ul style="list-style-type: none"> <li>– the inlet: reinforcement of the bottom with a stone cover and of the slopes with mesh-stone mattresses at a length of up to 18 m and a bank-wall (river-bank band) made of fascine bunch at a length of up to 48 m,</li> </ul>	<p>Designer/ Contractor (responsible for the execution of works in accordance with the Building Design)</p>

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
			<ul style="list-style-type: none"> <li>– the outlet: reinforcement of the bottom with a stone cover and of the slopes with mesh-stone mattresses at a length of up to 16 m; moreover a bank-wall (river-bank band) made of fascine bunch at a length of up to 30 m,</li> </ul> Section III: <ul style="list-style-type: none"> <li>a) the embankment water-lock 3.1 at km 0+303 at the drainage ditch:                             <ul style="list-style-type: none"> <li>– the inlet: reinforcement of the bottom with a stone cover at a length of up to 8 m and of the slopes with a mesh-stone mattress - the left bank at a length of up to 31 m, the right bank - at a length of up to 8 m, at the remaining section - the left bank at a length of up to 56 m, the right bank at a length of up to 76 m - a bank-wall (river-bank band) made of fascine bunch,</li> <li>– the outlet: reinforcement of the bottom with a stone cover and of the slopes - with mesh-stone mattresses at a length of up to 12 m and then the right bank: at a length of up to 107 m - a mesh-stone mattress, further 119 m - a bank-wall (river-bank band) (fascine bunch), the left bank at a length of up to 113 m - a bank-wall (river-bank band) (fascine bunch).</li> </ul> </li> </ul>	
8	-	<b>Recommended environmentally friendly technical solutions</b>	On the sections of the embankment, where the anti-filtration barrier is designed, the anti-filtration barrier will be constructed using Deep Soil Mixing technology.	Designer/ Contractor (responsible for the execution of works in accordance with the Building Design)
<b>02 – RULES CONNECTED WITH LAND ACQUISITION, ORGANIZATION OF THE BACK-UP FACILITIES, WAREHOUSES AND STORAGE YARDS</b>				
9	p. 26 of Environ. Decision	<b>Illegal, or excessive land occupancy, which may cause losses with regard to archaeological, or natural resources and crops / The whole sections of the embankment being redeveloped</b>	Any occupation of land beyond the project demarcation lines indicated on the Site Plan and obtained by the Contractor for the site facilities and storage yards is prohibited.	Contractor / Site Manager and Contractor's environmental team
10	-	<b>Real estate acquisition for permanent occupation/ The whole sections of the embankment being redeveloped</b>	Buyouts, compensation and help for the Project Affected People (by Land Acquisition and Resettlement Action Plan)	PZMiUW/Engineer

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
11	-	<b>Real estate acquisition for temporary occupation/ The whole sections of the embankment being redeveloped</b>	Payment of compensation by the Contractor for temporary occupation before commencement of works (by Land Acquisition and Resettlement Action Plan)	Contractor / Engineer
12	-	<b>Environmental protection / Construction site facilities and storage places</b>	<p>The Contractor, by their own effort, will acquire an area for the site facilities and storage yards. Any approval for temporary occupancy must be preceded by an analysis of its impact on particular environmental elements. When selecting the location for the site facilities for the construction site, the Contractor will consider the following aspects:</p> <ul style="list-style-type: none"> <li>- examining the area for its ground base, vegetation and ground water table: any construction sites should be located on areas free from trees and where the ground water table is below 1.0 m b.g.l.,</li> <li>- the geological structure of area of construction site location shall effectively protect ground water,</li> <li>- the construction site location shall provide convenient access to energy and water supply for social purposes.</li> <li>- the access road to the site facilities shall not hinder access to the nearby buildings,</li> <li>- locate the construction site only beyond the area of any protected habitats,</li> <li>- it is not allowed to locate the site facilities within the terrace area.</li> </ul> <p>The Contractor should prepare construction site organization plan which will indicate, apart from the location of the construction site facilities, the conditions of its management, including: the location of parks for the construction equipment and other vehicles, the method of soil and water protection against contamination with substances harmful for the environment, the method of draining rainfall water, the location of the warehouses for construction materials, and the place for waste storage.</p>	Contractor / Site Manager and OHS supervision as well as Contractor's environmental team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
13	II.16	<b>Environmental protection / Construction site facilities and storage place(s)</b>	<p>Area of occupation must be limited to the necessary minimum as well as land surface transformation during the works carried out.</p> <p>Construction site facility (ies) and storage place(s) must be properly marked and the signs maintained in good condition throughout the whole duration of the works.</p> <p>The construction site facilities should be set up beyond the place of occurrence of wildlife habitats, i.e. within min. 30 m from the edge of a given valuable natural habitat (its panel). The selection of this place of the construction site facilities requires consultation with the Contractor's environmental team and Engineer's approval. It is permitted to locate material bases at the following locations:</p> <p>A. Section I:</p> <ul style="list-style-type: none"> <li>a) main: <ul style="list-style-type: none"> <li>- at km 0+550÷0+750 (at the land-side),</li> <li>- at km 1+750÷2+500 (at the land-side),</li> <li>- at km 5+650÷5+750 (at the land-side),</li> <li>- at km 7+000÷7+200 (at the land-side),</li> </ul> </li> <li>b) potential <ul style="list-style-type: none"> <li>- at km 0+000÷0+550 (at the land-side),</li> <li>- at km 0+750÷1+750 (at the land-side),</li> <li>- at km 2+500÷2+700 (at the land-side),</li> <li>- at km 2+750÷2+850 (at the land-side),</li> <li>- at km 2+870÷5+650 (at the land-side),</li> <li>- at km 5+750÷7+000 (at the land-side),</li> </ul> </li> </ul> <p>B. Section San:</p> <ul style="list-style-type: none"> <li>a) main: <ul style="list-style-type: none"> <li>- at km 0+000÷0+150 (at the land-side),</li> <li>- at km 0+000÷1+600 (at the land-side),</li> <li>- at km 1+850÷2+200 (at the land-side),</li> </ul> </li> </ul> <p>C. Section II:</p> <ul style="list-style-type: none"> <li>a) main: <ul style="list-style-type: none"> <li>- at km 0+200÷1+600 (at the land-side),</li> <li>- at km 1+700÷1+800 (at the land-side),</li> <li>- at km 2+550÷2+700 (at the land-side),</li> <li>- at km 4+170÷4+250 (at the land-side),</li> <li>- at km 4+850÷5+000 (at the land-side),</li> </ul> </li> <li>b) potential <ul style="list-style-type: none"> <li>- at km 0+000÷0+100 (at the land-side),</li> <li>- at km 0+150÷0+200 (at the land-side),</li> <li>- at km 4+450÷4+850 (at the land-side),</li> </ul> </li> </ul>	Contractor / Site Manager and Contractor's environmental team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
			<p>D. Section III:</p> <p>a) main:</p> <ul style="list-style-type: none"> <li>– at km 0+050÷0+350 (at the land-side),</li> <li>– at km 0+800÷1+000 (at the land-side),</li> <li>– at km 1+300÷1+500 (at the land-side),</li> </ul> <p>b) potential</p> <ul style="list-style-type: none"> <li>– at km 0+350÷0+800 (at the land-side).</li> </ul> <p>In the first place the location of material bases will affect the areas specified above as the main ones.</p>	
14	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	Order should be maintained on the Site as well as proper works' management.	Contractor / Site Manager and Contractor's environmental team
15	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	The Contractor shall ensure constant visibility conditions during the day and at night of such structures and signs which are obligatory for safety reasons.	Contractor / Site Manager
16	II.1	<b>Environmental protection / Construction site facilities and storage places</b>	All storage places of bulk materials will be secured against its dispelling and dissolving (e.g. by means of tarpaulins).	Contractor / Site Manager
17	p. 32 of Environ. Decision	<b>Environmental protection / Construction site facilities and storage places</b>	Stored materials should be so formed and stored, in order to limit the formation of so-called ecological traps e.g. in the form of short-term favourable conditions for nesting.	Contractor / Site Manager and Contractor's environmental team
18	II.2	<b>Environmental protection / Construction site facilities and storage places</b>	All storage places of construction materials and/or waste will be set up beyond the special flood hazard area.	Contractor / Site Manager



