ANNEX 1

Environmental Impacts, GENRERIC MITIGATION AND MONITORING PLAN

COMPONENT 1 : LOWER AND MIDDLE ODRA RIVER

Table of contents

1 ENVIRONMENTAL IMPACTS

Impact assessment - Consequence

Significance	Addressed
Significant	Most severe, alternative will be proposed through environmental hazard risk management
Important	Severe, alternative/avoidance will be proposed through environmental hazard risk management
Moderate	Less severe, measures will be proposed to minimize impact
Little	Less severe, mitigation measures will be proposed
Present – insignificant	Less severe. Mitigation and enhancement measures will be prepared if possible
N/a	No impact, enhancement measures will be prepared if possible
Positive	Positive impact

Impact assessment - Likelihood

Likelihood	Definition
Certain	The activity will occur under normal operating conditions.
Very likely	The activity is very likely to occur under normal operating condition.
Likely/possible	The activity is likely to occur at some time under normal operating conditions.
Unlikely	The activity in unlikely to but may occur at some time under normal operating conditions.
Very unlikely	The activity is very unlikely to occur under normal operating conditions but may

	occur in exceptional circumstances.

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Category: construction of embankments / boulevards					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Change of regime of flow of flood waters, restricting the flow of flood water – impact on hydromorphological elements of SWB	Significant	Certain	SWB (local)	Long-term (stage of implementation and exploitation)
	Restricting area of flow of high waters, rising level of high waters in the riverbed and accumulation of flood waters, increase of erosion, superstructuring of silts – impact on hydromorphological elements of SWB.	Significant	Certain	Local	Long-term (stage of implementation and exploitation)
	Changes in morphology of the riverbed and inter-embankment zone resulting from increased processes of erosion of the riverbed and accumulation in the inter-embankment zone, change in sedimentation conditions outside the riverbed, separation of the oxbow from the river current – impact on hydromorphological elements of SWB	Significant	Certain	SWB (local)	Long-term (stage of implementation and exploitation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	The increase in suspension during the execution of the works. Loss of periodically flooded habitats – patency of the transverse (embankments limiting flood zone) – limitation of the diaspore sources for populations growing in the riverbed Changes in physical and chemical parameters of water that promote eurytopic species	Significant	Likely/possible	Local	Long-term (stage of implementation and exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Removal of riparian vegetation – reduction in the shaded area, loss of fish refuges among the roots and fallen trees Loss of connection between the Valley of Odra and vellays of tributaries – construction of backwater embankments and embankment dividing the Valley of Czarna Struga and ma king it impossible for the Odra backwater to enter the Valley of Czarna Strugai. Reducing connection between termporarily flooded areas constituting habitats of Macrophytes, macroinvertebrae and Fish, together with the riverbed of Odra.				
Soils	Degradation of the soil cover during ground works at the stage of construction	Present - insignificant	Certain	Local	Short-term (stage of implementation)
	Exemption of soils from use under dams, embankments, reinforcements, etc	Present - insignificant	Certain	Local	Long-term (stage of implementation and exploitation)
	Change of moisture conditions of soils	Significant	Certain	Local	Long-term (stage of exploitation)
	Degradation of swamp soils – rotting processes	Significant	Very likely	Local	Long-term (stage of exploitation)
	Denudation of soils on the landside of the levee	Significant	Very likely	Local	Long-term (stage of exploitation)
	Increase erosion of soils in the inter-embankment zone	Moderate	Very likely	Local	Short-term (stage of implementation)
	Degradation of soils during ground works	Moderate	Certain	Local	Mid-term (stage of implementation and exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Noise	Noise emitted by the machines during construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise resulting from maintenance works: e.g. mowing the grass; stage of exploitation.	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	Certain	Local	Short-term (stage of implementation)
	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of exploitation (maintenance works)	Present – insignificant	Likely/possible	Local	Short-term (stage of implementation)
	Floating small dust fractures from unpaved ground at the stage of construction.	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Lower Odra PLH320037	The change in water conditions within habitat patches and animal habitats	Moderate	Likely/possible	Local	Long-term (phase of exploitation)
Lower Odra Valley PLB320003	Scaring birds, temporary deterioration of habitats	Little	Likely/possible	Local	Short-term (phase of exploitation)
Landscape Park Warta River Estuary	Scaring birds, temporary deterioration of habitatsas a result of the occupation of land.	Little	Likely/possible	Local	Short-term, long-term (phase of implementation and exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Riparian area near Słubice "Łęgi Słubickie" PLH080013	Disturbance of habitat patches as a result of the occupation of land	Moderate	Likely/possible	Local	Long-term (phase of exploitation)
Warta River Estuary PLC080001 (OSO, SOO)	No impact				
National Park Warta River Estuary	No impact				
Flora and fauna					
Limitation of the area and the deterioration of natural habitats such as riparian forests (91E0, 91F0), oxbow lakes (3150) and the habitats of animal species	Limitation of flood zone, changes in the conditions of occurrence of fauna and flora species	Little	Probable / possible	Local	Long-term (phase of exploitation)
Cultural landscape	Temporary violation (degradation) of current order and landscape by carrying out construction works and foundation of construction site.	Moderate	Certain	Local	Short-term (stage of implementation)
	Moderate violation of current landscape – there are numerous hydrotechnical structures in Odra Valley.	Moderate	Certain	Local	Short-term (stage of implementation)
Monuments	Part of works will be conducted in the vicinity of areas and objects subject to conservative protection.	Little	Certain	Local	Short-term (stage of implementation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Spots where areas and objects subject to conservatory protection are situated will be protected from flood as a result of implemented investments.	Positive	Certain	Local	Long-term (stage of exploitation)
Category: renovation of embankments/boulevards					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Increased processes of erosion of the riverbed and accumulation in the inter-embankment zone – impact on hydromorphological elements of SWB	Little	Likely/possible	Local	Long-term (stage of exploitation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	The increase in suspension during the execution of the works.	Little	Probable / possible	Local	Short-term (phase of implementation)
	Changes in vegetation along river banks, removal of trees along river banks – removal of riparian vegetation Changes in physical and chemical parameters of water that promote eurytopic species	Little	Probable / possible	Local	Long-term (phase of exploitation)
Soils	Degradation of soils during ground works	Moderate	Certain	Local	Long-term (stage of implementation and exploitation)
	Change of moisture conditions of soils	Significant	Certain	Local	Long-term (stage of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Noise	Noise emitted by the machines during construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise resulting from maintenance works: e.g. repairing passageways and roads, at the stage of exploitation.	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	Certain	Local	Short-term (stage of implementation)
	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of exploitation (maintenance works).	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
	Floating small dust fractures from unpaved ground at the stage of construction.	Present – insignificant	Likely/possible	Local	Short-term (stage of implementation)
	Increase of dust pollution during transportation of construction materials from their depot.	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Lower Odra Valley PLB320003	Scaring, disturbance of birds due to the execution of the works	Moderate	Probable / possible	Local	Short-term (phase of implementation)
Lower Odra PLH320007	Scaring, disturbance of animal species, local destruction of habitat patches as a result of the execution of the works and facilities localisation	Moderate	Probable / possible	Local	Short-term (phase of implementation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Landscape Park Lower Odra Valley	Scaring, disturbance of animal species, local destruction of habitat patches as a result of the execution of the works and facilities localization	Moderate	Probable / possible	Local	Short-term (phase of implementation)
Flora and fauna					
Animal species inhabiting riverside	Scaring, disturbance of animal species, local destruction of habitat patches as a result of the execution of the works and facilities localization	Moderate	Probable / possible	Local	Short-term (phase of implementation)
Cultural landscape	Simplifying the structure of landscape by felling of trees.	Moderate	Certain	Local	Short-term (stage of implementation)
	Changes in the physiognomy of the landscape, change in the aesthetics of the landscape.	Present – positive	Certain	Local	Long-term (stage of exploitation)
Monuments	Possible dusting of areas and objects subject to conservation protection	Little	Certain	Local	Short-term (stage of implementation)
	Improved level of flood protection within areas and for the objects subject to conservation protection.	Positive	Certain	Supralocal	Long-term (stage of exploitation)
Category: regulation and maintenance works in the riverbeds and inter-embankment zones of natural parts of waters, artificial or heavily modified parts of waters and drainage ditches					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Increase in the velocity of water flow, change in roughness of the ground, change in capacity of the riverbed – impact on the flow regime.	Significant	Certain	SWB (local)	Long-term (stage of exploitation)
	Changes in morphology of the riverbed and inter-embankment zone, liquidation of riverbed and by-riverbed structures, increase of bottom erosion,	Significant	Certain	SWB (local)	Long-term (stage of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	change in dynamics of fluvial processes, change in longitudinal profile – impact on hydromorphological elements of SWB.				
	Increased inflow of products of surface erosion to riverved during the execution of the works, more susceptible to degradation and blurring of alluvial deposits – effect on physic-chemical elements of SWB	Moderate	Very likely	SWB (localna)	Short-term (stage of implementation)
Ground waters	Disorder of flow of ground water, loss of hydraulic connectivity of surface and ground waters – impact on quantitative elements of GWB	Moderate	Certain	SWB (local)	Long-term (stage of exploitation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	The increase in suspension during the execution of the works, elimination of vegetation habitats around the partially destroyed groins, including invertebrate habitat loss, loss of habitats suitable for fry and loss of spawning area of fish laying eggs on vegetation	Moderate	Certain	Local	Short-term (phase of implementation) and medium-term (phase of exploitation)
	Limiting the dynamics of riverbeds, shoreline stabilization - restrict connection to existing oxbows and creating new habitats at the border of the river - the disappearance of plant communities associated with oxbow lakes	Moderate	Probable / possible	Local	Long-term (phase of exploitation)
	Limiting the dynamics of riverbeds, shoreline stabilization - restrict connection to existing oxbows and creating new habitats at the border of the river	Moderate	Probable / possible	Local	Long-term (phase of exploitation)
	Increasing the size of the construction of natural stones, which are habitat for taxa associated with gravel bottom - increased habitat diversity of macrozoobenthos	Positive	Certain	Local	Long-term (phase of exploitation)
Soils	Degradation of soils during ground works (e.g. lowering the inter-embankment zone, moulding of slopes).	Moderate/ Significant	Certain	Local	Long-term (stage of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Exemption of soils from use – constructions on the riverbanks	Little	Certain	Local	Long-term (stage of exploitation)
	Degradation of the riverbed sedimentation structures during clearing (bottom sediments)	Moderate/ Significant	Certain	Local	Long-term (stage of exploitation)
	Pollution of soils during clearing and de-silting of the riverbeds/channels (depositing polluted material along the riverbed/in the flood zone).	Significant	Likely/possible	Local	Long-term (stage of exploitation)
Noise	Noise emitted by the machines during regulation and maintenance works in the inter-embankment zone	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by the machines during reclamation works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise resulting from maintenance works: e.g. mowing the grass, deepening, at the stage of exploitation.	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	Certain	Local	Short-term (stage of implementation)
	Floating small dust fractures from unpaved ground at the stage of construction.	Present – insignificant	Likely/possible	Local	Short-term (stage of implementation)
	Increase of dust pollution during transportation of construction materials from their depot.	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Lower Odra Valley PLB320003	Modernization of inter-flood bank area – liquidation of valuable natural habitats and habitats of species	Significant	Most likely	Local	Long-term (phase of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Changes in water conditions within habitats of valuable species of birds	Significant	Most likely	Local	Long-term (phase of exploitation)
Lower Odra PLB320037	Modernization of inter-flood bank area – liquidation of valuable natural habitats and habitats of species	Significant	Most likely	Local	Long-term (phase of exploitation)
	Changes in water conditions within habitats of valuable species of birds	Significant	Most likely	Local	Long-term (phase of exploitation)
	Dredging the canal connecting branch of the Oder, possible changes in water conditions within the adjacent bird habitats	Moderate	Most likely	Local	Long-term (phase of exploitation)
Flora and fauna					
Oxbow lakes (3150) and related communities of vegetation and animal species assemblages	Backfilling, liquidation, shallowing water bodies	Oxbow lakes and associated flora and fauna communities	Most likely	Local	Long-term (phase of implementation and exploitation)
Fauna and flora communities directly associated with the riverbed	Dredging the riverbeds - the destruction of the structure of the bottom, animal habitats, the increase in suspension in the riverbed (temporary deterioration of the occurrence conditions for organisms)	Fauna and flora communities directly associated with the riverbed	Most likely	Local	Long-term (phase of implementation and exploitation)
Cultural landscape	Change in the structure of the landscape, degradation of natural landscape of the river valley.	Moderate	Certain	Local	Short-term (stage of implementation)
	Change in the physiognomy of spatial order, decomposition, change in spatial order, change of atractiveness of the landscape	Present - positive	Certain	Local	Long-term (stage of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Monuments	Improvement in flood security of areas and objects covered by conservation protection.	Positive	Certain	Local	Long-term (stage of exploitation)
Category: renovation and construction of pump stations					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Limiting valley retention – impact on hydromorphological elements of SWB	Moderate	Likely	Local	Long-term (stage of exploitation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Changes in vegetation areas around the investment	Current- irrelevant	Probable / possible	Local	Medium-term (phase of implementation and exploitation)
Soil	Degradation of soils during ground works	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Noise	Noise emitted by the machines during construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	Certain	Local	Short-term (stage of implementation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Noise resulting from regular operation of the pump station, at the stage of exploitation.	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Protected areas					
Lower Odra Valley PLB320003	Changes in the conditions of water in the bird habitats	Moderate	Probable / possible	Local	Long-term (phase of exploitation)
Flora and fauna					
Oxbow lakes (3150) and alluvial grasslands (6440), the species associated with these habitats and other dependent on high groundwater level	Changes in the conditions of water in species habitats	Moderate	Probable / possible	Local	Long-term (phase of exploitation)
Cultural and natural landscape	Local change in aesthetics of the landscape, possible deterioration of the condition of the natural landscape	Small	Probable / possible	Local	Long-term (phase of exploitation)
Monuments	No impact				
Category: reconstruction of bridges					

