ANNEX 2

Environmental Impacts, GENRERIC MITIGATION AND MONITORING PLAN

COMPONENT 2 - FLOOD PROTECTION OF THE KŁODZKO

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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/possibile	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.

Enviromental component	Type of impact	The significance of the impact	Likelihood of impact	The spatial scale of impact	The time scale of impact
Category: construction of embankments / boulevards					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Impact on regime of flow – change in dynamics of flow of flood waters	Significant	Certain	SWB (regional)	Long-term (stage of implementation and exploitation)
	Narrowing the zone of high water flow – raising the level of high water in the riverbed, increase of erosion – impact on hydromorphic elements of surface water body	Significant	Certain	SWB (regional)	Long-term (stage of implementation and exploitation)
	Changes within morphology of riverbed and inter-embankment zone – intensification of erosion processes and accumulation on inter-embankment zone – impact on hydromorphic elements of surface water body	Significant	Certain	SWB (regional)	Long-term (stage of implementation and exploitation)
	Reduction of valley retention – increase of the quantity of water inflowing to water catchment, located below expected impact, limitation of retention capabilities of alluvial sediments, change within soil properties – impact on hydromorphic elements of surface water body	Significant	Certain	SWB (regional)	Long-term (stage of implementation and exploitation)
	Increased inflow of products of surface erosion to riverbed on the stage of implementation of works/ impact on physicochemical and biologic elements of surface water body	Significant	Certain	Local	Short-term (stage of implementation)
Biological elements of the water status assessment (phytoplankton / phytobenthos,	The increase in suspension during the execution of the works	Significant	Certain	Local	Short-term (stage of implementation)
	Changes in vegetation areas of the riverside, removal of trees - changes in lighting the sites of fish and other organisms	Moderate	Certain	Local	Long-term (stage of implementation and exploitation)

macrophytes, macroinvertebrates, ichthyofauna)	The transformation of the vegetation in the valley - the acceleration of surface runoff from the direct catchment - an increase of trophy, losing ground to the colonization by mosses, liverworts and macroscopic algae, loss of hiding places among roots and fallen trees, raising the temperature of the water	Moderate	Certain	Local	Long-term (stage of implementation and exploitation)
	Impediment to fish migration through the sections of fish passes, especially when filling the reservoir	Present - insignificant	Likely/possible	Regional	Long-term (stage of exploitation)
Ground waters	Loss of contact with surface water located in the valley behind embankment- impact on quantity elements of surface water body.	Significant	Certain	Local	Long-term (stage of exploitation)
	Disturbances in the flow of groundwater, hindered outflow of underground water within filtrations and outflows of slope zone – impact on quantity elements of surface water body	Significant	Certain	Local	Long-term (stage of exploitation)
Soils	Degradation of soil cover during ground construction works	Present - insignificant	Certain	Local	Long-term (stage of exploitation)
	Exclusion of soils from use under dams, embankments, strengthening etc.	Present - insignificant	Certain	Local	Long-term (stage of exploitation)
	Change of conditions of soil moisture	Significant	Certain	Local	Long-term (stage of exploitation)
	Degradation of marshy soils – moorshification processes	Significant	Very likely	Local	Long-term (stage of exploitation)
	Soil denudation on land side of the levee	Significant	Very likely	Local	Long-term (stage of exploitation)
	Intensified erosion of soils in inter-embankment zone	Moderate	Very likely	Local	Long-term (stage of exploitation)
	Degradation of soils during ground works	Moderate	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 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)
	Floating small dust fractures from unpaved ground at the stage of construction.	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Nysa Kłodzka River near Morzyszowo PLH020043	Destruction of habitat patches of willow (91E0), poplar, and alder riverside riparian, the hay meadows, and habitats of animal species associated with them which are subjects of Protection Area	Significant	Likely/possible	Regional	Long-term (stage of exploitation)
Biała Lądecka PLH020035 Śnieżnicki Landscape Park	Destruction of habitat patches which are subjects of Protection Area (willow (91E0), poplar, and alder riverside riparian, pioneer vegetation on the rock of the mountain streams (3220), rivers with communities of Batrachium (3260) herb fringe communities (6430)	Moderate	Very likely	Regional	Long-term (stage of exploitation)
Flora and fauna					
Willow, poplar, alder and ash riparian (91E0)	Destruction of habitat patches, reducing the area due to felling	Significant	Very likely	Regional	Long-term (stage of implementation and exploitation)

Mountain and riverside herb fringe communities (6430)	Destruction of habitat patches, reducing the area due to the seizure of land	Moderate	Likely/possible	Local	Long-term (stage of implementation and exploitation)
Alluvial grasslands and associated species of animals (6440)	Deterioration of habitat patches due to changes in water supply	Moderate	Likely/possible	Local	Long-term (stage of implementation and exploitation)
Bird species of forest habitats (riparian forests (91E0), hornbeam forests (9170)	Felling of riparian trees, deterioration of forest habitat in the reservoir	Moderate	Certain	Local	Średniookresowe do długookresowych (etap realizacji i eksploatacji).
Vegetation and animal species associated with the riverbed and inter-flood bank area	Pollution caused by leaking fuel or lubricants from equipment used for the transportation and installation of materials to strenghten the spurs	Significant	Very unlikely	Local	Short-term
Cultural landscape	Temporary violation (degradation) of existing spatial order and landscape though implementation of construction works and location of construction site	Moderate	Certain	Local	Short-term (stage of implementation)
	Violation of existing spatial order and landscape in moderate degree by change of management manner of water while respecting natural environment	Moderate	Certain	Local	Long-term (stage of implementation and exploitation)
Monuments	In some subcomponents works will be implemented near areas and objects subject to conservation/ heritage protection	Little	Certain	Local	Short-term (stage of implementation)
	Improvement of flood safety of areas and objects subject to conservation/ heritage protection, which are located in flood risk zones	Positive	Certain	Supralocal	Long-term (stage of implementation and exploitation)
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	Change in dynamics of high water flow – impact on hydrologic regime, slowing down the flow of swelling water, impact on reduction of flood water – level of reduction Q1% >70%, temporary damming of water, eddy of swelling water	Significant	Certain	Regional (JCWP)	Long-term (stage of implementation and exploitation)
	Landslide processes on the slopes in the zone of cup of reservoirs, raising the level of ground waters, increase deposition of bed load in the zone of the cup of reservoir on the line of dam – impact on physic-chemical parameters of surface water body	Significant	Certain	Regional (JCWP)	Long-term (stage of implementation and exploitation)
	Changes in morphology of riverbed and inter-embankment zone: strengthening the banks and the bottom of the riverbed, bottom outlets, disturbances in morphologic continuity, disturbances of river water exchange with alluvial waters in strengthen zone, change in dynamics of the flow of fiver water, reduction in flow of load to the riverbed, relieving the river from bed load and local increase of erosion – impact on hydromorphic parameters of surface water body	Significant	Certain	Regional (JCWP)	Long-term (stage of implementation and exploitation)
	Reduction of valley retention, dam – lowering the level of ground waters, increase of surface runoffs, drainage of water in the zone of the cup of reservoir – impact on hydromorphic parameters of surface water body	Significant	Very likely	Local	Long-term (stage of implementation and exploitation)
Biological elements of the water status	The increase in suspension during the execution of the works	Significant	Certain	Local	Short-term (stage of implementation)

assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	The transformation of the vegetation of riverside, removal of trees– decrease in shading riverbed, likely increasing the water trophic level, loss of ground to colonization by mosses, liverworts and macroscopic algae, loss of species refuges among the roots of trees and fallen trees	Significant	Likely/possible	Local	Long-term (stage of implementation and exploitation)
	The acceleration of surface runoff from the catchment – increase in trophic level	Moderate	Certain	Local	Long-term (stage of exploitation)
	Impediment to fish migration through the sections of fish passes, especially when filling the reservoir	Present - insignificant	Likely/possible	Regional	Long-term (stage of exploitation)
Ground waters	Disturbance in flow of alluvial water through the dam zone, damming of ground waters, temporary impact of dammed flood waters on underground waters, disturbances in flow of ground waters – impact on quantity elements of surface water body	Significant	Certain	Local	Long-term (stage of exploitation)
	Change in direction of flow of dammed underground waters, segmentally limited hydraulic contact with underground waters – dam's anti-filtration barrier – impact on quantity elements of water body surface	Significant	Likely/possible	Local	Long-term (stage of exploitation)
Soils	Degradation of soil cover during ground works on the construction site and during emptying the bed load from the cup	Present - insignificant	Certain	Local	Long-term (stage of exploitation)
	Exclusion of soils from use under dams, embankments, strengthening etc.	Present - insignificant	Certain	Local	Long-term (stage of exploitation)
	Change of conditions of soil moisture	Little	Very likely	Local	Long-term (stage of exploitation)
	Superstructure of soil profile	Little	Very likely	Local	Long-term (stage of exploitation)

Noise	Noise emitted by construction machinery engaged in construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by vehicle traffic related to the service and supply of the construction site	Moderate	Certain	Local	Short-term (stage of implementation)
Air quality	Pollutant emission related to the operation of machinery (combustion of fuel) during construction works	Little	Certain	Local	Short-term (stage of implementation)
	Pollutant emission related to the operation of machinery (combustion of fuel) during construction works (related to maintenance works)	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
	Uplifting the fine fractions of dust from unconsolidated grounds during construction	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Piekielna Valley near Polanica PLH020010	Area limitation of communications with other Natura 2000 areas	Little	Likely/possible	Regional	Long-term (stage of exploitation)
Nysa Kłodzka River near Morzyszowo PLH020043	Area limitation of communications with other Natura 2000 areas	Present - insignificant	Likely/possible	Regional	Long-term (stage of exploitation)
Flora and fauna					
Natural habitat of lowland and foothill rivers with the communities of Batrachium (3260)	Destruction of habitat patches, worsening the conditions of occurrence	Moderate	Very likely	Local	Mid-term (stage of exploitaton)
Rare species of aquatic lichens (eg. Hildebrandia rivularis)	Destruction of species habitats, the deterioration of the conditions of occurrence as a result of the regulation of the river bed within the reservoir	Little	Very likely	Local	Long-term (stage of exploitation)