No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
19	II.3	<b>Environmental protection / Construction site facilities and storage places</b>	The risk of water contamination by operational fluids derived from vehicles and machines will be mitigated by running regular checks on the technical condition of equipment and provision of sorbents (aimed to neutralise leaks) at the construction site.	Contractor / Site Manager
20	II.5	<b>Environmental protection / Construction site facilities and storage places</b>	The construction site facilities should be located at places which allows for the delivery of materials which require periodic storage prior their use at the construction site. Access roads to the construction site should be lined with concrete slabs, which - upon the completion of works - will be removed.	Contractor / Site Manager
21	II.6	<b>Water and soil protection / Construction site facilities</b>	The construction site facility/ies will be equipped with portable toilets (being provided with features to collect wastewaters by companies with appropriate entitlements to conduct this type of activity). The wastewaters will be transported to the nearest sewage treatment plant or catchment area.	Contractor / Site Manager
22	II.14	<b>Water and soil protection / The whole sections of the embankment</b>	It is prohibited to store waste, ground masses and set up construction site facilities and material bases within the inter-embankment of the Vistula river, hollows and areas of water stagnation, wetland depressions as well as within other habitats specified by the Contractor's environmental team.	Contractor / Site Manager and Contractor's environmental team
23	II.18	<b>Trees protection / The whole sections of the embankment with growing trees and shrubs</b>	It is prohibited to gather any construction materials and waste near tree trunks (i.e. within the contour of tree crests and at least 2 m beyond this contour) and shrubs.	Contractor / Site Manager and Botanist
24	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	The manner of materials storage or topsoil management must not change the water levels with detriment to the neighbouring soil.	Contractor / Site Manager
25	-	<b>Environmental protection / Construction site facilities and storage places</b>	If hazardous substances and materials are stored on the building site, they must be protected appropriately, preventing the access of unauthorized persons, and information on a hazard must be provided on warning boards.	Contractor / Site Manager, OHS supervision
26	-	<b>Environmental protection / Construction site facilities and storage places</b>	Solid waste management must be carried out in accordance with the Act of 14 December 2012 on waste. It is required to follow a rule of minimizing the amount of the waste generated. Waste generated during the Task implementation must be segregated and collected in containers or dedicated places, ensuring protection against the leakage of hazardous substances and it is necessary to ensure successive collection of waste by authorized entities.	Contractor / Site Manager, OHS supervision

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
27	-	<b>Environmental protection / Construction site facilities and storage places</b>	Hazardous waste to be collected only by authorized entities. Until the waste is collected by authorized entities it must be stored in a way which prevents penetration of the hazardous substance to the environment, i.e. in sealed containers, in roofed areas, on paved surface, protected from unauthorized access.	Contractor / Site Manager, OHS supervision
<b>03 – ADDITIONAL MITIGATION MEASURES CONCERNING THE RESTORING OF THE SHELTERS AND FEEDING SITES REFERRED TO IN THE ENVIRONMENTAL DECISION</b>				
28	II.29	<b>Mitigation of negative impacts / Outside the area of works</b>	<p>Nesting booths should be hung out before works commencement:</p> <ul style="list-style-type: none"> <li>a) the total number - 280, including: 105 - type "A", 150 - type "B", 6 - type "D" for hoopoe, 9 - for mergansers and owls, 2 - for nuthatch, 8 - for kestrels,</li> <li>b) at least half of these booths will be hung out within Section II,</li> <li>c) works related to the hang-out of nesting booths for birds should be conducted under the supervision of the Contractor's ornithologist with the record of their location in the GPS system and at the map,</li> <li>d) these boxes will be regularly (annually) maintained and cleaned in autumn and winter periods (removal of old nests - in the period from 16 October to the end of February). Such maintenance and cleaning of the existing boxes will be run for a period of 10 years from the start of construction works and of new boxes - for 10 years upon their set-up. Appropriate permits should be obtained for the above-mentioned activities to be conducted within the nature reserve area.</li> </ul>	<p>Contractor / Ornithologist</p> <p>After the Defects Notification Period and the Warranty Period</p> <p>PZMiUW</p>
29	II.30	<b>Mitigation of negative impacts / Outside the area of works</b>	Before works commencement it is required to hang out boxes for bats in the number of 50 along the entire section of performance of these works, in the inter-embankment area at places specified and supervised by the Contractor's chiropterologist. These boxes will be made from sawdust, wood or other material in accordance with the current environmental knowledge and guidelines provided by the Contractor's chiropterological expert. Breeding boxes will be hung at trees at a height of over 4 meters, at a distance of not less than 50 meters from one another on the western or southern side of their trunks. These boxes will be arranged in tree clusters in the inter-embankment, more or less evenly, in sunny places which border with tree plantings. Their exact locations must be fitted to terrain and habitat conditions taking into account access (convenient access road / path) at their installation and monitoring. When hanging these breeding boxes it is necessary to mark their positions (via the GPS system) and draw up a map of their locations. It is possible to place them close to the embankment, which allows for their hang-out.	Contractor / Chiropterologist

