

Environmental Impacts, GENRERIC MITIGATION AND MONITORING PLAN

COMPONENT 3 - UPPER VISTULA RIVER

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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/possible	The activity is likely to occur at some time under normal operating conditions.
Unlikely	The activity is 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.

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Category of activities: Construction of dry reservoirs (front barriers, side barriers, overflow sections)					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	Reduction of flows in the zone of maximum flows downstream of the reservoir	Moderate	Certain	Regional	Long-term/ operational stage
	Periodic change of conditions of water flow through the reservoir	Small	Certain	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	Periodic change in habitat conditions for macrophytes and macrozoobenthos	Small	Probable / likely	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Quantitative and chemical quality elements of groundwater	Periodic variation of groundwater level in areas adjacent to the reservoir	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
Soil	Periodic change of conditions of soil hydration	Present-insignificant	Certain	Local	Long-term/ operational stage

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Intensifying changes in soil profile associated with increased accumulation of sediments in the reservoir	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
	Direct destruction of soil cover due to construction of reservoir dam and embankments and / or in case of transformation of land within the reservoir	Present-insignificant	Certain	Local	Long-term/ construction and operational stage
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Small	Probable / likely	Local	Short-term/ construction period
Protected areas					
Protected areas associated with river valleys, mainly Natura 2000 sites	Removing habitats associated with river valleys resulting from occupation of land under the infrastructure or deterioration of their condition as well as impact on habitats of	Small	Unlikely	Local	Long-term/ operational stage

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	protected species, including ichthyofauna				
Flora and fauna					
Forests and woodlands (including riparian), willow thickets	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Small	Certain	Local	Permanent, construction period
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities, peatlands)	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Small	Certain	Local	Permanent, construction period
Continuity of terrestrial habitats	Reduction or weakness of the river valley corridor functions in the area outside of riverbed due to the construction of front barrier	Small	Very likely	Local	Permanent, construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Significant	Likely/possible	Local	Short-term
	Visual impact on the cultural landscape	Moderate	Likely/possible	Local	Long-term
	Development of cultural landscape	Significant	Likely/possible	Local	Long-term
Material goods	Damage in/destruction of technical infrastructure	Moderate	Certain	Local	Long-term

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Limited functioning of technical infrastructure	Moderate	Certain	Local	Short-term
	Damage in/destruction of social infrastructure	Moderate	Likely/possible	Local	Long-term
	Damage in houses	Moderate	Likely/possible	Local	Long-term
	Development of housing, services and industry	Positive	Likely/possible	Regional	Long-term
	Change in the use of land	Significant	Very likely	Local	Long-term
	Tree felling	Significant	Very likely	Local	Long-term
	Increased demand for social and technical infrastructure	Significant	Likely/possible	Local	Long-term
	Loss of workplaces influencing unemployment rate and economy	Moderate	Unlikely	Local	Short-term
Category of activities: Modernization of the reservoirs					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	Reduction of flows in the zone of maximum flows downstream of the reservoir	Small	Certain	Regional	Long-term/ operational stage
	Periodic change of conditions of water flow through the reservoir	Small	Certain	Local	Long-term/ operational stage

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	Periodic change in habitat conditions for macrophytes and macrozoobenthos	Small	Probable / likely	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Quantitative and chemical quality elements of groundwater	Periodic variation of groundwater level in areas adjacent to the reservoir	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
Soil	Periodic change of conditions of soil hydration	Present-insignificant	Certain	Local	Long-term/ operational stage
	Intensifying changes in soil profile associated with increased accumulation of sediments in the reservoir	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
	Direct destruction of soil cover due to construction of reservoir dam and embankments	Present-insignificant	Certain	Local	Long-term/ construction and operational stage
Air quality	Temporary increase in air emissions due to	Present-insignificant	Probable / likely	Local	Short-term/ construction period

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	operation of construction heavy equipment during construction period				
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Small	Probable / likely	Local	Short-term/ construction period
Protected areas	No impact				
Flora and fauna					
Riparian forests and woodlands, willow thickets	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or conversion of site (including <i>deterioration</i>)	Small	Certain	Local	Permanent, construction period
Non-forest habitats associated with the river valleys (meadows)	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or conversion of site (including <i>deterioration</i>)	Present-insignificant	Certain	Local	Permanent, construction period
Habitat edges and bottom of the streambed	<i>Deterioration</i> or destruction of habitats	Small	Certain	Local	Short-term/ construction period
Fauna assemblages (especially fish and invertebrates) in lotic habitats	<i>Deterioration</i> of habitat due to water pollution (including turbidity)	Small	Probable	Local	Short-term/ construction period

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - insignificant	Unlikely	Local	Short-term
	Development of cultural landscape	Positive	Likely/possible	Local	Long-term
Material goods	Damage in/destruction of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Development of housing, services and industry	Positive	Likely/possible	Local	Long-term
	Change in the use of land	Present - negligible	Likely/possible	Local	Long-term
	Tree felling	Present - negligible	Likely/possible	Local	Short-term
Category of activities: Changing the way of water management on the storage reservoir					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	Periodic lowering of the water level in the reservoir	Moderate / Significant	Certain	Local	Long-term/ operational stage
	Increase of the storage capacity of the reservoir	Significant	Certain	Regional	Long-term/ operational stage
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	Increase of the area of wetlands in the backwater zone of the reservoir enabling the development of macrophytes and macrozoobenthos	Positive	Probable / likely	Local	Long-term/ operational stage

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Decrease of habitats for fish fauna	Moderate / Significant	Probable / likely	Local	Long-term/ operational stage
Quantitative and chemical quality elements of groundwater	Temporary increase in groundwater level fluctuations in the immediate vicinity of the reservoir	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
Soil	No impact				
Air quality	No impact				
Noise	No impact				
Protected areas	No impact				
Flora and fauna					
Scrub habitats (bushy thickets of willow), bulrush, meadows and related groups of plants and animals	Deterioration or destruction as a result of changes in the shape and the nature of the riverbank and the groundwater level in adjacent areas	Positive	Very likely	Local	Long-term/ operational stage
Dried water bottom habitat with the communities of Litorelletea, Isoëto-Nanojuncetea (3130) and flooded the muddy riverbanks (3270)	Creating the conditions for the development of habitat as a result of exposing the bottom after lowering the water level	Positive	Very likely	Local	Short-term, cyclic, operational stage
Herpetofauna	Improving the living conditions and	Positive	Very likely	Local	Long-term/ operational stage

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	opportunities for breeding by creating new ecological niches				
Avifauna	Improving the living conditions (feeding) and opportunities for breeding by creating new ecological niches	Positive	Very likely	Local - Regional	Long-term/ operational stage
Cultural landscape and monuments	No impact				
Material goods	No impact				
Category of activities: Construction of embankments / boulevards					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	Narrowing zone for flood water flow – increase of flood water level in the river channel	Significant	Certain	Local	Long-term/ operational stage
	Changes in the river bed and embanked zone morphology – increased processes of erosion in the river bed and sedimentation within embanked zone	Significant	Probable / likely	Local	Long-term/ operational stage
	Increase of the water flow velocity in the river channel	Significant	Probable / likely	Local	Long-term/ operational stage

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Reducing the river valley retention – increase of water inflow to the catchment downstream of planned measure	Significant	Certain	Local	Long-term/ operational stage
	Changes of structure of the riparian zone (in case of location of embankments near the river channel)	Significant/ Moderate	Probable / likely	Local	Long-term/ operational stage
	Interference in the river bed (in case of location of embankment next to the river channel)	Significant/ Moderate	Probable / likely	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	Transformation of habitats macrophytes and limiting surface of the habitats	Significant/ Moderate	Probable / likely	Local	Long-term/ operational stage
	Increase of the water flow velocity in the river channel	Significant	Probable / likely	Local	Long-term/ operational stage
	Cutting off water-dependent habitats from floods	Significant	Probable / likely	Local	Long-term/ operational stage
	Changes of structure of the riparian zone (in case	Significant/ Moderate	Probable / likely	Local	Short-term/ construction period

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	of location of embankment near the river channel)				
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
Quantitative and chemical quality elements of groundwater	Loss of contact with surface waters situated in the valley beyond embankments	Moderate	Probable / likely	Local	Long-term/ operational stage
	Change of groundwater level	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
	Disturbance of groundwater flow	Moderate	Probable / likely	Local	Long-term/ operational stage
Soil	Intensified changes in soil profile related to increased sedimentation in embanked zone	Present-insignificant	Probable / likely	Local	Long-term/ operational stage
	Direct destruction of soil cover due to construction of embankments and river boulevards	Present-insignificant	Certain	Local	Long-term/ operational stage
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to	Small	Probable / likely	Local	Short-term/ construction period