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Soils	Degradation of soils during ground works	Present – insignificant	Unlikely	Local	Long-term (stage of exploitation)
Noise	Noise emitted by the machines during construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	Certain	Local	Short-term (stage of implementation)
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Present – insignificant	Certain	Local	Short-term (stage of implementation)
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Temporary increase in suspension, change in physical and chemical parameters of waters, changes in the structure of the banks and bottom of the river	Present – insignificant	Likely - possible	Local	Short-term (stage of implementation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Removal of vegetation in the immediate vicinity of the repaired bridges and footbridges	Current- irrelevant	Probable / possible	Local	Medium-term (phase of implementation and exploitation)
	The increase in suspension during the execution of the works, especially during fish spawning	Little	Probable / possible	Local	Short-term (phase of implementation)
	Transformation of habitats and riverside in the immediate vicinity of the repaired bridges and footbridges	None	Probable / possible	Local	Medium-term (phase of implementation and exploitation)
	Pollution caused by leaking fuel or lubricants from equipment used in construction works	Significant	Very unlikely	Local	Short-term (phase of implementation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Ground waters	No impact				
Lower Odra PLH320037	Temporary decrease in the river valley function as an ecological corridor				
Flora and fauna					
Vegetation within the riverside, riverbed and animal species	Destruction of vegetation due to the location of the site facilities, technological roads, etc.				
Lower Odra PLH320037	Temporary decrease in the river valley function as an ecological corridor	Current- irrelevant	Probable / possible	Local	Short-term (phase of implementation)
Natural and cultural landscape	Changes in aesthetics of the landscape	Small	Probable / possible	Local	Short-term (phase of implementation)
Monuments	No impact				
Category: construction and renovation of elements of sailing infrastructure (groins, stop and mooring bay and marking the sailing route)					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Impact on the structure of the riverbed: washing fluvial deposits on the opposite convex riverbank, change of distribution of water velocity in a vertical plane and tangent stretches by the bottom in the vicinity of the construction, moving of the bottom river load, change in conditions of riverbed deposits'	Significant	Certain	SWB	Long-term (stage of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	sedimentation, depositing material in the free flow area between the groins.				
	Change of flow regime: narrowing corss-section of the riverbed, change in velocity of the water flow in the riverbed, acceleration of the current, change in velocity of flow of flood waters – impact on the flow of waters in SWB	Significant	Certain	SWB	Long-term (stage of exploitation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	The increase in suspension during the execution of the works	Little	Certain	Local	Short-term (phase of implementation)
	The increase in suspension during the execution of the works, the elimination of macrophyte habitats around the partially destroyed groins, as well as on the sections of the banks where longitudinal dams will be constructed and exsiting groins will be expanded. Radiuses of curves and width of the trawl will be corrected where reqiured, which is also associated with temporary loss if macrophytes' habitats.	Moderate	Certain	Local	Short-term (phase of implementation)
	The increase in suspension during the execution of the works, the eradication of aquatic vegetation around the partially destroyed groins, as well as on the the sections of the banks where longitudinal dams will be constructed and exisiting groins will be expanded where reqiured - invertebrate habitat loss	Moderate	Certain	Local	Medium-term (phase of implementation and exploitation)
	Limiting the dynamics of riverbeds, riverside stabilization – restricting the connection to existing oxbows and creating new riverside habitats - loss of habitat of taxa associated with oxbow lakes	Moderate	Probable / possible	Local	Long-term (phase of exploitation)
	Increasing the size of the construction of natural stones, which are habitat for taxa associated with	Positive (moderate)	Certain	Local	Long-term (phase of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	gravel bottom - increased habitat diversity of macrozoobenthos				
	The increase in suspension during the execution of the works, the eradication of aquatic vegetation around the partially destroyed groins, also on the sections of banks where longitudinal dams will be constructed and existing groins will be expanded – loss of habitats suitable for fry and spawning area of phytphile fish. Radiuses of curves and width of the trail will be corrected where required, which is also associated with temporary loss of fry and spawning habitats of phytophile species.	Moderate	Certain	Local	Medium-term (phase of implementation and exploitation)
	Limiting the dynamics of riverbeds, riverside stabilization – restricting the connection to existing oxbows and creating new riverside habitats – loss of vegetation and habitats of fish species associated with oxbow lakes	Moderate	Probable / possible	Local	Long-term (phase of exploitation)
	Increasing the size of the construction of natural stones, which are spawning area and refuges for fry of fish species laying eggs on sandy and gravel substrate	Positive (moderate)	Certain	Local	Long-term (phase of exploitation)
	Pollution caused by leaking fuel or lubricants from equipment used for the transportation and installation of materials to strengthen the groins	Significant	Very unlikely	Local	Short-term (phase of implementation)
Ground waters	Disorder of flow of ground water as result of raising water, impact on quantitative elements of GWB	Moderate	Probable	Local	Long-term (phase of exploitation)
Soils	Degradation of soils during ground works	Present - insignificant	Certain	Local	Long-term (stage of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Degradation of riverbed sedimentation structures	Moderate/Significant	Certain	Local	Long-term (stage of exploitation)
Noise	Noise emitted by the machines during construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise resulting from ship traffic at the stage of exploitation	Moderate	Very likely	Local	Short-term (stage of implementation)
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Protected areas					
Middle Odra Valley PLB080004	Changes in the conditions of water flow in the river, changing the water conditions in the bird habitats adjacent to the riverbed	Significant	Most likely	Local	Long-term (phase of exploitation)
Nowosolska Odra Valley PLH080014	Changes in the conditions of water flow in the river, changing the water in the habitats adjacent to the riverbed	Moderate	Most likely	Local	Long-term (phase of exploitation)
Lower Odra PLH320037	The destruction of the habitats of species associated with the bottom zone	Moderate	Most likely	Local	Long-term (phase of exploitation)
Lower Odra Valley PLB320003	Scaring, disturbance of birds during the execution of the works, changing the nature of the habitat of birds	Little	Probable / possible	Local	Long-term (phase of exploitation)
Krzesiński Landscape Park	Changes in the conditions of water flow in the river, changing the water in the habitats adjacent to the riverbed.	Moderate	Most likely	Local	Long-term (phase of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Flora and fauna					
Deterioration of the occurrence of other aquatic organisms	Scaring, disturbance of species associated with the riverbank and the escarpment edge, an increase in the concentration of the suspension in the river	Little	Most likely	Local	Short-term (phase of implementation)
Habitats of riparian forest (91E0) and herb fringe communities (6430), the animal species associated with the riverside	Destruction of the riverside habitats due to the execution of the works, location of the site facilities, etc.	Significant	Most likely	Local	Long-term (phase of implementation and exploitation)
Natural and cultural landscape	Change in the structure of the landscape, change in the aesthetics of the landscape, degradation of natural landscape.	Moderate	Certain	Local	Short-term (stage of implementation)
	Change in spatial order, change in the physiognomy of the landscape.	Positive	Certain	Local	Long-term (stage of exploitation)
Monuments	Improvement of flood safety of areas and objects subject to conservation protection.	Positive	Certain	Local	Long-term (stage of exploitation)
Category: reconstruction and renovation of hydrotechnical structures (automatic gates, embankment sluice and culverts, weirs, water barrages)					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface	Changes in valley retention – impact on hydromorphological elements of SWB	Moderate	Likely – possible	SWB (local)	Long-term (stage of exploitation)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
waters					
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	The increase in suspension during the execution of the works	Moderate	Certain	Local	Short-term (phase of implementation)
	Loss of habitats of macrophytes in dredged canals	Moderate	Certain	Local	Medium-term (phase of implementation and exploitation)
	The increase in suspension during the execution of the works	Moderate	Certain	Local	Short-term (phase of implementation)
	Mechanical destruction of organisms and fish eggs during the work associated with dredging the canals	Moderate	Probable / possible	Local	Short-term (phase of implementation)
	Loss of habitats of macroinvertebrates in dredged canals	Moderate	Certain	Local	Medium-term (phase of implementation and exploitation)
	Loss of habitats and spawning area of fish laying eggs on vegetation in dredged canals	Moderate	Certain	Local	Medium-term (phase of implementation and exploitation)
Ground waters	No impacts				
Soils	Degradation of soils during ground works	Present - insignificant	Certain	Local	Long-term (stage of exploitation)
Noise	Noise emitted by the machines during construction works	Moderate	Certain	Local	Short-term (only at the stage of counstruction)
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	Certain	Local	Short-term (only at the stage of construction)