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
30	II.31	<b>Mitigation of negative impacts / Outside the area of works on the indicated sections</b>	<p>Before works commencement it is necessary to mount 25 poles with a height of 120-180 cm, with planting of wild rose and/or hawthorn bushes (with a height of 50-80 cm, having at least three shoots), in order to create favourable habitats for red-backed shrike. These poles will be arranged at a distance of 300 meters from one another, on the eastern side of the embankments, at a distance of 20 - 30 meters from them (so as not to interfere with their infrastructure and mowing). Such poles with rose bushes and/or hawthorn bushes should be placed in open areas for: Section II: 0+000÷2+000 km of the embankment, Section I: 5+800÷7+100; 3+600÷4+300 and 0+000÷2+500 km of the embankment.</p> <p>During the vegetative period, the planting of shrubs should be weeded twice a year.</p> <p>The above-specified works will be performed under the supervision of the Contractor's ornithologist and the Contractor's botanist.</p>	Contractor / Ornithologist, botanist
<b>04 - MEASURES TO BE PERFORMED PRIOR TO WORKS COMMENCEMENT</b>				
31	II.12, II.13	<b>Land surface and landscape protection, habitat protection / The whole sections of the embankment being redeveloped</b>	<p>Prior to conducting earthworks, it is necessary to remove a fertile layer of soil with its thickness of 20 - 30 cm, which is then to be stacked at the behind-embankment, cared and used to clear the area upon the completion of construction works and top-soiling.</p> <p>The fertile layer of soil will be removed beyond the period from 1 March to 31 July. At wetlands, within which the Contractor's environmental team reports the habitat of amphibians, it will be conducted in the period from 1 August to 15 October. If - due to technical reasons - it is necessary to conduct the works (thoroughly or partially) at another time it will be performed under supervision of the Contractor's environmental team.</p>	Contractor / Site Manager and Contractor's environmental team
32	II.19	<b>Habitats protection / Neighborhood of redeveloped embankment</b>	All valuable natural habitats pointed out by the Contractor's environmental team (e.g. alluvial forests, plant clusters to be protected etc.) in the proximity of which works will be conducted will be properly protected during works by means of a forest net.	Contractor / Site Manager and Botanist
33	II.19	<b>Habitats protection / Neighborhood of redeveloped embankment</b>	Within the boundaries of the "Wisła pod Zawichostem" Nature Reserve, before the start of construction work, the forest area should be enclosed, at least by means of a forest net.	Contractor / Site Manager and Botanist
34	II.37	<b>Habitats protection / Section I km 3+020÷3+310</b>	Prior to the start of construction works, the boundaries of the "Wisła pod Zawichostem" Nature Reserve will be marked by means of 35 boards with the following text: "Rezerwat przyrody Wisła pod Zawichostem" [Vistula at Zawichost Nature Reserve] made of galvanised steel sheet. Each of them will be placed on a galvanised steel post (with a diameter of at least 60 mm and a wall thickness of at least 3 mm) fixed permanently to the ground. The boards will be executed in accordance with the Regulation of the Minister of Environment dated 10 December 2004 on the design of plates (Journal of Laws No. 268, item 2665).	Contractor / Site Manager

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
35	II.39	<b>Buildings protection / Surrounding of the redeveloped embankment in places where there are nearby buildings</b>	The existing buildings and structures adjacent to the construction site and those which may be affected by construction work carried out by the Contractor should be inventoried prior to the commencement of works.	Contractor / Site Manager
36	II.18	<b>Trees and shrubs protection / The whole sections of the embankment with growing trees and shrubs</b>	<p>Trees and shrubs not intended for felling, located close to the places where the works will be carried out, should be protected.</p> <p>The following trunk covers will be applied e.g. such as straw mats, formwork made of braided wired boards (trimmed boards, 2nd class, min. thickness - 20 mm, round galvanised steel wire), soil used to backfill boards at the base of tree trunks. In case the above protective measures cannot be technically applied, it is recommended to enclose (for the duration of the work) groups of tree / shrub plantings. Wooden bars having a diameter of approx. 6 cm and a height of approx. 2.5 m, polypropylene mesh with a height of approx. 1.8 m in bright colours, galvanised wire will be used among others to secure greenery; in case this is not technically plausible, fencing will be made by means of a coloured tape.</p> <p>If any trunk cover is destroyed or stolen, the Contractor shall promptly replace it or supplement it.</p> <p>When works are completed at a given section, the above-specified protective measures will be removed.</p>	Contractor / Site Manager and Botanist
37	-	<b>General conditions concerning nature protection - prevent and elimination of invasive species / The whole sections of the embankment</b>	Prior to beginning of the construction works carry out field inspection of place of works with participation of Contractor's botanist in order to locate the presence and estimate population of invasive plants. After locating and visibly marking in places where invasive plants grow take preventive actions during the implementation investment, which limit spreading of these plants, including, among others, removing topsoil layer along with invasive plants and transporting them from area of works to the composting plant or neutralizing in any other effective manner. It is unacceptable to mix this topsoil with topsoil overgrown with local native vegetation.	Contractor / Botanist
38	-	<b>Accidents of local inhabitants caused by vehicle and machine traffic / The whole sections of the embankment</b>	<p>Proper demarcation of construction area and the access roads.</p> <p>The Contractor's Work Safety supervision will be responsible for proper marking of the Construction Site in accordance with relevant regulations. This signage will be regularly controlled and if any signage is destroyed or stolen, the Contractor shall promptly replace it.</p> <p>The access roads will be marked in accordance with relevant regulations and agreement with the Administrators of the roads used by the Contractor. This signage will be regularly controlled, if any signage is destroyed or stolen, the Contractor shall promptly replace it.</p>	Contractor / OHS supervision

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
39	-	<b>Employee accidents during works/ The whole sections of the embankment</b>	Preparation, implementation and compliance with the Health and Safety Protection Plan by the Contractor.	Contractor / OHS supervision
40	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	The Contractor shall ensure the preparation, implementation after the approval by the Engineer of Building site organization design.	Contractor / Site Manager
41	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	The Contractor shall ensure the preparation, implementation after the approval by the Engineer of Quality assurance plan.	Contractor / Site Manager
42	II.25	<b>Fauna protection / The indicated sections of the embankment</b>	<p>In order to secure the construction site against the potential entry of amphibians into the area, prior to starting construction works, protective fences will be placed within sections pointed out by the Contractor's herpetologist. These fences will be made full (e.g. using film) or perforated (e.g. using mesh, with their maximum mesh size of 4.5 to 4.5 mm) and is buried down to a minimum depth of 15-20 cm. The height of aboveground fencing, throughout its length, will be at least 50 cm above ground level. The upper edge of fencing will be smoothly finished and bent outwardly, throughout its length, at an angle of 45-90° forming a peak with minimum width of 10 cm. This protective fencing - during the activity of amphibians - will regularly (at least once a week) checked for leaks. Any defects will be eliminated on a regular basis.</p> <p>Vegetation along these protective fences will be mowed. At the ends of this protective fencing, it is necessary to dig out pits with their dimensions of approx. 0.5 x 0.5 x 0.2 m, which will be lined with little buckets with more or less the same dimensions can be tightly dug). Twice a day: in the morning and evening - during the activity of amphibians - the Contractor's herpetologist will collect amphibians gathering along the fencing as well as found in buckets and transported them to their replacement position. It is advisable to place, for example, sticks in buckets in order to let small mammals leave them. Upon the period of activity of amphibians such pits and buckets will be removed.</p>	Contractor / Site Manager and Herpetologist
43	II.22	<b>Fauna protection / The indicated sections of the embankment</b>	Works conducted at spring mass migration places for amphibians identified by the Contractor's herpetologist will be made within a landline (with its width corresponding to the width of the migration corridor) with the exception of the period from 1 March to 31 May, i.e. upon the end of the main period of breeding migrations of this group of animals. These temporary enclosures of the above-mentioned corridors are designed to allow amphibians to reach their mating places and reduce their mortality (being run over by mechanical equipment). Fences - as recommended by the the Contractor's herpetologist also used in the period of autumn migrations in order to protect individuals moving to their wintering grounds. Fences will be placed within the following mileage:	Contractor / Site Manager and Herpetologist