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	operation of construction heavy equipment during construction period				
Protected areas					
Protected areas associated with river valleys, mainly Natura 2000 sites	Removing habitats associated with river valleys resulting from occupation of land under the infrastructure or deterioration of their condition as well as impact on habitats of protected species, including ichthyofauna	Small/Moderate	Probable/likely	Local	Long-term, operational stage
	Destruction or deterioration of habitats of stream edges and bottom and associated groups of animals (including fish which are the subject of protection)	Significant/ Moderate	Unlikely	Local	Short-term/ construction period
Flora and fauna					
Riparian forests and woodlands, willow thickets	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Moderate	Certain	Local	Permanent/ construction period
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Small	Certain	Local	Permanent/ construction period

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
fringe communities, peatlands)					
Habitats of the edges and bottom of the streambed	<i>Deterioration or destruction of habitats</i>	Moderate	Probable	Local	Short-term/ construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Little	Likely/possible	Local	Short-term
	Visual impact on the cultural landscape	Present - negligible	Unlikely	Local	Short-term
	Development of cultural landscape	Positive	Likely/possible	Local	Long-term
Material goods	Damage in/destruction of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Development of housing, services and industry	Positive	Likely/possible	Local	Long-term
	Change in the use of land	Moderate	Likely/possible	Local	Long-term
	Tree felling	Moderate	Likely/possible	Local	Short-term
	Loss of workplaces influencing unemployment rate and economy	Present - negligible	Unlikely	Local	Short-term
Category of activities: Renovation of the embankments					
Surface and groundwater					

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Hydromorphological and physical-chemical quality elements of surface water	Changes of structure of the riparian zone (in case of location of embankments near the river channel)	Significant / Moderate	Probable / likely	Local	Long-term/ operational stage
	Interference in the river bed (in case of location of embankment next to the river channel)	Significant / Moderate	Probable / likely	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	Changes of structure of the riparian zone (in case of location of embankments near the river channel)	Significant / Moderate	Probable / likely	Local	Long-term/ operational stage
	Limiting surface of habitats of limiting surface of the habitats	Significant / Moderate	Probable / likely	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Quantitative and chemical quality elements of groundwater	No impact				

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Soil	Direct destruction of soil cover due to construction of embankments and river boulevards	Present-insignificant	Certain	Local	Long-term/ operational stage
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Small	Probable / likely	Local	Short-term/ construction period
Protected areas					
Natura 2000 Low San Valley, Reserve "Vistula pod Zawichostem"	Destruction of scrub habitats and bushy thickets of willow due to the seizure of land for infrastructure or deterioration of its state	Small	Very likely	Local	Permanent/ construction period
Remaining protected areas associated with river valleys, mainly Natura 2000 sites	Removing habitats associated with river valleys resulting from occupation of land under the infrastructure or deterioration of their condition as well as impact on habitats of protected species, including ichthyofauna	Small/ Moderate	Probable/likely	Local	Long-term, stage of implementation

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Flora and fauna					
Riparian forests and woodlands, willow thickets	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Small/ Moderate	Very likely	Local	Permanent/ construction period
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities, peatlands)	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Small/ Moderate	Very likely	Local	Permanent/ construction period
Habitats of the edges and bottom of the streambed	<i>Deterioration</i> or destruction of habitats	Small	Unlikely	Local	Short-term/ construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - negligible	Likely/possible	Local	Short-term
	Development of cultural landscape	Positive	Unlikely	Local	Long-term
Material goods	Damage in/destruction of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Development of housing, services and industry	Positive	Likely/possible	Local	Long-term
	Change in the use of land	Present - insignificant	Likely/possible	Local	Long-term
	Tree felling	Present - insignificant	Likely/possible	Local	Short-term

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Category of activities: Construction of polders					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	Increase of retention in the river valley; local reduction of flood wave	Favourable	Certain	Local/ Regional	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Quantitative and chemical quality elements of groundwater	Periodic variation of groundwater level in areas adjacent to the polder	Present-insignificant	Unlikely	Local	Long-term/ operational stage
Soil	Periodic change of conditions of soil hydration	Favourable	Certain	Local	Long-term/ operational stage
	Direct destruction of soil cover due to construction of polder embankments	Present-insignificant	Certain	Local	Long-term/ operational stage
Air quality	Temporary increase in air emissions due to operation of construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period

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	heavy equipment during construction period				
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Small	Probable / likely	Local	Short-term/ construction period
Protected areas	No impact				
Flora and fauna					
Riparian forests and woodlands, willow thickets	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Small	Very likely	Local	Permanent/ construction period
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities, peatlands)	<i>Destruction</i> of habitat due to the seizure of land for infrastructure or deterioration of its state	Small	Certain	Local	Permanent/ construction period
	Improving the hydrogenic conditions of habitats within the polder as a result of the restoration of periodic inundations which are natural for river valley	Positive	Certain	Local	Long-term/ operational stage
Continuity of terrestrial habitats	Reduction or weakness of the river valley corridor functions in the area outside of riverbed due to the construction of embankments	Important	Certain	Regional	Permanent/ construction period

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Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present – insignificant	Unlikely	Local	Short-term
Material goods	Development of housing, services and industry	Positive	Likely/possible	Regional	Long-term
	Change in the use of land	Significant	Very likely	Local	Long-term
	Tree felling	Present – insignificant	Very likely	Local	Long-term
Category of activities: Regulatory work and retention in the beds of natural water bodies, artificial or heavily modified parts of water bodies and drainage ditches					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	Changing the longitudinal profile and cross-section of the channel within inflow and outflow sections of dry reservoirs	Present-insignificant	Certain	Local	Long-term/ operational stage
	Changes of riparian zone (removal of vegetation on the banks) within inflow and outflow sections of dry reservoirs	Present-insignificant	Certain	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Biological quality elements of surface water (fish fauna, macrozoobenthos,	Limiting surfaces of habitats of macrophytes and benthic macroinvertebrates	Present-insignificant/ Small	Probable / likely	Local	Long-term/ operational stage

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macrophytes, phytobenthos)	Changes of riparian zone (removal of vegetation on the banks) within inflow and outflow sections of dry reservoirs	Present-insignificant	Certain	Local	Long-term/ operational stage
	Increased supply of products of surface erosion to the river bed during construction	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Quantitative and chemical quality elements of groundwater	No impact				
Soil	Direct destruction of soil cover due to execution of works	Present-insignificant	Certain	Local	Long-term/ construction period and operational stage
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present-insignificant	Probable / likely	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Small	Probable / likely	Local	Short-term/ construction period
Protected areas					
Protected areas associated with	Removing habitats associated with river valleys resulting from	Small/moderate/significant	Probable / likely	Local	Long-term, stage of implementation

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river valleys Natura 2000 sites	occupation of land under the infrastructure or deterioration of their condition as well as impact on habitats of protected species, including ichthyofauna				
Flora and fauna					
Riparian forests and willow thickets	<i>Deterioration or destruction of habitats</i>	Present-insignificant	Certain	Local	Permanent, construction period
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	<i>Deterioration or destruction of habitats</i>	Small	Certain	Local	Short-term or Permanent/ construction period
Habitats of the edges and bottom of the streambed	<i>Deterioration or destruction of habitats</i>	Small	Certain	Local	Short-term or Permanent/ construction period
Fauna assemblages (especially fish and invertebrates) in lotic habitats	<i>Deterioration of habitat due to water pollution (including turbidity)</i>	Small	Probable / likely	Local	Short-term/ construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - negligible	Very unlikely	Local	Short-term
	Development of cultural landscape	Positive	Unlikely	Local	Long-term

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Material goods	Damage in/destruction of technical infrastructure	Present – negligible	Unlikely	Local	Short-term
	Development of housing, services and industry	Positive	Unlikely	Local	Long-term
	Tree felling	Present - insignificant	Likely/possible	Local	Long-term
Category of activities: Construction of pump station					
Surface and groundwater	No impact				
Soil	Direct destruction of soil cover due to construction of the pump station	Present – insignificant	Certain	Local	Long-term/ construction period and operational stage
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present – insignificant	Likely/possible	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Small	Likely/possible	Local	Short-term/ construction period
Protected areas					
Natura 2000 Tarnobrzaska Vistula Valley	Destruction of non-forest habitats (meadows, reedbeds) and change the structure of the riverbank and associated habitats as a result of the	Present – insignificant	Certain	Local	Permanent, construction period