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Noise resulting from maintenance works	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	Certain	Local	Short-term (stage of implementation)
	Increase of dust pollution during transportation of construction materials from their depot.	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Lower Odra Valley PLB320003	Modernization of inter-flood bank area – liquidation of valuable natural habitats and habitats of species	Significant	Most likely	Local	Long-term (phase of exploitation)
	Regulation of water through the proper functioning of the drainage systems - changes in water conditions of birds habitats	Significant	Most likely	Local	Long-term (phase of exploitation)
Lower Odra PLB320037	Modernization of inter-flood bank area – liquidation of valuable natural habitats and habitats of species	Significant	Most likely	Local	Long-term (phase of exploitation)
	Regulation of water through the proper functioning of the drainage systems - changes in water conditions of natural habitats and habitats of species	Significant	Most likely	Local	Long-term (phase of exploitation)
	Dredging the canal connecting branch of the Oder, possible changes in water conditions within the adjacent bird habitats	Moderate	Most likely	Local	Long-term (phase of exploitation)
Flora and fauna					
Oxbow lakes (3150) and related	Deterioration of the occurrence of oxbow lakes including specific plant communities and associated	Oxbow lakes and related communities	Backfilling, liquidation of the water bodies	Local	Long-term (phase of implementation and

Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
communities of vegetation and fauna assemblages	animal species	of vegetation and fauna assemblages			exploitation)
Natural and cultural landscape	Change in the structure of the landscape, change in the value of the landscape.	Moderate	Certain	Local	Short-term (only at the stage of construction)
	Improved technical condition of the infrastructure	Positive	Certain	Supralocal	Long-term (stage of implementation and exploitation)
Monuments	In case of objects modernized under conservatory supervision, a change in the value of cultural landscape will occur.	Positive	Possible / probable	Local	Long-term (phase of exploitation)

2 MITIGATING AND COMPENSATORY MEASURES

2.1 ABIOTIC ELEMENTS

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Category of actions: construction of embankments/boulevards				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Change in the regime of flow of flood waters, reducing flow of flood waters – impact on hydromorphological elements of SWB	Significant	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Restricting area of flow of high waters, rising level of high waters in the riverbed and accumulation of flood waters, increase of erosion, superstructuring of silts – impact on hydromorphological elements of SWB.	Significant	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Changes in morphology of the riverbed and inter-	Significant	• Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision,