Protected plant species occurring within the reservoir (meadow habitats, riparian forests)	Destruction of habitats, deterioration of conditions due to construction of the reservoir elements and periodic inundations	Present - insignificant	Certain	Local	Long-term (stage of exploitation)
Mountain and riverside herb fringe communities (6430)	Destruction of habitat patches due to the construction of the reservoir and regulation of the elements of riverbed in the reservoir	Little	Certain	Local	Long-term (stage of exploitation)
Habitat 3260, 6430, the species associated with the riverbed	Pollution caused by leaking fuel or lubricants from equipment used in construction works	Significant	Very unlikely	Local	Short-term (stage of implementation)
	Pollution caused by leaking fuel or lubricants from equipment used in used for transport and installation of spur strengthening	Significant	Very unlikely	Local	Short-term
Cultural landscape	Temporary violation (degradation) of existing order and landscape though implementation of construction works and location of construction site	Moderate	Certain	Local	Short-term (only at the stage of construction)
	Violation of existing spatial order and landscape in moderate degree by change of manner of existing water management while respecting the natural environment	Moderate	Certain	Local	Long-term (stage of exploitation)
Monuments	In some subcomponents works will be implemented near areas and objects subject to conservation/ heritage protection	Little	Certain	Local	Short-term (stage of implementation)
	Improvement of flood safety of areas and objects subject to conservation/ heritage protection, which are located in a flood risk zones	Positive	Certain	Supralocal	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	Changes in conditions of sedimentation outside the riverbeds – impact on hydromorphic conditions of surface water body	Significant	Certain	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	Significant	Certain	Local	Short-term (stage of implementation)
	The transformation of the vegetation of riverside, removal of trees – changes in lightening the	Moderate	Certain	Local	Long-term (stage of exploitation)
	The increase in suspension during the execution of the works	Moderate	Certain	Local	Short-term (stage of implementation)
	The transformation of the vegetation in the valley - the acceleration of surface runoff from the catchment – increase in trophic level	Moderate	Certain	Local	Long-term (stage of exploitation)
	The transformation of the vegetation of riverside, removal of trees– decrease in shading riverbed, likely increasing the water trophic level, loss of ground to colonization by mosses, liverworts and macroscopic algae, loss of species refuges among the roots of trees and fallen trees	Significant	Likely/possible	Local	Long-term (stage of exploitation)
	Impediment to fish migration through the sections of fish passes, especially when filling the reservoir	Present - insignificant	Likely/possible	Regional	Long-term (stage of exploitation)
Ground waters	Hindered outflow of underground water within filtration and outflows of slope zone – impact on quantity elements of surface water body	Present - insignificant	Likely/possible	Local	Long-term (stage of exploitation)
Soils	Degradation of soils during ground works	Moderate	Certain	Local	Long-term (stage of exploitation)

	Change of conditions of soil moisture	Significant	Certain	Local	Long-term (stage of exploitation)
Noise	Noise emitted by construction machinery engaged in construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by traffic of vehicles related to the service and supply of construction site	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise related with maintenance works, for example, repairs of footpaths and roads	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Air quality	Pollutant emission related to the operation of machinery (combustion of fuel) during construction works	Little	Certain	Local	Short-term (stage of implementation)
	Pollutant emission related to the operation of machinery (combustion of fuel) at exploitation stage (related to maintenance works)	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
	Uplifting the fine fractions of dust from unconsolidated grounds during construction	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Nysa Kłodzka River near Morzyszowo PLH020043	Violation of habitat patches as a result of carrying out earthworks and construction works	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
Biała Lądecka PLH020035 Śnieżnicki Landscape Park	Violation of habitat patches as a result of carrying out earthworks and construction works	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
Flora and fauna					

Alluvial grasslands and associated species of animals	Violation of habitat patches as a result of carrying out earthworks and construction works	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
Vegetation and animal species associated with the riverbed	Pollution caused by leaking fuel or lubricants from equipment used in construction works	Significant	Very unlikely	Local	Short-term (stage of implementation)
Cultural landscape	Temporary violation (degradation) of existing order and landscape though implementation of construction works and location of construction site	Moderate	Certain	Local	Short-term (stage of implementation)
	Violation of spatial order and landscape will be insignificant – the works will include existing constructions, but in case of works on the territory of the cities modernization will impact the improvement also of the esthetics.	Present - insignificant (positive)	Certain	Local	Long-term (stage of exploitation)
Monuments	In some subcomponents works will be implemented near areas and objects subject to conservation/ heritabe protection	Little	Certain	Local	Short-term (only at the stage of construction)
	Improvement of flood safety of areas and objects subject to conservation protection, which are located in a flood risk zones	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	Increase of the flow of swelling water – impact of the conditions of flow in surface water body	Significant	Certain	SWB (regional)	Long-term (stage of exploitation)

and chemical parameters of the flow of surface waters	The increase of capacity of riverbed flow, degradation of riverbed and embankment forms, unification of the structure of the riverbed, change in capability of sedimentation and transportation capabilities, decrease of alluvial sediments retention – impact on hydromorphic conditions of surface water body	Significant	Certain	SWB (regional)	Long-term (stage of exploitation)
	Increase of quantity of suspension during implementation of works – impact on physic-chemical parameters of surface water body	Significant	Certain	Local	Short-term (stage of implementation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Disturbance of bottom dynamics (paving, desludging), disorder of riverside dynamics (bank revetments), changing the riverbed (e.g. straightening) - loss of habitat, formation of new communities in new habitats	Significant	Certain	Local	Średniookresowe (etap realizacji i eksploatacji)
	The increase in suspension during the execution of the works	Significant	Certain	Local	Short-term (stage of implementation)
	Increasing the flow velocity – an increase in coverage of reophile species, washing plants adapted to low current	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
	Changing the riverside and the bottom - changes in the structure of the shore and the slope that hinder the rooting emerged or partially submerged plants, disappearance of species associated with rocky bottom	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
	Removal of riparian trees – decrease in shading riverbed, likely increasing the water trophic level, loss of ground to colonization by mosses, liverworts and macroscopic algae, loss of fish refuges among the roots of trees and fallen trees	Significant	Certain	Local	Long-term (stage of exploitation)
Ground waters	Loss of hydraulic communication of river waters and underground waters,, drainage of ground waters Lowering the level of ground waters – impact	Significant	Likely/possible	Odcinkowo	Long-term (stage of exploitation)

	on quantity parameters of water body surface				
Protected areas					
Nysa Kłodzkia River near Morzyszowo PLH020043	Destruction of habitat patches of willow (91E0), poplar, and alder riverside riparian, rivers with communities of Batrachium (3260) and the rock on the mountain streams (3220), herb fringe communities (6430) and the habitats of animal species associated with them which are subjects of Protection Area	Significant	Likely/possible	Local	Long-term (stage of exploitation)
Biała Lądecka PLH020035 Śnieżnicki Landscape Park	Destruction of habitat patches of willow (91E0), poplar, and alder riverside riparian, rivers with communities of Batrachium (3260) and the rock on the mountain streams (3220), herb fringe communities (6430) and the habitats of animal species associated with them which are subjects of Protection Area	Significant	Likely/possible	Regional	Long-term (stage of exploitation)
Flora and fauna					
Willow, poplar, alder and ash riparian (91E0)	Destruction or deterioration of habitats due to construction works on river bank slopes	Significant	Likely/possible	Regional	Long-term (stage of exploitation)
Mountain and riverside herb fringe communities (6430)	Destruction or deterioration of habitats due to construction works on river bank slopes	Significant	Likely/possible	Regional	Long-term (stage of exploitation)
Alluvial grasslands (6430) and related species of animals	Destruction of habitat patches due to the location of the site facilities, technological roads, etc.	Moderate	Likely/possible	Local	Short-term (stage of implementation)
Bird species associated with the riverbed	Destruction or deterioration of habitats due to construction works on river bank slopes	Significant	Very likely	Local	Long-term (stage of exploitation)
Vegetation and animal species	Pollution caused by leaking fuel or lubricants from equipment used in construction works	Significant	Very unlikely	Local	Short-term (stage of implementation)

directly associated with the riverbed					
Soils	Degradation of soils during ground works (for example lowering inter-embankment zone, shaping the side slopes)	Moderate/ Significant	Certain	Local	Long-term (stage of implementation and exploitation)
	Exclusion of the soils from use – embankments construction	Little	Certain	Local	Long-term (stage of exploitation)
	Degradation of riverbed sedimentation structure during unclogging (benthic sediments)	Significant	Certain	Local	Long-term (stage of implementation and exploitation)
	Contamination of soils during unclogging and desludging of riverbeds/ channels (storing of contaminated sediments along riverbed/ in flood plain)	Significant	Likely/possible	Local	Long-term (stage of exploitation)
Noise	Noise emitted by construction machinery executing regulation and maintenance works in inter-embankment zone	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by construction machinery executing land improvement works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise related to maintenance works, for example, moving the lawns, deepening works	Present - insignificant	Certain	Local	Short-term (stage of implementation)
	Pollutant emission related to the operation of machinery (combustion of fuel) during construction works	Little	Certain	Local	Short-term (stage of implementation)
	Uplifting the fine fractions of dust from unconsolidated grounds during construction	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Air quality	Increase of dust pollution during transportation of construction materials from their depot.	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
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)

	Maintenance and regulation works will allow for proper management of greenery on the riverbanks along the river, and will have positive impact on spatial order and landscape.	Present - insignificant (positive)	Certain	Supralocal	Long-term (stage of exploitation)
Monuments	Improvement in flood security of areas and objects covered by conservation protection situated on the areas at risk of flooding.	Moderate (positive)	Certain	Local	Long-term (stage of exploitation)
	The work will increase the security level of flood in areas with historical objects	Present - insignificant (positive)	Certain	Local	Long-term (stage of exploitation)
Category: reconstruction of bridges					
Surface and ground waters					
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Impact on the flow regime – changes in dynamics of the flow of river and swelling waters	Significant	Certain	SWB	Long-term (stage of exploitation)
	Changes in morphology of the riverbed and in inter-embankment zone – intensification of erosion processes in the riverbed and accumulation on inter-embankment zone, degradation of riverbed forms and forms around riverbed – impact on hydromorphic elements of surface body water	Significant	Certain	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, especially during fish spawning	Little	Likely/possible	Local	Short-term (stage of implementation)
Ground waters	No impact				