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	seizure of land for infrastructure				
Flora and fauna					
Willow thickets	<i>Destruction</i> of habitat due to the seizure of land for infrastructure	Present – insignificant	Likely/possible	Local	Permanent, construction period
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	<i>Destruction</i> of habitat due to the seizure of land for infrastructure	Small	Likely/possible	Local	Permanent, construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - insignificant	Likely/possible	Local	Short-term
	Development of cultural landscape	Positive	Unlikely	Regional	Long-term
Material goods	Damage in/destruction of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Development of housing, services and industry	Positive	Likely/possible	Regional	Long-term
	Change in the use of land	Present - insignificant	Likely/possible	Local	Short-term
	Tree felling	Present - insignificant	Likely/possible	Local	Short-term
Category of activities: Modernization of pump station					
Surface and groundwater	No impact				

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Soil	No impact				
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present - insignificant	Likely/possible	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Small	Likely/possible	Local	Short-term/ construction period
Protected areas	No impact				
Flora and fauna					
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	Deterioration or destruction of habitats	Present - insignificant	Possible	Local	Permanent, construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - negligible	Unlikely	Local	Short-term
	Development of cultural landscape	Positive	Unlikely	Regional	Long-term
Material goods	Damage in/destruction of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Development of housing, services and industry	Positive	Unlikely	Regional	Long-term
	Change in the use of land	Present - negligible	Likely/possible	Local	Short-term
	Tree felling	Present - negligible	Likely/possible	Local	Short-term
Category of activities: Reconstruction of bridges					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	Change of river channel cross-section within the bridge area and direct vicinity	Present – insignificant	Certain	Local	Long-term/ operational stage
	Changes in the riparian zone	Present – insignificant	Certain	Local	Long-term/ operational stage
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	Limiting surfaces of habitats of macrophytes and macroinvertebrates	Present – insignificant	Likely/possible	Local	Long-term/ operational stage
	Changes in structure of the riparian zone	Present – insignificant	Certain	Local	Long-term/ operational stage
Quantitative and chemical quality elements of groundwater	No impact				
Soil	No impact				
Air quality	Temporary increase in air emissions due to operation of construction	Present – insignificant	Likely/possible	Local	Short-term/ construction period

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	heavy equipment during construction period				
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Little	Likely/possible	Local	Short-term/ construction period
Protected areas					
Protected areas associated with river valleys, mainly Natura 2000 sites	<i>Deterioration of ichthyofauna habitats due to water pollution (including turbidity)</i>	Small/significant	Probable/likely	Local	Short-term, stage of implementation
Flora and fauna					
Habitats of the edges and bottom of the streambed	<i>Deterioration or destruction of habitats</i>	Little	Likely/possible	Local	Short-term or Permanent/ construction period
Riparian forests, willow thickets	<i>Deterioration or destruction of habitats</i>	Little	Likely/possible	Local	Short-term or Permanent/ construction period
Fauna assemblages (especially fish and invertebrates) in lotic habitats	<i>Deterioration of habitat due to water pollution (including turbidity)</i>	Small - Important	Likely/possible	Local	Short-term/ construction period
Ecological connectivity of habitats of terrestrial animals	Strengthening the valley corridor functions as a result of the broadening of the bridge spans	Positive	Likely/possible	Local	Short-term/ construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - negligible	Likely/possible	Local	Short-term

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Development of cultural landscape	Positive	Unlikely	Local	Short-term
Material goods	Damage in/destruction of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Development of housing, services and industry	Positive	Unlikely	Local	Long-term
	Change in the use of land	Present - negligible	Likely/possible	Local	Short-term
	Tree felling	Present - negligible	Likely/possible	Local	Short-term
Category of activities: Demolition of structures					
Surface and groundwater	No impact				
Soil	Enabling restoration of soil in the previously built-up area	Positive	Likely/possible	Local	Long-term/ operational stage
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present – insignificant	Likely/possible	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Little	Likely/possible	Local	Short-term/ construction period
Protected areas	No impact				

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Flora and fauna	No impact				
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Little	Likely/possible	Regional	Long-term
	Visual impact on the cultural landscape	Little	Likely/possible	Regional	Long-term
	Development of cultural landscape	Little	Unlikely	Local	Long-term
Material goods	Damage in/destruction of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Damage in/destruction of social infrastructure	Present - negligible	Unlikely	Local	Short-term
	Limited functioning of social infrastructure	Present - negligible	Likely/possible	Local	Short-term
	Damage in houses	Significant	Very likely	Local	Long-term
	Development of housing, services and industry	Positive	Very likely	Regional	Long-term
	Development of related objects and associated infrastructure	Positive	Very likely	Regional	Long-term
	Change in the use of land	Significant	Very likely	Local	Short-term
	Tree felling	Present - negligible	Likely/possible	Local	Short-term
	Increased demand for social and technical infrastructure	Present - negligible	Likely/possible	Local	Long-term

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Loss of workplaces influencing unemployment rate and economy	Present - negligible	Very Unlikely	Local	Short-term
Category of activities: Demolition and reconstruction of the conflicting elements of infrastructure (e.g. sections of waterworks, sewage, roads, et al.)					
Surface and groundwater					
Hydromorphological and physical-chemical quality elements of surface water	No impact				
Biological quality elements of surface water (fish fauna, macrozoobenthos, macrophytes, phytobenthos)	No impact				
Quantitative and chemical quality elements of groundwater	Dewatering of excavations during execution of works	Present – insignificant	Likely/possible	Local	Short-term/ construction period
Soil	Direct destruction of soil cover due to reconstruction of particular elements of infrastructure	Present – insignificant	Certain	Local	Short-term/ construction period

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
Air quality	Temporary increase in air emissions due to operation of construction heavy equipment during construction period	Present – insignificant	Likely/possible	Local	Short-term/ construction period
Noise	Temporary increase in noise emissions due to operation of construction heavy equipment during construction period	Present – insignificant	Likely/possible	Local	Short-term/ construction period
Protected areas	No impact				
Flora and fauna					
Riparian forests, willow thickets	<i>Deterioration or destruction of habitats</i>	Present – insignificant	Possible	Local	Short-term or Permanent/ construction period
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	<i>Deterioration or destruction of habitats</i>	Present – insignificant	Possible	Local	Short-term or Permanent/ construction period
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present – negligible	Unlikely	Local	Short-term
	Development of cultural landscape	Positive	Unlikely	Local	Long-term
Material goods	Damage in/destruction of technical infrastructure	Present – negligible	Very likely	Local	Short-term
	Limited functioning of technical infrastructure	Present - negligible	Very likely	Local	Short-term

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Component of the environment	Type of impact	Significance	Likelihood of impact	Spacial scale of impact	Temporal scale of impact
	Limited functioning of social infrastructure	Present - negligible	Very Unlikely	Local	Short-term
	Development of housing, services and industry	Positive	Very Unlikely	Local	Short-term
	Change in the use of land	Present - negligible	Unlikely	Local	Long-term
	Tree felling	Present - negligible	Likely/possible	Local	Short-term

2 MITIGATING AND COMPENSATORY MEASURES

2.1 ABIOTIC ELEMENTS

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Category of actions: construction of dry detention basins (front dams, side dams, relief-overflow sections)				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Lowering flows in the maximum flow zone below the reservoir.	Moderate	<ul style="list-style-type: none"> Introducing principle of catching by the reservoir only flows of specified likelihood of occurrence, Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Temporary change in conditions of flow of waters through the reservoir	Moderate	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Introducing principle of minimal required time of keeping waters in the reservoir Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of products of erosion to the riverbed at the stage of conducting works	Moderate	<ul style="list-style-type: none"> N/a 	-
<i>Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)</i>	Temporary change in habitat conditions for macrophytes, macrozoobenthos	Moderate	<ul style="list-style-type: none"> Introducing principle of minimal required time of keeping waters in the reservoir Carrying out detailed analyzes at the stage of EA report Implementation of works in accordance with EMP Realizacja prac zgodnie z wymogami PZŚ 	-
	Increased inflow of surface erosion products to the riverbed at the stage of conducting works	Moderate	<ul style="list-style-type: none"> N/a 	-
Ground water	Temporary change in the level of ground waters on areas adjacent to the reservoir	Little	<ul style="list-style-type: none"> N/a 	-
Soils	Temporary change of moisture conditions of soils.	Little	<ul style="list-style-type: none"> N/a 	-
	Intensified change in the soil profile resulting from increased accumulation of deposits in the bowl of the reservoir.	Little	<ul style="list-style-type: none"> N/a 	-