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	embankment zone resulting from increased processes of erosion of the riverbed and accumulation in the inter-embankment zone, change in sedimentation conditions outside the riverbed, separation of the oxbow from the river current – impact on hydromorphological elements of SWB		• Implementation of works in accordance with EMP requirements	Environmental supervision
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Increased amount of suspension in the course of work performance Periodically flooded habitat loss Changes in physical and chemical parameters of water Changes in vegetation in riverside areas, removal of riparian tree plantings - changes in lighting of sites of fish and other organismsz	Significant	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone, securing a new section of the embankment against erosion (grass planting) immediately upon completion of work • Implementation of works in accordance with EMP.	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Ground waters	Loss of contact with surface waters located in the valley outside	Significant	• Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision,

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	the embankment – impact on quantitative elements of SWB		• Implementation of works in accordance with EMP	Environmental supervision
Soils	Degradation of the soil cover during ground works at the stage of construction works.	Present - insignificant	• Implementation of works in accordance with EMP • Limited land occupation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Exemption of soils from use under dams, embankments, reinforcements, etc.	Present - insignificant	• Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Change of moisture conditions of soils	Significant	• Implementation of works in accordance with EMP • Limited land occupation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Degradation of swamp soils – rotting processes	Significant	• Securing specific level of ground waters within areas of habitat protection	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Denudation of soils on the landside of the levee	Significant	• Designing maneuvering squares and technological roads outside mud soil zones, Introducing requirement of occupation of as little land as possible at the stage of implementation of works • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Noise	Noise emitted by the construction machines during operation	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	• Technological processes with operation of noise emitting machines will not be carried out during the nighttime • Vehicles used for construction works will comply with noise emission norms and will be equipped with modern silencers • Construction site facilities will be organized as far as possible from protected areas and structures. • Due to high availability of power lines, generators will only be used if constructing a temporary terminal is a burden to the environment • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Noise resulting from maintenance works: e.g. mowing the grass; stage of exploitation.	Present - insignificant	• Maintenance works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for maintenance works will comply with noise emission norms and will be equipped with modern silencers	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			• Implementation of works in accordance with EMP	
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	• Implementation of works in accordance with EMP • Lack of necessity to apply special requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of exploitation (associated with maintenance works).	Present - insignificant	• Implementation of works in accordance with EMP • Lack of necessity to apply special requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Floating small dust fractures from unpaved ground at the stage of construction.	Present - insignificant	• Implementation of works in accordance with EMP • Lack of necessity to apply special requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Natural and cultural landscape	Deterioration of the aesthetics of the landscape due to carrying out construction works and foundation of construction site	Moderate	• Construction site facilities will be organized as far as possible from protected areas and structures. • Construction works associated with flood structures will only be conducted within these structures • Temporary technological roads will be paved between construction sites and places where the works are carried out • Implementation of works in	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			accordance with EMP	
	Change in the spatial structure of the landscape	Moderate	• Areas transformed as a result of ground works will be subject to regeneration in accordance with the outcome of EIA • The course of embankments will be established on binding planning documents with regard for localization of the elements of the cultural landscape and monuments • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Monuments	Part of works will be carried out in the vicinity of areas and objects subject to conservatory protection	Little	• The scope of works and possible intervention in areas subject to conservatory protection will be consulted with relevant organs of public administration • If necessary, construction works will be conducted under the supervision of conservation services • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Implementation of the investment will result in protecting against flood municipalities in which areas and objects subject to	Positive	• The scope of works and possible intervention in areas subject to conservatory protection will be consulted with relevant organs of public administration • If necessary, construction works	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	conservatory protection are located		will be conducted under the supervision of conservation services • Implementation of works in accordance with EMP	
Material goods	Probable expropriation of lands for construction of flood embankments	Moderate	• Only lands necessary for implementation of the investment will be expropriated • Indication of exchange lands or payment of compensation proportionate to incurred losses • Possibility of collecting sown crops and removing significant objects	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Category of actions: modernization of embankments/boulevards				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Increased processes of erosion of the riverbed and accumulation in the inter-embankment zone – impact on hydromorphological elements of SWB	Little	• Moving the embankments from the active riverbed as far as possible • Taking into account the course of natural erosion forms – strengthening of the embankments within the Floyd channel and former riverbeds cut off from the River.	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Biological elements of the water status assessment (phytoplankton/ phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Increased inflow of surface erosion products to the riverbed at the stage of conducting works	Little	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone, securing a new section of the embankment against erosion (grass planting) immediately upon completion of work • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Changes in vegetation in riverside areas, removal of riparian tree plantings - changes in lighting of sites of fish and other organisms	Little	• Limitation of any work related to tree logging and clearing aquatic vegetation to the necessary minimum • Planting of aquatic vegetation upon completion of work • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Ground waters	Disturbed outflow of ground waters within filtrations and outflows of the slope zone – impact on quantitative lements of SWB	Present - insignificant	• Lack of necessity of applying minimization	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Soils	Degradation of soils ~~during construction~~ works	Moderate	• Introducing requirement of ~~occupation of as little land as~~ possible at the stage of	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			implementation of works • Implementation of works in accordance with EMP	
	Change of moisture conditions of soils	Significant	• Designing maneuvering squares and technological roads outside mud soil zones • PIU consultant, Contractor, Investor's Supervision, Environmental supervision • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Noise	Noise emitted by the construction machines during operation	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	• Technological processes with operation of noise emitting machines will not be carried out during the nighttime • Vehicles used for construction works will comply with noise emission norms and will be	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			equipped with modern silencers • Construction site facilities will be organized as far as possible from protected areas and structures. • Due to high availability of power lines, generators will only be used if constructing a temporary terminal is a burden to the environment • Implementation of works in accordance with EMP	
	Noise resulting from maintenance works e.g. repair of footways and roads at the stage of exploitation	Present - insignificant	• Maintenance works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for maintenance works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	• Implementation of works in accordance with EMP • Lack of necessity of applying specific minimization	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Emission of pollutions resulting from machine	Present - insignificant	• Implementation of works in	PIU consultant, Contractor, Investor's Supervision,

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	operation (fuel combustion) at the stage of exploitation (associated with maintenance works).		accordance with EMP • Lack of necessity of applying specific minimization	Environmental supervision
	Floating small dust fractures from unpaved ground at the stage of construction.	Present - insignificant	• Implementation of works in accordance with EMP • Lack of necessity of applying specific minimization	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Increase of dust pollution during transportation of construction materials from their depot.	Present - insignificant	• Implementation of works in accordance with EMP • Lack of necessity of applying specific minimization	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Natural and cultural landscape	Change in the aesthetics of the landscape	Moderate	• Construction site facilities will be organized as far as possible from protected areas and structures. • Construction works associated with flood structures will only be conducted within these structures • Temporary technological roads will be paved between construction sites and places where the works are carried out • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Change in the spatial structure of the landscape, change in the physiognomy, natural values.	Present – positive	• Proper management of greenery will be introduced as part of embankment renovation: securing with native greenery • Reducing the scope of tree felling and cutting out the riparian vegetation • Renovation of boulevards will have positive influence on the aesthetics of public space and security of adjacent areas • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Monuments	Some sub-components include works in the vicinity of areas subject to conservatory protection	Little	• The scope of works and possible intervention in areas subject to conservatory protection will be consulted with relevant organs of public administration • If necessary, construction works will be conducted under the supervision of conservation services • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Implementation of the investment will result in protecting against	Positive	• The scope of works and possible intervention in areas subject to conservatory	