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
			<p>A. Section I:</p> <ul style="list-style-type: none"> <li>a) at km 2+200÷2+350 (at the water-side),</li> <li>b) at km 2+600÷2+800 (at the water-side),</li> <li>c) at km 2+750÷2+850 (at the land-side),</li> <li>d) at km 3+850÷4+200 (at the land-side) and within a length of approx. 150 m on the right side of the access road at km 4 + 100 of the embankment,</li> <li>e) at km 4+750÷5+400 (at the water-side),</li> <li>f) at km 5+600÷5+700 (at the water-side),</li> <li>g) at km 6+150÷6+230 (at the water-side),</li> <li>h) at km 6+150÷6+300 (at the land-side),</li> <li>i) at km 6+150÷6+250 (at the water-side),</li> <li>j) at km 6+650÷7+000 (at the land-side),</li> </ul> <p>B. Section San</p> <ul style="list-style-type: none"> <li>a) at km 1+450÷1+600 (at the land-side) and within a length of approx. 100 m along the right side of the local access road (which allows to reach the embankment) located at km around 1+600,</li> </ul> <p>C. Section II</p> <ul style="list-style-type: none"> <li>a) at km 0+000÷0+100 (at the water-side),</li> <li>b) at km 0+800÷1+150 (at the water-side),</li> <li>c) at km 0+920÷1+120 (at the land-side),</li> <li>d) at km 1+950÷2+000 (at the water-side),</li> <li>e) at km 1+950÷2+100 (at the land-side),</li> <li>f) at km 2+250÷2+050 (at the water-side),</li> <li>g) at km 2+850÷3+150 (at the water-side),</li> <li>h) at km 3+150÷3+300 (at the water-side),</li> <li>i) at km 4+500÷5+000 (at the water-side),</li> <li>j) at km 4+700÷5+000 (at the land-side) together with the double-sided fencing local of the local access road (which allows to reach the embankment) (at km around 4+900) within a length of approx. 100 m</li> </ul> <p>D. Section III</p> <ul style="list-style-type: none"> <li>a) at km 0+450÷0+550 (at the land-side),</li> <li>b) at km 1+300÷1+720 (at the land-side),</li> <li>c) at km 1+900÷2+000 (at the land-side).</li> </ul> <p>In case the Contractor's herpetologist considers it justified, the above-mentioned fences may be placed also at other sections specified by the Contractor's herpetologist. The design of these enclosures was specified in item 42.</p>	

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
44	-	<b>Protection of monument / Section II km 4+880 of the embankment</b>	In km 4+880 of the embankment of the Vistula River (Section II, plot no. 1714/3, precinct Wrzawy) in the area of works impact there is a memorial site (mound with monument, around the monument is located the area of the old war cemetery of 1809). The Contractor's obligation shall be the protection of the memorial site for the period of works performance so that no damage of the object occurs as a result of the Investment realization.	Contractor / Site Manager
45	-	<b>Protection of memorial stone / Section I km 6+400 of the embankment</b>	In km 6+400 of the embankment of the Vistula River (Section I, plot no. 203/3 precinct Witkowice) in the area of works impact there is a stone with commemorative plaque (thanks for involvement of the local community in the fight against flood) founded in 2005. The Contractor's obligation shall be the protection of the stone for the period of works performance so that no damage of the object occurs as a result of the Investment realization.	Contractor / Site Manager
46	-	<b>Control of the settlement and protection of the building to be demolished / Section II, land plot No. 975 precinct Wrzawy</b>	On the land plot No. 975 precinct Wrzawy, there is an abandoned residential building intended for demolition. This building should be inspected by the Contractor's ornithologist and Contractor's chiropterologist for bird and bat occupation. In case of settlement, take steps recommended by these experts to allow birds and bats to leave this shelter / nesting place and then secure the building against re-colonization until its demolition.	Contractor / Site Manager and Ornithologist and Chiropterologist
<b>05 - REQUIREMENTS CONCERNING ENSURE THE ACCESS ROUTES TO THE CONSTRUCTION SITES</b>				
47	II.15	<b>Natural resource protection / Embankment sections where existing roads are located that the Contractor will use</b>	Transport of construction materials, aggregates and waste, as well as traffic of machines and vehicles shall be conducted on existing roads or designated temporary roads, established in such a way so as to reduce interfering with the habitat identified by the Contractor's botanist.	Contractor / Site Manager and Botanist
48	-	<b>Noise protection / The whole sections of the embankment</b>	Any activities related to transport of construction materials, aggregates and waste by trucks at the stage of Works Contract implementation shall be conducted only during the day i.e. from 06.00am to 10.00pm only.	Contractor / Site Manager
49	II.41	<b>Protection of social interests / sections of embankment, where existing roads will be used by Contractor</b>	The access roads used for vehicle transport of materials should be maintained in good technical condition, and after the completion of construction works will be restored to a state not worse than before the implementation of the Works Contract. The Contractor will also be responsible for maintenance of exit routes in good technical condition.	Contractor / Site Manager

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
50	-	<b>Protection of social interests / sections of embankment, where existing roads will be used by Contractor</b>	During works performance the Contractor makes efforts to minimise the burdens for the vehicle traffic existing in the works area.	Contractor / Site Manager
51	-	<b>Natural resource protection / Embankment sections where existing roads are located that the Contractor will use</b>	Parking of cars of the Contractor's employees may take place only in a designated area. It is prohibited to park in the area of habitats.	Contractor / Site Manager and Botanist
52	-	<b>Protection of social interests / The whole sections of the embankment being redeveloped, surrounding</b>	The Contractor is obliged to provide photographs of the whole work area along with access roads and their surroundings with particular focus on the technical condition of the roads and buildings located in the vicinity of any roads used for transport of building materials. Before commencing the works, the Contractor shall carry out, with the Administrator present, an inspection in the area on the basis of which a report shall be prepared on the condition of the roads prior to access for construction purpose. Based on that, the Contractor will be obliged to restore their technical condition.	Contractor / Site Manager
53	-	<b>Protection of social interests / Embankment sections where existing roads are located that the Contractor will use, and where temporary routes will be designated</b>	It is required to ensure human protection against increased vehicle traffic along roads used during construction works. At the time of works execution, the Contractor shall supply, install and operate all temporary safety devices, ensuring the safety of vehicles and pedestrians.	Contractor / Site Manager
54	-	<b>Protection of social interests / Embankment sections where existing roads are located that the Contractor will use, and where temporary routes will be designated</b>	The vehicle traffic should take place on the service roads preventing any damage to the near-by vegetation.	Contractor / Site Manager