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Intensified change in the soil profile resulting from increased accumulation of deposits in the bowl of the reservoir.			
	Direct destruction of the soil cover resulting from construction of dams during ground works at the stage of construction of leading / side dams and/or modification of land within the bowl of the reservoir.	Little	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Little	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Using machines with appropriate fuel combustion standards, in accordance with the requirements Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Little	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Introducing requirement of conducting works only at daytime Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Little	<ul style="list-style-type: none"> Detailed identification of monuments and archeological sites Implementation of minimising and compensatory measures indicated in the EIA report, 	PIU consultant, Contractor, Investor's Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> • Implementation of the investment in accordance with conditions set out in the environmental decision and PRI, • Implementation of the investment in accordance with conditions imposed by monument restorer • Providing archeological supervision for conducted works, • Maximum minimization of the area of implementation of the investment, • Employing experienced Contractors to carry out construction works, • Preparing EMP prior to commencement of works, • Implementing works in accordance with EMP 	
	Visual impact on the cultural landscape	Moderate	<ul style="list-style-type: none"> • Detailed identification of visual impacts in the EIA report, • Implementation of minimising and compensatory measures indicated in the EIA report, • Implementation of the investment in accordance with conditions set out in the environmental decision and PRI, • Implementation of the investment in accordance with conditions imposed by monument restorer, • Maximum minimization of the area of implementation of the investment, • Preparing EMP prior to commencement of works, 	PIU consultant, Contractor, Investor's Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> Implementing works in accordance with EMP 	
	Development of cultural landscape	Significant	<ul style="list-style-type: none"> Detailed identification of impacts in the EIA report, Implementation of minimising and compensatory measures indicated in the EIA report, Implementation of the investment in accordance with conditions set out in the environmental decision and PRI, Implementation of the investment in accordance with conditions imposed by monument restorer, Providing archeological supervision for conducted works, Maximum minimization of the area of implementation of the investment, Preparing EMP prior to commencement of works, Implementing works in accordance with EMP. 	PIU consultant, Contractor, Investor's Supervision
Category of actions: renovation of retention reservoirs				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the	Lowering flows in the maximum flow zone below the reservoir.	Moderate	<ul style="list-style-type: none"> Introducing principle of catching by the reservoir only flows of specified likelihood of occurrence, Carrying out detailed analyses of the impact at the stage of EIA report 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
flow of surface waters			<ul style="list-style-type: none"> Implementation of works in accordance with EMP requirements 	
	Temporary change in conditions of flow of waters through the reservoir.	Moderate	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Introducing principle of minimal required time of keeping waters in the reservoir Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of products of erosion to the riverbed at the stage of conducting works	Moderate	<ul style="list-style-type: none"> N/a 	-
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Temporary change in habitat conditions for macrophytes, macrozoobenthos	Moderate	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Introducing principle of minimal required time of keeping waters in the reservoir Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of surface erosion products to the riverbed at the stage of conducting works	Moderate	<ul style="list-style-type: none"> N/a 	-
Ground water	Temporary change in the level of ground waters on areas adjacent to the reservoir.	Little	<ul style="list-style-type: none"> N/a 	-
Soils	Temporary change of moisture conditions of soils.	Little	<ul style="list-style-type: none"> N/a 	-

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Intensified change in the soil profile resulting from increased accumulation of deposits in the bowl of the reservoir.	Little	<ul style="list-style-type: none"> N/a 	-
	Direct destruction of the soil cover resulting from construction of leading / side dams.	Little	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Little	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Using machines with appropriate fuel combustion standards, in accordance with the requirements Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Little	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Introducing requirement of conducting works only at daytime Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Significant, Short-term	<ul style="list-style-type: none"> Identification of existing monuments and archeological sites, Implementation of the investment in accordance with conditions set out in the environmental decision and PRI, Implementation of the investment in accordance with conditions imposed by monument restorer, 	PIU consultant, Contractor, Investor's Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> • Preparing EMP prior to commencement of works, • Implementation of works in accordance with EMP 	
Category of actions: changing the way of water management on the storage reservoir				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Temporary lowering of the level of water in the reservoir.	Little	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increasing retention capacity of the reservoir.	Little	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Reduction of habitats for ichthyofauna	Little	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Ground water	Temporary increase in fluctuation of level of ground waters in direct vicinity of the reservoir.	Little	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Category of actions: construction of embankments/boulevards				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Narrowing zone of maximum water flows – raising level of high waters in the riverbed.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Changes in the morphology of the riverbed and on the inter-embankment zone – increased processes of erosion of the riverbed and accumulation in the inter-embankment zone	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased velocity of the water flow in the riverbed	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Reduction of valley retention – increased amount of water flowing to the catchment situated below the planned activity.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Introducing tasks increasing retention in the catchment (dry reservoirs, polders) to balance construction of the embankments Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Change in the structure of bank zone (in case of situating the embankment in close vicinity of the riverbed).	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Moving the embankment from the river, where possible Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Interference with the riverbed (in case of situating the embankment directly by the riverbed).	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of products of surface erosion to the riverbed at the stage of construction works.	Local	<ul style="list-style-type: none"> N/a 	-
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Conversion of macrophytes and macrozoobenthos habitats and reduction in area	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Locating facilities and places of soil collection outside the inter-embankment area or in appropriate distance from banks of the river Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased velocity of flow in the riverbed	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	Separating dependable habitats from catchment waters	Local	<ul style="list-style-type: none"> Limiting construction of embankments to developed areas Maximally possible moving the embankment route from the river Carrying out detailed analyzes at the stage of EA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Change in the bank structure (incase of locating the embankment near the riverbed)	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of surface erosion products to the riverbed at the stage of conducting works	Local	<ul style="list-style-type: none"> N/a 	-
Ground water	Loss of contact with surface waters situated in the valley outside the embankment.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Change in the level of ground waters	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Disruptions in the flow of ground waters.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report 	PIU consultant, Contractor, Investor's

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> Implementation of works in accordance with EMP requirements 	Supervision, Environmental Supervision
Soils	Intensification of changes in the soil profile resulting from increased accumulation of deposition the inter-embankment area.	Local	<ul style="list-style-type: none"> N/a 	-
	Direct destruction of the soil cover resulting from construction of embankments/boulevards.	Local	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Category of actions: modernisation of embankments / boulevards				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the	Change in the structure of bank zone (in case of situatind the embankment in close vicinity of the riverbed).	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
flow of surface waters	Interference with the riverbed (in case of situating the embankment directly by the riverbed).	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of products of surface erosion to the riverbed at the stage of construction works.	Local	<ul style="list-style-type: none"> N/a 	-
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Change in the bank structure (incase of locating the embankment near the riverbed)	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Reducing area of macrophytes' habitats	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of surface erosion products to the riverbed at the stage of conducting works	Local	<ul style="list-style-type: none"> N/a 	-
Soils	Direct destruction of the soil cover resulting from construction of embankments/boulevards.	Local	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report 	PIU consultant, Contractor, Investor's Supervision,

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> Implementation of works in accordance with EMP requirements 	Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - negligible, Short-term	<ul style="list-style-type: none"> Identification of existing monuments and archeological sites, Implementation of the investment in accordance with conditions set out in the environmental decision and PRI, Implementation of the investment in accordance with conditions imposed by monument restorer, Preparing EMP prior to commencement of works, Implementing works in accordance with EMP 	PIU consultant, Contractor, Investor's Supervision
Category of actions: construction of polders				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Increased inflow of products of surface erosion to the riverbed at the stage of construction works.	Local	<ul style="list-style-type: none"> N/a 	-

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Increased inflow of surface erosion products to the riverbed at the stage of conducting works	Local	<ul style="list-style-type: none"> N/a 	-
Ground water	Temporary change in the level of ground waters on areas adjacent to the polder.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Soils	Direct destruction of the soil cover resulting from construction of embankments surrounding the polder.	Local	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - insignificant,	<ul style="list-style-type: none"> Identification of existing monuments and archeological sites, 	PIU consultant, Contractor, Investor's Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> • Implementation of the investment in accordance with conditions set out in the environmental decision and PRI, • Preparing EMP prior to commencement of works, • Implementation of works in accordance with EMP,. 	
Category of actions: regulation and maintenance works in riverbeds and inter-embankment lands of natural and artificial parts of water or strongly changed parts of water and drainage ditches				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Change of longitudinal section and cross-section of the riverbed within entry and exit sections of dry reservoirs.	Local	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Change in the structure of bank zone (liquidation of bank greenery) within entry and exit sections of dry reservoirs.	Local	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of products of surface erosion to the riverbed at the stage of construction works.	Local	<ul style="list-style-type: none"> • N/a 	-
Biological elements of the water status assessment (phytoplankton / phytobenthos,	Reducing area of macrophytes' and benthos macroinvertebrates' habitats	Local	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
macrophytes, macroinvertebrates, ichthyofauna)	Change in the bank structure (liquidation of bank greenery) within entry and exit sections of dry reservoirs	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Increased inflow of surface erosion products to the riverbed at the stage of conducting works	Local	<ul style="list-style-type: none"> N/a 	-
Soils	Direct destruction of the soil cover resulting from construction works.	Local	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Category of actions: construction of pump station				
Soils	Direct destruction of the soil cover resulting from construction of the pump station.	Local	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant
Air quality	Temporary increase in emission of pollutions resulting from	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report 	PIU consultant, Contractor, Investor's Supervision,