Soils	Degradation of soils during ground works	Present - insignificant	Local	Local	Mid-term (stage of exploitaton)
Noise	Noise emitted by traffic of vehicles related to implementation of construction works	Moderate	Certain	Local	Short-term (stage of implementation)
	Noise emitted by traffic of vehicles related to the service and supply on construction site	Moderate	Certain	Local	Short-term (stage of implementation)
Air quality	Pollutant emission related to the operation of machinery (combustion of fuel) during construction works	Present - insignificant	Certain	Local	Short-term (stage of implementation)
	Temporary violation (degradation) of existing order and landscape though implementation of construction works and location of construction site	Moderate	Certain	Local	Short-term (stage of implementation)
	Investments on bridge objects will be related with necessity of reconstruction on essential parts of access roads or railway tracks together with increasing the level of their vertical alignment	Little	Certain	Local	Long-term (stage of exploitation)
Protected areas					
Nysa Kłodzkia River near Morzyszowo PLH020043	Destruction of habitat patches which are a subject of protected Area (especially willow, poplar, alder and ash riparian). The deterioration of the habitats of species associated with the riverbed	Little	Likely/possible	Local	Long-term (stage of exploitation)
Biała Lądecka PLH020035 Śnieżnicki Landscape Park	Destruction of habitat patches which are a subject of protected Area (especially willow, poplar, alder and ash riparian). The deterioration of the habitats of species associated with the riverbed	Little	Likely/possible	Local	Long-term (stage of exploitation)
Piekielna Valley near Polanica PLH020010	Destruction of habitat patches which are a subject of protected Area (especially willow, poplar, alder and ash riparian). The deterioration of the habitats of species	Little	Likely/possible	Local	Short-term (stage of implementation)

	associated with the riverbed				
Flora and fauna					
Species of birds and other organisms associated with the riverbed	Habitat destruction, deterioration of the species habitats	Moderate	Very likely	Local	Short-term (stage of implementation)
	Pollution caused by leaking fuel or lubricants from equipment used in construction works	Significant	Very unlikely	Local	Short-term (stage of implementation)
Cultural landscape	Selected investments within reconstruction of bridges include bridge objects with specific boat and technical qualities – specific scope of works will be agreed with heritage conservator with respect of principles for monuments conservation. Initially the following non-invasive activities are planned: strengthening of the side slopes, improvement of the flow by desludging the bottom of the river	Moderate (only for selected objects)	Certain	Local	Short-term (only at the stage of construction)
	Selected bridge objects will be additionally protected due to the need of flood protection with maintaining their characteristic elements and features	Positive (reconstructed object under heritage protection)	Certain	Supralocal	Long-term (stage of exploitation)
Monuments	Selected investments within reconstruction of Bridges include bridge objects with specific boat and technical qualities – specific scope of works will be agreed with heritage conservator with respect of principles for monuments conservation. Initially the following non-invasive actions are planned: strengthening the side slopes, improvement of flow through desludging of the bottom of the river	Moderate ((only for selected objects)	Certain	Supralocal	Short-term (stage of implementation)

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 waters	Impact on flow regime – impoundment of water, changes within characteristics of the flow in surface body water	Moderate	Certain	Local	Long-term (stage of exploitation)
	Changes in morphology of riverbed in inter-embankment zone, intensification of erosion processes in riverbed and accumulation on inter-embankment zone – impact on hydromorphological elements of surface water body	Significant	Certain	Local	Long-term (stage of exploitation)
	Limitation of valley retention – increase of the quantity of water flowing to water catchment located below planned activity – impact on hydromorphological elements of surface water body	Significant	Certain	Local	Long-term (stage of exploitation)
	Limitation of retention capability of alluvial deposits, limitation in mad superconstruction – impact on hydromorphological elements of surface water body.	Moderate	Certain	Local	Long-term (stage of exploitation)
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Changing granulation bottom substrate to a fine in the river backwater - dynamic disorder of the bottom (paving, desludging) - loss of habitat, formation of new communities in new habitats, loss of habitat taxa associated with gravel ground	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
	Deceleration in the river backwater - withdrawal of reophile species, the appearance of eurytopic species	Moderate	Likely/possible	Local	Long-term (stage of exploitation)

	Stopping the sediment transport - dynamic disorder of the bottom (paving, desludging) - change in the structure of the substrate, reducing the availability of boulders and stones for occupation by bryophytes, liverworts and macroscopic algae, loss of the substrate appropiate for fish	Significant	Likely/possible	Local	Long-term (stage of exploitation)
	Stopping the sediment transport - dynamic disorder of the bottom (paving, desludging) - bottom erosion, the loss of the stones forming a loose substrate habitat for macroinvertebrates	Significant	Likely/possible	Local	Long-term (stage of exploitation)
	Construction or reconstruction of fish passes - especially in the form of semi-natural bypass	Positive	Certain	Local	Long-term (stage of exploitation)
	The increase in suspension during the execution of the works - a negative impact on fish especially during the spawning season	Little	Likely/possible	Local	Short-term (stage of implementation)
	Changing granulation bottom substrate to a fine in the river backwater - loss of spawning of fish species that laying eggs on on sandy and gravel substrate	Significant	Likely/possible	Local	Long-term (stage of exploitation)
Ground waters	Change in groundwater levels, raising the groundwater in the area of impoundments, segmental loss of hydraulic connectivity of river water and groundwater - the impact on quantitative elements of SWB	Significant	Likely/possible	Local	Long-term (stage of exploitation)
Soils	Soil degradation during earthworks	Present - insignificant	Local	Trwałe	Long-term (stage of exploitation)
Noise	Noise emitted by machinery leading works	Certain	Local	Short-term (only at the stage of construction)	Long-term (stage of exploitation)
	Noise emitted by traffic associated with the service and supply of the site of construction	Moderate	Certain	Local	Short-term (only at the stage of construction)

	Noise associated with the maintenance work	Present - insignificant	Certain	Local	Short-term (stage of implementation)
Air quality	Pollutant emissions related to the work of machines (fuel combustion) in the stage of construction	Little	Certain	Local	Short-term (stage of implementation)
	The increase in gas and dust pollution during transportation of building materials and blowing them of their landfill sites	Present - insignificant	Likely/possible	Local	Short-term (stage of implementation)
Protected areas					
Nysa Kłodzkia River near Morzyszowo PLH020043	Destruction of habitat patches which are a subject of protected Area (especially willow, poplar, alder and ash riparian). The deterioration of the habitats of species associated with the riverbed	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
Piekielna Valley near Polanica PLH020010	Destruction of habitat patches which are a subject of protected Area (especially willow, poplar, alder and ash riparian). The deterioration of the habitats of species associated with the riverbed	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
Biała Lądecka PLH020035 Śnieżnicki Landscape Park	Destruction of habitat patches which are a subject of protected Area (especially willow, poplar, alder and ash riparian). The deterioration of the habitats of species associated with the riverbed	Moderate	Likely/possible	Local	Long-term (stage of exploitation)
Flora and fauna					
Birds and other organisms associated with the riverbed	Pollution caused by leaking fuel or lubricants from equipment used in construction works	Significant	Very unlikely	Local	Short-term - only at the stage of construction
	Destruction, deterioration of habitat, deterioration or improvement of the conditions of migration of aquatic organisms (depending on the type and scope of work)	Little	Likely/possible	Local	Long-term (stage of exploitation)

Cultural landscape	Periodic violation (degradation) of the existing order and the landscape through the implementation of construction and location of the construction site	Moderate	Certain	Local	Short-term (only at the stage of construction)
	Improvement of spatial order by restoring them to the proper technical condition	Positive	Certain	Local	Long-term (stage of exploitation)
Monuments	Selected investments include historic buildings, hydro-technical facilities of the special cultural and technical values - a detailed scope of work will be agreed with the conservation authorities respecting the principles of monument conservation	Significant (only for selected objects)	Certain	Supralocal	Short-term (only at the stage of construction)
	The selected objects will be rebuilt for flood protection. Their distinctive features and characteristics will be maintain	Positive (a rebuilt protected object)	Certain	Supralocal	Permanent (as in the current state)
Category: Demolition of structures					
Surface and ground waters	No impact				
Protected areas	No impact				
Flora and fauna	No impact				
Soils	Local soils infraction in connection with the demolition	Little	Certain	Local	Short-term (only at the stage of construction)
Noise	Noise emitted by traffic associated with the service and supply of the site of construction	Moderate	Certain	Local	Short-term (only at the stage of construction)
Air quality	Pollutant emissions related to the work of machines (fuel combustion) in the stage of construction	Little	Certain	Local	Short-term (only at the stage of construction)

Cultural landscape	Periodic violation (degradation) of the existing order and the landscape through the implementation of construction and location of the construction site	Significant	Certain	Supralocal	Short-term (only at the stage of construction)
	Construction of dry reservoirs will be associated with a change in shape of area (reservoir), and the introduction of new elements in the form of a barrier. Area of the reservoir outside the periods of water inflow can be used as a grassland	Significant	Certain	Supralocal	Long-term (stage of exploitation)
	Construction of dry reservoirs will be associated with a change in the shape of land (reservoir), and the introduction of new elements in the form of a barrier. Area of the reservoir outside the periods of water inflow can be used as usual	Significant	Certain	Supralocal	Long-term (stage of exploitation)
Monuments	The planned demolition of structures are those related to the construction of the dry reservoir, in order to improve flood safety, especially, areas and objects protected	Positive	Certain	Supralocal	Long-term (stage of exploitation)
Category: demolition and reconstruction of colliding elements of infrastructure (e.g. sections of water supply system, sewage systems, roads, etc.)					
Surface and ground waters	No impact				
Protected areas	No impact				
Flora and fauna	No impact				
Soils	Degradation of soils during ground works	Present - insignificant	Certain	Local	Long-term (stage of exploitation)
Noise	Noise emitted by vehicle traffic related to the service and supply of construction site	Moderate	Certain	Local	Short-term (only at the stage of construction)

Air quality	Pollutant emission related to the operation of machinery (combustion of fuel) during construction works	Little	Certain	Local	Short-term
	Uplifting the fine fractions of dust from unconsolidated grounds during construction works	Present - insignificant	Likely/possible	Local	Short-term
Cultural landscape	Temporary violation (degradation) of existing spatial order and landscape though implementation of construction works and location of construction site	Significant	Certain	Supralocal	Short-term (only at the stage of construction)
	Construction of dry reservoirs will be connected with the change of natural topography (cup of reservoir) and implementation of new element in the form of a dam. Surface of the cup of reservoir ,except for periods of water rise will be used as a pasture site	Significant	Certain	Supralocal	Permanent
Monuments	Planned demolition of constructions are the actions related to the construction of dry reservoirs within the improvement of flood safety, including areas and objects under conservation/ heritage protection	Positive	Certain	Supralocal	Permanent