No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
55	-	<b>Protection of social interests / The whole sections of the embankment being redeveloped, surrounding</b>	The Contractor shall be responsible for any damage to the structures, buildings, roads, drainage ditches, culverts, water supply and gas pipe lines, power poles and power lines, cables, land survey control network and any type of services as well as other types of facilities such as vertical and horizontal signs, information boards, cultural assets etc., caused by the Contractor or his Subcontractors during execution of works. The Contractor is also responsible for restoring the flow capacity of drainage ditches and drainage services in the area of conducted works and transport roads, in case of damage caused by execution of works and transport related to works implementation.  The Contractor shall immediately repair any damage at his own expense and also, if necessary, shall perform other works ordered by the Engineer.	Contractor / Site Manager
56	-	<b>Protection of social interests / Embankment sections where existing roads are located that the Contractor will use, and where temporary routes will be designated</b>	The Contractor is obliged to agree with road management authorities of the traffic arrangement and works security plan. The Contractor is obliged to organize traffic in accordance with the agreed plans (marking and securing the Site and marking of de-tours and recommended road signage related to change of traffic organization, etc.).	Contractor / Site Manager
57	-	<b>Protection of social interests / Embankment sections where existing roads are located that the Contractor will use, and where temporary routes will be designated</b>	The Contractor shall respect the statutory limitations of speed and loads per vehicle axle during transport of materials and equipment to and from the construction site. The Contractor shall also obtain any necessary permits from authorities, for transport of non-standard loads and shall constantly inform the Engineer about each case of such a transport.	Contractor / Site Manager
<b>06 - REQUIREMENTS FOR CUTTING OUT TREES AND SHRUBS</b>				
58	II.17	<b>Tree protection, bird protection / The whole sections of the embankment</b>	The felling of approx. 2910 trees and shrubs with its area of approx. 3.12 ha will be limited to the area within the project demarcation lines. Moreover, this felling will be conducted within the period from 16 October to 15 February.	Contractor / Site Manager and Contractor's environmental team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
59	-	<b>Fauna protection / The whole sections of the embankment</b>	<p>In case of intention of cutting trees with their breast height above 50cm, perform with the participation of Contractor's specialists:</p> <ul style="list-style-type: none"> <li>- entomologist – control of the trees for occupancy by the protected beetle species,</li> <li>- chiropterologist – control for occupancy bats presence control.</li> </ul> <p>In case when the presence of beetles is established (larval or adult forms), permission for felling trees can be conditioned only by technical or process conditions after obtaining by the Contractor - as required by law - the permit from the competent authority to destroy habitat of protected species (in co-operation with entomologists) where appropriately-cut fragments of trees will be moved, (according to the NEPA, Act from 16 April 2004 – article 56).</p> <p>In case of observing the presence of bats in trees to be cutted, suspend cutting temporarily and implement the Contractor chiropterologist's recommendations which are adequate to the current atmospheric conditions and the identified species of bats.</p>	Contractor / Entomologist and Chiropterologist
60	II.27	<b>Invertebrate protection / The whole sections of the embankment</b>	<p>In case, valuable species of saproxylobionts (including, among others: Hermit beetle) are found within trees projected for removal, it is necessary to take out rotten wood with them at their larval or other preimaginal stages and transfer them to another tree (with visible wood depreciation) located nearby. These works will be performed under the supervision of the Contractor's entomologist after obtaining by the Contractor a respective permit of RDOŚ/GDOŚ (according to NEPA - Art. 56 of the Act of 16 April 2004).</p>	Contractor / Entomologist
<b>07 - REQUIREMENTS AT THE IMPLEMENTATION OF WORKS STAGE</b>				
61	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	<p>Flood Management Plan should be provided for the duration of construction works, specifying the relation between the time of commencement of the evacuation or protection of the equipment and the occurrence of a certain hydro-meteorological situation. This plan must be approved by the Engineer.</p>	Contractor / Site Manager
62	II.7	<b>General principles for carrying out works / The whole sections of the embankment</b>	<p>Construction works should be conducted outside the flood risk season.</p> <p>The Contractor will be obliged to establish communication with IMGW-PIB to receive current information on weather forecast. In case of any warning about high water, the Contractor shall immediately notify the Engineer and the Employer and shall take appropriate actions according to the procedures described by the Flood Management Plan.</p>	Contractor / Site Manager