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	machine operation at the stage of implementation of works.		<ul style="list-style-type: none"> Implementation of works in accordance with EMP requirements 	Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - insignificant	<ul style="list-style-type: none"> Identification of existing monuments and archeological sites, Implementation of the investment in accordance with conditions imposed by monument restorer, Providing archeological supervision for conducted works, Preparing EMP prior to commencement of works, Implementing works in accordance with EMP 	PIU consultant, Contractor, Investor's Supervision
Category of actions: renovation of pump stations				
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - insignificant	<ul style="list-style-type: none"> • Identification of existing monuments and archeological sites, • Implementation of the investment in accordance with conditions imposed by monument restorer. 	PIU consultant, Contractor, Investor's Supervision
Category of actions: reconstruction of bridges				
Surface and ground waters				
Hydromorphological elements, physical and chemical parameters of the flow of surface waters	Change in cross-section of the riverbed within the bridge and in its direct vicinity.	Local	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Change in the structure of bank zone	Local	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Biological elements of the water status assessment (phytoplankton / phytobenthos, macrophytes, macroinvertebrates, ichthyofauna)	Reducing area of macrophytes' and benthos macroinvertebrates' habitats	Local	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
	Change in the bank zone structure	Local	<ul style="list-style-type: none"> • Carrying out detailed analyses of the impact at the stage of EIA report • Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Present - negligible, Short-term	<ul style="list-style-type: none"> Identification of existing monuments and archeological sites, Implementation of the investment in accordance with conditions imposed by monument restorer, Preparing EMP prior to commencement of works, Implementing works in accordance with EMP 	PIU consultant, Contractor, Investor's Supervision
Category of actions: dismantlement and modification of colliding infrastructure elements (e.g. water supply system sections, sewage system sections, roads, etc.)				
Surface and ground waters				
Quantitative and qualitative elements of groundwater	Drained tranches during construction works	Local	<ul style="list-style-type: none"> N/a 	-
Soils	Direct destruction of the soil cover resulting from reconstruction of selected elements of infrastructure.	Local	<ul style="list-style-type: none"> Introducing requirement of occupying as little land as possible at the stage of implementations of works 	PIU consultant

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Air quality	Temporary increase in emission of pollutions resulting from machine operation at the stage of implementation of works.	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Noise	Temporary increase in emission of noise resulting from operation of construction machines at the stage of implementation of works	Local	<ul style="list-style-type: none"> Carrying out detailed analyses of the impact at the stage of EIA report Implementation of works in accordance with EMP requirements 	PIU consultant, Contractor, Investor's Supervision, Environmental Supervision
Cultural landscape and monuments	Destruction of or damage in cultural objects (including monuments)	Little	<ul style="list-style-type: none"> Identification of existing monuments and archeological sites, Implementation of the investment in accordance with conditions set out in the environmental decision and PRI, Implementation of the investment in accordance with conditions imposed by monument restorer, Providing archeological supervision for conducted works, Preparing EMP prior to commencement of works, Implementing works in accordance with EMP 	PIU consultant, Contractor, Investor's 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 dry detention basins (front dams, side dams, relief-overflow sections)				
Protected areas				
Protected areas associated with river valleys, mainly atura 2000 sites	Removing habitats associated with river valleys resulting from occupation of land under the infrastructure or deterioration of their condition as well as impact on habitats of protected species, including ichthyofauna	Local, long-term	<ul style="list-style-type: none"> • Taking into account the limitations resulting from the planning and implementation of the next steps in the flood protection (to prevent the further reduction of erosion, transport and accumulation of sewage) • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Flora and fauna				
Forests and woodlands (including riparian), willow thickets	Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state	Moderate	<ul style="list-style-type: none"> • Reducing the converted area due to the construction of barriers to a minimum • Taking into account valuable natural habitats and sites of species of plants and animals when choosing the best option of barrier location • Carry out detailed analyzes of the issues at the stage of the EIA report 	PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> Implementation of the work in accordance with the EMP requirements 	
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities, peatlands)	Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state	Moderate	<ul style="list-style-type: none"> Reducing the converted area due to the construction of barriers to a minimum Taking into account valuable natural habitats and sites of species of plants and animals when choosing the best option of barrier location Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	PIU consultant, contractor, Investment Authority, Environmental Authority
Continuity of terrestrial habitats	Reduction or weakness of the river valley corridor functions in the area outside of riverbed due to the construction of front barrier	Moderate	<ul style="list-style-type: none"> Ensuring continuity of habitats (corridor function) in the areas adjacent to the valley by protecting and creating habitats and improve the flow of existing barriers Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Category of actions: modernization of reservoirs				
Flora and fauna				

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Riparian forests and woodlands, willow thickets	Destruction of habitat due to the seizure of land for infrastructure or conversion of site (including deterioration)	Little	<ul style="list-style-type: none"> Reducing the converted area to a minimum Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	PIU consultant, contractor, Investment Authority, Environmental Authority
Non-forest habitats associated with the river valleys (meadows)	Destruction of habitat due to the seizure of land for infrastructure or conversion of site (including deterioration)	Little	<ul style="list-style-type: none"> None, because of the significance of the impact 	-
Habitats of edges and bottom of the riverbed	Deterioration or destruction of habitats	Little	<ul style="list-style-type: none"> Reducing the transition area of riverbed due to the modernisation to a minimum The use of materials and methods to minimize negative impacts on the environment Restoration of the riverbed habitat connectivity by performing structures for the migration of aquatic organisms (e.g. fish ladders) Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Fauna assemblages (especially fish and invertebrates) in lotic habitats	Deterioration of habitat due to water pollution (including turbidity)	Little	<ul style="list-style-type: none"> The use of materials, equipment and procedures to minimize the risk of pollution Carry out detailed analyzes of the issues at the stage of the EIA report 	PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> Implementation of the work in accordance with the EMP requirements 	
Category of actions: changing the way of water management on the storage reservoir				
Flora and fauna				
Scrub habitats (bushy thickets of willow), bulrush, meadows and related groups of plants and animals	Deterioration or destruction as a result of changes in the shape and the nature of the riverbank and the groundwater level in adjacent areas	Little	<ul style="list-style-type: none"> Customizing the emptying period to the period of mating of amphibians and birds (anticipatory) Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Category of actions: Construction of embankments / boulevards				
Protected areas				

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Protected areas associated with river valleys, mainly Natura 2000 sites	Destruction or deterioration of habitats of stream edges and bottom and associated groups of animals (including fish which are the subject of protection)	Local, short-term	<ul style="list-style-type: none"> • Reducing the converted area to a minimum • Location of the embankments with maintaining valuable habitats (building on the greatest possible distance from the riverbed) • Implementation of the work of absolute exclusion of the riverbed zone • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	PIU consultant, contractor, Investment Authority, Environmental Authority
Flora and fauna				
Riparian forests and woodlands, willow thickets	Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state	Local, permanent	<ul style="list-style-type: none"> • Reducing the converted area to a minimum • Location of the embankments with maintaining valuable habitats (building on the greatest possible distance from the riverbed and riparian habitats) • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	PIU consultant, contractor, Investment Authority, Environmental Authority
Non-forest habitats associated with the river valleys (meadows, reedbeds,	Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state	Local, permanent	<ul style="list-style-type: none"> • Reducing the converted area to a minimum 	PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
herb fringe communities)			<ul style="list-style-type: none"> • Location of the embankments with maintaining valuable habitats (building on the greatest possible distance from the riverbed and associated habitats) • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	
Habitats of the edges and bottom of the riverbed	Deterioration or destruction of habitats	Little	<ul style="list-style-type: none"> • Limitation of the scope of the work to a minimum • Restoration of habitats or creating alternative habitats in the river bed and banks of the watercourse • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	PIU consultant, contractor, Investment Authority, Environmental Authority
Category of actions: Modernization of embankments/boulevards				
Flora and fauna				
Natura 2000 Low San Valley, Reserve "Wista pod Zawichostem"	Destruction of scrub habitats and bushy thickets of willow due to the seizure of land for infrastructure or deterioration of its state	Local, permanent	<ul style="list-style-type: none"> • Reducing the converted area to a minimum • Taking into account the maintaining valuable habitats when expanding the embankments 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> • Complete refusal to work in the river inter-flood bank area • Customizing the emptying period to the period of mating of amphibians and birds • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	
Natura 2000 Low San Valley, Tarnobrzaska Vistula Valley, Reserve "Wisła pod Zawichostem"	Destruction of non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities, peatlands, macrophytes) due to the seizure of land for infrastructure or deterioration of its state	Local, permanent	<ul style="list-style-type: none"> • Reducing the converted area due to modernisation of the embankments to a minimum • Taking into account the maintaining valuable habitats when expanding the embankments • Complete refusal to work in the river inter-flood bank area • Customizing the emptying period to the period of mating of amphibians and birds • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Remaining protected areas associated with river valleys, mainly Natura 2000 sites	Removing habitats associated with river valleys resulting from occupation of land under the	Local, permanent	<ul style="list-style-type: none"> • Limiting the land covered by transformation resulting from modernization of the 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
	infrastructure or deterioration of their condition		<ul style="list-style-type: none"> • embankments to the necessary minimum • Expansion of the embankment with maintaining habitats of natural value (recommended direction of expansion - from the side of floodplains) • Quitting from conducting works on the inter-embankment area • Adjusting time of conducting works to the reproductive periods of amphibians and clutching of birds • Carrying out detailed analyses of the issue in question at the stage of the EIA report • Implementatin of works in accordance with the EMP reuirements 	
Flora and fauna				
Riparian forests and woodlands, willow thickets	Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state	Local, permanent	<ul style="list-style-type: none"> • Reducing the converted area due to modernisation of the embankments to a minimum • Taking into account the maintaining valuable habitats when expanding the embankments • Reducing the work in the river inter-flood bank area to a minimum 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> • Customizing the emptying period to the period of mating of amphibians and birds • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	
<p>Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities, peatlands, macrophytes)</p>	<p>Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state</p>	<p>Little</p>	<ul style="list-style-type: none"> • Reducing the converted area due to modernisation of the barriers to a minimum • Taking into account the maintaining valuable habitats when expanding the embankments • Reducing the work in the river inter-flood bank area to a minimum • Customizing the emptying period to the period of mating of amphibians and birds • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	<p>water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority</p>
<p>Habitats of the edges and bottom of the riverbed</p>	<p>Deterioration or destruction of habitats</p>	<p>Little</p>	<ul style="list-style-type: none"> • Reducing the converted area due to modernisation of the barriers to a minimum • Reducing the work in the river inter-flood bank area to a minimum 	<p>water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority</p>

Annex 3. ENVIRONMENTAL IMPACTS, GENRERIC MITIGATION AND MONITORING PLAN
- COMPONENT 3: UPPER VISTULA RIVER

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	
Category of actions: construction of polders				
Protected areas				
Natura 2000 Wiślicka	Deterioration of oxbow habitat (3150) and related species (including amphibians) due to embankment construction	Local, short-term or permanent	<ul style="list-style-type: none"> Reducing the converted area due to modernisation of the dikes to a minimum Location of the dikes at a safe distance from the habitat, distance excludes environmental damage Customizing the emptying period to the period of mating of amphibians Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	PIU consultant, contractor, Investment Authority, Environmental Authority
<ul style="list-style-type: none"> Flora and fauna 	<ul style="list-style-type: none"> 			
Riparian forests and woodlands, willow thickets	Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state	Local, permanent	<ul style="list-style-type: none"> Reducing the converted area due to construction of the dikes to a minimum 	PIU consultant, contractor, Investment Authority, Environmental Authority

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- COMPONENT 3: UPPER VISTULA RIVER

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			<ul style="list-style-type: none"> • Taking into account valuable natural habitats and sites of species of plants and animals when choosing the best option of dike location • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	
<p>Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities, peatlands, oxbow lakes)</p>	<p>Destruction of habitat due to the seizure of land for infrastructure or deterioration of its state</p>	<p>Local, permanent</p>	<ul style="list-style-type: none"> • Reducing the converted area due to construction of the dikes to a minimum • Taking into account valuable natural habitats and sites of species of plants and animals when choosing the best option of dike location • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	<p>PIU consultant, contractor, Investment Authority, Environmental Authority</p>
<p>Continuity of terrestrial habitats</p>	<p>Reduction or weakness of the river valley corridor functions in the area outside of riverbed due to the construction of embankments</p>	<p>Regional, permanent</p>	<ul style="list-style-type: none"> • Ensuring continuity of habitats (corridor function) in the areas adjacent to the valley by protecting and creating habitats and improve the flow of existing barriers • Carry out detailed analyzes of the issues at the stage of the EIA report • of the work in accordance with the EMP requirements 	<p>water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority</p>

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
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				
Flora and fauna				
Riparian forests and willow thickets	Deterioration or destruction of habitats	Local, permanent	<ul style="list-style-type: none"> • None, because of the insignificance of the impact 	-
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	Deterioration or destruction of habitats	Local, short-term or permanent	<ul style="list-style-type: none"> • Reducing the scope of the work to a minimum • Implementation and maintenance work performed piecewise • Customize the date of the work to the presence of plants and animals associated with watercourses and their neighborhood • The use of materials and methods to minimize negative impacts on the environment • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Habitats of the edges and bottom of the riverbed	Deterioration or destruction of habitats	Local, short-term or permanent	<ul style="list-style-type: none"> • Reducing the scope of the work to a minimum • Implementation and maintenance work performed piecewise • Customize the date of the work to the presence of plants and animals 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
			associated with watercourses and their neighborhood <ul style="list-style-type: none"> • The use of materials and methods to minimize negative impacts on the environment • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	
Fauna assemblages (especially fish and invertebrates) in lotic habitats	Deterioration of habitat due to water pollution (including turbidity)	Local, short-term	<ul style="list-style-type: none"> • The use of materials and methods to minimize negative impacts on the environment • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Category of actions: construction of pump station				
Protected areas				
Natura 2000 Tarnobrzaska Vistula Valley	Destruction of non-forest habitats (meadows, reedbeds) and change the structure of the riverbank and associated habitats as a result of the seizure of land for infrastructure	Local, permanent	<ul style="list-style-type: none"> • None, because of the significance of the impact 	-
Flora and fauna				

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Willow thickets	Destruction of habitat due to the seizure of land for infrastructure	Local, permanent	<ul style="list-style-type: none"> None, because of the significance of the impact 	-
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	Destruction of habitat due to the seizure of land for infrastructure	Local, permanent	<ul style="list-style-type: none"> Reducing the converted area to a minimum Taking into account valuable natural habitats and sites of species of plants and animals when choosing the best option of pump station location Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Category of actions: modernization of pump stations				
Flora and fauna				
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	Deterioration or destruction of habitats	Local, permanent	<ul style="list-style-type: none"> None, because of the significance of the impact 	-
Category of actions: reconstruction of bridges				
Protected areas				

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- COMPONENT 3: UPPER VISTULA RIVER

Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Natura 2000 Raba with Mszanka	Deterioration of ichthyofauna habitats due to water pollution (including turbidity)	Local, short-term	<ul style="list-style-type: none"> The use of materials, equipment and procedures to minimize the risk of pollution Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Flora and fauna				
Habitats of the edges and bottom of the riverbed	Deterioration or destruction of habitats	Local, short-term or permanent	<ul style="list-style-type: none"> Reducing the converted area to a minimum The use of solutions to reduce the negative impact on the environment Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Riparian forests, willow thickets	Deterioration or destruction of habitats	Local, short-term or permanent	<ul style="list-style-type: none"> Reducing the converted area to a minimum The use of solutions to reduce the negative impact on the environment Carry out detailed analyzes of the issues at the stage of the EIA report Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority