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 of actions: construction of embankments/boulevards				
Surface and groundwaters				
Hydromorphological elements, physico-chemical parameters, parameters of surface water flow	Impact on the flow regime - changes in the dynamics of flood water flow	Significant	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Narrowing of the zone of high water flow - increased the level of high water in the riverbed, increased erosion - impact on hydromorphological elements of the body of water (SWBs)	Significant	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Changes in the riverbed morphology and the inter-embankment zone - intensification of the processes of riverbed erosion and accumulation on the inter-embankment - impact on hydromorphological elements of the body of water (SWBs)	Significant	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Limitation of valley retention - increased amount of water reaching the basin located below the	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	planned action, limitation of retention capacity of alluvial deposits, changes in soil quality - impact on hydromorphological elements of the body of water (SWBs)			
Biological elements of the assessment of water condition (phytoplankton/phyto benthos, macrophytes, macroinvertebrates, fish fauna)	Increased amount of suspension in the course of work performance	Important	• 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 • Work performance in line with EMP requirements	PIU Consultant, Work 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	Moderate	• Limitation of any work related to tree logging and clearing aquatic vegetation to the necessary minimum • Planting of aquatic vegetation upon completion of work • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Transformation of the vegetation in the valley - the acceleration of surface runoff from the direct basin - increase of	Moderate	• Limitation of any work related to tree logging and clearing aquatic vegetation to the	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	trophy, loss of ground where mosses, liverworts and macroscopic algae could settle, loss of hiding places among roots and fallen trees, raising water temperature		necessary minimum • Planting of aquatic vegetation upon completion of work • Work performance in line with EMP requirements	
	Hindering fish migration by relief sections, especially during tank filling	Present - insignificant	• No need for minimisation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Groundwater	Loss of contact with surface water in the valley beyond the embankment - impact on quantitative elements of the body of groundwater GWBs	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Disturbance in the flow of groundwater/impact on quantitative elements of the body of groundwater GWBs Hindered outflow of groundwater in the percolation and outflow area of the slope zone	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Soils	Degradation of soil cover in the course of earthwork at the stage of construction	Present - insignificant	• Delineation of manoeuvring yards and technical routes outside the zones of swampy soils; introducing the requirement of the smallest possible land occupation at the stage of work performance	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Exclusion of soils from utilisation under dams, embankments, reinforcements, etc.	Present - insignificant	• Work performance in line with EMP requirements • Limitation of site occupation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Change in the soil moisture conditions	Important	• Work performance in line with EMP requirements • Limitation of site occupation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Degradation of swampy soils - moorshification	Important	• Ensuring groundwater level in the habitats protection areas	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Denudation and soil erosion on the land side of the embankment	Important	• Delineation of manoeuvring yards and technical routes outside the zones of swampy soils; introducing the requirement of the smallest possible land occupation at the stage of work performance • Work performance in line with EMP requirements • Limitation of site occupation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Noise	Noise emitted by construction machinery performing construction work	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on noise emission and will feature modern silencers	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Noise emitted by motor vehicle traffic related to construction site services	Moderate	• Technological processes at the construction site with the use of equipment which emits above-standard noise will not be	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	and deliveries		performed at night • Construction vehicles will comply with the standards on noise emission and will feature modern silencers • Temporary plant and facilities at the construction site will be organised at the greatest possible distance from the protected areas and buildings • Given the high availability of grid power generators use will be limited to individual cases, when laying down a temporary service connection will cause significant interference with the environment	
	Noise related with maintenance work, e.g. grass mowing	Present - insignificant	• Maintenance work with the use of equipment which emits above-standard noise will not be performed at night • Machinery used for maintenance work will comply with the standards on noise emission and will feature modern silencers	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Air quality	Emission of pollution related to machinery operation (fuel combustion) at the stage of construction	Small	• Work performance in line with EMP requirements • No need to apply special requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Lifting of small fractions of dust from unpaved land at the construction	Present - insignificant	• Work performance in line with EMP requirements • No need to apply special	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	stage		requirements	
Culture-related industry	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction site	Moderate	• Temporary plant and facilities at the construction site will be organised at the greatest possible distance from the protected areas and buildings • Construction work related to flood controlling structures will be performed within such structures only • Temporary technical routes will be established between the construction site and work sites	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Only moderate disturbance of the landscape by changing current water management methods, while showing respect to the natural environment	Moderate	• The areas disturbed in the course of temporary land occupation will be rehabilitated • The course of embankments will be established on the basis of the spatial planning documents while respecting the natural environment and landscape • New embankments will be secured with indigenous plants	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Monuments	Under some sub-components, work will be performed in the vicinity of the areas and structures under heritage preservation.	Small	• The scope of work and the possible interference with the areas under heritage preservation will be consulted with the relevant bodies of public administration • If required, construction work will be performed under supervision	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			of heritage preservation services	
	Enhanced flood security of the areas and structures under heritage preservation located in the areas exposed to flood risk	Positive	• No need to apply minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Property	Potential expropriation of the areas for the construction of embankments	Moderate	• Expropriation being performed in only those areas that are necessary to implement the project • Indication of replacement land or awarding compensation corresponding to suffered loss • Possibility to collect sown crops and transfer relevant structures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Category of actions: construction of dry detention basins (front dams, side dams, relief-overflow sections)				
Surface and groundwaters				
Hydromorphological elements, physico-chemical parameters, parameters of surface water flow	Changing the dynamics high water flow - impact on the hydrological regime, slowing the flow of flood water, impact on the reduction of flood wave - reduction rate of Q1%>70%, temporary damming up of water, backing of flood water	Important	• Damming up of water in the basin bowl not longer than it is provided in the geological and hydrogeological documentation and EIA • Introduction of a rule that the basin should only capture flows with predetermined likelihood of occurrence	Investor's Supervision, Environmental Supervision, Work Contractor

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	
	Landslide processes on the slopes in the basin bowl area, raising the level of groundwater, increased deposition of bedload carried in the basin along the dam line - impact on the physico-chemical parameters of the body of water (SWBs)	Important	• Work performance in line with EMP requirements • Monitoring of water level	Investor's Supervision, Environmental Supervision, Work Contractor
	Changes in the riverbed morphology and inter-embankment zone: reinforcement of the riverbed edges and bottom, bottom outlets, discontinued morphology, disturbance of the exchange of river water with alluvial water in the zone of reinforcements, changing the dynamics of the river water flow, limiting the bedload flow into the riverbed, relieving the river of trailed bedload and local increase in erosion –	Important	• Damming up of water in the basin bowl not longer than it is provided in the geological and hydrogeological documentation and EIA • Introduction of a rule that the basin should only capture flows with predetermined likelihood of occurrence • Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	Investor's Supervision, Environmental Supervision, Work Contractor