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
63	II.10	<b>Land surface and landscape protection, habitat protection / Inter-embankment</b>	Ground masses required to accomplish the Investment will come from external or internal (in case when the Contractor has his own mine) suppliers; it is not projected to collect ground from within the inter-embankment area. It is concluded on the basis of the EIA Report that within 20 km from the projected Investment there are several aggregate mines which can provide necessary ground masses with specified parameters. Then supplies of ground masses may run independently, which is its key advantage.	Contractor / Site Manager
64	II.35	<b>Contractor's environmental supervision team / The whole sections of the embankment</b>	<p>The construction works realized by the Contractor will be conducted under the supervision of an experienced Contractor's environmental team:</p> <p>a) team will be composed of ornithologist, botanist, herpetologist, entomologist and chiropterologist; this Contractor's environmental supervision will be performed by specialists with higher education in the field of biology, forestry, environmental protection who has run at least two professional wildlife supervisions during investments in the field of ornithology / botany / herpetology etc., respectively (in case a given specialist has experience in the field of for example botany and herpetology it is possible to combine these two functions by one person);</p> <p>b) The Coordinator / Team Leader of the environmental team will be appointed. He shall be responsible, among others, for:</p> <ul style="list-style-type: none"> <li>- supervision over implementation of individual EMP conditions;</li> <li>- regular monitoring of the implementation of individual conditions contained in Appendix 1 and 2 to the EMP;</li> <li>- regular informing the Contractor's team management about duties stemming from the EMP at a given stage of works, as well as about any problems occurring in the scope of EMP implementation;</li> <li>- collaboration with Contractor's remaining team members, including the team of environmental experts, in the scope of ensuring EMP implementation;</li> <li>- collaboration with persons in charge of EMP implementation in the Engineer's team and the Employer's team;</li> </ul> <p>c) throughout the duration of the investment the Contractor's environmental team will oversee the observance of the terms and conditions of the EMP and the environmental decision.</p>	Contractor / Contractor's environmental team
65	-	<b>General principles for carrying out works / The whole sections of the embankment and surrounding</b>	The Contractor should provide the schedule for execution of works so that the dates and location of respective stages of construction works are in compliance with requirements of environmental decisions and EMP and so that they do not have negative impact on species under protection which are found on the Investment implementation area and in its vicinity.	Contractor / Site Manager and Contractor's environmental team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
66	II.18	<b>Trees and shrubs protection, Nature protection / The whole sections of the embankment and surrounding with growing trees and shrubs</b>	It is unacceptable to damage trees and shrubs which are not intended for felling and near which earthworks related to the Works Contract are conducted. During construction works it is also not allowed to destroy plants outside the Contract area.	Contractor / Site Manager and Botanist
67	II.18	<b>Trees and shrubs protection / The whole sections of the embankment with growing trees and shrubs</b>	Fungicides will be applied to protect wounds of trees and shrubs after technical cuts and for potential maintenance of greenery damaged during the execution of works.	Contractor / Site Manager and Botanist
68	-	<b>Employee accidents during works/ The whole sections of the embankment</b>	Work of machinery and equipment within the embankment must be carried out in a way that does not endanger the safety of persons and property, excluding their overturning, sliding or descent into the slope of the embankment.  Machinery and tools must be used according to their intended use.	Contractor / OHS supervision
69	II.4	<b>General principles for carrying out works / The whole sections of the embankment</b>	No repairs and maintenance of facilities and equipment (e.g. oil replacement etc.) will be conducted at the construction site. The places where the machines are to be refueled must be equipped with the appropriate amount of sorbent. Workers must be trained how to deal with contamination of soil or water.	Contractor / Site Manager
70	II.11	<b>Environmental protection / The whole sections of the embankment</b>	In the course of the Works Contract no works may interfere in the Vistula riverbed and its riverside vegetation; then their interference into the inter-embankment area will be limited to its marginal side which is directly adjacent to the planned embankment. The Works Contract will be limited to the area directly occupied for the Investment i.e. the redeveloped section of the embankment with a technological landline margin within its demarcation lines and the construction site facilities area.	Contractor / Site Manager and Contractor's environmental team
71	II.34	<b>Habitats protection / watercourses on the whole sections of the embankment</b>	Any works interfering with watercourses, ditches and their beds should be performed beyond the period from March 1 to June 30 and conducted from their bank positions.	Contractor / Site Manager and Contractor's environmental team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
72	II.8	<b>Environmental protection / The whole sections of the embankment</b>	All earthworks should be conducted at riverside positions, first from one river bank and then from the other, in the way which ensures keeping the base flow.	Contractor / Site Manager and Contractor's environmental team
73	II.9	<b>Environmental protection / The whole sections of the embankment</b>	Drainage water from construction trenches, prior to their introduction into the environment, should be cleaned (due to the high content of total suspension).	Contractor / Site Manager
74	II.20	<b>Ornithofauna protection / section from the estuary of the San river downstream to the village of Zawichost</b>	The section from the estuary of the San river downstream to the village of Zawichost will be completely excluded from works in the period from April 1 to the end of June. At this section heavy construction works i.e. earthworks conducted with the use of heavy construction equipment, transport and storage of the ground masses will be performed in the period from 1 August to the end of January. Lighter works i.e. clean-up works without the use of heavy construction equipment and high-capacity trucks may be used throughout the year except for the period from April to June.	Contractor / Site Manager and Ornithologist
75	II.28	<b>Ornithofauna protection / the Strachocka river basin</b>	It is prohibited to eliminate reeds at the Strachocka river and any interference into them. No construction works will be conducted by the Contractor in the period from 1 April to 31 July within a distance of less than 50 meters from them.	Contractor / Site Manager and Ornithologist
76	II.21	<b>Fauna protection / The whole sections of the embankment</b>	Works interfering into breeding sites for amphibians identified by the Contractor's herpetologist (e.g. water reservoirs, drainage ditches, drains from embankment water locks, places of periodic water stagnation) will be conducted beyond the period from 1 March to 30 June, then works interfering into wintering places for amphibians identified by the Contractor's herpetologist will be conducted with the exception of the period from 1 November to end of February. Works interfering with breeding and wintering sites for amphibians should be performed in the period from 1 July to the end of October.	Contractor / Site Manager and Herpetologist
77	II.23	<b>Fauna protection / The whole sections of the embankment</b>	Wheel tracks and other ground depressions (emerged at the construction site) where water can be collected will be immediately eliminated in order to prevent amphibians from their spawn deposition and settlement at these places. All amphibian habitat which will emerge at the construction site i.e. deep trenches with stagnant water, deep wheel tracks, will be - prior to their backfilling - checked for the presence of amphibians. In case any amphibians are found, it is necessary to drain water and - upon lowering the water level - penetrate the bottom and catch animals under the Contractor's herpetological supervision. Any caught animals should transferred to appropriate (for individual species) habitats. Dried trenches, wheel tracks should be backfilled just after these animals are caught, in the presence of the Contractor's herpetologist.	Contractor / Herpetologist

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
78	II.24	<b>Fauna protection / The whole sections of the embankment</b>	Wetlands, which are the habitat of amphibians, prior to their elimination should be checked by the Contractor's herpetological supervision for the presence of animals. Wetlands will be eliminated under the Contractor's herpetological supervision. Works will be conducted in September. Any caught animals should be transferred to their - appropriate for individual species - habitats. In case it is necessary to destruct habitats which are wintering places for amphibians, at the beginning of September for the duration of works, these habitats should be enclosed in order to restrict access to them by winter migratory birds.	Contractor / Herpetologist
79	II.35	<b>Contractor's environmental supervision team / The whole sections of the embankment</b>	Contractor's herpetological supervision - along the entire section of the conducted works - will catch the amphibians - catchments (from taps) should continue throughout the activity of amphibians; caught amphibians will be transferred to their suitable habitats located beyond the construction site as selected by the Contractor's herpetological supervision; In case of amphibians migrated for breeding "in amplexus", they will be transferred in pairs; amphibians should preferably be transferred with soft water plants, moss or leaves, preferably in humid conditions than in water; if this transfer occurs in water, its amount has to be adapted to its individuals and their sizes.	Contractor / Herpetologist
80	II.26	<b>Fauna protection / The whole sections of the embankment</b>	Trenches and structures which can be a trap for small animals, mostly amphibians, should be appropriately secured by the Contractor (e.g. tightly cover after day's works). Moreover, the above-mentioned places will be checked daily by the Contractor and, in case of any animals trapped in them, they will be caught and transferred to their - appropriate for given species - habitats beyond the area of works.	Contractor / Site Manager and Contractor's environmental team
81	II.35	<b>Fauna protection / The whole sections of the embankment</b>	Throughout the duration of the investment the Contractor's environmental team will oversee the observance of detection and identification of animal species within the area of construction works and will prepare application for derogation decisions in case of protected species (according to NEPA - Art. 56 item 1 and 2 of the Act of 16 April 2004).	Contractor / Contractor's environmental team
82	II.35	<b>Flora protection / The whole sections of the embankment</b>	Throughout the duration of the investment the Contractor's environmental team will oversee the observance of detection and identification of plant species within the area of construction works and will prepare application for derogation decisions in case of protected species (according to NEPA - Art. 56 item 1 and 2 of the Act of 16 April 2004). If let by technical conditions, specimens of protected species will be transferred by the Contractor to their suitable habitats.	Contractor / Botanist
83	-	<b>Fungi protection / The whole sections of the embankment</b>	Throughout the duration of the investment the Contractor's environmental team will oversee the observance of detection and identification of fungi species within the area of construction works. In case of identifying specimen of any protected plants – after obtaining a respective permit of relevant nature protection authority (according to NEPA - Art. 56 of the Act of 16 April 2004) – transfer them to a habitat that fits a particular species beyond the work area. The botanist will indicate optimal technology and the site for replanting.	Contractor / Botanist