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	flood municipalities in which areas an objects subject to conservatory protection are located		protection will be consulted with relevant organs of public administration • If necessary, construction works will be conducted under the supervision of conservation services	
Material goods	Possible expropriation of lands for construction of flood embankments	Moderate	• Only lands necessary for implementation of the investment will be expropriated • Indication of exchange lands or payment of compensation proportionate to incurred losses • Possibility of collecting sown crops and removing significant objects	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Category of actions: regulation and maintenance works in riverbeds and inter-embankment lands of natural and artificial parts of water or strongly changed parts of water and drainage ditches				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Increase in the velocity of water flow, change in roughness of the ground, change in capacity of the riverbed – impact on the flow regime.	Significant	• Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Changes in morphology of the riverbed and inter-embankment zone, liquidation of riverbed and by-riverbed structures, increase of bottom erosion, change in dynamics of fluvial processes, change in longitudinal profile – impact on hydromorphological elements of SWB.	Significant	• Implementation of works in accordance with EMP • Reduction of land covered by ground works	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Increased inflow of surface erosion products to the riverbed at the stage of construction works, higher susceptibility to degradation an washing of alluvial sediments – impact on physical and chemical elements of SWB	Moderate	• Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Biological elements of the water status assessment (phytoplankton/ phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Increased amount of suspension in the course of work performance elimination of vegetation habitats around partially destroyed groinsgroins, as well as on the sections of	Moderate	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone, securing a new section of the embankment against erosion (grass planting)	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	riverbanks where longitudinal dams will be constructed, the existing groins will be expanded and the radiuses of curves and width of the trail will be corrected – including invertebrate habitat loss, loss of fry habitat and spawnings of phytophile species		immediately upon completion of work • Implementation of works in accordance with EMP.	
	Limiting the dynamics of riverbeds, shoreline stabilization - restrict connection to existing oxbows and creating new habitats by rivers - loss of plant communities associated with oxbow lakes	Moderate	• Implementation of works in accordance with EMP • Profiling the scope of work for local environmental conditions • Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Increasing the surface structure of natural stone, which are habitat taxa associated with rocky bottom - increase diversity of macrozoobenthos habitats	Positive	• Implementation of works in accordance with EMP • Profiling the scope of work for local environmental conditions • Carrying out detailed analyses at the stage of EIA report	
Ground waters	Disruption in the flow of ground waters – loss of hydraulic connection of ground river waters – impact on quantitative	Moderate	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	elements of GWB			
Soils	Degradation of soils during construction works (e.g. lowering of the inter-embankment zone, molding the slopes)	Moderate/ Significant	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report • Reducing spatial scope of land occupation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Exemption of soils from use – constructions on the riverbanks	Little	• Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Degradation of the riverbed sedimentation structures during clearing (bottom sediments)	Moderate/ Significant	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report • Reducing spatial scope of land occupation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Pollution of soils during clearing and de-silting of the riverbeds/channels (depositing polluted material along the riverbed/in the flood zone).	Significant	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report • Conducting soils' tests at the spots of potential threat	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Noise	Noise emiited by construction machines during regulation and maintenance works in the inter-embankment	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Noise emitted by the machines during irrigation works	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Noise resulting from maintenance works e.g. grass mowing, deepening, at the stage of exploitation	Present - insignificant	• Maintenance works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for maintenance works will comply with noise emission norms and will be	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			equipped with modern silencers • Implementation of works in accordance with EMP	
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	• Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Floating small dust fractures from unpaved ground at the stage of construction.	Present - insignificant	• Implementation of works in accordance with EMP requirements • Proper organization of the construction site	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Increase of dust pollution during transportation of construction materials from their depot.	Present – insignificant	• Implementation of works in accordance with EMP requirements • Proper organization of construction works	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Natural and cultural landscape	Change in the aesthetics of the landscape resulting from carrying out construction works and foundation of construction site	Moderate	• Construction site facilities will be organized as far as possible from protected areas and structures. • Construction works associated with flood structures will only be conducted within these structures • Temporary technological roads	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			will be paved between construction site and places were the works are conducted • Implementation of works in accordance with EMP requirements	
	Change in the spatial structure of the landscape, change in the physiognomy of the landscape	Present – Positive	• Implementation of works in accordance with EMP requirements	
Monuments	Improvement in flood security of areas and objects covered by conservation protection situated on the areas at risk of flooding.	Positive	• N/a	
Category of actions: renovation of pumping stations				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Limiting valley retention – impact on hydromorphological elements of SWB	Moderate	• Implementation of works in accordance with EMP requirements • Proper management of drainage system	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Biological elements of the water status assessment (phytoplankton/ phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Changes in vegetation areas around the investment	Present - insignificant	• Implementation of works in accordance with EMP requirements • Reduction of area of temporary and proper occupation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Soils	Degradation of soils during construction works	Present - insignificant	• Implementation of works in accordance with EMP requirements • Reduction of area of temporary and proper occupation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Noise	Noise emitted by the machines during construction works	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	• Technological processes with operation of noise emitting machines will not be carried out during the nighttime	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			• Vehicles used for construction works will comply with noise emission norms and will be equipped with modern silencers • Construction site facilities will be organized as far as possible from protected areas and structures. • Due to high availability of power lines, generators will only be used if constructing a temporary terminal is a burden to the environment • Implementation of works in accordance with EMP requirements	
	Noise resulting from regular operation of the pump station, at the stage of exploitation.	Present - insignificant	• New elements and pump station buildings will comply with noise emission norms	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Present - insignificant	• Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Monuments	Improvement in flood security of areas and objects covered by conservation protection situated on	Positive	• N/a	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	the areas at risk of flooding.			
Category of actions: reconstruction of bridges				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Change in cross-section of the riverbed within the bridge and in directi vicinity	Present - insignificant	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Change in structure of bank zone	Present - insignificant	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Change in cross-section of the riverbed within the bridge and in directi vicinity	Moderate	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Change in structure of bank zone	Moderate	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Biological elements of the water status assessment	Increased amount of suspension in the course of work performance and	Moderate	• Limitation of earthwork to a minimum, storage of the used soil material away from the	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
(phytoplankton/ phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	elimination of vegetation habitats in this area		riverbed, reduction of interference in the riverbank zone, securing a new section of the embankment against erosion (grass planting) immediately upon completion of work • Implementation of works in accordance with EMP.	
Ground waters	Lack of impacts			
Soils	Degradation of soils during construction works	Present - insignificant	• Implementation of works in accordance with EMP requirements • Reduction of area of temporary occupation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Noise	Noise emitted by the construction machines during operation	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	• Technological processes with operation of noise emitting machines will not be carried out during the nighttime • Vehicles used for construction works will comply with noise emission norms and will be equipped with modern silencers • Construction site facilities will be organized as far as possible from protected areas and structures. • Due to high availability of power lines, generators will only be used if constructing a temporary terminal is a burden to the environment • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Present - insignificant	• Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Material goods	Probable expropriation of lands for reconstruction of access roads to bridge structures	Moderate	• Only lands necessary for implementation of the investment will be expropriated • Indication of exchange lands or payment of compensation	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			proportionate to incurred losses • Possibility of collecting sown crops and removing significant objects	
Category of actions: construction and renovation of elements of sailing infrastructure (groins, stop and mooring bay and marking the sailing route)				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Impact on the structure of the riverbed: washing fluvial deposits on the opposite convex riverbank, change of distribution of water velocity in a vertical plane and tangent stretches by the bottom in the vicinity of the construction, moving of the bottom river load, change in conditions of riverbed deposits' sedimentation, depositing material in the free flow area between the groins.	Significant	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements • Environmental profiling of the scope and detailed localization of implementation of the investment	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Change of flow regime: narrowing	Significant	• Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision,

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	corss-section of the riverbed, change in velocity of the water flow in the riverbed, acceleration of the current, change in velocity of flow of flood waters – impact on the flow of waters in SWB		• Implementation of works in accordance with EMP requirements • Environmental profiling of the scope and detailed localization of implementation of the investment	Environmental supervision
Biological elements of the water status assessment (phytoplankton/ phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Increased amount of suspension in the course of work performance elimination of vegetation habitats around partially destroyed groins, including invertebrate habitat loss, loss of fry habitat and spawnings of phytophile species	Moderate	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone, securing a new section of the embankment against erosion (grass planting) immediately upon completion of work • Implementation of works in accordance with EMP.	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Limiting the dynamics of riverbeds, shoreline stabilization	Moderate	• Implementation of works in accordance with EMP • · Profiling the scope of work for local environmental conditions • Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Increasing the surface structure of natural stone, which are	Positive	• Implementation of works in	