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	of water (SWBs)			
	Limitation of valley retention, dam - lowering of the groundwater level, increased surface runoff and water drainage in the basin bowl area - impact on hydromorphological parameters of the body of water (SWBs)	Important	• Damming up of water in the basin bowl not longer than it is provided in the geological and hydrogeological documentation and EIA • Introduction of a rule that the basin should only capture flows with predetermined likelihood of occurrence • Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Biological elements of the assessment of water condition (phytoplankton/phyto benthos, macrophytes, macroinvertebrates, fish fauna)	Increased amount of suspension in the course of work performance	Important	• 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	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Transformation of the vegetation in the riverside areas, removal of riparian trees - decreased shadow over the riverbed, possible	Important	• Limitation of any work related to tree logging and clearing aquatic vegetation to the necessary minimum • Planting of aquatic vegetation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	increase in water trophism, loss of ground where mosses, liverworts and macroscopic algae could settle, loss of hiding places among roots and fallen trees, loss of nursery grounds		upon completion of work	
	Acceleration of surface runoff from the direct catchment basin - increased water trophism	Moderate	• No need for minimisation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Hindering aquatic organisms migration, in particular fish, by relief sections, especially during tank filling	Present - insignificant	• No need for minimisation (short-term impact)	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Groundwater	Disturbance in the flow of alluvial water through the dam zone, damming up of groundwater and temporary impact of dammed-up flood water on groundwater, disturbance in the flow of groundwater – impact on the quantitative elements of the body of groundwater SWBs	Important	• Introduction of a rule that the basin should only capture flows with predetermined likelihood of occurrence • Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Change in the direction of flow of dammed up groundwater, reduced hydraulic contact on	Important	• Introduction of a rule that the basin should only capture flows with predetermined likelihood of	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	some sections with groundwater - anti-filtration barrier of the dam - impact on quantitative elements of the body of groundwater GWBs		occurrence • Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	
Soil	Degradation of soil cover in the course of earthwork at the stage of construction and during bedload removal from the basin	Present - insignificant	• Delineation of manoeuvring yards and technical routes outside the zones of swampy soils; introducing the requirement of the smallest possible land occupation at the stage of work performance • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Exclusion of soils from utilisation under dams, embankments, reinforcements, etc.	Present - insignificant	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Change in the soil moisture conditions	Small	• Work performance in line with EMP requirements • Limitation of the time of water damming up in the basin	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Sediment accumulation - soil profile	Small	• Work performance in line with EMP requirements • Limitation of the time of water damming up in the basin	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Noise	Noise emitted by construction machinery performing construction work	Moderate	• Construction vehicles will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Noise emitted by motor vehicle traffic related to construction site services and deliveries	Moderate	• Construction vehicles will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Air quality	Emission of pollution related to machinery operation (fuel combustion) at the stage of construction	Small	• Work performance in line with EMP requirements • No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Emission of pollution related to machinery operation (fuel combustion) at the stage of operation (related to maintenance work)	Present - insignificant	• No need to apply special minimisation measures	Manager of the river basin area
	Lifting of small fractions of dust from unpaved land at the construction stage	Present - insignificant	• Work performance in line with EMP requirements • No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Culture-related industry	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction site	Moderate	• Temporary plant and facilities at the construction site will be organised at the greatest possible distance from the protected areas and buildings • Construction work related to flood controlling structures will be performed within such structures only • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Only moderate disturbance of the landscape by changing current water	Moderate	• The areas disturbed in the course of temporary land occupation will be rehabilitated • The course of embankments will	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	management methods while showing respect to the natural environment		be established on the basis of the spatial planning documents while respecting the natural environment and landscape • The basin bowl will be be covered with indigenous vegetation • In the periods outside water rise the basin bowl area will be used as meadows and pastures. • Work performance in line with EMP requirements	
Monuments	Under some sub-components, work will be performed in the vicinity of the areas and structures under heritage preservation.	Small	• The scope of work and the possible interference with the areas under heritage preservation will be consulted with the relevant bodies of public administration • If required, construction work will be performed under supervision of heritage preservation services • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Enhanced flood security of the areas and structures under heritage preservation located in the areas exposed to flood risk	Positive	• No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Property	Potential expropriation of the areas for the construction of embankments	Moderate	• Expropriation being performed in only those areas that are necessary to implement the project • Indication of replacement land or awarding compensation corresponding to suffered loss • Possibility to collect sown crops and transfer relevant structures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Change in the land classification related to farming or land transformation into meadows and pastures	Moderate	• Permit to use the basin bowl as pastures and for grass mowing	
Category of actions: modernisation of embankments/boulevards				
Surface and groundwaters				
Hydromorphological elements, physico-chemical parameters, parameters of surface water flow	Change in the sedimentation condition of overbank sediments - impact on hydromorphological conditions of the body of water (SWBs)	Important	• Placing the embankments at far as possible from the active riverbed	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Biological elements of the assessment of water condition (phytoplankton/phyto benthos, macrophytes, macroinvertebrates, fish fauna)	Increased amount of suspension in the course of work performance	Important	• 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 • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Changes in vegetation in riverside areas, removal of riparian trees - changes in lighting of	Moderate	• Limitation of any work related to tree logging and clearing aquatic vegetation to the	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	sites		necessary minimum • Planting of aquatic vegetation upon completion of work • Work performance in line with EMP requirements	
	Transformation of vegetation in the valley - acceleration of surface runoff from the direct catchment basin - increased water trophism	Moderate	• Limitation of any work related to tree logging and clearing aquatic vegetation to the necessary minimum • Planting of aquatic vegetation upon completion of work • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Hindering migration by relief sections, especially during tank filling	Present - insignificant	• No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Groundwater	Hindered outflow of groundwater in the percolation and outflow area of the slope zone - impact on the quantitative parameters of the body of water (SWBs)	Present - insignificant	• No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Soils	Soil degradation in the course of earthwork	Moderate	• Introducing the requirement of the smallest possible land occupation at the stage of work performance	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Change in the soil moisture conditions	Important	• Delineation of manoeuvring yards and technical routes outside the zones of swampy soils • PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Noise	Noise emitted by construction machinery performing construction work	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Noise emitted by motor vehicle traffic related to construction site services and deliveries	Moderate	• Technological processes at the construction site with the use of equipment which emits above-standard noise will not be performed at night • Construction vehicles will comply with the standards on noise emission and will feature modern silencers • Temporary plant and facilities at the construction site will be organised at the greatest possible	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			and buildings • Given the high availability of grid power generators use will be limited to individual cases, when laying down a temporary service connection will cause significant interference with the environment • Work performance in line with EMP requirements	
	Noise related with maintenance work, e.g. repairs of footpaths and roads	Present - insignificant	• Maintenance work with the use of equipment which emits above-standard noise will not be performed at night • Machinery used for maintenance work will comply with the standards on noise emission and will feature modern silencers	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Air quality	Emission of pollution related to machinery operation (fuel combustion) at the stage of construction	Small	• Work performance in line with EMP requirements • No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Emission of pollution related to machinery operation (fuel combustion) at the stage of operation (related to maintenance work)	Present - insignificant	• Work performance in line with EMP requirements • No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Lifting of small fractions of dust from unpaved land at the construction stage	Present - insignificant	• Work performance in line with EMP requirements • No need to apply special	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			minimisation measures	
Culture-related industry	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction site	Moderate	• Temporary plant and facilities at the construction site will be organised at the greatest possible distance from the protected areas and buildings • Construction work related to flood controlling structures will be performed within such structures only • Temporary technical routes will be established between the construction site and work sites • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Disturbance of spatial order and landscape will be insignificant – work will cover existing structures, while in the case of work carried out in the town, modernisation will actually improve its aesthetic value as well.	Present - insignificant (positive)	• As part of embankment modernisation, adequate greenery management will be implemented: embankments will be secured by planting indigenous vegetation • Renovation of the boulevards will positively affect public space aesthetics and will secure the adjacent built-up areas • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Monuments	Under some sub-components, work will be performed in the vicinity of the areas and structures under heritage preservation.	Small	• The scope of work and the possible interference with the areas under heritage preservation will be consulted with the relevant bodies of public administration • If required, construction work will be performed under supervision of heritage preservation services • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Enhanced flood security of the areas and structures under heritage preservation located in the areas exposed to flood risk	Positive	• None	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Property	Potential expropriation of the areas for the construction of embankments	Moderate	• Expropriation being performed in only those areas that are necessary to implement the project • Indication of replacement land or awarding compensation corresponding to suffered loss • Possibility to collect sown crops and transfer relevant structures • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Category of actions: regulation and maintenance work in riverbeds and inter-embankments of natural, artificial or highly transformed water bodies and land improvement ditches				

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Surface and groundwaters				
Hydromorphological elements, physico-chemical parameters, parameters of surface water flow	Increased flow of flood waters - impact n the flow conditions in the body of water SWBs	Significant	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Increased throughput of riverbed, degradation of riverbed and riverside forms, standardisation of riverbed structure, change in sedimentation and transport capacities, decreased retention of alluvial sediments - impact on hydromorphological conditions of the body of water (SWBs)	Important	• Work performance in line with EMP requirements • Pro-environmental profiling of spatial and technological scope of the implementation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Increased amount of suspension in the course of work performance - impact on physico-chemical parameters of the body of water (SWBs)	Important	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Biological elements of the assessment of water condition (phytoplankton/phyto benthos, macrophytes, macroinvertebrates, fish fauna)	Increased amount of suspension in the course of work performance	Important	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone, securing the scarps of the basin under construction against erosion (grass planting) immediately upon	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			completion of work • Work performance in line with EMP requirements	
	Transformation of the vegetation in the riverside areas, removal of riparian trees - decreased shadow over the riverbed, possible increase in water trophism, loss of ground where mosses, liverworts and macroscopic algae could settle, loss of hiding places among roots and fallen trees, loss of nursery grounds	Important	• Limitation of any work related to tree logging and clearing aquatic vegetation to the necessary minimum • Tree planting on the river sections that underwent deforestation to recreate shaded habitats • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Acceleration of surface runoff from the direct catchment basin - increased water trophism	Moderate	• Limitation of any work related to tree logging and clearing aquatic vegetation to the necessary minimum • Tree planting in the catchment area that underwent deforestation to reduce surface runoffs • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Groundwater	Drainage of groundwater, lowering of groundwater level - impact on quantitative elements of the body of	Important	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	groundwater GWBs			
Soils	Soil degradation in the course of earthwork (lowering of the inter-embankment; formation of scarps)	Moderate/ Important	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report • Limitation of the surface area subject to land occupation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Exclusion of soils from utilisation - built-up areas of riverbanks	Small	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Degradation of riverbed sedimentation structures when unclogging (bottom sediments)	Important	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report • Limitation of the surface area subject to land occupation	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Pollution of soil during unclogging and silt removal performed in riverbeds/canals (storage of polluted sediments along the riverbed/in the flooding zone)	Important	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report • Soil testing performed in the areas of potential risk	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Noise	Noise emitted by construction machinery performing regulation and maintenance work in the inter-embankment	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	area		• Construction machinery will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	
	Noise emitted by construction machinery performing land improvement work	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Noise related with maintenance work, e.g. grass mowing, deepening	Present - insignificant	• Maintenance work with the use of equipment which emits above-standard noise will not be performed at night • Machinery used for maintenance work will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Air quality	Increased dust pollution during transport of construction materials and their storage	Present - insignificant	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction site	Moderate	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Regulation and maintenance work will enable one to properly manage riverside greenery in the areas along the river and will have a positive impact on spatial order and landscape	Present - insignificant (positive)	• No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Culture-related industry	Enhanced flood security of the areas and structures under heritage preservation located in the areas exposed to flood risk	Positive	• No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Monuments	Work will enhance the flood safety level in the areas where monumental structures can be found	Present - insignificant (positive)	• No need to apply special minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Category of actions: reconstruction of bridges				
Surface and groundwaters				