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
84	II.35	<b>Contractor's environmental supervision team / The whole sections of the embankment</b>	Within the framework of the Contractor's environmental supervision it is indicated at least 8 visits per months are recommended under the wildlife supervision; upon every visit, there will be a description on the state, conditions and possible indications for the contractor together with by photographic documentation drawn up in the form of Control Data Sheet for Implementation of Mitigation Measures.	Contractor / Contractor's environmental team
85	II.35	<b>Contractor's environmental supervision team / The whole sections of the embankment</b>	The Contractor's herpetological supervision will be conducted on a continuous basis during the spring and autumn migration of amphibians; upon every visit, there will be a description on the state, conditions and possible indications for the contractor together with by photographic documentation drawn up in the form of Control Data Sheet for Implementation of Mitigation Measures.	Contractor / Herpetologist
86	II.38	<b>Noise protection / The whole sections of the embankment</b>	The construction works related to the Works Contract implementation will be conducted daytime i.e. from 06.00am to 10.00pm only.	Contractor / Site Manager
87	II.38	<b>Noise protection / The whole sections of the embankment</b>	At the stage of performance of construction works, the following technical and organisational measures should be applied: keep machines which emit noise and vibrations during the Works Contract implementation in good conditions which will allow for the observance of the standards set out in the applicable detailed regulations.	Contractor / Site Manager
88	II.40	<b>Noise protection / The sections of the embankment</b>	In order to reduce a level of noise emitted to the environment during construction works conducted close to the existing farm buildings and single family houses i.e. acoustic areas protected (allowed noise values are respectively $L_{Aeqd} = 55$ dB for a farm building and $L_{Aeqd} = 50$ dB for single family house for 8 the worst hours during the day), it is necessary to use portable sound barriers with their height of min. 4.0 m (applies to farm buildings located near redeveloped embankment of the Sections I-III - distance from the building about 10 m to the border of the site and single-family housing development located near the embankment of section III - distance to the building about 70 m).	Contractor / Site Manager
89	-	<b>Protection against noise / The whole sections of the embankment</b>	In the areas under acoustic protection and the working sites adjacent to these areas, in order to mitigate the nuisance for inhabitants and environment, it is allowed to use only pumping engines equipped with soundproof housing.	Contractor / Site Manager
90	II.39	<b>General principles for carrying out works / The whole sections of the embankment</b>	In case of conducting construction works which cause the transmission of vibration exceeding the acceptable standards, appropriate methods aimed to reduce nuisance should be undertaken (in particular in respect to residential premises close to the embankments in the field of their technical security and comfort for sanitary maintenance and use).	Contractor / Site Manager
91	II.42	<b>Air protection / The whole sections of the embankment</b>	It is required to seek to minimise the environmental impact of the Works Contract during its implementation through elimination of idling operation of combustion engines of machinery and transport equipment, among others during stops, breaks, etc.	Contractor / Site Manager

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
92	-	<b>Water and soil protection / The whole sections of the embankment</b>	Equipment, plant and vehicles used for construction works must be placed in dedicated parking spaces provided with protective measures against spillage of oil derivatives to the soil and water environment. If the equipment, plant and vehicles are not in use, they must be parked in these dedicated places.	Contractor / Site Manager
93	II.43	<b>Water and soil protection / The whole sections of the embankment</b>	Waste generated during the Works Contract implementation will be stored separately in containers at the construction site facilities.	Contractor / Site Manager
94	-	<b>Protection against noise, protection of the atmosphere / The whole sections of the embankment</b>	Whenever possible the works should be carried out section by section, i.e. after completing works in a given section and its reclamation, works should begin at the next embankment section intended for extension.	Contractor / Site Manager
95	-	<b>Water and soil protection / The whole sections of the embankment</b>	<p>During construction works, the soil-water environment should be protected against contamination with substances used, sewage, or waste generated in connection with executed works.</p> <p>Grease and fuel to be stored at adequately prepared place with relevant sealing degree and equipped with sorbent to neutralize petroleum substance.</p> <p>In the event of spillage of oil derivative substances, it must be promptly removed and contaminated soil layers must be immediately eliminated (by a specialized company) and managed in accordance with applicable law. Such places must be brought back to their initial condition.</p> <p>In the event of oil derivative substance spillage to surface water, the Contractor is obliged to ensure mechanical collection of the substance from the water surface and its neutralization or disposal.</p>	Contractor / Site Manager
96	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	The Contractor should choose a place for storing topsoil which will secure it against pollution, being driven through and being tamped down.	Contractor / Site Manager
97	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	Topsoil should be stored and protected in a way enabling its re-use.	Contractor / Site Manager



No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
98	-	<b>Environmental protection / The whole sections of the embankment</b>	For works performance, it is necessary to use only non-hazardous materials which are not burdensome to the environment.	Contractor / Site Manager
99	-	<b>Fauna protection / The whole sections of the embankment</b>	No substance which could be lethal to animals can be used for execution of works (excluding substances necessary for proper operation of construction machines).	Contractor / Contractor's environmental team
100	-	<b>General principles for carrying out works / The whole sections of the embankment</b>	Earthworks shall be carried out so that no damage is caused to regulatory structures. The Contractor shall ensure the flow possibility of embankment culverts throughout the duration of the works.	Contractor / Site Manager
101	-	<b>Archaeological supervision / The whole sections of the embankment</b>	Contractor is obliged to ensure permanent archaeological supervision during of earthworks.	Contractor / archaeological supervision
102	-	<b>Archaeological findings / The whole sections of the embankment</b>	In the case of discovery of immovable structures or mobile archaeological monuments the Contractor is obliged to notify immediately the Podkarpacki Monuments Conservation Officer as well as the Employer and the Engineer. During Works' implementation the Works Contractor shall comply with guidelines of the Monuments Conservation Officer.  Vide: a letter from the Voivodeship Office for the Monuments Conservation, sign: UOZ-T-1.5183.69.2016 dated 16.11.2016 (Appendix No. 4 (c) to EMP).	Contractor / Engineer
103	-	<b>Unexploded ordinances / The whole sections of the embankment</b>	Contractor is obliged to ensure permanent sapper supervision during of earthworks regarding checking and cleaning the area from unexploded ordinances.	Contractor (sapper supervision)
104	-	<b>Health and Safety / The whole sections of the embankment</b>	HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme and shall undertake such other measures to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.	Contractor / OHS supervision