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	habitat taxa associated with rocky bottom - increase diversity of macrozoobenthos habitats		accordance with EMP • Profiling the scope of work for local environmental conditions • Carrying out detailed analyses at the stage of EIA report	
Ground waters	Disruption in the flow of ground waters resulting from raising the water; impact on quantitative elements of GWB	Moderate	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements • Environmental profiling of the scope and detailed localization of implementation of the investment	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Soils	Degradation of soils during construction works	Present - insignificant	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements • Introducing requirement of occupying as little land as possible at the stage of implementation of works	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Degradation of riverbed sedimentation structures	Moderate/Significant	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			requirements • Environmental profiling of the scope and detailed localization of implementation of the investment	
Noise	Noise emitted by the machines during construction works	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	• Technological processes with operation of noise emitting machines will not be carried out during the nighttime • Vehicles used for construction works will comply with noise emission norms and will be equipped with modern silencers • Construction site facilities will be organized as far as possible from protected areas and structures.	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			lines, generators will only be used if constructing a temporary terminal is a burden to the environment	
	Noise resulting form ship traffic at the stage of exploitation.	Moderate	• Planned works will result in improved traffic of ships and other vessels – ship engines will work at optimum ratios, emitting less noise in shorter intervals. • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction..	Present - insignificant	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Natural and cultural landscape	Change in the aesthetics of the landscape resulting from carrying out construction works and foundation of construction site	Moderate	• Construction site facilities will be organized as far as possible from protected areas and structures. • Construction works associated with flood structures will only be conducted within these structures • Temporary technological roads will be paved between construction sites and places where the works are carried out	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			• Implementation of works in accordance with EMP requirements	
	Improved appearance and technical condition of harbor infrastructure will have positive impact on landscape values	Positive	• Neglected, depreciated and degraded harbor infrastructure will be renovated, regardful of principles of maintaining spatial order and integrating it in the river valley • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Monuments	Improving flood protection of areas and objects subject to conservatory protection and increasing attractiveness of Odrariver as touristic passenger sailing trail	Positive	• Lack of necessity of implementing minimizing measures	
Material goods	Possible expropriation of lands for construction of harbor infrastructure	Moderate	• Only lands necessary for implementation of the investment will be expropriated • Indication of exchange lands or payment of compensation proportionate to incurred losses • Possibility of collecting sown crops and removing significant objects	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			• Economic development by using the river for commercial shipping • Implementation of works in accordance with EMP requirements	
Category of actions: reconstruction and renovation of hydrotechnical structures (automatic gates, embankment sluice and culverts, weirs, water barrages)				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Changes in the valley retention - impact on hydromorphological elements of SWB	Moderate	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Biological elements of the water status assessment (phytoplankton/ phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Increased amount of suspension in the course of work performance elimination of vegetation habitats in this area	Moderate	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone, securing a new section of the embankment against erosion (grass planting) immediately upon completion of work • Implementation of works in accordance with EMP.	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Ground waters	Changes in the valley retention - impact on hydromorphological elements of GWB	Moderate	• Implementation of works in accordance with EMP • Carrying out detailed analyses at the stage of EIA report	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Soils	Degradation of soils during construction works	Present - insignificant	• Designing maneuvering squares and technological roads outside mud soil zones, Introducing requirement of occupation of as little land as possible at the stage of implementation of works • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Noise	Noise emitted by the machines during construction works	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Noise emitted by traffic associated with services and supplies for the construction site	Moderate	• Construction works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for construction	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	
	Noise resulting from maintenance works	Present - insignificant	• Maintenance works with operation of noise emitting machines will not be carried out during the nighttime • Machines used for maintenance works will comply with noise emission norms and will be equipped with modern silencers • Implementation of works in accordance with EMP	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
Air quality	Emission of pollutions resulting from machine operation (fuel combustion) at the stage of construction.	Little	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision
	Increase of dust and gas pollution during transportation of construction materials from their depot.	Present - insignificant	• Carrying out detailed analyses at the stage of EIA report • Implementation of works in accordance with EMP requirements	PIU consultant, Contractor, Investor's Supervision, Environmental supervision

2.2 BIOTIC ELEMENTS

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Category of actions: construction of embankments/boulevards				
Protected areas				
Lower Odra PLH320037	Change of hydrological conditions within patches of habitats and animal habitats	Moderate	• Ensuring proper hydrological conditions through relevant management of drainage system • Implementation of the works compliant with the EMP (Environment Management Plan) requirements	Supervisor of the area under impact
Lower Odra Valley PLB320003	Disturbing of birds, temporary deterioration of the status of habitats	Marginal	• Proper management of the scope and methods of works, ensuring conditions for habitats recovery after completion of works • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Landscape Park River mouth of Warta	Disturbing of birds, temporary deterioration of status of habitats due to occupation of land	Marginal	• Proper management of the scope and methods of works, ensuring conditions for habitats recovery after completion of works • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Łęgi Słubickie PLH080013	Disturbance of habitat patches as a result of the occupation of land	Moderate	• Proper management of the scope and methods of works, ensuring conditions for habitats recovery after completion of works • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Fauna and flora				
Reducing the area and deterioration of natural status of habitats such as reparian forests (91E0, 91F0), oxbows (3150) and habitats of animal species	Limitation of flood zone, change within the conditions of occurrence of fauna and flora species	Marginal	• Proper management of the scope and methods of works, ensuring conditions for habitats recovery after completion of works • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Category of actions: regulation and maintenance works in riverbeds and inter-embankment lands of natural and artificial parts of water or strongly changed parts of water and drainage ditches				
Protected areas				

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Lower Odra Valley PLB320003	Carrying out, so called modernisation of inter-levee land - elimination of natural habitats and habitats of animal species	Significant	• Withdrawal from the part of works • Implementation of works compliant with EMP requirements	Environmental supervision, investor's supervision, works' contractor
	Changes of hydrographic conditions within the habitats of valuable species of birds	Significant	• Adjusting the drainage system to determinants. Carrying out detailed analyses of the issue on the stage of EIA (Environmental Impact Assessment) report • Implementation of works compliant with EMP requirements	Supervisor of the area under impact
Lower Odra PLB320037	Carrying out, so called modernisation of inter-levee land - elimination of natural habitats and habitats of animal species	Significant	• Withdrawal from the part of works, relevant environmental management of the project. Carrying out detailed analyses of the issue on the stage of EIA report. • Implementation of works compliant with EMP requirements	Environmental supervision, investor's supervision, works' contractor
	Changes of hydrographic conditions within the habitats of valuable species of birds	Significant	• Withdrawal from the part of works, relevant environmental management of the project. Carrying out detailed analyses of the issue on the stage of EIA report. • Implementation of works compliant with EMP requirements	Environmental supervision, investor's supervision, works' contractor

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Deepening the channel connecting arms of Odra, possible changes of hydrographic conditions within adjacent bird habitats	Moderate	• Adjusting the drainage system to determinants. Carrying out detailed analyses of the issue on the stage of EIA (Environmental Impact Assessment) report • Implementation of works compliant with EMP requirements	Supervisor of the area under impact
Fauna and flora				
Oxbows and related associations of flora and fauna	Backfilling, liquidation, siltation of reservoirs	Significant	• Withdrawal from the part of works, relevant environmental management of the project. Carrying out detailed analyses of the issue on the stage of EIA report. • Implementation of works compliant with EMP requirements	Environmental supervision, investor's supervision, works' contractor
Associations of fauna and flora directly related to the riverbed	Deepening the riverbeds - destruction of river bottom structure, animals habitats, increase of suspension in the riverbed (temporary deterioration of the conditions of occurrence)	Moderate	• Segmental implementation of works, preserving the most valuable parts of habitats. Carrying out detailed analyses of the issue on the stage of EIA report. • Implementation of works compliant with EMP requirements	Environmental supervision, investor's supervision, works' contractor
Category of actions: modernization of pumping station				
Protected areas				

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Lower Odra Valley PLB320003	Changes of hydrographic conditions within habitats of birds	Moderate	• Adjusting drainage system to new hydrological conditions to ensure proper hydrographic conditions for birds.	Environmental supervision, investor's supervision, works' contractor
Fauna and Flora				
Oxbows and accumulation of alluvial meadows, species of animals associated to these habitats and other species dependent on high level of groundwater	Changes of hydrographic conditions within the habitats of habitats of species	Moderate	• Adjusting drainage system to new hydrological conditions to ensure proper hydrographic conditions for natural habitats and animal species	Environmental supervision, investor's supervision, works' contractor
Category of actions: reconstruction of bridges				
Protected areas				
Lower Odra PLH320037	Violation of patches of natural habitats resulting from location of temporary construction facilities, haul roads etc	Marginal	• Proper management of the scope and methods of works • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Fauna and flora				