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Hydromorphological elements, physico-chemical parameters, parameters of surface water flow	Impact on the flow regime - changes in the dynamics of flood water and river water flows	Insignificant	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report •	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Changes in the riverbed morphology and the inter-embankment zone – intensification of the processes of riverbed erosion and accumulation on the inter-embankment, degradation of riverbed and riverbank forms – impact on hydromorphological elements of the body of water (SWBs)	Important	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Biological elements of the assessment of water condition (phytoplankton/phyto benthos, macrophytes, macroinvertebrates, fish fauna)	Increased amount of suspension in the course of work performance, especially during spawning of fish	Small	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone • Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone Work performed in summer months - outside the Cyprinidae fish spawning period (April - June) and spawning and incubation of eggs of Salmonidae	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			fish (mid-September - April) • Work performance in line with EMP requirements	
Soils	Soil degradation in the course of earthwork	Present - insignificant	• Delineation of manoeuvring yards and technical routes outside the zones of swampy soils; introducing the requirement of the smallest possible land occupation at the stage of work performance • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Noise	Noise emitted by construction machinery performing construction work	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Noise emitted by motor vehicle traffic related to construction site services and deliveries	Moderate	• Technological processes at the construction site with the use of equipment which emits above-standard noise will not be performed at night • Construction vehicles will comply with the standards on noise emission and will feature modern silencers	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			• Temporary plant and facilities at the construction site will be organised at the greatest possible distance from the protected areas and buildings • Given the high availability of grid power generators use will be limited to individual cases, when laying down a temporary service connection will cause significant interference with the environment • Work performance in line with EMP requirements	
Air quality	Emission of pollution related to machinery operation (fuel combustion) at the stage of construction	Present - insignificant	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Culture-related landscape	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction site	Moderate	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Investments in bridge structures will involve modifications of certain sections of access roads and railway lines along with raising their vertical alignments.	Small	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Selected investments as regards bridge modifications will cover bridge structures of special cultural and technical value – the detailed scope of work will be consulted with the heritage preservation authorities while respecting the principles of monuments preservation. First, non-invasive measures are planned: reinforcement of scarps, flow improvement by silt removal from the river bottom	Moderate (selected structures only)	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Selected bridge structures will be additionally secured given the need of flood protection, maintaining their characteristic features and elements	Positive (modified structure will be covered by heritage preservation)	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Monuments	Selected investments as regards bridge modifications will cover bridge structures of special cultural and technical value – the detailed scope of work will be consulted with the heritage preservation authorities while respecting the principles of monuments	Moderate (selected structures only)	• The scope of work and the possible interference with the areas under heritage preservation will be consulted with the relevant bodies of public administration • If required, construction work will be performed under supervision of heritage preservation services • As part of the project preservation and renovation work will be	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	preservation. First, non-invasive measures are planned: reinforcement of scarps, improving flow by silt removal from the river bottom.		carried out to restore the proper technical condition of the structures • The planned work to be performed on the structures of special historical value will not involve interfering with their basic parameters and structure character • Work performance in line with EMP requirements	
Property	Potential expropriation of the areas where access roads to bridge structures will be modified.	Moderate	• Expropriation being performed in only those areas that are necessary to implement the project • Indication of replacement land or awarding compensation corresponding to suffered loss • Possibility to collect sown crops and transfer relevant structures • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Category of actions: reconstruction and modernisation of hydrotechnical structures (gates, dam locks and culverts, weirs, barrages)				
Surface and groundwaters				
Hydromorphological elements, physico-chemical parameters, parameters of surface	Impact on the flow regime - water damming up, changes in the flow characteristics within the	Moderate	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	body of water (SWBS)		• Detailed analyses of the issue at the stage of EIA report	
water flow	Changes in the riverbed morphology and the inter-embankment zone, intensification of the processes of riverbed erosion and accumulation on the inter-embankment - impact on hydromorphological elements of the body of water (SWBs)	Significant	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Limitation of valley retention - increased amount of water reaching the basin located below the planned action - impact on hydromorphological elements of the body of water (SWBs)	Important	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Limitation of retention capacity of alluvial deposits, limitation of sediments accumulation on alluvial soils – impact on hydromorphological elements of the body of water (SWBs)	Moderate	• Work performance in line with EMP requirements • Detailed analyses of the issue at the stage of EIA report	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Biological elements of the assessment of water condition (phytoplankton/phyto benthos, macrophytes,	Change in the bottom substrate granulation into small-grain in backwater – disturbance of the bottom dynamics	Moderate	• Limitation of work to renovation of the existing structures, no increase in the height of weirs and barrages.	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
macroinvertebrates, fish fauna)	(grounds, paving, silt removal) – loss of habitats, construction of new communities on new habitats, loss of habitats of taxons related to stone substrate		• Elimination of superfluous weirs and barrages in the river catchment area covered by work	
	Lower speed of backwater - retreat of rheophile species, appearance of eurytopic species	Moderate	• Limitation of work to renovation of the existing structures, no increase in the height of weirs and barrages. • Elimination of superfluous weirs and barrages in the river catchment area covered by work	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Halting of bedload flow – disturbed bottom dynamics (grounds, paving, silt removal) – change in substratum structure, lower accessibility of stones and boulders for settlement by bryophytes, liverworts and macroscopic algae, reduction of substrate for fish and invertebrates	Important	• Limitation of work to renovation of the existing structures, no increase in the height of weirs and barrages. • Elimination of superfluous weirs and barrages in the river catchment area covered by work, transporting bedload below barrage	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Halting of bedload flow – disturbance of bottom dynamics (grounds, paving, silt removal) – river bottom erosion,	Important	• Limitation of work to renovation of the existing structures, no increase in the height of weirs and barrages. • Elimination of superfluous weirs	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	reduction of loose stone substrate inhabited by macroinvertebrates		and barrages in the river catchment area covered by work, transporting bedload below barrage	
	Construction or modification of fishways	Positive	• No need for minimisation and compensation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Increased amount of suspension in the course of work - negative impact on fish especially during spawning	Small	• Limitation of earthwork to a minimum, storage of the used soil material away from the riverbed, reduction of interference in the riverbank zone Work performed in summer months - outside the Cyprinidae fish spawning period (April - June) and spawning and incubation of eggs of Salmonidae fish (mid-September - April) • Stocking with fish species most exposed to loss due to increased amounts of suspension (Salmonidae and lithofillous Cyprinidae)	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Changed in bottom substratum granulation into small-grain in backwaters - loss of spawning grounds of lithofillous fish species	Important	• Limitation of work to renovation of the existing structures, no increase in the height of weirs and barrages. • Elimination of superfluous weirs and barrages in the river catchment area covered by work	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Groundwater	Change in the level of groundwater, increased level of groundwater in	Important	• Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	the damming-up zone, loss of hydraulic connection between river and groundwaters on some sections – impact on quantitative elements of the body of water GWBs		• Detailed analyses of the issue at the stage of EIA report	
Soils	Soil degradation in the course of earthwork	Present - insignificant	• Delineation of manoeuvring yards and technical routes outside the zones of swampy soils; introducing the requirement of the smallest possible land occupation at the stage of work performance • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Noise	Noise emitted by construction machinery performing construction work Moderate	Some	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Noise emitted by motor vehicle traffic related to construction site services and deliveries	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			noise emission and will feature modern silencers • Work performance in line with EMP requirements	
	Noise related with maintenance work, e.g. grass mowing	Present - insignificant	• Maintenance work with the use of equipment which emits above-standard noise will not be performed at night • Machinery used for maintenance work will comply with the standards on noise emission and will feature modern silencers • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Air quality	Emission of pollution related to machinery operation (fuel combustion) at the stage of construction	Small	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Increased dust and gaseous pollution during transport of construction materials and due to wind blowing it away from storage sites	Present - insignificant	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Culture-related industry	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction	Moderate	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	site			
	Improvement of spatial order by restoring them to their proper technical condition	Positive	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Monuments	Selected investments include monumental hydrotechnical structures of certain cultural and technical value – the detailed scope of work will be consulted with the heritage preservation authorities while respecting the principles of monuments preservation	Significant (selected structures only)	• The scope of work and the possible interference with the areas under heritage preservation will be consulted with the relevant bodies of public administration • If required, construction work will be performed under supervision of heritage preservation services • As part of the project preservation and renovation work will be carried out to restore the proper technical condition of the structures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Selected structures will be modified given the need of flood protection, maintaining their characteristic features and elements	Positive (modified structure will be covered by heritage preservation)	• None	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Category of actions: dismantlement of structures				
Soils	Local soil disturbance due to dismantlement	Small	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			EMP requirements	
Noise	Noise emitted by motor vehicle traffic related to construction site services and deliveries	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on noise emission and will feature modern silencers • Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Air quality	Emission of pollution related to machinery operation (fuel combustion) at the stage of construction	Small	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Culture-related industry	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction site	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Construction of dry detention basins will involve changes in land relief (basin bowl) and introduction of new	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	elements in the form of dams The basin bowl area in the periods outside water rise could be used as a pasture		EMP requirements	
	Construction of dry detention basins will involve changes in land relief (basin bowl) and introduction of new elements in the form of dams The basin bowl area in the periods outside water rise could be used the say way it is used now	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Monuments	The planned structure dismantlement is related to the construction of new dry detention basins as part of improving flood safety of, among others, the areas and structures under heritage preservation	Positive	• No need to apply minimisation measures	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Category of actions: dismantlement and modification of colliding infrastructure elements (e.g. water supply system sections, sewage system sections, roads, etc.)				
Soils	Soil degradation in the course of earthwork	Present - insignificant	• Designing manoeuvring yards and technical routes outside the zones of swampy soils • Introducing the requirement of the smallest possible land occupation at the stage of work performance	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Noise	Noise emitted by motor vehicle traffic related to construction site services and deliveries	Moderate	• Construction work with the use of equipment which emits above-standard noise will not be performed at night • Construction machinery will comply with the standards on noise emission and will feature modern silencers	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Air quality	Emission of pollution related to machinery operation (fuel combustion) at the stage of construction	Small	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Lifting of small fractions of dust from unpaved land at the construction stage	Present - insignificant	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
Culture-related industry	Periodic disturbance (degradation) of the current order and landscape by performance of construction work and locating the construction site	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision
	Construction of dry detention basins will involve changes in land relief (basin bowl) and introduction of new elements in the form of dams The basin bowl area in the periods	Important	• Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work Contractor, Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	outside water rise could be used the say way it is used now			
Monuments	The planned dismantlement and modification of structures is related to the construction of dry detention basins as part of improving flood safety of, among others, the areas and structures under heritage preservation	Positive	• No need to apply minimisation measures	
Property	Potential expropriation and resettlement of areas for the purpose of dry detention basins construction	Not applicable	• Expropriation being performed in only those areas that are necessary to implement the project • Indication of replacement land or awarding compensation corresponding to suffered loss • Detailed analyses of the issue at the stage of EIA report • Work performance in line with EMP requirements	PIU Consultant, Work 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				
Nysa Klodzka - gorge section near Morzyszowo PLH020043	Destruction of the patches of habitats, willow reparian forests (91E0), poplar, alder and riverine and fresh meadows and related species of animals subject to protection of the Area	Significant	Reduction of the range of works within the district and valuable riparian habitats. In case of occurrence of significant impact, expansion of the district with new areas of lost habitats Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Biała Lądecka PLH020035 Śnieżnicki Park Krajobrazowy	Destruction of patches of habitats being subject to protection in the Area (willow (91E00), poplar, alder, ash, pioneer flora on gravel-banks in mountain streams (3220), rivers with accumulation of Ranculus aquatilis (3260), mountain and riverine herbs (6430)	Moderate	Reduction of the range of works within the district and valuable natural habitats, in particular preserving the existing character of the bottom of Biała Lądecka river. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Fauna and flora				
Willow, poplar, ash, alder reparian forests (91E0)	Destruction of the patches of habitats, reduction of the area due to the thinning of forest	Significant	Limitation of the scope of works, enabling reproduction of flora near executed works or in other parts of the valley, not in conflict with flow of flood waters. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Mountain and reparian herbaceous plants (6430)	Destruction of the patches of habitats, reduction of area due to occupation of land	Moderate	Limitation of the scope of works, enabling reproduction of flora near executed works. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Accumulation of alluvial meadows and related species of animals (6440)	Deterioration of the status of patches of habitats due to the change in water supply	Moderate	Margin impact scale, minimisation difficult Implementation of works compliant with EMP requirements.	PIU Consultant. Investor's Supervision, Environmental Supervision
Birds' species of forest habitats (reparian forests 91E0), oak-hornbeam (9170)	Thinning of riverine woods, deterioration of the status of forest habitats in the cup of reservoir	Moderate	Limitation of the scope of works, enabling reproduction of flora near executed works or in other parts of the valley, not in conflict with flow of flood waters. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision, Supervisor of river basin district
Category of actions: construction of dry detention basins (front dams, side dams, relief-overflow sections)				
Protected areas				
Piekielna Dolina near Polanica PLH020010	Limitation of communication of the Area with other Natura 2000 areas	Marginal	Ensuring proper, free migration of aquatic organisms in the period of regular functioning of the basin. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Nysa Klodzka - gorge section near Morzyszowo PLH020043	Limitation of communication of the Area with other Natura 2000 areas	Existing - not relevant	Ensuring proper, free migration of aquatic organisms in the period of regular functioning of the basin. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Fauna and flora				
Natural habitats, lowlands and mountains rivers with accumulation of **Ranunculus aquatilis (3260)**	Destruction of patches of habitats, deterioration of conditions of occurrence	Moderate	Maintaining conditions for the flow (except for flood waters) below the dam in order to maintain the conditions of existence of habitat. Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Rare species of water algae (i.e. Hildebrandia rivularis)	Destruction of the ground of species, deterioration of conditions of occurrence as a result of control of riverbed within the cup of reservoir	Marginal	Recreation the nature of the stream's bottom in such way so the recreation of the species' site is possible Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision, Supervisor of the relevant part of river basin