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
105	-	<b>Soil and water protection / The whole sections of the embankment</b>	<p>It is necessary to provide training to all the employees with regard to:</p> <ul style="list-style-type: none"> <li>- maintaining appropriate hygienic conditions within the area of the construction site and its direct surrounding;</li> <li>- prohibition of penetrating the "Wisła pod Zawichostem" Nature Reserve as well as other enclosed natural habitats;</li> <li>- prohibition of the burning of open fire both inside the construction site and its surrounding, this is understood as the fires, the burning of waste or branches from the cutting trees or shrubs.</li> </ul> <p>Appropriate penalties for noncompliance with these rules should be included in the Contractor's work regulations.</p>	Contractor / Site Manager
106	-	<b>Soils, surface water and air protection / The whole sections of the embankment</b>	<p>The type and working order of such equipment must ensure the protection of soil, surface waters and ground waters against pollution, dust and gas emission to the air and noise emission.</p>	Contractor / Site Manager
107	-	<b>Air protection (Protection against dusting) / The whole sections of the embankment</b>	<p>Limit dust generation, in dry periods, caused by the means of transport among others by:</p> <ul style="list-style-type: none"> <li>• using tarpaulins when transporting aggregate and bulk materials,</li> <li>• cleaning vehicle wheels before entering the public roads,</li> <li>• cleaning technological internal roads surface,</li> <li>• prevention of contamination of local roads with sand and other material transported by vehicles.</li> </ul> <p>Bulk materials and construction aggregate for use in the construction phase should be protect against the blowing and excessive dusting from the surface both during storage and during incorporation (particularly in the vicinity of agricultural crops and built-up areas) e.g. by using tarpaulins or sprinkling of ground surfaces during rain-free periods.</p>	Contractor / Site Manager
108	-	<b>Air protection (Protection against dusting) / Embankment sections where anti-filtration barriers will be made</b>	<p>It is necessary to apply required measures limiting dust emission at the time of construction of the anti-filtration barrier using Deep Soil Mixing technology.</p>	Contractor / Site Manager
109	-	<b>Environment, human health and safety protection</b>	<p>The Contractor and Contractor's environmental team is responsible for training of the rules and conditions of the EMP for Contractor's management and engineering-technical personnel.</p>	Contractor / Contractor's environmental team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
110	-	<b>Periodic meetings environmental team</b>	During the implementation of the tasks arising from the EMP monthly team meetings of PIO, Consultant and Contractor will take place to discuss and monitor the implementation of mitigating and monitoring measures.	PIO, Consultant and Contractor / Contractor's environmental team
111	II.35	<b>Contractor's environmental supervision team / The whole sections of the embankment</b>	<p>There will be monthly reports prepared by the Contractor which will cover measures conducted under the Contractor's environmental supervision; both in Polish and in English, in paper and electronic versions with reference to the obligations required by EMP and other contractual documents. These documents will be subject to the approval of the Engineer and the Employer.</p> <p>The reports will be contained documents confirming the participation of specialists (e.g. memorandum of understanding and/or a declaration of a specialist confirming the proper performance of measures) together with photographic documentation.</p> <p>The Contractor will also prepare a commencement report, ad-hoc reports (as needed) and a closure report.</p>	
<b>08 – REQUIREMENTS AFTER WORKS REALIZATION</b>				
112	II.32	<b>Soil protection, flora protection / The whole sections of the embankment</b>	Upon the completion of earthworks, it is necessary to immediately clean up the area covered by these works: sow any damaged ground surfaces, grass the redeveloped section of the embankment and sow with a mixture of indigenous plants conforming habitat requirements in order to minimise surface erosion and suspension-forming fractions fail to reach waters	Contractor / Site Manager and Botanist
113	III.7	<b>Recommended environmentally friendly technical solutions</b>	<p>It is necessary to make plantings upon the completion of works within the reinforcements. In order to strengthen the area of these plantings, jute meshes are recommended to protect crops and seedlings exposed to water erosion. Plantings should be made taking into account the following conditions:</p> <p>a) use plants from the same catchment area for planting aquatic plants,</p> <p>b) use local seeding material or/and grass fragments (obtained prior to the start of works) for seeding lands being exposed during works,</p> <p>c) use self-seedlings (preserved in the course of preparatory works) as much as possible in order to make woodlots.</p>	Contractor / Botanist
114	II.35	<b>Contractor's environmental supervision team / The whole sections of the embankment</b>	Report containing information concerning the method and scope of the performance of mitigation measures, and also documents confirming the participation of specialists (e.g. memorandum of understanding and/or a declaration of a specialist confirming the proper performance of measures together with photographic documentation) should be prepared by the Contractor within 6 months from the date of works completion. Upon approval of the report by the Engineer and PZMiUW the report will be submitted to the Regional Director for Environmental Protection in Rzeszów.	Contractor / Contractor's environmental team

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
115	II.33	<b>General principles of natura protection - prevention and elimination of invasive species / The whole sections of the embankment</b>	For a minimum period of 5 years from the completion of construction works the area covered by the project should be monitored for the occurrence of invasive foreign plants. In case such species are found, it is required to take actions to remove them. This monitoring should be run while the embankments are mowed. In case such conducted treatments referring to the embankments and their maintenance (e.g. mowing) are not effective to remove the above-specified plants, the Contractor's botanical supervision which supervises the area will specify measures aimed to eliminate the above species. This monitoring and elimination of the above-specified species should cover the expanded embankments but also the area which is adjacent to them which is not less than the one located within the project demarcation lines. Based on such botanical monitoring and its results the Investor will take appropriate action to eliminate these plants.	Contractor / Botanist After the Defects Notification Period and the Warranty Period PZMiUW / Botanist
116	-	<b>Land area and landscape protection / All work areas</b>	Places sowed with grass mixes should be taken care of by means of, among others, twofold mowing of flood embankments during the year and removal of hard lichens. This activity includes period of construction works realization and also the Defect Notification Period and Warranty Period. Rules of mowing are indicated below in item 116.	Contractor / Site Manager
117	II.36	<b>Land area and landscape protection / All work areas</b>	The embankment at the operation stage will be mowed: a) within Section I - mowing at the embankment water-side slope will start not earlier than on 15 June, then at the embankment water-side slope - not earlier than on 1 July, b) within Section II, II and Section San River - mowing will start not earlier than 1 June, c) the embankment should be mowed in turns i.e. on 1 June the embankment will be mowed along a length of, for example, 300 meters, then further 300-metre sections will be mowed with a delay two weeks; in case of necessity (to remove invasive vegetation) it is acceptable to mow the embankment at an earlier date, in consultation with the Contractor's environmental supervision team.	Contractor / Site Manager and Botanist After the Defects Notification Period and the Warranty Period PZMiUW
118	II.39	<b>Buildings protection / The whole sections of the embankment with building</b>	After completion of the works, the Contractor will carry out an inventory of the existing buildings and structures. Losses or damages resulting from the works execution by the Contractor shall be borne by the Contractor.	Contractor / Site Manager
119	-	<b>Soil protection / The whole sections of the embankment</b>	After completing all construction works, areas temporarily occupied for access roads, facility and storage yards should be restored to their prior condition.	Contractor / Site Manager / Contractor's environmental team
<b>09 - GENERAL REQUIREMENTS</b>				

No.	Item	Issue / Area	Mitigation Measures	Unit Responsible
120	-	<b>Legislation in the country where the Agreement is to be implemented / All work areas</b>	Contractor is obliged to knowledge and adherence to all laws currently binding in the country where the Agreement is to be implemented in the period of construction and assembly works and the Defects Notification Period and the Warranty Period. None of the provisions above do not exempt the Contractor from the application of the law.	Contractor / Site Manager or authorised person