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Natural habitats associated with riparian zone (riparian forests, herbaceous plants), animal species inhabiting riverbeds and riparian zone	Violation of patches of natural habitats resulting from location of temporary construction facilities, haul roads etc	Marginal	• Proper management of the scope and methods of works • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Category of actions: construction and modernisation of infrastructure elements related to functioning of shipping (mooring bollards, marking shipping lane)				
Protected areas				
Central Odra Valley PLB080004	Changes of flow of groundwater conditions in the river, changes of hydrographic conditions within habitats adjacent to the riverbed	Moderate	• Proper management of works in the scope of detailed manner of implementation, due date etc. Control on operation of drainage system. • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Nowa Sol Odra Valley PLH0800014	Destruction of habitats of species related to benthic zone	Moderate	• Segmental implementation of works, withdrawal from the part of works • Implementation of works compliant with EMP requirements	Environmental supervision, investor's supervision, works' contractor
Lower Odra PLH320037	Disturbing, changes of the nature of habitats of birds	Marginal	• Proper management of works in the scope of detailed manner of implementation, due date etc. Control on operation of drainage	Environmental supervision, investor's supervision, works' contractor

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			system. • Implementation of works compliant with the EMP requirements	
Lower Odra Valley PLB320003	Changes of flow of groundwater conditions in the river, changes of hydrographic conditions within habitats adjacent to the riverbed	Moderate	• Proper management of works in the scope of detailed manner of implementation, due date etc. Control on operation of drainage system. • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Krzesiński Park Krajobrazowy	Changes of flow of groundwater conditions in the river, changes of hydrographic conditions within habitats adjacent to the riverbed	Moderate	• Proper management of works in the scope of detailed manner of implementation, due date etc. Control on operation of drainage system. • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Fauna and flora				
Deterioration of conditions of occurrence of other aquatic organisms	Disturbance, increase of the concentration of the suspension in the river	Marginal	• Proper management of works in the scope of detailed manner of implementation, due date etc. Control on operation of drainage system. • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Habitats of riparian forests (91E0) and herbaceous plants (6430), species of animals related to reparian zone	Destruction and deterioration of the status of reparian habitats due to execution of works, location of temporary construction facilities etc.	Significant	• Proper management of works in the scope of detailed manner of implementation, due date etc. Control on operation of drainage system. • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
Category of actions: reconstruction and modernisation of hydro-engineering structures (automatic gates, forklift flood-gates and culverts, weirs, control valves)				
Protected areas				
Lower Odra PLB320037	Carrying out, so called modernisation of inter-levee land - elimination of natural habitats and habitats of animal species	Moderate to significant	• Proper management of works in the scope of detailed manner of implementation, due date etc. Carrying out detailed analyses of the issue on the stage of EIA report • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor
	Regulation of hydrographic conditions through proper functioning of drainage systems - changes of hydrographic conditions of natural habitats and habitats of species	Moderate	• Proper management of works in the scope of detailed manner of implementation, due date etc. Carrying out detailed analyses of the issue on the stage of EIA report • Implementation of works compliant with the EMP requirements	Environmental supervision, investor's supervision, works' contractor

3 MONITORING

3.1 ABIOTIC ELEMENTS

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Category of actions: modernisation of embankments/boulevards								
States of waters (hydrological parameter)	Existing monitoring, implemented by IMWM: daily measurement of states of waters in hydrological stations							
Ecological state/potential of SWB and in protected areas	Existing monitoring, implemented by PIEP as part of SEM: diagnostic and operational monitoring in the scope of selected elements of quality of waters (mainly biological, physical and chemical) serving assessment of ecological state/potential of SWB and in protected areas implemented periodically in accordance with requirements of WFD.							
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/ month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor

Category of actions: construction of embankments/boulevards								
States of waters (hydrological parameter)	Existing monitoring, implemented by IMWM: daily measurement of states of waters in hydrological stations							
Ecological state/potential of SWB and in protected areas	Existing monitoring, implemented by PIEP as part of SEM: diagnostic and operational monitoring in the scope of selected elements of quality of waters (mainly biological, physical and chemical) serving assessment of ecological state/potential of SWB and in protected areas implemented periodically in accordance with requirements of WFD.							
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/ month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor
Category of actions: construction and renovation of elements of sailing infrastructure (groins, stop and mooring bay and marking the sailing route)								
States of waters (hydrological parameter)	Existing monitoring, implemented by IMWM: daily measurement of states of waters in hydrological stations							
Ecological state/potential of SWB and in protected areas	Existing monitoring, implemented by PIEP as part of SEM: diagnostic and operational monitoring in the scope of selected elements of quality of waters (mainly biological, physical and chemical) serving assessment of ecological state/potential of SWB and in protected areas implemented periodically in accordance with requirements of WFD.							
Implementation of minimizing measures	Area of implementation and impact of	Verification of implementation of field works	Up to date, at the stage of implementation of	Assessment of correctness of implementation	30 000 PLN/month	5000 PLN/ month	PIU consultant (Environmental supervision),	Investor

indicated in the EIA report and environmental decision in the scope of natural environment	the investment	with environmental documentation	works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	of minimizing measures from the EIA report and environmental decision			Investor's Supervision, Contractor	
Category of actions: regulation and maintenance works in riverbeds and inter-embankment lands of natural and artificial parts of water or strongly changed parts of water and drainage ditches								
States of waters (hydrological parameter)	Existing monitoring, implemented by IMWM: daily measurement of states of waters in hydrological stations							
Ecological state/potential of SWB and in protected areas	Existing monitoring, implemented by PIEP as part of SEM: diagnostic and operational monitoring in the scope of selected elements of quality of waters (mainly biological, physical and chemical) serving assessment of ecological state/potential of SWB and in protected areas implemented periodically in accordance with requirements of WFD.							
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/ month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor
Category of actions: modernization of pumping station								
Ecological state/potential	Existing monitoring, implemented by PIEP as part of SEM: diagnostic and operational monitoring in the scope of selected elements of quality of waters (mainly biological, physical and chemical) serving assessment of ecological state/potential of SWB and in protected areas implemented periodically in							

of SWB and in protected areas	accordance with requirements of WFD.							
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/ month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor
Category of actions: reconstruction of bridges								
Ecological state/potential of SWB and in protected areas	Existing monitoring, implemented by PIEP as part of SEM: diagnostic and operational monitoring in the scope of selected elements of quality of waters (mainly biological, physical and chemical) serving assessment of ecological state/potential of SWB and in protected areas implemented periodically in accordance with requirements of WFD.							
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/ month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor
Category of actions: regulation and maintenance works in the riverbeds and inter-embankment zones of natural parts of waters, artificial or heavily modified parts of waters nd drainage ditches								

Cultural and historical heritage structures within project impact area	Project impact area	To be elaborated with the contribution of a specialist - archaeologist at the stage of preparation of EMP	To be elaborated with the contribution of a specialist - archaeologist at the stage of preparation of EMP	In relation to the project implementation damage to cultural sites and monuments may occur within the project impact area. Proposing the mode and frequency of monitoring needs to be defined at the stage of EMP.	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Owner
Technical infrastructure within project impact area	Project impact area	Monitoring of establishing owners of infrastructure, monitoring acquiring consents, monitoring of concluding contracts / agreements with owners of infrastructure	As needed, not less frequently than once per quarter	Construction of dry reservoirs may affect the existing technical infrastructure (power lines, fibre optic lines, paved and dirt roads, hydropower structure). Hence it is indispensable to establish what technical infrastructure is present within the project area,	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Owner

				how the infrastructure is affected by the project, how minimization and compensation measures are implemented.				
Permanent takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, review of current land/property use, review of making real estate divisions, review of acquisition of property rights, monitoring of compensation payments	As specified in LARAP	Project will result in permanent occupation of land. It is possible that constant restrictions in present land/property - use will be implemented (e.g. change in structure of crops). Monitoring will enable the management of property rights acquisition and compensation payment process.	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU
Shor-term takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, current land/property -	As specified in LARAP	Project will result in temporary occupation of land. It is possible that	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

		use, acquisition agreements for temporary occupation of land, signing contracts for temporary occupation of land		temporary restrictions in present land/property - use will be implemented. Monitoring will enable the management of the process of acquisition of rights for short-term use of properties and compensation payment.				
Category of actions: construction and renovation of elements of sailing infrastructure (groins, stop and mooring bay and marking the sailing route)								
Cultural and historical heritage structures within project impact area	Project impact area	To be elaborated with the contribution of a specialist - archaeologist at the stage of preparation of EMP	To be elaborated with the contribution of a specialist - archaeologist at the stage of preparation of EMP	In relation to the project implementation damage to cultural sites and monuments may occur within the project impact area. Proposing the mode and frequency of monitoring needs to be defined at the stage of EMP since it depends upon the scope	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Owner