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Component of the environment	Type of impact	Consequence category	Proposed mitigation and compensatory measures	Responsibility
Fauna assemblages (especially fish and invertebrates) in lotic habitats	Deterioration of habitat due to water pollution (including turbidity)	Local, short-term or permanent	<ul style="list-style-type: none"> • The use of materials, equipment and procedures to minimize the risk of pollution • Carry out detailed analyzes of the issues at the stage of the EIA report • Implementation of the work in accordance with the EMP requirements 	water manager, RDEP, PIU consultant, contractor, Investment Authority, Environmental Authority
Category of actions: dismantlement and modification of colliding infrastructure elements (e.g. water supply system sections, sewage system sections, roads, etc.)				
Flora and fauna				
Riparian forests, willow thickets	Deterioration or destruction of habitats	Local, short-term or permanent	<ul style="list-style-type: none"> • None, because of the significance of the impact 	-
Non-forest habitats associated with the river valleys (meadows, reedbeds, herb fringe communities)	Deterioration or destruction of habitats	Local, short-term or permanent	<ul style="list-style-type: none"> • None, because of the significance of the impact 	-

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 cycles of filling the reservoir	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) – 2000 PLN/month	Cost of installation of 1 piezometer - approx. 300 - 800 PLN; cost of service for 1 localization (between one and several piezometers) – 2000 PLN/month	Contractor	Investor

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- COMPONENT 3: UPPER VISTULA RIVER

Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor
Category of actions: renovation of retention reservoirs								
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

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

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
SWB and in 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
Category of actions: construction of polders								
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	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

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

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

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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		documentation	or after executing specific task					
Category of actions : dismantlement of structures								
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor
Category of actions: dismantlement and modification of colliding infrastructure elements (e.g. water supply system sections, sewage system sections, roads, etc.)								
Implementation of minimizing measures indicated in the EIA report and environmental decision in the scope of natural environment	Area of implementation and impact of the investment	Verification of implementation of field works with environmental documentation	Up to date, at the stage of implementation of works, depending on the adopted schedule, at the stage of exploitation once a month or after executing specific task	Assessment of correctness of implementation of minimizing measures from the EIA report and environmental decision	30 000 PLN/month	5000 PLN/month	PIU consultant (Environmental supervision), Investor's Supervision, Contractor	Investor
Category of actions: construction of dry detention basins (front dams, side dams, relief-overflow sections)								

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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.	10 000 PLN/month	5000 PLN/month	Consultant PIU, Investor site supervision agent, Contractor	Investor
Conformity of the use of space with the indicators set in EMP	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	Construction of dry reservoirs may affect the existing landscape, including cultural landscape of the village/town. 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, Investor site supervision agent, Contractor	Investor
Technical infrastructure within project impact area	Project impact area	Monitoring of establishing owners of infrastructure, monitoring acquiring consents, monitoring of concluding	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	10 000 PLN/month	5000 PLN/month	Consultant PIU, Investor site supervision agent, Contractor	Investor r

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		contracts / agreements with owners of infrastructure		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 acquisition of property rights, monitoring of compensation payments	As specified in LARAP	Project will result in permanent occupation of land. It is possible that constant restrictions in present land/property - use will be implemented (e.g. change in structure of crops). Monitoring will enable the management of property rights acquisition and compensation payment process.	10 000 PLN/month	5000 PLN/month	Consultant LARAP, PIU	Consultant LARAP, PIU
Shor-term takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates,	As specified in LARAP	Project will result in temporary occupation of land. It is possible that temporary restrictions in	10 000 PLN/month	5000 PLN/month	Consultant LARAP, PIU	Consultant LARAP, PIU

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		current land/property - use, acquisition agreements for temporary occupation of land, signing contracts for temporary occupation of land		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.				
Number of resettled persons due to implementation of the project	Project impact area	To be elaborated in LARAP	As specified in LARAP	In relation to implementation of this category of measures the need for resettlement of individual estates/farms is likely. Depending upon the structure of inhabitants the certain increase in demand for social infrastructure can be expected.	10 000 PLN/month	5000 PLN/month	Consultant LARAP, PIU	Consultant LARAP, PIU
Tress to be cut down	Project area	To be elaborated with the contribution of a landscape protection and maintenance	To be elaborated with the contribution of a landscape protection and maintenance specialist at the stage of preparation of EMP	Removal of trees can affect the landscape. In some cases it also may have economic significance (e.g. loss of agricultural values, loss of timber).	5000 zł		Consultant PIU, Investor site supervision agent, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		specialist at the stage of preparation of EMP						
Category of actions: renovation of retention reservoirs								
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, Investor site supervision agent, Contractor	Investor
Technical infrastructure within project impact area	Project impact area	Monitoring of establishing owners of infrastructure, monitoring acquiring consents, monitoring of concluding contracts /	As needed, not less frequently than once per quarter	The measure may affect the existing technical infrastructure (power lines, fibre optic lines, paved and dirt roads, hydropower structure). Hence it is indispensable to establish what technical infrastructure is present within the project area, how	10 000 PLN/month	5000 PLN/month	Consultant PIU, Investor site supervision agent, Contractor	Investor

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

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		- use, acquisition agreements for temporary occupation of land, signing contracts for temporary occupation of land		Monitoring will enable the management of the process of acquisition of rights for short-term use of properties and compensation payment.				
Category of actions: construction of embankments/boulevards								
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 particular works.	10 000 PLN/month	5000 PLN/month	Consultant PIU, Investor site supervision agent, Contractor	Investor
Technical infrastructure	Project impact area	Monitoring of establishing owners of infrastructure,	As needed, not less frequently than once per quarter	The measure may affect the existing technical infrastructure (power lines, fibre optic lines, paved and	10 000 PLN/month	5000 PLN/month	Consultant PIU, Investor site supervision	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
within project impact area		monitoring acquiring consents, monitoring of concluding contracts / agreements with owners of infrastructure		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.			agent, Contractor	
Permanent takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, review of current land/property use, review of making real estate divisions, review of acquisition of property rights, monitoring of compensation payments	As specified in LARAP	The measure will result in permanent occupation of land. Monitoring will enable the management of property rights acquisition and compensation payment process.	10 000 PLN/month	5000 PLN/month	Consultant LARAP, PIU	Consultant LARAP, PIU

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Shor-term takeover of land due to project implementation	Project area	Monitoring of establishing owners of real estates, current land/property - use, acquisition agreements for temporary occupation of land, signing contracts for temporary occupation of land	As specified in LARAP	The measure will result in temporary occupation of land. It is possible that temporary restrictions in present land/property - use will be implemented. Monitoring will enable the management of the process of acquisition of rights for short-term use of properties and compensation payment.	10 000 PLN/month	5000 PLN/month	Consultant LARAP, PIU	Consultant LARAP, PIU
Category of actions: construction of polders								
Permanent occupation of real estates resulting from implementation of the investment	Area of implementation of the investment	Monitoring of determining owners of real estates, review of current use of real estates, review of real estates' division, review of obtaining	As specified in LARAP	The investment will result in permanent occupation of land. It is possible that permanent restrictions in current use of the real estate will be implemented (e.g. change in crops' structure). Monitoring will allow for managing process of acquisition of the real	10 000 PLN/month	5000 PLN/month	LARAP consultant, PIU	LARAP consultant, PIU

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		rights to real estates, payment of compensation		estates and payment of compensation.				
Temporary occupation of real estates resulting from implementation of the investment	Area of implementation of the investment	Monitoring of determining owners of real estates, review of current use of real estates, review of real estates' division, review of obtaining rights to real estates, monitoring of payment of compensation	As specified in LARAP	The investment will result in temporary occupation of land. It is possible that temporary restrictions in current use of the real estate will be implemented. Monitoring will allow for managing process of acquisition right to temporary occupation of the real estates and payment of compensation.	10 000 PLN/month	5000 PLN/month	LARAP consultant, PIU	LARAP consultant, PIU
Tree felling	Area of implementation of the investment	To be established with participation of landscape protection and landscaping specialist at	To be established with participation of landscape protection and landscaping specialist at the stage of EMP	Felling of trees may have impact on the landscape. In some cases, it may also have economic consequences (e.g. loss of agritourism value, loss of timber).	5000 PLN	-	PIU consultant, Investor's Supervision, Contractor	-

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		the stage of EMP						
Category of actions: construction of pump stations								
Cultural objects and monuments within area of impact of the investment	Area of impact of the investment	To be established with participation of archeologist at the stage of EMP	To be established with participation of archeologist at the stage of EMP	Implementation of the investment may result in damage in cultural objects and monuments within area of impact of the investment, in particular is an archeological site is discovered. Manner and frequency of monitoring should be designed in detail at the stage of EMP.	10 000 PLN/month	5000 PLN/month	PIU consultant, Investor's Supervision, Contractor	Investor
Technical infrastructure within area of impact of the investment	Area of impact of the investment	Monitoring of determining owners of infrastructure, monitoring of obtaining alignments, monitoring of concluding agreements with owners of infrastructure	Depending on demand	The investment may have impact on technical infrastructure (power lines, fiber optic lines and others, paved roads and dirt roads, hydropower infrastructure). It is therefore necessary to determine in detail what type of technical infrastructure is present on the area of implementation of the investment, what the impact of works on the infrastructure is and in	10 000 PLN/month	5000 PLN/month	PIU consultant, Investor's Supervision, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				what manner minimizing and compensatory means are implemented.				
Category: demolition of buildings								
Cultural objects and monuments within the area of impact of the investment	Area of impact of the investment	To be established with participation of archeologist at the stage of EMP	To be established with participation of archeologist at the stage of EMP	Implementing the investment may result in damage of cultural objects and monuments on the area of impact of the investment. In particular, attention should be paid to cultural value of objects selected for demolition. Proposing manner and frequency of monitoring requires more detailed research at the stage of EMP.	10 000 PLN/month	5000 PLN/month	PIU consultant, Investor's Supervision, Contractor	Investor
Compliance of use of space in accordance with indicators set out in the EMP	Area of impact of the investment	To be established with participation of archeologist at the stage of EMP	To be established with participation of archeologist at the stage of EMP	Demolition of buildings and structures may have impact on the landscape in its current shape, including cultural landscape of the city. However, proposing manner and frequency of monitoring requires more detailed research at the stage of EMP.	10 000 PLN/month	5000 PLN/month	PIU consultant, Investor's Supervision, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Technical infrastructure within area of impact of the investment	Area of impact of the investment	Monitoring of determining owners of infrastructure, monitoring of obtaining alignments, monitoring of concluding agreements with owners of infrastructure	Depending on demand, not less than once per quarter	Depending on the structures selected for demolition, this category of activities may have impact on different types of infrastructure. It is therefore necessary to determine in detail what type of technical infrastructure is present on the area of implementation of the investment, what the impact of works on the infrastructure is and in what manner minimizing and compensatory means are implemented.	10 000 PLN/month	5000 PLN/month	PIU consultant, Investor's Supervision, Contractor	Investor
Permanent occupation of real estates resulting from implementation of the investment	Area of implementation of the investment	Monitoring of determining owners of real estates, review of current use of real estates, review of real estates' division, review of obtaining rights to real	As specified in LARAP	Implementation of the investment may result in permanent occupation of real estates. It is also likely that restrictions on the current use of real states will be introduced (e.g. demolition of a structure and introduction of ban on construction). Monitoring will allow for managing the process of acquiring real	10 000 PLN/month	5000 PLN/month	LARAP consultant, PIU	LARAP consultant, PIU

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		estates, monitoring of payment of compensation		estates and paying compensations.				
Temporary occupation of real estates resulting from implementation of the investment	Area of implementation of the investment	Monitoring of determining owners of real estates, current use of real estates, obtaining consents for temporary occupation of real estates, concluding agreements regarding temporary occupation of real estates	As specified in LARAP	Implementation of the investment will result in temporary occupation of real estates. It is also likely that temporary restrictions on the current use of real states will be introduced. Monitoring will allow for managing the process of obtaining rights to real estates and paying compensations.	10 000 PLN/month	5000 PLN/month	LARAP consultant, PIU	LARAP consultant, PIU
Category of actions: demolition and reconstruction of colliding elements of infrastructure (e.g. sections of water supply system, sewage systems, roads, etc.)								
Technical infrastructure within the area of impact of the investment	Area of impact of the investment	Monitoring of determining owners of infrastructure, monitoring of obtaining	Depending on demand, not less than once per quarter	Depending on the structures selected for demolition, this category of activities may have impact on different types of infrastructure. It is	10 000 PLN/month	5000 PLN/month	PIU consultant, Investor's Supervision, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		alignments, monitoring of concluding agreements with owners of infrastructure		therefore necessary to determine in detail what type of technical infrastructure is present on the area of implementation of the investment, what the impact of works on the infrastructure is and in what manner minimizing and compensatory means are implemented.				

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 (e.g. by using the State Environmental	Before implementation, during implementation and after completion (the period depends	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration	30 000 PLN/month	5000 PLN/month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		Monitoring methodology)	on the type of habitat being monitored)	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)				
The condition of rare and protected habitats including plant and animal populations	The impact area of the project (the waterbodies and their neighborhood)	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
Category of actions: changing the way of water management on the storage reservoir								
The condition of rare and	The impact area of the project (the	Monitoring of natural habitats (e.g. by using	Before implementation, during	Limitation of intentional and unintentional destruction of natural	30 000 PLN/ month	5000 PLN/ month	PIU consultant, (Environmental Authority),	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
protected habitats	waterbodies and their neighborhood)	the State Environmental Monitoring methodology)	implementation 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, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)			Investment Authority, Contractor	
The condition of rare and protected habitats including plant and animal populations	The impact area of the project (the waterbodies and their neighborhood)	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
Category of actions: construction of embankments/boulevards								

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
The condition of rare and protected habitats	The impact area of the project (the embankment / boulevard and its neighborhood)	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/ month	5000 PLN/ month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected habitats including plant and animal populations	The impact area of the project (the embankment / boulevard and its neighborhood)	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
				relation to the execution of tasks)				
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 Raba with Mszanka	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
Category of actions: modernisation of embankments/boulevards								
The condition of rare and protected habitats	The impact area of the project (the embankment and its neighborhood)	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of	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	30 000 PLN/month	5000 PLN/month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
			habitat being monitored)	habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)				
The condition of rare and protected habitats including plant and animal populations	The impact area of the project (the embankment and its neighborhood)	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural habitats/populations not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The conservation status of habitats and species being the subject of	Natura 2000 Low San Valley, Reserve "Wisła pod Zawichostem"	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental	Before implementation, during implementation and after completion (the period depends	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
protected areas		Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	on the type of habitat or groups of plants and animals being monitored)	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: construction of polders								
The condition of rare and protected habitats	The impact area of the project (the embankment and its neighborhood)	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/month	5000 PLN/month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected	The impact area of the project (the	Monitoring of natural habitats and populations	Before implementation, during	Limitation of intentional and unintentional destruction of natural			PIU consultant, (Environmental Authority),	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
habitats including plant and animal populations	embankment and its neighborhood)	of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	implementation and after completion (the period depends on the type of habitat or groups of plants and animals 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)			Investment Authority, Contractor	
The conservation status of habitats and species protected within the framework of Natura 2000	Natura 2000 "Wiślicka"	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
Category of actions: regulation and maintenance works in riverbeds and inter-embankment lands of natural and artificial parts of water or strongly changed parts of water and drainage ditches								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/month	5000 PLN/month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected habitats including plant and animal populations	The impact area of the project	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology, commonly accepted methodologies for specific	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups of plants and animals being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats/populations, monitoring the measures that minimize destruction of natural			PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		groups of plants and animals)		habitats/populations not intended for removal in relation to the execution of tasks)				
Category of activities: construction of pump stations								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/month	5000 PLN/month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected habitats including plant and animal populations	The impact area of the project	Monitoring of natural habitats and populations of plants and animals (e.g. by using the State Environmental Monitoring methodology,	Before implementation, during implementation and after completion (the period depends on the type of habitat or groups	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 Authority), Investment Authority, Contractor	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
		commonly accepted methodologies for specific groups of plants and animals)	of plants and animals being monitored)	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 activities: reconstruction of bridges								
The condition of rare and protected habitats	The impact area of the project	Monitoring of natural habitats (e.g. by using the State Environmental Monitoring methodology)	Before implementation, during implementation and after completion (the period depends on the type of habitat being monitored)	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of activities (including verification of the duration of the work associated with the destruction of habitats, monitoring the measures that minimize destruction of natural habitats not intended for removal in relation to the execution of tasks)	30 000 PLN/month	5000 PLN/month	PIU consultant, (Environmental Authority), Investment Authority, Contractor	Investor
The condition of rare and protected habitats including	The impact area of the project	Monitoring of natural habitats and populations of plants and animals (e.g. by	Before implementation, during implementation and after	Limitation of intentional and unintentional destruction of natural habitats in the implementation phase of			PIU consultant, (Environmental Authority), Investment	Investor

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Parameter	Localization	Monitoring measures	Frequency	Justification	Costs		Responsibility	
					Stage of implementation	Stage of exploitation	Stage of implementation	Stage of exploitation
plant and animal populations		using the State Environmental Monitoring methodology, commonly accepted methodologies for specific groups of plants and animals)	completion (the period depends on the type of habitat or groups of plants and animals being monitored)	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)			Authority, Contractor	