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Species of flora under protection existing within the cup of reservoir (elements of meadow, habitats, reparian forests)	Destruction of the ground of habitats, deterioration of conditions resulting from construction of elements of reservoir and periodical flooding	Existing - not relevant	Maintaining existing structure of use of lands in the cup of reservoirs Implementation of works compliant with EMP requirements	Supervisor of the relevant part of river basin
Mountain and reparian herbaceous plants (6430)	Destruction of patches of habitats resulting from construction of elements of reservoirs and control of riverbeds in the cup of reservoir	Marginal	Maintaining conditions for the flow (except for flood waters) below the dam in order to maintain the conditions of existence of habitats. Development of coastline slide slopes enabling recreation of the habitat. Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Habitat 3260, 6430, animal species related to the riverbed	Pollution caused by fuel leakage or grease from the equipment used for construction works	Significant	Proper organisation of works and preparation of equipment Implementation of works compliant with EMP requirements, including introducing the procedures against pollutant dispersion	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Sycamores, maple-lime tree and oak-hornbeam forests	Deterioration of conservation status as a result of periodic floods and reduced felling of forests	Moderate	Maintaining maximum filling of the basin in the short possible time Implementation of works compliant with EMP requirements	Supervisor of river basin district
Willow, poplar, alder, ash reparian forests	Deterioration of conservation status as a result of periodic floods and reduced felling of forests	Moderate	Maintaining maximum filling of the basin in the short possible time Implementation of works compliant with EMP requirements	Supervisor of river basin district
Willow, poplar, alder, ash reparian forests	Deterioration of habitats status as a result of limitation of floods within flooded terrace	Moderate	Maintaining maximum filling of the basin in the short possible time Implementation of works compliant with EMP requirements	Supervisor of river basin district
Species of birds of open habitats (meadows, pastures, fields) and scrubs	Temporary loss and deterioration of the habitats status as a result of flooding during floods.	Moderate	Maintaining maximum filling of the basin in the short possible time Implementation of works compliant with EMP requirements	Supervisor of river basin district

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Species of birds of forest habitats (reparian forest, oak-hornbeam forests)	Thinning of riverine trees, deterioration of the status of forest habitats in the cup of reservoir	Moderate	Reduction of the range of felling trees Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision, Supervisor of the relevant part of river basin
Species of birds associated directly with riverbed (i.e. dipper, kingfisher, grey wagtail)	Destruction, deterioration of riverbed status as a result of hydro-engineering development	Moderate	Maintaining the conditions for feeding the species in the area of riverbed Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Habitats 3260, 6430. species of animals related to the riverbed	Pollution caused by fuel leakage or grease from the equipment used for construction works	Significant	Proper organisation of works and preparation of equipment Implementation of works compliant with EMP requirements, including introducing the procedures against pollutant dispersion	PIU Consultant. Investor's Supervision, Environmental Supervision
Category of actions: modernisation of embankments/boulevards				
Protected areas				

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Nysa Klodzka - gorge section near Morzyszowo PLH020043	Violation of patches of habitats resulting from execution of excavation and construction works	Moderate	Implementation of works compliant with EMP requirements Detailed analysis on the stage of working out EIA report	PIU Consultant. Investor's Supervision, Environmental Supervision
Biała Lądecka PLH020035 Śnieżnicki Park Krajobrazowy	Violation of patches of habitats resulting from execution of excavation and construction works	Moderate	Implementation of works compliant with EMP requirements Detailed analysis on the stage of working out EIA report	PIU Consultant. Investor's Supervision, Environmental Supervision
Fauna and flora				
Accumulation of alluvial meadows and related species of animals	Violation of patches of habitats resulting from execution of excavation and construction works	Moderate	Implementation of works compliant with EMP requirements Detailed analysis on the stage of working out EIA report	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Flora and animal species related to the riverbed	Pollution caused by fuel leakage or grease from the equipment used for construction works	Significant	Proper organisation of works and preparation of equipment Implementation of works compliant with EMP requirements, including introducing the procedures against pollutant dispersion	PIU Consultant. Investor's Supervision, Environmental Supervision
Category of actions: regulation and maintenance works of riverbeds and inter-levee lands of natural and artificial parts of water or strongly changed part of water and drainage ditches				
Protected areas				
Nysa Klodzka - gorge section near Morzyszowo PLH020043	Destruction of patches of habitats, willow (91E00), poplar, alder, riverine reparian forests, rivers with accumulation of Ranunculus aquatilis (3260) and gravel-banks in mountain streams (3220), herbs (6430) and habitats of species related to them being subject to protection of the Area	Significant	Reduction of the range of works within the district and valuable riparian habitats. In case of occurrence of significant impact, expanding the district of new areas of lost habitats Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Biała Lądecka PLH020035 Śnieżnicki Park Krajobrazowy	Destruction of patches of habitats, willow (91E00), poplar, alder, riverine reparian forests, rivers with accumulation of Ranunculus aquatilis (3260) and gravel-banks in mountain streams (3220), herbs (6430) and habitats of species related to them being subject to protection of the Area	Significant	Reduction of the range of works within the district and valuable riparian habitats. In case of occurrence of significant impact, expansion of the district in new areas of lost habitats. Attention! Compensation of significant impact on habitats associated with the bottom of Biała Lądecka river may not be possible. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Fauna and flora				
Willow, poplar, alder, ash reparian forests (91E0)	Destruction of the patches of habitats in connection with works on slide slopes coastlines	Significant	Limitation of the scope of works, enabling reproduction of flora near executed works or in other parts of the valley, not in conflict with flow of flood waters. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Mountain and riverine herbaceous plants (6430)	Destruction of the patches of habitats in connection with works on slide slopes coastlines	Significant	Limitation of the scope of works, enabling reproduction of flora near executed works or in other part of the valley. Implementation of works complaint with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Accumulation of alluvial meadows (6430) and related animal species	Destruction of the patches of habitats resulting from location of temporary construction facilities, haul roads etc	Moderate	Proper management of scope and manner of implementation of works. Withdrawal from protections securing only agriculture areas. Implementation of works compliant with EMP requirements.	PIU Consultant. Investor's Supervision, Environmental Supervision
Species of birds related to the riverbed	Destruction and deterioration of the status of habitats in connection with reconstruction of slide slopes coastlines	Significant	Proper management of scope of works, creating alternative breeding habitats Implementation of works compliant with EMS requirements	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Fauna and species of animals directly related to the riverbed	Pollution caused by fuel leakage or grease from the equipment used for construction works	Important	Implementation of works compliant with EMP requirements, including introducing the procedures against pollutant dispersion	PIU Consultant. Investor's Supervision, Environmental Supervision
Category of actions: reconstruction of bridges				
Protected areas				
Nysa Klodzka - gorge section near Morzyszowo PLH020043	Destruction of the patches of habitats subject to protection of the Area (applies mainly to willow, poplar, alder, ash reparian forests). Deterioration of the status of habitats of animal species related to the riverbed.	Marginal	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species Implementation of works compliant with EMP requirements.	PIU Consultant. Investor's Supervision, Environmental Supervision
Biała Lądecka PLH020035 Śnieżnicki Park Krajobrazowy	Destruction of the patches of habitats subject to protection of the Area (applies mainly to willow, poplar, alder, ash reparian forests). Deterioration of the status of habitats of animal species related to the riverbed.	Marginal	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species Implementation of works compliant with EMP requirements.	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Piekielna Dolina near Polanica PLH20010	Destruction of the patches of habitats subject to protection of the Area (applies mainly to willow, poplar, alder, ash reparian forests). Deterioration of the status of habitats of animal species related to the riverbed.	Marginal	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species Implementation of works compliant with EMP requirements.	PIU Consultant. Investor's Supervision, Environmental Supervision
Fauna and flora				
Species of birds and other organisms related to the riverbed	Destruction of habitats, deterioration of the status of species habitats.	Moderate	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species. Creating alternative breeding habitats	Environmental Supervision, Investor's Supervision, Contractor of works
	Pollution caused by fuel leakage or grease from the equipment used for construction works	Important	Implementation of works compliant with EMP requirements, including introducing the procedures against pollutant dispersion	PIU Consultant. Investor's Supervision, Environmental Supervision
Category of actions: reconstruction and modernisation of hydro-engineering structures (automatic gates, forklift flood-gates and culverts, weirs, control valves)				

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Protected areas				
Nysa Klodzka - gorge section near Morzyszowo PLH020043	Destruction of the patches of habitats subject to protection of the Area (applies mainly to willow, poplar, alder, ash reparian forests). Deterioration of the status of habitats of animal species related to the riverbed.	Moderate	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species. Recreation of conditions for migration of aquatic organisms. Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Piekielna Dolina near Polanica PLH20010	Destruction of the patches of habitats subject to protection of the Area (applies mainly to willow, poplar, alder, ash reparian forests). Deterioration of the status of habitats of animal species related to the riverbed.	Moderate	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species. Recreation of conditions for migration of aquatic organisms. Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Biała Lądecka PLH020035 Śnieżnicki Park Krajobrazowy	Destruction of the patches of habitats subject to protection of the Area (applies mainly to willow, poplar, alder, ash reparian forests). Deterioration of the status of habitats of animal species related to the riverbed.	Moderate	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species. Maintaining or recreation of conditions for migration of aquatic organisms. Implementation of works compliant with EMP requirements	PIU Consultant. Investor's Supervision, Environmental Supervision
Flora and fauna				
Species of birds and other organisms related to the riverbed	Pollution caused by fuel leakage or grease from the equipment used for construction works	Important	Implementation of works compliant with EMP requirements, including introducing the procedures against pollutant dispersion	PIU Consultant. Investor's Supervision, Environmental Supervision
	Destruction, deterioration of the status of habitats, deterioration or improvement of the conditions of migration of aquatic organisms (depending on detailed manner and scope of work implementation)	Marginal	Proper management of the scope of works and the manner of works implementation in order to minimise direct destruction and indirect impact on animal species. Maintaining or recreation of conditions for migration of aquatic organisms.	PIU Consultant. Investor's Supervision, Environmental Supervision

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: construction of dry detention basins (front dams, side dams, relief-overflow sections)								
States of waters (hydrological parameter)	Existing monitoring, implemented by the Institute of Meteorology and Water Management (IMWM): daily measurement of states of waters in hydrological stations							
Ecological state/potential of SWB and in protected areas	Existing monitoring, implemented by Provincial Inspectorate for Environment Protection (PIEP) as part of State Environmental Monitoring (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.							
Level of ground waters	Outside the bowl of the reservoir, in places where dams are located in the vicinity of buildings	Installation of piezometers	At the stage of implementation before the works begin, once, in order to determining initial state; a the stage of exploitation through several	Assessment of the scale of fluctuation of level of ground waters in the context of impact on the buildings	Cost of installation of 1 piezometer - approx. 300 - 800 PLN; cost of service for 1 localization (between one and several piezometers) –	Cost of installation of 1 piezometer - approx. 300 - 800 PLN; cost of service for 1 localization (between	Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
			cycles of filling the reservoir		2000 PLN/month	one and several piezometers) – 2000 PLN/month		
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
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	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				frequency of monitoring needs to be defined at the stage of EMP.				
Technical infrastructure within project impact area	The impact area of the project	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, how the infrastructure is affected by the project, how minimization and compensation measures are	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				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 area	Monitoring of establishing owners of real	As specified in LARAP	Project will result in temporary occupation of	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
project implementation		estates, current land/property - use, acquisition agreements for temporary occupation of land, signing contracts for temporary occupation of land		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.				
Category of actions: renovation 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	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.							

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
protected areas								
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
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	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				to be defined at the stage of EMP.				
Technical infrastructure within project impact area	The impact area of the project	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, 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	Investor
Permanent takeover of	Project area	Monitoring of establishing	As specified in	Project will result in permanent	10 000 PLN/	5000 PLN/	Consultant	Consultant

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
land due to project implementation		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	LARAP	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.	month	month	LARAP, PIU	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	As specified in LARAP	Project will result in temporary occupation of land. It is possible that temporary restrictions in present land/property - use will be implemented. Monitoring will	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		land, signing contracts for temporary occupation of land		enable the management of the process of acquisition of rights for short-term use of properties and compensation payment.				
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	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	Assessment of correctness of implementation of minimizing measures from the EIA report and	30 000 PLN/month	5000 PLN/ month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
decision in the scope of natural environment			schedule, at the stage of exploitation once a month or after executing specific task	environmental decision				
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	Investor
Technical infrastructure within project impact area	The impact area of the project	Monitoring of establishing owners of infrastructure, monitoring acquiring	As needed, not less frequently than once per quarter	Construction of dry reservoirs may affect the existing technical infrastructure (power lines, fibre	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		consents, monitoring of concluding contracts / agreements with owners of infrastructure		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.				
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	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	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		acquisition of property rights, monitoring of compensation payments		structure of crops). Monitoring will enable the 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	Na zasadach określo-nych w LARAP	Project 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	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				payment.				
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

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Category of actions: reconstruction and renovation of hydrotechnical structures (automatic gates, embankment sluice and culverts, weirs, water barrages)								
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.							
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

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
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 and type of modernisation particular works.	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor
Technical infrastructure within project impact area	The impact area of the project	Monitoring of establishing owners of infrastructure, monitoring acquiring consents, monitoring of	As needed	The measure may not affect the existing technical infrastructure (power lines, fibre optic lines, paved and dirt roads, hydropower	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		concluding contracts / agreements with owners of infrastructure		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.				
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	As specified in LARAP	Project 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	10 000 PLN/ month	5000 PLN/ month	Consultant LARAP, PIU	Consultant LARAP, PIU

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		contracts for temporary occupation of land		management of the process of acquisition of rights for short-term use of properties and compensation payment.				
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	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

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
			specific task					
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
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	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				the stage of EMP since it depends upon the scope and type of modernisation particular works.				
Technical infrastructure within project impact area	The impact area of the project	Monitoring of establishing owners of infrastructure, monitoring acquiring consents, monitoring of concluding contracts / agreements with owners of infrastructure	As needed	The measure may not 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	10 000 PLN/ month	5000 PLN/ month	Consultant PIU, Owner site supervision agent, Contractor	Investor

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				implemented.				
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	Project 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

3.2 BIOTIC ELEMENTS

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Category of actions: construction of dry detention basins (front dams, side dams, relief-overflow sections)								
The condition of rare and protected habitats	The impact area of the project (the waterbodies and their neighborhood)	Monitoring of natural habitats (eg. 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 supervision), Investor's Supervision, Contractor	Investor
The condition of rare and protected	The impact area of the project (the waterbodies	Monitoring of natural habitats and populations	Before implementation, during implementatio	Limitation of intentional and unintentional destruction of natural			PIU consultant (Environmental supervision), Investor's	Investor

habitats including plant and animal populations	and their neighborhood)	of plants and animals (eg. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	n and after completion (the period depends on the type of habitat being monitored)	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)			Supervision, Contractor	
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 and other protected areas: Piekielna Dolina koło Polanicy PLH020010 Nysa Kłodzkia River near Morzyszowo PLH020043 Śnieżnicki Landscape Park	Monitoring of natural habitats and populations of plants and animals (eg. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of	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				

		plants and animals)		habitats/populations not intended for removal in relation to the execution of tasks)				
Category of actions: modernisation of embankments/boulevards								
The condition of rare and protected habitats	The impact area of the project (the waterbodies and their neighborhood)	Monitoring of natural habitats (eg. 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 supervision), Investor's Supervision, Contractor	Investor
The condition of rare and protected habitats including plant and animal	The impact area of the project (the waterbodies and their neighborhood)	Monitoring of natural habitats and populations of plants and animals (eg. by using the State	Before implementation, during implementation and after completion (the period depends on	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification			PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor

populations		Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	the type of habitat being monitored)	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)				
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 and other protected areas: Nysa Kłodzkia River near Morzyszowo PLH020043 Biała Lądecka PLH020035 Śnieżnicki Landscape Park Natura 2000 and other protected	Monitoring of natural habitats and populations of plants and animals (eg. 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				

	areas: Nysa Kłodzkia River near Morzyszowo PLH020043 Biała Lądecka PLH020035 Śnieżnicki Landscape Park			tasks)				
Category of actions: construction of embankments/boulevards								
The condition of rare and protected habitats	The impact area of the project (the waterbodies and their neighborhood)	Monitoring of natural habitats (eg. 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 supervision), Investor's Supervision, Contractor	Investor
The	The impact	Monitoring of	Before	Limitation of			PIU consultant	Investor

condition of rare and protected habitats including plant and animal populations	area of the project (the waterbodies and their neighborhood)	natural habitats and populations of plants and animals (eg. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	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)			(Environmental supervision), Investor's Supervision, Contractor	
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 and other protected areas: Nysa Kłodzkia River near Morzyszowo PLH020043 Biała Lądecka PLH020035 Śnieżnicki Landscape	Monitoring of natural habitats and populations of plants and animals (eg. by using the State Environmental Monitoring methodology, commonly accepted	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			PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor

	Park	methodologies for specific groups of plants and animals)		measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)				
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 (eg. 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 supervision), Investor's Supervision, Contractor	Investor
The condition of rare and protected	The impact area of the project	Monitoring of natural habitats and populations	Before implementation, during implementatio	Limitation of intentional and unintentional destruction of natural			PIU consultant (Environmental supervision), Investor's	Investor

habitats including plant and animal populations		of plants and animals (eg. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	n and after completion (the period depends on the type of habitat being monitored)	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)			Supervision, Contractor	
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 and other protected areas: Nysa Kłodzkia River near Morzyszowo PLH020043 Biała Lądecka PLH020035 Śnieżnicki Landscape Park	Monitoring of natural habitats and populations of plants and animals (eg. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of	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				

		plants and animals)		habitats/populations not intended for removal in relation to the execution of tasks)				
Category of actions: reconstruction and renovation of hydrotechnical structures (automatic gates, embankment sluice and culverts, weirs, water barrages)								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (eg. 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 supervision), Investor's Supervision, Contractor	Investor
The condition of rare and protected habitats including plant and	The impact area of the project	Monitoring of natural habitats and populations of plants and animals (eg. by using the	Before implementation, during implementation and after completion (the period	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities			PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor

animal populations		State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	depends on the type of habitat being monitored)	(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)				
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 and other protected areas: Nysa Kłodzkia River near Morzyszowo PLH020043, Piekielna Valley near Polanica PLH020010 Biała Lądecka PLH020035 Śnieżnicki Landscape Park	Monitoring of natural habitats and populations of plants and animals (eg. 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)				
Category of actions: reconstruction bridges								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (eg. 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)	20 000 PLN/ month	2000 PLN/ month	PIU consultant (Environmental supervision), Investor's Supervision, 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 (eg. by using the State Environmental Monitoring methodology,	Before implementation, during implementation and after completion (the period depends on the type of habitat being	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			PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor

		commonly accepted methodologies for specific groups of plants and animals)	monitored)	habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)				
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 and other protected areas: Biała Lądecka PLH020035 Śnieżnicki Landscape Park Piekielna Valley near Polanica PLH020010	Monitoring of natural habitats and populations of plants and animals (eg. 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 supervision), Investor's Supervision, Contractor	Investor