				and type of modernisation particular works.				
Technical infrastructure within project impact area	Project impact area	Monitoring of establishing owners of infrastructure, monitoring acquiring consents, monitoring of concluding contracts / agreements with owners of infrastructure	As needed, not less frequently than once per quarter	The measure may affect the existing technical infrastructure (power lines, fibre optic lines, paved and dirt roads, hydropower structure). Hence it is indispensable to establish what technical infrastructure is present within the project area, how the infrastructure is affected by the project, how minimization and compensation measures are implemented.	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Owner
Permanent takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, review of current land/property	As specified in LARAP	The measure will result in permanent occupation of land. Monitoring will enable the	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

		use, review of making real estate divisions, review of acquisition of property rights, monitoring of compensation payments		management of property rights acquisition and compensation payment process.				
Shor-term takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, current land/property - use, acquisition agreements for temporary occupation of land, signing contracts for temporary occupation of land	As specified in LARAP	The measure will result in temporary occupation of land. It is possible that temporary restrictions in present land/property - use will be implemented. Monitoring will enable the management of the process of acquisition of rights for short-term use of properties and compensation payment.	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU
Category of actions: construction of embankments/boulevards								
Cultural and historical	Project impact area	To be elaborated with the	To be elaborated	In relation to the project	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site	Owner

heritage structures within project impact area		contribution of a specialist - archaeologist at the stage of preparation of EMP	with the contribution of a specialist - archaeologist at the stage of preparation of EMP	implementation damage to cultural sites and monuments may occur within the project impact area. Proposing the mode and frequency of monitoring needs to be defined at the stage of EMP since it depends upon the scope and type of particular works.			supervision agent, Contractor	
Technical infrastructure within project impact area	Project impact area	Monitoring of establishing owners of infrastructure, monitoring acquiring consents, monitoring of concluding contracts / agreements with owners of infrastructure	As needed, not less frequently than once per quarter	The measure may affect the existing technical infrastructure (power lines, fibre optic lines, paved and dirt roads, hydropower structure). Hence it is indispensable to establish what technical infrastructure is present within the project area,	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Owner

				how the infrastructure is affected by the project, how minimization and compensation measures are implemented.				
Permanent takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, review of current land/property use, review of making real estate divisions, review of acquisition of property rights, monitoring of compensation payments	As specified in LARAP	The measure will result in permanent occupation of land. Monitoring will enable the management of property rights acquisition and compensation payment process.	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU
Shor-term takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, current land/property - use, acquisition agreements for temporary occupation of land, signing contracts for temporary	As specified in LARAP	The measure will result in temporary occupation of land. It is possible that temporary restrictions in present land/property - use will be implemented.	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

		occupation of land		Monitoring will enable the management of the process of acquisition of rights for short-term use of properties and compensation payment.				
Category of actions: modernisation of pumping stations								
Cultural objects and monuments within area of impact of the investment	Area of impact of the investment	To be established with participation of archeologist at the stage of EMP	To be established with participation of archeologist at the stage of EMP	Implementation of the investment may result in damage in cultural objects and monuments within area of impact of the investment, in particular is an archeological site is discovered. Manner and frequency of monitoring should be designed in detail at the stage of EMP.	10 000 PLN/ month	5000 PLN/ month	PIU consultant, Investor's Supervision, Contractor	Investor
Technical infrastructure	Area of impact of the	Monitoring of determining	Depending on demand	The investment may have	10 000 PLN/ month	5000 PLN/ month	PIU consultant, Investor's	Investor

within area of impact of the investment	investment	owners of infrastructure, monitoring of obtaining alignments, monitoring of concluding agreements with owners of infrastructure		impact on technical infrastructure (power lines, fiber optic lines and others, paved roads and dirt roads, hydropower infrastructure). It is therefore necessary to determine in detail what type of technical infrastructure is present on the area of implementation of the investment, what the impact of works on the infrastructure is and in what manner minimizing and compensatory means are implemented.			Supervision, Contractor	
Category of actions: reconstruction of bridges								
Cultural objects and monuments within the area of impact of the	Area of impact of the investment	To be established with participation of archeologist at	To be established with participation	Implementing the investment may result in damage of	10 000 PLN/ month	5000 PLN/ month	PIU consultant, Investor's Supervision, Contractor	Investor

investment		the stage of EMP	of archeologist at the stage of EMP	cultural objects and monuments on the area of impact of the investment. In particular, attention should be paid to cultural value of objects selected for demolition. Proposing manner and frequency of monitoring requires more detailed research at the stage of EMP.				
Technical infrastructure within area of impact of the investment	Area of impact of the investment	Monitoring of determining owners of infrastructure, monitoring of obtaining alignments, monitoring of concluding agreements with owners of infrastructure	Depending on demand, not less than once per quarter	Depending on the structures selected for demolition, this Category of actions of activities may have impact on different types of infrastructure. It is therefore necessary to determine in detail what type of technical infrastructure is present on the	10 000 PLN/ month	5000 PLN/ month	PIU consultant, Investor's Supervision, Contractor	Investor

				area of implementation of the investment, what the impact of works on the infrastructure is and in what manner minimizing and compensatory means are implemented.				

3.2 BIOTIC ELEMENTS

Parameter	Location	Way of monitoring	Frequency	Justification	Costs		The responsible authority	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Category of actions: construction and renovation of elements of sailing infrastructure (groins, stop and mooring bay and marking the sailing route)								
The condition of rare and protected habitats	The impact area of the project (the waterbodies and their	Monitoring of natural habitats (e.g. by using the State Environmental	Before implementation, during implementation and after	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification	30 000 PLN/ month	5000 PLN/ month	PIU consultant, (Environmental Authority), Investment	Investor

	neighbor-hood)	Monitoring methodology)	completion (the period depends on the type of habitat being monitored)	of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)			Authority, Contractor	
The condition of rare and protected habitats including plant and animal populations	The impact area of the project (the waterbodies and their neighbor-hood)	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 Middle Odra Valley PLB080004 Nowosolska Odra Valley PLH080014 Lower Odra PLH320037	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

	Lower Odra Valley PLB320003 Krzesiński Landscape Park	methodology, commonly accepted methodologies for specific groups of plants and animals)	and animals being monitored)	habitats/populations not intended for removal in relation to the execution of tasks)				
Category of actions: construction of embankments/boulevards								
The condition of rare and protected habitats	The impact area of the project (the embankment / boulevard and its neighbor-hood)	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/ month	5000 PLN/ month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected habitats including plant and animal populations	The impact area of the project (the embankment / boulevard and its neighbor-hood)	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

		for specific groups of plants and animals)						
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 Middle Odra Valley PLB080004 Nowosolska Odra Valley PLH080014 Lower Odra PLH320037 Lower Odra Valley PLB320003 Krzesiński Landscape Park	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
Category of actions: regulation and maintenance works in riverbeds and inter-embankment lands of natural and artificial parts of water or strongly changed parts of water and drainage ditches								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of	30 000 PLN/ month	5000 PLN/ month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

				tasks)				
The condition of rare and protected habitats including plant and animal populations	The impact area of the project	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 Middle Odra Valley PLB080004 Nowosolska Odra Valley PLH080014 Lower Odra PLH320037 Lower Odra Valley PLB320003 Krzesiński Landscape Park	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

		animals)						
Category of actions: modernisation of pumping stations								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/ month	5000 PLN/ month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected habitats including plant and animal populations	The impact area of the project	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The conservation	Natura 2000 Middle Odra	Monitoring of natural habitats	Before implementation,	Limitation of intentional and unintentional destruction of			PIU consultant,	Investor

status of habitats and species protected within the framework of Natura 2000	Valley PLB080004 Nowosolska Odra Valley PLH080014 Lower Odra PLH320037 Lower Odra Valley PLB320003 Krzesiński Landscape Park	and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			(Environmental Authority), Investment Authority, Contractor	
Category of actions: reconstruction of bridges								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/ month	5000 PLN/ month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected habitats including plant and animal	The impact area of the project	Monitoring of natural habitats and populations of plants and animals (e.g.	Before implementation, during implementation and after completion (the	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work			PIU consultant, (Environmental Authority), Investment Authority,	Investor

populations		by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	period depends on the type of habitat or groups of plants and animals being monitored)	associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			Contractor	
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 Middle Odra Valley PLB080004 Nowosolska Odra Valley PLH080014 Lower Odra PLH320037 Lower Odra Valley PLB320003 Krzesiński Landscape Park	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor